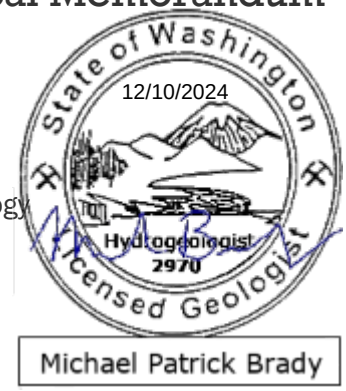
Parametrix
let's create tomorrow, together

Technical Memorandum



DATE: December 10, 2024
TO: Luke Lemond, LHG, Washington State Department of Ecology
FROM: Mike Brady, LHG
SUBJECT: 3Q 2024 MTCA Sampling - AO # DE21624
CC: Ian Sutton, PE, DTG Recycling
PROJECT NUMBER: 553-8472-006 09.03
PROJECT NAME: Rocky Top Environmental (Anderson) Limited Purpose Landfill

Introduction

This technical memorandum summarizes the results of groundwater sampling for the Agreed Order (AO) # DE21624 during the third quarter of 2024 at the Rocky Top Environmental (formerly Anderson) Limited Purpose Landfill (LPL) located at 41 Rocky Top Road in Yakima, Washington (Figure 1) on behalf of DTG Recycling (DTG). The facility is known as Rocky Top Environmental which includes a rock quarry, a materials recovery facility (MRF), the unlined Phase 1 portion of the LPL, a temporary fill area south of Phase 1, and the Phase 2 lined cell of the LPL (Figure 2).

In May 2024, Parametrix prepared a draft Remedial Investigation (RI) Work Plan (Parametrix 2024a) for the AO which included sampling of the Shallow Aquifer monitoring wells as part of the MTCA investigation related to a subsurface landfill fire and other groundwater concerns from the Washington Stated Department of Ecology (Ecology) and Yakima Health District. Ecology provided comments on the work plan on August 23, 2024 (Ecology 2024a). Third quarter sampling occurred in September 2024 prior to the follow up Limited RI work plan submittal in October 2024 (Parametrix 2024b). On-going negotiations between DTG and Ecology on the scope of the groundwater investigation continue through the present. This report will assist in evaluating the full scope of the groundwater investigation related to the LPL.

Hydrogeology

Three groundwater zones have been observed below the DTG LPL including a Shallow Aquifer, Interflow Zone, and a Deep Aquifer. The Shallow Aquifer occurs near the Vantage Interbed. It is comprised of the fractured and porous flow bottom zone of the Wanapum Basalt, the sandy portions of the Vantage Interbed, and the fractured and porous flow top zone of the Grande Ronde Basalt. The Shallow Aquifer pinches out to the south around elevation 1,820 to 1,830 feet AMSL near where the Vantage Interbed outcrops at land surface close to the east-west alignment with Rocky Top Road and south of Phase 1.

The Interflow Zone is an intermediate water bearing zone occurring within the Grande Ronde Basalt above the Deep Aquifer. The Interflow Zone is a planar feature with a slope similar to the Vantage Interbed (Parametrix 2024c). The Interflow Zone is comprised of minor fractures of basalt varying to larger fractures, vesicular basalt, and true interflow zones containing palagonite and pyrite mineralization.

The Deep Aquifer is located several hundred feet below the Vantage Interbed (where present) within the Grande Ronde Basalt and is estimated to occur approximately 700 to 1,000 feet below the LPL. There are several domestic wells in the LPL vicinity completed within the Deep Aquifer at elevations of around 1,100 to 1,250 feet including the Bertheas '95 well that was sampled for four quarters by DTG prior to being decommissioned in September 2024.

History of Monitoring

Groundwater monitoring for the LPL is completed quarterly for compliance with WAC 173-350-500 and permit requirements, as described in the Sampling and Analysis Plan (SAP, Parametrix 2024d). Monitoring wells have been constructed to evaluate groundwater within the Shallow Aquifer and the Interflow Zone.

Shallow Aquifer

Five monitoring wells have been completed in the Shallow Aquifer. MW-2S and MW-3S were completed between 2005 and 2007 and background monitoring events were conducted in 2008 and 2009. MW-4S was completed in July 2022 and background monitoring events are still being evaluated. MW-5S and MW-6S were completed in June 2024 and were initially sampled in the second quarter of 2024. These wells are predominantly for compliance monitoring related to the unlined Phase 1 and future lined phases on the northern portion of the facility where the Vantage Interbed is present.

Interflow Zone

Monitoring wells MW-7D, MW-8D, MW-9D, and MW-10D were completed in the Interflow Zone between June and September 2024. These wells were first sampled in the third quarter of 2024 and are predominantly for compliance monitoring related to Phase 2 and future lined cells located south of the outcrop of the Vantage Interbed.

Detection Monitoring

To date, no volatile organic compounds (VOCs) or total petroleum hydrocarbons (TPH) have been verified in monitoring wells in the Shallow Aquifer downgradient of the LPL (Parametrix 2024e). Additionally, Ecology completed sampling of 12 nearby wells surrounding the LPL in December 2022. Ecology found no evidence of contaminated drinking water as a result of the LPL (Ecology 2023).

Metals have predominantly been at background concentrations. Inorganics and other parameters are routinely compared with Groundwaters of the State of Washington (GWQs; Chapter 173-200 WAC) parameters and Maximum Contaminant Levels (MCLs, Chapter 246-2909 WAC) established by the U.S. Environmental Protection Agency (EPA). Nitrate has been detected in monitoring wells MW-3S and MW-4S at concentrations above GWQs. Specific conductivity and total dissolved solids have also been found above GWQs/MCLs.

As part of the AO Ecology requested that in addition to the routine detection monitoring, groundwater within the Shallow Aquifer be tested for semi-volatile organic compounds (SVOCs), dioxins and furans, and per- and polyfluoroalkyl substances (PFAS).

This technical memorandum summarize the third quarter 2024 results of the dioxins and furans and PFAS analyses for the Shallow Aquifer monitoring wells. Interflow Zone wells are not suspected to be contaminated with these chemicals. SVOCs including carcinogenic polycyclic aromatic hydrocarbons (cPAHs) will be analyzed in the fourth quarter of 2024 for the Shallow Aquifer wells.

Cleanup Levels

MTCA Method B cleanup levels (CULs) are calculated based on a 6-year averaging time for non-cancer and a 75-year averaging time for cancer (MTCA tables 720-1 and 720-2). CULS are routinely updated and published in Ecology's Cleanup Levels and Risk Calculations (CLARC) database (Ecology 2024b).

Dioxins and Furans

Dioxins and furans CULs are established using the toxicity equivalency quotient (TEQ) for 2,3,7,8-tetrachloro dibenzo-p-dioxin (2,3,7,8 TCDD) using Table 708-1 (WAC 173-340-900). The MTCA Method B CUL for 2,3,7,8 TCDD is 0.34 picograms per liter (pg/L) for cancer and 5.6 pg/L for non-cancer.

PFAS

MTCA CULs have been established for eight PFAS compounds:

- Perfluorooctane sulfonic acid (PFOS) – cancer 2.2 nanograms per liter (ng/L), non-cancer 1.6 ng/L
- Perfluorooctanoic acid (PFOA) – cancer 0.003 ng/L, non-cancer 0.48 ng/L
- Perfluorononanoic acid (PFNA) – non-cancer 40 ng/L
- Perfluorohexane sulfonic acid (PFHxS) – non-cancer 160 ng/L
- Perfluorohexanoic acid (PFHxA) – non-cancer 8,000 ng/L
- Perfluorobutane sulfonic acid (PFBS) – non-cancer 4,800 ng/L
- Perfluorobutanoic acid (PFBA) – non-cancer 8,000 ng/L
- Hexafluoropropylene oxide dimer acid (HFPO-DA / GenX) - non-cancer 24 ng/L

The Ecology Toxics Cleanup Program (TCP) is utilizing MCLs for compliance under MTCA for applicable, relevant and appropriate requirements (ARARs) under WAC 173-340-710 following the Ecology assessment of the EPA MCLs (Ecology 2024c). MCLs for PFAS include:

- PFOA - 4 nanograms per liter (ng/L)
- PFOS – 4 ng/L
- PFHxs – 10 ng/L
- PFNA – 10 ng/L
- HFPO-DA – 10 ng/L
- Mixtures containing two or more of PFHxS, PFNA, HFPO-DA, and PFBS are calculated using a hazard index

Contaminant Fate and Transport

Dioxins and Furans

Dioxins and furans are a group of chlorinated aromatic hydrocarbons that are typically created as a result of incineration/combustion as they are not intentionally formed for commercial or domestic applications. They have very low solubility and sink in water due to a specific gravity of 1.8 grams per

cubic centimeter. These compounds bioaccumulate in fat tissue and do not biodegrade readily because of their chemical structure. These chemicals can persist in the environment for decades. The most toxic is 2,3,7,8-TCDD. Dioxins and furans were evaluated in ambient air above the landfill fire zone and found to be non-detect. Ecology requested these also be evaluated in groundwater due to the potential of fire leachate impacts affecting the water table.

PFAS

PFAS are a group of synthetic fluorinated organic compounds that were created for a variety of consumer products and industries. They are extremely durable and persistent chemicals that are highly soluble in water, but PFAS compounds typically partition to interfaces and are often found near the air-water interface due to their chemical nature. PFAS are often found in landfill leachates due to the breakdown of commercial and consumer products.

Ecology evaluated leachate from 19 landfills for PFAS compounds including one LPL, Graham Road Recycling and Disposal (Ecology 2022). For the Graham Road LPL, the predominant PFAS chemicals were comprised of perfluoroalkyl carboxylic acids (PFCAs) followed by perfluoroalkyl sulfonic acids (PFSAs). Fluorotelomer sulfonic acids, per- and polyfluoroalkyl ether carboxylic acids, ether sulfonic acids, and perfluoroalkane sulfonamides were found at lower concentrations. Municipal solid waste landfills had higher concentrations of fluorotelomer carboxylic acids than PFCAs and PFSAs.

PFAS were added to the list of potential contaminants at the LPL for the MTCA site related to petroleum contaminated soil (PCS) from the Yakima Training Center (YTC) cleanup site that is known to have PFAS contamination related to the fire training activities and use of aqueous film forming foam. Several domestic wells downgradient of the YTC have been documented to be contaminated with PFAS and the predominant contaminants related to the YTC appear to be PFOS followed by PFOA (Arcadis 2023).

Groundwater Sampling

Groundwater sampling during the third quarter of 2024 was conducted in accordance with the SAP. The sampler followed protocols regarding PFAS sampling to reduce the chance of cross contamination. Prior to the third quarter event, QED PFAS-free dedicated bladder pumps were installed in the Shallow Aquifer wells. A PFAS safe Solinst water level meter was utilized to measure static water levels and water levels during sampling. Samples from the Shallow Aquifer wells were collected on September 11 and 12, 2024, using low flow purging techniques. Samples for PFAS analysis were collected first at all wells prior to collection of dioxins and furans and other parameters to avoid cross contamination related to sample containers. The PFAS samples were kept in a special cooler specific for those samples. The samples were logged on a chain of custody form and delivered to Onsite Environmental on September 12, 2024. Onsite shipped the samples for PFAS analysis to ALS Environmental for analysis using EPA Method 1633 and the samples for dioxins and furans analysis to Enthalpy Analytical for analysis using EPA Method 1613B. Samples from the Interflow Zone were collected during hydraulic testing and were not analyzed for EPA Methods 1633 or 1613B. Copies of the field sampling sheets and chain of custody forms are included in Attachment A, and the laboratory report is presented in Attachment B.

