July 12, 2016

Whitley Fuel Company
c/o Mr. Ben Whitley
1617 2nd Avenue N.
Okanogan, WA 98840

Re: Whitley Fuels Tanker Spill Groundwater Monitoring Wells near Monitor, Washington – Groundwater Sampling Event, June 2016
FS ID: 357, Cleanup ID: 4757

Dear Mr. Whitley,

Fulcrum Environmental Consulting, Inc. (Fulcrum) has completed groundwater sampling of monitoring wells at the Whitley Tanker Spill, located on Highway 2, approximately one half mile east of Monitor, Washington (site). Sampling was completed to evaluate groundwater conditions as a result of a 1991 fuel tanker accident.

Groundwater sampling was completed by Ashley Yellick, an environmental geologist with Fulcrum. Project services were completed under the direction of Travis Trent, a Washington State Licensed Hydrogeologist with Fulcrum. See Attachment A for professional certifications. See Figure 1 in Attachment B for the site location map.

Background

The site is situated south of Highway 2 along the southern boundary of a Washington Department of Transportation Right-of-Way and northern boundary of property owned by Washington State (Chelan County Parcel No. 231913625077). The southern property is currently known as the Wenatchee River County Park.

On July 24, 1991, a transporter tanker owned by Whitley Fuels Company of Okanogan, Washington was involved in an accident and released 10,000 gallons of gasoline 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. Two soil samples collected from along the edge of the highway were reported with gasoline concentrations above the current Models Toxic Control Act (MTCA) Method A cleanup level; one of the two samples was reported with benzene concentrations above the cleanup level. Contaminated soils located beneath the highway were not removed to avoid impacting the highway.

Three groundwater monitoring wells were installed in 1994 to assess groundwater conditions. Wells were completed to the following depths:

- MW-01, Western Well: 8.31 feet below ground surface (bgs)
- MW-02, North-Central Well: 11.78 feet bgs (within original gasoline footprint)
- MW-03, Eastern Well: 10.48 feet bgs

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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. MW-03 remained accessible and continued to show elevated gasoline and benzene impact. In 2016, Fulcrum, located MW-01 and MW-02 through the utilization of metal-detecting equipment and was able to excavate the wells by hand. See Attachment B, Figure 2 for monitoring well locations.

MW-01 is viewed as hydrogeologically upgradient; until the December, 2016 sampling event no analytes had been detected at or above the method reporting limits. While Toluene was found at a concentration of 4.84 µg/L, it is well below MTCA clean up levels. MW-02 is located within the footprint of the original gasoline release. Since sampling began in 1994, MW-02 has shown progressively lower values of gasoline and gasoline constituents. Since the recovery of MW-02 in 2016, all analytes detected have been below MTCA clean up levels. Similarly, MW-03 initially exhibited high values for gasoline, benzene and xylenes in a 1994 sampling event. During the sampling event of September 1995, gasoline was detected at 5,200 µg/L and benzene was detected at 46 µg/L. While in general, these values have decreased since the 1995 sampling event, there have been occasional increases in contamination concentrations. See tables 1 to 3 for the last four monitoring event results.

Scope of Work

Fulcrum's scope of work for this groundwater monitoring event consisted of collection and analysis of groundwater samples from the three 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 following 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 both MTCA Method A and Method B cleanup levels where appropriate. Where Method A cleanup levels have not been established, Fulcrum has defaulted to using Method B cleanup levels established for site-specific conditions. Application of the MTCA Method A or Method B cleanup levels during this portion of the project does not exclude the potential for reevaluation of site contaminants by other methods or other applicable standards at any time.

Field Activities

On December 7, 2016, Fulcrum completed sampling of site groundwater wells. All wells were found with sufficient water; wells were sampled and purged using a peristaltic pump with clean and new disposable polyethylene tubing. A field duplicate sample was collected concurrently with MW-01 and labeled as MW-04.

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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

See Attachment C for a summary of laboratory analytical results presented in Table 1. Results are presented in micrograms of analyte per Liter of water (µg/L) which is equal to parts per billion (ppb). See Attachment D for complete laboratory analytical results. See Figure 2 for a groundwater concentration and flow map.

Table 1: Laboratory Data for MW-01

	Analyte	6/12/1995	9/11/1995	12/4/1995	6/16/2016	MTCA Method A CUL
Contaminants	Gasoline	ND	ND	ND	ND	800
	Benzene	ND	ND	ND	ND	5
	Toluene	ND	ND	ND	ND	1,000
	Ethylbenzene	ND	ND	ND	ND	700
	Xylenes	ND	ND	ND	ND	1,000
Geochemical Indicators	Nitrite	-	-	-	-	NE
	Nitrate	-	-	-	-	NE
	Sulfate	-	-	-	-	NE
	Manganese	-	-	-	-	NE
	Alkalinity	-	-	-	-	NE
	Methane	-	-	-	-	NE

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

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Table 2: Laboratory Data for MW-02

	Analyte	3/10/1995	6/12/1995	9/11/1995	6/16/2016	MTCA Method A CUL
Contaminants	Gasoline	ND	ND	**5,400**	235	800
	Benzene	ND	1	**120**	ND	5
	Toluene	ND	ND	64	ND	1,000
	Ethylbenzene	ND	ND	ND	4.54	700
	Xylenes	ND	ND	770	3.54	1,000
Geochemical Indicators	Nitrite	-	-	-	ND	NE
	Nitrate	-	-	-	135	NE
	Sulfate	-	-	-	18,800	NE
	Manganese	-	-	-	2,870	NE
	Alkalinity	-	-	-	392,000	NE
	Methane	-	-	-	20.5	NE

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	9/28/2011	9/12/2012	9/10/2013	6/16/2016	MTCA Method A CUL
Contaminants	Gasoline	491	484	401	471	800
	Benzene	**8.5**	**10.6**	**11.5**	**6.65**	5
	Toluene	1	<1	<1	ND	1,000
	Ethylbenzene	<1	1.1	1.7	1.5	700
	Xylenes	<3	<3	<3	ND	1,000
Geochemical Indicators	Nitrite	-	-	-	ND	NE
	Nitrate	-	-	-	364	NE
	Sulfate	-	-	-	12,800	NE
	Manganese	-	-	-	1,600	NE
	Alkalinity	-	-	-	802,000	NE
	Methane	-	-	-	43.3	NE

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

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

- Dilution required for sample MW-02 and MW-03 for Nitrite, Nitrate, and Sulfate.
- Nitrate detected below the method reporting limit in sample MW-02 and MW-03.

