



January 27, 2025

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

Sent via email to steve.teel@ecy.wa.gov

**Subject: Groundwater Monitoring Report, October 2024
Lumen Longview Facility
1305 Washington Way, Longview, Washington 98632**

Dear Mr. Teel:

Tetra Tech, Inc. (Tetra Tech) on behalf of Lumen Technologies, Inc. (Lumen) is providing this summary of the groundwater sampling event conducted on October 15, 2024, 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 1.73 to 1.90 feet above mean sea level (amsl) and are summarized on Table 1 and shown on Figure 1. Average groundwater elevations were approximately 1.34 feet lower than observed in March 2023 (the last monitoring event).

Based on groundwater elevation data shown on Figure 1, the direction of groundwater flow appears to be northwest, with a gradient of approximately 0.001 foot per foot. Historically, groundwater flow direction has typically ranged from west to northwest.

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 2023 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 Horiba U-50 water quality meter was used to measure field parameters during well purging prior to sampling. Water quality parameters measured 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 (SOP), placed in a cooler, and chilled to below 4 degrees Celsius. Samples were delivered to ALS Laboratories (ALS), located at 1317 South 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 filtered with a 0.7-micrometer (μm) filter before analysis by ALS.

Groundwater Sample Analytical Results

Table 2 presents a summary of groundwater analytical results for the samples collected during the October 15, 2024, event. Laboratory data were reviewed in accordance with Tetra Tech SOP 203-2 (Tetra Tech 2021). All sample results were found usable as reported.

No sample result exceeded an MTCA criterion during this sampling event. TPH-DRO and TPH-RRO were detected at estimated concentrations (laboratory “J” qualifier, indicating the result is below the method reporting limit but above the method detection limit) in all samples collected.

Currently, there are no total PAH or compound-specific Model Toxics Control Act (MTCA) Method A cleanup levels for PAHs. Ecology uses toxicity equivalent factors (TEF) to evaluate the toxicity and assess the risks for carcinogenic polycyclic aromatic hydrocarbons (cPAHs). The MTCA Method A cleanup level for the carcinogenic PAHs of 0.1 microgram per liter ($\mu\text{g/L}$) is based on the benzo(a)pyrene toxic equivalent concentration (BaP TEC). Table 2 also shows the BaP TEC results, which are based on the individual PAH analytical results multiplied by a TEF (WAC 173-340-708(8)(e)). All BaP TEC results were below the MTCA Method A cleanup level of 0.1 $\mu\text{g/L}$.

MTCA Method B contains cleanup levels for individual PAHs not included in the BaP TEC calculations. Estimated concentrations of PAHs were detected in all samples collected. At MW-04, acenaphthene, anthracene, and pyrene were detected at 0.12, 0.024, and 0.067 microgram per liter ($\mu\text{g/L}$), respectively. The detected concentrations of acenaphthene, anthracene, and pyrene were below their respective MTCA Method B cleanup levels as listed in the Cleanup Level and Risk Calculation (CLARC) website, <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC>.

Table 3 summarizes the historical results for TPH-DRO and TPH-RRO for each monitoring well sample. Table 4 summarizes the historical results for BaP TEC and total PAHs for each monitoring well sample.

The current groundwater monitoring data have been successfully uploaded to Ecology's Environmental Information Management (EIM) database.

Conclusions and Recommendations

For the October 2024 sampling event, analytical results from all five monitoring well samples were below the MTCA Method A cleanup level of 0.1 µg/L for BaP TEC; TPH-DRO and TPH-RRO combined concentrations were below the MTCA Method A cleanup level of 500 µg/L; and individual PAHs detected in MW-04 were below their respective MTCA Method B cleanup levels.

Continued low groundwater TPH concentrations at downgradient wells MW-04 and MW-05 below MTCA Method A cleanup levels indicate that the TPH plume is stable and not migrating downgradient at significant concentrations.

On March 22, 2017, Tetra Tech Engineer Mr. Dave Berestka and Ecology's Mr. Steve Teel discussed a proposed monitoring schedule. Groundwater sampling at the five monitoring wells would 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. Eight sesquiannual events are required to demonstrate plume stability.

Tetra Tech recommends that groundwater sampling continue at the five monitoring wells; the next groundwater monitoring event will be conducted in spring 2026.

If you have any questions or concerns, please contact me at (303) 312-8813 or mark.reisig@tetrattech.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, Inc. (Tetra Tech). 2015. Direct-Push Groundwater Investigation and Sampling Plan: CenturyLink Longview facility, Longview, Washington. March 2.

Tetra Tech. 2021. Standard Operating Procedure Number 203 Revision Number 02, Laboratory Analytical Data Verification. November.

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.

Ecology. Cleanup Level and Risk Calculation (CLARC) website, <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC>

TABLES

TABLE 1
OCTOBER 15, 2024 GROUNDWATER ELEVATIONS
LUMEN LONGVIEW, WASHINGTON FACILITY

Location	Surveyed Top of Casing (ft amsl)	Depth to Water (ft)	Groundwater Elevation (ft amsl)
MW-01	15.64	13.76	1.88
MW-02	16.17	14.34	1.83
MW-03	15.02	13.12	1.90
MW-04	14.55	12.78	1.77
MW-05	14.75	13.02	1.73

Notes:

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

TABLE 2
2024 GROUNDWATER SAMPLE ANALYTICAL RESULTS
LUMEN LONGVIEW, WASHINGTON FACILITY

Analyte		TPH-DRO	TPH-RRO	Total TPH DRO and RRO	Total PAHs	BaP TEQ
MTCA Method A Cleanup Level		500 µg/L	500 µg/L	NA	NA	0.1 µg/L
Location	Date					
MW-01	10/15/2024	94 J	180 J	274 J	0.0212 J	0.001056
MW-02	10/15/2024	110 J	130 J	240 J	0.0242 J	0.001014
MW-03	10/15/2024	85 J	130 J	215 J	0.021 J	0.001011
MW-04	10/15/2024	86 J	130 J	216 J	0.2373 J	0.001131
MW-05	10/15/2024	88 J	110 J	198 J	0.0488	0.002082

Notes:

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

µg/L Micorgrams per liter

BaP TEQ Benzo(a)pyrene toxic equivalent quotient

J Laboratory qualifier indicating the concentration is estimated and the result is below the method reporting limit, but above the method detection limit.

MTCA Model Toxics Control Act

NA No applicable MTCA standard

PAH Polycyclic aromatic hydrocarbon

TPH-DRO Total petroleum hydrocarbons diesel range organics

TPH-RRO Total petroleum hydrocarbons residual range organics

TABLE 3
HISTORICAL GROUNDWATER SAMPLE ANALYTICAL RESULTS
TPH-DRO AND TPH-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
	12/18/2015	Low Flow	38	83	46	96	120
	3/31/2016	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
	12/9/2016	Low Flow	37	120	63	70	67
	5/4/2017	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
	3/23/2023	Low Flow	62 J	84 J	44 J	35 J	50 J
	10/15/2024	Low Flow	94 J	110J	85 J	86 J	88 J

Analyte	Date	Sampling Method	MW-01	MW-02	MW-03	MW-04	MW-05
TPH-RRO (MTCA Method A Cleanup Level = 500 µg/L)	3/25/1992	Bailer	200 U	200 U	200 U	--	--
	12/16/2003	--	--	--	--	--	--
	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
	12/18/2015	Low Flow	84	160	81	81	82
	3/31/2016	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
	12/9/2016	Low Flow	140	180	130	110	110
	5/4/2017	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
	3/23/2023	Low Flow	210 J	98 J	120 J	86 J	95 J
	10/15/2024	Low Flow	180 J	130 J	130 J	130 J	110 J

Notes:

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

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

Blue shading indicates current reporting period results.

µg/L Micograms per liter

-- Not analyzed

J Laboratory qualifier indicating the concentration is estimated and the result is below the method reporting limit, but above the method detection limit.

MTCA Model Toxics Control Act

TPH-DRO Total petroleum hydrocarbons diesel range organics

TPH-RRO Total petroleum hydrocarbons residual range organics

U Laboratory qualifier indicating that the analyte was not detected above the method reporting limit shown.

Z The chromatographic fingerprint does not resemble a petroleum product.

