

August 8, 2018

Whitley Fuel Company  
c/o Mr. Ben Whitley  
1617 2<sup>nd</sup> Avenue North  
Okanogan, Washington 98840

**RE: Whitley Fuels Tanker Spill - Groundwater Monitoring Event, June 2018**  
**Loss 83A012312-1 Whitley Fuel LLC**  
**WA Facility/Site ID No.: 357**  
**Cleanup Site ID No.: 4757**

Dear Mr. Whitley,

Fulcrum Environmental Consulting, Inc. (Fulcrum) has completed groundwater sampling of three (3) onsite groundwater monitoring wells at the Whitley Fuels Tanker Spill site located on Washington State Highway 2 (Highway 2) approximately 0.5 miles east of Monitor, Washington (site). The site is situated south of Highway 2 along the southern boundary of a Washington Department of Transportation Right-of-Way and along the northern boundary of the Wenatchee River County Park (Chelan County Parcel No. 231913625077). Groundwater sampling was completed to evaluate groundwater conditions as a result of a 1991 fuel tanker accident. The site is identified in Washington State Databases as WA Facility/Site ID 357 and as Cleanup Site ID 4757.

Groundwater sampling activities were completed by Kyle Ames, a Washington State-recognized Geologist-In-Training with Fulcrum. Project services were completed under the direction of Travis Trent, a Washington State Licensed Hydrogeologist also with Fulcrum. See Attachment A for relevant professional certifications. See Figure 1 in Attachment B for a general site location map.

### **Background**

On July 24, 1991, a transporter tanker truck owned by Whitley Fuels Company of Okanogan, Washington, was involved in an accident at the site and released 10,000 gallons of gasoline fuel along the south side of Highway 2. A resulting fire consumed an unknown amount of fuel.

In 1992, approximately 1,300 cubic yards of petroleum contaminated soil was removed under the supervision of DRT Environmental Consultants, Inc. Confirmation sampling at the time indicated successful removal of contaminated soils except for a localized area of gasoline and benzene

contaminated soils beneath Highway that could not be removed without impacting the integrity of the highway.

In 1994, three (3) onsite groundwater monitoring wells were installed following soil cleanup activities and completed as follows:

MW-01: Upgradient and westernmost well at 8.31 feet below ground surface (bgs) depth

MW-02: Historical spill site location and north-central well at 11.78 feet bgs depth

MW-03: Downgradient and easternmost well at 10.48 feet bgs depth

Groundwater at the site has been established by historical sampling data to flow in a southeast direction. See Figure 2 in Attachment B for a monitoring well location and gradient map.

Since 1994, sampling had occurred on an about-annual schedule. However, MW-01 and MW-02 were “lost” during extensive flooding in 1996 and were not sampled until they were relocated and excavated in 2016. MW-01 is viewed as hydrogeologically upgradient and has never had contaminants detected above established regulatory thresholds. MW-02 is located within the footprint of the original gasoline release. Since sampling began in 1994, MW-02 has shown contaminant presence with progressively lower values of gasoline and gasoline constituents. Since the recovery of MW-02 in 2016, all analytes detected have been found to be below MTCA clean up levels. Similarly, MW-03, as the downgradient well, initially exhibited high values for gasoline and benzene with a declining trend in concentration values over time. No contaminants above applicable regulatory thresholds have been identified in any of the three wells over seven consecutive quarterly monitoring events completed prior to the sampling event outlined in this report.

### Scope of Work

Fulcrum’s scope of work for this groundwater monitoring event consisted of collection and analysis of groundwater samples from three (3) onsite monitoring wells. Fulcrum utilized portions of the following documents as guidance criteria for current confirmation sampling protocol:

- *Practical Guidance for Ground-Water Sampling*, Michael J. Barcelona, James P. Gibb, John A. Helfrich, and Edward E. Garske, dated November 1985.
- American Standard of Testing and Materials International (ASTM) D4448 – 01(2013) *Standard Guide for Sampling Ground-Water Monitoring Wells*.
- *Model Toxics Control Act Statute and Regulations*, Washington State Department of Ecology Publication No. 94-06, Revised November 2007.

Samples were collected using a peristaltic pump with disposable tubing and followed standard sample collection procedures. Field measurements for pH, total dissolved solids, dissolved oxygen

content, turbidity, conductivity, temperature, and oxygen-reduction potential were collected utilizing a Horiba W-20 Series water quality monitoring system which was calibrated prior to sampling. Collected groundwater samples were submitted under chain-of-custody to Fremont Analytical, Inc., a Washington State Department of Ecology accredited laboratory in Seattle, Washington, for analysis.

Fulcrum has evaluated analytical results against the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup thresholds. Application of the MTCA Method A cleanup levels during this portion of the project was determined as most appropriate and intended for initial evaluation, and use of these established cleanup levels does not exclude the potential for reevaluation of site contaminants by other methods or other applicable standards at any time.

### Field Activities

On June 25, 2018, Fulcrum completed sampling of site groundwater wells MW-01, MW-02, and MW-03. All wells were found with sufficient water and were purged and sampled using a peristaltic pump with clean and new disposable polyethylene tubing. One (1) groundwater sample was collected from each monitoring well as well as one (1) field duplicate sample (MW-01 labeled as MW-04) for a total of four (4) samples total.

Fulcrum utilized pH, total dissolved solids, turbidity, conductivity, temperature, oxygen-reduction potential, and purge volume in accordance with ASTM Standards to confirm adequate purging of the wells prior to sample collection.

### Analytical Results

Samples were submitted for the following analysis:

- Northwest Total Petroleum Hydrocarbon (NWTPH) – Gasoline (Gx)
- Volatile Organic Compounds by Environmental Protection Agency (EPA) Method 8260 – Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX)
- Methane by RSK-175
- Ions (Nitrite, Nitrate, Sulfate, Alkalinity) by EPA Method 300.0
- Dissolved Manganese (Mn) by EPA Method 200.8

Tables 1 through 3 below summarize individual well groundwater sampling results for quarterly sampling conducted at the site by Fulcrum since September of 2016. Results are presented in micrograms of analyte per Liter of water ( $\mu\text{g/L}$ ), which is equal to parts per billion (ppb). See Attachment C for the complete quarterly laboratory analytical report. See Figure 2 for a groundwater concentration and flow map.