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

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Discussion and Conclusions

Groundwater elevation and gradient data collected during the sampling event identified groundwater at elevations ranging from 4.45 feet to greater than 6.65 feet bgs. Groundwater at the site flows in a southeast direction. A groundwater gradient map is presented in Attachment B, Figure 2.

The following constituents were identified within sampled groundwater above Method A or B cleanup levels:

- MW-03: Benzene at 6.65 µg/L;

No other analytes were detected above Method A or B cleanup levels.

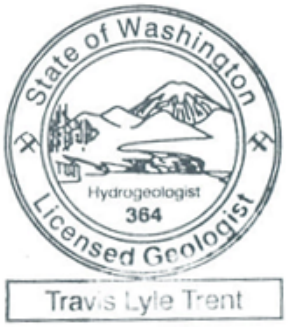
Elevated concentrations of geochemical parameters, including Nitrate, Sulfate, Manganese, Alkalinity and Methane indicates that degradation of petroleum hydrocarbons is likely occurring within the historic plume boundaries.

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

Sincerely,

Ashley L. Yellick, GIT
Environmental Geologist

Travis Trent, LHG
Hydrogeologist



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ATTACHMENT A

Professional Certificates

STATE OF WASHINGTON

DEPARTMENT OF LICENSING – BUSINESS AND PROFESSIONS DIVISION

THIS CERTIFIES THAT THE PERSON NAMED HEREON IS AUTHORIZED, AS PROVIDED BY LAW, AS A

GEOLOGIST
HYDROGEOLOGIST

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

Cert/Lic No.	Issued Date	Expiration Date	
364	01/08/2002	06/06/2014	Director

PL-630-159 (R/2/04)

ATTACHMENT B

Figures

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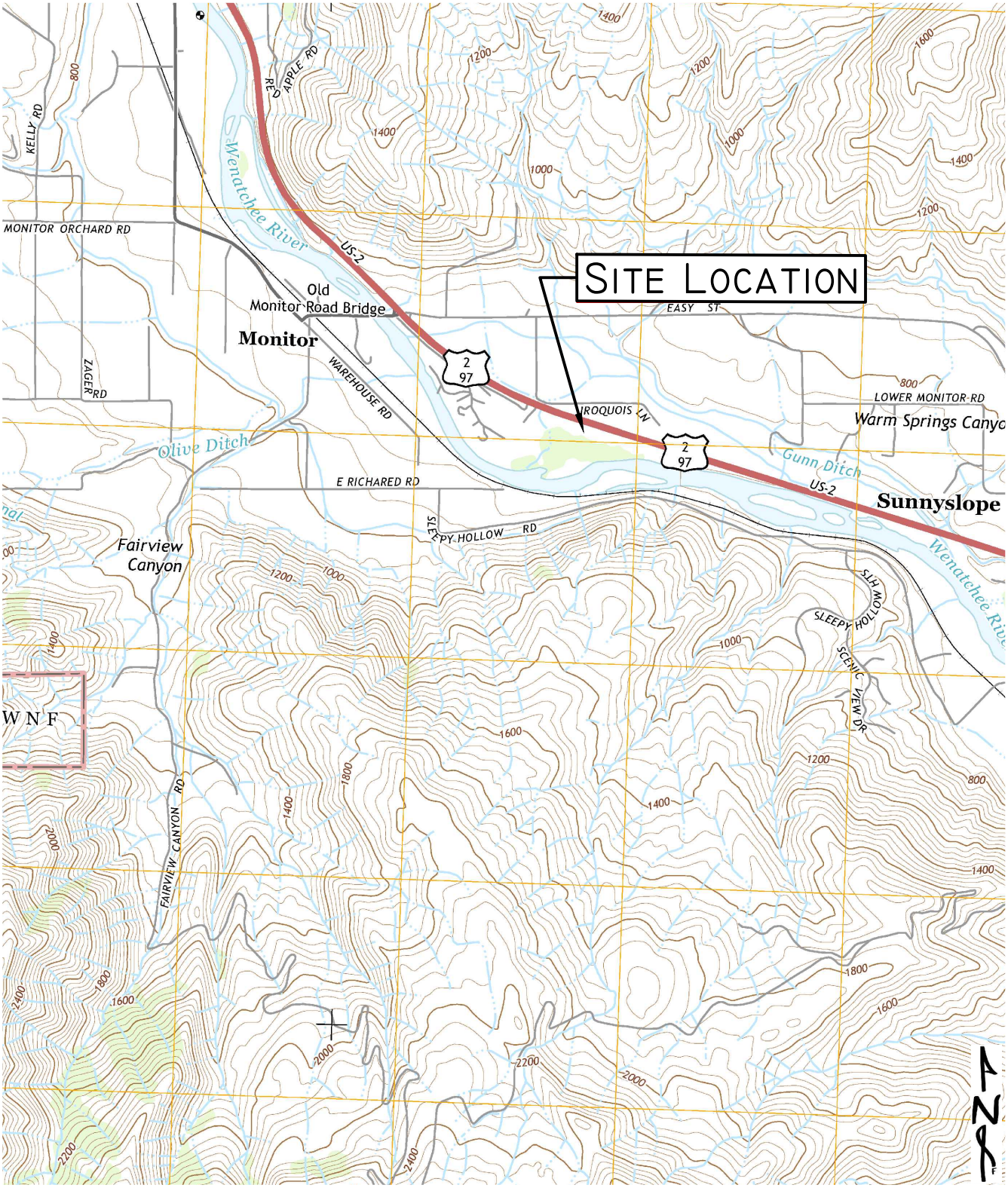

