FULCRUM
environmental consulting

Whitten Oil
Groundwater Monitoring
March 2018
Sampling Report

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

Project Number: 172206.00

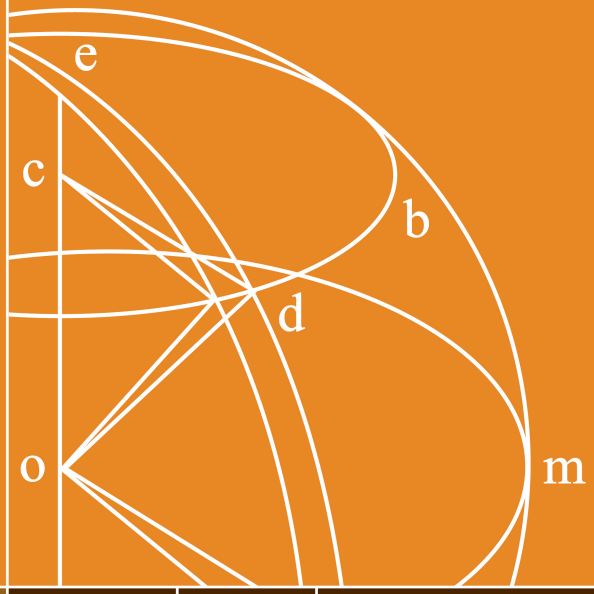
Date: June 19, 2018

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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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, GIT
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Reviewed by: _____ Date: 06/19/2018

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Environmental Geologist

Reviewed by: _____ Date: 06/19/2018

Travis Trent, PG, CIH
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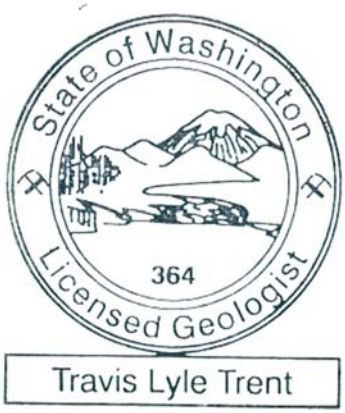

Report Integrity

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.

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1.0 INTRODUCTION

On March 26, 2018, 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 impacts 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 and Scott Groat, both Washington State-recognized Geologists-In-Training 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 (5) 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 0.032.

During Fulcrum's investigation, recorded site groundwater levels ranged from 3.75 to 5.24 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 (6) USTs from the site with one (1) UST abandoned in place due to its location beneath the onsite office building. Three (3) 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 (6) 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 from 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 March 26, 2018, Fulcrum completed groundwater sampling of the following five (5) monitoring wells; CW-01, CW-02, MW-03, MW-04, and MW-06. 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. Five (5) groundwater samples (WOS-032618-CW01, -CW02, -MW03, -MW04, -MW06) and one (1) field duplicate sample (WOS-032618-MW7) were collected for a total of six (6) 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 March 26, 2018

Results	**(µg/L)**						
Location	Sample #	Groundwater Elevation[1]	Gasoline	Benzene	Toluene	Ethyl-benzene	Xylene
CW-01	WOS-032618-CW1	94.79	ND	ND	ND	ND	ND
	WOS-032618-MW7		ND	ND	ND	ND	ND
CW-02	WOS-032618-CW2	94.62	ND	ND	ND	ND	ND
MW-03	WOS-032618-MW3	94.12	ND	ND	ND	ND	ND
MW-04	WOS-032618-MW4	94.52	302	4.63	1.34	15.7	ND
MW-06	WOS-032618-MW6	92.03	404	ND	ND	ND	ND
MTCA Cleanup Levels[2]			800*	5	1,000	700	1,000

Bold – MTCA Method A exceedance
ND – Nondetect
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

Gasoline-range hydrocarbons were detected in the groundwater sample for monitoring well MW-04 at 302 µg/L and in MW-06 at 404 µg/L which are below the MTCA Method A cleanup level of 800 µg/L.

Analytical results identified the presence of benzene, toluene, and ethylbenzene in the groundwater sample for monitoring well MW-04 at concentrations below the respective MTCA Method A Cleanup Levels. Laboratory results report non-detect concentrations for benzene, toluene, ethyl-benzene, and Xylene in MW-06. Laboratory results reported non-detect concentrations for all analytes in CW-01 CW-02, and MW-03.

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 0.032 (2.76-ft change in groundwater depth over 87-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:

