FULCRUM
environmental consulting

Whitten Oil
Groundwater Monitoring
December 2017
Sampling Report

Whitty's Chevron
370 West 5th Avenue
Colville, Washington 99114

Project Number: 172206.00

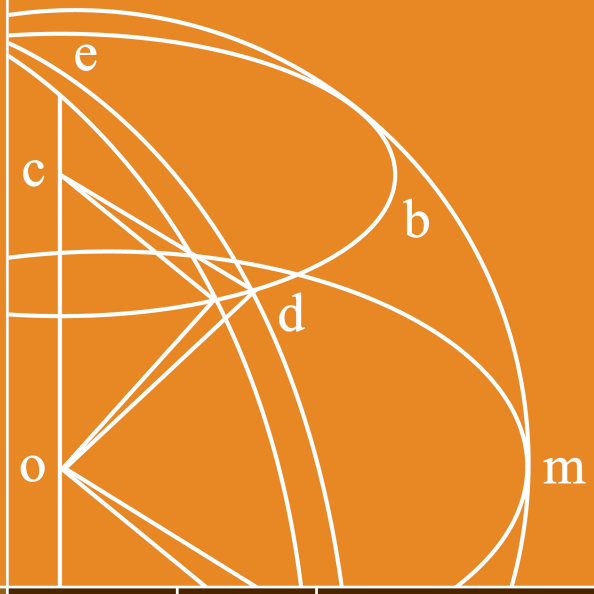
Date: June 19, 2018

Prepared for:

Jeff Whitten
1118 27th Avenue
Seattle, Washington 98122

Prepared by:

Fulcrum Environmental Consulting, Inc.
207 West Boone Avenue
Spokane, Washington 99201



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Spokane, Washington 99201
509.459.9220

The professionals who completed site services and prepared and reviewed this report include, but are not limited to:

Authored by: _____ Date: 06/19/2018

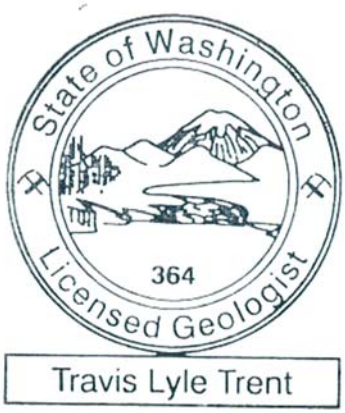
Scott Groat,
Environmental Technician

Reviewed by: _____ Date: 06/19/2018

Amanda S. Johnson, GIT
Environmental Geologist

Reviewed by: _____ Date: 06/19/2018

Travis Trent, PG, CIH
Principal



Report Integrity

Fulcrum Environmental Consulting, Inc.'s scope of service for this project was limited to those services as established in the proposal, contract, verbal direction, and/or agreement. This report is subject to applicable federal, state, and local regulations governing project-specific conditions and was performed using recognized procedures and standards of the industry. Scientific data collected in situ may document conditions that may be specific to the time and day of service, and subject to change as a result of conditions beyond Fulcrum's control or knowledge. Fulcrum makes no warranties, expressed or implied, as to the accuracy or completeness of other's work included herein. Fulcrum has performed these services in accordance with generally accepted environmental science standards of care at the time of the inspection. No warranty, expressed or implied, is made.

Table of Contents

1.0 INTRODUCTION

On December 11, 2017, Fulcrum Environmental Inc. (Fulcrum) completed a quarterly Groundwater Monitoring Event at Whitty's Chevron which is located at 370 West 5th Avenue in Colville, Washington. Monitoring was conducted to evaluate potential petroleum hydrocarbon impact to site groundwater associated with a historic gasoline release identified in September 1989. A general Site Location Map is presented as Figure 1.

Site services were completed by Amanda S. Johnson, a Washington State-recognized Geologist-In-Training with Fulcrum, assisted by Scott Groat, an Environmental Technician also with Fulcrum. Work was completed under the direction of Travis Trent, a Washington State Licensed Geologist and Principal with Fulcrum. Relevant professional certifications are presented in Appendix A.

1.1 Scope of Services

In September 2017, Fulcrum was retained by Whitten Oil (Whitten) to complete groundwater sampling services of existing onsite groundwater monitoring wells at Whitty's Chevron which is located at 370 West 5th Avenue in Colville, Washington. Fulcrum's scope of work consisted of review of provided historic documentation; site reconnaissance to determine the presence and condition of historic on-site groundwater monitoring wells; and sampling of five existing functional groundwater monitoring wells for gasoline and benzene, toluene, ethyl benzene, and xylene (BTEX). Results of the investigation and testing are presented in this summary report.

1.2 Site Description

The site is located on the northeast corner of West Fifth Avenue (U.S. Highway 395) and North Lincoln Street in Colville, Washington. The subject facility functions as an active gasoline service station and car wash. One (1) refueling area containing one (1) dispenser island was observed to be located south of the office building. Another gasoline/diesel refueling area containing two (2) dispenser islands was observed to be located north of the office building. Four (4) operational underground storage tanks (UST) were reported to be located west of the office building within the southern portion of the property: two (2) 10,000-gallon diesel tanks; one (1) 6,000-gallon premium gasoline tank; and one (1) 10,000-gallon unleaded gasoline tank. A six-bay carwash station is located northwest of the office building.

The entire surface of the property was observed to be covered by concrete or asphalt. Beneath the paved surface are 3 to 8 feet (ft) of sandy fill material underlain by fine-grained alluvium. Bedrock was not reported to have been encountered down to 14.5 feet below ground surface (ft bgs) during historic drilling activities.

1.3 Site Hydrogeology

The site sits approximately 1,586 feet (ft) above mean sea level (MSL). The inferred groundwater flow direction is to the northwest, generally following surface topography of the area, with a hydraulic gradient of 0.026.

During Fulcrum's investigation, recorded site groundwater levels ranged from 4.13 to 5.05 ft bgs.

1.4 Background

The following information is summarized in part from prior project reporting provided by the owner. Fulcrum has made no independent investigation to verify accuracy of provided historic site information. A copy of select representative historic documentation is provided in Appendix B.

The subject facility has been in operation as a service station or bulk plant since the 1950s. Whitten Oil began operation around 1973, and the carwash was constructed around 1988. In September 1989 Petroleum Equipment Sales, Inc. (PES) was reportedly retained to decommission and replace onsite USTs during the construction of a new tank basin. Sunrise Environmental Services (SES) was reportedly retained by PES to observe the removal of the USTs and provide recommendations for corrective action. PES reportedly removed a total of six USTs from the site with one UST abandoned in place due to its location beneath the onsite office building. Three of the USTs were reported to have been suspect for leakage. Approximately 1,200 cubic yards of petroleum contaminated soil was removed along with the USTs.

Following removal of the USTs and associated contaminated soils, additional site investigation was conducted to evaluate the potential for residual soil and/or groundwater impact. In January 1990, Delta Environmental Consultants (Delta) supervised drilling activities performed by Budinger & Associates. Six soil borings were drilled in suspected areas of petroleum hydrocarbon contamination to investigate for potential petroleum hydrocarbon impact to site soils/groundwater. The depth of soil borings ranged from 10 to 14.5 ft bgs. Soil samples were collected at five-foot intervals during the advancement of soil borings. Soil samples that exhibited a petroleum hydrocarbon odor were submitted to Technology Laboratory, Inc. of Fort Collins, Colorado for benzene, toluene, ethylbenzene, xylenes (BTEX) and total hydrocarbon analyses. Laboratory analysis identified petroleum hydrocarbons in only one of the collected samples (SB-5). Concentrations were reportedly below Washington State Department of Ecology's specified guidelines at the time.

All soil borings, with the exception of SB-5, were completed as groundwater monitoring wells, and groundwater samples were collected and submitted to Technology Laboratory, Inc. of Fort Collins, Colorado for BTEX and total hydrocarbon analyses. Laboratory analyses for BTEX and total hydrocarbons indicated that the groundwater had been impacted at the subject site. The highest hydrocarbon concentrations were detected in groundwater samples from monitoring wells MW-2 and MW-4, which were located in close proximity to the former UST basin. Detectable hydrocarbon concentrations were also found in downgradient monitoring well MW-6. It was Delta's professional opinion that site conditions posed little threat to humans or the environment due to tight soil conditions, thus preventing contamination from migrating off site. Therefore, no significant remedial action was recommended. Locations of the historic soil borings, monitoring wells, and approximate areas of excavation are presented as Figure 2. Historic soil boring and groundwater monitoring data is presented as Appendix B.