TABLE 4
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 Unfiltered Analysis (MTCA Method A Cleanup Level = 0.1 µg/L)	6/3/2013	Bailer	2.2	0.1 U	0.1 U	0.36	0.1 U
	12/5/2013	Bailer	0.2	0.027	0.074	1.4	0.0062
	3/27/2014	Bailer	0.37	0.08	0.049	0.27	0.073
	6/25/2014	Bailer	0.39	0.012	0.00033	0.4	0.0054
	9/10/2014	Bailer	0.14	0.09	0.0037	0.39	0.0051
BaP TEQ Filtered Analysis (MTCA Method A Cleanup Level = 0.1 µg/L)	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
	6/25/2014	Bailer	0.020 U	--	--	0.200 U	--
	9/10/2014	Bailer	0.0003	0.00027	--	0.020 U	--
	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	0.0005	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	0.0004	0.00041
	12/9/2016	Low Flow	0.00028	0.020 U	0.00032	0.00032	0.020 U
	5/4/2017	Low Flow	0.00026	0.020 U	0.0002	0.00023	0.00024
	11/16/2018	Low Flow	0.0002	0.00026	0.0002	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
	3/23/2023	Low Flow	0.002679	0.002752	0.002782	0.002762	0.002679
	10/15/2024	Low Flow	0.001056	0.001014	0.001011	0.001131	0.002082

Analyte	Date	Sampling Method	MW-01	MW-02	MW-03	MW-04	MW-05
Total PAHs Unfiltered Analysis (No MTCA Method A Cleanup Level)	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
	3/27/2014	Bailer	3.5	1.3	0.5	3.1	0.8
	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	5.5
Total PAHs Filtered Analysis (No MTCA Method A Cleanup Level)	12/5/2013	Bailer	0.028	--	0.043	0.52	--
	3/27/2014	Bailer	0.018	0.21	--	0.08	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
	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
	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
	12/9/2016	Low Flow	0.0028	0.007	0.029	4.7	1.1
	5/4/2017	Low Flow	0.015	0.7	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
	3/23/2023	Low Flow	0.0144 J	0.0201 J	0.0079 J	0.2139 J	0.0223 J
	10/15/2024	Low Flow	0.0212 J	0.0242 J	0.021 J	0.2373 J	0.0488 J

Notes:

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

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

Blue shading indicates current reporting period results.

µg/L Micograms per liter

-- Not analyzed

BaP TEQ Benzo(a)pyrene toxic equivalent quotient

J Laboratory qualifier indicating the concentration is estimated and the result is below the method reporting limit, but above the method detection limit.

MTCA Model Toxics Control Act




PAH Polycyclic aromatic hydrocarbon

U Laboratory qualifier indicating that the analyte was not detected above the method reporting limit shown.

FIGURE



Document Path: C:\Users\MEGAN.CALDWELL\Desktop\GIS\requests\Lumen_Longview\ArcPro\Lumen.aprx

-  MONITORING WELL LOCATIONS
-  INFERRED GROUNDWATER FLOW
-  GROUNDWATER CONTOUR

Note: Groundwater elevations are listed in parentheses next to each well name in feet above mean sea level. Static groundwater level measurements were collected October 15, 2024.

**TETRA TECH**

www.tetrattech.com
1560 Broadway Street, Suite 1400
Denver, Colorado 80202
(303) 312.8813

Figure 1- Groundwater Elevations and Contours- October 2024

Lumen
1305 Washington Way
Longview, Washington

Project No: 103P778712

Date: 1/10/2025
Designed By: MC

LUMEN

ATTACHMENT A
LOW-FLOW GROUNDWATER SAMPLING PARAMETER FORMS



TETRA TECH
900 SW Fifth Ave, Suite 1600
Portland, OR 97204
Telephone (503) 727-8063

GROUNDWATER MONITORING WELL FIELD DATA LOG SHEET - SAMPLING

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DATE	10/15/2024	STATIC WATER LEVEL (ft btoc)	13.76	PROGRAM NAME	Lumen Longview Groundwater Sampling
WELL I.D.	MW-01	WATER COLUMN (feet)	5.84	SITE NAME / NUMBER	Lumen Longview
SAMPLE I.D.	MW-01	MEASURED WELL DEPTH (ft btoc)	19.6	PURGING DEVICE	Peristaltic Pump
DUPLICATE I.D.	MW-01-DUP	PRODUCT DEPTH (ft btoc) IF EVALUATED	-	SAMPLING DEVICE	Peristaltic Pump
SAMPLE TIME	13:45	PUMP INLET DEPTH (ft btoc)	16.0	SAMPLER'S SIGNATURE	Mike Pavarini
DUP TIME	13:50	WELL SCREEN INTERVAL (ft btoc)	-		
TRIP BLANK I.D.	-	WELL DIAMETER (in)	4		
MS/MSD (Y/N)	N			CASING VOLUME (V) (gal)	3.81 (V) (mL) 14414
				3 CASING VOLUMES (V) (gal)	11.42 (V) (mL) 43241

Time	Activity	Water Level (ft btoc)	Turbidity (NTU)	Temp (°C)	Specific Conductance (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Color	Volume Purged (mL)	Casing Volumes Purged	Flow Rate (mL/min)
13:14	Pump On	-	-	-	-	-	-	-	-	-	-	300
13:18	Filling Cell	13.80	-	-	-	-	-	-	Clear	1200	0.08	300
13:20	Purge to Stabilize	13.81	60.50	16.25	0.308	0.41	6.55	165.00	Clear	1800	0.12	300
13:23	Purge to Stabilize	12.82	45.40	15.91	0.312	0.09	6.59	164.00	Clear	2700	0.19	300
13:26	Purge to Stabilize	13.80	44.00	15.94	0.314	0.02	6.58	166.00	Clear	3600	0.25	300
13:29	Purge to Stabilize	13.81	38.50	15.96	0.315	0.00	6.56	168.00	Clear	4500	0.31	300
13:32	Purge to Stabilize	13.80	32.60	15.92	0.315	0.00	6.50	173.00	Clear	5400	0.37	300
13:35	Purge to Stabilize	13.80	27.60	15.90	0.313	0.00	6.51	173.00	Clear	6300	0.44	300
13:38	Purge to Stabilize	13.80	29.90	15.95	0.312	0.00	6.51	173.00	Clear	7200	0.50	300
13:41	Purge to Stabilize	13.80	27.00	15.95	0.311	0.00	6.50	174.00	Clear	8100	0.56	300
13:44	Purge to Stabilize	13.80	27.60	15.96	0.311	0.00	6.49	174.00	Clear	9000	0.62	300
13:45	Sampled	13.80	28.10	15.95	0.311	0.00	6.49	174.00	Clear	9300	0.65	300
13:50	Sampled DUP											

WATER LEVEL (ft btoc) AT TIME OF SAMPLING			<u>13.80</u>		PARAMETERS FOR WATER QUALITY STABILIZATION OVER THREE READINGS					
PID READINGS: IN CASING (ppm)		(initial):	-	(vented to):					-	
IN BREATHING ZONE (ppm)		(initial):	-	(vented to):	-	Temp ± 3 % and within ± 0.2 °C		Conductivity ± 3 %		
Comments:							pH ± 0.1 pH units		DO ± 10 %	
Petroleum odor coming from proximity of MW and soil between the MW's inner and outer casing. Recent asphalt paving directly adjacent to the well.					Turbidity ± 10 % (or less than 10 NTUs)					
					ORP ± 10 mv					
Well lid has no bolts and the inner plug is cracked. Well seal may not be competent.										

Notes:

If stability criteria is not reached the well may be sampled when 3 well volumes have been purged or purging has been completed for 60 minutes.

Additional purging may be completed to obtain turbidity levels below 10 NTUs.

All water levels and pump depths are measured from the reference point (notch) in the top of the well casing.

If no reference point is observed then the north side of the casing should be notched and measurements should be collected from this point.

Water level draw down must be maintained to less than 0.3 feet with a purge rate between 50 and 500 mL/min. If draw down cannot be maintained to less than 0.3 feet reference Worksheet 14 of the QPP.

Casing Volume (gal) = (DTW-TD)*(Well Diameter/2)^2*0.163
Gallons to Milliliters = (Gallons*3.785)*1000



TETRA TECH
900 SW Fifth Ave, Suite 1600
Portland, OR 97204
Telephone (503) 727-8063

GROUNDWATER MONITORING WELL FIELD DATA LOG SHEET - SAMPLING

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DATE	10/15/2024	STATIC WATER LEVEL (ft btoc)	14.34	PROGRAM NAME	Lumen Longview Groundwater Sampling
WELL I.D.	MW-02	WATER COLUMN (feet)	5.63	SITE NAME / NUMBER	Lumen Longview
SAMPLE I.D.	MW-02	MEASURED WELL DEPTH (ft btoc)	19.97	PURGING DEVICE	Peristaltic Pump
DUPLICATE I.D.	-	PRODUCT DEPTH (ft btoc) IF EVALUATED	-	SAMPLING DEVICE	Peristaltic Pump
SAMPLE TIME	15:15	PUMP INLET DEPTH (ft btoc)	16.0	SAMPLER'S SIGNATURE	Mike Pavarini
DUP TIME	-	WELL SCREEN INTERVAL (ft btoc)	-		
TRIP BLANK I.D.	-	WELL DIAMETER (in)	2		
MS/MSD (Y/N)	N			CASING VOLUME (V) (gal)	0.92 (V) (mL) 3474
				3 CASING VOLUMES (V) (gal)	2.75 (V) (mL) 10422