Groundwater Levels and Gradient

Figure 3 displays the historical water levels across the LPL for the entire period of monitoring. Groundwater levels follow the seasonal pattern of precipitation.

Figure 4 displays the gradient within the Shallow Aquifer from the 2024 third quarter event. Groundwater was calculated to have a northerly gradient of 0.27 feet/feet, or 1,426 feet per mile.

Figure 5 displays the gradient within the Interflow Zone from the 2024 third quarter event. Groundwater within the Interflow Zone was calculated to have a northerly gradient of 0.197 feet/feet, or 1,040 feet per mile.

No LPL monitoring wells are completed in the Deep Aquifer; however, the gradient of the Deep Aquifer was previously estimated to be northerly at a rate of 0.11 feet/feet, or 580 feet per mile (Parametrix 2023).

Results and Discussion

Table 1 summarizes the dioxin and furan results. Dioxins and/or furans were detected at low levels in all the wells sampled; however, at MW-4S the TEQ was found to be 1.465 pg/L above the MTCA Method B cancer CUL of 0.34 pg/L. Concentrations in wells north and downgradient of MW-4S (MW-6S and MW-5S) were below the CUL.

The presence of dioxins and furans are likely related to the nearby subsurface landfill fire just south of MW-4S. The compounds in MW-4S were predominantly furan congeners and 1,2,3,4,6,7,8-heptachlor dibenzo p-dioxin. MW-5S and MW-6S are located downgradient of MW-4S in the Shallow Aquifer (Figure 4). Only one dioxin was detected in MW-6S at a very low concentration and no dioxins were detected at MW-5S. These results indicate the dioxins and furans present in groundwater are confined within the existing monitoring well network and generally only present near the known subsurface fire.

Table 2 summarizes the PFAS results. PFAS were non-detect at wells MW-2S and MW-5S and its duplicate (MW-13S). PFAS were detected at MW-3S, MW-4S, and MW-6S. The concentration of PFOA in well MW-3S at 29 ng/L was found to be above the MCL. Four other perfluoroalkyl carboxylic acids (PFCAs) were detected at similar concentrations. PFOA was not detected in any other samples. PFOS was not detected in any samples. PFHxS was found at MW-3S at 6.7 ng/L below the MCL of 10 ng/L and was not detected in any other samples. PFNA and HFPO-DA were not detected in any of the samples. The detection limit for PFOS and PFOA was slightly greater than the MCL ranging from 4.3 to 4.9 ng/L.

MW-3S was calculated to have a hazard index of 0.7 using the Ecology PFAS Hazard Index MCL calculation tool. The hazard indices at MW-4S and MW-6S were calculated at 0.002 and 0.003, respectively. Copies of the Hazard Index calculations are included in Attachment C.

The concentrations of PFAS at MW-3S appear to resemble the leachate from the Graham Road LPL in the Ecology PFAS study (Ecology 2022) with predominance of PFCAs. The results do not appear to resemble the PFAS from the YTC which had a greater proportion of PFOS to PFOA. These results appear to indicate the source of the PFAS in groundwater is leachate from the LPL rather than PCS deposited into the LPL from the YTC. There are no monitoring wells north of MW-3S further downgradient of the DTG LPL.

Samples MW-2S and MW-5S (and its duplicate, MW-13S) were non-detect for PFAS. These results appear to indicate there was not likely cross contamination related to the sampling effort or the equipment used.

These results are from the initial monitoring event for analysis of dioxins and furans and PFAS and will be confirmed during the fourth quarter of 2024. If the fourth quarter 2024 PFAS results for MW-3S continue to exceed MCLs, a plan for an additional downgradient monitoring well and characterization may be developed.

Closing

Groundwater within the Shallow Aquifer was sampled and analyzed for dioxins and furans using EPA Method 1613B and PFAS using EPA Method 1633 as part of the AO in September 2024 as the initial event to assess these contaminants.

Groundwater at location MW-4S was found to have concentrations of dioxins and furans above the MTCA Method B cancer CUL of 0.34 pg/L using TEQ for 2,3,7,8 TCDD equivalency. Downgradient monitoring wells MW-5S and MW-6S had very low concentrations of dioxins and furans that were below MTCA CULs indicating dioxins and furans are contained within the existing monitoring well network. These results may indicate potential impacts to groundwater from the landfill fire. Samples will be collected for dioxins and furans during the 2024 fourth quarter event to confirm the third quarter 2024 results.

Groundwater at location MW-3S was found to have PFAS in the form of PFOA above the MCL of 4 ng/L. Low level detections of PFAS were identified in wells MW-4S and MW-6S below the MCL. The results from MW-3S appear to be similar to results from leachate from another LPL studied by Ecology and do not appear to resemble PFAS from the YTC release. There are no monitoring wells downgradient of MW-3S. Samples will be collected for PFAS in the 2024 fourth quarter event to confirm the third quarter 2024 results. In the event that the PFAS results are confirmed, a work plan may be developed for an additional downgradient monitoring well and characterization.

SVOCs including cPAHs will be sampled during the 2024 fourth quarter event.

Attachments

Figures

Figure 1 – Facility Vicinity Map
Figure 2 – Well Location Map
Figure 3 – Water Level Summary
Figure 4 – Shallow Aquifer Potentiometric Surface
Figure 5 – Interflow Zone Potentiometric Surface

Tables

Table 1 – Dioxin and Furan Results, September 2024
Table 2 – PFAS Results, September 2024

Attachment A – Third Quarter 2024 Field Data Sheets

Attachment B – Laboratory Analytical Report

Attachment C – Hazard Index Calculations

References

Arcadis, Inc. 2023. Preliminary Assessment/Site Inspection Addendum – Off-post Private Well Investigation of Per-and Polyfluoroalkyl Substances at the Yakima Training Center, Washington, available online at https://apps.ecology.wa.gov/cleanupsearch/site/2301#site-documents

Ecology (Washington State Department of Ecology). 1998. Washington State Dioxin Source Assessment, Publication no. 98-320, July 1998, available online at https://apps.ecology.wa.gov/publications/documents/98320.pdf

Ecology. 2022. Per-and Polyfluoroalkyl Substances (PFAS) in Landfill Leachate – Selected Landfills in Washington State, Publication no. 22-07-11, September 2022, available online at https://apps.ecology.wa.gov/publications/documents/2207011.pdf

Ecology. 2023. Anderson Landfill update: no evidence of contaminated drinking water. Available online at https://ecology.wa.gov/blog/april-2023/anderson-landfill-update-no-evidence-of-contaminat

Ecology. 2024a. LRI Work Plan for the Anderson Landfill, letter dated August 23, 2024.

Ecology. 2024b. Cleanup Levels and Risk Calculations, revised July 2024, available online at https://fortress.wa.gov/ecy/ezshare/tcp/CLARC/CLARC_Master.xlsx

Ecology. 2024c. Selection of Human Health Toxicity Criteria for PFAS Chemicals, letter dated June 7, 2024, available online at https://fortress.wa.gov/ecy/ezshare/tcp/CLARC/6-7-24_Ecy%20Memo_PFAS%20Tox.pdf

Parametrix. 2024a. Draft Limited Remedial Investigation Work Plan Update, prepared for DTG Recycle, May 2024

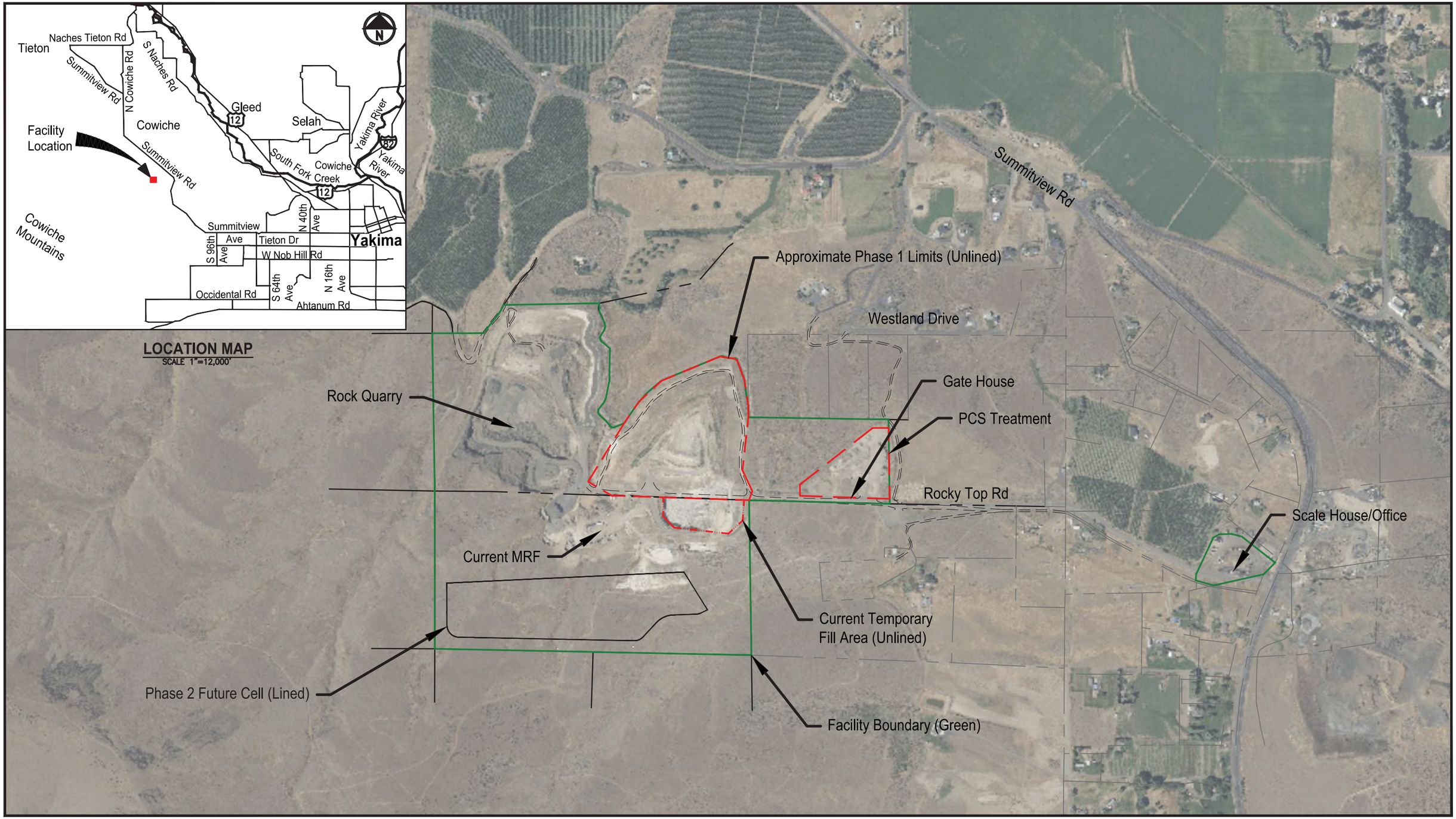
Parametrix. 2024b. Limited Remedial Investigation Work Plan Update, prepared for DTG Recycle, October 2024.