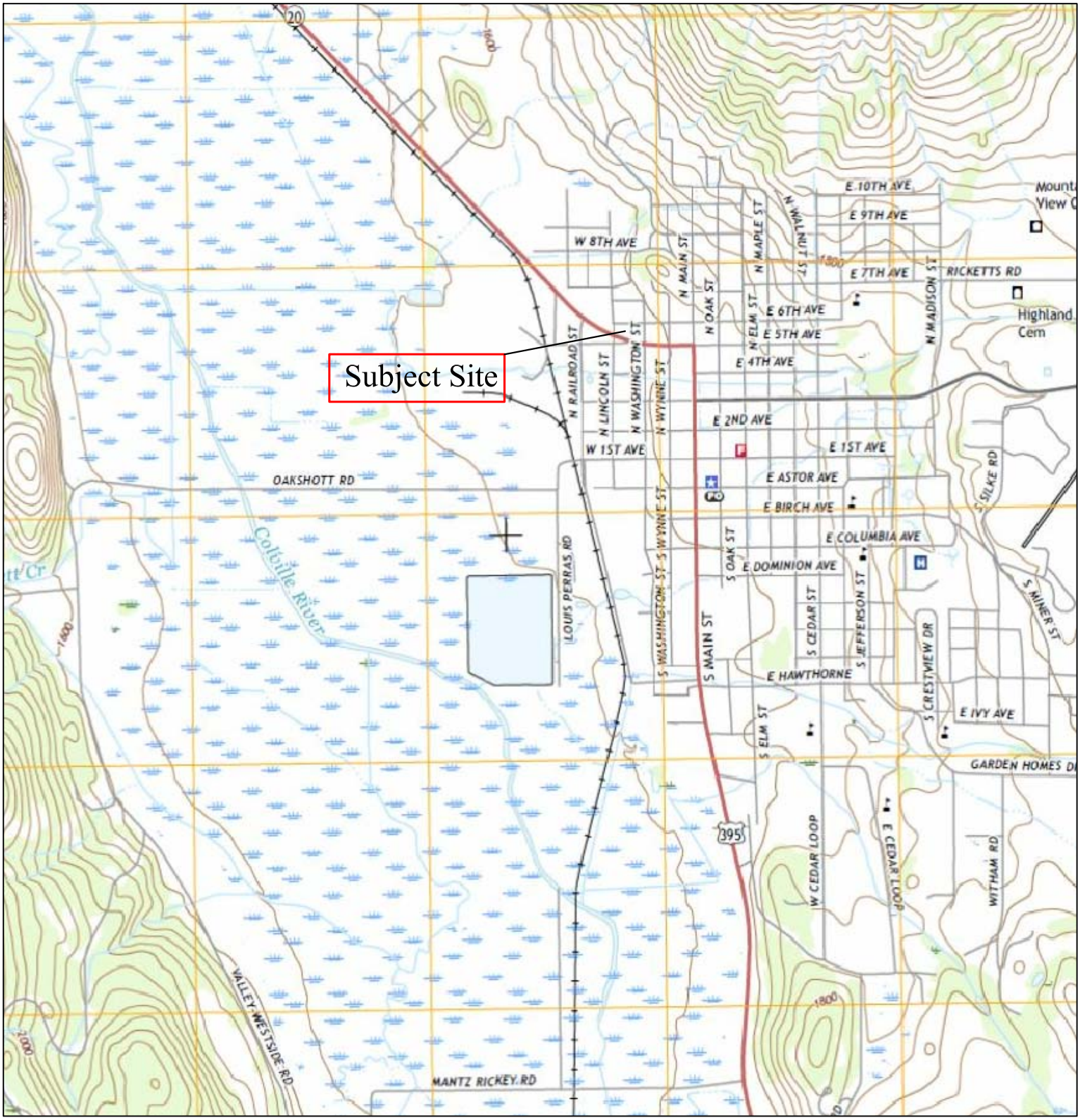
- **CW-01 and CW-02:** Analytical results for groundwater samples collected from CW-01 and CW-02 were reported as non-detect concentrations for gasoline-range hydrocarbons, benzene, toluene, ethyl benzene, and xylene at the laboratory method detection limit.
- **MW-03:** Analytical results for groundwater samples collected from MW-03 were reported as non-detect concentrations for gasoline-range hydrocarbons, benzene, toluene, ethyl benzene, and xylene at the laboratory method detection limit.
- **MW-04:** Analytical results for groundwater samples collected from MW-04 reported detectable concentrations of gasoline-range hydrocarbons, benzene, ethyl benzene, and toluene below MTCA Method A cleanup levels. Analytical results reported nondetect concentrations for xylene at the laboratory method detection limit.
- **MW-06:** Analytical results for groundwater samples collected from MW-06 reported detectable concentrations of gasoline-range hydrocarbons below MTCA Method A cleanup levels. Analytical results reported nondetect concentrations for benzene, toluene, ethyl benzene, and xylene at the laboratory method detection limit.

The March 2018 groundwater analytical data indicates contaminant concentrations in all wells to be below MTCA method A cleanup levels.

6.0 RECOMMENDATIONS

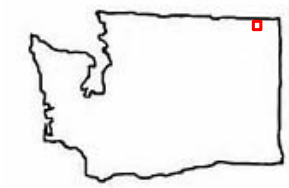
Based on the results of this investigation, Fulcrum recommends continued monitoring of existing groundwater monitoring wells to further characterize site groundwater.

