TETRA TECH

January 18, 2022

Mr. Panjini Balaraju
Washington State Department of Ecology
Toxics Cleanup Program, Southwest Regional Office
P.O. Box 47775
Olympia, Washington 98504-7775

Sent via e-mail to PBAL461@ECY.WA.GOV

Subject: Groundwater Monitoring Report, September 2021
Lumen Longview Facility
1305 Washington Way, Longview, Washington 98632

Dear Mr. Balaraju:

Tetra Tech, Inc. (Tetra Tech) on behalf of Lumen Technologies, Inc. (Lumen) is providing this summary of the groundwater sampling event conducted on September 21, 2021 at the Lumen Facility in Longview, Washington. Groundwater monitoring events are being conducted as a continuation of the Groundwater Monitoring Plan developed in 2008 under the Voluntary Cleanup Program. Groundwater monitoring was conducted generally in accordance with the March 2015 Final Direct-Push Sampling Plan (Tetra Tech 2015) and approved by the Washington State Department of Ecology (Ecology).

Groundwater Levels

The depth to groundwater was measured using an electronic static water-level indicator that was lowered into each well. Depth to groundwater was measured to the nearest hundredth of a foot from the top of the well casing. Static water levels ranged from 1.53 to 1.65 feet above mean sea level (amsl) and are summarized in the table below and shown on Figure 1. Groundwater levels were approximately 2.18 to 2.22 feet lower than observed in March 2020 (the last monitoring event).

SEPTEMBER 21, 2021 GROUNDWATER ELEVATIONS

Location	Surveyed Top of Casing (ft amsl)	September 21, 2021 Depth to Water (ft)	September 21, 2021 Groundwater Elevation (ft amsl)
MW-01	15.64	14.03	1.61
MW-02	16.17	14.61	1.56
MW-03	15.02	13.37	1.65
MW-04	14.55	12.99	1.56
MW-05	14.75	13.22	1.53

Notes:

ft	Feet
ft amsl	Feet above mean sea level
MW	Monitoring well

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Based on groundwater elevation data shown on Figure 1, the direction of groundwater flow appears to be southwest, with a gradient of approximately 0.0015 foot/foot. Historically, groundwater flow direction has typically ranged from west to northwest. Sitewide groundwater levels during this event and the March 2020 event are more uniform than typically observed and there is a flatter than normal gradient.

Groundwater Samples from Permanent Monitoring Wells

Groundwater samples were obtained from all five permanent monitoring wells at the facility. Per the groundwater monitoring plan, a field duplicate sample is collected during every other sampling event; because a field duplicate was not collected during the March 2020 sampling event, a field duplicate was collected during this event. After groundwater level measurements were documented, field personnel collected groundwater samples using a peristaltic pump. New dedicated tubing was used to collect the sample at each well. In accordance with the monitoring plan, low-flow sampling procedures were used. Sampling flow rates were kept below 500 milliliters per minute for purging and groundwater sample collection.

A calibrated YSI ProSeries Professional Plus multiparameter water quality meter was used to measure field parameters during well purging prior to sampling. A HACH 2100Q meter was used to measure turbidity. Water quality parameters measured with the YSI ProSeries Professional Plus included pH, dissolved oxygen, oxidation-reduction potential, temperature, and specific conductance. Low-flow pumping continued until field parameters stabilized within acceptable parameter limits before samples were collected. Attachment A includes the logs of field parameters measured during the low-flow sampling.

Groundwater Sample Analysis

Once obtained, groundwater samples were labeled in accordance with Tetra Tech standard operating procedures, placed in a cooler, and chilled to below 4 degrees Celsius. Samples were shipped to ALS Laboratories (ALS), located at 1317 S. 13th Avenue in Kelso, Washington. Samples were delivered following standard chain-of-custody protocol. The chain-of-custody form is included with the laboratory analytical reports in Attachment B.

ALS analyzed the samples for total petroleum hydrocarbons-diesel range organics (TPH-DRO) and total petroleum hydrocarbons-residual range organics (TPH-RRO) by Northwest Total Petroleum Hydrocarbons-Diesel Extended Range Methodology (Ecology 1997), without silica gel cleanup.

ALS analyzed the samples for polycyclic aromatic hydrocarbons (PAH) by U.S. Environmental Protection Agency (EPA) Method 8270-Selected Ion Monitoring (SIM). The PAH samples were requested to be filtered with a 0.7-micron (µm) filter before analysis. However, the laboratory did not filter the samples. The PAH sample reanalysis on the filtered samples was performed outside of the holding time; therefore, all detected results for PAHs were qualified with a “J” to indicate that the results are estimated.

Groundwater Sample Analytical Results

Table 1 presents groundwater analytical results for the samples collected during the September 21, 2021 event. The data were reviewed by a qualified chemist in accordance with Tetra Tech standard operating procedure (SOP) 203-1 (Tetra Tech 2019) and met the quality control limits of the analytical methods. Samples analyzed for PAHs required reanalysis as these samples were not filtered prior to extraction as requested by Tetra Tech. The reanalysis was performed outside of the holding time; therefore, all detected results for PAHs were qualified with a “J” to indicate that the results are estimated.

The method blanks had low-level detections of 2-methylnaphthalene, benz(a)anthracene, dibenzofuran, naphthalene, TPH-DRO, and TPH-RRO. Based on method blank detections, the low-level detected results of the listed constituents were qualified as not detected at the reporting limit per the National Functional Guidelines for Organic Superfund Methods Data Review (EPA 2020). The method reporting limit for TPH-RRO (520 to 530 micrograms per liter [µg/L]) exceeds the Model Toxics Control Act (MTCA) Method A cleanup level for groundwater of 500 µg/L. However, the TPH-RRO concentrations in these samples are either attributable to laboratory contamination or are likely present in the groundwater samples at concentrations below the cleanup level. The maximum TPH-DRO and TPH-RRO result reported by the laboratory was 690 µg/L in sample MW-01. However, the laboratory noted for the results for TPH-DRO and TPH-RRO in sample MW-01 that the chromatographic fingerprint does not resemble a petroleum product. The remainder of the results for the chemicals not listed above are usable as reported by the laboratory.

Low concentrations of PAHs were detected in all monitoring well samples; Table 1 also summarizes these results. There are no total PAH or compound-specific MTCA Method A cleanup levels for PAHs. The MTCA Method A cleanup level for the carcinogenic PAHs of 0.1 µg/L is based on the benzo(a)pyrene toxic equivalent quotient (BaP TEQ). Table 1 also shows the BaP TEQ results, which are based on the individual PAH analytical results multiplied by a toxicity equivalent factor (TEF). All BaP TEQ results were below the MTCA Method A cleanup level. All the constituents that are part of the BaP TEQ calculation were not detected for samples MW-02 through MW-05, thus the BaP TEQ results were also non-detect and below the MTCA Method A cleanup level. The BaP TEQ result of 0.0035 µg/L in sample MW-01 was also below the MTCA Method A cleanup level. The original unfiltered BaP TEQ result in sample MW-01 is 0.0085 µg/L, which is also below the MTCA Method A cleanup level of 0.1 µg/L.

Table 2 summarizes the historical results for TPH-DRO and TPH-RRO for each monitoring well sample. Table 3 summarizes the historical results for BaP TEQ and total PAHs for each monitoring well sample.

Conclusions and Recommendations

For the September 2021 sampling event, analytical results from all six monitoring well samples, including one field duplicate, were below MTCA Method A cleanup levels for BaP TEQ.

Because of method blank contamination, the TPH-RRO results for MW-02 through MW-05 are reported as not detected at the reporting limit. The reporting limit exceeds the MTCA Method A cleanup level for TPH-RRO. However, the TPH-RRO concentrations in these samples are either attributable to laboratory contamination or are likely present in the groundwater samples at concentrations below the cleanup levels.

The results for TPH-DRO and TPH-RRO in sample MW-01 exceeded their respective MTCA Method A cleanup levels. However, the laboratory noted that the chromatographic fingerprint for these results does not resemble a petroleum product, which may mean that the detection is not related to the current diesel spill remediation.

The results from September 2021 were similar to other fall season sample results, when all concentrations were below the 500 µg/L cleanup level for TPH-DRO and TPH-RRO. Results from September 2021 were also similar to those from the last sampling event in March 2020. Continued low groundwater TPH concentrations at downgradient wells MW-04 and MW-05 indicate that the TPH plume is stable and not migrating downgradient at significant concentrations.

Tetra Tech recommends that groundwater sampling at the five monitoring wells continue every 18 months to monitor plume stability and continued attenuation of contaminant concentrations to below MTCA Method A cleanup levels. These groundwater sampling events would alternate between spring and fall to obtain groundwater concentration data from high and low groundwater conditions. This monitoring schedule was discussed with Ecology's Mr. Steve Teel and Tetra Tech Engineer, Mr. Dave Berestka during a teleconference on March 22, 2017. Accordingly, the next groundwater monitoring events will be conducted in spring 2023 and fall 2024.

If you have any questions or concerns, please contact me at (303) 312-8813 or mark.reisig@tetratech.com.

Sincerely,

Mark Reisig
Program Manager
Tetra Tech, Inc.

cc: Joe Robertson, Regional Environmental Health and Safety Manager, Lumen

Attachments:
A Low-Flow Groundwater Sampling Parameter Forms
B Laboratory Analytical Report and Chain-of-Custody Record

References

Tetra Tech. 2015. Direct-Push Groundwater Investigation and Sampling Plan: CenturyLink Longview facility, Longview, Washington. March 2.

Tetra Tech. 2019. SOP 203-1, Laboratory Analytical Data Verification. January.

United States Environmental Protection Agency (EPA). 2020. National Functional Guidelines for Organic Superfund Methods Data Review. (https://www.epa.gov/sites/default/files/2021-03/documents/nfg_for_organic_superfund_methods_data_review_november_2020.pdf). Accessed on December 13, 2021.

Washington State Department of Ecology (Ecology). 1997. Analytical Methods For Petroleum Hydrocarbons. (https://fortress.wa.gov/ecy/publications/documents/97602.pdf). Accessed on December 13, 2021.