In December 2005, additional soil sampling was conducted by Northwest Environmental Solutions, Inc. to facilitate the change in ownership for the subject site. The investigation consisted of five (5) soil borings drilled in areas proximal to regions of historic soil work or current UST presence. The depth of the soil borings ranged for 5 to 15 ft bgs. One soil sample was collected at the bottom of each soil boring. All five soil samples were submitted to Spectra Laboratories of Tacoma, Washington for lead, methyl tert-butyl ether (MTBE), BTEX, and for concentrations of diesel-range hydrocarbons by Northwest Total Petroleum Hydrocarbons as diesel (NWTPH-Dx), as oil (NWTPH-Oil), and as gasoline (NWTPH-Gx). Detectable analytes (gasoline range petroleum hydrocarbons, ethyl benzene, toluene, xylene, and lead) were reported in soil boring 2-A and (toluene and xylene) were detected in soil borings 2-C and 2-D all below MTCA Method A cleanup levels for soil. The 2005 historic soil boring results and locations are presented as Appendix C.

2.0 DISCUSSION OF PERTINENT REGULATIONS AND GUIDANCE

2.1 MTCA Regulations

In Washington State, MTCA Cleanup Regulations became effective in March of 1989, with amended MTCA Cleanup Regulations effective in February of 2001. The MTCA Cleanup Regulations set standards to ensure quality of cleanup and protection of human health and the environment.

A major portion of the MTCA regulations are the development of numerical cleanup standards and requirements for cleanup actions. MTCA establishes three options for site-specific cleanup levels: Method A, B, and C. Method A defines cleanup levels for 25 to 30 of the most common hazardous substances found in soil and groundwater. Method B cleanup levels are established using applicable state and federal laws, risk assessment equations, and other requirements specified for each medium. Method C is similar to Method B, but cleanup levels are based on less stringent exposure assumptions, and the lifetime cancer risk is set at 1 in 100,000 rather than 1 in 1,000,000.

2.2 MTCA Cleanup Standards

Contaminants of concern at the subject site are gasoline-range hydrocarbons and BTEX, for which regulatory cleanup limits are provided under MTCA Method A. Based on the contaminants released at the subject site, the Method A Cleanup Levels are the most appropriate and conservative for determining site cleanup.

3.0 FIELD ACTIVITIES

3.1 Groundwater Sampling

On December 11, 2017, Fulcrum completed groundwater sampling of the following four (4) monitoring wells; CW-01, CW-02, MW-03, MW-04. Monitoring well MW-06 was filled with ice and groundwater sampling was not possible. Two of the historic monitoring wells, MW-01 and MW-02, were not located during Fulcrum's investigation and have likely been either decommissioned or paved over. Four (4) groundwater samples (WOS-121117-CW01, -CW02, -MW03, -MW04) and one (1) field duplicate sample (WOS-121117-MW7) were collected for a total of five (5) groundwater samples. Prior to sample collection, Fulcrum measured the depth to groundwater (DTW) and depth to bottom (DTB) utilizing an electronic water level indicator accurate to ± 0.01 foot. Elevation corrections were made using wellhead elevation data from the subject site. Sampling activities were completed using a peristaltic pump or submersible pump and Hanna brand water quality instruments.

Samples were placed in a pre-cooled ice chest and shipped under standard chain-of-custody for analysis to Fremont Analytical Inc. (Fremont), a Washington State certified laboratory located in Seattle, Washington. Personnel conducting analysis are trained in accordance with the laboratory's internal quality assurance/quality control (QA/QC) policy. A site diagram map is presented as Figure 3.

4.0 RESULTS

4.1 Laboratory Analytical Results

All groundwater samples were analyzed for concentrations of gasoline-range hydrocarbons by Northwest Total Petroleum Hydrocarbons as Gasoline (NWTPH-Gx), and benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8260c. Table 1 summarizes sample identification, locations, and analyte concentrations, which are reported in micrograms per liter (µg/L). Copies of current laboratory analytical results are presented in Appendix D.

Table 1: Whitty's Chevron Groundwater Analytical Results for December 11, 2017

Results	**(µg/L)**						
Location	Sample #	Groundwater Elevation[1]	Gasoline	Benzene	Toluene	Ethyl-benzene	Xylene
CW-01	WOS-121117-CW1	94.54	ND	ND	ND	ND	ND
CW-02	WOS-121117-CW2	94.36	ND	ND	ND	ND	ND
MW-03	WOS-121117-MW3	93.51	ND	1.65	ND	ND	ND
	WOS-121117-MW7		ND	1.60	ND	ND	ND
MW-04	WOS-121117-MW4	94.17	702	**6.81**	1.07	9.07	ND
MW-06	WOS-121117-MW6	-	-	-	-	-	-
MTCA Cleanup Levels[2]			800*	5	1,000	700	1,000

Bold – MTCA Method A exceedance
ND – Nondetect
- Not Analyzed
µg/L – Micrograms per liter (µg/L), equivalent to parts per billion (ppb)
1 – Elevations are based on an arbitrary datum of 100.00 feet
2 – Model Toxic Cleanup Act Method A Cleanup Levels for groundwater in µg/L, as established by the Washington State Department of Ecology
*Established cleanup level when benzene is present in groundwater
- No parameters collected due to monitoring well being filled with ice

Benzene was detected in the groundwater sample for monitoring well MW-04 at 6.81 µg/L which is above the MTCA Method A cleanup level of 5 µg/L.

Analytical results identified the presence of Gasoline-range hydrocarbons, toluene, and ethylbenzene in the groundwater sample for monitoring well MW-04 at concentrations below the respective MTCA Method A Cleanup Levels. Analytical results identified the presence of benzene in the groundwater sample for monitoring well MW-03 at concentrations below the respective MTCA Method A Cleanup Levels. Laboratory results reported non-detect concentrations for all analytes in CW-01 and CW-02.

4.1.1 Hydraulic Results

The groundwater flow direction, as determined by this sampling and monitoring event, is north-northwest with a hydraulic gradient of 0.026 (0.85-ft change in groundwater depth over 33-feet), which is consistent with site geomorphology. A groundwater elevation map is presented as Figure 4.

4.1.2 Data Quality

Samples were shown as received by the laboratory at an acceptable temperature. Results for Fulcrum's field duplicate were within an acceptable range of variance. Qualifiers were not present in the laboratory quality control (QC) sample results report. Based on reported analytical results, identified cleanup standards, and the absence of lab data qualifiers, it is Fulcrum's opinion that field and laboratory data quality results confirm acceptable accuracy of analytical data.

5.0 DISCUSSION

Review of current groundwater analytical data indicates the following:

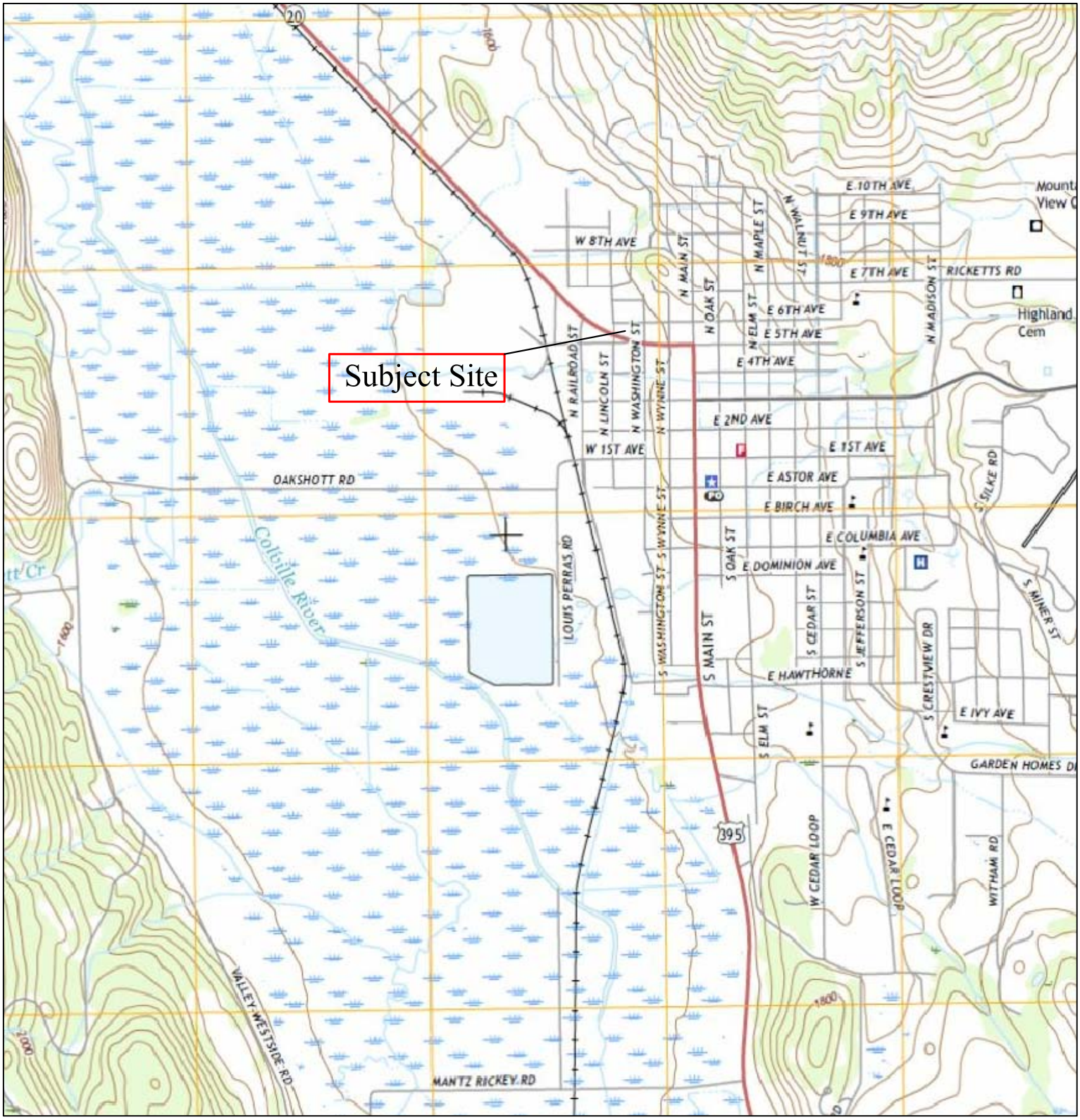
- **CW-01 and CW-02:** Analytical results for groundwater samples collected from CW-01 and CW-02 were reported as non-detect concentrations for gasoline-range hydrocarbons, benzene, toluene, ethyl benzene, and xylene at the laboratory method detection limit.
- **MW-03:** Analytical results for groundwater samples collected from MW-03 reported detectable concentrations of benzene below MTCA Method A cleanup levels. Analytical results reported non-detect concentrations for Gasoline-range hydrocarbons, toluene, ethyl benzene, and xylene at the laboratory method detection limit.
- **MW-04:** Analytical results for groundwater samples collected from MW-04 reported detected concentrations of gasoline-range hydrocarbons, toluene, and ethylbenzene below MTCA Method A cleanup levels. Benzene was detected above MTCA Method A cleanup levels. Analytical results reported non-detect concentrations for toluene at the laboratory method detection limit.
- **MW-06:** This well was filled with ice and was not sampled during this event.

The December 2017 groundwater analytical data indicates contaminant concentrations in all wells to be below MTCA method A cleanup levels with the exception of MW-04.

6.0 RECOMMENDATIONS

Based on the results of this investigation, Fulcrum recommends continued monitoring of existing groundwater monitoring wells to further characterize site groundwater.

FIGURES



LEGEND

Map Location

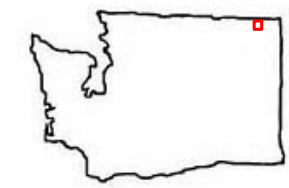


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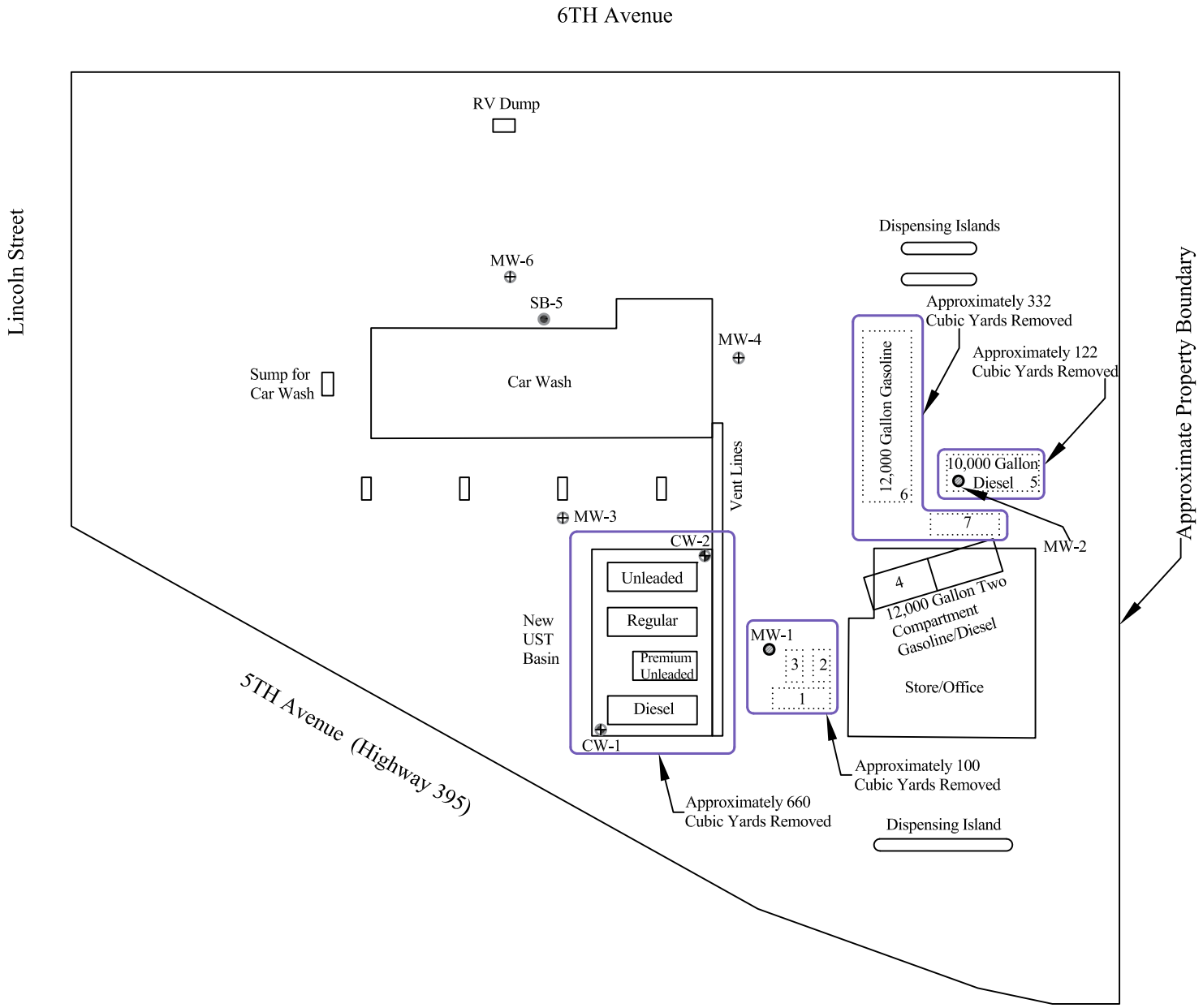
Figure 1: General Site Location Map

Fourth Quarter Groundwater Sampling Event September 2017
Whitty's Chevron
370 West 5th Avenue
Colville, Washington

FULCRUM ENVIRONMENTAL CONSULTING, INC.
207 W. BOONE AVENUE
SPOKANE, WASHINGTON 99201
(509) 459-9220 www.efulcrum.net

MAP BY: S. Groat	PROJECT NUMBER: 172206.00
DATE: January 19, 2017	REVIEWED BY: T. Trent



LEGEND

- Approximate extent of soil excavation
- Existing onsite UST
- Historic UST removed from site
- Historic Soil Boring
- Historic Monitoring Well
- Existing onsite Monitoring Well
- Existing onsite Compliance Well

N

0 30

Approximate Scale In Feet

Figure 2: Historic USTs, Soil Borings, and Monitoring Wells Site Diagram Map

Fourth Quarter Groundwater Sampling Event September 2017
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Colville, Washington