Parametrix. 2024c. Monitoring Well Construction Update Technical Memorandum, DTG Yakima Limited Purpose Landfill, Yakima, Washington. Prepared for the Yakima Health District on behalf of DTG Recycle. September 2024.

Parametrix.2024d. Sampling and Analysis Plan for the DTG Yakima Limited Purpose Landfill, Yakima, Washington. Revised September 2024.

Parametrix.2024e. Third Quarter 2024 Groundwater Monitoring Report, Rocky Top Environmental Limited Purpose Landfill, Yakima, Washington. Prepared for DTG Recycling. December 2024.

Figures



Parametrix

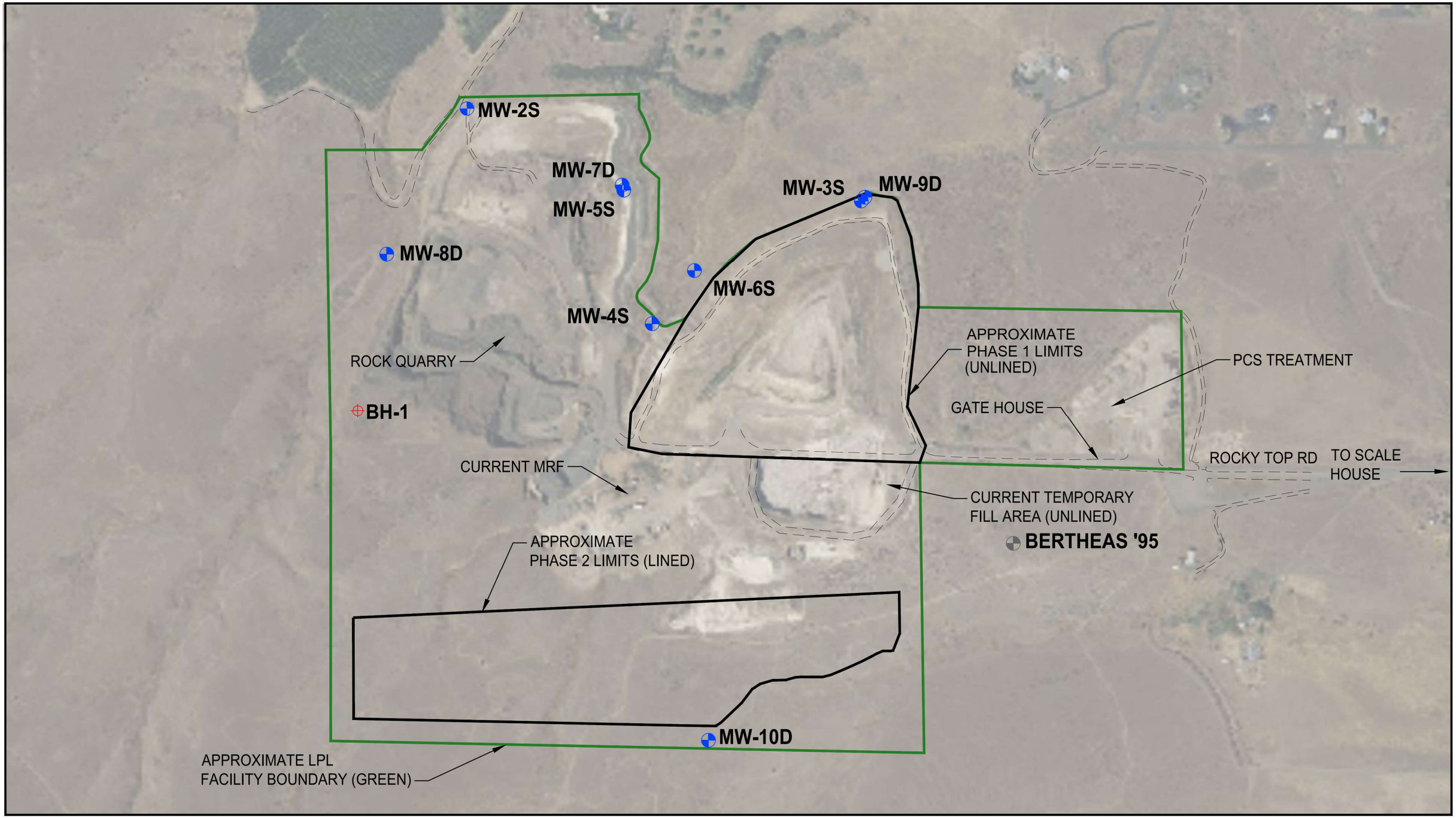
DATE: December 6, 2024

FILE: PS8472003-C01_QTY REPORT 052023_RECOVER

0 N 750

SCALE: 1"=750'

Figure 1
Facility Vicinity Map
Rocky Top Environmental Limited Purpose Landfill



Parametrix

DATE: September 16, 2024

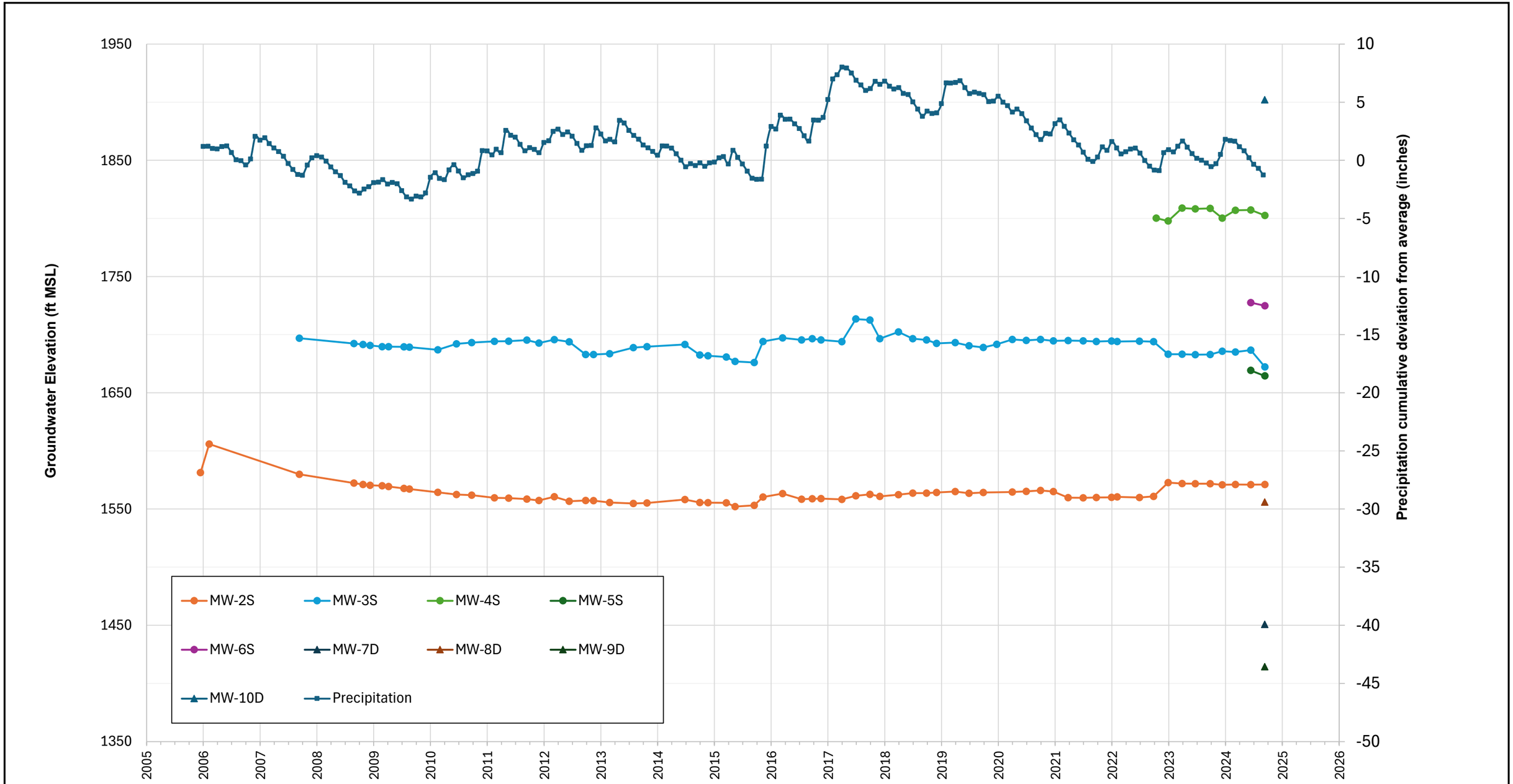
FILE: QUARTERLY REPORT FIGURE Q3-2024

0 N 400

1 INCH = 400 FT.

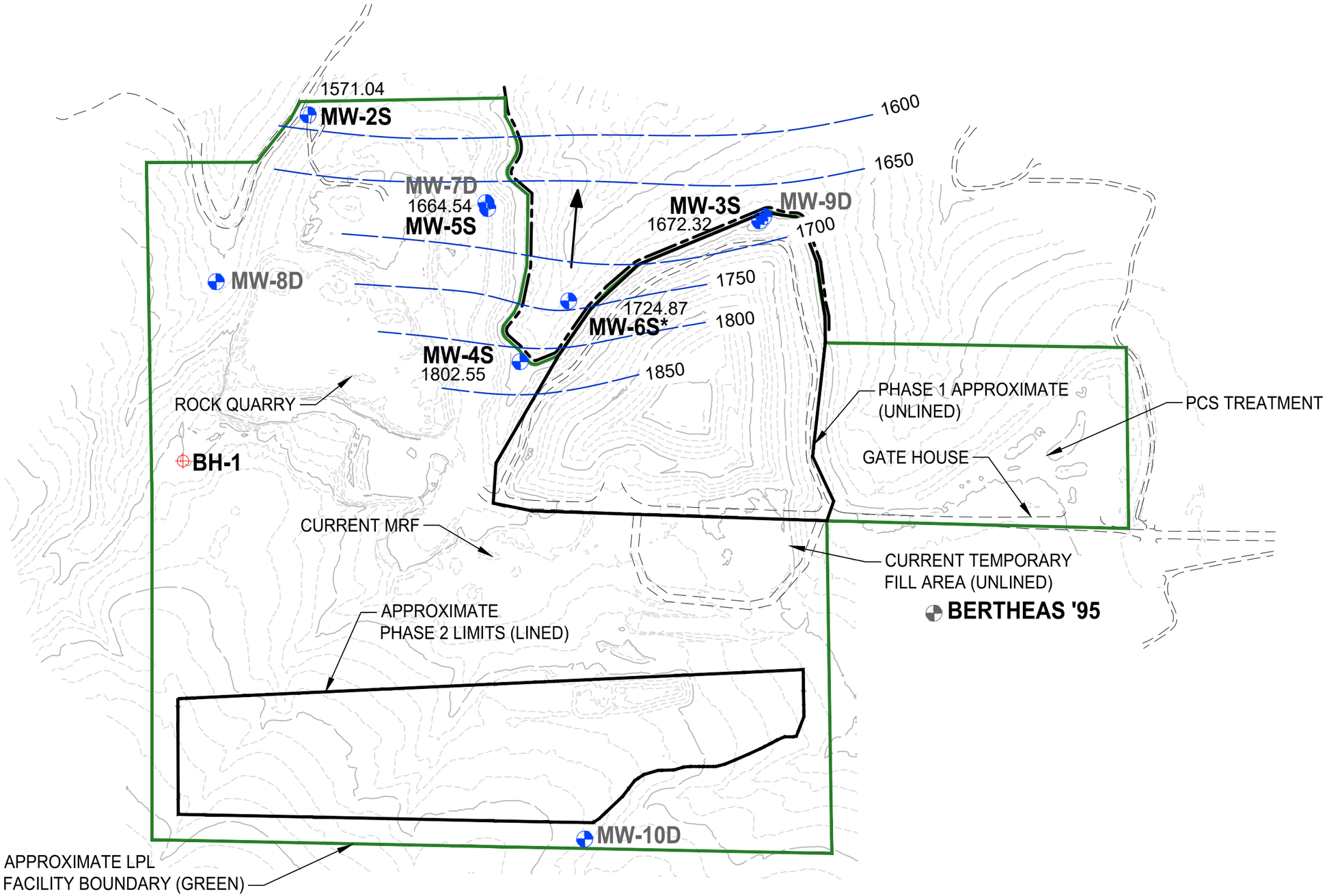
- Monitoring Well
- Domestic Well
- Decommissioned Well
- Borehole