ANALYTICAL RESULTS TABLES

TABLE 1
GROUNDWATER SAMPLE ANALYTICAL RESULTS
LUMEN LONGVIEW, WASHINGTON FACILITY

Analyte		TPH-DRO	TPH-RRO	Total PAHs	BaP TEQ
MTCA Method A Cleanup Level		500 (µg/L)	500 (µg/L)	NA (µg/L)	0.1 (µg/L)
Location	**Date**				
MW-01	9/21/2021	**690 Z**	**690 Z**	0.045 J	0.0035 J
MW-02	9/21/2021	260 U	520 U	0.0035 J	0.020 U
MW-03	9/21/2021	270 U	530 U	0.0078 J	0.020 U
MW-04	9/21/2021	270 U	530 U	0.0142 J	0.020 U
MW-04 DUP	9/21/2021	270 U	530 U	0.0148 J	0.020 U
MW-05	9/21/2021	270 U	530 U	0.0134 J	0.020 U

Notes:

Bold values indicate the concentration exceeds the MTCA Method A cleanup level.

µg/L	Micrograms per liter
BaP TEQ	Benzo(a)pyrene Toxic Equivalent Quotient
DUP	Duplicate
J	The result is an estimated value
MTCA	Model Toxics Control Act Method A for groundwater
NA	Not applicable (no applicable MTCA standard)
PAH	Polycyclic aromatic hydrocarbon
TPH-DRO	Total petroleum hydrocarbons diesel range organics
TPH-RRO	Total petroleum hydrocarbons residual range organics
U	Undetected at the method reporting limit shown
Z	The chromatographic fingerprint does not resemble a petroleum product

TABLE 2
HISTORICAL GROUNDWATER SAMPLE RESULTS – DRO AND RRO
LUMEN LONGVIEW, WASHINGTON FACILITY

Analyte	Date	Sampling Method	MW-01	MW-02	MW-03	MW-04	MW-05
TPH-DRO (MTCA Method A Cleanup Level = 500 µg/L)	3/25/1992	Bailer	82	112	50 U	--	--
	12/16/2003	Bailer	250 U	250 U	250 U	--	--
	8/10/2006	Bailer	50 U	140	50 U	--	--
	9/23/2008	Bailer	--	--	--	50 U	140
	2/26/2010	Bailer	--	--	--	25 U	100
	9/2/2011	Bailer	--	--	--	73	120
	2/26/2013	Bailer	--	--	--	**1,700**	51 U
	6/3/2013	Bailer	50 U	66	50 U	210	50 U
	12/5/2013	Bailer	97	72	47	**1,500**	100
	3/27/2014	Bailer	63	87	250 U	**550**	47
	6/25/2014	Bailer	50	33	260 U	**1,100**	260 U
	9/10/2014	Bailer	240	90	36	**790**	48
	3/5/2015	Low Flow	22	82	20	20	27
	7/20/2015	Low Flow	22	77	21	24	30
	12/18/15	Low Flow	38	83	46	96	120
	3/31/16	Low Flow	41	**1,500**	58	30	30
	7/7/2016	Low Flow	24	330	22	34	21
	10/13/2016	Low Flow	23	130	39	39	48
	12/09/2016	Low Flow	37	120	63	70	67
	5/04/2017	Low Flow	42	**570**	47	24	23
	11/16/2018	Low Flow	48	96	61	60	77
	3/19/2020	Low Flow	280 U	280 U	280 U	270 U	280 U
	9/21/2021	Low Flow	**690 Z**	260 U	270 U	270 U	270 U
TPH-RRO (MTCA Method A Cleanup Level = 500 µg/L)	3/25/1992	Bailer	200 U	200 U	200 U	--	--
	8/10/2006	Bailer	250 U	250 U	250 U	--	--
	9/23/2008	Bailer	--	--	--	250 U	250 U
	2/26/2010	Bailer	--	--	--	140	200
	9/2/2011	Bailer	--	--	--	350	210
	2/26/2013	Bailer	--	--	--	**11,000**	220
	6/3/2013	Bailer	150	100 U	100 U	**1,600**	100 U
	12/5/2013	Bailer	440	120	120	**11,000**	170
	3/27/2014	Bailer	370	63	500 U	**3,900**	190
	6/25/2014	Bailer	340	62	21	**8,400**	51
	9/10/2014	Bailer	**1,500**	140	120	**6,600**	82
	3/5/2015	Low Flow	43	70	37	48	53
	7/20/2015	Low Flow	52	71	49	52	42
	12/18/15	Low Flow	84	160	81	81	82
	3/31/16	Low Flow	83	340	110	54	53
	7/7/2016	Low Flow	44	140	41	33	34
	10/13/2016	Low Flow	94	130	98	90	100
	12/09/2016	Low Flow	140	180	130	110	110
	5/04/2017	Low Flow	86	200	54	37	31
	11/16/2018	Low Flow	130	140	240	110	380
	3/19/2020	Low Flow	550 U	550 U	550 U	540 U	550 U
	9/21/2021	Low Flow	**690 Z**	520 U	530 U	530 U	530 U

Notes:

All concentrations in micrograms per liter (µg/L).

Bold values indicate the concentration exceeds the MTCA Method A cleanup level.

For wells with duplicate samples, the highest value reported is shown for each constituent.

MTCA	Model Toxics Control Act Method A for groundwater
TPH-DRO	Total petroleum hydrocarbons diesel range organics
TPH-RRO	Total petroleum hydrocarbons residual range organics
--	Not sampled
J	The result is an estimated value
U	Undetected at the method reporting limit shown
Z	The chromatographic fingerprint does not resemble a petroleum product

TABLE 3
HISTORICAL GROUNDWATER SAMPLE ANALYTICAL RESULTS – BAP TEQ AND TOTAL PAH
LUMEN LONGVIEW, WASHINGTON FACILITY

Analyte	Date	Sampling Method	MW-01	MW-02	MW-03	MW-04	MW-05
BaP TEQ	6/3/2013	Bailer	**2.2**	0.1 U	0.1 U	**0.36**	0.1 U
	12/5/2013	Bailer	**0.20**	0.027	0.074	**1.4**	0.0062
Unfiltered analysis (MTCA Method A Cleanup Level = 0.1 µg/L)	3/27/2014	Bailer	**0.37**	0.080	0.049	**0.27**	0.073
	6/25/2014	Bailer	**0.39**	0.012	0.00033	**0.40**	0.0054
	9/10/2014	Bailer	**0.14**	0.090	0.0037	**0.39**	0.0051
BaP TEQ	12/5/2013	Bailer	0.00033	--	0.00068	0.00084	--
	3/27/2014	Bailer	0.019 U	0.019 U	--	0.019 U	0.019 U
Filtered analysis	6/25/2014	Bailer	0.020 U	--	--	0.200 U	--
	9/10/2014	Bailer	0.00030	0.00027	--	0.020 U	--
(MTCA Method A Cleanup Level = 0.1 µg/L)	3/5/2015	Low Flow	0.00074	0.00038	0.019 U	0.00044	0.00029
	7/20/2015	Low Flow	0.00029	0.020 U	0.021 U	0.021 U	0.021 U
	12/18/2015	Low Flow	0.0065	0.00029	0.019 U	0.00050	0.00039
	3/31/2016	Low Flow	0.00035	0.020 U	0.020 U	0.00026	0.020 U
	7/7/2016	Low Flow	0.020 U	0.020 U	0.00027	0.00035	0.020 U
	10/13/2016	Low Flow	0.0026 U	0.0026 U	0.00028	0.00040	0.00041
	12/09/2016	Low Flow	0.00028	0.020 U	0.00032	0.00032	0.020 U
	5/04/2017	Low Flow	0.00026	0.020 U	0.00020	0.00023	0.00024
	11/16/2018	Low Flow	0.00020	0.00026	0.00020	0.00023	0.00019
	3/19/2020	Low Flow	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	9/21/2021	Low Flow	0.0035 J	0.020 U	0.020 U	0.020 U	0.020 U
Total PAHs	6/3/2013	Bailer	16	1.6	0.1 U	8.7	0.1 U
	12/5/2013	Bailer	1.7	0.83	0.85	16	2.4
Unfiltered analysis (No MTCA Method A Cleanup Level)	3/27/2014	Bailer	3.5	1.3	0.50	3.1	0.80
	6/25/2014	Bailer	3.9	2.3	0.12	4.8	0.37
	9/10/2014	Bailer	1.2	1.5	0.049	6.0	5.5
Total PAHs	12/5/2013	Bailer	0.028	--	0.043	0.52	--
	3/27/2014	Bailer	0.018	0.21	--	0.080	0.064
	6/25/2014	Bailer	0.063	--	--	0.11	--
	9/10/2014	Bailer	0.012	0.041	--	0.42	--
	3/5/2015	Low Flow	0.046	0.58	0.013	0.24	0.26
Filtered analysis	7/20/2015	Low Flow	0.0077	0.019	0.0056	0.29	0.15
	12/18/2015	Low Flow	0.039	1.9	0.019 U	9.7	8.5
	3/31/2016	Low Flow	0.0035	0.032	0.020 U	0.041	0.0092
(No MTCA Method A Cleanup Level)	7/7/2016	Low Flow	0.020 U	0.019	0.0092	2.2	0.024
	10/13/2016	Low Flow	0.0083	0.034	0.016	0.68	2.8
	12/09/2016	Low Flow	0.0028	0.0070	0.029	4.7	1.1
	5/04/2017	Low Flow	0.015	0.70	0.01	0.017	0.0096
	11/16/2018	Low Flow	0.039	0.107	0.044	0.794	0.068
	3/19/2020	Low Flow	0.0082	0.078	0.0107	0.014	0.0101
	9/21/2021	Low Flow	0.045 J	0.0035 J	0.0078 J	0.01428 J	0.0134 J

Notes:

Bold values indicate the concentration exceeds the MTCA Method A cleanup level.

For wells with duplicate samples, the highest value reported is shown for each constituent.