**Table 1: Laboratory Data for MW-01**

Analyte	Contaminants					Geochemical Indicators					
	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	Nitrite	Nitrate	Sulfate	Manganese	Alkalinity	Methane
9/19/2016	ND	ND	ND	ND	ND	ND	2,430	9,510	28	103,000	5
12/7/2016	ND	ND	4.84	ND	ND	ND	1,330	8,930	23.9	104,000	74
3/9/2017	ND	ND	ND	ND	ND	ND	761	11,500	26.9	102,000	48.6
6/5/2017	ND	ND	ND	ND	ND	ND	ND	7,240	397	-	60.6
9/20/2017	ND	ND	ND	ND	ND	ND	2,060	9,170	26.5	110,000	13.5
12/26/2017	ND	ND	1.57	ND	1.74	ND	441	6,800	50.7	106,000	742
3/28/2018	ND	ND	ND	ND	ND	ND	942	8,060	18.3	105,000	158
6/25/2018	243	ND	ND	ND	ND	ND	ND	1,320	55.6	149,000	34.6
<b>MTCA Method A CUL</b>	<b>800</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>1,000</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>

All values are presented in micrograms per Liter (µg/L)

Contaminant Concentrations above MTCA are shown in **BOLD**

ND – Non Detect

NE – Not Established

**Table 2: Laboratory Data for MW-02**

Analyte	Contaminants					Geochemical Indicators					
	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	Nitrite	Nitrate	Sulfate	Manganese	Alkalinity	Methane
9/19/2016	ND	ND	ND	ND	ND	ND	ND	28,400	4,980	597,000	34.6
12/7/2016	140	ND	ND	ND	ND	ND	897	4,600	2,640	384,000	34.6
3/9/2017	ND	ND	ND	ND	ND	ND	13,400	30,300	463	424,000	8.17
6/5/2017	ND	ND	ND	ND	ND	ND	ND	19,800	1,290	-	64.6
9/20/2017	68.9	ND	ND	ND	ND	ND	ND	24,800	2,960	269,000	905
12/26/2017	108	ND	ND	1.8	2.26	ND	ND	1,550	2,490	374,000	1,300
3/28/2018	ND	ND	ND	ND	ND	ND	1,540	26,400	2,430	495,000	123
6/25/2018	ND	ND	ND	ND	ND	ND	500	13,100	3,380	528,000	202
<b>MTCA Method A CUL</b>	<b>800</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>1,000</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>

All values are presented in micrograms per Liter (µg/L)

Contaminant Concentrations above MTCA are shown in **BOLD**

ND – Non Detect

NE – Not Established

**Table 3: Laboratory Data for MW-03**

Analyte	Contaminants					Geochemical Indicators					
	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	Nitrite	Nitrate	Sulfate	Manganese	Alkalinity	Methane
9/19/2016	ND	1.94	ND	ND	ND	ND	ND	ND	790	543,000	810
12/7/2016	391	4.87	ND	ND	ND	ND	1,120	1,640	1,480	675,000	879
3/9/2017	ND	ND	ND	ND	ND	ND	ND	183,000	248	1,180,000	14.2
6/5/2017	467	3.7	ND	ND	ND	ND	ND	39,000	1,650	-	2,890
9/20/2017	72.6	ND	ND	ND	ND	ND	980	8,240	1,190	904,000	47.9
12/26/2017	ND	1.02	ND	ND	1.88	ND	ND	3,890	2,280	707,000	4.26
3/28/2018	ND	ND	ND	ND	ND	ND	ND	93,800	1,690	1,090,000	283
6/25/2018	ND	ND	ND	ND	ND	ND	ND	95,900	4,030	1,390,000	553
<b>MTCA Method A CUL</b>	<b>800</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>1,000</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>

All values are presented in micrograms per Liter (µg/L)  
 Contaminant Concentrations above MTCA are shown in **BOLD**  
 ND – Non Detect  
 NE – Not Established

Analytical results did not identify any analytes above Method A cleanup levels in any of the three (3) sampled monitoring wells.

### Quality Assurance

The following data qualifiers were noted in the laboratory results. All analytical quality assurance parameters were within acceptable ranges.

- Dilution required for samples from MW-02, MW-03, and MW-04 for Nitrite, Nitrate, Sulfate and Manganese.
- Dilution required for samples from MW-03 and MW-04 for Methane.
- Analyte detected below Reporting Limit for MW-02 for Nitrate.

Review of these notes indicates that laboratory QA/QC is satisfactory and identified laboratory QA/QC should not affect project data or objectives.

## Discussion and Conclusions

Groundwater elevation and gradient data collected during the sampling event identified groundwater at elevations ranging from 4.29 feet bgs to 7.02 feet bgs.

No contaminants were identified above MTCA Method A clean up levels. This represents the eighth consecutive quarter with results below regulatory cleanup thresholds. Fulcrum recommends investigation of site soils at the highway boundary and consultation with Ecology regarding a potential request for a no further action determination.

Elevated concentrations of geochemical parameters, including Nitrate, Sulfate, Manganese, Alkalinity and Methane indicates that degradation of petroleum hydrocarbons is likely occurring within the historic plume boundaries.

Please contact Travis Trent at 509.459.9200 if you have any questions or comments.