Background Image
Courtesy of USGS

Fulcrum Environmental Consulting, Inc. 406 North Second Street, Yakima, Washington 98901 p: 509.574.0839 f: 509.575.8453 efulcrum.net Whitley Fuel Tanker Spill . 141310. AHY. 011315	Whitley Fuel Tanker Truck Spill Monitor,Washington	General Site Location Map	Figure 1

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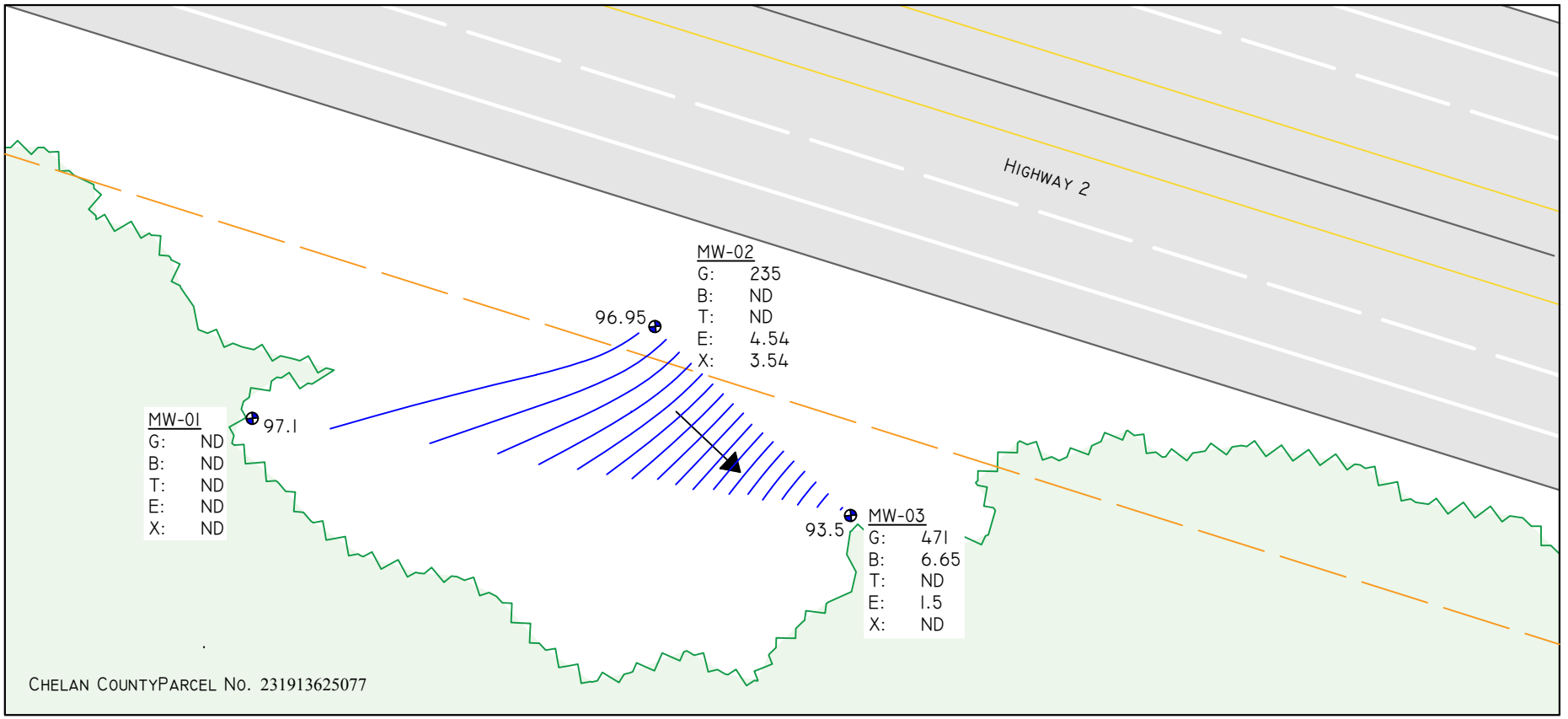

DEPTHS TO WATER (BELOW TOP OF CASING):

MW-01: 4.45 FT
MW-02: 4.71 FT
MW-03: 6.65 FT

CLEANUP LEVELS

G (GASOLINE):	800/100*
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 CALCUATED 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/K.
* WITH/WITHOUT THE PRESENCE OF BENZENE.

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Whitley Fuel Tanker Truck Spill Monitor,Washington

Groundwater Elevation and Analytical Results - June 2106

Figure 2

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ATTACHMENT C

Laboratory Analytical Results Summary Table

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Table 1. Groundwater Analytical Summary – June 2016 Quarterly Event

	Analyte	MTCA Cleanup Level	MW-01	MW-02	MW-03
		Depth to Water	*4.45 ft.*	*4.71 ft.*	*6.65 ft.*
Field Parameters	pH	**NE**	6.93	7.60	7.66
	Conductivity (m S/M)	**NE**	99.9[2]	0.113	0.182
	Turbidity (NTU)	**NE**	0.0	24.3	14.0
	DO (g/L)	**NE**	4.7	3.0	4.9
	Temperature (°C)	**NE**	12.47	12.62	12.20
	TDS (g/L)	**NE**	99.0[2]	0.7	1.2
	ORP (mV)	**NE**	-204	-181	-154
Regulatory Requirements[1]	Gasoline	**800 / 1,000**	ND	235	471
	Benzene	**5.0**	ND	ND	**6.65**
	Toluene	**1,000**	ND	ND	ND
	Ethylbenzene	**700**	ND	4.54	1.5
	m,p-Xylene	**1,000[3]**	ND	3.54	ND
	o-Xylene		ND	ND	ND
Groundwater Quality[1]	Nitrite[4]	**1,600**	ND	ND	ND
	Nitrate[4]	**25,600**	170	135	364
	Sulfate[4]	**NE**	1,400	18,800	12800
	Manganese[4]	**2,240**	51.2	**2,870**	1,600
	Alkalinity	**NE**	183,000	392,000	802,000
	Methane	**NE**	17.9	20.50	43.3