µg/L Micrograms per liter

-- Not analyzed

J Estimated Concentration

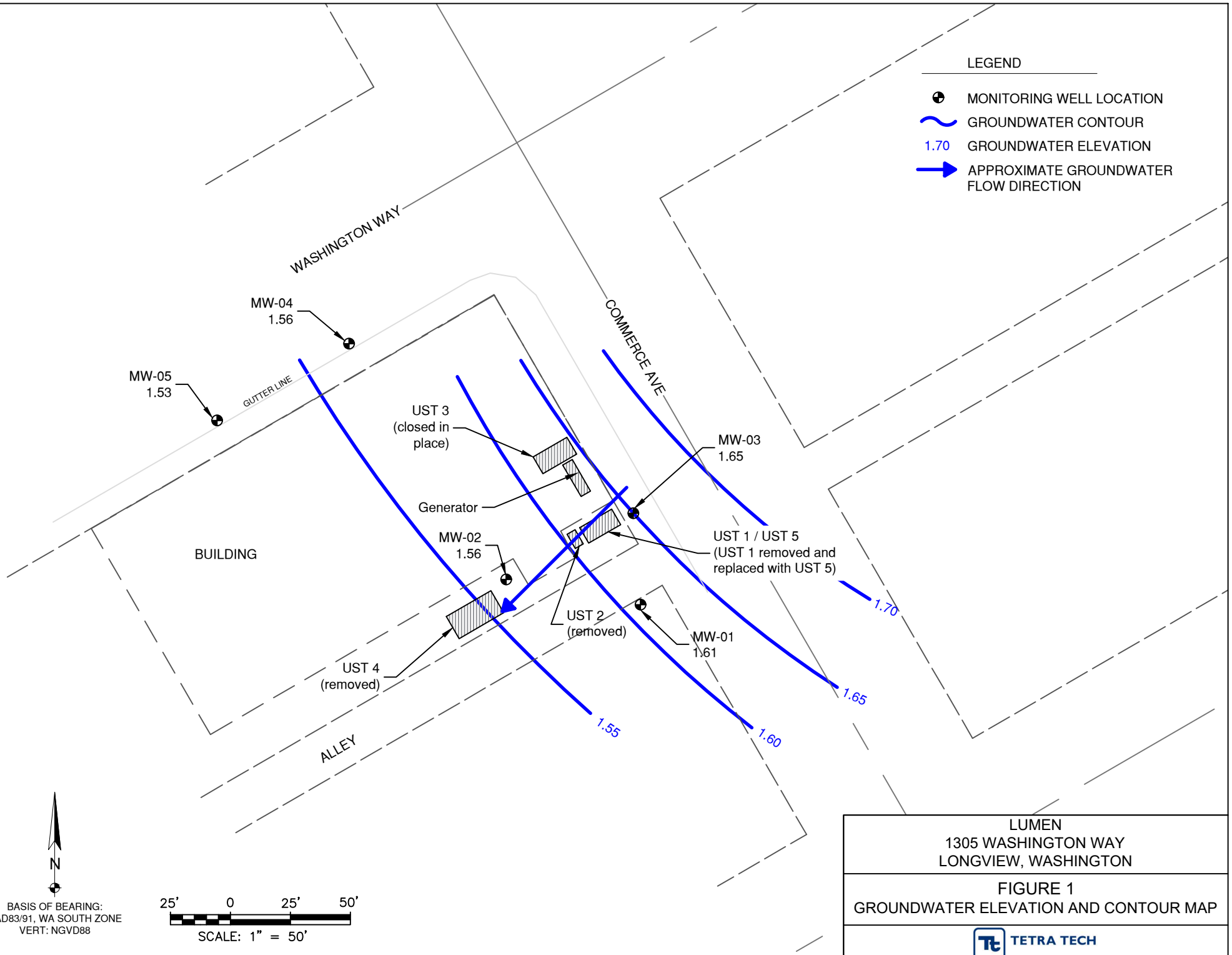
U Undetected at the method reporting limit shown

BaP TEQ Benzo(a)pyrene Toxic Equivalent Quotient

MTCA Model Toxics Control Act Method A for groundwater

PAH Polycyclic aromatic hydrocarbon

FIGURE



Source: Tetra Tech, Inc. field sketch, aerial photographs, and survey

M:\Project\Lumen (CenturyLink)-MReisig\1 MSA Projects_ 103P7787\103P7787702_Longview_Fall 2021 GWM\Reporting\Figures\Figure 1 - Elevation and Contour Map Template.dwg

ATTACHMENT A
LOW-FLOW GROUNDWATER SAMPLING PARAMETER FORMS

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Micropurge Groundwater Sampling Data Sheet

Well Name:	MW-01	**Screen Interval:**	
Well Location:	South Side of Building	**Sample Depth:**	~16 ft bdb, TOC
Project:	Lumen (CenturyLink) - Longview	**Static Water Level:**	~~14.02~~ 14.91 ft below TOC (with tubing)
		Depth to LNAPL:	NA
Sample Date:	9/21/21	**Total Depth of Casing:**	19.59'
Sampling Personnel:	D. Gibson	**Begin Purge (Time):**	~~1009~~ 1744
		Casing Diameter (inches):	4
Sample ID:	MW-01	**Purge Method:**	Peristaltic
Sample Time:	1815	**Actual Final Purge Volume:**	~7,750 mL
Duplicate ID:	NA	**Immiscible Layer Present:**	No
Field QC Designation:	NA		

Water Quality Information

Time	Discharge Rate (mL/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp (C°)	Sp. Cond (µmhos/cm)	Turbity (NTU)	Depth to Water (ft)
1751	250	2.6%, 0.25 mg/L	6.81	227.3	15.9	292.0	9.65	14.02
1754	250	2.0%, 0.20 mg/L	6.82	223.1	15.7	289.0	8.99	14.02
1757	250	1.8%, 0.18 mg/L	6.83	218.5	15.7	288.3	7.67	14.02
1800	250	1.7%, 0.17 mg/L	6.85	214.2	15.6	289.3	7.64	14.03
1803	250	1.5%, 0.15 mg/L	6.86	210.9	15.5	288.0	7.77	14.03
1806	250	1.5%, 0.15 mg/L	6.86	208.0	15.6	287.9	5.61	14.04
1809	250	1.4%, 0.14 mg/L	6.90	204.8	15.6	287.0	6.22	14.04
1812	250	1.3%, 0.13 mg/L	6.89	202.3	15.5	289.4	6.81	14.04
1815	250	1.2%, 0.12 mg/L	6.91	200.1	15.5	286.1	6.27	14.04

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Micropurge Groundwater Sampling Data Sheet

Stabilization Criteria	3 min. increments	± 0.05 mg/L for values < 1mg/L ± 0.2 mg/L for values > 1 mg/L	± 0.1	± 10 mV	± 0.1°	± 10 for values < 1,000 ± 20 for values > 1,000	± 10%	

Qualitative Observations: Well cover missing bolts.
Initially unable to get tubing past ~14 feet below TOC. However, I was able to move tubing to appropriate depth during later attempt.

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Micropurge Groundwater Sampling Data Sheet

Well Name:	MW-02	**Screen Interval:**	
Well Location:	South Side of Building	**Sample Depth:**	~16 ft
Project:	Lumen (CenturyLink) - Longview	**Static Water Level:**	14.56 ft below TOC (with tubing)
		Depth to LNAPL:	NA
Sample Date:	9/21/21	**Total Depth of Casing:**	19.93'
Sampling Personnel:	A. Gibson	**Begin Purge (Time):**	1623
		Casing Diameter (inches):	2
Sample ID:	MW-02	**Purge Method:**	Peristaltic
Sample Time:	1705	**Actual Final Purge Volume:**	~9,030 mL
Duplicate ID:	NA	**Immiscible Layer Present:**	No
Field QC Designation:	NA		

Water Quality Information

Time	Discharge Rate (mL/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp (C°)	Sp. Cond (µmhos/cm)	Turbity (NTU)	Depth to Water (ft)
1632	215	44.1%, 4.11 mg/L	6.87	221.5	18.1	440.2	0.63	14.66
1635	215	44.2%, 4.22 mg/L	6.91	213.6	17.8	435.7	0.59	14.67
1638	215	37.6%, 3.60 mg/L	6.89	209.1	17.8	431.0	0.38	14.67
1641	215	32.6%, 3.07 mg/L	6.89	204.8	17.7	425.9	0.75	14.67
1644	215	28.8%, 2.74 mg/L	6.87	201.4	17.6	420.5	0.58	14.67
1647	215	26.9%, 2.56 mg/L	6.86	198.0	17.4	416.2	0.85	14.68
1650	215	25.1%, 2.40 mg/L	6.87	196.3	17.3	411.6	0.55	14.68
1653	215	20.9%, 2.01 mg/L	6.85	195.1	17.3	408.4	0.74	14.69
1656	215	19.7%, 1.87 mg/L	6.85	194.0	17.2	405.6	0.43	14.69
1659	215	17.9%, 1.72 mg/L	6.84	193.2	17.2	403.6	0.76	14.69
1702	215	17.2%, 1.66 mg/L	6.83	192.6	17.2	402.0	0.39	14.69
1705	215	17.2%, 1.66 mg/L	6.84	192.3	17.1	400.4	0.28	14.69

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Micropurge Groundwater Sampling Data Sheet

Stabilization Criteria	3 min. increments	± 0.05 mg/L for values < 1mg/L ± 0.2 mg/L for values > 1 mg/L	± 0.1	± 10 mV	± 0.1°	± 10 for values < 1,000 ± 20 for values > 1,000	± 10%	

Qualitative Observations: NA

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Micropurge Groundwater Sampling Data Sheet

Well Name:	MW-03	**Screen Interval:**	
Well Location:	East Side of Building	**Sample Depth:**	~16 feet below TOC
Project:	Lumen (CenturyLink) - Longview	**Static Water Level:**	13.37 ft below TOC (with tubing)
		Depth to LNAPL:	NA
Sample Date:	9/21/21	**Total Depth of Casing:**	19.93'
Sampling Personnel:	D. Gibson	**Begin Purge (Time):**	1035
		Casing Diameter (inches):	2
Sample ID:	MW-03	**Purge Method:**	Peristaltic
Sample Time:	1108	**Actual Final Purge Volume:**	~7,920 mL
Duplicate ID:	NA	**Immiscible Layer Present:**	No
Field QC Designation:	MS | MSD		

Water Quality Information

Time	Discharge Rate (mL/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp (C°)	Sp. Cond (~~µmhos~~/cm) mS	Turbity (NTU)	Depth to Water (ft)
1041	240	10.3% , 1.06 mg/L	7.31	228.8	16.1	369.3	11.1	13.39
1046	240	6.3% , 0.61 mg/L	7.11	211.3	16.1	363.4	5.18	13.4
1049	240	5.9% , 0.58 mg/L	7.06	203.0	16.1	361.0	4.05	13.39
1052	240	5.1% , 0.51 mg/L	7.01	197.7	16.1	360.6	3.53	13.39
1055	240	5.0% , 0.49 mg/L	6.99	190.4	16.1	361.7	2.31	13.39
1059	240	4.6% , 0.42 mg/L	6.97	184.0	16.1	361.1	1.78	13.39
1102	240	4.0% , 0.38 mg/L	6.96	180.0	16.1	361.4	1.54	13.39
1105	240	3.2% , 0.31 mg/L	6.95	175.6	16.0	359.4	1.02	13.39
1108	240	3.4% , 0.34 mg/L	6.95	172.5	16.1	358.5	1.22	13.39

Micropurge Groundwater Sampling Data Sheet

Stabilization Criteria	3 min. increments	± 0.05 mg/L for values < 1mg/L ± 0.2 mg/L for values > 1 mg/L	± 0.1	± 10 mV	± 0.1°	± 10 for values < 1,000 ± 20 for values > 1,000	± 10%	

Qualitative Observations: NA

TETRA TECH EM INC.