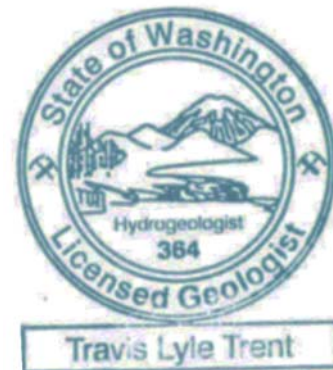
Sincerely,



Kyle Ames, GIT  
Environmental Scientist



Travis Trent, LHG  
Hydrogeologist



# 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**

License Number

**01/08/2002**

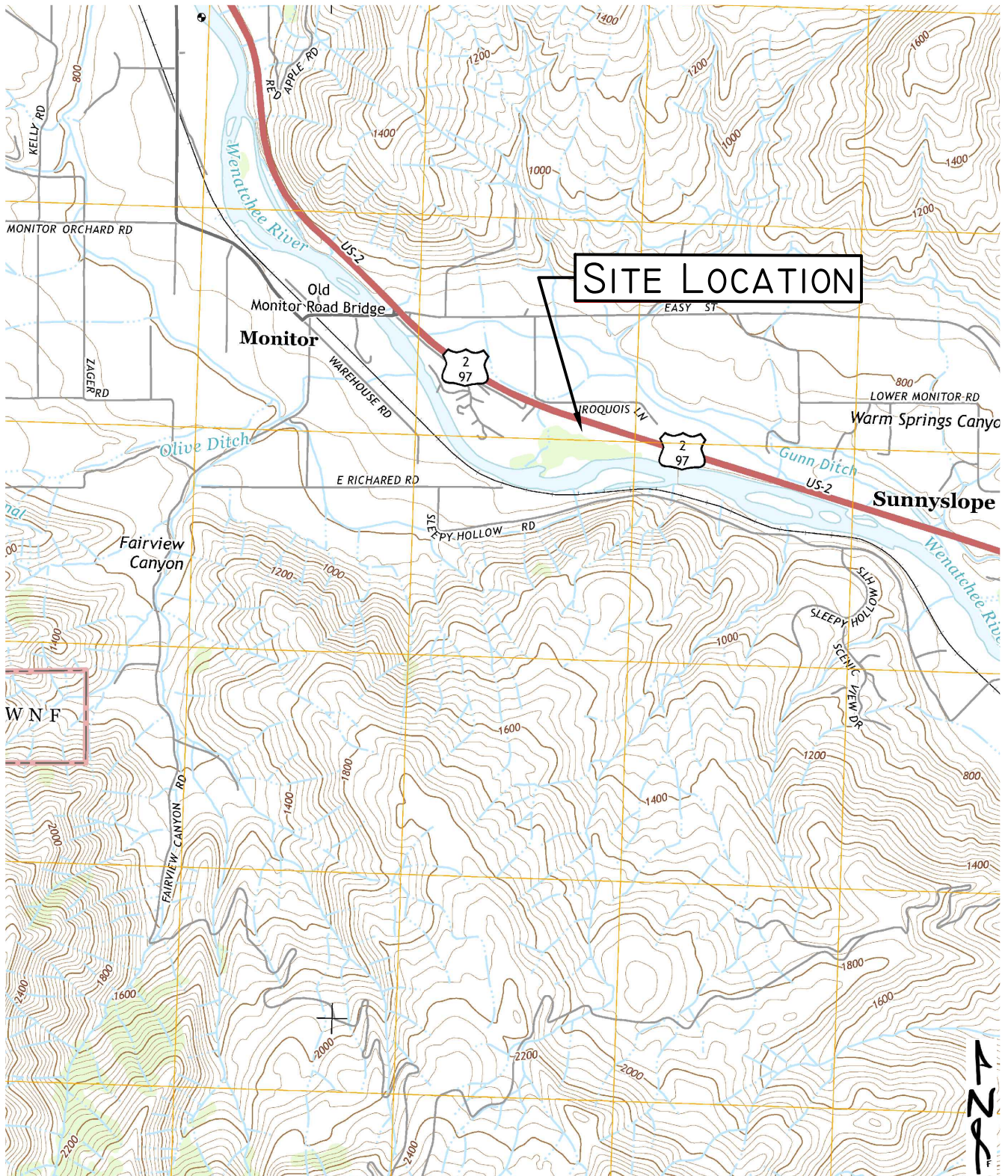
Issued Date

**06/06/2020**

Expiration Date

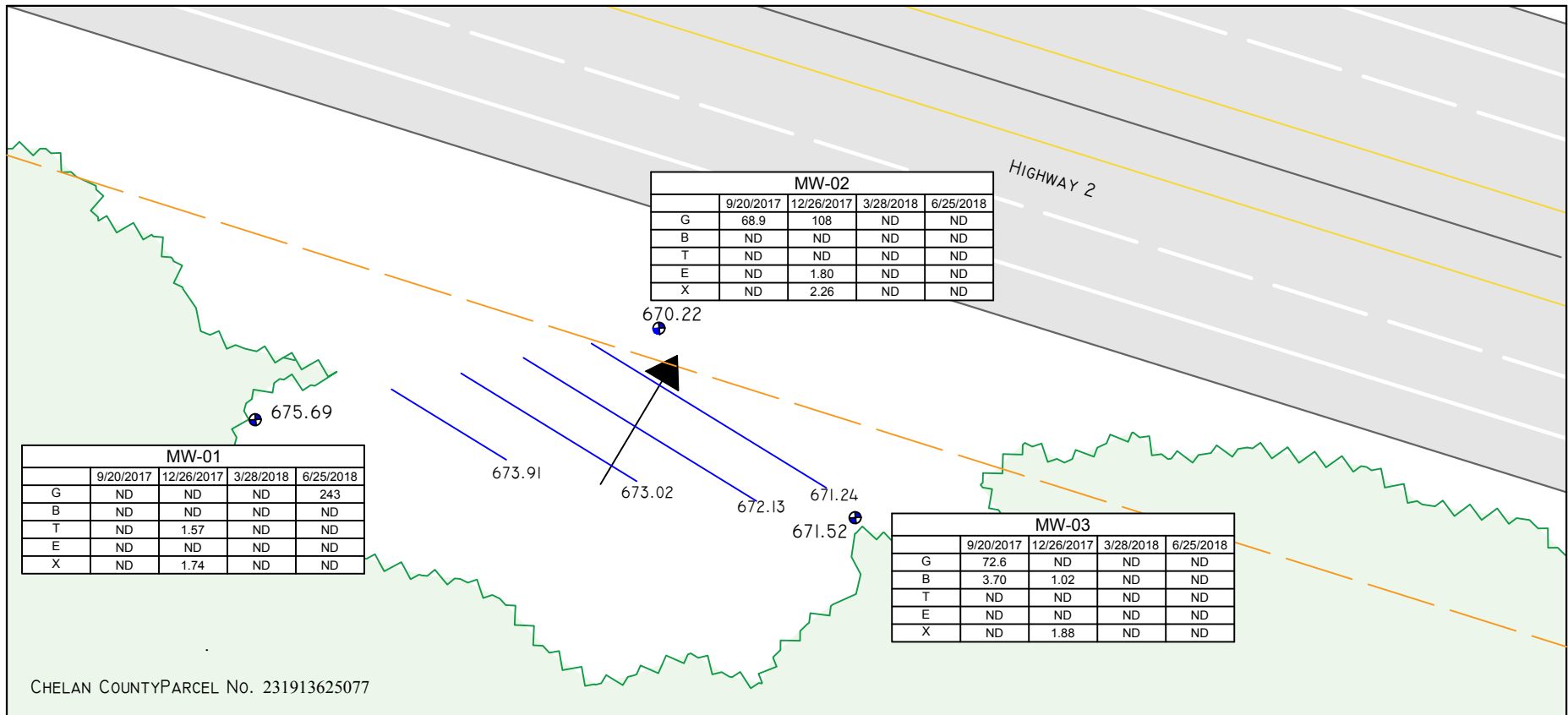
*Teresa Berntsen*  
Teresa Berntsen, Director