NE – Not Established.
ND - Non-Detect
[1] Results presented in ug/L.
[2] Readings surpassed equipment reporting limits.
[3] Results for total xylenes present.
[4] Nitrite, Nitrate, and Manganese cleanup levels are MTCA Method B Non-Cancer

Whitley Fuels Tanker Spill Groudwater Monitoring Data (1994 to Current)

Well		Date	10/26/1994	3/10/1995	6/12/1995	9/11/1995	12/4/1995	2/27/1996	9/10/2002	9/3/2003	9/2/2004	9/7/2005	9/13/2006	9/24/2007	9/3/2008	9/2/2009	9/7/2010	9/28/2011	9/12/2012	9/10/2013	6/16/2016	MTCA Method A CUL
MW-01	Contaminants	Gasoline	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	ND	800
		Benzene	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	ND	5
		Toluene	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	ND	1,000
		Ethylbenzene	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	ND	700
		Xylene	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	ND	1,000
	Geochemical Indicators	Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	NE
		Nitrate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	170	NE
		Sulfate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,400	NE
		Manganese	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51.2	NE
		Alkalinity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	183,000	NE
		Methane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.9	NE
		pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.93	NE
		Cond. (m S/M)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	99.9	NE
		Turb. (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	NE
		DO (g/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	NE
		Temp. °C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.47	NE
		TDS (g/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4	NE
		ORP (mV)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-204	NE
		Total Iron (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NE
MW-02	Contaminants	Gasoline	91,400,00	ND	ND	5,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	235	800
		Benzene	5,010	ND	1	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	5
		Toluene	14	ND	ND	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	1,000
		Ethylbenzene	0.8	ND	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.54	700
		Xylene	4,590	ND	ND	770	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.54	1,000
	Geochemical Indicators	Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	NE
		Nitrate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	135	NE
		Sulfate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18,800	NE
		Manganese	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,870	NE
		Alkalinity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	392,000	NE
		Methane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.5	NE
		pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.60	NE
		Cond. (m S/M)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.113	NE
		Turb. (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.1	NE
		DO (g/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	NE
		Temp. °C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.62	NE
		TDS (g/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	NE
		ORP (mV)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-181	NE
		Total Iron (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NE
MW-03	Contaminants	TPH (Gas)	23,700,000	311	280	5200	2400	ND	134	<100	696	837	<100	157	<100	239	377	491	484	401	471	800
		Benzene	203	ND	ND	46	21	ND	2	<0.5	47.9	46	1.33	12.5	4.3	10.3	14.7	8.5	10.6	11.5	6.65	5
		Toluene	197	ND	ND	6.6	2.7	ND	<2	<2.0	2.57	2.38	<2	<2	<2	<1	<1	1	<1	<1	ND	1,000
		Ethylbenzene	ND	ND	ND	93	8.4	ND	<1	<1.0	76.2	47.8	<1	3.87	<1	6.29	3.54	<1	1.1	1.7	1.5	700
		Xylene	1050	9.3	ND	180	230	ND	<1.5	<1.5	67.3	82.8	<1.5	6.17	<1.5	3.3	<3	<3	<3	<3	ND	1,000
	Geochemical Indicators	Nitrite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	NE
		Nitrate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	364	NE
		Sulfate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12,800	NE
		Manganese	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,600	NE
		Alkalinity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	802,000	NE
		Methane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43.3	NE
		pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.66	NE
		Cond. (m S/M)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.182	NE
		Turb. (NTU)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.0	NE
		DO (g/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.9	NE
		Temp. °C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.20	NE
		TDS (g/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2	NE
		ORP (mV)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-154	NE
		Total Iron (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NE

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ATTACHMENT D

Complete Laboratory Analytical Results

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Fulcrum Environmental
Ryan Mathews
406 N. 2nd Street
Yakima, WA 98901

RE: Whitley Tanker Spill
Lab ID: 1606256

June 24, 2016

Attention Ryan Mathews:

Fremont Analytical, Inc. received 4 sample(s) on 6/17/2016 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:
Ashley Yellick

Date: *06/24/2016*

CLIENT: Fulcrum Environmental
Project: Whitley Tanker Spill
Lab Order: 1606256

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1606256-001	MW-01	06/16/2016 10:15 AM	06/17/2016 9:51 AM
1606256-002	MW-02	06/16/2016 12:35 PM	06/17/2016 9:51 AM
1606256-003	MW-03	06/16/2016 11:30 AM	06/17/2016 9:51 AM
1606256-004	MW-04	06/16/2016 9:10 AM	06/17/2016 9:51 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1606256**
Date: **6/24/2016**