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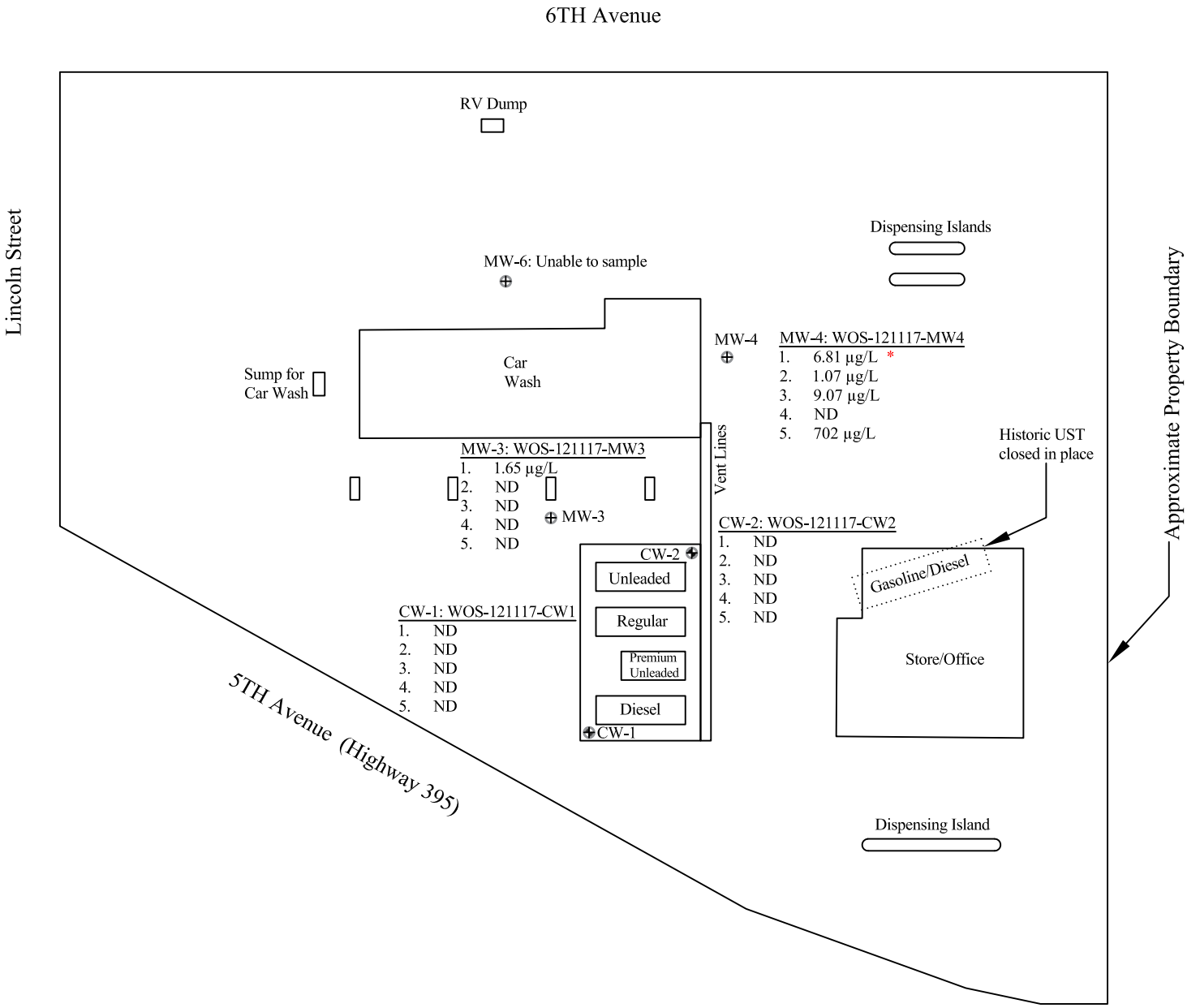

LEGEND

Parameters (µg/L)
1. Benzene
2. Toluene
3. Ethybenzene
4. Xylenes
5. NWTPH-GX

⊕ Monitoring Well

⊕ Compliance Well

* Analyte Concentration Exceeds MTCA Method A Cleanup Level

N

0 30

Approximate Scale In Feet

Figure 3: Site Diagram Map

Fourth Quarter Groundwater Sampling Event September 2017
Whitty's Chevron
370 West 5th Avenue
Colville, Washington

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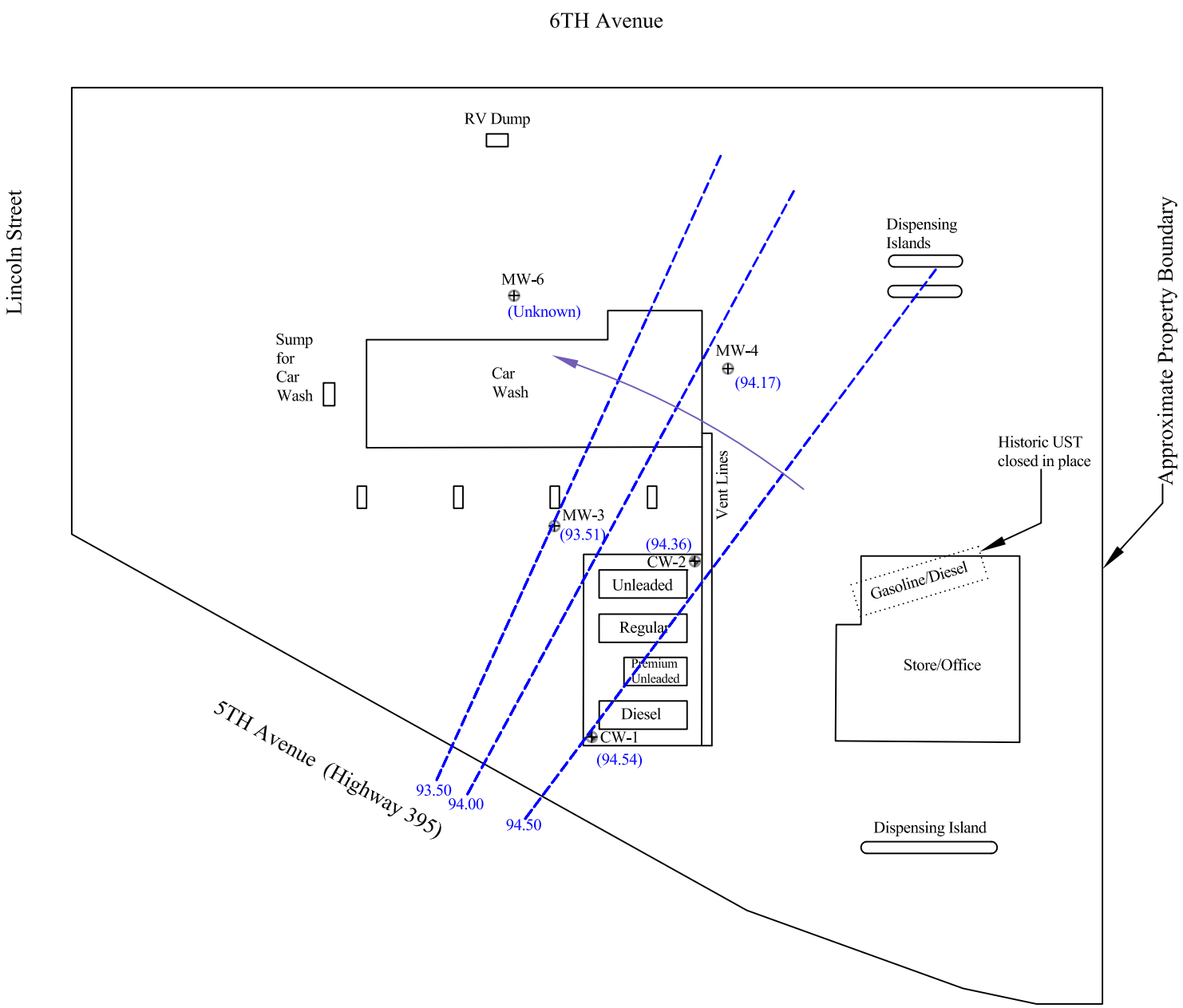

Note:

Elevations are based on an arbitrary datum of 100.00 feet.