BACKGROUND IMAGE  
COURTESY OF USGS









DEPTHS TO WATER (BELOW TOP OF CASING):

MW-01: 8.31 FT  
MW-02: 11.78 FT  
MW-03: 10.48 FT

CLEANUP LEVELS

G (GASOLINE): 800/1,000  
B (BENZENE): 5.0  
T (TOLUENE): 1,000  
E (ETHYLBENZENE): 700  
X (TOTAL XYLENES): 1,000

LEGEND

-  GROUNDWATER MONITORING WELL
-  GROUNDWATER FLOW DIRECTION
-  GROUNDWATER ELEVATION CONTOUR (FT)
-  PROPERTY BOUNDARY

NOTES:

- 1) GROUNDWATER ELEVATION WAS CALCULATED USING AN ARBITRARY DATUM. GROUNDWATER MEASUREMENTS IN MONITORING WELLS ARE RELATIVE TO EACH OTHER.
- 2) DRAWING IS NOT TO EXACT SCALE AND IS FOR REFERENCE ONLY.
- 3) SELECT ANALYTICAL DATA PRESENTED; SEE EVENT LETTER FOR ADDITIONAL DETAILS.
- 4) RESULTS PRESENTED IN UG/L.



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

**Fulcrum Environmental**

Travis Trent  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Whitley**

**Work Order Number: 1806327**

July 09, 2018

**Attention Travis Trent:**

Fremont Analytical, Inc. received 5 sample(s) on 6/27/2018 for the analyses presented in the following report.

- Dissolved Gases by RSK-175***
- Dissolved Metals by EPA Method 200.8***
- Gasoline by NWTPH-Gx***
- Ion Chromatography by EPA Method 300.0***
- Total Alkalinity by SM 2320B***
- 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:**  
Kyle Ames

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**CLIENT:** Fulcrum Environmental  
**Project:** Whitley  
**Work Order:** 1806327

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**Work Order Sample Summary**

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<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Date/Time Collected</b>	<b>Date/Time Received</b>
1806327-001	62518-01	06/25/2018 11:00 AM	06/27/2018 9:49 AM
1806327-002	62518-02	06/25/2018 11:30 AM	06/27/2018 9:49 AM
1806327-003	62518-03	06/25/2018 12:00 PM	06/27/2018 9:49 AM
1806327-004	62518-04	06/25/2018 12:30 PM	06/27/2018 9:49 AM
1806327-005	62818-05	06/25/2018 1:00 PM	06/27/2018 9:49 AM

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**CLIENT:** Fulcrum Environmental

**Project:** Whitley

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**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



**Client:** Fulcrum Environmental

**Collection Date:** 6/25/2018 11:00:00 AM

**Project:** Whitley

**Lab ID:** 1806327-001

**Matrix:** Groundwater

**Client Sample ID:** 62518-01

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Dissolved Gases by RSK-175**

Batch ID: R44537 Analyst: BT

Methane	0.0346	0.00863	Q	mg/L	1	7/6/2018 5:20:00 PM
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**NOTES:**

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift)

**Gasoline by NWTPH-Gx**

Batch ID: 21123 Analyst: TN

Gasoline	243	50.0		µg/L	1	6/30/2018 5:03:50 PM
Surr: Toluene-d8	100	65 - 135		%Rec	1	6/30/2018 5:03:50 PM
Surr: 4-Bromofluorobenzene	101	65 - 135		%Rec	1	6/30/2018 5:03:50 PM

**Volatile Organic Compounds by EPA Method 8260C**

Batch ID: 21123 Analyst: TN

Benzene	ND	1.00		µg/L	1	6/30/2018 5:03:50 PM
Toluene	ND	1.00		µg/L	1	6/30/2018 5:03:50 PM
Ethylbenzene	ND	1.00		µg/L	1	6/30/2018 5:03:50 PM
m,p-Xylene	ND	1.00		µg/L	1	6/30/2018 5:03:50 PM
o-Xylene	ND	1.00		µg/L	1	6/30/2018 5:03:50 PM
Surr: Dibromofluoromethane	109	45.4 - 152		%Rec	1	6/30/2018 5:03:50 PM
Surr: Toluene-d8	101	40.1 - 139		%Rec	1	6/30/2018 5:03:50 PM
Surr: 1-Bromo-4-fluorobenzene	97.5	64.2 - 128		%Rec	1	6/30/2018 5:03:50 PM

**Ion Chromatography by EPA Method 300.0**

Batch ID: R44362 Analyst: GM

Nitrogen, Nitrite	ND	0.100		mg/L	1	6/27/2018 1:22:00 PM
Nitrogen, Nitrate	ND	0.100		mg/L	1	6/27/2018 1:22:00 PM
Sulfate	1.32	0.300		mg/L	1	6/27/2018 1:22:00 PM

**Dissolved Metals by EPA Method 200.8**

Batch ID: 21096 Analyst: WC

Manganese	55.6	2.00		µg/L	1	6/29/2018 3:42:24 PM
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**Total Alkalinity by SM 2320B**

Batch ID: R44491 Analyst: WF

Alkalinity, Total (As CaCO3)	149	2.50		mg/L	1	7/5/2018 10:17:07 AM
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**Client:** Fulcrum Environmental

**Collection Date:** 6/25/2018 11:30:00 AM

**Project:** Whitley

**Lab ID:** 1806327-002

**Matrix:** Groundwater

**Client Sample ID:** 62518-02

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Dissolved Gases by RSK-175**

Batch ID: R44537 Analyst: BT

Methane	0.202	0.00863	Q	mg/L	1	7/6/2018 5:27:00 PM
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**NOTES:**

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift)

**Gasoline by NWTPH-Gx**

Batch ID: 21123 Analyst: TN

Gasoline	ND	50.0		µg/L	1	6/30/2018 3:33:19 PM
Surr: Toluene-d8	99.8	65 - 135		%Rec	1	6/30/2018 3:33:19 PM
Surr: 4-Bromofluorobenzene	105	65 - 135		%Rec	1	6/30/2018 3:33:19 PM

**Volatile Organic Compounds by EPA Method 8260C**

Batch ID: 21123 Analyst: TN

Benzene	ND	1.00		µg/L	1	6/30/2018 3:33:19 PM
Toluene	ND	1.00		µg/L	1	6/30/2018 3:33:19 PM
Ethylbenzene	ND	1.00		µg/L	1	6/30/2018 3:33:19 PM
m,p-Xylene	ND	1.00		µg/L	1	6/30/2018 3:33:19 PM
o-Xylene	ND	1.00		µg/L	1	6/30/2018 3:33:19 PM
Surr: Dibromofluoromethane	114	45.4 - 152		%Rec	1	6/30/2018 3:33:19 PM
Surr: Toluene-d8	101	40.1 - 139		%Rec	1	6/30/2018 3:33:19 PM
Surr: 1-Bromo-4-fluorobenzene	101	64.2 - 128		%Rec	1	6/30/2018 3:33:19 PM

**Ion Chromatography by EPA Method 300.0**

Batch ID: R44362 Analyst: GM

Nitrogen, Nitrite	ND	1.00	D	mg/L	10	6/27/2018 1:45:00 PM
Nitrogen, Nitrate	0.500	1.00	JD	mg/L	10	6/27/2018 1:45:00 PM
Sulfate	13.1	3.00	D	mg/L	10	6/27/2018 1:45:00 PM

**NOTES:**

Diluted due to matrix.