CLIENT: Fulcrum Environmental
Project: Whitley Tanker Spill

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

WO#: **1606256**

Date Reported: **6/24/2016**

Client: Fulcrum Environmental

Collection Date: 6/16/2016 10:15:00 AM

Project: Whitley Tanker Spill

Lab ID: 1606256-001

Matrix: Water

Client Sample ID: **MW-01**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Gases by RSK-175				Batch ID: R30193		Analyst: BC
Methane	0.0179	0.00500		mg/L	1	6/24/2016 9:56:00 AM
Gasoline by NWTPH-Gx				Batch ID: R30150		Analyst: EM
Gasoline	ND	50.0		µg/L	1	6/21/2016 10:45:43 PM
Surr: 4-Bromofluorobenzene	96.7	65-135		%Rec	1	6/21/2016 10:45:43 PM
Surr: Toluene-d8	97.6	65-135		%Rec	1	6/21/2016 10:45:43 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R30149		Analyst: EM
Benzene	ND	1.00		µg/L	1	6/21/2016 10:45:43 PM
Toluene	ND	1.00		µg/L	1	6/21/2016 10:45:43 PM
Ethylbenzene	ND	1.00		µg/L	1	6/21/2016 10:45:43 PM
m,p-Xylene	ND	1.00		µg/L	1	6/21/2016 10:45:43 PM
o-Xylene	ND	1.00		µg/L	1	6/21/2016 10:45:43 PM
Surr: Dibromofluoromethane	97.1	45.4-152		%Rec	1	6/21/2016 10:45:43 PM
Surr: Toluene-d8	94.5	40.1-139		%Rec	1	6/21/2016 10:45:43 PM
Surr: 1-Bromo-4-fluorobenzene	94.4	64.2-128		%Rec	1	6/21/2016 10:45:43 PM
Ion Chromatography by EPA Method 300.0				Batch ID: R30048		Analyst: KT
Nitrite	ND	0.100		mg/L	1	6/17/2016 2:38:00 PM
Nitrate	0.170	0.100		mg/L	1	6/17/2016 2:38:00 PM
Sulfate	1.40	0.300		mg/L	1	6/17/2016 2:38:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 14065		Analyst: TN
Manganese	51.2	2.00		µg/L	1	6/21/2016 12:45:38 PM
Total Alkalinity by SM 2320B				Batch ID: R30134		Analyst: KT
Alkalinity, Total (As CaCO3)	183	2.50		mg/L	1	6/22/2016 1:20:00 PM

Original

Analytical Report

WO#: **1606256**

Date Reported: **6/24/2016**

Client: Fulcrum Environmental
Collection Date: 6/16/2016 12:35:00 PM
Project: Whitley Tanker Spill
Lab ID: 1606256-002
Matrix: Water
Client Sample ID: **MW-02**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Gases by RSK-175				Batch ID: R30193		Analyst: BC
Methane	0.0205	0.00500		mg/L	1	6/24/2016 10:04:00 AM
Gasoline by NWTPH-Gx				Batch ID: R30150		Analyst: EM
Gasoline	235	50.0		µg/L	1	6/21/2016 11:16:10 PM
Surr: 4-Bromofluorobenzene	98.4	65-135		%Rec	1	6/21/2016 11:16:10 PM
Surr: Toluene-d8	98.8	65-135		%Rec	1	6/21/2016 11:16:10 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R30149		Analyst: EM
Benzene	ND	1.00		µg/L	1	6/21/2016 11:16:10 PM
Toluene	ND	1.00		µg/L	1	6/21/2016 11:16:10 PM
Ethylbenzene	4.54	1.00		µg/L	1	6/21/2016 11:16:10 PM
m,p-Xylene	3.54	1.00		µg/L	1	6/21/2016 11:16:10 PM
o-Xylene	ND	1.00		µg/L	1	6/21/2016 11:16:10 PM
Surr: Dibromofluoromethane	97.5	45.4-152		%Rec	1	6/21/2016 11:16:10 PM
Surr: Toluene-d8	95.0	40.1-139		%Rec	1	6/21/2016 11:16:10 PM
Surr: 1-Bromo-4-fluorobenzene	95.5	64.2-128		%Rec	1	6/21/2016 11:16:10 PM
Ion Chromatography by EPA Method 300.0				Batch ID: R30048		Analyst: KT
Nitrite	ND	0.500	D	mg/L	5	6/17/2016 3:17:00 PM
Nitrate	0.135	0.500	JD	mg/L	5	6/17/2016 3:17:00 PM
Sulfate	18.8	1.50	D	mg/L	5	6/17/2016 3:17:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 14065		Analyst: TN
Manganese	2,870	2.00		µg/L	1	6/21/2016 12:59:50 PM
Total Alkalinity by SM 2320B				Batch ID: R30134		Analyst: KT
Alkalinity, Total (As CaCO3)	392	2.50		mg/L	1	6/22/2016 1:40:00 PM

Analytical Report

WO#: **1606256**
Date Reported: **6/24/2016**

Client: Fulcrum Environmental
Collection Date: 6/16/2016 11:30:00 AM
Project: Whitley Tanker Spill
Lab ID: 1606256-003
Matrix: Water
Client Sample ID: **MW-03**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Gases by RSK-175				Batch ID: R30193		Analyst: BC
Methane	0.0433	0.00500		mg/L	1	6/24/2016 10:07:00 AM
Gasoline by NWTPH-Gx				Batch ID: R30150		Analyst: EM
Gasoline	471	50.0		µg/L	1	6/21/2016 11:46:32 PM
Surr: 4-Bromofluorobenzene	97.8	65-135		%Rec	1	6/21/2016 11:46:32 PM
Surr: Toluene-d8	99.3	65-135		%Rec	1	6/21/2016 11:46:32 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R30149		Analyst: EM
Benzene	6.65	1.00		µg/L	1	6/21/2016 11:46:32 PM
Toluene	ND	1.00		µg/L	1	6/21/2016 11:46:32 PM
Ethylbenzene	1.50	1.00		µg/L	1	6/21/2016 11:46:32 PM
m,p-Xylene	ND	1.00		µg/L	1	6/21/2016 11:46:32 PM
o-Xylene	ND	1.00		µg/L	1	6/21/2016 11:46:32 PM
Surr: Dibromofluoromethane	96.5	45.4-152		%Rec	1	6/21/2016 11:46:32 PM
Surr: Toluene-d8	96.6	40.1-139		%Rec	1	6/21/2016 11:46:32 PM
Surr: 1-Bromo-4-fluorobenzene	96.4	64.2-128		%Rec	1	6/21/2016 11:46:32 PM
Ion Chromatography by EPA Method 300.0				Batch ID: R30048		Analyst: KT
Nitrite	ND	1.00	D	mg/L	10	6/17/2016 3:27:00 PM
Nitrate	0.364	1.00	JD	mg/L	10	6/17/2016 3:27:00 PM
Sulfate	12.8	3.00	D	mg/L	10	6/17/2016 3:27:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 14065		Analyst: TN
Manganese	1,600	2.00		µg/L	1	6/21/2016 1:03:23 PM
Total Alkalinity by SM 2320B				Batch ID: R30134		Analyst: KT
Alkalinity, Total (As CaCO3)	802	2.50		mg/L	1	6/22/2016 1:50:00 PM