LEGEND

Approximate Groundwater Flow Direction & Gradient

93.00 — Groundwater Elevation Contour (In Feet)

(93.00) — Monitoring Well Groundwater Elevation (In Feet)

Monitoring Well

Compliance Well

N

0 30

Approximate Scale In Feet

Figure 4: Groundwater Elevation Map

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Colville, Washington

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MAP BY: S. Groat	PROJECT NUMBER: 172206.00
DATE: January 19, 2017	REVIEWED BY: T. Trent

APPENDIX A

Professional Certifications

STATE OF WASHINGTON

DEPARTMENT OF LICENSING – BUSINESS AND PROFESSIONS DIVISION

THIS CERTIFIES THAT THE PERSON OR BUSINESS NAMED BELOW IS AUTHORIZED AS A

GEOLOGIST
HYDROGEOLOGIST

TRAVIS LYLE TRENT
FULCRUM ENVIRONMENTAL CONSULT.
207 WEST BOONE AVENUE
SPOKANE WA 99201

364	01/08/2002	06/06/2019
License Number	Issued Date	Expiration Date

Pat Kohler
Pat Kohler, Director

PL-630-159 (R/3/16)

APPENDIX B

Historic Data

HISTORIC GROUNDWATER ELEVATION AND ANALYTICAL DATA

Whitty's Chervon

370 West Fifth Avenue
Colville, Washington

Boring ID	Sampling Date	ERP (feet)	DS (feet)	TD (feet)	TPH (µg/L)	NWTPH-Gx (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
SB-1	1/8/1990	*100.20*	---	*15.00*	---	---	---	---	---	---
SB-2	1/8/1990	*99.39*	*10.00*	*15.00*	ND	ND	ND	ND	ND	ND
SB-3	1/9/1990	*99.30*	---	*15.00*	---	---	---	---	---	---
SB-4	1/9/1990	*98.96*	*5.00*	*15.00*	ND	ND	ND	ND	ND	ND
SB-5	1/9/1990	*99.29*	*5.00*	*15.00*	*1,220*	---	*0.476*	*1.38*	*5.62*	*50.2*
SB-6	1/9/1990	*97.87*	---	*15.00*	---	---	---	---	---	---

Well ID	Sampling Date	ERP (feet)	DTW (feet)	GWE (feet)	TPH (µg/L)	NWTPH-Gx (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
CW-1	1/10/1990	*99.50*	*5.82*	*93.68*	---	---	---	---	---	---
	9/13/2017	*99.50*	*5.91*	*93.59*	---	ND	ND	ND	ND	ND
	12/11/2017	*99.50*	*4.96*	*94.54*	---	ND	ND	ND	ND	ND
CW-2	1/10/1990	*99.01*	*5.33*	*93.68*	---	---	---	---	---	---
	9/13/2017	*99.01*	*5.64*	*93.36*	---	ND	ND	ND	ND	ND
	12/11/2017	*99.01*	*4.65*	*94.36*	---	ND	ND	ND	ND	ND
MW-1	1/10/1990	*100.00*	*5.59*	*94.41*	*ND*	---	ND	ND	ND	ND
	Decommissioned									
MW-2	1/10/1990	*98.92*	*4.51*	*94.41*	*2,460*	---	***1,643.0***	*409.00*	*ND*	***2955.00***
	Decommissioned									
MW-3	1/10/1990	*98.56*	*5.77*	*92.79*	*ND*	---	*ND*	*ND*	*ND*	*ND*
	9/13/2017	*98.56*	5.55	93.02	---	131.00	ND	ND	ND	ND
	12/11/2017	*98.56*	5.05	93.51	---	ND	1.65	ND	ND	ND
	12/11/2017	*98.56*	5.05	93.51	---	ND	1.60	ND	ND	ND
MW-4	1/10/1990	*98.27*	*4.06*	*94.21*	*3,050*	---	***118***	*23.00*	*ND*	*284.00*
	9/13/2017	*98.27*	5.32	92.96	---	558.00	4.03	ND	1.51	1.46
	9/13/2017	*98.27*	5.32	92.96	---	547.00	ND	ND	ND	ND
	12/11/2017	*98.27*	4.13	94.17	---	702.00	**6.81**	1.07	9.07	ND
MW-6	1/10/1990	*97.27*	*9.01*	*88.26*	*ND*	---	***9.00***	*5.00*	*15.00*	*80.00*
	9/13/2017	*97.27*	---	---	---	ND	ND	ND	ND	ND
	12/11/2017	*97.27*	---	---	---	---	---	---	---	---
2001 MTCA Method A Cleanup Levels for Groundwater					**NE**	**800**	**5**	**1000**	**700**	**1000**

Notes :

MTCA Method A exceedences shown in bold

Historic Data not collected by Fulcrum shown in italics

NE Not Established. Indvidual analyte thresholds for Total Petroleum Hydrocarbons (TPH) have not been establisl are referenced as the appropriate regulatory values above

TPH Total Petroleum Hydrocarbons
TD Total Boring Depth
DS Depth Sampled
ERP Elevation of riser pipe based on an arbitrary datum of 100.00 feet
DTW Depth to water
GWE Groundwater elevation based on an arbitrary datum of 100.00 feet
NWTPHGx Northwest total petroleum hydrocarbons as gasoline;

Notes :

BTEX	Benzene, toluene, ethylbenzene and total xylenes
µg/L	micrograms per liter or parts per billion
ND	Not detected in concentrations exceeding laboratory method detection limit
---	Not available, not tested, not measured