**Dissolved Metals by EPA Method 200.8**

Batch ID: 21096 Analyst: WC

Manganese	3,380	20.0	D	µg/L	10	6/29/2018 4:02:34 PM
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**Total Alkalinity by SM 2320B**

Batch ID: R44491 Analyst: WF

Alkalinity, Total (As CaCO3)	528	2.50		mg/L	1	7/5/2018 10:17:07 AM
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**Client:** Fulcrum Environmental

**Collection Date:** 6/25/2018 12:00:00 PM

**Project:** Whitley

**Lab ID:** 1806327-003

**Matrix:** Groundwater

**Client Sample ID:** 62518-03

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Dissolved Gases by RSK-175**

Batch ID: R44537 Analyst: BT

Methane	0.553	0.0345	DQ	mg/L	4	7/6/2018 5:46:00 PM
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**NOTES:**

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift)

**Gasoline by NWTPH-Gx**

Batch ID: 21123 Analyst: TN

Gasoline	ND	50.0		µg/L	1	6/30/2018 4:03:25 PM
Surr: Toluene-d8	99.8	65 - 135		%Rec	1	6/30/2018 4:03:25 PM
Surr: 4-Bromofluorobenzene	102	65 - 135		%Rec	1	6/30/2018 4:03:25 PM

**Volatile Organic Compounds by EPA Method 8260C**

Batch ID: 21123 Analyst: TN

Benzene	ND	1.00		µg/L	1	6/30/2018 4:03:25 PM
Toluene	ND	1.00		µg/L	1	6/30/2018 4:03:25 PM
Ethylbenzene	ND	1.00		µg/L	1	6/30/2018 4:03:25 PM
m,p-Xylene	ND	1.00		µg/L	1	6/30/2018 4:03:25 PM
o-Xylene	ND	1.00		µg/L	1	6/30/2018 4:03:25 PM
Surr: Dibromofluoromethane	111	45.4 - 152		%Rec	1	6/30/2018 4:03:25 PM
Surr: Toluene-d8	102	40.1 - 139		%Rec	1	6/30/2018 4:03:25 PM
Surr: 1-Bromo-4-fluorobenzene	99.6	64.2 - 128		%Rec	1	6/30/2018 4:03:25 PM

**Ion Chromatography by EPA Method 300.0**

Batch ID: R44362 Analyst: GM

Nitrogen, Nitrite	ND	2.00	D	mg/L	20	6/27/2018 2:08:00 PM
Nitrogen, Nitrate	ND	2.00	D	mg/L	20	6/27/2018 2:08:00 PM
Sulfate	95.9	6.00	D	mg/L	20	6/27/2018 2:08:00 PM

**NOTES:**

Diluted due to matrix.

**Dissolved Metals by EPA Method 200.8**

Batch ID: 21096 Analyst: WC

Manganese	4,030	20.0	D	µg/L	10	6/29/2018 4:06:36 PM
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**Total Alkalinity by SM 2320B**

Batch ID: R44491 Analyst: WF

Alkalinity, Total (As CaCO3)	1,390	2.50		mg/L	1	7/5/2018 10:17:07 AM
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**Client:** Fulcrum Environmental

**Collection Date:** 6/25/2018 12:30:00 PM

**Project:** Whitley

**Lab ID:** 1806327-004

**Matrix:** Groundwater

**Client Sample ID:** 62518-04

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Dissolved Gases by RSK-175**

Batch ID: R44537 Analyst: BT

Methane	0.280	0.0345	DQ	mg/L	4	7/6/2018 5:43:00 PM
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**NOTES:**

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift)

**Gasoline by NWTPH-Gx**

Batch ID: 21123 Analyst: TN

Gasoline	219	50.0		µg/L	1	6/30/2018 4:33:37 PM
Surr: Toluene-d8	98.9	65 - 135		%Rec	1	6/30/2018 4:33:37 PM
Surr: 4-Bromofluorobenzene	104	65 - 135		%Rec	1	6/30/2018 4:33:37 PM

**Volatile Organic Compounds by EPA Method 8260C**

Batch ID: 21123 Analyst: TN

Benzene	ND	1.00		µg/L	1	6/30/2018 4:33:37 PM
Toluene	ND	1.00		µg/L	1	6/30/2018 4:33:37 PM
Ethylbenzene	ND	1.00		µg/L	1	6/30/2018 4:33:37 PM
m,p-Xylene	ND	1.00		µg/L	1	6/30/2018 4:33:37 PM
o-Xylene	ND	1.00		µg/L	1	6/30/2018 4:33:37 PM
Surr: Dibromofluoromethane	114	45.4 - 152		%Rec	1	6/30/2018 4:33:37 PM
Surr: Toluene-d8	102	40.1 - 139		%Rec	1	6/30/2018 4:33:37 PM
Surr: 1-Bromo-4-fluorobenzene	100	64.2 - 128		%Rec	1	6/30/2018 4:33:37 PM

**Ion Chromatography by EPA Method 300.0**

Batch ID: R44362 Analyst: GM

Nitrogen, Nitrite	ND	2.00	D	mg/L	20	6/27/2018 3:28:00 PM
Nitrogen, Nitrate	ND	2.00	D	mg/L	20	6/27/2018 3:28:00 PM
Sulfate	97.1	6.00	D	mg/L	20	6/27/2018 3:28:00 PM

**Dissolved Metals by EPA Method 200.8**

Batch ID: 21096 Analyst: WC

Manganese	3,970	20.0	D	µg/L	10	6/29/2018 4:10:38 PM
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**Total Alkalinity by SM 2320B**

Batch ID: R44491 Analyst: WF

Alkalinity, Total (As CaCO3)	1,430	2.50		mg/L	1	7/5/2018 10:17:07 AM
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**Client:** Fulcrum Environmental