Micropurge Groundwater Sampling Data Sheet

Well Name:	MW-04	**Screen Interval:**	
Well Location:	North Side of Building	**Sample Depth:**	~16 feet below TOC
Project:	Lumen (CenturyLink) - Longview	**Static Water Level:**	13.01 ft below TOC (with tubing)
		Depth to LNAPL:	NA
Sample Date:	9/21/21	**Total Depth of Casing:**	19.73'
Sampling Personnel:	A. Gibson	**Begin Purge (Time):**	1438
		Casing Diameter (inches):	2
Sample ID:	MW-04	**Purge Method:**	Peristaltic
Sample Time:	1514	**Actual Final Purge Volume:**	~8,640 mL
Duplicate ID:	MW-04 DUP	**Immiscible Layer Present:**	No
Field QC Designation:	Field duplicate		

Water Quality Information

Time	Discharge Rate (mL/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp (C°)	Sp. Cond (~~µmhos~~/cm) ×S	Turbity (NTU)	Depth to Water (ft)
1446	240	8.9%, 0.87 mg/L	6.77	217.6	16.1	371.4	2.89	13.01
1450	240	8.8%, 0.86 mg/L	6.63	218.5	16.1	369.8	2.80	13.01
1453	240	8.7%, 0.86 mg/L	6.60	216.9	16.1	367.8	1.29	13.01
1456	240	8.8%, 0.87 mg/L	6.59	215.0	16.1	366.8	0.62	13.01
1459	240	9.4%, 0.93 mg/L	6.59	213.3	16.1	364.2	1.27	13.01
1502	240	9.5%, 0.93 mg/L	6.58	211.6	16.1	367.8	0.61	13.01
1505	240	9.6%, 0.94 mg/L	6.60	210.0	16.0	367.2	0.51	13.01
1508	240	10.4%, 1.02 mg/L	6.60	209.4	16.1	367.9	0.44	13.01
1511	240	10.7%, 1.06 mg/L	6.58	207.6	16.1	361.8	0.90	13.01
1514	240	10.6%, 1.04 mg/L	6.59	206.6	16.1	361.8	0.43	13.01

Micropurge Groundwater Sampling Data Sheet

Stabilization Criteria	3 min. increments	± 0.05 mg/L for values < 1mg/L ± 0.2 mg/L for values > 1 mg/L	± 0.1	± 10 mV	± 0.1°	± 10 for values < 1,000 ± 20 for values > 1,000	± 10%	

Qualitative Observations: Water in casing.

TETRA TECH EM INC.

Micropurge Groundwater Sampling Data Sheet

Well Name:	MW-05	**Screen Interval:**	
Well Location:	North Side of Building	**Sample Depth:**	~16 feet below TOC
Project:	Lumen (CenturyLink) - Longview	**Static Water Level:**	13.22 ft below TOC (with tubing)
		Depth to LNAPL:	NA
Sample Date:	9/21/21	**Total Depth of Casing:**	19.63'
Sampling Personnel:	D. Gibson	**Begin Purge (Time):**	~~1330~~ PD 1345
		Casing Diameter (inches):	2
Sample ID:	MW-05	**Purge Method:**	Peristaltic
Sample Time:	1408	**Actual Final Purge Volume:**	~5,780 mL
Duplicate ID:	NA	**Immiscible Layer Present:**	No
Field QC Designation:	NA		

Water Quality Information

Time	Discharge Rate (mL/min)	Dissolved Oxygen (mg/L)	pH	Eh/ORP (mV)	Temp (C°)	Sp. Cond (~~µmhos~~/cm) mS	Turbity (NTU)	Depth to Water (ft)
1356	250	3.9%, 0.39 mg/L	6.69	229.5	16.4	479.5	1.25	13.24
1359	250	4.0%, 0.40 mg/L	6.63	226.6	16.4	478.3	0.56	13.24
1402	250	4.1%, 0.41 mg/L	6.62	223.3	16.4	476.0	0.65	13.24
1405	260	3.9%, 0.39 mg/L	6.61	219.6	16.4	478.1	0.61	13.24
1408	260	3.9%, 0.39 mg/L	6.63	216.1	16.4	473.3	0.68	13.24

Stabilization Criteria	3 min. increments	± 0.05 mg/L for values < 1mg/L ± 0.2 mg/L for values > 1 mg/L	± 0.1	± 10 mV	± 0.1°	± 10 for values < 1,000 ± 20 for values > 1,000	± 10%	

Qualitative Observations: Water in casing.

ATTACHMENT B
LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY RECORD

October 29, 2021 Service Request No:K2111119

Mark Reisig
Tetra Tech, Inc.
1560 Broadway
Suite 1400
Denver, CO 80202

Laboratory Results for: Lumen (Century Link)-Longview

Dear Mark,

Enclosed are the results of the sample(s) submitted to our laboratory September 23, 2021
For your reference, these analyses have been assigned our service request number **K2111119.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Tetra Tech, Inc.
Project: Lumen (Century Link)-Longview
Sample Matrix: Ground Water

Service Request: K2111119
Date Received: 09/23/2021

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Six ground water samples were received for analysis at ALS Environmental on 09/23/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivolatiles by GC/MS:

Method 8270D, 10/28/2021:The analysis of samples was initially performed within the recommended holding time. Reanalysis was required due to samples not being filtered prior to extraction as client requested. The reanalysis was performed 29 days past the recommended holding time. The results from the second analysis were reported.

Method 8270D, 10/28/2021:The spike recovery of Carbazole for Laboratory Control Sample (LCS) was outside the lower control criterion. The analyte in question was not detected in the associated field samples above the MRL. The error associated with reduced recovery indicated a potential low bias. The data was flagged to indicate the problem.

Semivoa GC:

Method NWTPH-Dx, 10/17/2021:The upper control criterion was exceeded for diesel range organics in Continuing Calibration Verification (CCV) KQ2121142-02. The field samples analyzed in this sequence were ran multiple times with similar results. Since the apparent problem indicated a potential slight high bias, the data quality was not significantly affected. No further corrective action was required.

Approved by _____ Date 10/29/2021

SAMPLE DETECTION SUMMARY

CLIENT ID: MW-01			Lab ID: K2111119-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
1-Methylnaphthalene	0.0015	J	0.0013	0.020	ug/L	8270D
2-Methylnaphthalene	0.0024	J	0.0013	0.020	ug/L	8270D
Acenaphthylene	0.0023	J	0.0011	0.020	ug/L	8270D
Anthracene	0.0013	J	0.00082	0.020	ug/L	8270D
Benz(a)anthracene	0.0039	J	0.00097	0.020	ug/L	8270D
Benzo(a)pyrene	0.0026	J	0.0011	0.020	ug/L	8270D
Benzo(b)fluoranthene	0.0041	J	0.00083	0.020	ug/L	8270D
Benzo(g,h,i)perylene	0.0041	J	0.00086	0.020	ug/L	8270D
Benzo(k)fluoranthene	0.0016	J	0.00094	0.020	ug/L	8270D
Carbazole	0.0030	J	0.0011	0.020	ug/L	8270D
Chrysene	0.0026	J	0.00076	0.020	ug/L	8270D
Dibenzofuran	0.0013	J	0.00096	0.020	ug/L	8270D
Fluoranthene	0.0064	J	0.00082	0.020	ug/L	8270D
Indeno(1,2,3-cd)pyrene	0.0026	J	0.00089	0.020	ug/L	8270D
Naphthalene	0.0041	J	0.0014	0.020	ug/L	8270D
Phenanthrene	0.0057	J	0.0011	0.020	ug/L	8270D
Pyrene	0.0072	J	0.0010	0.020	ug/L	8270D
Diesel Range Organics (C12 - C25 DRO)	690	Z	12	260	ug/L	NWTPH-Dx
Residual Range Organics (C25 - C36 RRO)	690	Z	20	520	ug/L	NWTPH-Dx

CLIENT ID: MW-02			Lab ID: K2111119-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
2-Methylnaphthalene	0.0015	J	0.0013	0.020	ug/L	8270D
Acenaphthene	0.0014	J	0.0012	0.020	ug/L	8270D
Acenaphthylene	0.0021	J	0.0011	0.020	ug/L	8270D
Benz(a)anthracene	0.0028	J	0.00097	0.020	ug/L	8270D
Dibenzofuran	0.0010	J	0.00096	0.020	ug/L	8270D
Naphthalene	0.0024	J	0.0014	0.020	ug/L	8270D
Diesel Range Organics (C12 - C25 DRO)	170	J	12	260	ug/L	NWTPH-Dx
Residual Range Organics (C25 - C36 RRO)	120	J	20	520	ug/L	NWTPH-Dx

CLIENT ID: MW-03			Lab ID: K2111119-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
1-Methylnaphthalene	0.0013	J	0.0013	0.020	ug/L	8270D
2-Methylnaphthalene	0.0029	J	0.0013	0.020	ug/L	8270D
Acenaphthene	0.0020	J	0.0012	0.020	ug/L	8270D
Acenaphthylene	0.0019	J	0.0011	0.020	ug/L	8270D
Anthracene	0.0011	J	0.00082	0.020	ug/L	8270D
Benz(a)anthracene	0.0020	J	0.00097	0.020	ug/L	8270D
Dibenzofuran	0.0012	J	0.00096	0.020	ug/L	8270D
Naphthalene	0.0040	J	0.0014	0.020	ug/L	8270D
Phenanthrene	0.0015	J	0.0011	0.020	ug/L	8270D