FIGURES



LEGEND

Map Location



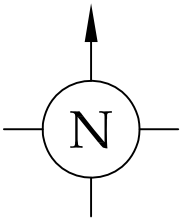
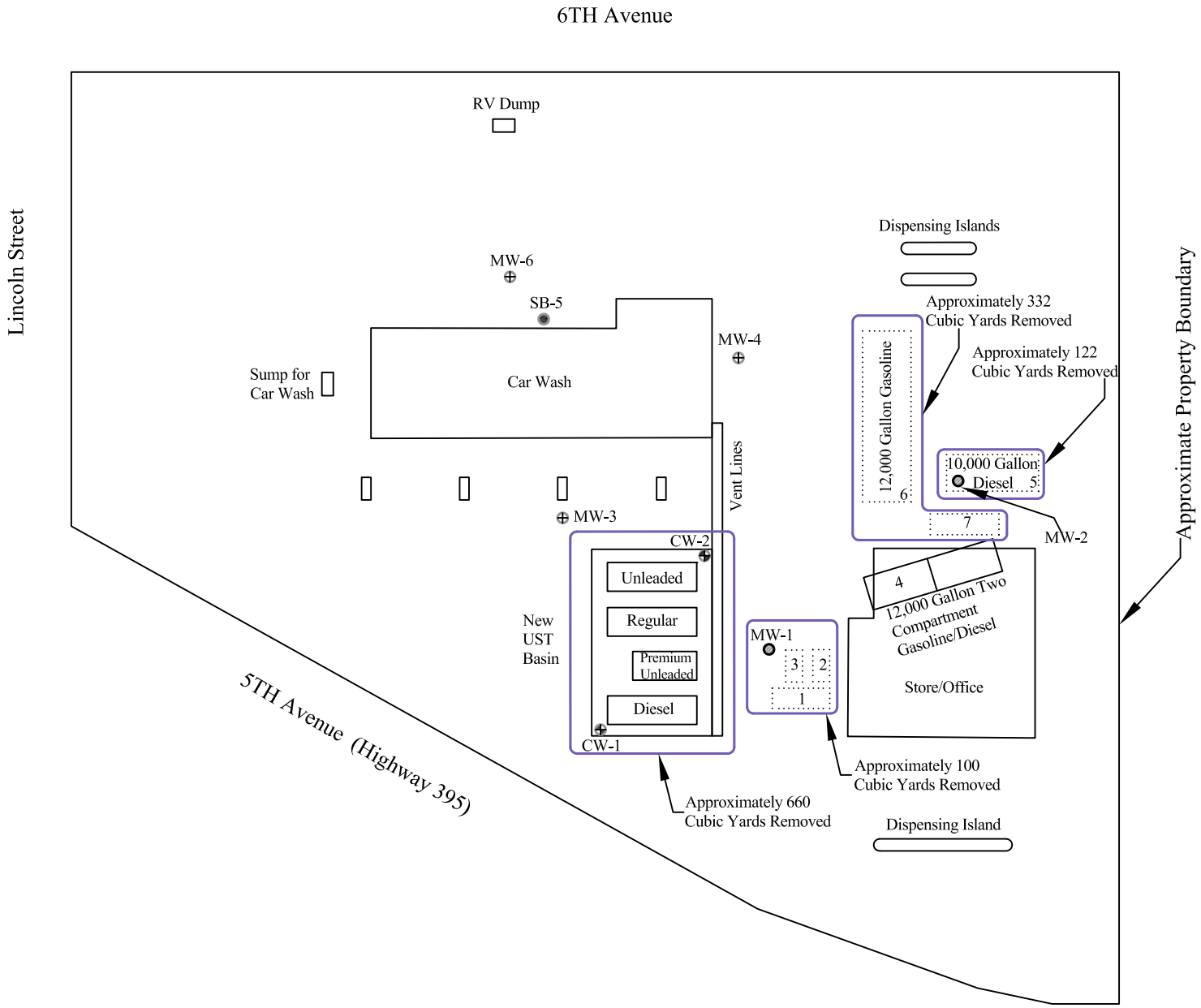


Figure 1: General Site Location Map

First Quarter Groundwater Sampling Event March 2018
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: May 17, 2018	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

First Quarter Groundwater Sampling Event March 2018
Whitty's Chevron
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Colville, Washington

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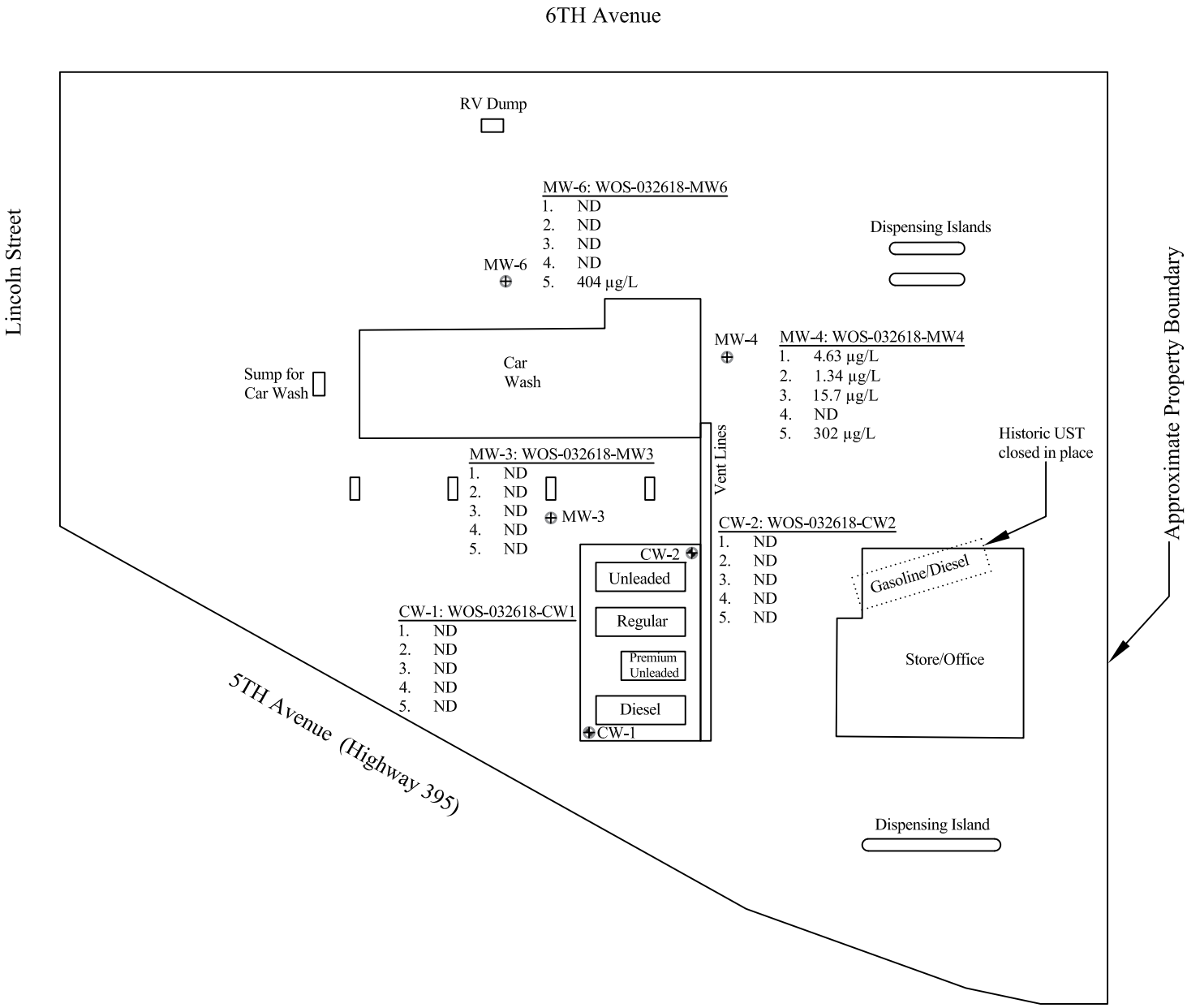