**Collection Date:** 6/25/2018 1:00:00 PM

**Project:** Whitley

**Lab ID:** 1806327-005

**Matrix:** Groundwater

**Client Sample ID:** 62818-05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Gasoline by NWTPH-Gx**

Batch ID: 21123      Analyst: TN

Gasoline	ND	50.0		µg/L	1	6/30/2018 3:03:02 PM
Surr: Toluene-d8	99.5	65 - 135		%Rec	1	6/30/2018 3:03:02 PM
Surr: 4-Bromofluorobenzene	104	65 - 135		%Rec	1	6/30/2018 3:03:02 PM

**Volatile Organic Compounds by EPA Method 8260C**

Batch ID: 21123      Analyst: TN

Benzene	ND	1.00		µg/L	1	6/30/2018 3:03:02 PM
Toluene	ND	1.00		µg/L	1	6/30/2018 3:03:02 PM
Ethylbenzene	ND	1.00		µg/L	1	6/30/2018 3:03:02 PM
m,p-Xylene	ND	1.00		µg/L	1	6/30/2018 3:03:02 PM
o-Xylene	ND	1.00		µg/L	1	6/30/2018 3:03:02 PM
Surr: Dibromofluoromethane	109	45.4 - 152		%Rec	1	6/30/2018 3:03:02 PM
Surr: Toluene-d8	102	40.1 - 139		%Rec	1	6/30/2018 3:03:02 PM
Surr: 1-Bromo-4-fluorobenzene	100	64.2 - 128		%Rec	1	6/30/2018 3:03:02 PM



**Work Order:** 1806327  
**CLIENT:** Fulcrum Environmental  
**Project:** Whitley

**QC SUMMARY REPORT**  
**Ion Chromatography by EPA Method 300.0**

Sample ID <b>CCB_MB-R44362</b>	SampType: <b>MBLK</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2018</b>	RunNo: <b>44362</b>							
Client ID: <b>MBLKW</b>	Batch ID: <b>R44362</b>		Analysis Date: <b>6/27/2018</b>	SeqNo: <b>858843</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrogen, Nitrite	ND	0.100									
Nitrogen, Nitrate	ND	0.100									
Sulfate	ND	0.300									

Sample ID <b>LCS-R44362</b>	SampType: <b>LCS</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2018</b>	RunNo: <b>44362</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R44362</b>		Analysis Date: <b>6/27/2018</b>	SeqNo: <b>858844</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrogen, Nitrite	0.716	0.100	0.7500	0	95.5	90	110				
Nitrogen, Nitrate	0.722	0.100	0.7500	0	96.3	90	110				
Sulfate	3.72	0.300	3.750	0	99.1	90	110				

Sample ID <b>1806327-001CDUP</b>	SampType: <b>DUP</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2018</b>	RunNo: <b>44362</b>							
Client ID: <b>62518-01</b>	Batch ID: <b>R44362</b>		Analysis Date: <b>6/27/2018</b>	SeqNo: <b>858849</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrogen, Nitrite	ND	0.100						0		20	
Nitrogen, Nitrate	ND	0.100						0		20	
Sulfate	1.32	0.300						1.317	0.0759	20	

Sample ID <b>1806327-001CMS</b>	SampType: <b>MS</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2018</b>	RunNo: <b>44362</b>							
Client ID: <b>62518-01</b>	Batch ID: <b>R44362</b>		Analysis Date: <b>6/27/2018</b>	SeqNo: <b>858850</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrogen, Nitrite	0.631	0.100	0.7500	0	84.1	80	120				
Nitrogen, Nitrate	0.762	0.100	0.7500	0.05000	94.9	80	120				
Sulfate	4.90	0.300	3.750	1.317	95.5	80	120				



**Work Order:** 1806327  
**CLIENT:** Fulcrum Environmental  
**Project:** Whitley

**QC SUMMARY REPORT**  
**Ion Chromatography by EPA Method 300.0**

Sample ID <b>1806327-001CMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/L</b>			Prep Date: <b>6/27/2018</b>	RunNo: <b>44362</b>					
Client ID: <b>62518-01</b>	Batch ID: <b>R44362</b>				Analysis Date: <b>6/27/2018</b>	SeqNo: <b>858851</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrite	0.637	0.100	0.7500	0	84.9	80	120	0.6310	0.946	20	
Nitrogen, Nitrate	0.749	0.100	0.7500	0.05000	93.2	80	120	0.7620	1.72	20	
Sulfate	4.87	0.300	3.750	1.317	94.8	80	120	4.900	0.594	20	

**Work Order:** 1806327  
**CLIENT:** Fulcrum Environmental  
**Project:** Whitley

**QC SUMMARY REPORT**  
**Dissolved Metals by EPA Method 200.8**

Sample ID <b>MB-21096</b>	SampType: <b>MBLK</b>	Units: <b>µg/L</b>	Prep Date: <b>6/28/2018</b>	RunNo: <b>44387</b>							
Client ID: <b>MBLKW</b>	Batch ID: <b>21096</b>		Analysis Date: <b>6/29/2018</b>	SeqNo: <b>859248</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Manganese ND 2.00

Sample ID <b>LCS-21096</b>	SampType: <b>LCS</b>	Units: <b>µg/L</b>	Prep Date: <b>6/28/2018</b>	RunNo: <b>44387</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>21096</b>		Analysis Date: <b>6/29/2018</b>	SeqNo: <b>859249</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Manganese 104 2.00 100.0 0 104 85 115

Sample ID <b>1806315-001BDUP</b>	SampType: <b>DUP</b>	Units: <b>µg/L</b>	Prep Date: <b>6/28/2018</b>	RunNo: <b>44387</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>21096</b>		Analysis Date: <b>6/29/2018</b>	SeqNo: <b>859251</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Manganese 234 2.00 230.0 1.92 30

Sample ID <b>1806315-001BMS</b>	SampType: <b>MS</b>	Units: <b>µg/L</b>	Prep Date: <b>6/28/2018</b>	RunNo: <b>44387</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>21096</b>		Analysis Date: <b>6/29/2018</b>	SeqNo: <b>859252</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Manganese 743 2.00 500.0 230.0 103 70 130

Sample ID <b>1806315-001BMSD</b>	SampType: <b>MSD</b>	Units: <b>µg/L</b>	Prep Date: <b>6/28/2018</b>	RunNo: <b>44387</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>21096</b>		Analysis Date: <b>6/29/2018</b>	SeqNo: <b>859253</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Manganese 772 2.00 500.0 230.0 108 70 130 743.2 3.74 30