SAMPLE DETECTION SUMMARY

CLIENT ID: MW-03			Lab ID: K2111119-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Diesel Range Organics (C12 - C25 DRO)	130	J	12	270	ug/L	NWTPH-Dx
Residual Range Organics (C25 - C36 RRO)	110	J	21	530	ug/L	NWTPH-Dx

CLIENT ID: MW-04			Lab ID: K2111119-004			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
2-Methylnaphthalene	0.0016	J	0.0013	0.020	ug/L	8270D
Acenaphthene	0.011	J	0.0012	0.020	ug/L	8270D
Acenaphthylene	0.0032	J	0.0011	0.020	ug/L	8270D
Benz(a)anthracene	0.0020	J	0.00097	0.020	ug/L	8270D
Naphthalene	0.0028	J	0.0014	0.020	ug/L	8270D
Diesel Range Organics (C12 - C25 DRO)	23	J	12	270	ug/L	NWTPH-Dx
Residual Range Organics (C25 - C36 RRO)	52	J	21	530	ug/L	NWTPH-Dx

CLIENT ID: MW-04 DUP			Lab ID: K2111119-005			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
2-Methylnaphthalene	0.0015	J	0.0013	0.020	ug/L	8270D
Acenaphthene	0.010	J	0.0012	0.020	ug/L	8270D
Acenaphthylene	0.0020	J	0.0011	0.020	ug/L	8270D
Anthracene	0.0014	J	0.00082	0.020	ug/L	8270D
Benz(a)anthracene	0.0021	J	0.00097	0.020	ug/L	8270D
Fluorene	0.0014	J	0.0011	0.020	ug/L	8270D
Naphthalene	0.0030	J	0.0014	0.020	ug/L	8270D
Diesel Range Organics (C12 - C25 DRO)	120	J	12	270	ug/L	NWTPH-Dx
Residual Range Organics (C25 - C36 RRO)	98	J	21	530	ug/L	NWTPH-Dx

CLIENT ID: MW-05			Lab ID: K2111119-006			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
2-Methylnaphthalene	0.0013	J	0.0013	0.020	ug/L	8270D
Acenaphthylene	0.0017	J	0.0011	0.020	ug/L	8270D
Anthracene	0.0021	J	0.00082	0.020	ug/L	8270D
Benz(a)anthracene	0.0020	J	0.00097	0.020	ug/L	8270D
Dibenzofuran	0.0010	J	0.00096	0.020	ug/L	8270D
Fluorene	0.0096	J	0.0011	0.020	ug/L	8270D
Naphthalene	0.0022	J	0.0014	0.020	ug/L	8270D
Diesel Range Organics (C12 - C25 DRO)	140	J	12	270	ug/L	NWTPH-Dx
Residual Range Organics (C25 - C36 RRO)	96	J	21	530	ug/L	NWTPH-Dx

Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Tetra Tech, Inc. **Service Request:**K2111119

Project: Lumen (Century Link)-Longview/103P778702

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2111119-001	MW-01	9/21/2021	1815
K2111119-002	MW-02	9/21/2021	1705
K2111119-003	MW-03	9/21/2021	1108
K2111119-004	MW-04	9/21/2021	1514
K2111119-005	MW-04 DUP	9/21/2021	1514
K2111119-006	MW-05	9/21/2021	1408

ALS Environmental

CHAIN OF CUSTODY
119581

001

SR# KJ11119

COC Set 1 of 1

COC#

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Lumen (CenturyLink) - Longview	Project Number: 103P7787OZ
Project Manager: Mark Reisig	
Company: Tetra Tech	
Address: 1560 Broadway St., Suite 1400, Denver, CO 80202	
Phone #: (303) 312-8813	email: mark.reisig@tetratech.com
Sampler Signature: Danielle K. Gibson	Sampler Printed Name: Danielle Gibson

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	7D B270D / PAH SIM	14D Filter SVM / Filter SVM	14D NWTPH-Dx / NW_TPH	1	2	3	4	5	Remarks
1. MW-01		9/21/21	1815	GW	5	X	X	X						
2. MW-02			1705		5									
3. MW-03			1108		15									MS/MSD
4. MW-04			1514		5									
5. MW-04 DUP			1514		5									
6. MW-05			1408		5									
7.													DC	
8.														
9.														
10.														

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 1183252

Bill To:

Turnaround Requirements

___ 24 hr. ___ 48 hr.

___ 5 Day

X Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments: Returning unused bottles.

*Indicate State Hydrocarbon Procedure: AK CA WI (Northwest) Other ____ (Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Danielle K. Gibson	Signature: FedEx	Signature:	Signature: K Morrow	Signature:	Signature:
Printed Name: Tetra Tech	Printed Name:	Printed Name:	Printed Name: ALS	Printed Name:	Printed Name:
Firm: 9/22/21 1300	Firm:	Firm:	Firm: 9/23/21 1030	Firm:	Firm:
Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PM Mark

Cooler Receipt and Preservation Form

Client Tetra Tech Service Request K21 111119

Received: 9/23/21 Opened: 9/23/21 By: [illegible] Unloaded: 9/23/21 By: [illegible]

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 F+1B
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N
4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
3.0		IR01	2of4	—	—	284041889450	
2.6		"	1of4	—	—	284041889461	

6. Packing material: *Inserts* *Baggies* (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y (N)
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? NA (Y) N

Sample ID on Bottle	Sample ID on COC	Identified by:
none	MW-05 (1 8oz glass)	Elimination + times match
none	MW-03 (3) 8oz glass)	Elimination + times match

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Miscellaneous Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: Tetra Tech, Inc. **Service Request:** K2111119
Project: Lumen (Century Link)-Longview/103P778702

Sample Name: MW-01 **Date Collected:** 09/21/21
Lab Code: K2111119-001 **Date Received:** 09/23/21
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
8270D	WSTRUBLE	EBRUNO
NWTPH-Dx	WVANDERHOFF	TPOTTSCHMIDT

Sample Name: MW-01 **Date Collected:** 09/21/21
Lab Code: K2111119-001.R01 **Date Received:** 09/23/21
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
8270D	WSTRUBLE	CWILLIAMS

Sample Name: MW-02 **Date Collected:** 09/21/21
Lab Code: K2111119-002 **Date Received:** 09/23/21
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
8270D	WSTRUBLE	EBRUNO
NWTPH-Dx	WVANDERHOFF	SSMITH

Sample Name: MW-02 **Date Collected:** 09/21/21
Lab Code: K2111119-002.R01 **Date Received:** 09/23/21
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
8270D	WSTRUBLE	CWILLIAMS

Client: Tetra Tech, Inc. **Service Request:** K2111119
Project: Lumen (Century Link)-Longview/103P778702

Sample Name: MW-03 **Date Collected:** 09/21/21
Lab Code: K2111119-003 **Date Received:** 09/23/21
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
8270D	WSTRUBLE	EBRUNO
NWTPH-Dx	WVANDERHOFF	SSMITH

Sample Name: MW-03 **Date Collected:** 09/21/21
Lab Code: K2111119-003.R01 **Date Received:** 09/23/21
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
8270D	WSTRUBLE	CWILLIAMS

Sample Name: MW-04 **Date Collected:** 09/21/21
Lab Code: K2111119-004 **Date Received:** 09/23/21
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
8270D	WSTRUBLE	EBRUNO
NWTPH-Dx	WVANDERHOFF	TPOTTSCHMIDT

Sample Name: MW-04 **Date Collected:** 09/21/21
Lab Code: K2111119-004.R01 **Date Received:** 09/23/21
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
8270D	WSTRUBLE	CWILLIAMS

Client: Tetra Tech, Inc. **Service Request:** K2111119
Project: Lumen (Century Link)-Longview/103P778702

Sample Name: MW-04 DUP **Date Collected:** 09/21/21
Lab Code: K2111119-005 **Date Received:** 09/23/21
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
8270D	WSTRUBLE	EBRUNO
NWTPH-Dx	WVANDERHOFF	SSMITH

Sample Name: MW-04 DUP **Date Collected:** 09/21/21
Lab Code: K2111119-005.R01 **Date Received:** 09/23/21
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
8270D	WSTRUBLE	CWILLIAMS

Sample Name: MW-05 **Date Collected:** 09/21/21
Lab Code: K2111119-006 **Date Received:** 09/23/21
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
8270D	WSTRUBLE	EBRUNO
NWTPH-Dx	WVANDERHOFF	SSMITH

Sample Name: MW-05 **Date Collected:** 09/21/21
Lab Code: K2111119-006.R01 **Date Received:** 09/23/21
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
8270D	WSTRUBLE	CWILLIAMS

Sample Results

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Semivolatile Organic Compounds by GC/MS

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	09/21/21 18:15
Sample Matrix:	Ground Water	**Date Received:**	09/23/21 10:30
Sample Name:	MW-01	**Units:**	ug/L
Lab Code:	K2111119-001	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1-Methylnaphthalene	**0.0015 J**	0.020	0.0013	1	10/28/21 11:41	10/27/21	*
2-Methylnaphthalene	**0.0024 J**	0.020	0.0013	1	10/28/21 11:41	10/27/21	*
Acenaphthene	ND U	0.020	0.0012	1	10/28/21 11:41	10/27/21	*
Acenaphthylene	**0.0023 J**	0.020	0.0011	1	10/28/21 11:41	10/27/21	*
Anthracene	**0.0013 J**	0.020	0.00082	1	10/28/21 11:41	10/27/21	*
Benz(a)anthracene	**0.0039 J**	0.020	0.00097	1	10/28/21 11:41	10/27/21	*
Benzo(a)pyrene	**0.0026 J**	0.020	0.0011	1	10/28/21 11:41	10/27/21	*
Benzo(b)fluoranthene	**0.0041 J**	0.020	0.00083	1	10/28/21 11:41	10/27/21	*
Benzo(g,h,i)perylene	**0.0041 J**	0.020	0.00086	1	10/28/21 11:41	10/27/21	*
Benzo(k)fluoranthene	**0.0016 J**	0.020	0.00094	1	10/28/21 11:41	10/27/21	*
Carbazole	**0.0030 J**	0.020	0.0011	1	10/28/21 11:41	10/27/21	*
Chrysene	**0.0026 J**	0.020	0.00076	1	10/28/21 11:41	10/27/21	*
Dibenz(a,h)anthracene	ND U	0.020	0.0013	1	10/28/21 11:41	10/27/21	*
Dibenzofuran	**0.0013 J**	0.020	0.00096	1	10/28/21 11:41	10/27/21	*
Fluoranthene	**0.0064 J**	0.020	0.00082	1	10/28/21 11:41	10/27/21	*
Fluorene	ND U	0.020	0.0011	1	10/28/21 11:41	10/27/21	*
Indeno(1,2,3-cd)pyrene	**0.0026 J**	0.020	0.00089	1	10/28/21 11:41	10/27/21	*
Naphthalene	**0.0041 J**	0.020	0.0014	1	10/28/21 11:41	10/27/21	*
Phenanthrene	**0.0057 J**	0.020	0.0011	1	10/28/21 11:41	10/27/21	*
Pyrene	**0.0072 J**	0.020	0.0010	1	10/28/21 11:41	10/27/21	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	77	42 - 133	10/28/21 11:41	
Fluorene-d10	85	42 - 131	10/28/21 11:41	
Terphenyl-d14	69	32 - 129	10/28/21 11:41	

Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	09/21/21 17:05
Sample Matrix:	Ground Water	**Date Received:**	09/23/21 10:30
Sample Name:	MW-02	**Units:**	ug/L
Lab Code:	K2111119-002	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1-Methylnaphthalene	ND	U	0.020	0.0013	1	10/28/21 12:07	10/27/21	*
2-Methylnaphthalene	**0.0015**	**J**	0.020	0.0013	1	10/28/21 12:07	10/27/21	*
Acenaphthene	**0.0014**	**J**	0.020	0.0012	1	10/28/21 12:07	10/27/21	*
Acenaphthylene	**0.0021**	**J**	0.020	0.0011	1	10/28/21 12:07	10/27/21	*
Anthracene	ND	U	0.020	0.00082	1	10/28/21 12:07	10/27/21	*
Benz(a)anthracene	**0.0028**	**J**	0.020	0.00097	1	10/28/21 12:07	10/27/21	*
Benzo(a)pyrene	ND	U	0.020	0.0011	1	10/28/21 12:07	10/27/21	*
Benzo(b)fluoranthene	ND	U	0.020	0.00083	1	10/28/21 12:07	10/27/21	*
Benzo(g,h,i)perylene	ND	U	0.020	0.00086	1	10/28/21 12:07	10/27/21	*
Benzo(k)fluoranthene	ND	U	0.020	0.00094	1	10/28/21 12:07	10/27/21	*
Carbazole	ND	U	0.020	0.0011	1	10/28/21 12:07	10/27/21	*
Chrysene	ND	U	0.020	0.00076	1	10/28/21 12:07	10/27/21	*
Dibenz(a,h)anthracene	ND	U	0.020	0.0013	1	10/28/21 12:07	10/27/21	*
Dibenzofuran	**0.0010**	**J**	0.020	0.00096	1	10/28/21 12:07	10/27/21	*
Fluoranthene	ND	U	0.020	0.00082	1	10/28/21 12:07	10/27/21	*
Fluorene	ND	U	0.020	0.0011	1	10/28/21 12:07	10/27/21	*
Indeno(1,2,3-cd)pyrene	ND	U	0.020	0.00089	1	10/28/21 12:07	10/27/21	*
Naphthalene	**0.0024**	**J**	0.020	0.0014	1	10/28/21 12:07	10/27/21	*
Phenanthrene	ND	U	0.020	0.0011	1	10/28/21 12:07	10/27/21	*
Pyrene	ND	U	0.020	0.0010	1	10/28/21 12:07	10/27/21	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	80	42 - 133	10/28/21 12:07	
Fluorene-d10	87	42 - 131	10/28/21 12:07	
Terphenyl-d14	72	32 - 129	10/28/21 12:07	

Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	09/21/21 11:08
Sample Matrix:	Ground Water	**Date Received:**	09/23/21 10:30
Sample Name:	MW-03	**Units:**	ug/L
Lab Code:	K2111119-003	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1-Methylnaphthalene	**0.0013 J**	0.020	0.0013	1	10/28/21 12:34	10/27/21	*
2-Methylnaphthalene	**0.0029 J**	0.020	0.0013	1	10/28/21 12:34	10/27/21	*
Acenaphthene	**0.0020 J**	0.020	0.0012	1	10/28/21 12:34	10/27/21	*
Acenaphthylene	**0.0019 J**	0.020	0.0011	1	10/28/21 12:34	10/27/21	*
Anthracene	**0.0011 J**	0.020	0.00082	1	10/28/21 12:34	10/27/21	*
Benz(a)anthracene	**0.0020 J**	0.020	0.00097	1	10/28/21 12:34	10/27/21	*
Benzo(a)pyrene	ND U	0.020	0.0011	1	10/28/21 12:34	10/27/21	*
Benzo(b)fluoranthene	ND U	0.020	0.00083	1	10/28/21 12:34	10/27/21	*
Benzo(g,h,i)perylene	ND U	0.020	0.00086	1	10/28/21 12:34	10/27/21	*
Benzo(k)fluoranthene	ND U	0.020	0.00094	1	10/28/21 12:34	10/27/21	*
Carbazole	ND U	0.020	0.0011	1	10/28/21 12:34	10/27/21	*
Chrysene	ND U	0.020	0.00076	1	10/28/21 12:34	10/27/21	*
Dibenz(a,h)anthracene	ND U	0.020	0.0013	1	10/28/21 12:34	10/27/21	*
Dibenzofuran	**0.0012 J**	0.020	0.00096	1	10/28/21 12:34	10/27/21	*
Fluoranthene	ND U	0.020	0.00082	1	10/28/21 12:34	10/27/21	*
Fluorene	ND U	0.020	0.0011	1	10/28/21 12:34	10/27/21	*
Indeno(1,2,3-cd)pyrene	ND U	0.020	0.00089	1	10/28/21 12:34	10/27/21	*
Naphthalene	**0.0040 J**	0.020	0.0014	1	10/28/21 12:34	10/27/21	*
Phenanthrene	**0.0015 J**	0.020	0.0011	1	10/28/21 12:34	10/27/21	*
Pyrene	ND U	0.020	0.0010	1	10/28/21 12:34	10/27/21	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	80	42 - 133	10/28/21 12:34	
Fluorene-d10	88	42 - 131	10/28/21 12:34	
Terphenyl-d14	74	32 - 129	10/28/21 12:34	

Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	09/21/21 15:14
Sample Matrix:	Ground Water	**Date Received:**	09/23/21 10:30
Sample Name:	MW-04	**Units:**	ug/L
Lab Code:	K2111119-004	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1-Methylnaphthalene	ND	U	0.020	0.0013	1	10/28/21 13:00	10/27/21	*
2-Methylnaphthalene	**0.0016**	**J**	0.020	0.0013	1	10/28/21 13:00	10/27/21	*
Acenaphthene	**0.011**	**J**	0.020	0.0012	1	10/28/21 13:00	10/27/21	*
Acenaphthylene	**0.0032**	**J**	0.020	0.0011	1	10/28/21 13:00	10/27/21	*
Anthracene	ND	U	0.020	0.00082	1	10/28/21 13:00	10/27/21	*
Benz(a)anthracene	**0.0020**	**J**	0.020	0.00097	1	10/28/21 13:00	10/27/21	*
Benzo(a)pyrene	ND	U	0.020	0.0011	1	10/28/21 13:00	10/27/21	*
Benzo(b)fluoranthene	ND	U	0.020	0.00083	1	10/28/21 13:00	10/27/21	*
Benzo(g,h,i)perylene	ND	U	0.020	0.00086	1	10/28/21 13:00	10/27/21	*
Benzo(k)fluoranthene	ND	U	0.020	0.00094	1	10/28/21 13:00	10/27/21	*
Carbazole	ND	U	0.020	0.0011	1	10/28/21 13:00	10/27/21	*
Chrysene	ND	U	0.020	0.00076	1	10/28/21 13:00	10/27/21	*
Dibenz(a,h)anthracene	ND	U	0.020	0.0013	1	10/28/21 13:00	10/27/21	*
Dibenzofuran	ND	U	0.020	0.00096	1	10/28/21 13:00	10/27/21	*
Fluoranthene	ND	U	0.020	0.00082	1	10/28/21 13:00	10/27/21	*
Fluorene	ND	U	0.020	0.0011	1	10/28/21 13:00	10/27/21	*
Indeno(1,2,3-cd)pyrene	ND	U	0.020	0.00089	1	10/28/21 13:00	10/27/21	*
Naphthalene	**0.0028**	**J**	0.020	0.0014	1	10/28/21 13:00	10/27/21	*
Phenanthrene	ND	U	0.020	0.0011	1	10/28/21 13:00	10/27/21	*
Pyrene	ND	U	0.020	0.0010	1	10/28/21 13:00	10/27/21	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	79	42 - 133	10/28/21 13:00	
Fluorene-d10	86	42 - 131	10/28/21 13:00	
Terphenyl-d14	72	32 - 129	10/28/21 13:00	

Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	09/21/21 15:14
Sample Matrix:	Ground Water	**Date Received:**	09/23/21 10:30
Sample Name:	MW-04 DUP	**Units:**	ug/L
Lab Code:	K2111119-005	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1-Methylnaphthalene	ND	U	0.020	0.0013	1	10/28/21 13:26	10/27/21	*
2-Methylnaphthalene	**0.0015**	**J**	0.020	0.0013	1	10/28/21 13:26	10/27/21	*
Acenaphthene	**0.010**	**J**	0.020	0.0012	1	10/28/21 13:26	10/27/21	*
Acenaphthylene	**0.0020**	**J**	0.020	0.0011	1	10/28/21 13:26	10/27/21	*
Anthracene	**0.0014**	**J**	0.020	0.00082	1	10/28/21 13:26	10/27/21	*
Benz(a)anthracene	**0.0021**	**J**	0.020	0.00097	1	10/28/21 13:26	10/27/21	*
Benzo(a)pyrene	ND	U	0.020	0.0011	1	10/28/21 13:26	10/27/21	*
Benzo(b)fluoranthene	ND	U	0.020	0.00083	1	10/28/21 13:26	10/27/21	*
Benzo(g,h,i)perylene	ND	U	0.020	0.00086	1	10/28/21 13:26	10/27/21	*
Benzo(k)fluoranthene	ND	U	0.020	0.00094	1	10/28/21 13:26	10/27/21	*
Carbazole	ND	U	0.020	0.0011	1	10/28/21 13:26	10/27/21	*
Chrysene	ND	U	0.020	0.00076	1	10/28/21 13:26	10/27/21	*
Dibenz(a,h)anthracene	ND	U	0.020	0.0013	1	10/28/21 13:26	10/27/21	*
Dibenzofuran	ND	U	0.020	0.00096	1	10/28/21 13:26	10/27/21	*
Fluoranthene	ND	U	0.020	0.00082	1	10/28/21 13:26	10/27/21	*
Fluorene	**0.0014**	**J**	0.020	0.0011	1	10/28/21 13:26	10/27/21	*
Indeno(1,2,3-cd)pyrene	ND	U	0.020	0.00089	1	10/28/21 13:26	10/27/21	*
Naphthalene	**0.0030**	**J**	0.020	0.0014	1	10/28/21 13:26	10/27/21	*
Phenanthrene	ND	U	0.020	0.0011	1	10/28/21 13:26	10/27/21	*
Pyrene	ND	U	0.020	0.0010	1	10/28/21 13:26	10/27/21	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	82	42 - 133	10/28/21 13:26	
Fluorene-d10	88	42 - 131	10/28/21 13:26	
Terphenyl-d14	73	32 - 129	10/28/21 13:26	

Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	09/21/21 14:08
Sample Matrix:	Ground Water	**Date Received:**	09/23/21 10:30
Sample Name:	MW-05	**Units:**	ug/L
Lab Code:	K2111119-006	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1-Methylnaphthalene	ND	U	0.020	0.0013	1	10/28/21 13:52	10/27/21	*
2-Methylnaphthalene	**0.0013**	**J**	0.020	0.0013	1	10/28/21 13:52	10/27/21	*
Acenaphthene	ND	U	0.020	0.0012	1	10/28/21 13:52	10/27/21	*
Acenaphthylene	**0.0017**	**J**	0.020	0.0011	1	10/28/21 13:52	10/27/21	*
Anthracene	**0.0021**	**J**	0.020	0.00082	1	10/28/21 13:52	10/27/21	*
Benz(a)anthracene	**0.0020**	**J**	0.020	0.00097	1	10/28/21 13:52	10/27/21	*
Benzo(a)pyrene	ND	U	0.020	0.0011	1	10/28/21 13:52	10/27/21	*
Benzo(b)fluoranthene	ND	U	0.020	0.00083	1	10/28/21 13:52	10/27/21	*
Benzo(g,h,i)perylene	ND	U	0.020	0.00086	1	10/28/21 13:52	10/27/21	*
Benzo(k)fluoranthene	ND	U	0.020	0.00094	1	10/28/21 13:52	10/27/21	*
Carbazole	ND	U	0.020	0.0011	1	10/28/21 13:52	10/27/21	*
Chrysene	ND	U	0.020	0.00076	1	10/28/21 13:52	10/27/21	*
Dibenz(a,h)anthracene	ND	U	0.020	0.0013	1	10/28/21 13:52	10/27/21	*
Dibenzofuran	**0.0010**	**J**	0.020	0.00096	1	10/28/21 13:52	10/27/21	*
Fluoranthene	ND	U	0.020	0.00082	1	10/28/21 13:52	10/27/21	*
Fluorene	**0.0096**	**J**	0.020	0.0011	1	10/28/21 13:52	10/27/21	*
Indeno(1,2,3-cd)pyrene	ND	U	0.020	0.00089	1	10/28/21 13:52	10/27/21	*
Naphthalene	**0.0022**	**J**	0.020	0.0014	1	10/28/21 13:52	10/27/21	*
Phenanthrene	ND	U	0.020	0.0011	1	10/28/21 13:52	10/27/21	*
Pyrene	ND	U	0.020	0.0010	1	10/28/21 13:52	10/27/21	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	77	42 - 133	10/28/21 13:52	
Fluorene-d10	82	42 - 131	10/28/21 13:52	
Terphenyl-d14	72	32 - 129	10/28/21 13:52	

Semivolatile Organic Compounds by GC

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Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	09/21/21 18:15
Sample Matrix:	Ground Water	**Date Received:**	09/23/21 10:30
Sample Name:	MW-01	**Units:**	ug/L
Lab Code:	K2111119-001	**Basis:**	NA

Semi-Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Diesel Range Organics (C12 - C25 DRO)	**690 Z**	260	12	1	10/26/21 17:57	9/27/21	*
Residual Range Organics (C25 - C36 RRO)	**690 Z**	520	20	1	10/26/21 17:57	9/27/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	98	50 - 150	10/26/21 17:57	
n-Triacontane	96	50 - 150	10/26/21 17:57	

Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	09/21/21 17:05
Sample Matrix:	Ground Water	**Date Received:**	09/23/21 10:30
Sample Name:	MW-02	**Units:**	ug/L
Lab Code:	K2111119-002	**Basis:**	NA

Semi-Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Diesel Range Organics (C12 - C25 DRO)	**170**	**J**	260	12	1	10/17/21 03:53	9/27/21	
Residual Range Organics (C25 - C36 RRO)	**120**	**J**	520	20	1	10/17/21 03:53	9/27/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	73	50 - 150	10/17/21 03:53	
n-Triacontane	87	50 - 150	10/17/21 03:53	

Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	09/21/21 11:08
Sample Matrix:	Ground Water	**Date Received:**	09/23/21 10:30
Sample Name:	MW-03	**Units:**	ug/L
Lab Code:	K2111119-003	**Basis:**	NA

Semi-Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Diesel Range Organics (C12 - C25 DRO)	**130**	**J**	270	12	1	10/17/21 04:15	9/27/21	
Residual Range Organics (C25 - C36 RRO)	**110**	**J**	530	21	1	10/17/21 04:15	9/27/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	92	50 - 150	10/17/21 04:15	
n-Triacontane	112	50 - 150	10/17/21 04:15	

Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	09/21/21 15:14
Sample Matrix:	Ground Water	**Date Received:**	09/23/21 10:30
Sample Name:	MW-04	**Units:**	ug/L
Lab Code:	K2111119-004	**Basis:**	NA

Semi-Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Diesel Range Organics (C12 - C25 DRO)	**23**	**J**	270	12	1	10/25/21 18:48	9/27/21	*
Residual Range Organics (C25 - C36 RRO)	**52**	**J**	530	21	1	10/25/21 18:48	9/27/21	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	92	50 - 150	10/25/21 18:48	
n-Triacontane	90	50 - 150	10/25/21 18:48	

Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	09/21/21 15:14
Sample Matrix:	Ground Water	**Date Received:**	09/23/21 10:30
Sample Name:	MW-04 DUP	**Units:**	ug/L
Lab Code:	K2111119-005	**Basis:**	NA

Semi-Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Diesel Range Organics (C12 - C25 DRO)	**120**	**J**	270	12	1	10/17/21 05:19	9/27/21	
Residual Range Organics (C25 - C36 RRO)	**98**	**J**	530	21	1	10/17/21 05:19	9/27/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	96	50 - 150	10/17/21 05:19	
n-Triacontane	115	50 - 150	10/17/21 05:19	

Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	09/21/21 14:08
Sample Matrix:	Ground Water	**Date Received:**	09/23/21 10:30
Sample Name:	MW-05	**Units:**	ug/L
Lab Code:	K2111119-006	**Basis:**	NA

Semi-Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Diesel Range Organics (C12 - C25 DRO)	**140**	**J**	270	12	1	10/17/21 05:40	9/27/21	
Residual Range Organics (C25 - C36 RRO)	**96**	**J**	530	21	1	10/17/21 05:40	9/27/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	97	50 - 150	10/17/21 05:40	
n-Triacontane	119	50 - 150	10/17/21 05:40	

QC Summary Forms

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Semivolatile Organic Compounds by GC/MS

ALS Environmental—Kelso Laboratory
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Client: Tetra Tech, Inc. **Service Request:** K2111119

Project: Lumen (Century Link)-Longview/103P778702

Sample Matrix: Ground Water

SURROGATE RECOVERY SUMMARY
Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D

Extraction Method: EPA 3511

Sample Name	Lab Code	Fluoranthene-d10 42-133	Fluorene-d10 42-131	Terphenyl-d14 32-129
MW-01	K2111119-001	77	85	69
MW-02	K2111119-002	80	87	72
MW-03	K2111119-003	80	88	74
MW-04	K2111119-004	79	86	72
MW-04 DUP	K2111119-005	82	88	73
MW-05	K2111119-006	77	82	72
Method Blank	KQ2121144-04	78	86	73
Method Blank	KQ2121144-05	80	87	62
Lab Control Sample	KQ2121144-03	82	86	64
MW-03	KQ2121144-01	84	86	73
MW-03	KQ2121144-02	83	86	74

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	09/21/21
Sample Matrix:	Ground Water	**Date Received:**	09/23/21
		Date Analyzed:	10/28/21
		Date Extracted:	10/27/21

Duplicate Matrix Spike Summary
Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Sample Name:	MW-03	**Units:**	ug/L
Lab Code:	K2111119-003	**Basis:**	NA
Analysis Method:	8270D		
Prep Method:	EPA 3511		