Figure 2
Well Location Map
Rocky Top Environmental Limited Purpose Landfill



ParametriX

Figure 3
Water Level Summary
Rocky Top Environmental Limited Purpose Landfill



* Note: MW-6S measured on September 3, 2024

Parametrix DATE: September 16, 2024 FILE: QUARTERLY REPORT FIGURE Q3-2024

0 N 400
1 INCH = 400 FT.

1571.04 Monitoring Well with Water Level Elevation in feet measured on September 11, 2024

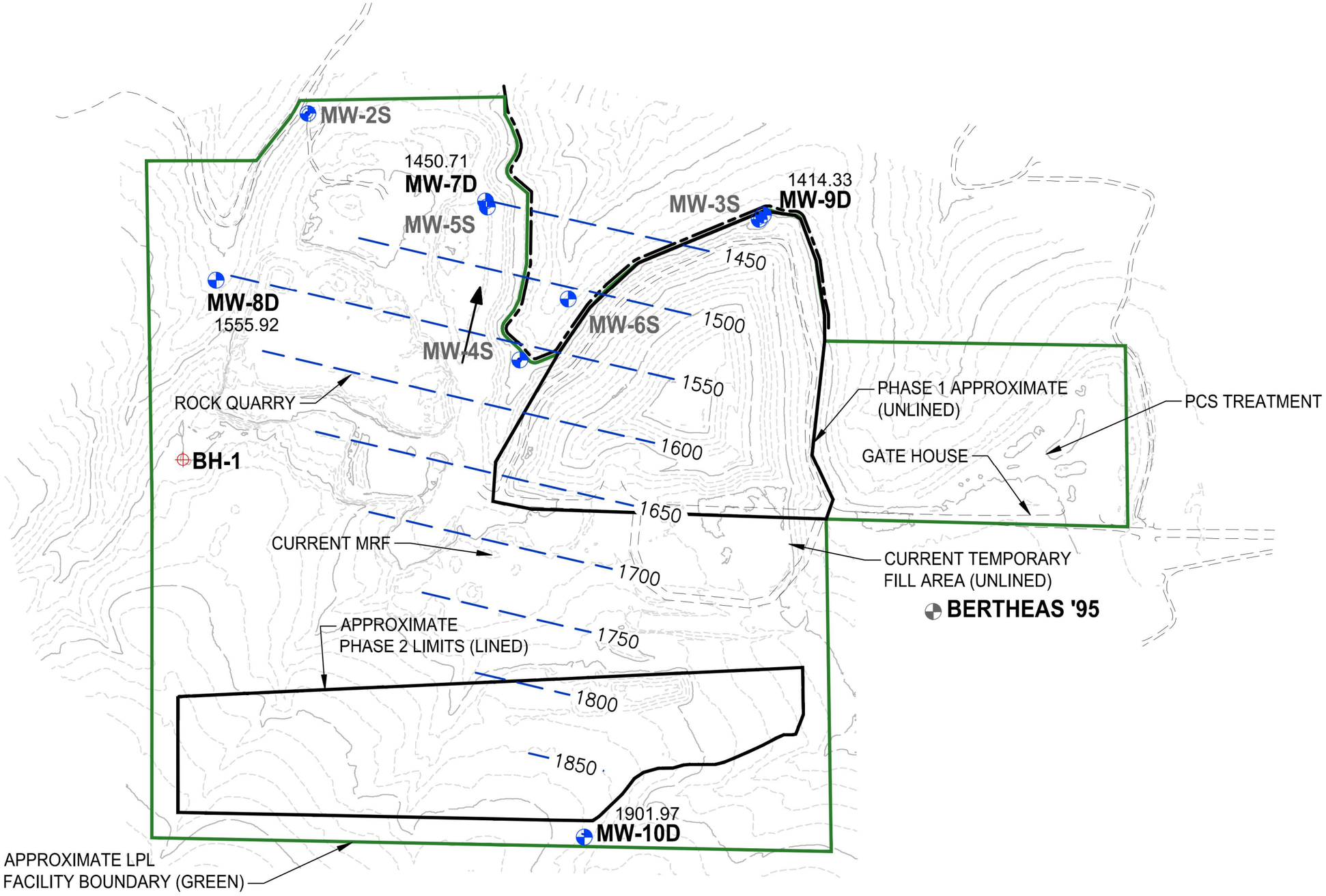
Decommissioned Well

Borehole

Approximate Groundwater flow direction

1700 Groundwater Elevation Contour (ft)

Figure 4
Third Quarter 2024
Shallow Aquifer Potentiometric Surface
Rocky Top Environmental Limited Purpose Landfill



Parametrix DATE: September 16, 2024 FILE: QUARTERLY REPORT FIGURE Q3–2024

0 N 400
1 INCH = 400 FT.

1450.71 Monitoring Well with Water Level Elevation in feet measured on September 11, 2024

Decommissioned Well

Borehole

Approximate Groundwater flow direction

1700 Groundwater Elevation Contour (ft)

Figure 5
Third Quarter 2024
Interflow Zone Potentiometric Surface
Rocky Top Environmental Limited Purpose Landfill

Tables

Table 1. September 2024, Dioxin and Furan Results, Rocky Top Environmental Limited Purpose Landfill

Parameter	Units	CUL MTCA B Cancer	CUL MTCA B Non-Cancer	TEF	MW-2S 9/12/2024	Calculated TEF	MW-3S 9/12/2024	Calculated TEF	MW-4S 9/12/2024	Calculated TEF	MW-5S 9/12/2024	Calculated TEF	MW-13S (MW-5S Dup) 9/12/2024	Calculated TEF	MW-6S 9/12/2024	Calculated TEF
Dioxin Congeners																
2,3,7,8-Tetrachloro dibenzo-p-dioxin	pg/L	0.34	5.60	1	<0.797	--	<1.92	--	<1.18	--	<1.57	--	<0.895	--	<1.22	--
1,2,3,7,8-Pentachloro dibenzo-p-dioxin	pg/L			1	<0.959	--	<2.10	--	<2.00	--	<1.87	--	<1.65	--	<1.91	--
1,2,3,4,7,8-Hexachloro dibenzo-p-dioxin	pg/L			0.1	<1.28	--	<1.72	--	<1.60	--	<2.07	--	<2.08	--	<1.98	--
1,2,3,6,7,8-Hexachloro dibenzo-p-dioxin	pg/L			0.1	<1.30	--	<2.20	--	<1.93	--	<2.40	--	<2.29	--	<1.99	--
1,2,3,7,8,9-Hexachloro dibenzo-p-dioxin	pg/L			0.1	<1.44	--	<2.55	--	<1.81	--	<2.42	--	<2.37	--	<2.05	--
1,2,3,4,6,7,8-Heptachloro dibenzo-p-dioxin	pg/L			0.01	<1.90	--	3.83 J	0.0383	73.7	0.737	<3.53	--	<3.11	--	<2.23	--
1,2,3,4,6,7,8,9-Octachloro dibenzo-p-dioxin	pg/L			0.0003	2.60	0.00078	21.7 J	0.00651	<4.11	--	12.6 J	0.00378	<6.67	--	13.4 J	0.00402
Furan Congeners																
2,3,7,8-Tetrachloro dibenzofuran	pg/L			0.1	<0.652	--	<1.31	--	<0.875	--	<1.27	--	<0.683	--	1.1	--
1,2,3,7,8-Pentachloro dibenzofuran	pg/L			0.03	<0.585	--	<1.27	--	<1.25	--	<1.42	--	<1.06	--	<1.25	--
2,3,4,7,8-Pentachloro dibenzofuran	pg/L			0.3	<0.548	--	<1.25	--	<1.38	--	<1.04	--	<0.854	--	<1.19	--
1,2,3,4,7,8-Hexachloro dibenzofuran	pg/L			0.1	<0.685	--	<1.36	--	1.59 J	0.159	<1.55	--	<1.03	--	<1.26	--
1,2,3,6,7,8-Hexachloro dibenzofuran	pg/L			0.1	<0.736	--	<1.47	--	1.4 J	0.14	<1.55	--	<1.09	--	<1.28	--
1,2,3,7,8,9-Hexachloro dibenzofuran	pg/L			0.1	<0.743	--	<1.59	--	1.94 J	0.194	<1.51	--	<1.15	--	<1.38	--
2,3,4,6,7,8-Hexachloro dibenzofuran	pg/L			0.1	<1.05	--	<2.09	--	<1.58	--	<1.94	--	<1.48	--	<1.66	--
1,2,3,4,6,7,8-Heptachloro dibenzofuran	pg/L			0.01	<0.835	--	<1.59	--	17.7 J	0.177	<2.07	--	<1.59	--	<1.53	--
1,2,3,4,7,8,9-Heptachloro dibenzofuran	pg/L			0.01	<1.33	--	<1.78	--	2.68 J	0.0268	<2.72	--	<2.14	--	<2.11	--
1,2,3,4,6,7,8,9-Octachloro dibenzofuran	pg/L			0.0003	<1.83	--	4.02 J	0.001206	104 J	0.0312	<7.13	--	<5.06	--	<3.02	--
Totals TEQ	pg/L	0.34	5.60			0.00078		0.046016		**1.465**		0.00378		0		0.00402

Notes:

CUL = Cleanup level
MTCA = Model Toxics Control Act (WAC 173-340)
TEF = Toxic equivalency factor
TEQ = Toxicity equivalency quotient
< = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J = Estimated value
-- = Not calculated
= Above MTCA CUL

Table 2. September 2024 Per- and Poly-fluoroalkyl Substances (PFAS) Results, Rocky Top Environmental Limited Purpose Landfill