Time	Activity	Water Level (ft btoc)	Turbidity (NTU)	Temp (°C)	Specific Conductance (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Color	Volume Purged (mL)	Casing Volumes Purged	Flow Rate (mL/min)
14:29	Pump On	-	-	-	-	-	-	-	-	-	-	350
14:32	Filling Cell	14.38	-	-	-	-	-	-	Clear	1050	0.30	350
14:34	Purge to Stabilize	14.39	81.10	17.28	0.499	5.99	6.40	195.00	Clear	1750	0.50	350
14:37	Purge to Stabilize	14.39	33.10	17.24	0.496	4.50	6.58	190.00	Clear	2800	0.81	350
14:40	Purge to Stabilize	14.39	20.20	17.21	0.492	4.03	6.60	190.00	Clear	3850	1.11	350
14:43	Purge to Stabilize	14.39	13.30	17.06	0.476	2.83	6.56	193.00	Clear	4900	1.41	350
14:46	Purge to Stabilize	14.38	10.60	17.02	0.473	2.39	6.53	195.00	Clear	5950	1.71	350
14:49	Purge to Stabilize	14.38	8.60	16.97	0.468	2.01	6.50	198.00	Clear	7000	2.02	350
14:52	Purge to Stabilize	14.38	9.40	16.92	0.464	1.49	6.45	201.00	Clear	8050	2.32	350
14:55	Purge to Stabilize	14.38	5.60	16.90	0.462	1.25	6.43	202.00	Clear	9100	2.62	350
14:58	Purge to Stabilize	14.39	4.60	16.88	0.461	1.18	6.42	203.00	Clear	10150	2.92	350
15:01	Purge to Stabilize	14.39	4.60	16.85	0.456	1.06	6.41	205.00	Clear	11200	3.22	350
15:04	Purge to Stabilize	14.39	6.00	16.85	0.457	0.89	6.40	206.00	Clear	12250	3.53	350
15:07	Purge to Stabilize	14.39	3.70	16.84	0.457	0.86	6.40	207.00	Clear	13300	3.83	350
15:10	Purge to Stabilize	14.39	4.20	16.84	0.457	0.85	6.40	208.00	Clear	14350	4.13	350
15:13	Purge to Stabilize	14.39	3.90	16.83	0.458	0.83	6.40	209.00	Clear	15400	4.43	350
15:15	Sampled	14.39							Clear	16100	4.63	

WATER LEVEL (ft btoc) AT TIME OF SAMPLING	14.39	PARAMETERS FOR WATER QUALITY STABILIZATION OVER THREE READINGS										
PID READINGS: IN CASING (ppm)	(initial): -	(vented to): -	Temp ± 3 % and within ± 0.2 °C									
IN BREATHING ZONE (ppm)	(initial): -	(vented to): -	Conductivity ± 3 %									
Comments:			pH ± 0.1 pH units									
			DO ± 10 %									
			Turbidity ± 10 % (or less than 10 NTUs)									
			ORP ± 10 mv									

Notes:

If stability criteria is not reached the well may be sampled when 3 well volumes have been purged or purging has been completed for 60 minutes.

Additional purging may be completed to obtain turbidity levels below 10 NTUs.

All water levels and pump depths are measured from the reference point (notch) in the top of the well casing.

If no reference point is observed then the north side of the casing should be notched and measurements should be collected from this point.

Water level draw down must be maintained to less than 0.3 feet with a purge rate between 50 and 500 mL/min. If draw down cannot be maintained to less than 0.3 feet reference Worksheet 14 of the QPP.

Casing Volume (gal) = (DTW-TD)*(Well Diameter/2)^2*0.163
Gallons to Milliliters = (Gallons*3.785)*1000



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GROUNDWATER MONITORING WELL FIELD DATA LOG SHEET - SAMPLING

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DATE	10/15/2024	STATIC WATER LEVEL (ft btoc)	13.12	PROGRAM NAME	Lumen Longview Groundwater Sampling		
WELL I.D.	MW-03	WATER COLUMN (feet)	6.81	SITE NAME / NUMBER	Lumen Longview		
SAMPLE I.D.	MW-03	MEASURED WELL DEPTH (ft btoc)	19.93	PURGING DEVICE	Peristaltic Pump		
DUPLICATE I.D.	-	PRODUCT DEPTH (ft btoc) IF EVALUATED	-	SAMPLING DEVICE	Peristaltic Pump		
SAMPLE TIME	08:35	PUMP INLET DEPTH (ft btoc)	16.0	SAMPLER'S SIGNATURE	Mike Pavarini		
DUP TIME	-	WELL SCREEN INTERVAL (ft btoc)	-				
TRIP BLANK I.D.	-	WELL DIAMETER (in)	2				
MS/MSD (Y/N)	N			CASING VOLUME (V) (gal)	1.11	(V) (mL)	4202
				3 CASING VOLUMES (V) (gal)	3.33	(V) (mL)	12606

Time	Activity	Water Level (ft btoc)	Turbidity (NTU)	Temp (°C)	Specific Conductance (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Color	Volume Purged (mL)	Casing Volumes Purged	Flow Rate (mL/min)
08:02	Pump On	-	-	-	-	-	-	-	-	-	-	300
08:05	Filling Cell	13.2	-	-	-	-	-	-	Light Grey	900	0.21	300
08:07	Purge to Stabilize	13.19	52.80	16.25	0.360	2.14	7.58	71.00	Light Grey	1500	0.36	300
08:10	Purge to Stabilize	13.18	26.10	15.95	0.371	1.19	7.03	68.00	Clear	2400	0.57	300
08:13	Purge to Stabilize	13.18	19.10	15.94	0.364	0.72	6.82	72.00	Clear	3300	0.79	300
08:16	Purge to Stabilize	13.18	17.00	15.86	0.364	0.44	6.74	73.00	Clear	4200	1.00	300
08:19	Purge to Stabilize	13.18	16.00	15.94	0.367	0.28	6.68	73.00	Clear	5100	1.21	300
08:22	Purge to Stabilize	13.18	17.10	16.09	0.369	0.23	6.58	77.00	Clear	6000	1.43	300
08:25	Purge to Stabilize	13.18	18.20	16.03	0.369	0.09	6.59	74.00	Clear	6900	1.64	300
08:28	Purge to Stabilize	13.18	17.60	15.95	0.366	0.01	6.56	68.00	Clear	7800	1.86	300
08:31	Purge to Stabilize	13.18	18.30	15.98	0.362	0.00	6.54	65.00	Clear	8700	2.07	300
08:34	Purge to Stabilize	13.18	18.60	15.94	0.361	0.00	6.53	63.00	Clear	9600	2.28	300
08:35	Sampled	13.18							Clear	9900	2.36	300

WATER LEVEL (ft btoc) AT TIME OF SAMPLING				13.18		PARAMETERS FOR WATER QUALITY STABILIZATION OVER THREE READINGS			
PID READINGS: IN CASING (ppm)		(initial):	-	(vented to):	-				
IN BREATHING ZONE (ppm)		(initial):	-	(vented to):	-				
Comments:									
Well lid closes and sits flat but bolts are stripped and won't tighten.						Temp ± 3 % and within ± 0.2 °C		Conductivity ± 3 %	
						pH ± 0.1 pH units		DO ± 10 %	
						Turbidity ± 10 % (or less than 10 NTUs)			
						ORP ± 10 mv			

Notes:

If stability criteria is not reached the well may be sampled when 3 well volumes have been purged or purging has been completed for 60 minutes.

Additional purging may be completed to obtain turbidity levels below 10 NTUs.

All water levels and pump depths are measured from the reference point (notch) in the top of the well casing.

If no reference point is observed then the north side of the casing should be notched and measurements should be collected from this point.

Water level draw down must be maintained to less than 0.3 feet with a purge rate between 50 and 500 mL/min. If draw down cannot be maintained to less than 0.3 feet reference Worksheet 14 of the QPP.

Casing Volume (gal) = (DTW-TD)*(Well Diameter/2)^2*0.163
Gallons to Milliliters = (Gallons*3.785)*1000



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GROUNDWATER MONITORING WELL FIELD DATA LOG SHEET - SAMPLING

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DATE	10/15/2024	STATIC WATER LEVEL (ft btoc)	12.78	PROGRAM NAME	Lumen Longview Groundwater Sampling
WELL I.D.	MW-04	WATER COLUMN (feet)	6.62	SITE NAME / NUMBER	Lumen Longview
SAMPLE I.D.	MW-04	MEASURED WELL DEPTH (ft btoc)	19.4	PURGING DEVICE	Peristaltic Pump
DUPLICATE I.D.	-	PRODUCT DEPTH (ft btoc) IF EVALUATED	-	SAMPLING DEVICE	Peristaltic Pump
SAMPLE TIME	12:35	PUMP INLET DEPTH (ft btoc)	15.0	SAMPLER'S SIGNATURE	Mike Pavarini
DUP TIME	-	WELL SCREEN INTERVAL (ft btoc)	-		
TRIP BLANK I.D.	-	WELL DIAMETER (in)	2		
MS/MSD (Y/N)	N			CASING VOLUME (V) (gal)	1.08 (V) (mL) 4085
				3 CASING VOLUMES (V) (gal)	3.24 (V) (mL) 12254