APPENDIX C

2005 Soil Sampling Results

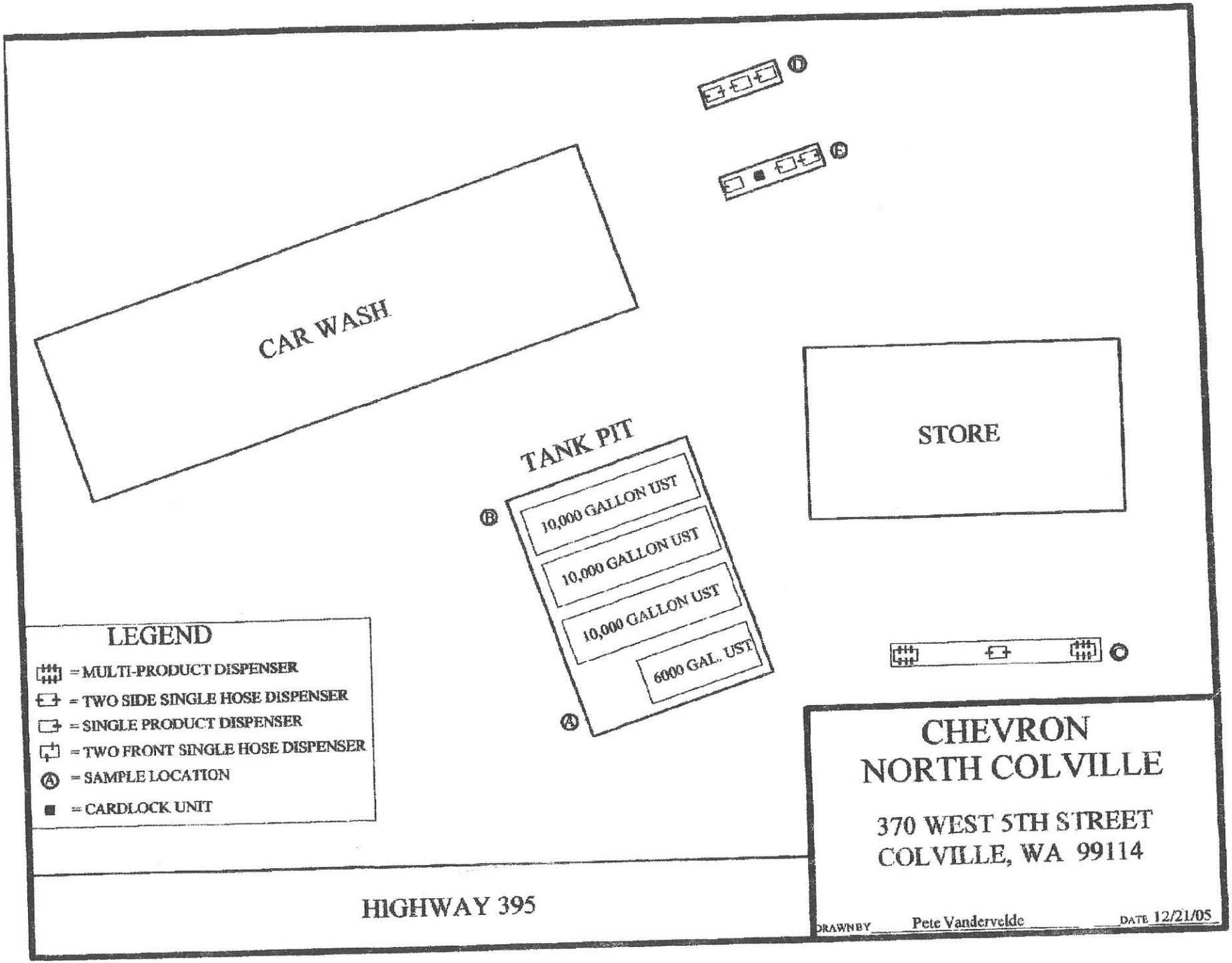

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TABLE 1
SOIL SAMPLE RESULTS
CHEVRON
NORTH COLVILLE

DEPTH OF SAMPLE	15'	14	5'	5'	5'	*CLEANUP STANDARD*
ANALYSES	2-A	2-B	2-C	2-D	2-E	
NWTPH-OIL	<100	<100	<100	<100	<100	*2000 mg/Kg*
NWTPH-DIESEL	<10	<10	<10	<10	<10	*2000 mg/Kg*
NWTPH-GAS	8	<5.0	<5.0	<5.0	<5.0	*100 mg/Kg OR 30mg/Kg*
BENZENE	<0.025	<0.025	<0.025	<0.025	<0.025	*0.03 mg/Kg*
ETHYLBENZENE	0.12	<0.025	<0.025	<0.025	<0.025	*6.0 mg/Kg*
MTBE	<0.025	<0.025	<0.025	<0.025	<0.025	*0.1 mg/Kg*
TOLUENE	0.229	<0.05	0.111	0.066	<0.05	*7.0 mg/Kg*
XYLENE	0.69	<0.05	0.099	0.081	<0.05	*9.0 mg/Kg*
TOTAL LEAD	13	N/A	N/A	N/A	N/A	*250 mg/Kg*

N/A = NOT ANALYZED (verifys analyte is below cleanup standards for highest NWTPH-G concentration reported)

BOLDED RESULTS = ABOVE CLEANUP STANDARDS

ITALICIZED RESULTS = ESTIMATED CONCENTRATION. RESULT IS ABOVE NORMAL CALIBRATION RANGE. FINAL RESULT IS MOST LIKELY HIGHER

<1.25 ? = SAMPLE METHOD DETECTION LIMIT WAS DILUTED ABOVE CLEANUP STANDARD DUE TO HIGH CONCENTRATION OF OTHER ANALYTE DETECTED

Jun 27 04 09:57a Glendon 2538588085 P.4

SPECTRA Laboratories
2221 Ross Way • Tacoma, WA 98421 • (253) 272-4850 • Fax (253) 572-9838 • www.spectra-lab.com

12/16/2005

Northwest Environmental Solutions, Inc
PO Box 1583
Sumner, WA 98390
Attn: Pete Vanderveide

P.O.#: Pd Ck #7160319036
Project: Whitton Oil
Client ID: 2-A
Sample Matrix: Soil
Date Sampled: 12/08/2005
Date Received: 12/12/2005
Spectra Project: 2005120166
Spectra Number: 1
Rush

Analyte	Result	Units	Method
Diesel	<10	mg/Kg	NWTPH-D
Oil	<100	mg/Kg	NWTPH-D
Gasoline	8	mg/Kg	NWTPH-G
Benzene	<0.025	mg/Kg	SW846 8260B
Ethylbenzene	0.12	mg/Kg	SW846 8260B
Methyl-tert-Butyl Ether	<0.025	mg/Kg	SW846 8260B
Toluene	0.229	mg/Kg	SW846 8260B
Total Xylenes	0.69	mg/Kg	SW846 8260B

Surrogate	Recovery	Method
Toluene-d8	111	NWTPH-G
4-Bromofluorobenzene	118	NWTPH-G
p-Terphenyl	98	NWTPH-D

SPECTRA LABORATORIES

Page 1 of 3

SPECTRA Laboratories
2221 Ross Way • Tacoma, WA 98421 • (253) 272-4850 • Fax (253) 572-9838 • www.spectra-lab.com

12/16/2005

Northwest Environmental Solutions, Inc
PO Box 1583
Sumner, WA 98390
Attn: Pete Vandervelde

P.O.#: Pd Ck #7160319036
Project: Whitton Oil
Client ID: 2-B
Sample Matrix: Soil
Date Sampled: 12/08/2005
Date Received: 12/12/2005
Spectra Project: 2005120166
Spectra Number: 2
Rush

Analyte	Result	Units	Method
Diesel	<10	mg/Kg	NWTPH-D
Oil	<100	mg/Kg	NWTPH-D
Gasoline	<5	mg/Kg	NWTPH-G
Benzene	<0.025	mg/Kg	SW846 8260B
Ethylbenzene	<0.025	mg/Kg	SW846 8260B
Methyl-tert-Butyl Ether	<0.025	mg/Kg	SW846 8260B
Toluene	<0.05	mg/Kg	SW846 8260B
Total Xylenes	<0.05	mg/Kg	SW846 8260B

Surrogate	Recovery	Method
Toluene-d8	118	NWTPH-G
4-Bromofluorobenzene	111	NWTPH-G
p-Terphenyl	60	NWTPH-D

SPECTRA LABORATORIES

Steve Hibbs, Laboratory Manager
sh/ish

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12/16/2005

Northwest Environmental Solutions, Inc
PO Box 1583
Sumner, WA 98390
Attn: Pete Vandervelde

P.O.#: Pd Ck #7160319036
Project: Whitton Oil
Client ID: 2-C
Sample Matrix: Soil
Date Sampled: 12/08/2005
Date Received: 12/12/2005
Spectra Project: 2005120166
Spectra Number: 3
Rush

Analyte	Result	Units	Method
Diesel	<10	mg/Kg	NWTPH-D
Oil	<100	mg/Kg	NWTPH-D
Gasoline	<5	mg/Kg	NWTPH-G
Benzene	<0.025	mg/Kg	SW846 8260B
Ethylbenzene	<0.025	mg/Kg	SW846 8260B
Methyl-tert-Butyl Ether	<0.025	mg/Kg	SW846 8260B
Toluene	0.111	mg/Kg	SW846 8260B
Total Xylenes	0.099	mg/Kg	SW846 8260B

Surrogate	Recovery	Method
Toluene-d8	111	NWTPH-G
4-Bromofluorobenzene	119	NWTPH-G
p-Terphenyl	62	NWTPH-D

SPECTRA LABORATORIES

Steve Hibbs, Laboratory Manager
nd/jjh

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12/16/2005

Northwest Environmental Solutions, Inc
PO Box 1583
Sumner, WA 98390
Attn: Pete Vandervelde

P.O.#: Pd Ck #7160319036
Project: Whitton Oil
Client ID: 2-D
Sample Matrix: Soil
Date Sampled: 12/08/2005
Date Received: 12/12/2005
Spectra Project: 2005120166
Spectra Number: 4
Rush

Analyte	Result	Units	Method
Diesel	<10	mg/Kg	NWTPH-D
Oil	<100	mg/Kg	NWTPH-D
Gasoline	<5	mg/Kg	NWTPH-G
Benzene	<0.025	mg/Kg	SW846 8260B
Ethylbenzene	<0.025	mg/Kg	SW846 8260B
Methyl-tert-Butyl Ether	<0.025	mg/Kg	SW846 8260B
Toluene	0.066	mg/Kg	SW846 8260B
Total Xylenes	0.081	mg/Kg	SW846 8260B

Surrogate	Recovery	Method
Toluene-d8	116	NWTPH-G
4-Bromofluorobenzene	112	NWTPH-G
p-Terphenyl	76	NWTPH-D

SPECTRA LABORATORIES

Steve Hibbs, Laboratory Manager
sG/jb

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12/16/2005

Northwest Environmental Solutions, Inc
PO Box 1583
Sumner, WA 98390
Attn: Pete Vandervelde

P.O.#: Pd Ck #7160319036
Project: Whitton Oil
Client ID: 2-E
Sample Matrix: Soil
Date Sampled: 12/08/2005
Date Received: 12/12/2005
Spectra Project: 2005120166
Spectra Number: 5
Rush

Analyte	Result	Units	Method
Diesel	<10	mg/Kg	NWTPH-D
Oil	<100	mg/Kg	NWTPH-D
Gasoline	<5	mg/Kg	NWTPH-G
Benzene	<0.025	mg/Kg	SW846 8260B
Ethylbenzene	<0.025	mg/Kg	SW846 8260B
Methyl-tert-Butyl Ether	<0.025	mg/Kg	SW846 8260B
Toluene	<0.05	mg/Kg	SW846 8260B
Total Xylenes	<0.05	mg/Kg	SW846 8260B

Surrogate	Recovery	Method
Toluene-d8	112	NWTPH-G
4-Bromofluorobenzene	113	NWTPH-G
p-Terphenyl	62	NWTPH-D

SPECTRA LABORATORIES

Steve Hibbs, Laboratory Manager

FROM

APPENDIX D

Laboratory Analytical Results

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

Fulcrum Environmental
Amanda Johnson
207 W Boone Ave.
Spokane, WA 99201

RE: Whitten Oil
Work Order Number: 1712131

December 15, 2017

Attention Amanda Johnson:

Fremont Analytical, Inc. received 5 sample(s) on 12/13/2017 for the analyses presented in the following report.