Parameter	Units	CUL MTCA B Non-Cancer	CUL MTCA B Cancer	Federal MCL	MW-2S 9/12/2024	MW-3S 9/12/2024	MW-4S 9/12/2024	MW-5S 9/12/2024	MW-13S (MW-5S Dup) 9/12/2024	MW-6S 9/12/2024
Perfluoroalkyl Sulfonic Acids (PFSAs)										
Perfluorobutane sulfonic acid (PFBS)	ng/L	4800			<4.5	13	4.8	<4.6	<4.9	6.6
Perfluoropentane sulfonic acid (PFPeS)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Perfluorohexane sulfonic acid (PFHxS)	ng/L	160		10	<4.5	6.7	<4.5	<4.6	<4.9	<4.3
Perfluoroheptane sulfonic acid (PFHpS)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Perfluorooctane sulfonic acid (PFOS)	ng/L	1.6	2.2	4	<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Perfluorononane sulfonic acid (PFNS)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Perfluorodecane sulfonic acid (PFDS)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Perfluorododecane sulfonic acid (PFDoS)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Perfluoroalkyl Carboxylic Acids (PFCAs)	ng/L									
Perfluorobutanoic acid (PFBA)	ng/L	8000			<4.5	33	23	<4.6	<4.9	9.1
Perfluoropentanoic acid (PFPeA)	ng/L				<4.5	74	21	<4.6	<4.9	<4.3
Perfluorohexanoic acid (PFHxA)	ng/L	8000			<4.5	43	8.6	<4.6	<4.9	<4.3
Perfluoroheptanoic acid (PFHpA)	ng/L				<4.5	25	<4.5	<4.6	<4.9	<4.3
Perfluorooctanoic acid (PFOA)	ng/L	0.48	0.003	4	<4.5	**29**	<4.5	<4.6	<4.9	<4.3
Perfluorononanoic acid (PFNA)	ng/L	40		10	<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Perfluorodecanoic acid (PFDA)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Perfluoroundecanoic acid (PFUnDA)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Perfluorododecanoic acid (PFDOA)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Perfluorotridecanoic acid (PFTrDA)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Perfluorotetradecanoic acid (PFTDA)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Perfluoroalkyl Sulfonamido Substances										
Perfluorooctane sulfonamide (PFOSAm)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
N-Methylperfluorooctane sulfonamide (MeFOSA)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
4,4,5,5,6,6,6-Heptafluorohexanoic acid (3:3 FTCA)	ng/L				<180	<190	<180	<190	<190	<170
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	ng/L				<180	<190	<180	<190	<190	<170
2H,2H,3H,3H-Perfluorodecanoic acid (7:3 FTCA)	ng/L				<180	<190	<180	<190	<190	<170
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Perfluoro-3-methoxypropanoic acid (PFMPA)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Perfluoro-4-methoxybutanoic acid (PFMBA)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ng/L	24		10	<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	ng/L				<4.5	<4.7	<4.5	<4.6	<4.9	<4.3
MCL Hazard Index for Mixtures of HFPO-DA, PFBS, PFHxS, and PFNA	Unitless			1	--	0.7	0.002	--	--	0.003

Notes:

CUL = Cleanup level

MTCA = Model Toxics Control Act (WAC 173-340)

MCL = Maximum contaminant level

< = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

-- = Not calculated

= Does not meet CUL MTCA Method B or MCL

Attachment A

Third Quarter 2024
Field Data Sheets

Groundwater Sampling Field Data Sheet

Well #: **MW-2S**

Project Number:	553877 2005	**Date:**	9/12/24
Project Name:	Yakima LPL	**Company Name:**	Parametrix
Project Address:	Rocky Top	**Sampled By:**	C. Bourgeois & K. Burke

Casing Diameter: 2" _ 4" ✓ 6" _____ Other _____

Initial Depth to Water (feet below TOC):	287.32	**Purge Rate Measurement Method:**	Graduated cylinder
Top of Screen (feet bgs):	310	**Date Purged:**	9/12/24
Bottom of Screen (feet bgs)	330	**Purge Time (from/to):**	1022 - 1040
Reference Point (surveyor's notch, etc.):	PVC	**Time Sampled:**	1050

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING (PSI)
Initial	287.32							
~~1025~~ 1030	287.91	7.97	178.5	14.1	-77.9	7.08	0.81	170
1035	287.79	7.94	177.7	13.9	-75.0	6.88	0.00	"
1040	287.72	7.91	176.8	14.2	-72.1	6.04	0.00	"
Stabilization Criteria		± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment:	Bladder pump	**Flow Rate:**	265 mL/min
Laboratory:	Onsite	**Date Sent to Lab:**	9/12/24
Shipment Method	in-person	**Field QC Sample Number:**	NA

Remarks: 40/20 & 170 PSI used to initiate and sustain flow. could not get enough flow w/ 20/10 (CPM2)
- Ran low on gas

Signature: Chris

Groundwater Sampling Field Data Sheet

Well #: **MW-3S**

Project Number:	553847.2005	**Date:**	9/12/24
Project Name:	Yakima LPL	**Company Name:**	Parametrix
Project Address:	Rocky Top	**Sampled By:**	C Bourgeois & K. Burke

Casing Diameter: 2" _ 4" ✓ 6" _____ Other _____

Initial Depth to Water (feet below TOC):	~~179.87~~ 173.60	**Purge Rate Measurement Method:**	Graduated cylinder
Top of Screen (feet bgs):	188	**Date Purged:**	9/12/24
Bottom of Screen (feet bgs)	198	**Purge Time (from/to):**	827 - 850
Reference Point (surveyor's notch, etc.):	PVC TOC	**Time Sampled:**	900

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING (PSI)
Initial	173.60							
830	174.05	7.61	616	14.4	-66.6	6.74	0.41	165
835	174.10	7.63	629	14.4	-71.3	4.99	0.00	"
840	—	7.66	629	14.5	-71.4	4.95	0.00	"
845	174.04	7.68	629	14.4	-72.5	5.06	0.00	"
850	174.06	7.69	630	14.4	-73.9	4.88	0.00	"
Stabilization Criteria		± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment: QED PFAS FREE BLADDER **Flow Rate:** 450 mL/min

Laboratory:	Onsite	**Date Sent to Lab:**	9/12/24
Shipment Method	in-person	**Field QC Sample Number:**	NA

Remarks: Pump settings to initiate flow: 40/20 (CPM) + 170 PSI
... took 3-4 cycles
used 20/10 & 165 PSI to purge.

Signature: _____

Groundwater Sampling Field Data Sheet

Well #: **MW-4S**

Project Number:	5538472005	**Date:**	9/11/2024
Project Name:	Yakima LPL	**Company Name:**	PMX
Project Address:	Rocky Top	**Sampled By:**	C. Bourgeois & K. Burke

Casing Diameter: 2" _ 4" ✓ 6" _____ Other _____

Initial Depth to Water (feet below TOC):	43.04	**Purge Rate Measurement Method:**	Poly bottle
Top of Screen (feet bgs):	49.5	**Date Purged:**	9/11/24
Bottom of Screen (feet bgs)	69.5	**Purge Time (from/to):**	905 - 925
Reference Point (surveyor's notch, etc.):	N. PVC.	**Time Sampled:**	930

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING PSI
Initial	43.04							
910	—	7.77	961	13.4	-102.8	4.76	clear	59 PSI
915	—	7.78	969	13.1	-101.1	4.12	"	65
920	—	7.77	973	13.1	-96.6	4.16	"	65
925	—	7.76	973	13.1	-96.9	4.04	"	65
Stabilization Criteria		±0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment:	Bladder pump	**Flow Rate:**	300 mL/min
Laboratory:	Onsite	**Date Sent to Lab:**	9/12/24
Shipment Method	in-person	**Field QC Sample Number:**	NA

Remarks: used CPM4 10/5 settings

Signature: Chris

Groundwater Sampling Field Data Sheet

MW-55

Well #: ~~MW-6S~~ MW-55

Project Number:	553847.2005	**Date:**	9/11/24
Project Name:	Yakima LPL	**Company Name:**	Parametrix
Project Address:	Rocky Top	**Sampled By:**	C. Bourgeois & K. Burke

Casing Diameter: 2" _ 4" ✓ 6" _____ Other _____

Initial Depth to Water (feet below TOC):	219.34	**Purge Rate Measurement Method:**	graduated cylinder
Top of Screen (feet bgs):	~~110~~ 222	**Date Purged:**	9/11/24
Bottom of Screen (feet bgs)	~~130~~ 243	**Purge Time (from/to):**	~~1303~~ 1333 - 1400
Reference Point (surveyor's notch, etc.):	N. PVC.	**Time Sampled:**	1410

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING
Initial	_____							40/20
1346	~~219.15~~	8.43	368.2	16.5	-137.9	1.39	6.83	_____
1345	219.17	8.53	365.8	16.0	-148.8	0.62	4.24	11/9
1350	"	8.52	357.8	15.9	-149.2	0.31	2.45	_____
1355	"	8.48	352.5	15.6	-146.3	0.15	2.62	_____
1400	"	8.49	356.6	15.6	-149.7	0.14	2.52	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
Stabilization Criteria		± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment: Bladder pump **Flow Rate:** 300 mL/min

Laboratory: Onsite **Date Sent to Lab:** 9/12/24

Shipment Method In-person **Field QC Sample Number:** MW-135-0911

Remarks: ~~40~~ ~~discharge~~ 40/20 ~~time~~ needed to initiate flow.

Pump settings CPM3 11/9 dup @ 1500

Signature: Chris

Groundwater Sampling Field Data Sheet

MW-65

Well #: ~~MW-53~~

Project Number:	553847.2005	**Date:**	9/11/24
Project Name:	Yakima LPL	**Company Name:**	Parametrix
Project Address:	Rocky Top	**Sampled By:**	C. Burgess & K. Burke

Casing Diameter: 2" _ 4" ✓ 6" _____ Other _____

Initial Depth to Water (feet below TOC):	—	**Purge Rate Measurement Method:**	graduated cylinder
Top of Screen (feet bgs):	~~222~~ 110	**Date Purged:**	9/11/24
Bottom of Screen (feet bgs)	~~243~~ 243	**Purge Time (from/to):**	1046 - 1115
Reference Point (surveyor's notch, etc.):	N. PVC	**Time Sampled:**	~~1115~~ 1120

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING (PSI)
Initial	_____	8.28			-120.8			
1050	_____	~~8.28~~	531	13.2	~~-120~~	4.50	clear	_____
1055	_____	8.28 ~~8.31~~	530	13.1	-115.5	4.42	0.00	105
1100	_____	8.32	511	13.2	-113.3	4.28	0.04	"
1105	_____	8.31	495	13.2	-109.5	4.09	0.14	"
1110	_____	8.28	498	13.3	-107.0	4.02	0.00	"
1115	_____	8.25	501	13.3	-104.2	4.06	0.00	"
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
Stabilization Criteria		± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment: Bladder pump **Flow Rate:** 320 ml/min

Laboratory: onsite **Date Sent to Lab:** ~~3~~ 9/12/24

Shipment Method in-person **Field QC Sample Number:** NA

Remarks: ~~Dup MW-135-0911~~ @ ~~1115~~ ~~1145~~

CPM4 10/5 105 PSI

water level during pump test (9/3/24): 100.44 ft.