Analytical Report

WO#: **1606256**
Date Reported: **6/24/2016**

Client: Fulcrum Environmental
Collection Date: 6/16/2016 9:10:00 AM
Project: Whitley Tanker Spill
Lab ID: 1606256-004
Matrix: Water
Client Sample ID: **MW-04**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Gases by RSK-175				Batch ID: R30193		Analyst: BC
Methane	0.0621	0.00500		mg/L	1	6/24/2016 10:09:00 AM
Gasoline by NWTPH-Gx				Batch ID: R30150		Analyst: EM
Gasoline	734	50.0		µg/L	1	6/22/2016 12:16:49 AM
Surr: 4-Bromofluorobenzene	100	65-135		%Rec	1	6/22/2016 12:16:49 AM
Surr: Toluene-d8	98.4	65-135		%Rec	1	6/22/2016 12:16:49 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: R30149		Analyst: EM
Benzene	7.19	1.00		µg/L	1	6/22/2016 12:16:49 AM
Toluene	ND	1.00		µg/L	1	6/22/2016 12:16:49 AM
Ethylbenzene	2.18	1.00		µg/L	1	6/22/2016 12:16:49 AM
m,p-Xylene	ND	1.00		µg/L	1	6/22/2016 12:16:49 AM
o-Xylene	ND	1.00		µg/L	1	6/22/2016 12:16:49 AM
Surr: Dibromofluoromethane	96.6	45.4-152		%Rec	1	6/22/2016 12:16:49 AM
Surr: Toluene-d8	95.7	40.1-139		%Rec	1	6/22/2016 12:16:49 AM
Surr: 1-Bromo-4-fluorobenzene	97.7	64.2-128		%Rec	1	6/22/2016 12:16:49 AM
Ion Chromatography by EPA Method 300.0				Batch ID: R30048		Analyst: KT
Nitrite	ND	1.00	D	mg/L	10	6/17/2016 3:37:00 PM
Nitrate	0.345	1.00	JD	mg/L	10	6/17/2016 3:37:00 PM
Sulfate	12.7	3.00	D	mg/L	10	6/17/2016 3:37:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 14065		Analyst: TN
Manganese	1,600	2.00		µg/L	1	6/21/2016 1:12:46 PM
Total Alkalinity by SM 2320B				Batch ID: R30134		Analyst: KT
Alkalinity, Total (As CaCO3)	772	2.50		mg/L	1	6/22/2016 2:00:00 PM

Date: *6/24/2016*

Work Order: 1606256
CLIENT: Fulcrum Environmental
Project: Whitley Tanker Spill

QC SUMMARY REPORT

Total Alkalinity by SM 2320B

Sample ID **MB-R30134**	SampType: **MBLK**			Units: **mg/L**		Prep Date: **6/22/2016**			RunNo: **30134**		
Client ID: **MBLKW**	Batch ID: **R30134**					Analysis Date: **6/22/2016**			SeqNo: **569283**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	2.50									

Sample ID **LCS-R30134**	SampType: **LCS**			Units: **mg/L**		Prep Date: **6/22/2016**			RunNo: **30134**		
Client ID: **LCSW**	Batch ID: **R30134**					Analysis Date: **6/22/2016**			SeqNo: **569284**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	103	2.50	100.0	0	103	80	120				

Sample ID **1606256-001CDUP**	SampType: **DUP**			Units: **mg/L**		Prep Date: **6/22/2016**			RunNo: **30134**		
Client ID: **MW-01**	Batch ID: **R30134**					Analysis Date: **6/22/2016**			SeqNo: **569295**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	180	2.50						182.9	1.66	20	

Work Order: 1606256
CLIENT: Fulcrum Environmental
Project: Whitley Tanker Spill

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID **MB-R30048** SampType: **MBLK** Units: **mg/L** Prep Date: **6/17/2016** RunNo: **30048**
Client ID: **MBLKW** Batch ID: **R30048** Analysis Date: **6/17/2016** SeqNo: **567884**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite	ND	0.100									
Nitrate	ND	0.100									
Sulfate	ND	0.300									

Sample ID **LCS-R30048** SampType: **LCS** Units: **mg/L** Prep Date: **6/17/2016** RunNo: **30048**
Client ID: **LCSW** Batch ID: **R30048** Analysis Date: **6/17/2016** SeqNo: **567885**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite	2.81	0.100	3.000	0	93.6	90	110				
Nitrate	2.88	0.100	3.000	0	95.9	90	110				
Sulfate	13.9	0.300	15.00	0	92.7	90	110				

Sample ID **1606256-001CDUP** SampType: **DUP** Units: **mg/L** Prep Date: **6/17/2016** RunNo: **30048**
Client ID: **MW-01** Batch ID: **R30048** Analysis Date: **6/17/2016** SeqNo: **567887**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite	ND	0.100						0		20	
Nitrate	0.158	0.100						0.1696	7.33	20	
Sulfate	1.40	0.300						1.398	0.208	20	

Sample ID **1606256-001CMS** SampType: **MS** Units: **mg/L** Prep Date: **6/17/2016** RunNo: **30048**
Client ID: **MW-01** Batch ID: **R30048** Analysis Date: **6/17/2016** SeqNo: **567888**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite	3.62	0.100	3.000	0	121	80	120				S
Nitrate	2.96	0.100	3.000	0.1696	93.0	80	120				
Sulfate	16.2	0.300	15.00	1.398	98.4	80	120				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Date: *6/24/2016*

Work Order: 1606256
CLIENT: Fulcrum Environmental
Project: Whitley Tanker Spill

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID **1606256-001CMSD** SampType: **MSD** Units: **mg/L** Prep Date: **6/17/2016** RunNo: **30048**
Client ID: **MW-01** Batch ID: **R30048** Analysis Date: **6/17/2016** SeqNo: **567889**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite	3.65	0.100	3.000	0	122	80	120	3.622	0.781	20	S
Nitrate	2.94	0.100	3.000	0.1696	92.3	80	120	2.960	0.766	20	
Sulfate	16.1	0.300	15.00	1.398	98.1	80	120	16.16	0.270	20	