Gasoline by NWTPH-Gx
Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Chelsea Ward
Project Manager

CC:
Scott Groat
Travis Trent

Date: *12/18/2017*

CLIENT: Fulcrum Environmental
Project: Whitten Oil
Work Order: 1712131

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1712131-001	WDS-121117-MW03	12/11/2017 12:55 PM	12/13/2017 11:01 AM
1712131-002	WDS-121117-MW04	12/11/2017 11:32 AM	12/13/2017 11:01 AM
1712131-003	WDS-121117-CW1	12/11/2017 1:16 PM	12/13/2017 11:01 AM
1712131-004	WDS-121117-CW2	12/11/2017 11:30 AM	12/13/2017 11:01 AM
1712131-005	WDS-121117-MW07	12/11/2017 1:30 PM	12/13/2017 11:01 AM

Case Narrative

WO#: **1712131**
Date: **12/15/2017**

CLIENT: Fulcrum Environmental
Project: Whitten Oil

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

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

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

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

Qualifiers:

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

Acronyms:

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

Analytical Report

Work Order: **1712131**

Date Reported: **12/15/2017**

Client: Fulcrum Environmental

Collection Date: 12/11/2017 12:55:00 PM

Project: Whitten Oil

Lab ID: 1712131-001

Matrix: Groundwater

Client Sample ID: **WDS-121117-MW03**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: 19183		Analyst: NG
Gasoline	ND	50.0		µg/L	1	12/14/2017 5:50:04 AM
Surr: Toluene-d8	104	65 - 135		%Rec	1	12/14/2017 5:50:04 AM
Surr: 4-Bromofluorobenzene	91.9	65 - 135		%Rec	1	12/14/2017 5:50:04 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19183		Analyst: NG
Benzene	1.65	1.00		µg/L	1	12/14/2017 5:50:04 AM
Toluene	ND	1.00		µg/L	1	12/14/2017 5:50:04 AM
Ethylbenzene	ND	1.00		µg/L	1	12/14/2017 5:50:04 AM
m,p-Xylene	ND	1.00		µg/L	1	12/14/2017 5:50:04 AM
o-Xylene	ND	1.00		µg/L	1	12/14/2017 5:50:04 AM
Surr: Dibromofluoromethane	103	45.4 - 152		%Rec	1	12/14/2017 5:50:04 AM
Surr: Toluene-d8	101	40.1 - 139		%Rec	1	12/14/2017 5:50:04 AM
Surr: 1-Bromo-4-fluorobenzene	90.9	64.2 - 128		%Rec	1	12/14/2017 5:50:04 AM

Analytical Report

Work Order: **1712131**
Date Reported: **12/15/2017**

Client: Fulcrum Environmental
Collection Date: 12/11/2017 11:32:00 AM
Project: Whitten Oil
Lab ID: 1712131-002
Matrix: Groundwater
Client Sample ID: **WDS-121117-MW04**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: 19183		Analyst: NG
Gasoline	702	50.0		µg/L	1	12/14/2017 6:18:39 AM
Surr: Toluene-d8	104	65 - 135		%Rec	1	12/14/2017 6:18:39 AM
Surr: 4-Bromofluorobenzene	103	65 - 135		%Rec	1	12/14/2017 6:18:39 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19183		Analyst: NG
Benzene	6.81	1.00		µg/L	1	12/14/2017 6:18:39 AM
Toluene	1.07	1.00		µg/L	1	12/14/2017 6:18:39 AM
Ethylbenzene	9.07	1.00		µg/L	1	12/14/2017 6:18:39 AM
m,p-Xylene	ND	1.00		µg/L	1	12/14/2017 6:18:39 AM
o-Xylene	ND	1.00		µg/L	1	12/14/2017 6:18:39 AM
Surr: Dibromofluoromethane	103	45.4 - 152		%Rec	1	12/14/2017 6:18:39 AM
Surr: Toluene-d8	100	40.1 - 139		%Rec	1	12/14/2017 6:18:39 AM
Surr: 1-Bromo-4-fluorobenzene	102	64.2 - 128		%Rec	1	12/14/2017 6:18:39 AM

Analytical Report

Work Order: **1712131**
Date Reported: **12/15/2017**

Client: Fulcrum Environmental
Collection Date: 12/11/2017 1:16:00 PM
Project: Whitten Oil
Lab ID: 1712131-003
Matrix: Groundwater
Client Sample ID: **WDS-121117-CW1**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: 19183		Analyst: NG
Gasoline	ND	50.0		µg/L	1	12/14/2017 6:47:10 AM
Surr: Toluene-d8	105	65 - 135		%Rec	1	12/14/2017 6:47:10 AM
Surr: 4-Bromofluorobenzene	95.2	65 - 135		%Rec	1	12/14/2017 6:47:10 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19183		Analyst: NG
Benzene	ND	1.00		µg/L	1	12/14/2017 6:47:10 AM
Toluene	ND	1.00		µg/L	1	12/14/2017 6:47:10 AM
Ethylbenzene	ND	1.00		µg/L	1	12/14/2017 6:47:10 AM
m,p-Xylene	ND	1.00		µg/L	1	12/14/2017 6:47:10 AM
o-Xylene	ND	1.00		µg/L	1	12/14/2017 6:47:10 AM
Surr: Dibromofluoromethane	103	45.4 - 152		%Rec	1	12/14/2017 6:47:10 AM
Surr: Toluene-d8	101	40.1 - 139		%Rec	1	12/14/2017 6:47:10 AM
Surr: 1-Bromo-4-fluorobenzene	94.2	64.2 - 128		%Rec	1	12/14/2017 6:47:10 AM

Analytical Report

Work Order: **1712131**
Date Reported: **12/15/2017**

Client: Fulcrum Environmental
Collection Date: 12/11/2017 11:30:00 AM
Project: Whitten Oil
Lab ID: 1712131-004
Matrix: Groundwater
Client Sample ID: **WDS-121117-CW2**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: 19183		Analyst: NG
Gasoline	ND	50.0		µg/L	1	12/14/2017 7:15:48 AM
Surr: Toluene-d8	99.9	65 - 135		%Rec	1	12/14/2017 7:15:48 AM
Surr: 4-Bromofluorobenzene	89.2	65 - 135		%Rec	1	12/14/2017 7:15:48 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19183		Analyst: NG
Benzene	ND	1.00		µg/L	1	12/14/2017 7:15:48 AM
Toluene	ND	1.00		µg/L	1	12/14/2017 7:15:48 AM
Ethylbenzene	ND	1.00		µg/L	1	12/14/2017 7:15:48 AM
m,p-Xylene	ND	1.00		µg/L	1	12/14/2017 7:15:48 AM
o-Xylene	ND	1.00		µg/L	1	12/14/2017 7:15:48 AM
Surr: Dibromofluoromethane	103	45.4 - 152		%Rec	1	12/14/2017 7:15:48 AM
Surr: Toluene-d8	101	40.1 - 139		%Rec	1	12/14/2017 7:15:48 AM
Surr: 1-Bromo-4-fluorobenzene	88.2	64.2 - 128		%Rec	1	12/14/2017 7:15:48 AM

Analytical Report

Work Order: **1712131**
Date Reported: **12/15/2017**

Client: Fulcrum Environmental
Collection Date: 12/11/2017 1:30:00 PM
Project: Whitten Oil
Lab ID: 1712131-005
Matrix: Groundwater
Client Sample ID: **WDS-121117-MW07**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: 19183		Analyst: NG
Gasoline	ND	50.0		µg/L	1	12/14/2017 7:44:29 AM
Surr: Toluene-d8	101	65 - 135		%Rec	1	12/14/2017 7:44:29 AM
Surr: 4-Bromofluorobenzene	90.0	65 - 135		%Rec	1	12/14/2017 7:44:29 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 19183		Analyst: NG
Benzene	1.60	1.00		µg/L	1	12/14/2017 7:44:29 AM
Toluene	ND	1.00		µg/L	1	12/14/2017 7:44:29 AM
Ethylbenzene	ND	1.00		µg/L	1	12/14/2017 7:44:29 AM
m,p-Xylene	ND	1.00		µg/L	1	12/14/2017 7:44:29 AM
o-Xylene	ND	1.00		µg/L	1	12/14/2017 7:44:29 AM
Surr: Dibromofluoromethane	103	45.4 - 152		%Rec	1	12/14/2017 7:44:29 AM
Surr: Toluene-d8	102	40.1 - 139		%Rec	1	12/14/2017 7:44:29 AM
Surr: 1-Bromo-4-fluorobenzene	88.9	64.2 - 128		%Rec	1	12/14/2017 7:44:29 AM