Signature: Chr

Groundwater Sampling Field Data Sheet

Well #: **MW-7D**

Project Number:	553-8472-005	**Date:**	8/28/24
Project Name:	Yakima LPL	**Company Name:**	Parametrix
Project Address:	Rocky Top	**Sampled By:**	C. Bourgeois M. Brady
Casing Diameter:	2" _ 4" _ 6" _ Other _		
Initial Depth to Water (feet below TOC):		**Purge Rate Measurement Method:**	
Top of Screen (feet bgs):	475	**Date Purged:**	
Bottom of Screen (feet bgs)	495	**Purge Time (from/to):**	
Reference Point (surveyor's notch, etc.):		**Time Sampled:**	

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING
Initial	443.45							
1136	~450	8.23	204.7	19.4	-251.5	0.70	0.0	
Stabilization Criteria		± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment:			
Laboratory:		**Flow Rate:**	
Shipment Method		**Date Sent to Lab:**	
Remarks:		**Field QC Sample Number:**	

Sample taken during hydraulic pump test
* Water level taken 9/11/24 : 433.17'

Signature: C. Bourgeois

Groundwater Sampling Field Data Sheet

Well #:**MW-8D**

Project Number:	553-8472-005	**Date:**	
Project Name:	Yakima LPL	**Company Name:**	Parametrix
Project Address:	Rocky Top	**Sampled By:**	Mike Brady

Casing Diameter: 2" _ 4" _ 6" _____ Other _____

Initial Depth to Water (feet below TOC):		**Purge Rate Measurement Method:**	
Top of Screen (feet bgs):	375	**Date Purged:**	
Bottom of Screen (feet bgs)	405	**Purge Time (from/to):**	
Reference Point (surveyor's notch, etc.):		**Time Sampled:**	

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING
Initial								
1522	358.52	8.50	406.8	23.2	1.40	1.38	1.27	
Stabilization Criteria		± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment:		**Flow Rate:**	
Laboratory:		**Date Sent to Lab:**	
Shipment Method		**Field QC Sample Number:**	

Remarks:

water level taken during 9/11/24: 308.02'

Signature:

Groundwater Sampling Field Data Sheet

Well #: **MW-9D**

Project Number:	553-8472-005	**Date:**	9/10/24
Project Name:	Yakima LPL	**Company Name:**	Parametrix
Project Address:	Rocky Top	**Sampled By:**	K. Burke & Chris B.

Casing Diameter: 2" _ 4" _ 6" _____ Other _____

Initial Depth to Water (feet below TOC):	432.62	**Purge Rate Measurement Method:**	
Top of Screen (feet bgs):	420	**Date Purged:**	
Bottom of Screen (feet bgs)	440	**Purge Time (from/to):**	
Reference Point (surveyor's notch, etc.):		**Time Sampled:**	

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING
Initial	432.62						109.5 NTU	
1214		8.56	680	18.2	-158.6	6.74	trace	bailer
Stabilization Criteria		± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment:		**Flow Rate:**	
Laboratory:		**Date Sent to Lab:**	
Shipment Method		**Field QC Sample Number:**	

Remarks: used bailer.

~~435.90~~ 433.58' TOC after samples

*Water level taken 9/11/24: 433.16'

Signature: Chris

Groundwater Sampling Field Data Sheet

Well #: **MW-10D**

Project Number:	553-8472-005	**Date:**	9/11/24
Project Name:	Yakima LPL	**Company Name:**	Parametrix
Project Address:	Rocky Top	**Sampled By:**	C. Bourgeois & K. Burke

Casing Diameter: 2" _ 4" _ 6" _____ Other _____

Initial Depth to Water (feet below TOC):	86.80	**Purge Rate Measurement Method:**	
Top of Screen (feet bgs):		**Date Purged:**	
Bottom of Screen (feet bgs)		**Purge Time (from/to):**	
Reference Point (surveyor's notch, etc.):		**Time Sampled:**	

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING
Initial	86.80							Grab
1222		8.21	227.8	17.2	~~7.71~~ -101.7	7.74	Clear	Sample
Stabilization Criteria		± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment:		**Flow Rate:**	
Laboratory:		**Date Sent to Lab:**	
Shipment Method		**Field QC Sample Number:**	

Remarks: Sample taken during hydraulic pump test

Signature: [signature]

Attachment B

Laboratory Analytical Report

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

November 7, 2024

Michael Brady
Parametrix, Inc.
719 2nd Avenue, Suite 200
Seattle, WA 98104

Re: Analytical Data for Project 553-8472-06
Laboratory Reference No. 2409-159

Dear Michael:

Enclosed are the analytical results and associated quality control data for samples submitted on September 12, 2024.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

November 05, 2024 Service Request No:K2409714

David Baumeister
Onsite Environmental Incorporated
14648 Northeast 95th Street
Redmond, WA 98052

Laboratory Results for: 09-159

Dear David,

Enclosed are the results of the sample(s) submitted to our laboratory September 17, 2024
For your reference, these analyses have been assigned our service request number **K2409714.**

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

ALS Environmental

Client: Onsite Environmental Incorporated
Project: 09-159
Sample Matrix: Water

Service Request: K2409714
Date Received: 09/17/2024

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 water samples were received for analysis at ALS Environmental on 09/17/2024. 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.

General Chemistry:

No significant anomalies were noted with this analysis.

Organic LC:

Method 1633, 10/20/2024: The upper control criterion was exceeded for several analytes in the replicate Laboratory Control Samples (LCS/DLCS) KQ2415760-01/-02 and Low Level Lab Control Sample (LCS_LL) KQ2415760-03. The analytes in question were not detected in the associated field samples. The error associated with elevated recovery indicated a high bias. The sample data was not significantly affected. No further corrective action was appropriate.

The lower control criterion was exceeded for one or more of the following analytes in the Duplicate Laboratory Control Sample (DLCS) KQ2415760-02 and Low Level Lab Control Sample (LCS_LL) KQ2417560-03: Perfluorododecane sulfonic acid (PFDoS), Perfluorodecane sulfonic acid (PFDS). The low recovery in the DLCS and LCS_LL indicated a potential slight low bias to the analytes in question in the associated field samples. The analytes in question were not detected in the associated field samples. The field samples were re-extracted past the recommended holding time and reanalyzed. The results for both analyses were comparable; the results from the original extraction were reported. The data was flagged to indicate the issue. No further corrective action was taken.

The Relative Percent Difference (RPD) for several analytes in the replicate Laboratory Control Samples (LCS/DLCS) KQ2415760 -01/-02 was outside control criteria. The percent recovery in both the LCS and DLCS was in control, except as noted above, indicating that the batch was in control. No further corrective action was taken.

The upper control criterion was exceeded by 1% for Perfluoropentanoic acid (PFPeA) in Laboratory Control Sample (LCS) KQ2415760-01. The high recovery in the LCS indicated a potential slight high bias to the analyte in question in the associated field samples. The analyte in question was detected in samples MW-3S-0912 and MW-4S-0911. The samples were re-extracted past the recommended holding time and reanalyzed. The upper control criterion was exceeded by 4-6% for PFPeA in the LCS/DLCS KQ24017455-01/-02 for the re-extraction. The sample results for both analyses were comparable; the results from the original extraction were reported. The data was flagged to indicate the issue. No further corrective action was taken.

Method 1633, 10/20/2024: The upper control criterion was exceeded for Hexafluoropropyleneoxide dimer acid (HFPO-DA) in Continuing Calibration Verification (CCV) KQ2417526-07. The field samples analyzed in this sequence did not contain the analyte in question. Since the apparent problem indicated a potential high bias, the data quality was not affected. No further corrective action was required.

Method 1633, 10/20/2024: The upper control criterion was exceeded for Perfluoro-3-methoxypropanoic acid (PFMPA) in Continuing Calibration Verification (CCV) KQ2417526-09. The field samples analyzed in this sequence did not contain the analyte in question. Since the apparent problem indicated a potential high bias, the data quality was not affected. No further corrective action was required.

The control criteria were exceeded for one or more isotopes in Continuing Calibration Verifications (CCVs) KQ2417526-07/-09.

Approved by Noe D. Diaz Date 11/05/2024

The recovery of the associated native analytes was within control criteria, which indicated the analysis was in control. No further corrective action was appropriate.

Approved by Noe D. Diaz Date 11/05/2024

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-3S-0912			Lab ID: K2409714-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Perfluorobutane sulfonic acid (PFBS)	13			4.7	ng/L	Draft EPA Method 1633
Perfluorobutanoic acid (PFBA)	33			4.7	ng/L	Draft EPA Method 1633
Perfluoroheptanoic acid (PFHpA)	25			4.7	ng/L	Draft EPA Method 1633
Perfluorohexane sulfonic acid (PFHxS)	6.7			4.7	ng/L	Draft EPA Method 1633
Perfluorohexanoic acid (PFHxA)	43			4.7	ng/L	Draft EPA Method 1633
Perfluorooctanoic acid (PFOA)	29			4.7	ng/L	Draft EPA Method 1633
Perfluoropentanoic acid (PFPeA)	74			4.7	ng/L	Draft EPA Method 1633

CLIENT ID: MW-4S-0911			Lab ID: K2409714-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Perfluorobutane sulfonic acid (PFBS)	4.8			4.5	ng/L	Draft EPA Method 1633
Perfluorobutanoic acid (PFBA)	23			4.5	ng/L	Draft EPA Method 1633
Perfluorohexanoic acid (PFHxA)	8.6			4.5	ng/L	Draft EPA Method 1633
Perfluoropentanoic acid (PFPeA)	21			4.5	ng/L	Draft EPA Method 1633

CLIENT ID: MW-6S-0911			Lab ID: K2409714-005			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Perfluorobutane sulfonic acid (PFBS)	6.6			4.3	ng/L	Draft EPA Method 1633
Perfluorobutanoic acid (PFBA)	9.1			4.3	ng/L	Draft EPA Method 1633

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: Onsite Environmental Incorporated **Service Request:**K2409714
Project: 09-159/553-8472-006

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2409714-001	MW-2S-0912	9/12/2024	1050
K2409714-002	MW-3S-0912	9/12/2024	0900
K2409714-003	MW-4S-0911	9/11/2024	0930
K2409714-004	MW-5S-0911	9/11/2024	1410
K2409714-005	MW-6S-0911	9/11/2024	1120
K2409714-006	MW-13S-0911	9/11/2024	1500

KZ409714

OnSite Environmental Inc.