**Work Order:** 1806327  
**CLIENT:** Fulcrum Environmental  
**Project:** Whitley

**QC SUMMARY REPORT**  
**Dissolved Gases by RSK-175**

Sample ID <b>MB-R44537</b>	SampType: <b>MBLK</b>	Units: <b>mg/L</b>	Prep Date: <b>7/6/2018</b>	RunNo: <b>44537</b>							
Client ID: <b>MBLKW</b>	Batch ID: <b>R44537</b>		Analysis Date: <b>7/6/2018</b>	SeqNo: <b>861752</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Methane	ND	0.00863									Q
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**NOTES:**

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift)

Sample ID <b>1806327-004DREP</b>	SampType: <b>REP</b>	Units: <b>mg/L</b>	Prep Date: <b>7/6/2018</b>	RunNo: <b>44537</b>							
Client ID: <b>62518-04</b>	Batch ID: <b>R44537</b>		Analysis Date: <b>7/6/2018</b>	SeqNo: <b>861747</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Methane	0.302	0.00863						0.3294	8.75	30	QE
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**NOTES:**

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift)

E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID <b>LCS-R44537</b>	SampType: <b>LCS</b>	Units: <b>mg/L</b>	Prep Date: <b>7/6/2018</b>	RunNo: <b>44537</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R44537</b>		Analysis Date: <b>7/6/2018</b>	SeqNo: <b>861756</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Methane	0.370	0.00863	0.5000	0	74.0	70	130				
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Work Order: 1806327  
 CLIENT: Fulcrum Environmental  
 Project: Whitley

**QC SUMMARY REPORT**  
**Gasoline by NWTPH-Gx**

Sample ID	<b>LCS-21123</b>	SampType:	<b>LCS</b>	Units:	<b>µg/L</b>	Prep Date:	<b>6/29/2018</b>	RunNo:	<b>44391</b>		
Client ID:	<b>LCSW</b>	Batch ID:	<b>21123</b>			Analysis Date:	<b>6/30/2018</b>	SeqNo:	<b>859367</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	466	50.0	500.0	0	93.2	65	135				
Surr: Toluene-d8	25.0		25.00		100	65	135				
Surr: 4-Bromofluorobenzene	25.9		25.00		104	65	135				

Sample ID	<b>LCS-D-21123</b>	SampType:	<b>LCS-D</b>	Units:	<b>µg/L</b>	Prep Date:	<b>6/29/2018</b>	RunNo:	<b>44391</b>		
Client ID:	<b>LCSW02</b>	Batch ID:	<b>21123</b>			Analysis Date:	<b>6/30/2018</b>	SeqNo:	<b>859366</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	494	50.0	500.0	0	98.7	65	135	465.8	5.79	20	
Surr: Toluene-d8	24.9		25.00		99.6	65	135		0		
Surr: 4-Bromofluorobenzene	27.3		25.00		109	65	135		0		

Sample ID	<b>MB-21123</b>	SampType:	<b>MBLK</b>	Units:	<b>µg/L</b>	Prep Date:	<b>6/29/2018</b>	RunNo:	<b>44391</b>		
Client ID:	<b>MBLKW</b>	Batch ID:	<b>21123</b>			Analysis Date:	<b>6/30/2018</b>	SeqNo:	<b>859368</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	50.0									
Surr: Toluene-d8	25.2		25.00		101	65	135				
Surr: 4-Bromofluorobenzene	24.8		25.00		99.0	65	135				

Sample ID	<b>1806328-001ADUP</b>	SampType:	<b>DUP</b>	Units:	<b>µg/L</b>	Prep Date:	<b>6/29/2018</b>	RunNo:	<b>44391</b>		
Client ID:	<b>BATCH</b>	Batch ID:	<b>21123</b>			Analysis Date:	<b>6/30/2018</b>	SeqNo:	<b>859362</b>		
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	24.8		25.00		99.2	65	135		0		
Surr: 4-Bromofluorobenzene	26.0		25.00		104	65	135		0		



**Work Order:** 1806327  
**CLIENT:** Fulcrum Environmental  
**Project:** Whitley

**QC SUMMARY REPORT**  
**Gasoline by NWTPH-Gx**

Sample ID <b>1806295-001ADUP</b>	SampType: <b>DUP</b>	Units: <b>µg/L</b>		Prep Date: <b>6/29/2018</b>	RunNo: <b>44391</b>						
Client ID: <b>BATCH</b>	Batch ID: <b>21123</b>			Analysis Date: <b>6/30/2018</b>	SeqNo: <b>859355</b>						
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	24.9		25.00		99.7	65	135		0		
Surr: 4-Bromofluorobenzene	25.6		25.00		102	65	135		0		

Work Order: 1806327  
 CLIENT: Fulcrum Environmental  
 Project: Whitley

**QC SUMMARY REPORT**  
**Volatile Organic Compounds by EPA Method 8260C**

Sample ID	LCS-21123	SampType:	LCS	Units:	µg/L	Prep Date:	6/29/2018	RunNo:	44390		
Client ID:	LCSW	Batch ID:	21123	Analysis Date:	6/30/2018	SeqNo:	859350				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.8	1.00	20.00	0	104	69.3	132				
Toluene	20.9	1.00	20.00	0	105	61.3	145				
Ethylbenzene	20.7	1.00	20.00	0	103	72	130				
m,p-Xylene	41.2	1.00	40.00	0	103	70.3	134				
o-Xylene	20.4	1.00	20.00	0	102	72.1	131				
Surr: Dibromofluoromethane	28.9		25.00		115	45.4	152				
Surr: Toluene-d8	25.4		25.00		102	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	26.2		25.00		105	64.2	128				

Sample ID	LCSD-21123	SampType:	LCSD	Units:	µg/L	Prep Date:	6/29/2018	RunNo:	44390		
Client ID:	LCSW02	Batch ID:	21123	Analysis Date:	6/30/2018	SeqNo:	859349				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.9	1.00	20.00	0	99.6	69.3	132	20.85	4.53	20	
Toluene	19.9	1.00	20.00	0	99.5	61.3	145	20.90	4.90	20	
Ethylbenzene	19.0	1.00	20.00	0	95.2	72	130	20.69	8.26	20	
m,p-Xylene	39.2	1.00	40.00	0	98.0	70.3	134	41.22	5.03	20	
o-Xylene	19.0	1.00	20.00	0	95.1	72.1	131	20.39	6.91	20	
Surr: Dibromofluoromethane	28.5		25.00		114	45.4	152		0		
Surr: Toluene-d8	25.5		25.00		102	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	23.6		25.00		94.5	64.2	128		0		