Work Order: 1712131
CLIENT: Fulcrum Environmental
Project: Whitten Oil

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID	LCS-19183	SampType:	LCS	Units:	µg/L	Prep Date:	12/13/2017	RunNo:	40478
Client ID:	LCSW	Batch ID:	19183			Analysis Date:	12/13/2017	SeqNo:	779605

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	524	50.0	500.0	0	105	65	135				
Surr: Toluene-d8	24.7		25.00		98.9	65	135				
Surr: 4-Bromofluorobenzene	24.6		25.00		98.2	65	135				

Sample ID	LCSD-19183	SampType:	LCSD	Units:	µg/L	Prep Date:	12/13/2017	RunNo:	40478
Client ID:	LCSW02	Batch ID:	19183			Analysis Date:	12/13/2017	SeqNo:	779604

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	530	50.0	500.0	0	106	65	135	523.7	1.26	20	
Surr: Toluene-d8	24.9		25.00		99.5	65	135		0		
Surr: 4-Bromofluorobenzene	24.4		25.00		97.4	65	135		0		

Sample ID	MB-19183	SampType:	MBLK	Units:	µg/L	Prep Date:	12/13/2017	RunNo:	40478
Client ID:	MBLKW	Batch ID:	19183			Analysis Date:	12/13/2017	SeqNo:	779606

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0									
Surr: Toluene-d8	25.4		25.00		101	65	135				
Surr: 4-Bromofluorobenzene	22.9		25.00		91.5	65	135				

Sample ID	1712124-003ADUP	SampType:	DUP	Units:	µg/L	Prep Date:	12/13/2017	RunNo:	40478
Client ID:	BATCH	Batch ID:	19183			Analysis Date:	12/14/2017	SeqNo:	779595

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0						0		30	
Surr: Toluene-d8	26.4		25.00		106	65	135		0		
Surr: 4-Bromofluorobenzene	22.7		25.00		90.8	65	135		0		

Work Order: 1712131
CLIENT: Fulcrum Environmental
Project: Whitten Oil

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-19183** SampType: **LCS** Units: **µg/L** Prep Date: **12/13/2017** RunNo: **40477**
Client ID: **LCSW** Batch ID: **19183** Analysis Date: **12/13/2017** SeqNo: **779589**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.2	1.00	20.00	0	106	69.3	132				
Toluene	20.8	1.00	20.00	0	104	61.3	145				
Ethylbenzene	20.6	1.00	20.00	0	103	72	130				
m,p-Xylene	40.8	1.00	40.00	0	102	70.3	134				
o-Xylene	20.3	1.00	20.00	0	101	72.1	131				
Surr: Dibromofluoromethane	25.9		25.00		104	45.4	152				
Surr: Toluene-d8	25.5		25.00		102	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	26.4		25.00		106	64.2	128				

Sample ID **LCSD-19183** SampType: **LCSD** Units: **µg/L** Prep Date: **12/13/2017** RunNo: **40477**
Client ID: **LCSW02** Batch ID: **19183** Analysis Date: **12/13/2017** SeqNo: **779588**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.1	1.00	20.00	0	100	69.3	132	21.21	5.59	20	
Toluene	19.6	1.00	20.00	0	97.8	61.3	145	20.75	5.93	20	
Ethylbenzene	19.4	1.00	20.00	0	97.2	72	130	20.60	5.78	20	
m,p-Xylene	38.6	1.00	40.00	0	96.5	70.3	134	40.75	5.41	20	
o-Xylene	19.3	1.00	20.00	0	96.3	72.1	131	20.26	5.09	20	
Surr: Dibromofluoromethane	25.9		25.00		104	45.4	152		0		
Surr: Toluene-d8	25.4		25.00		102	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	26.4		25.00		106	64.2	128		0		

Sample ID **MB-19183** SampType: **MBLK** Units: **µg/L** Prep Date: **12/13/2017** RunNo: **40477**
Client ID: **MBLKW** Batch ID: **19183** Analysis Date: **12/13/2017** SeqNo: **779590**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00									
Toluene	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									

Work Order: 1712131
CLIENT: Fulcrum Environmental
Project: Whitten Oil

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-19183**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **12/13/2017**	RunNo: **40477**
Client ID: **MBLKW**	Batch ID: **19183**		Analysis Date: **12/13/2017**	SeqNo: **779590**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	1.00									
Surr: Dibromofluoromethane	25.4		25.00		102	45.4	152				
Surr: Toluene-d8	25.3		25.00		101	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	22.6		25.00		90.4	64.2	128				

Sample ID **1712133-002ADUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **12/13/2017**	RunNo: **40477**
Client ID: **BATCH**	Batch ID: **19183**		Analysis Date: **12/13/2017**	SeqNo: **779579**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						0		30	
Toluene	ND	1.00						0		30	
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	1.00						0		30	
Surr: Dibromofluoromethane	25.6		25.00		103	45.4	152		0		
Surr: Toluene-d8	25.2		25.00		101	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	22.7		25.00		90.6	64.2	128		0		

Sample ID **1712124-003ADUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **12/13/2017**	RunNo: **40477**
Client ID: **BATCH**	Batch ID: **19183**		Analysis Date: **12/14/2017**	SeqNo: **779569**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						0		30	
Toluene	ND	1.00						0		30	
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	1.00						0		30	
Surr: Dibromofluoromethane	25.8		25.00		103	45.4	152		0		
Surr: Toluene-d8	25.3		25.00		101	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	22.4		25.00		89.8	64.2	128		0		

Work Order: 1712131
CLIENT: Fulcrum Environmental
Project: Whitten Oil

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1712124-003ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **12/13/2017** RunNo: **40477**
Client ID: **BATCH** Batch ID: **19183** Analysis Date: **12/14/2017** SeqNo: **779569**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample Log-In Check List

Client Name:	**FES**	Work Order Number:	**1712131**
Logged by:	**Brianna Barnes**	Date Received:	**12/13/2017 11:01:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	FedEx		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☑	No ☐	Not Required ☐
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☑	NA ☐
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	1.3
Sample	2.3

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 12/12/17 Page: 1 of: 1

Laboratory Project No (internal): 171231

Project Name: Whitten Oil

Project No: 172206.00

Collected by: S. Groat / A. Johnson

Location: Colville, WA

Report To (PM): Amanda Johnson

PM Email: ajohnson@efulcrum.net

Special Remarks: Please cc results to: sgroat@efulcrum.net ttrent@efulcrum.net

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

Client: Fulcrum Environmental Cons.

Address: 207 W. Boone Ave

City, State, Zip: Spokane, WA 99201

Telephone: (509) 459-9220

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	WOS-121117-MW03	12/11/17	1255	GW		X											
2	-MW04		1132			X											
3	-CW1		1316			X											
4	-CW2		1130			X											
5	-MW07		1330			X											
6	TRIP BLANK	NA	NA			X											
7																	
8																	
9																	
10																	

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Amanda S. Johnson	12/12/17 1700	x	12/13/17 1101
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:
- ☒ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☐ Next Day
- Same Day _____ (specify)

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 12/12/17 Page: 1 of: 1

Laboratory Project No (internal): 171231

Project Name: Whitten Oil

Project No: 172206.00

Collected by: S. Groat / A. Johnson

Location: Colville, WA

Report To (PM): Amanda Johnson

PM Email: ajohnson@efulcrum.net

Special Remarks: Please cc results to: sgroat@efulcrum.net ttrent@efulcrum.net

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

Client: Fulcrum Environmental Cons.

Address: 207 W. Boone Ave

City, State, Zip: Spokane, WA 99201

Telephone: (509) 459-9220

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	WDS-121117-MW03	12/11/17	1255	GW		X												
2	-MW04		1132			X												
3	-CW1		1316			X												
4	-CW2		1130			X												
5	-MW07		1330			X												
6	~~TRIP BLANK~~	~~NA~~	~~NA~~			X												No trip blank received BB 12/14
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

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- ☐ 3 Day
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- Same Day ____ (specify)

Relinquished	Date/Time	Received	Date/Time
x Amanda S. Johnson	12/12/17 1700	x	12/13/17 1101
Relinquished	Date/Time	Received	Date/Time
x		x	