LEGEND

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

⊕ Monitoring Well

⊕ Compliance Well

N

0 30

Approximate Scale In Feet

Figure 3: Site Diagram Map

First Quarter Groundwater Sampling Event March 2018
Whitty's Chevron
370 West 5th Avenue
Colville, Washington

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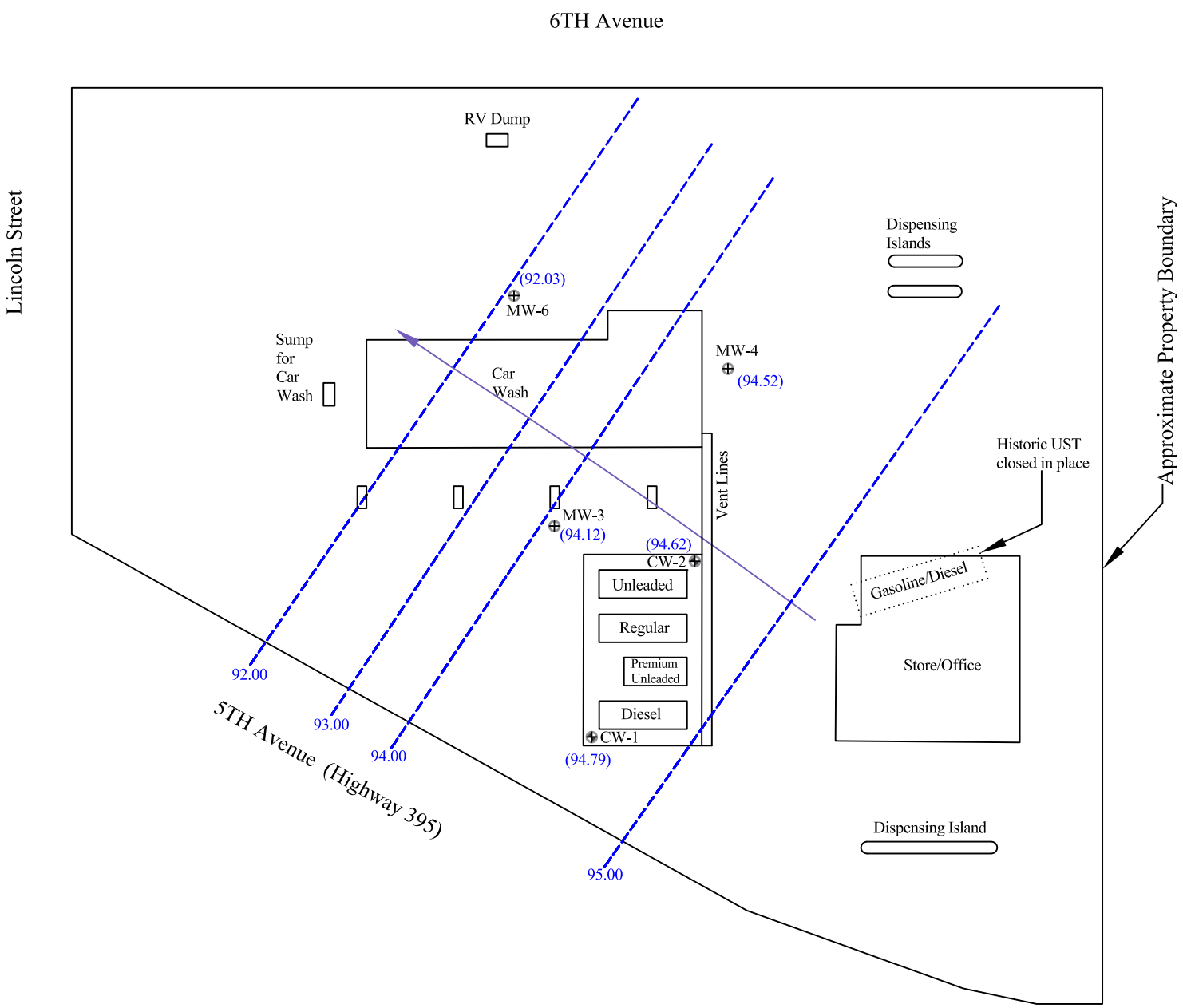

Note:

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

First Quarter Groundwater Sampling Event March 2018
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MAP BY: S. Groat	PROJECT NUMBER: 172206.00
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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
	3/26/2018	*99.50*	*4.71*	*94.79*	---	ND	ND	ND	ND	ND
	3/26/2018	*99.50*	*4.71*	*94.79*	---	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
	3/26/2018	*99.01*	*4.39*	*94.62*						
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
	3/26/2018	*98.56*	4.44	94.12	---	ND	ND	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
	3/26/2018	*98.27*	3.75	94.52	---	302.00	4.63	1.34	15.70	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*	---	---	---	---	---	---	---	---
	3/26/2018	*97.27*	*5.24*	*92.03*	---	404.00	ND	ND	ND	ND
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

Notes :

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;
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

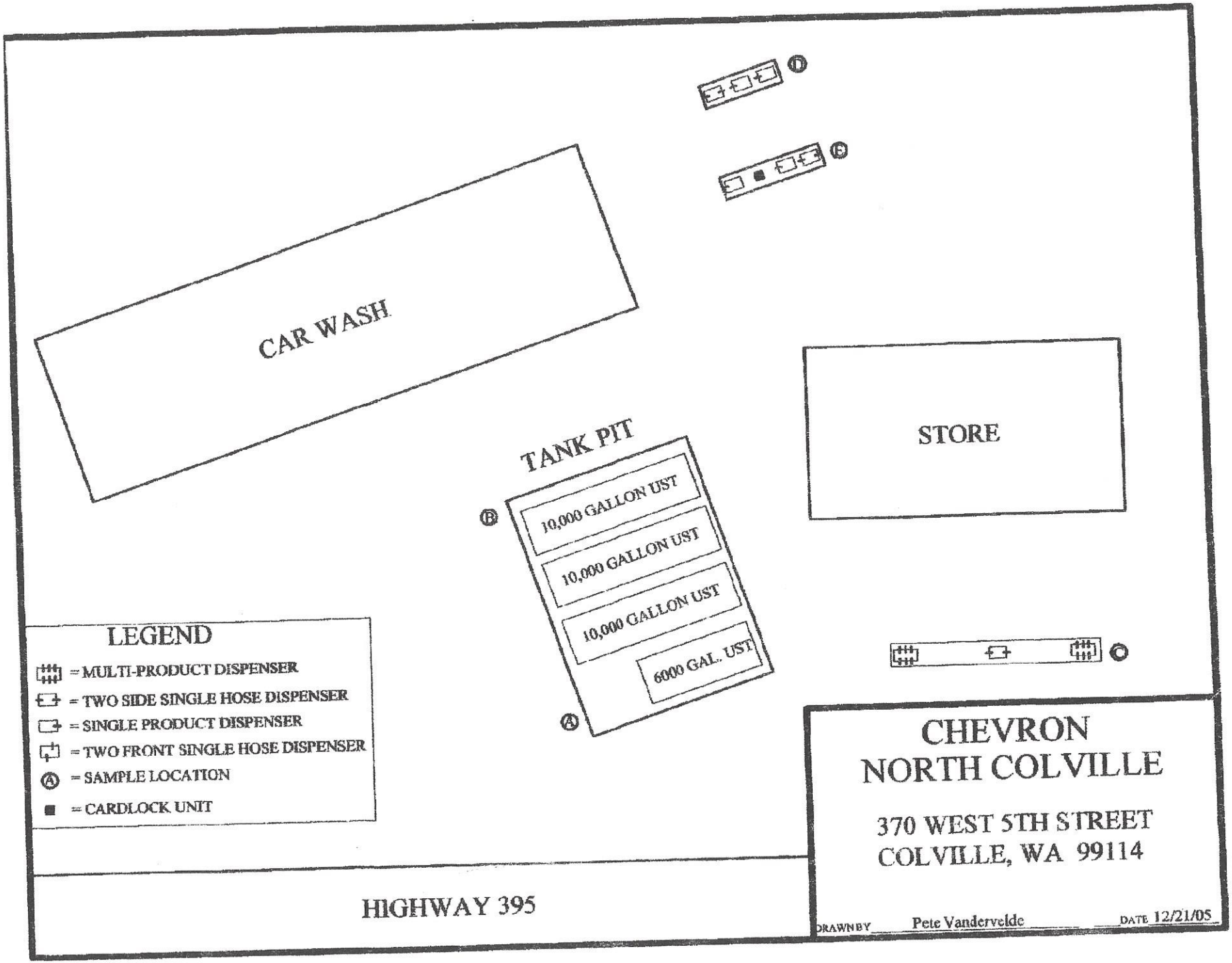

TABLE 1
SOIL SAMPLE RESULTS
CHEVRON
NORTH COLVILLE

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

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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

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Page 1 of 3

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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-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

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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 Groundwater
Work Order Number: 1803378

April 04, 2018

Attention Amanda Johnson:

Fremont Analytical, Inc. received 6 sample(s) on 3/28/2018 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

Date: *04/04/2018*

CLIENT: Fulcrum Environmental
Project: Whitten Oil Groundwater
Work Order: 1803378

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1803378-001	WOS-032618-CW1	03/26/2018 11:15 AM	03/28/2018 12:35 PM
1803378-002	WOS-032618-CW2	03/26/2018 1:12 PM	03/28/2018 12:35 PM
1803378-003	WOS-032618-MW3	03/26/2018 11:23 AM	03/28/2018 12:35 PM
1803378-004	WOS-032618-MW4	03/26/2018 1:00 PM	03/28/2018 12:35 PM
1803378-005	WOS-032618-MW6	03/26/2018 3:20 PM	03/28/2018 12:35 PM
1803378-006	WOS-032618-MW7	03/26/2018 12:57 PM	03/28/2018 12:35 PM