Sample ID	MB-21123	SampType:	MBLK	Units:	µg/L	Prep Date:	6/29/2018	RunNo:	44390		
Client ID:	MBLKW	Batch ID:	21123	Analysis Date:	6/30/2018	SeqNo:	859351				
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: 1806327  
 CLIENT: Fulcrum Environmental  
 Project: Whitley

**QC SUMMARY REPORT**  
**Volatile Organic Compounds by EPA Method 8260C**

Sample ID <b>MB-21123</b>	SampType: <b>MBLK</b>	Units: <b>µg/L</b>			Prep Date: <b>6/29/2018</b>	RunNo: <b>44390</b>					
Client ID: <b>MBLKW</b>	Batch ID: <b>21123</b>				Analysis Date: <b>6/30/2018</b>	SeqNo: <b>859351</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

o-Xylene	ND	1.00									
Surr: Dibromofluoromethane	25.1		25.00		100	45.4	152				
Surr: Toluene-d8	25.4		25.00		101	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	23.9		25.00		95.6	64.2	128				

Sample ID <b>1806328-001ADUP</b>	SampType: <b>DUP</b>	Units: <b>µg/L</b>			Prep Date: <b>6/29/2018</b>	RunNo: <b>44390</b>					
Client ID: <b>BATCH</b>	Batch ID: <b>21123</b>				Analysis Date: <b>6/30/2018</b>	SeqNo: <b>859345</b>					
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	28.4		25.00		114	45.4	152		0		
Surr: Toluene-d8	25.2		25.00		101	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	25.5		25.00		102	64.2	128		0		

Sample ID <b>1806295-001ADUP</b>	SampType: <b>DUP</b>	Units: <b>µg/L</b>			Prep Date: <b>6/29/2018</b>	RunNo: <b>44390</b>					
Client ID: <b>BATCH</b>	Batch ID: <b>21123</b>				Analysis Date: <b>6/30/2018</b>	SeqNo: <b>859338</b>					
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	26.8		25.00		107	45.4	152		0		
Surr: Toluene-d8	25.6		25.00		102	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	25.1		25.00		100	64.2	128		0		



Date: 7/9/2018

**Work Order:** 1806327  
**CLIENT:** Fulcrum Environmental  
**Project:** Whitley

**QC SUMMARY REPORT**  
**Volatile Organic Compounds by EPA Method 8260C**

Sample ID	<b>1806295-001ADUP</b>	SampType:	<b>DUP</b>	Units:	<b>µg/L</b>	Prep Date:	<b>6/29/2018</b>	RunNo:	<b>44390</b>		
Client ID:	<b>BATCH</b>	Batch ID:	<b>21123</b>			Analysis Date:	<b>6/30/2018</b>	SeqNo:	<b>859338</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Client Name: **FE**

 Work Order Number: **1806327**

 Logged by: **Brianna Barnes**

 Date Received: **6/27/2018 9:49:00 AM**
**Chain of Custody**

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

**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:	<u>T.T. / K.A.</u>	Date	<u>6/27/2018</u>
By Whom:	<u>Brianna Barnes</u>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<u>Low volume for Gx/BTEX/RSK analysis.</u>		
Client Instructions:	<u></u>		

19. Additional remarks:

**Item Information**

Item #	Temp °C
Cooler	2.1
Sample	5.5

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



3600 Fremont Ave N.  
Seattle, WA 98103

Tel: 206-352-3790  
Fax: 206-352-7178

# Chain of Custody Record and Laboratory Services Agreement

Date: 6/25/2018

Laboratory Project No (Internal):

18010327

Page: 1 of 1

Client: Fulcrum Environmental Consulting, Inc.  
Address: 406 North 2nd Street  
City, State, Zip: Yakima, WA 98901  
Telephone: (509) 574-0839

Project Name: Whitley  
Project No: 141310  
Location: Yakima, WA  
Report To (PM): Travis Trent  
PM Email: ttrent@fulcrum.net, cc: karnes@fulcrum.net

\*Matrix Codes: 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

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 (DH)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	Metals** (EPA 8082 / 608)	Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)	Alkylary	Methane	PCBs	Comments	
62518-01	6/25/2018	1100	GW	X								X	D	X	X					
62518-02	6/25/2018	1130	GW	X								X	D	X	X					
62518-03	6/25/2018	1200	GW	X								X	D	X	X					
62518-04	6/25/2018	1230	GW	X								X	D	X	X					
62518-05	6/25/2018	1300	GW																	This yoa contains grease and tap water.

\*\*Metals Analysis (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

Sample Disposal:  Return to Client  Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

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

Refined/Revised: MC Date/Time: 6-26-18 Received: [Signature] Date/Time: 6/25/18 OK

Retrieved: X Date/Time: Received: X Date/Time:





3600 Fremont Ave N.  
Seattle, WA 98103

Tel: 206-352-3790  
Fax: 206-352-7178

# Chain of Custody Record and Laboratory Services Agreement

Date: 6/25/2018

Laboratory Project No (Internal):

19009271

Page: 1 of 1

Client: Fulcrum Environmental Consulting, Inc.

Address: 406 North 2nd Street  
Yakima, WA 98901

City, State, Zip: Yakima, WA 98901

Telephone: (509) 574-0839

Fax: (509) 459-9219

Project Name: Whitley  
Project No: 141310  
Location: Yakima, WA  
Report To (PM): Travis Trent  
PM Email: ttrent@fulcrum.net; cc: kames@fulcrum.net

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

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCS (EPA 8160 / 624)	GY/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DH)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total IT   Dissolved (D)	Anions (IC)***	EDB (801)	Alkalinity	Methane	PCBs	Comments	
62518-01	6/25/2018	1100	GW	X									X	D	X	X					
62518-02	6/25/2018	1130	GW	X									X	D	X	X					
62518-03	6/25/2018	1200	GW	X									X	D	X	X					
62518-04	6/25/2018	1230	GW	X									X	D	X	X					
62518-05	6/25/2018	1300	GW	X									X	D	X	X					This vva contains grease and tap water.

\*\*Metals Analysis (Circle): MTC-A-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 U V Zn

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

Sample Disposal:  Return to Client  Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)  Turn-around times for samples received after 4:00pm will begin on the following business day.

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

Refiniquished: MC Date/Time: 6-26-18 Received: [Signature] Date/Time: 6/27/18 OKTQ

Reiniquished: X Date/Time: Received: X Date/Time: TAT → SameDay NextDay 2 Day 3 Day STD