Time	Activity	Water Level (ft btoc)	Turbidity (NTU)	Temp (°C)	Specific Conductance (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Color	Volume Purged (mL)	Casing Volumes Purged	Flow Rate (mL/min)
11:57	Pump On	-	-	-	-	-	-	-	-	-	-	500
11:59	Filling Cell	12.80	-	-	-	-	-	-	Light Brown	1000	0.24	400
12:02	Purge to Stabilize	12.79	159.00	16.07	0.350	2.03	6.41	108.00	Light Brown	2200	0.54	400
12:05	Purge to Stabilize	12.80	139.00	15.75	0.357	3.54	6.52	63.00	Clear	3400	0.83	400
12:08	Purge to Stabilize	12.78	79.10	15.79	0.350	1.41	6.47	78.00	Clear	4600	1.13	400
12:11	Purge to Stabilize	12.78	58.20	15.71	0.357	0.91	6.50	68.00	Clear	5800	1.42	400
12:14	Purge to Stabilize	12.79	45.40	15.69	0.359	0.52	6.48	66.00	Clear	7000	1.71	400
12:17	Purge to Stabilize	12.78	34.40	15.67	0.358	0.19	6.43	67.00	Clear	8200	2.01	400
12:20	Purge to Stabilize	12.78	19.70	15.71	0.358	0.08	6.45	62.00	Clear	9400	2.30	400
12:23	Purge to Stabilize	12.79	20.00	15.78	0.357	0.00	6.44	61.00	Clear	10600	2.60	400
12:26	Purge to Stabilize	12.79	9.60	15.73	0.358	0.00	6.44	60.00	Clear	11800	2.89	400
12:29	Purge to Stabilize	12.80	9.30	15.75	0.358	0.00	6.43	59.00	Clear	13000	3.18	400
12:32	Purge to Stabilize	12.80	8.60	15.75	0.358	0.00	6.43	58.00	Clear	14200	3.48	400
12:35	Sampled	12.80	9.00	15.75	0.357	0.00	6.43	58.00	Clear	15400	3.77	400

WATER LEVEL (ft btoc) AT TIME OF SAMPLING			<u>12.80</u>		PARAMETERS FOR WATER QUALITY STABILIZATION OVER THREE READINGS			
PID READINGS: IN CASING (ppm)	(initial):	-	(vented to):	-	Temp ± 3 % and within ± 0.2 °C			
IN BREATHING ZONE (ppm)	(initial):	-	(vented to):	-				
Comments:					pH ± 0.1 pH units		Conductivity ± 3 %	
Well in shoulder of road. Outer casing filled with water. Inner plug sealed and holding. Bailed outer casing before opening well to sample.					DO ± 10 %			
					Turbidity ± 10 % (or less than 10 NTUs)			
					ORP ± 10 mv			

Notes:

If stability criteria is not reached the well may be sampled when 3 well volumes have been purged or purging has been completed for 60 minutes.

Additional purging may be completed to obtain turbidity levels below 10 NTUs.

All water levels and pump depths are measured from the reference point (notch) in the top of the well casing.

If no reference point is observed then the north side of the casing should be notched and measurements should be collected from this point.

Water level draw down must be maintained to less than 0.3 feet with a purge rate between 50 and 500 mL/min. If draw down cannot be maintained to less than 0.3 feet reference Worksheet 14 of the QPP.

Casing Volume (gal) = (DTW-TD)*(Well Diameter/2)^2*0.163

Gallons to Milliliters = (Gallons*3.785)*1000



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GROUNDWATER MONITORING WELL FIELD DATA LOG SHEET - SAMPLING

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DATE	10/15/2024	STATIC WATER LEVEL (ft btoc)	13.02	PROGRAM NAME	Lumen Longview Groundwater Sampling
WELL I.D.	MW-05	WATER COLUMN (feet)	6.57	SITE NAME / NUMBER	Lumen Longview
SAMPLE I.D.	MW-05	MEASURED WELL DEPTH (ft btoc)	19.59	PURGING DEVICE	Peristaltic Pump
DUPLICATE I.D.	-	PRODUCT DEPTH (ft btoc) IF EVALUATED	-	SAMPLING DEVICE	Peristaltic Pump
SAMPLE TIME	11:20	PUMP INLET DEPTH (ft btoc)	16.0	SAMPLER'S SIGNATURE	Mike Pavarini
DUP TIME	-	WELL SCREEN INTERVAL (ft btoc)	-		
TRIP BLANK I.D.	-	WELL DIAMETER (in)	2		
MS/MSD (Y/N)	N			CASING VOLUME (V) (gal)	1.07 (V) (mL) 4054
				3 CASING VOLUMES (V) (gal)	3.21 (V) (mL) 12162

Time	Activity	Water Level (ft btoc)	Turbidity (NTU)	Temp (°C)	Specific Conductance (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Color	Volume Purged (mL)	Casing Volumes Purged	Flow Rate (mL/min)
10:43	Pump On	-	-	-	-	-	-	-	-	-	-	400
10:46	Filling Cell	13.03	-	-	-	-	-	-	Clear	1200	0.30	350
10:49	Purge to Stabilize	13.04	13.03	16.28	0.485	0.60	6.46	212.00	Clear	2250	0.56	350
10:52	Purge to Stabilize	13.04	11.40	16.25	0.485	0.22	6.50	207.00	Clear	3300	0.81	350
10:55	Purge to Stabilize	13.03	5.50	16.24	0.484	0.14	6.47	202.00	Clear	4350	1.07	350
10:58	Purge to Stabilize	13.03	1.00	16.30	0.483	0.57	6.44	206.00	Clear	5400	1.33	350
11:01	Purge to Stabilize	13.03	0.80	16.31	0.481	0.57	6.43	206.00	Clear	6450	1.59	350
11:04	Purge to Stabilize	13.04	0.50	16.32	0.480	0.38	6.41	207.00	Clear	7500	1.85	350
11:07	Purge to Stabilize	13.04	0.00	16.28	0.480	0.24	6.41	206.00	Clear	8550	2.11	350
11:10	Purge to Stabilize	13.04	0.00	16.24	0.480	0.16	6.40	206.00	Clear	9600	2.37	350
11:13	Purge to Stabilize	13.04	0.00	16.23	0.479	0.12	6.39	207.00	Clear	10650	2.63	350
11:16	Purge to Stabilize	13.04	0.00	16.23	0.479	0.11	6.39	207.00	Clear	11700	2.89	350
11:19	Purge to Stabilize	13.04	0.00	16.23	0.478	0.11	6.39	207.00	Clear	12750	3.15	350
11:20	Sampled	13.04							Clear	13100	3.23	350

WATER LEVEL (ft btoc) AT TIME OF SAMPLING			<u>13.04</u>		PARAMETERS FOR WATER QUALITY STABILIZATION OVER THREE READINGS			
PID READINGS: IN CASING (ppm)	(initial):	-	(vented to):	-	Temp ± 3 % and within ± 0.2 °C		Conductivity ± 3 %	
IN BREATHING ZONE (ppm)	(initial):	-	(vented to):	-				
Comments:					pH ± 0.1 pH units		DO ± 10 %	
Well in shoulder of road. Outer casing filled with water. Inner plug sealed and holding. Bailed outer casing before opening well to sample.					Turbidity ± 10 % (or less than 10 NTUs)			
					ORP ± 10 mv			

Notes:

If stability criteria is not reached the well may be sampled when 3 well volumes have been purged or purging has been completed for 60 minutes.

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Casing Volume (gal) = (DTW-TD)*(Well Diameter/2)^2*0.163
Gallons to Milliliters = (Gallons*3.785)*1000

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



October 28, 2024

Service Request No:K2410978

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

Laboratory Results for: Lumen Longview

Dear Mark,

Enclosed are the results of the sample(s) submitted to our laboratory October 15, 2024
For your reference, these analyses have been assigned our service request number **K2410978**.

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

for 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 Longview
Sample Matrix: Ground Water

Service Request: K2410978
Date Received: 10/15/2024

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 10/15/2024. 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, 10/17/2024: The upper control criterion was exceeded for all analytes in one or both of the replicate Laboratory Control Samples (LCS/DLCS) KQ2416764-02/-03. The analytes in question were not detected in the associated field samples, with the exception of three analytes detected above the Method Reporting Limit (MRL) in sample MW-04. The high bias in the LCS/DLCS is attributable to a concentrated standard used during preparation; the standard has been removed from service. The error associated with elevated recovery indicated a high bias. The sample data was not significantly affected. The data was flagged to indicate the exceedance. No further corrective action was appropriate.

Semivolatile GC:

The reporting limit was slightly elevated for several samples due to less than optimal sample volume received for analysis.

Method NWTPH-Dx, 10/21/2024: The lower control criterion was exceeded for n-Triacontane in sample MW-01-DUP due to suspected matrix interference. The presence of non-target background components prevented adequate resolution of the surrogate. Accurate quantitation was not possible. No further corrective action was appropriate.