		Matrix Spike KQ2121144-01			Duplicate Matrix Spike KQ2121144-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1-Methylnaphthalene	0.0013 J	2.51	2.78	90	2.49	2.78	90	57-113	<1	30
2-Methylnaphthalene	0.0029 J	2.49	2.78	90	2.47	2.78	89	58-111	<1	30
Acenaphthene	0.0020 J	2.71	2.78	97	2.66	2.78	96	63-121	2	30
Acenaphthylene	0.0019 J	2.71	2.78	97	2.67	2.78	96	61-118	1	30
Anthracene	0.0011 J	3.23	2.78	116	3.20	2.78	115	69-125	<1	30
Benz(a)anthracene	0.0020 J	2.93	2.78	105	2.89	2.78	104	71-127	1	30
Benzo(a)pyrene	ND U	2.97	2.78	107	2.93	2.78	105	69-132	1	30
Benzo(b)fluoranthene	ND U	2.96	2.78	106	2.94	2.78	106	65-139	<1	30
Benzo(g,h,i)perylene	ND U	2.82	2.78	102	2.78	2.78	100	63-129	2	30
Benzo(k)fluoranthene	ND U	2.89	2.78	104	2.86	2.78	103	65-137	1	30
Carbazole	ND U	1.36	2.78	49 *	1.33	2.78	48 *	70-130	2	30
Chrysene	ND U	2.92	2.78	105	2.88	2.78	104	75-130	2	30
Dibenz(a,h)anthracene	ND U	3.01	2.78	108	2.97	2.78	107	61-138	1	30
Dibenzofuran	0.0012 J	2.76	2.78	99	2.52	2.78	91	62-127	9	30
Fluoranthene	ND U	2.49	2.78	90	2.47	2.78	89	69-125	<1	30
Fluorene	ND U	2.74	2.78	99	2.70	2.78	97	66-123	1	30
Indeno(1,2,3-cd)pyrene	ND U	3.15	2.78	113	3.11	2.78	112	62-142	1	30
Naphthalene	0.0040 J	2.54	2.78	91	2.51	2.78	90	45-123	1	30
Phenanthrene	0.0015 J	2.64	2.78	95	2.63	2.78	95	65-124	<1	30
Pyrene	ND U	2.94	2.78	106	2.89	2.78	104	59-134	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2121144-04	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1-Methylnaphthalene	ND	U	0.020	0.0013	1	10/28/21 09:55	10/27/21	
2-Methylnaphthalene	**0.0016**	**J**	0.020	0.0013	1	10/28/21 09:55	10/27/21	
Acenaphthene	ND	U	0.020	0.0012	1	10/28/21 09:55	10/27/21	
Acenaphthylene	ND	U	0.020	0.0011	1	10/28/21 09:55	10/27/21	
Anthracene	ND	U	0.020	0.00082	1	10/28/21 09:55	10/27/21	
Benz(a)anthracene	**0.0018**	**J**	0.020	0.00097	1	10/28/21 09:55	10/27/21	
Benzo(a)pyrene	ND	U	0.020	0.0011	1	10/28/21 09:55	10/27/21	
Benzo(b)fluoranthene	ND	U	0.020	0.00083	1	10/28/21 09:55	10/27/21	
Benzo(g,h,i)perylene	ND	U	0.020	0.00086	1	10/28/21 09:55	10/27/21	
Benzo(k)fluoranthene	ND	U	0.020	0.00094	1	10/28/21 09:55	10/27/21	
Carbazole	ND	U	0.020	0.0011	1	10/28/21 09:55	10/27/21	
Chrysene	ND	U	0.020	0.00076	1	10/28/21 09:55	10/27/21	
Dibenz(a,h)anthracene	ND	U	0.020	0.0013	1	10/28/21 09:55	10/27/21	
Dibenzofuran	**0.00098**	**J**	0.020	0.00096	1	10/28/21 09:55	10/27/21	
Fluoranthene	ND	U	0.020	0.00082	1	10/28/21 09:55	10/27/21	
Fluorene	ND	U	0.020	0.0011	1	10/28/21 09:55	10/27/21	
Indeno(1,2,3-cd)pyrene	ND	U	0.020	0.00089	1	10/28/21 09:55	10/27/21	
Naphthalene	**0.0027**	**J**	0.020	0.0014	1	10/28/21 09:55	10/27/21	
Phenanthrene	**0.0012**	**J**	0.020	0.0011	1	10/28/21 09:55	10/27/21	
Pyrene	ND	U	0.020	0.0010	1	10/28/21 09:55	10/27/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	78	42 - 133	10/28/21 09:55	
Fluorene-d10	86	42 - 131	10/28/21 09:55	
Terphenyl-d14	73	32 - 129	10/28/21 09:55	

Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2121144-05	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1-Methylnaphthalene	ND	U	0.020	0.0013	1	10/28/21 09:28	10/27/21	
2-Methylnaphthalene	**0.0015**	**J**	0.020	0.0013	1	10/28/21 09:28	10/27/21	
Acenaphthene	ND	U	0.020	0.0012	1	10/28/21 09:28	10/27/21	
Acenaphthylene	ND	U	0.020	0.0011	1	10/28/21 09:28	10/27/21	
Anthracene	ND	U	0.020	0.00082	1	10/28/21 09:28	10/27/21	
Benz(a)anthracene	**0.0018**	**J**	0.020	0.00097	1	10/28/21 09:28	10/27/21	
Benzo(a)pyrene	ND	U	0.020	0.0011	1	10/28/21 09:28	10/27/21	
Benzo(b)fluoranthene	ND	U	0.020	0.00083	1	10/28/21 09:28	10/27/21	
Benzo(g,h,i)perylene	ND	U	0.020	0.00086	1	10/28/21 09:28	10/27/21	
Benzo(k)fluoranthene	ND	U	0.020	0.00094	1	10/28/21 09:28	10/27/21	
Carbazole	ND	U	0.020	0.0011	1	10/28/21 09:28	10/27/21	
Chrysene	ND	U	0.020	0.00076	1	10/28/21 09:28	10/27/21	
Dibenz(a,h)anthracene	ND	U	0.020	0.0013	1	10/28/21 09:28	10/27/21	
Dibenzofuran	**0.0011**	**J**	0.020	0.00096	1	10/28/21 09:28	10/27/21	
Fluoranthene	ND	U	0.020	0.00082	1	10/28/21 09:28	10/27/21	
Fluorene	ND	U	0.020	0.0011	1	10/28/21 09:28	10/27/21	
Indeno(1,2,3-cd)pyrene	ND	U	0.020	0.00089	1	10/28/21 09:28	10/27/21	
Naphthalene	**0.0022**	**J**	0.020	0.0014	1	10/28/21 09:28	10/27/21	
Phenanthrene	ND	U	0.020	0.0011	1	10/28/21 09:28	10/27/21	
Pyrene	ND	U	0.020	0.0010	1	10/28/21 09:28	10/27/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	80	42 - 133	10/28/21 09:28	
Fluorene-d10	87	42 - 131	10/28/21 09:28	
Terphenyl-d14	62	32 - 129	10/28/21 09:28	

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Analyzed:**	10/28/21
Sample Matrix:	Ground Water	**Date Extracted:**	10/27/21

Lab Control Sample Summary
Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method:	8270D	**Units:**	ug/L
Prep Method:	EPA 3511	**Basis:**	NA
		Analysis Lot:	744142

Lab Control Sample
KQ2121144-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1-Methylnaphthalene	2.45	2.78	88	47-119
2-Methylnaphthalene	2.42	2.78	87	48-120
Acenaphthene	2.80	2.78	101	63-121
Acenaphthylene	2.67	2.78	96	58-124
Anthracene	3.22	2.78	116	68-127
Benz(a)anthracene	2.85	2.78	102	74-124
Benzo(a)pyrene	2.86	2.78	103	75-131
Benzo(b)fluoranthene	2.86	2.78	103	73-136
Benzo(g,h,i)perylene	2.74	2.78	99	63-127
Benzo(k)fluoranthene	2.78	2.78	100	74-134
Carbazole	1.43	2.78	52 *	68-135
Chrysene	2.83	2.78	102	74-132
Dibenz(a,h)anthracene	2.92	2.78	105	59-135
Dibenzofuran	2.70	2.78	97	56-132
Fluoranthene	2.45	2.78	88	70-127
Fluorene	2.68	2.78	96	68-121
Indeno(1,2,3-cd)pyrene	3.08	2.78	111	63-136
Naphthalene	2.49	2.78	89	52-115
Phenanthrene	2.63	2.78	95	64-126
Pyrene	2.87	2.78	103	72-127

Semivolatile Organic Compounds by GC

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Client: Tetra Tech, Inc. **Service Request:** K2111119

Project: Lumen (Century Link)-Longview/103P778702

Sample Matrix: Ground Water

SURROGATE RECOVERY SUMMARY
Semi-Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Dx

Extraction Method: EPA 3510C

Sample Name	Lab Code	o-Terphenyl 50-150	n-Triacontane 50-150
MW-01	K2111119-001	98	96
MW-02	K2111119-002	73	87
MW-03	K2111119-003	92	112
MW-04	K2111119-004	92	90
MW-04 DUP	K2111119-005	96	115
MW-05	K2111119-006	97	119
MW-03	KQ2118889-01	93	113
Method Blank	KQ2118889-04	88	107
Lab Control Sample	KQ2118889-02	91	103
Duplicate Lab Control Sample	KQ2118889-03	98	108

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	09/21/21
Sample Matrix:	Ground Water	**Date Received:**	09/23/21
		Date Analyzed:	10/17/21

Replicate Sample Summary
Semi-Volatile Petroleum Products by GC/FID

Sample Name:	MW-03	**Units:**	ug/L
Lab Code:	K2111119-003	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2118889-01 Result	Average	RPD	RPD Limit
Diesel Range Organics (C12 - C25 DRO)	NWTPH-Dx	280	13	130 J	140 J	134	7	30
Residual Range Organics (C25 - C36 RRO)	NWTPH-Dx	560	22	110 J	120 J	111	9	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Tetra Tech, Inc.	**Service Request:**	K2111119
Project:	Lumen (Century Link)-Longview/103P778702	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2118889-04	**Basis:**	NA

Semi-Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Diesel Range Organics (C12 - C25 DRO)	**80**	**J**	250	11	1	10/16/21 23:37	9/27/21	
Residual Range Organics (C25 - C36 RRO)	**72**	**J**	500	19	1	10/16/21 23:37	9/27/21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	88	50 - 150	10/16/21 23:37	
n-Triacontane	107	50 - 150	10/16/21 23:37	

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Project:	Lumen (Century Link)-Longview/103P778702	**Date Analyzed:**	10/16/21
Sample Matrix:	Ground Water	**Date Extracted:**	09/27/21

Duplicate Lab Control Sample Summary
Semi-Volatile Petroleum Products by GC/FID

Analysis Method:	NWTPH-Dx	**Units:**	ug/L
Prep Method:	EPA 3510C	**Basis:**	NA
		Analysis Lot:	742854

	Lab Control Sample KQ2118889-02			Duplicate Lab Control Sample KQ2118889-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Diesel Range Organics (C12 - C25 DRO)	3240	3200	101	3460	3200	108	46-140	7	30
Residual Range Organics (C25 - C36 RRO)	1470	1600	92	1530	1600	96	45-159	4	30