Case Narrative

WO#: **1803378**
Date: **4/4/2018**

CLIENT: Fulcrum Environmental
Project: Whitten Oil Groundwater

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").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. 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 and the MS/MSD 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: **1803378**
Date Reported: **4/4/2018**

Client: Fulcrum Environmental
Collection Date: 3/26/2018 11:15:00 AM
Project: Whitten Oil Groundwater
Lab ID: 1803378-001
Matrix: Groundwater
Client Sample ID: **WOS-032618-CW1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: 20220		Analyst: TN
Gasoline	ND	50.0		µg/L	1	4/2/2018 5:26:00 AM
Surr: Toluene-d8	98.3	65 - 135		%Rec	1	4/2/2018 5:26:00 AM
Surr: 4-Bromofluorobenzene	96.4	65 - 135		%Rec	1	4/2/2018 5:26:00 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 20220		Analyst: TN
Benzene	ND	1.00		µg/L	1	4/2/2018 5:26:00 AM
Toluene	ND	1.00		µg/L	1	4/2/2018 5:26:00 AM
Ethylbenzene	ND	1.00		µg/L	1	4/2/2018 5:26:00 AM
m,p-Xylene	ND	1.00		µg/L	1	4/2/2018 5:26:00 AM
o-Xylene	ND	1.00		µg/L	1	4/2/2018 5:26:00 AM
Surr: Dibromofluoromethane	97.3	45.4 - 152		%Rec	1	4/2/2018 5:26:00 AM
Surr: Toluene-d8	97.3	40.1 - 139		%Rec	1	4/2/2018 5:26:00 AM
Surr: 1-Bromo-4-fluorobenzene	97.1	64.2 - 128		%Rec	1	4/2/2018 5:26:00 AM

Analytical Report

Work Order: **1803378**
Date Reported: **4/4/2018**

Client: Fulcrum Environmental
Collection Date: 3/26/2018 1:12:00 PM
Project: Whitten Oil Groundwater
Lab ID: 1803378-002
Matrix: Groundwater
Client Sample ID: **WOS-032618-CW2**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: 20220		Analyst: TN
Gasoline	ND	50.0		µg/L	1	4/2/2018 6:26:07 AM
Surr: Toluene-d8	99.8	65 - 135		%Rec	1	4/2/2018 6:26:07 AM
Surr: 4-Bromofluorobenzene	95.8	65 - 135		%Rec	1	4/2/2018 6:26:07 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 20220		Analyst: TN
Benzene	ND	1.00		µg/L	1	4/2/2018 6:26:07 AM
Toluene	ND	1.00		µg/L	1	4/2/2018 6:26:07 AM
Ethylbenzene	ND	1.00		µg/L	1	4/2/2018 6:26:07 AM
m,p-Xylene	ND	1.00		µg/L	1	4/2/2018 6:26:07 AM
o-Xylene	ND	1.00		µg/L	1	4/2/2018 6:26:07 AM
Surr: Dibromofluoromethane	94.9	45.4 - 152		%Rec	1	4/2/2018 6:26:07 AM
Surr: Toluene-d8	97.0	40.1 - 139		%Rec	1	4/2/2018 6:26:07 AM
Surr: 1-Bromo-4-fluorobenzene	95.3	64.2 - 128		%Rec	1	4/2/2018 6:26:07 AM

Analytical Report

Work Order: **1803378**
Date Reported: **4/4/2018**

Client: Fulcrum Environmental
Collection Date: 3/26/2018 11:23:00 AM
Project: Whitten Oil Groundwater
Lab ID: 1803378-003
Matrix: Groundwater
Client Sample ID: **WOS-032618-MW3**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: 20220		Analyst: TN
Gasoline	ND	50.0		µg/L	1	4/2/2018 6:56:14 AM
Surr: Toluene-d8	101	65 - 135		%Rec	1	4/2/2018 6:56:14 AM
Surr: 4-Bromofluorobenzene	97.9	65 - 135		%Rec	1	4/2/2018 6:56:14 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 20220		Analyst: TN
Benzene	ND	1.00		µg/L	1	4/2/2018 6:56:14 AM
Toluene	ND	1.00		µg/L	1	4/2/2018 6:56:14 AM
Ethylbenzene	ND	1.00		µg/L	1	4/2/2018 6:56:14 AM
m,p-Xylene	ND	1.00		µg/L	1	4/2/2018 6:56:14 AM
o-Xylene	ND	1.00		µg/L	1	4/2/2018 6:56:14 AM
Surr: Dibromofluoromethane	93.4	45.4 - 152		%Rec	1	4/2/2018 6:56:14 AM
Surr: Toluene-d8	96.1	40.1 - 139		%Rec	1	4/2/2018 6:56:14 AM
Surr: 1-Bromo-4-fluorobenzene	96.7	64.2 - 128		%Rec	1	4/2/2018 6:56:14 AM

Analytical Report

Work Order: **1803378**
Date Reported: **4/4/2018**

Client: Fulcrum Environmental
Collection Date: 3/26/2018 1:00:00 PM
Project: Whitten Oil Groundwater
Lab ID: 1803378-004
Matrix: Groundwater
Client Sample ID: **WOS-032618-MW4**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: 20220		Analyst: TN
Gasoline	302	50.0		µg/L	1	4/2/2018 8:26:42 AM
Surr: Toluene-d8	99.7	65 - 135		%Rec	1	4/2/2018 8:26:42 AM
Surr: 4-Bromofluorobenzene	101	65 - 135		%Rec	1	4/2/2018 8:26:42 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 20220		Analyst: TN
Benzene	4.63	1.00		µg/L	1	4/2/2018 8:26:42 AM
Toluene	1.34	1.00		µg/L	1	4/2/2018 8:26:42 AM
Ethylbenzene	15.7	1.00		µg/L	1	4/2/2018 8:26:42 AM
m,p-Xylene	1.69	1.00		µg/L	1	4/2/2018 8:26:42 AM
o-Xylene	ND	1.00		µg/L	1	4/2/2018 8:26:42 AM
Surr: Dibromofluoromethane	98.6	45.4 - 152		%Rec	1	4/2/2018 8:26:42 AM
Surr: Toluene-d8	95.4	40.1 - 139		%Rec	1	4/2/2018 8:26:42 AM
Surr: 1-Bromo-4-fluorobenzene	99.0	64.2 - 128		%Rec	1	4/2/2018 8:26:42 AM