Approved by Noel D. O'Connell

Date 10/28/2024



SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: MW-01	Lab ID: K2410978-001
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Analyte	Results	Flag	MDL	MRL	Units	Method
2-Methylnaphthalene	0.0024	J	0.0013	0.020	ug/L	8270D
Benz(a)anthracene	0.0029	J	0.00097	0.020	ug/L	8270D
Chrysene	0.0018	J	0.00076	0.020	ug/L	8270D
Dibenzofuran	0.0021	J	0.00096	0.020	ug/L	8270D
Diesel Range Organics (C12 - C25 DRO)	94	J	12	270	ug/L	NWTPH-Dx
Naphthalene	0.0065	J	0.0014	0.020	ug/L	8270D
Pyrene	0.0055	J	0.0010	0.020	ug/L	8270D
Residual Range Organics (C25 - C36 RRO)	180	J	21	540	ug/L	NWTPH-Dx

CLIENT ID: MW-02	Lab ID: K2410978-002
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Analyte	Results	Flag	MDL	MRL	Units	Method
2-Methylnaphthalene	0.0024	J	0.0013	0.020	ug/L	8270D
Benz(a)anthracene	0.0025	J	0.00097	0.020	ug/L	8270D
Chrysene	0.0016	J	0.00076	0.020	ug/L	8270D
Dibenzofuran	0.0021	J	0.00096	0.020	ug/L	8270D
Diesel Range Organics (C12 - C25 DRO)	110	J	12	260	ug/L	NWTPH-Dx
Naphthalene	0.0072	J	0.0014	0.020	ug/L	8270D
Pyrene	0.0084	J	0.0010	0.020	ug/L	8270D
Residual Range Organics (C25 - C36 RRO)	130	J	20	520	ug/L	NWTPH-Dx

CLIENT ID: MW-03	Lab ID: K2410978-003
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Analyte	Results	Flag	MDL	MRL	Units	Method
2-Methylnaphthalene	0.0028	J	0.0013	0.020	ug/L	8270D
Benz(a)anthracene	0.0025	J	0.00097	0.020	ug/L	8270D
Chrysene	0.0013	J	0.00076	0.020	ug/L	8270D
Dibenzofuran	0.0024	J	0.00096	0.020	ug/L	8270D
Diesel Range Organics (C12 - C25 DRO)	85	J	12	260	ug/L	NWTPH-Dx
Naphthalene	0.0052	J	0.0014	0.020	ug/L	8270D
Pyrene	0.0068	J	0.0010	0.020	ug/L	8270D
Residual Range Organics (C25 - C36 RRO)	130	J	20	520	ug/L	NWTPH-Dx

CLIENT ID: MW-04	Lab ID: K2410978-004
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Analyte	Results	Flag	MDL	MRL	Units	Method
2-Methylnaphthalene	0.0024	J	0.0014	0.020	ug/L	8270D
Acenaphthene	0.12		0.0013	0.020	ug/L	8270D
Anthracene	0.024		0.00083	0.020	ug/L	8270D
Benz(a)anthracene	0.0031	J	0.00099	0.020	ug/L	8270D
Chrysene	0.0016	J	0.00077	0.020	ug/L	8270D
Dibenzofuran	0.0031	J	0.00098	0.020	ug/L	8270D
Diesel Range Organics (C12 - C25 DRO)	86	J	12	260	ug/L	NWTPH-Dx
Fluorene	0.0093	J	0.0012	0.020	ug/L	8270D
Naphthalene	0.0068	J	0.0015	0.020	ug/L	8270D

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: MW-04	Lab ID: K2410978-004
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Analyte	Results	Flag	MDL	MRL	Units	Method
Pyrene	0.067		0.0011	0.020	ug/L	8270D
Residual Range Organics (C25 - C36 RRO)	130	J	20	520	ug/L	NWTPH-Dx

CLIENT ID: MW-05	Lab ID: K2410978-005
-------------------------	-----------------------------

Analyte	Results	Flag	MDL	MRL	Units	Method
2-Methylnaphthalene	0.0026	J	0.0013	0.020	ug/L	8270D
Anthracene	0.0036	J	0.00082	0.020	ug/L	8270D
Benz(a)anthracene	0.0035	J	0.00097	0.020	ug/L	8270D
Benzo(b)fluoranthene	0.0012	J	0.00083	0.020	ug/L	8270D
Benzo(g,h,i)perylene	0.0055	J	0.00086	0.020	ug/L	8270D
Benzo(k)fluoranthene	0.0023	J	0.00094	0.020	ug/L	8270D
Chrysene	0.0032	J	0.00076	0.020	ug/L	8270D
Dibenz(a,h)anthracene	0.0054	J	0.0013	0.020	ug/L	8270D
Dibenzofuran	0.0030	J	0.00096	0.020	ug/L	8270D
Diesel Range Organics (C12 - C25 DRO)	88	J	12	260	ug/L	NWTPH-Dx
Indeno(1,2,3-cd)pyrene	0.0026	J	0.00089	0.020	ug/L	8270D
Naphthalene	0.0058	J	0.0014	0.020	ug/L	8270D
Phenanthrene	0.0033	J	0.0011	0.020	ug/L	8270D
Pyrene	0.0068	J	0.0010	0.020	ug/L	8270D
Residual Range Organics (C25 - C36 RRO)	110	J	20	520	ug/L	NWTPH-Dx

CLIENT ID: MW-01-DUP	Lab ID: K2410978-006
-----------------------------	-----------------------------

Analyte	Results	Flag	MDL	MRL	Units	Method
2-Methylnaphthalene	0.0034	J	0.0013	0.020	ug/L	8270D
Benz(a)anthracene	0.0029	J	0.00097	0.020	ug/L	8270D
Benzo(g,h,i)perylene	0.0024	J	0.00086	0.020	ug/L	8270D
Chrysene	0.0023	J	0.00076	0.020	ug/L	8270D
Dibenz(a,h)anthracene	0.0016	J	0.0013	0.020	ug/L	8270D
Dibenzofuran	0.0026	J	0.00096	0.020	ug/L	8270D
Diesel Range Organics (C12 - C25 DRO)	86	J	12	270	ug/L	NWTPH-Dx
Indeno(1,2,3-cd)pyrene	0.0015	J	0.00089	0.020	ug/L	8270D
Naphthalene	0.0056	J	0.0014	0.020	ug/L	8270D
Phenanthrene	0.0039	J	0.0011	0.020	ug/L	8270D
Pyrene	0.0072	J	0.0010	0.020	ug/L	8270D
Residual Range Organics (C25 - C36 RRO)	170	J	21	540	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.
Project: Lumen Longview/103P778712

Service Request:K2410978

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
K2410978-001	MW-01	10/15/2024	1345
K2410978-002	MW-02	10/15/2024	1515
K2410978-003	MW-03	10/15/2024	0835
K2410978-004	MW-04	10/15/2024	1235
K2410978-005	MW-05	10/15/2024	1120
K2410978-006	MW-01-DUP	10/15/2024	1350



140657

CHAIN OF CUSTODY

140657

001

SR# K2410978

COC Set of

COC#

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

www.alsglobal.com

Page 1 of 1

Project Name: <u>Lumen Longview</u>		Project Number: <u>103P778712</u>		NUMBER OF CONTAINERS 7D 14D B2700 / PAH SIM NWTPH-Dx / NW TPH 1 Lab Filter by SVM for PAHs		Remarks						
Project Manager: <u>Mark Reising, Tetra Tech</u>												
Company: <u>Tetra Tech</u>												
Address, City, State: <u>1560 Broadway, Suite 1400, Denver, CO</u>												
Phone #: <u>303 312 8813</u>		email: <u>mark.reising@tetra.com</u>										
Sampler Signature: <u>[Signature]</u>		Sampler Printed Name: <u>Mike Pavarini</u>										
CLIENT SAMPLE ID	LABID	SAMPLING Date Time State	Matrix									
1. <u>MW-01</u>		<u>10/15/24 1345</u>	<u>GW</u>	<u>4</u>	<u>X</u>	<u>X</u>	<u>X</u>					<u>Filter SVM</u>
2. <u>MW-02</u>		<u>10/15/24 1515</u>	<u>GW</u>	<u>4</u>	<u>X</u>	<u>X</u>	<u>X</u>					<u>" "</u>
3. <u>MW-03</u>		<u>10/15/24 0835</u>	<u>GW</u>	<u>4</u>	<u>X</u>	<u>X</u>	<u>X</u>					<u>" "</u>
4. <u>MW-04</u>		<u>10/15/24 1235</u>	<u>GW</u>	<u>4</u>	<u>X</u>	<u>X</u>	<u>X</u>					<u>" "</u>
5. <u>MW-05</u>		<u>10/15/24 1120</u>	<u>GW</u>	<u>4</u>	<u>X</u>	<u>X</u>	<u>X</u>					<u>" "</u>
6. <u>MW-01-DUP</u>		<u>10/15/24 1350</u>	<u>GW</u>	<u>4</u>	<u>X</u>	<u>X</u>	<u>X</u>					<u>Filter SVM</u>
7.												
8.												
9.												
10.												

samples taken
in Longview, WA,

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.# <u>103P778712</u> Bill To: _____		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 Ti 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 Ti Sn V Zn Hg	
Turnaround Requirements 24 hr. _____ 5 Day _____ Standard <input checked="" type="checkbox"/>		Requested Report Date _____		Special Instructions/Comments: <u>Lab to filter PAH samples prior to analysis by SVM</u> <u>Please provide sample log in confirmation to: Mike.Pavarini@tetra.com</u>	
Relinquished By: Signature: <u>[Signature]</u> Printed Name: <u>Mike Pavarini</u> Firm: <u>Tetra Tech</u> Date/Time: <u>10/15/24 1553</u>		Received By: Signature: <u>[Signature]</u> Printed Name: <u>M. Mulligan</u> Firm: <u>ALS</u> Date/Time: <u>10/15/24 1553</u>		Relinquished By: Signature: _____ Printed Name: _____ Firm: _____ Date/Time: _____	
Received By: Signature: _____ Printed Name: _____ Firm: _____ Date/Time: _____		Relinquished By: Signature: _____ Printed Name: _____ Firm: _____ Date/Time: _____		Received By: Signature: _____ Printed Name: _____ Firm: _____ Date/Time: _____	

PM MH

Cooler Receipt and Preservation Form

Client Tetra Tech Service Request K24 109778
 Received: 10/15/24 Opened: 10/15/24 By: HS Unloaded: 10/15/24 By: HS

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? _____
- If present, were custody seals intact? Y N If present, were they signed and dated? Y N

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
5.7		IR02	10f2				
3.1		↓	20f2				

4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:

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 # above and notify the PM.