14648 NE 95th Street, Redmond, WA 98052 · (425) 883-3881

Laboratory Reference #: 09-159

Laboratory: ALS Environmental

Turnaround Request

Project Manager: David Baumeister

Attention: Mark Harris

1 Day | 2 Day | 3 Day | **Standard**

email: dbaumeister@onsite-env.com

1317 South 13th Avenue, Kelso, WA 98626

Project Number: 553-8472-006

Phone Number: (360) 577-7222

Other: _____

Project Name: _____

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analyses
	MW-2S-0912	9/12/24	10:50	W	3	PFAS EPA 1633
	MW-3S-0912	9/12/24	9:00	W	3	PFAS EPA 1633
	MW-4S-0911	9/11/24	9:30	W	3	PFAS EPA 1633
	MW-5S-0911	9/11/24	14:10	W	3	PFAS EPA 1633 - MS/MSD
	MW-6S-0911	9/11/24	11:20	W	3	PFAS EPA 1633
	MW-13S-0911	9/11/24	15:00	W	3	PFAS EPA 1633

Signature	Company	Date	Time	Comments/Special Instructions
Relinquished by:	OSE	9/16/24	1600	
Received by:	UPS			
Relinquished by:	UPS			
Received by: Audrey Detorte	ALS	09/17/24	0910	**EIM**
Relinquished by:				
Received by:				

PM MH

Cooler Receipt and Preservation Form

Client OnSite Service Request K24 09714

Received: 09/17/24 Opened: 09/17/24 By: AD Unloaded: 09/17/24 By: AD

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
		IR02				1Z684E1W0193986304	

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:

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.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: Onsite Environmental Incorporated **Service Request:** K2409714
Project: 09-159/553-8472-006

Sample Name: MW-2S-0912 **Date Collected:** 09/12/24
Lab Code: K2409714-001 **Date Received:** 09/17/24
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
1633	AMOORE	GOSEGUERA
1633	IHOLLANDER	GOSEGUERA

Sample Name: MW-2S-0912 **Date Collected:** 09/12/24
Lab Code: K2409714-001.R01 **Date Received:** 09/17/24
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
1633	JCARTER	PSALYARDS

Sample Name: MW-3S-0912 **Date Collected:** 09/12/24
Lab Code: K2409714-002 **Date Received:** 09/17/24
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
1633	IHOLLANDER	GOSEGUERA
1633	AMOORE	GOSEGUERA

Sample Name: MW-3S-0912 **Date Collected:** 09/12/24
Lab Code: K2409714-002.R01 **Date Received:** 09/17/24
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
1633	JCARTER	PSALYARDS

Client: Onsite Environmental Incorporated
Project: 09-159/553-8472-006
Service Request: K2409714

Sample Name: MW-3S-0912
Lab Code: K2409714-002.R02
Sample Matrix: Water
Date Collected: 09/12/24
Date Received: 09/17/24

Analysis Method	Extracted/Digested By	Analyzed By
1633	JCARTER	PSALYARDS

Sample Name: MW-4S-0911
Lab Code: K2409714-003
Sample Matrix: Water
Date Collected: 09/11/24
Date Received: 09/17/24

Analysis Method	Extracted/Digested By	Analyzed By
1633	AMOORE	GOSEGUERA
1633	IHOLLANDER	GOSEGUERA

Sample Name: MW-4S-0911
Lab Code: K2409714-003.R01
Sample Matrix: Water
Date Collected: 09/11/24
Date Received: 09/17/24

Analysis Method	Extracted/Digested By	Analyzed By
1633	JCARTER	PSALYARDS

Sample Name: MW-4S-0911
Lab Code: K2409714-003.R02
Sample Matrix: Water
Date Collected: 09/11/24
Date Received: 09/17/24

Analysis Method	Extracted/Digested By	Analyzed By
1633	JCARTER	PSALYARDS

Client: Onsite Environmental Incorporated **Service Request:** K2409714
Project: 09-159/553-8472-006

Sample Name: MW-5S-0911 **Date Collected:** 09/11/24
Lab Code: K2409714-004 **Date Received:** 09/17/24
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
1633	AMOORE	GOSEGUERA
1633	IHOLLANDER	GOSEGUERA

Sample Name: MW-5S-0911 **Date Collected:** 09/11/24
Lab Code: K2409714-004.R01 **Date Received:** 09/17/24
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
1633	JCARTER	PSALYARDS

Sample Name: MW-6S-0911 **Date Collected:** 09/11/24
Lab Code: K2409714-005 **Date Received:** 09/17/24
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
1633	IHOLLANDER	GOSEGUERA
1633	AMOORE	GOSEGUERA

Sample Name: MW-6S-0911 **Date Collected:** 09/11/24
Lab Code: K2409714-005.R01 **Date Received:** 09/17/24
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
1633	JCARTER	PSALYARDS

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006		

Sample Name:	MW-13S-0911	**Date Collected:**	09/11/24
Lab Code:	K2409714-006	**Date Received:**	09/17/24
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
1633	IHOLLANDER	GOSEGUERA
1633	AMOORE	GOSEGUERA

Sample Name:	MW-13S-0911	**Date Collected:**	09/11/24
Lab Code:	K2409714-006.R01	**Date Received:**	09/17/24
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
1633	JCARTER	PSALYARDS

Sample Results

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

Organic Compounds by HPLC/MS/MS

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

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/12/24 10:50
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-2S-0912	**Units:**	ng/L
Lab Code:	K2409714-001	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Analyte Name	Result	LOQ	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)						
Perfluorobutane sulfonic acid (PFBS)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluoropentane sulfonic acid (PFPeS)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluorohexane sulfonic acid (PFHxS)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluorooctane sulfonic acid (PFOS)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluorononane sulfonic acid (PFNS)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluorodecane sulfonic acid (PFDS)	ND U	4.5	1	10/20/24 08:20	10/1/24	*
Perfluorododecane sulfonic acid (PFDoS)	ND U	4.5	1	10/20/24 08:20	10/1/24	*
Perfluoroalkyl Carboxylic Acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluoropentanoic acid (PFPeA)	ND U	4.5	1	10/20/24 08:20	10/1/24	*
Perfluorohexanoic acid (PFHxA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluoroheptanoic acid (PFHpA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluorooctanoic acid (PFOA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluorononanoic acid (PFNA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluorodecanoic acid (PFDA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluoroundecanoic acid (PFUnDA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluorododecanoic acid (PFDOA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluorotridecanoic acid (PFTrDA)	ND U	4.5	1	10/20/24 08:20	10/1/24	*
Perfluorotetradecanoic acid (PFTDA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluoroalkyl Sulfonamido Substances						
Perfluorooctane sulfonamide (PFOSAm)	ND U	4.5	1	10/20/24 08:20	10/1/24	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	4.5	1	10/20/24 08:20	10/1/24	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	4.5	1	10/20/24 08:20	10/1/24	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	4.5	1	10/20/24 08:20	10/1/24	*
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	4.5	1	10/20/24 08:20	10/1/24	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/12/24 10:50
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-2S-0912	**Units:**	ng/L
Lab Code:	K2409714-001	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Analyte Name	Result	LOQ	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)						
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	4.5	1	10/20/24 08:20	10/1/24	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	4.5	1	10/20/24 08:20	10/1/24	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Fluorotelomer Carboxylic Acids (FTCAs)						
4,4,5,5,6,6,6-Heptafluorohexanoic acid (3:3 FTCA)	ND U	180	1	10/20/24 08:20	10/1/24	*
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	ND U	180	1	10/20/24 08:20	10/1/24	*
2H,2H,3H,3H-Perfluorodecanoic acid (7:3 FTCA)	ND U	180	1	10/20/24 08:20	10/1/24	
Perfluoroalkyl Ether Sulfonic Acids (PFESAs)						
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	ND U	4.5	1	10/20/24 08:20	10/1/24	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)						
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	4.5	1	10/20/24 08:20	10/1/24	*
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND U	4.5	1	10/20/24 08:20	10/1/24	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	ND U	4.5	1	10/20/24 08:20	10/1/24	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/12/24 10:50
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-2S-0912	**Units:**	ng/L
Lab Code:	K2409714-001	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	76	40 - 135	10/20/24 08:20	
13C3-PFHxS	94	40 - 130	10/20/24 08:20	
13C8-PFOS	95	40 - 130	10/20/24 08:20	
13C4-PFBA	90	5 - 130	10/20/24 08:20	
13C5-PFPeA	99	40 - 130	10/20/24 08:20	
13C5-PFHxA	108	40 - 130	10/20/24 08:20	
13C4-PFHpA	95	40 - 130	10/20/24 08:20	
13C8-PFOA	89	40 - 130	10/20/24 08:20	
13C9-PFNA	88	40 - 130	10/20/24 08:20	
13C6-PFDA	84	40 - 130	10/20/24 08:20	
13C7-PFUnDA	97	30 - 130	10/20/24 08:20	
13C2-PFDoDA	86	10 - 130	10/20/24 08:20	
13C2-PFTeDA	86	10 - 130	10/20/24 08:20	
13C8-FOSA	76	40 - 130	10/20/24 08:20	
D3-MeFOSA	82	10 - 130	10/20/24 08:20	
D5-EtFOSA	88	10 - 130	10/20/24 08:20	
D7-MeFOSE	83	10 - 130	10/20/24 08:20	
D9-EtFOSE	81	10 - 130	10/20/24 08:20	
D3-MeFOSAA	91	40 - 170	10/20/24 08:20	
D5-EtFOSAA	78	25 - 135	10/20/24 08:20	
13C2-4:2 FTS	100	40 - 200	10/20/24 08:20	
13C2-6:2 FTS	89	40 - 200	10/20/24 08:20	
13C2-8:2 FTS	73	40 - 300	10/20/24 08:20	
13C3-HFPO-DA	119	40 - 130	10/20/24 08:20	