Analytical Report

Work Order: **1803378**
Date Reported: **4/4/2018**

Client: Fulcrum Environmental
Collection Date: 3/26/2018 3:20:00 PM
Project: Whitten Oil Groundwater
Lab ID: 1803378-005
Matrix: Groundwater
Client Sample ID: **WOS-032618-MW6**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: 20220		Analyst: TN
Gasoline	404	50.0		µg/L	1	4/2/2018 7:26:26 AM
Surr: Toluene-d8	96.8	65 - 135		%Rec	1	4/2/2018 7:26:26 AM
Surr: 4-Bromofluorobenzene	97.1	65 - 135		%Rec	1	4/2/2018 7:26:26 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 20220		Analyst: TN
Benzene	ND	1.00		µg/L	1	4/2/2018 7:26:26 AM
Toluene	ND	1.00		µg/L	1	4/2/2018 7:26:26 AM
Ethylbenzene	ND	1.00		µg/L	1	4/2/2018 7:26:26 AM
m,p-Xylene	ND	1.00		µg/L	1	4/2/2018 7:26:26 AM
o-Xylene	ND	1.00		µg/L	1	4/2/2018 7:26:26 AM
Surr: Dibromofluoromethane	95.3	45.4 - 152		%Rec	1	4/2/2018 7:26:26 AM
Surr: Toluene-d8	97.4	40.1 - 139		%Rec	1	4/2/2018 7:26:26 AM
Surr: 1-Bromo-4-fluorobenzene	95.2	64.2 - 128		%Rec	1	4/2/2018 7:26:26 AM

Analytical Report

Work Order: **1803378**
Date Reported: **4/4/2018**

Client: Fulcrum Environmental
Collection Date: 3/26/2018 12:57:00 PM
Project: Whitten Oil Groundwater
Lab ID: 1803378-006
Matrix: Groundwater
Client Sample ID: **WOS-032618-MW7**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: 20220		Analyst: TN
Gasoline	ND	50.0		µg/L	1	4/2/2018 7:56:36 AM
Surr: Toluene-d8	100	65 - 135		%Rec	1	4/2/2018 7:56:36 AM
Surr: 4-Bromofluorobenzene	99.3	65 - 135		%Rec	1	4/2/2018 7:56:36 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 20220		Analyst: TN
Benzene	ND	1.00		µg/L	1	4/2/2018 7:56:36 AM
Toluene	ND	1.00		µg/L	1	4/2/2018 7:56:36 AM
Ethylbenzene	ND	1.00		µg/L	1	4/2/2018 7:56:36 AM
m,p-Xylene	ND	1.00		µg/L	1	4/2/2018 7:56:36 AM
o-Xylene	ND	1.00		µg/L	1	4/2/2018 7:56:36 AM
Surr: Dibromofluoromethane	94.5	45.4 - 152		%Rec	1	4/2/2018 7:56:36 AM
Surr: Toluene-d8	95.7	40.1 - 139		%Rec	1	4/2/2018 7:56:36 AM
Surr: 1-Bromo-4-fluorobenzene	99.2	64.2 - 128		%Rec	1	4/2/2018 7:56:36 AM

Work Order: 1803378
CLIENT: Fulcrum Environmental
Project: Whitten Oil Groundwater

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID	LCS-20220	SampType:	LCS	Units:	µg/L	Prep Date:	3/31/2018	RunNo:	42596
Client ID:	LCSW	Batch ID:	20220			Analysis Date:	4/1/2018	SeqNo:	822184

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	490	50.0	500.0	0	98.0	65	135				
Surr: Toluene-d8	24.5		25.00		98.2	65	135				
Surr: 4-Bromofluorobenzene	25.0		25.00		99.8	65	135				

Sample ID	LCSD-20220	SampType:	LCSD	Units:	µg/L	Prep Date:	3/31/2018	RunNo:	42596
Client ID:	LCSW02	Batch ID:	20220			Analysis Date:	4/1/2018	SeqNo:	822185

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	485	50.0	500.0	0	97.0	65	135	489.8	0.986	20	
Surr: Toluene-d8	24.9		25.00		99.8	65	135		0		
Surr: 4-Bromofluorobenzene	25.3		25.00		101	65	135		0		

Sample ID	MB-20220	SampType:	MBLK	Units:	µg/L	Prep Date:	3/31/2018	RunNo:	42596
Client ID:	MBLKW	Batch ID:	20220			Analysis Date:	4/1/2018	SeqNo:	822186

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0									
Surr: Toluene-d8	25.1		25.00		100	65	135				
Surr: 4-Bromofluorobenzene	25.3		25.00		101	65	135				

Sample ID	1803344-016ADUP	SampType:	DUP	Units:	µg/L	Prep Date:	3/31/2018	RunNo:	42596
Client ID:	BATCH	Batch ID:	20220			Analysis Date:	4/1/2018	SeqNo:	822171