(NA) Y N

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

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

15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM (NA) Y N

16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:
		SHORT HOLD

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.
- 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.
- 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 over the calibration range.
- J The result is an estimated value between the MDL and the MRL.
- 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.pjllabs.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/bsdwlabservice.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/analyte 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.

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712

Service Request: K2410978

Sample Name: MW-01
Lab Code: K2410978-001
Sample Matrix: Ground Water

Date Collected: 10/15/24
Date Received: 10/15/24

Analysis Method
8270D
NWTPH-Dx

Extracted/Digested By
APERRY
GTRIGG

Analyzed By
CDEGNER
JDEMERS

Sample Name: MW-02
Lab Code: K2410978-002
Sample Matrix: Ground Water

Date Collected: 10/15/24
Date Received: 10/15/24

Analysis Method
8270D
NWTPH-Dx

Extracted/Digested By
APERRY
GTRIGG

Analyzed By
CDEGNER
JDEMERS

Sample Name: MW-03
Lab Code: K2410978-003
Sample Matrix: Ground Water

Date Collected: 10/15/24
Date Received: 10/15/24

Analysis Method
8270D
NWTPH-Dx

Extracted/Digested By
APERRY
GTRIGG

Analyzed By
CDEGNER
JDEMERS

Sample Name: MW-04
Lab Code: K2410978-004
Sample Matrix: Ground Water

Date Collected: 10/15/24
Date Received: 10/15/24

Analysis Method
8270D
NWTPH-Dx

Extracted/Digested By
APERRY
GTRIGG

Analyzed By
CDEGNER
JDEMERS

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712

Service Request: K2410978

Sample Name: MW-05
Lab Code: K2410978-005
Sample Matrix: Ground Water

Date Collected: 10/15/24
Date Received: 10/15/24

Analysis Method
8270D
NWTPH-Dx

Extracted/Digested By
APERRY
GTRIGG

Analyzed By
CDEGNER
JDEMERS

Sample Name: MW-01-DUP
Lab Code: K2410978-006
Sample Matrix: Ground Water

Date Collected: 10/15/24
Date Received: 10/15/24

Analysis Method
8270D
NWTPH-Dx

Extracted/Digested By
APERRY
GTRIGG

Analyzed By
CDEGNER
JDEMERS



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
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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Service Request: K2410978
Date Collected: 10/15/24 13:45
Date Received: 10/15/24 15:53

Sample Name: MW-01
Lab Code: K2410978-001

Units: ug/L
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
2-Methylnaphthalene	0.0024 J	0.020	0.0013	1	10/17/24 13:25	10/16/24	*
Acenaphthene	ND U	0.020	0.0012	1	10/17/24 13:25	10/16/24	*
Acenaphthylene	ND U	0.020	0.0011	1	10/17/24 13:25	10/16/24	*
Anthracene	ND U	0.020	0.00082	1	10/17/24 13:25	10/16/24	*
Benz(a)anthracene	0.0029 J	0.020	0.00097	1	10/17/24 13:25	10/16/24	*
Benzo(a)pyrene	ND U	0.020	0.0011	1	10/17/24 13:25	10/16/24	*
Benzo(b)fluoranthene	ND U	0.020	0.00083	1	10/17/24 13:25	10/16/24	*
Benzo(g,h,i)perylene	ND U	0.020	0.00086	1	10/17/24 13:25	10/16/24	*
Benzo(k)fluoranthene	ND U	0.020	0.00094	1	10/17/24 13:25	10/16/24	*
Chrysene	0.0018 J	0.020	0.00076	1	10/17/24 13:25	10/16/24	*
Dibenz(a,h)anthracene	ND U	0.020	0.0013	1	10/17/24 13:25	10/16/24	*
Dibenzofuran	0.0021 J	0.020	0.00096	1	10/17/24 13:25	10/16/24	*
Fluoranthene	ND U	0.020	0.00082	1	10/17/24 13:25	10/16/24	*
Fluorene	ND U	0.020	0.0011	1	10/17/24 13:25	10/16/24	*
Indeno(1,2,3-cd)pyrene	ND U	0.020	0.00089	1	10/17/24 13:25	10/16/24	*
Naphthalene	0.0065 J	0.020	0.0014	1	10/17/24 13:25	10/16/24	*
Phenanthrene	ND U	0.020	0.0011	1	10/17/24 13:25	10/16/24	*
Pyrene	0.0055 J	0.020	0.0010	1	10/17/24 13:25	10/16/24	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	110	42 - 133	10/17/24 13:25	
Fluorene-d10	100	42 - 131	10/17/24 13:25	
Terphenyl-d14	98	32 - 129	10/17/24 13:25	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Service Request: K2410978
Date Collected: 10/15/24 15:15
Date Received: 10/15/24 15:53

Sample Name: MW-02
Lab Code: K2410978-002

Units: ug/L
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
2-Methylnaphthalene	0.0024 J	0.020	0.0013	1	10/17/24 13:52	10/16/24	*
Acenaphthene	ND U	0.020	0.0012	1	10/17/24 13:52	10/16/24	*
Acenaphthylene	ND U	0.020	0.0011	1	10/17/24 13:52	10/16/24	*
Anthracene	ND U	0.020	0.00082	1	10/17/24 13:52	10/16/24	*
Benz(a)anthracene	0.0025 J	0.020	0.00097	1	10/17/24 13:52	10/16/24	*
Benzo(a)pyrene	ND U	0.020	0.0011	1	10/17/24 13:52	10/16/24	*
Benzo(b)fluoranthene	ND U	0.020	0.00083	1	10/17/24 13:52	10/16/24	*
Benzo(g,h,i)perylene	ND U	0.020	0.00086	1	10/17/24 13:52	10/16/24	*
Benzo(k)fluoranthene	ND U	0.020	0.00094	1	10/17/24 13:52	10/16/24	*
Chrysene	0.0016 J	0.020	0.00076	1	10/17/24 13:52	10/16/24	*
Dibenz(a,h)anthracene	ND U	0.020	0.0013	1	10/17/24 13:52	10/16/24	*
Dibenzofuran	0.0021 J	0.020	0.00096	1	10/17/24 13:52	10/16/24	*
Fluoranthene	ND U	0.020	0.00082	1	10/17/24 13:52	10/16/24	*
Fluorene	ND U	0.020	0.0011	1	10/17/24 13:52	10/16/24	*
Indeno(1,2,3-cd)pyrene	ND U	0.020	0.00089	1	10/17/24 13:52	10/16/24	*
Naphthalene	0.0072 J	0.020	0.0014	1	10/17/24 13:52	10/16/24	*
Phenanthrene	ND U	0.020	0.0011	1	10/17/24 13:52	10/16/24	*
Pyrene	0.0084 J	0.020	0.0010	1	10/17/24 13:52	10/16/24	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	128	42 - 133	10/17/24 13:52	
Fluorene-d10	110	42 - 131	10/17/24 13:52	
Terphenyl-d14	99	32 - 129	10/17/24 13:52	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Service Request: K2410978
Date Collected: 10/15/24 08:35
Date Received: 10/15/24 15:53

Sample Name: MW-03
Lab Code: K2410978-003

Units: ug/L
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
2-Methylnaphthalene	0.0028 J	0.020	0.0013	1	10/17/24 14:18	10/16/24	*
Acenaphthene	ND U	0.020	0.0012	1	10/17/24 14:18	10/16/24	*
Acenaphthylene	ND U	0.020	0.0011	1	10/17/24 14:18	10/16/24	*
Anthracene	ND U	0.020	0.00082	1	10/17/24 14:18	10/16/24	*
Benz(a)anthracene	0.0025 J	0.020	0.00097	1	10/17/24 14:18	10/16/24	*
Benzo(a)pyrene	ND U	0.020	0.0011	1	10/17/24 14:18	10/16/24	*
Benzo(b)fluoranthene	ND U	0.020	0.00083	1	10/17/24 14:18	10/16/24	*
Benzo(g,h,i)perylene	ND U	0.020	0.00086	1	10/17/24 14:18	10/16/24	*
Benzo(k)fluoranthene	ND U	0.020	0.00094	1	10/17/24 14:18	10/16/24	*
Chrysene	0.0013 J	0.020	0.00076	1	10/17/24 14:18	10/16/24	*
Dibenz(a,h)anthracene	ND U	0.020	0.0013	1	10/17/24 14:18	10/16/24	*
Dibenzofuran	0.0024 J	0.020	0.00096	1	10/17/24 14:18	10/16/24	*
Fluoranthene	ND U	0.020	0.00082	1	10/17/24 14:18	10/16/24	*
Fluorene	ND U	0.020	0.0011	1	10/17/24 14:18	10/16/24	*
Indeno(1,2,3-cd)pyrene	ND U	0.020	0.00089	1	10/17/24 14:18	10/16/24	*
Naphthalene	0.0052 J	0.020	0.0014	1	10/17/24 14:18	10/16/24	*
Phenanthrene	ND U	0.020	0.0011	1	10/17/24 14:18	10/16/24	*
Pyrene	0.0068 J	0.020	0.0010	1	10/17/24 14:18	10/16/24	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	125	42 - 133	10/17/24 14:18	
Fluorene-d10	112	42 - 131	10/17/24 14:18	
Terphenyl-d14	100	32 - 129	10/17/24 14:18	