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1606256
CLIENT: Fulcrum Environmental
Project: Whitley Tanker Spill

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID	**MB-14061FB**	SampType:	**MBLK**			Units:	**µg/L**	Prep Date:	**6/21/2016**	RunNo:	**30099**
Client ID:	**MBLKW**	Batch ID:	**14065**					Analysis Date:	**6/21/2016**	SeqNo:	**568767**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	2.00									

NOTES:
Filter Blank

Sample ID	**MB-14065**	SampType:	**MBLK**			Units:	**µg/L**	Prep Date:	**6/21/2016**	RunNo:	**30099**
Client ID:	**MBLKW**	Batch ID:	**14065**					Analysis Date:	**6/21/2016**	SeqNo:	**568768**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	2.00									

Sample ID	**LCS-14065**	SampType:	**LCS**			Units:	**µg/L**	Prep Date:	**6/21/2016**	RunNo:	**30099**
Client ID:	**LCSW**	Batch ID:	**14065**					Analysis Date:	**6/21/2016**	SeqNo:	**568769**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	99.5	2.00	100.0	0	99.5	85	115				

Sample ID	**1606256-001BDUP**	SampType:	**DUP**			Units:	**µg/L**	Prep Date:	**6/21/2016**	RunNo:	**30099**
Client ID:	**MW-01**	Batch ID:	**14065**					Analysis Date:	**6/21/2016**	SeqNo:	**568773**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	52.1	2.00						51.20	1.81	30	

Sample ID	**1606256-001BMS**	SampType:	**MS**			Units:	**µg/L**	Prep Date:	**6/21/2016**	RunNo:	**30099**
Client ID:	**MW-01**	Batch ID:	**14065**					Analysis Date:	**6/21/2016**	SeqNo:	**568774**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	578	2.00	500.0	51.20	105	70	130				

Date: *6/24/2016*

Work Order: 1606256
CLIENT: Fulcrum Environmental
Project: Whitley Tanker Spill

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID **1606256-001BMSD** SampType: **MSD** Units: **µg/L** Prep Date: **6/21/2016** RunNo: **30099**
Client ID: **MW-01** Batch ID: **14065** Analysis Date: **6/21/2016** SeqNo: **568775**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	551	2.00	500.0	51.20	100	70	130	577.7	4.64	30	

Date: *6/24/2016*

Work Order: 1606256
CLIENT: Fulcrum Environmental
Project: Whitley Tanker Spill

QC SUMMARY REPORT

Dissolved Gases by RSK-175

Sample ID	**MB-R30193**	SampType:	**MBLK**			Units:	**mg/L**	Prep Date:	**6/24/2016**	RunNo:	**30193**	
Client ID:	**MBLKW**	Batch ID:	**R30193**					Analysis Date:	**6/24/2016**	SeqNo:	**570362**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methane		ND	0.00500									

Sample ID	**LCS-R30193**	SampType:	**LCS**			Units:	**mg/L**	Prep Date:	**6/24/2016**	RunNo:	**30193**	
Client ID:	**LCSW**	Batch ID:	**R30193**					Analysis Date:	**6/24/2016**	SeqNo:	**570360**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methane		498	0.00500	500.0	0	99.7	80	120				

Sample ID	**1606256-001ADUP**	SampType:	**DUP**			Units:	**mg/L**	Prep Date:	**6/24/2016**	RunNo:	**30193**	
Client ID:	**MW-01**	Batch ID:	**R30193**					Analysis Date:	**6/24/2016**	SeqNo:	**570354**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methane		0.0245	0.00500						0.01790	31.1	30	R

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Work Order: 1606256
CLIENT: Fulcrum Environmental
Project: Whitley Tanker Spill

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID	LCS-R30150	SampType:	LCS	Units:	µg/L	Prep Date:	6/21/2016	RunNo:	30150
Client ID:	LCSW	Batch ID:	R30150			Analysis Date:	6/21/2016	SeqNo:	569547

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	509	50.0	500.0	0	102	65	135				
Surr: Toluene-d8	24.7		25.00		98.9	65	135				
Surr: 4-Bromofluorobenzene	24.5		25.00		98.1	65	135				

Sample ID	MB-R30150	SampType:	MBLK	Units:	µg/L	Prep Date:	6/21/2016	RunNo:	30150
Client ID:	MBLKW	Batch ID:	R30150			Analysis Date:	6/21/2016	SeqNo:	569548

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0									
Surr: Toluene-d8	24.6		25.00		98.3	65	135				
Surr: 4-Bromofluorobenzene	24.7		25.00		98.8	65	135				

Sample ID	1606252-001ADUP	SampType:	DUP	Units:	µg/L	Prep Date:	6/21/2016	RunNo:	30150
Client ID:	BATCH	Batch ID:	R30150			Analysis Date:	6/21/2016	SeqNo:	569538

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	24.5		25.00		98.0	65	135		0	0	
Surr: 4-Bromofluorobenzene	24.3		25.00		97.0	65	135		0	0	

Sample ID	1606256-004AMS	SampType:	MS	Units:	µg/L	Prep Date:	6/22/2016	RunNo:	30150
Client ID:	MW-04	Batch ID:	R30150			Analysis Date:	6/22/2016	SeqNo:	569543

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	1,200	50.0	500.0	733.6	92.8	65	135				
Surr: Toluene-d8	24.9		25.00		99.8	65	135				
Surr: 4-Bromofluorobenzene	24.6		25.00		98.6	65	135				

Date: *6/24/2016*

Work Order: 1606256
CLIENT: Fulcrum Environmental
Project: Whitley Tanker Spill

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **1606256-004AMSD** SampType: **MSD** Units: **µg/L** Prep Date: **6/22/2016** RunNo: **30150**
Client ID: **MW-04** Batch ID: **R30150** Analysis Date: **6/22/2016** SeqNo: **569544**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	1,190	50.0	500.0	733.6	90.6	65	135	1,198	0.924	30	
Surr: Toluene-d8	24.9		25.00		99.6	65	135		0	0	
Surr: 4-Bromofluorobenzene	25.0		25.00		100	65	135		0	0	