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	25.1		25.00		100	65	135		0		
Surr: 4-Bromofluorobenzene	24.8		25.00		99.3	65	135		0		

Work Order: 1803378
CLIENT: Fulcrum Environmental
Project: Whitten Oil Groundwater

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **1803378-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/31/2018** RunNo: **42596**
Client ID: **WOS-032618-CW1** Batch ID: **20220** Analysis Date: **4/2/2018** SeqNo: **822175**

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	24.1		25.00		96.6	65	135		0		
Surr: 4-Bromofluorobenzene	24.3		25.00		97.0	65	135		0		

Work Order: 1803378
CLIENT: Fulcrum Environmental
Project: Whitten Oil Groundwater

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-20220** SampType: **LCS** Units: **µg/L** Prep Date: **3/31/2018** RunNo: **42595**
Client ID: **LCSW** Batch ID: **20220** Analysis Date: **4/1/2018** SeqNo: **822166**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.6	1.00	20.00	0	103	69.3	132				
Toluene	20.4	1.00	20.00	0	102	61.3	145				
Ethylbenzene	21.6	1.00	20.00	0	108	72	130				
m,p-Xylene	44.2	1.00	40.00	0	111	70.3	134				
o-Xylene	21.4	1.00	20.00	0	107	72.1	131				
Surr: Dibromofluoromethane	25.3		25.00		101	45.4	152				
Surr: Toluene-d8	23.6		25.00		94.4	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.1		25.00		100	64.2	128				

Sample ID **LCSD-20220** SampType: **LCSD** Units: **µg/L** Prep Date: **3/31/2018** RunNo: **42595**
Client ID: **LCSW02** Batch ID: **20220** Analysis Date: **4/1/2018** SeqNo: **822167**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.2	1.00	20.00	0	101	69.3	132	20.56	1.60	20	
Toluene	20.1	1.00	20.00	0	100	61.3	145	20.45	1.78	20	
Ethylbenzene	21.3	1.00	20.00	0	106	72	130	21.56	1.26	20	
m,p-Xylene	43.0	1.00	40.00	0	108	70.3	134	44.22	2.76	20	
o-Xylene	21.2	1.00	20.00	0	106	72.1	131	21.40	0.977	20	
Surr: Dibromofluoromethane	25.3		25.00		101	45.4	152		0		
Surr: Toluene-d8	23.6		25.00		94.5	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	24.9		25.00		99.6	64.2	128		0		

Sample ID **MB-20220** SampType: **MBLK** Units: **µg/L** Prep Date: **3/31/2018** RunNo: **42595**
Client ID: **MBLKW** Batch ID: **20220** Analysis Date: **4/1/2018** SeqNo: **822168**

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: 1803378
CLIENT: Fulcrum Environmental
Project: Whitten Oil Groundwater

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-20220** SampType: **MBLK** Units: **µg/L** Prep Date: **3/31/2018** RunNo: **42595**
Client ID: **MBLKW** Batch ID: **20220** Analysis Date: **4/1/2018** SeqNo: **822168**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	1.00									
Surr: Dibromofluoromethane	23.3		25.00		93.2	45.4	152				
Surr: Toluene-d8	23.7		25.00		94.8	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.5		25.00		102	64.2	128				

Sample ID **1803344-016ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/31/2018** RunNo: **42595**
Client ID: **BATCH** Batch ID: **20220** Analysis Date: **4/1/2018** SeqNo: **822144**

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	24.1		25.00		96.2	45.4	152		0		
Surr: Toluene-d8	23.1		25.00		92.3	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	25.2		25.00		101	64.2	128		0		

Sample ID **1803378-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/31/2018** RunNo: **42595**
Client ID: **WOS-032618-CW1** Batch ID: **20220** Analysis Date: **4/2/2018** SeqNo: **822157**

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	24.0		25.00		95.8	45.4	152		0		
Surr: Toluene-d8	24.1		25.00		96.3	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	23.9		25.00		95.5	64.2	128		0		

Work Order: 1803378
CLIENT: Fulcrum Environmental
Project: Whitten Oil Groundwater

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1803378-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/31/2018** RunNo: **42595**
Client ID: **WOS-032618-CW1** Batch ID: **20220** Analysis Date: **4/2/2018** SeqNo: **822157**

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:	**1803378**
Logged by:	**Brianna Barnes**	Date Received:	**3/28/2018 12:35:00 PM**

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	2.8
Sample	2.3
Temp Blank	0.6

* 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: 03/27/18 Page: 1 of: 1

Laboratory Project No (internal): 19033790

Project Name: Whitten Oil Groundwater

Special Remarks: cc: sgroat@efulcrum.net

Project No: 172206.00

Client: Fulcrum Environmental

Collected by: A Johnson & S. Groat

Address: 207 West Boone Ave

Location: 370 West 5th Avenue

City, State, Zip: 99201

Report To (PM): Amanda Johnson

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

Telephone: 509-459-9220

PM Email: ajohnson@efulcrum.net

Fax: 509-459-9219

	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-032618-CW1	03/26/18	11:15	GW		✓												
2	WOS-032618-CW2	03/26/18	13:12	GW		✓												
3	WOS-032618-MW3	03/26/18	11:23	GW		✓												
4	WOS-032618-MW4	03/26/18	13:00	GW		✓												
5	WOS-032618-MW6	03/26/18	15:20	GW		✓												
6	WOS-032618-MW7	03/26/18	12:57	GW		✓												
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): Individual:

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

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

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 Scott Groat	3/27/2018	x	3/28/18 1235
x Scott Groat	3/27/2018	x	