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Analytical Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Service Request: K2410978
Date Collected: 10/15/24 12:35
Date Received: 10/15/24 15:53

Sample Name: MW-04
Lab Code: K2410978-004

Units: ug/L
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
2-Methylnaphthalene	0.0024 J	0.020	0.0014	1	10/17/24 14:44	10/16/24	*
Acenaphthene	0.12	0.020	0.0013	1	10/17/24 14:44	10/16/24	*
Acenaphthylene	ND U	0.020	0.0012	1	10/17/24 14:44	10/16/24	*
Anthracene	0.024	0.020	0.00083	1	10/17/24 14:44	10/16/24	*
Benz(a)anthracene	0.0031 J	0.020	0.00099	1	10/17/24 14:44	10/16/24	*
Benzo(a)pyrene	ND U	0.020	0.0012	1	10/17/24 14:44	10/16/24	*
Benzo(b)fluoranthene	ND U	0.020	0.00084	1	10/17/24 14:44	10/16/24	*
Benzo(g,h,i)perylene	ND U	0.020	0.00087	1	10/17/24 14:44	10/16/24	*
Benzo(k)fluoranthene	ND U	0.020	0.00096	1	10/17/24 14:44	10/16/24	*
Chrysene	0.0016 J	0.020	0.00077	1	10/17/24 14:44	10/16/24	*
Dibenz(a,h)anthracene	ND U	0.020	0.0014	1	10/17/24 14:44	10/16/24	*
Dibenzofuran	0.0031 J	0.020	0.00098	1	10/17/24 14:44	10/16/24	*
Fluoranthene	ND U	0.020	0.00083	1	10/17/24 14:44	10/16/24	*
Fluorene	0.0093 J	0.020	0.0012	1	10/17/24 14:44	10/16/24	*
Indeno(1,2,3-cd)pyrene	ND U	0.020	0.00090	1	10/17/24 14:44	10/16/24	*
Naphthalene	0.0068 J	0.020	0.0015	1	10/17/24 14:44	10/16/24	*
Phenanthrene	ND U	0.020	0.0012	1	10/17/24 14:44	10/16/24	*
Pyrene	0.067	0.020	0.0011	1	10/17/24 14:44	10/16/24	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	107	42 - 133	10/17/24 14:44	
Fluorene-d10	100	42 - 131	10/17/24 14:44	
Terphenyl-d14	96	32 - 129	10/17/24 14:44	

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Analytical Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Service Request: K2410978
Date Collected: 10/15/24 11:20
Date Received: 10/15/24 15:53

Sample Name: MW-05
Lab Code: K2410978-005

Units: ug/L
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
2-Methylnaphthalene	0.0026 J	0.020	0.0013	1	10/17/24 15:10	10/16/24	*
Acenaphthene	ND U	0.020	0.0012	1	10/17/24 15:10	10/16/24	*
Acenaphthylene	ND U	0.020	0.0011	1	10/17/24 15:10	10/16/24	*
Anthracene	0.0036 J	0.020	0.00082	1	10/17/24 15:10	10/16/24	*
Benz(a)anthracene	0.0035 J	0.020	0.00097	1	10/17/24 15:10	10/16/24	*
Benzo(a)pyrene	ND U	0.020	0.0011	1	10/17/24 15:10	10/16/24	*
Benzo(b)fluoranthene	0.0012 J	0.020	0.00083	1	10/17/24 15:10	10/16/24	*
Benzo(g,h,i)perylene	0.0055 J	0.020	0.00086	1	10/17/24 15:10	10/16/24	*
Benzo(k)fluoranthene	0.0023 J	0.020	0.00094	1	10/17/24 15:10	10/16/24	*
Chrysene	0.0032 J	0.020	0.00076	1	10/17/24 15:10	10/16/24	*
Dibenz(a,h)anthracene	0.0054 J	0.020	0.0013	1	10/17/24 15:10	10/16/24	*
Dibenzofuran	0.0030 J	0.020	0.00096	1	10/17/24 15:10	10/16/24	*
Fluoranthene	ND U	0.020	0.00082	1	10/17/24 15:10	10/16/24	*
Fluorene	ND U	0.020	0.0011	1	10/17/24 15:10	10/16/24	*
Indeno(1,2,3-cd)pyrene	0.0026 J	0.020	0.00089	1	10/17/24 15:10	10/16/24	*
Naphthalene	0.0058 J	0.020	0.0014	1	10/17/24 15:10	10/16/24	*
Phenanthrene	0.0033 J	0.020	0.0011	1	10/17/24 15:10	10/16/24	*
Pyrene	0.0068 J	0.020	0.0010	1	10/17/24 15:10	10/16/24	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	133	42 - 133	10/17/24 15:10	
Fluorene-d10	115	42 - 131	10/17/24 15:10	
Terphenyl-d14	111	32 - 129	10/17/24 15:10	

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Analytical Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Service Request: K2410978
Date Collected: 10/15/24 13:50
Date Received: 10/15/24 15:53

Sample Name: MW-01-DUP
Lab Code: K2410978-006

Units: ug/L
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
2-Methylnaphthalene	0.0034 J	0.020	0.0013	1	10/17/24 15:37	10/16/24	*
Acenaphthene	ND U	0.020	0.0012	1	10/17/24 15:37	10/16/24	*
Acenaphthylene	ND U	0.020	0.0011	1	10/17/24 15:37	10/16/24	*
Anthracene	ND U	0.020	0.00082	1	10/17/24 15:37	10/16/24	*
Benz(a)anthracene	0.0029 J	0.020	0.00097	1	10/17/24 15:37	10/16/24	*
Benzo(a)pyrene	ND U	0.020	0.0011	1	10/17/24 15:37	10/16/24	*
Benzo(b)fluoranthene	ND U	0.020	0.00083	1	10/17/24 15:37	10/16/24	*
Benzo(g,h,i)perylene	0.0024 J	0.020	0.00086	1	10/17/24 15:37	10/16/24	*
Benzo(k)fluoranthene	ND U	0.020	0.00094	1	10/17/24 15:37	10/16/24	*
Chrysene	0.0023 J	0.020	0.00076	1	10/17/24 15:37	10/16/24	*
Dibenz(a,h)anthracene	0.0016 J	0.020	0.0013	1	10/17/24 15:37	10/16/24	*
Dibenzofuran	0.0026 J	0.020	0.00096	1	10/17/24 15:37	10/16/24	*
Fluoranthene	ND U	0.020	0.00082	1	10/17/24 15:37	10/16/24	*
Fluorene	ND U	0.020	0.0011	1	10/17/24 15:37	10/16/24	*
Indeno(1,2,3-cd)pyrene	0.0015 J	0.020	0.00089	1	10/17/24 15:37	10/16/24	*
Naphthalene	0.0056 J	0.020	0.0014	1	10/17/24 15:37	10/16/24	*
Phenanthrene	0.0039 J	0.020	0.0011	1	10/17/24 15:37	10/16/24	*
Pyrene	0.0072 J	0.020	0.0010	1	10/17/24 15:37	10/16/24	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	113	42 - 133	10/17/24 15:37	
Fluorene-d10	100	42 - 131	10/17/24 15:37	
Terphenyl-d14	102	32 - 129	10/17/24 15:37	



Semivolatile Organic Compounds by GC

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Analytical Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Sample Name: MW-01
Lab Code: K2410978-001

Service Request: K2410978
Date Collected: 10/15/24 13:45
Date Received: 10/15/24 15:53

Units: ug/L
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)	94 J	270	12	1	10/21/24 14:11	10/16/24	
Residual Range Organics (C25 - C36 RRO)	180 J	540	21	1	10/21/24 14:11	10/16/24	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	57	50 - 150	10/21/24 14:11	
n-Triacontane	57	50 - 150	10/21/24 14:11	

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Analytical Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Service Request: K2410978
Date Collected: 10/15/24 15:15
Date Received: 10/15/24 15:53

Sample Name: MW-02
Lab Code: K2410978-002

Units: ug/L
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)	110 J	260	12	1	10/21/24 14:33	10/16/24	
Residual Range Organics (C25 - C36 RRO)	130 J	520	20	1	10/21/24 14:33	10/16/24	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	52	50 - 150	10/21/24 14:33	
n-Triacontane	52	50 - 150	10/21/24 14:33	

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Analytical Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water
Sample Name: MW-03
Lab Code: K2410978-003