Work Order: 1606256
CLIENT: Fulcrum Environmental
Project: Whitley Tanker Spill

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-R30149** SampType: **LCS** Units: **µg/L** Prep Date: **6/21/2016** RunNo: **30149**
Client ID: **LCSW** Batch ID: **R30149** Analysis Date: **6/21/2016** SeqNo: **569535**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.5	1.00	20.00	0	102	69.3	132				
Toluene	20.2	1.00	20.00	0	101	61.3	145				
Ethylbenzene	21.0	1.00	20.00	0	105	72	130				
m,p-Xylene	42.1	1.00	40.00	0	105	70.3	134				
o-Xylene	20.9	1.00	20.00	0	105	72.1	131				
Surr: Dibromofluoromethane	24.6		25.00		98.2	45.4	152				
Surr: Toluene-d8	24.4		25.00		97.5	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.0		25.00		100	64.2	128				

Sample ID **MB-R30149** SampType: **MBLK** Units: **µg/L** Prep Date: **6/21/2016** RunNo: **30149**
Client ID: **MBLKW** Batch ID: **R30149** Analysis Date: **6/21/2016** SeqNo: **569536**

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									
o-Xylene	ND	1.00									
Surr: Dibromofluoromethane	24.1		25.00		96.5	45.4	152				
Surr: Toluene-d8	23.4		25.00		93.6	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	24.1		25.00		96.4	64.2	128				

Sample ID **1606252-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/21/2016** RunNo: **30149**
Client ID: **BATCH** Batch ID: **R30149** Analysis Date: **6/21/2016** SeqNo: **569517**

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	

Work Order: 1606256
CLIENT: Fulcrum Environmental
Project: Whitley Tanker Spill

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1606252-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/21/2016** RunNo: **30149**
Client ID: **BATCH** Batch ID: **R30149** Analysis Date: **6/21/2016** SeqNo: **569517**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	1.00						0		30	
Surr: Dibromofluoromethane	24.3		25.00		97.1	45.4	152		0		
Surr: Toluene-d8	23.4		25.00		93.7	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	23.8		25.00		95.0	64.2	128		0		

Sample ID **1606263-001AMS** SampType: **MS** Units: **µg/L** Prep Date: **6/22/2016** RunNo: **30149**
Client ID: **BATCH** Batch ID: **R30149** Analysis Date: **6/22/2016** SeqNo: **569524**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.6	1.00	20.00	0	108	65.4	138				
Toluene	21.3	1.00	20.00	0	107	64	139				
Ethylbenzene	22.5	1.00	20.00	0.1400	112	64.5	136				
m,p-Xylene	44.6	1.00	40.00	0	111	63.3	135				
o-Xylene	22.1	1.00	20.00	0	110	65.4	134				
Surr: Dibromofluoromethane	23.9		25.00		95.7	45.4	152				
Surr: Toluene-d8	24.2		25.00		97.0	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	24.7		25.00		98.8	64.2	128				

Sample ID **1606263-001AMSD** SampType: **MSD** Units: **µg/L** Prep Date: **6/22/2016** RunNo: **30149**
Client ID: **BATCH** Batch ID: **R30149** Analysis Date: **6/22/2016** SeqNo: **569525**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.7	1.00	20.00	0	109	65.4	138	21.64	0.369	30	
Toluene	21.5	1.00	20.00	0	108	64	139	21.32	1.03	30	
Ethylbenzene	22.9	1.00	20.00	0.1400	114	64.5	136	22.49	1.68	30	
m,p-Xylene	45.6	1.00	40.00	0	114	63.3	135	44.58	2.22	30	
o-Xylene	22.5	1.00	20.00	0	113	65.4	134	22.09	1.97	30	
Surr: Dibromofluoromethane	24.3		25.00		97.3	45.4	152		0	0	
Surr: Toluene-d8	24.2		25.00		96.6	40.1	139		0	0	
Surr: 1-Bromo-4-fluorobenzene	24.9		25.00		99.6	64.2	128		0	0	

Date: *6/24/2016*

Work Order: 1606256
CLIENT: Fulcrum Environmental
Project: Whitley Tanker Spill

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1606263-001AMSD** SampType: **MSD** Units: **µg/L** Prep Date: **6/22/2016** RunNo: **30149**
Client ID: **BATCH** Batch ID: **R30149** Analysis Date: **6/22/2016** SeqNo: **569525**

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

Sample Log-In Check List

Client Name:	**FE**	Work Order Number:	**1606256**
Logged by:	**Clare Griggs**	Date Received:	**6/17/2016 9:51:00 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: _____ Date _____

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

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	3.8
Sample	2.4

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

Original

updated COC - AH

Chain of Custody Record

Fremont Analytical

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

Laboratory Project No (internal): 1601625C

Date: 6.17.16

Page: 1 of: 1

Client: Fulcrum Environmental Consulting, Inc.
Address: 406 North 2nd Street
City, State, Zip: Yakima, Washington 98901 Tel: 509.574.0839
Reports To (PM): Ryan Mathews Fax: Email: rmathews@fulcrum.net

Project Name: Whitby Tanker Spill
Location: Manitou, WA
Collected by: A.L. Yellick
Project No: 141310

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6010) / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**	Alkalinity by SM 2320B	Methanol by 8015-135	Comments/Depth
1	MW-01	6.16.16	1015	H_2O		X										X	D	X	X	X		
2	MW-02	↓	1235	↓		↓										↓	↓	↓	↓	↓		
3	MW-03		1130																			
4	MW-04		910																			
5																						
6																						
7																						
8																						
9																						
10																						

*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 (A fee may be assessed if samples are retained after 30 days.)

Special Remarks: Please cc ashley@fulcrum.net

Relinquished	Date/Time	Received	Date/Time
x Ashley Yellick	6.16.16 @ 1400		
Relinquished x	Date/Time	Received x	Date/Time
			6/17/16 0951

TAT --> Next Day 2 Day 3 Day (STD)

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com