Service Request: K2410978
Date Collected: 10/15/24 08:35
Date Received: 10/15/24 15:53
Units: ug/L
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)	85 J	260	12	1	10/21/24 14:54	10/16/24	
Residual Range Organics (C25 - C36 RRO)	130 J	520	20	1	10/21/24 14:54	10/16/24	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	61	50 - 150	10/21/24 14:54	
n-Triacontane	60	50 - 150	10/21/24 14:54	

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Analytical Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Sample Name: MW-04
Lab Code: K2410978-004

Service Request: K2410978
Date Collected: 10/15/24 12:35
Date Received: 10/15/24 15:53

Units: ug/L
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)	86 J	260	12	1	10/21/24 15:16	10/16/24	
Residual Range Organics (C25 - C36 RRO)	130 J	520	20	1	10/21/24 15:16	10/16/24	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	54	50 - 150	10/21/24 15:16	
n-Triacontane	51	50 - 150	10/21/24 15:16	

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Analytical Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Service Request: K2410978
Date Collected: 10/15/24 11:20
Date Received: 10/15/24 15:53

Sample Name: MW-05
Lab Code: K2410978-005

Units: ug/L
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)	88 J	260	12	1	10/21/24 15:38	10/16/24	
Residual Range Organics (C25 - C36 RRO)	110 J	520	20	1	10/21/24 15:38	10/16/24	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	55	50 - 150	10/21/24 15:38	
n-Triacontane	54	50 - 150	10/21/24 15:38	

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Analytical Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Sample Name: MW-01-DUP
Lab Code: K2410978-006

Service Request: K2410978
Date Collected: 10/15/24 13:50
Date Received: 10/15/24 15:53

Units: ug/L
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)	86 J	270	12	1	10/21/24 16:00	10/16/24	
Residual Range Organics (C25 - C36 RRO)	170 J	540	21	1	10/21/24 16:00	10/16/24	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	50	50 - 150	10/21/24 16:00	
n-Triacontane	49	50 - 150	10/21/24 16:00	*



QC Summary Forms

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Semivolatile Organic Compounds by GC/MS

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QA/QC Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Service Request: K2410978

SURROGATE RECOVERY SUMMARY
Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Extraction Method: EPA 3511

Sample Name	Lab Code	Fluoranthene-d10	Fluorene-d10	Terphenyl-d14
		42 - 133	42 - 131	32 - 129
MW-01	K2410978-001	110	100	98
MW-02	K2410978-002	128	110	99
MW-03	K2410978-003	125	112	100
MW-04	K2410978-004	107	100	96
MW-05	K2410978-005	133	115	111
MW-01-DUP	K2410978-006	113	100	102
Method Blank	KQ2416764-01	112	92	95
Lab Control Sample	KQ2416764-02	119	100	102
Duplicate Lab Control Sample	KQ2416764-03	112	101	106

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Analytical Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Sample Name: Method Blank
Lab Code: KQ2416764-01

Service Request: K2410978
Date Collected: NA
Date Received: NA

Units: ug/L
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
2-Methylnaphthalene	0.0021 J	0.020	0.0013	1	10/17/24 12:06	10/16/24	
Acenaphthene	ND U	0.020	0.0012	1	10/17/24 12:06	10/16/24	
Acenaphthylene	ND U	0.020	0.0011	1	10/17/24 12:06	10/16/24	
Anthracene	ND U	0.020	0.00082	1	10/17/24 12:06	10/16/24	
Benz(a)anthracene	0.0023 J	0.020	0.00097	1	10/17/24 12:06	10/16/24	
Benzo(a)pyrene	ND U	0.020	0.0011	1	10/17/24 12:06	10/16/24	
Benzo(b)fluoranthene	ND U	0.020	0.00083	1	10/17/24 12:06	10/16/24	
Benzo(g,h,i)perylene	ND U	0.020	0.00086	1	10/17/24 12:06	10/16/24	
Benzo(k)fluoranthene	ND U	0.020	0.00094	1	10/17/24 12:06	10/16/24	
Chrysene	0.0013 J	0.020	0.00076	1	10/17/24 12:06	10/16/24	
Dibenz(a,h)anthracene	ND U	0.020	0.0013	1	10/17/24 12:06	10/16/24	
Dibenzofuran	0.0021 J	0.020	0.00096	1	10/17/24 12:06	10/16/24	
Fluoranthene	ND U	0.020	0.00082	1	10/17/24 12:06	10/16/24	
Fluorene	ND U	0.020	0.0011	1	10/17/24 12:06	10/16/24	
Indeno(1,2,3-cd)pyrene	ND U	0.020	0.00089	1	10/17/24 12:06	10/16/24	
Naphthalene	0.0042 J	0.020	0.0014	1	10/17/24 12:06	10/16/24	
Phenanthrene	ND U	0.020	0.0011	1	10/17/24 12:06	10/16/24	
Pyrene	ND U	0.020	0.0010	1	10/17/24 12:06	10/16/24	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	112	42 - 133	10/17/24 12:06	
Fluorene-d10	92	42 - 131	10/17/24 12:06	
Terphenyl-d14	95	32 - 129	10/17/24 12:06	

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QA/QC Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Service Request: K2410978
Date Analyzed: 10/17/24
Date Extracted: 10/16/24

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

Analysis Method: 8270D
Prep Method: EPA 3511

Units: ug/L
Basis: NA
Analysis Lot: 858469

Lab Control Sample
KQ2416764-02

Duplicate Lab Control Sample
KQ2416764-03

Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
2-Methylnaphthalene	3.53	2.78	127 *	3.31	2.78	119	48-120	7	30
Acenaphthene	3.89	2.78	140 *	3.92	2.78	141 *	63-121	<1	30
Acenaphthylene	3.82	2.78	138 *	3.89	2.78	140 *	58-124	2	30
Anthracene	3.88	2.78	140 *	3.88	2.78	140 *	68-127	<1	30
Benz(a)anthracene	4.00	2.78	144 *	4.00	2.78	144 *	74-124	<1	30
Benzo(a)pyrene	3.88	2.78	140 *	3.92	2.78	141 *	75-131	1	30
Benzo(b)fluoranthene	4.38	2.78	158 *	4.15	2.78	149 *	73-136	5	30
Benzo(g,h,i)perylene	4.74	2.78	171 *	4.49	2.78	162 *	63-127	5	30
Benzo(k)fluoranthene	4.23	2.78	152 *	4.00	2.78	144 *	74-134	6	30
Chrysene	4.00	2.78	144 *	4.01	2.78	144 *	74-132	<1	30
Dibenz(a,h)anthracene	4.71	2.78	169 *	4.50	2.78	162 *	59-135	4	30
Dibenzofuran	3.56	2.78	128	3.78	2.78	136 *	56-132	6	30
Fluoranthene	4.14	2.78	149 *	3.86	2.78	139 *	70-127	7	30
Fluorene	3.62	2.78	130 *	3.70	2.78	133 *	68-121	2	30
Indeno(1,2,3-cd)pyrene	4.52	2.78	163 *	4.35	2.78	157 *	63-136	4	30
Naphthalene	3.75	2.78	135 *	3.74	2.78	135 *	52-115	<1	30
Phenanthrene	3.94	2.78	142 *	3.93	2.78	142 *	64-126	<1	30
Pyrene	4.59	2.78	165 *	4.60	2.78	166 *	72-127	<1	30



Semivolatile Organic Compounds by GC

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Service Request: K2410978

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

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

Sample Name	Lab Code	n-Triacontane	o-Terphenyl
		50 - 150	50 - 150
MW-01	K2410978-001	57	57
MW-02	K2410978-002	52	52
MW-03	K2410978-003	60	61
MW-04	K2410978-004	51	54
MW-05	K2410978-005	54	55
MW-01-DUP	K2410978-006	49 *	50
Method Blank	KQ2416754-01	91	63
Lab Control Sample	KQ2416754-02	87	77
Duplicate Lab Control Sample	KQ2416754-03	89	74

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Tetra Tech, Inc.
Project: Lumen Longview/103P778712
Sample Matrix: Ground Water

Sample Name: Method Blank
Lab Code: KQ2416754-01

Service Request: K2410978
Date Collected: NA
Date Received: NA

Units: ug/L
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)	63 J	250	11	1	10/21/24 13:05	10/16/24	
Residual Range Organics (C25 - C36 RRO)	83 J	500	19	1	10/21/24 13:05	10/16/24	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	63	50 - 150	10/21/24 13:05	
n-Triacontane	91	50 - 150	10/21/24 13:05	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:

Project:

Sample Matrix:

Tetra Tech, Inc.
Lumen Longview/103P778712
Ground Water

Service Request:

Date Analyzed:

Date Extracted:

K2410978
10/21/24
10/16/24

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

Analysis Method:

Prep Method:

NWTPH-Dx
EPA 3510C

Units:

Basis:

Analysis Lot:

ug/L
NA
858805

Analyte Name	Lab Control Sample			Duplicate Lab Control Sample					RPD Limit
	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	
Diesel Range Organics (C12 - C25 DRO)	2210	3200	69	2630	3200	82	46-140	17	30
Residual Range Organics (C25 - C36 RRO)	1360	1600	85	1400	1600	88	45-159	3	30