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/12/24 09:00
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-3S-0912	**Units:**	ng/L
Lab Code:	K2409714-002	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Analyte Name	Result	LOQ	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)						
Perfluorobutane sulfonic acid (PFBS)	**13**	4.7	1	10/20/24 08:43	10/1/24	
Perfluoropentane sulfonic acid (PFPeS)	ND U	4.7	1	10/20/24 08:43	10/1/24	
Perfluorohexane sulfonic acid (PFHxS)	**6.7**	4.7	1	10/20/24 08:43	10/1/24	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	4.7	1	10/20/24 08:43	10/1/24	
Perfluorooctane sulfonic acid (PFOS)	ND U	4.7	1	10/20/24 08:43	10/1/24	
Perfluorononane sulfonic acid (PFNS)	ND U	4.7	1	10/20/24 08:43	10/1/24	
Perfluorodecane sulfonic acid (PFDS)	ND U	4.7	1	10/20/24 08:43	10/1/24	*
Perfluorododecane sulfonic acid (PFDoS)	ND U	4.7	1	10/20/24 08:43	10/1/24	*
Perfluoroalkyl Carboxylic Acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	**33**	4.7	1	10/20/24 08:43	10/1/24	
Perfluoropentanoic acid (PFPeA)	**74**	4.7	1	10/20/24 08:43	10/1/24	*
Perfluorohexanoic acid (PFHxA)	**43**	4.7	1	10/20/24 08:43	10/1/24	
Perfluoroheptanoic acid (PFHpA)	**25**	4.7	1	10/20/24 08:43	10/1/24	
Perfluorooctanoic acid (PFOA)	**29**	4.7	1	10/20/24 08:43	10/1/24	
Perfluorononanoic acid (PFNA)	ND U	4.7	1	10/20/24 08:43	10/1/24	
Perfluorodecanoic acid (PFDA)	ND U	4.7	1	10/20/24 08:43	10/1/24	
Perfluoroundecanoic acid (PFUnDA)	ND U	4.7	1	10/20/24 08:43	10/1/24	
Perfluorododecanoic acid (PFDOA)	ND U	4.7	1	10/20/24 08:43	10/1/24	
Perfluorotridecanoic acid (PFTrDA)	ND U	4.7	1	10/20/24 08:43	10/1/24	*
Perfluorotetradecanoic acid (PFTDA)	ND U	4.7	1	10/20/24 08:43	10/1/24	
Perfluoroalkyl Sulfonamido Substances						
Perfluorooctane sulfonamide (PFOSAm)	ND U	4.7	1	10/20/24 08:43	10/1/24	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	4.7	1	10/20/24 08:43	10/1/24	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	4.7	1	10/20/24 08:43	10/1/24	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	4.7	1	10/20/24 08:43	10/1/24	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	4.7	1	10/20/24 08:43	10/1/24	*
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	4.7	1	10/20/24 08:43	10/1/24	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	4.7	1	10/20/24 08:43	10/1/24	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/12/24 09:00
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-3S-0912	**Units:**	ng/L
Lab Code:	K2409714-002	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Analyte Name	Result	LOQ	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)						
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	4.7	1	10/20/24 08:43	10/1/24	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	4.7	1	10/20/24 08:43	10/1/24	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	4.7	1	10/20/24 08:43	10/1/24	
Fluorotelomer Carboxylic Acids (FTCAs)						
4,4,5,5,6,6,6-Heptafluorohexanoic acid (3:3 FTCA)	ND U	190	1	10/20/24 08:43	10/1/24	*
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	ND U	190	1	10/20/24 08:43	10/1/24	*
2H,2H,3H,3H-Perfluorodecanoic acid (7:3 FTCA)	ND U	190	1	10/20/24 08:43	10/1/24	
Perfluoroalkyl Ether Sulfonic Acids (PFESAs)						
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA)	ND U	4.7	1	10/20/24 08:43	10/1/24	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	ND U	4.7	1	10/20/24 08:43	10/1/24	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	ND U	4.7	1	10/20/24 08:43	10/1/24	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)						
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND U	4.7	1	10/20/24 08:43	10/1/24	
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND U	4.7	1	10/20/24 08:43	10/1/24	
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	4.7	1	10/20/24 08:43	10/1/24	*
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND U	4.7	1	10/20/24 08:43	10/1/24	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	ND U	4.7	1	10/20/24 08:43	10/1/24	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/12/24 09:00
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-3S-0912	**Units:**	ng/L
Lab Code:	K2409714-002	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	80	40 - 135	10/20/24 08:43	
13C3-PFHxS	86	40 - 130	10/20/24 08:43	
13C8-PFOS	83	40 - 130	10/20/24 08:43	
13C4-PFBA	88	5 - 130	10/20/24 08:43	
13C5-PFPeA	90	40 - 130	10/20/24 08:43	
13C5-PFHxA	103	40 - 130	10/20/24 08:43	
13C4-PFHpA	81	40 - 130	10/20/24 08:43	
13C8-PFOA	82	40 - 130	10/20/24 08:43	
13C9-PFNA	84	40 - 130	10/20/24 08:43	
13C6-PFDA	84	40 - 130	10/20/24 08:43	
13C7-PFUnDA	90	30 - 130	10/20/24 08:43	
13C2-PFDoDA	79	10 - 130	10/20/24 08:43	
13C2-PFTeDA	75	10 - 130	10/20/24 08:43	
13C8-FOSA	68	40 - 130	10/20/24 08:43	
D3-MeFOSA	70	10 - 130	10/20/24 08:43	
D5-EtFOSA	73	10 - 130	10/20/24 08:43	
D7-MeFOSE	72	10 - 130	10/20/24 08:43	
D9-EtFOSE	71	10 - 130	10/20/24 08:43	
D3-MeFOSAA	74	40 - 170	10/20/24 08:43	
D5-EtFOSAA	65	25 - 135	10/20/24 08:43	
13C2-4:2 FTS	102	40 - 200	10/20/24 08:43	
13C2-6:2 FTS	85	40 - 200	10/20/24 08:43	
13C2-8:2 FTS	66	40 - 300	10/20/24 08:43	
13C3-HFPO-DA	109	40 - 130	10/20/24 08:43	

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/11/24 09:30
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-4S-0911	**Units:**	ng/L
Lab Code:	K2409714-003	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Analyte Name	Result	LOQ	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)						
Perfluorobutane sulfonic acid (PFBS)	**4.8**	4.5	1	10/20/24 09:07	10/1/24	
Perfluoropentane sulfonic acid (PFPeS)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Perfluorohexane sulfonic acid (PFHxS)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Perfluorooctane sulfonic acid (PFOS)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Perfluorononane sulfonic acid (PFNS)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Perfluorodecane sulfonic acid (PFDS)	ND U	4.5	1	10/20/24 09:07	10/1/24	*
Perfluorododecane sulfonic acid (PFDoS)	ND U	4.5	1	10/20/24 09:07	10/1/24	*
Perfluoroalkyl Carboxylic Acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	**23**	4.5	1	10/20/24 09:07	10/1/24	
Perfluoropentanoic acid (PFPeA)	**21**	4.5	1	10/20/24 09:07	10/1/24	*
Perfluorohexanoic acid (PFHxA)	**8.6**	4.5	1	10/20/24 09:07	10/1/24	
Perfluoroheptanoic acid (PFHpA)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Perfluorooctanoic acid (PFOA)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Perfluorononanoic acid (PFNA)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Perfluorodecanoic acid (PFDA)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Perfluoroundecanoic acid (PFUnDA)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Perfluorododecanoic acid (PFDOA)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Perfluorotridecanoic acid (PFTrDA)	ND U	4.5	1	10/20/24 09:07	10/1/24	*
Perfluorotetradecanoic acid (PFTDA)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Perfluoroalkyl Sulfonamido Substances						
Perfluorooctane sulfonamide (PFOSAm)	ND U	4.5	1	10/20/24 09:07	10/1/24	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	4.5	1	10/20/24 09:07	10/1/24	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	4.5	1	10/20/24 09:07	10/1/24	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	4.5	1	10/20/24 09:07	10/1/24	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	4.5	1	10/20/24 09:07	10/1/24	*
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	4.5	1	10/20/24 09:07	10/1/24	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	4.5	1	10/20/24 09:07	10/1/24	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/11/24 09:30
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-4S-0911	**Units:**	ng/L
Lab Code:	K2409714-003	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Analyte Name	Result	LOQ	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)						
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	4.5	1	10/20/24 09:07	10/1/24	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	4.5	1	10/20/24 09:07	10/1/24	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Fluorotelomer Carboxylic Acids (FTCAs)						
4,4,5,5,6,6,6-Heptafluorohexanoic acid (3:3 FTCA)	ND U	180	1	10/20/24 09:07	10/1/24	*
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	ND U	180	1	10/20/24 09:07	10/1/24	*
2H,2H,3H,3H-Perfluorodecanoic acid (7:3 FTCA)	ND U	180	1	10/20/24 09:07	10/1/24	
Perfluoroalkyl Ether Sulfonic Acids (PFESAs)						
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA)	ND U	4.5	1	10/20/24 09:07	10/1/24	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	ND U	4.5	1	10/20/24 09:07	10/1/24	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)						
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND U	4.5	1	10/20/24 09:07	10/1/24	
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	4.5	1	10/20/24 09:07	10/1/24	*
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND U	4.5	1	10/20/24 09:07	10/1/24	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	ND U	4.5	1	10/20/24 09:07	10/1/24	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/11/24 09:30
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-4S-0911	**Units:**	ng/L
Lab Code:	K2409714-003	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	85	40 - 135	10/20/24 09:07	
13C3-PFHxS	100	40 - 130	10/20/24 09:07	
13C8-PFOS	84	40 - 130	10/20/24 09:07	
13C4-PFBA	92	5 - 130	10/20/24 09:07	
13C5-PFPeA	96	40 - 130	10/20/24 09:07	
13C5-PFHxA	115	40 - 130	10/20/24 09:07	
13C4-PFHpA	90	40 - 130	10/20/24 09:07	
13C8-PFOA	92	40 - 130	10/20/24 09:07	
13C9-PFNA	89	40 - 130	10/20/24 09:07	
13C6-PFDA	94	40 - 130	10/20/24 09:07	
13C7-PFUnDA	98	30 - 130	10/20/24 09:07	
13C2-PFDoDA	85	10 - 130	10/20/24 09:07	
13C2-PFTeDA	85	10 - 130	10/20/24 09:07	
13C8-FOSA	73	40 - 130	10/20/24 09:07	
D3-MeFOSA	73	10 - 130	10/20/24 09:07	
D5-EtFOSA	81	10 - 130	10/20/24 09:07	
D7-MeFOSE	79	10 - 130	10/20/24 09:07	
D9-EtFOSE	77	10 - 130	10/20/24 09:07	
D3-MeFOSAA	79	40 - 170	10/20/24 09:07	
D5-EtFOSAA	74	25 - 135	10/20/24 09:07	
13C2-4:2 FTS	121	40 - 200	10/20/24 09:07	
13C2-6:2 FTS	113	40 - 200	10/20/24 09:07	
13C2-8:2 FTS	81	40 - 300	10/20/24 09:07	
13C3-HFPO-DA	113	40 - 130	10/20/24 09:07	

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/11/24 14:10
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-5S-0911	**Units:**	ng/L
Lab Code:	K2409714-004	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Analyte Name	Result	LOQ	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)						
Perfluorobutane sulfonic acid (PFBS)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluoropentane sulfonic acid (PFPeS)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluorohexane sulfonic acid (PFHxS)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluorooctane sulfonic acid (PFOS)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluorononane sulfonic acid (PFNS)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluorodecane sulfonic acid (PFDS)	ND U	4.6	1	10/20/24 09:31	10/1/24	*
Perfluorododecane sulfonic acid (PFDoS)	ND U	4.6	1	10/20/24 09:31	10/1/24	*
Perfluoroalkyl Carboxylic Acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluoropentanoic acid (PFPeA)	ND U	4.6	1	10/20/24 09:31	10/1/24	*
Perfluorohexanoic acid (PFHxA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluoroheptanoic acid (PFHpA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluorooctanoic acid (PFOA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluorononanoic acid (PFNA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluorodecanoic acid (PFDA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluoroundecanoic acid (PFUnDA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluorododecanoic acid (PFDOA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluorotridecanoic acid (PFTrDA)	ND U	4.6	1	10/20/24 09:31	10/1/24	*
Perfluorotetradecanoic acid (PFTDA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluoroalkyl Sulfonamido Substances						
Perfluorooctane sulfonamide (PFOSAm)	ND U	4.6	1	10/20/24 09:31	10/1/24	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	4.6	1	10/20/24 09:31	10/1/24	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	4.6	1	10/20/24 09:31	10/1/24	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	4.6	1	10/20/24 09:31	10/1/24	*
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	4.6	1	10/20/24 09:31	10/1/24	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/11/24 14:10
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-5S-0911	**Units:**	ng/L
Lab Code:	K2409714-004	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Analyte Name	Result	LOQ	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)						
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	4.6	1	10/20/24 09:31	10/1/24	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	4.6	1	10/20/24 09:31	10/1/24	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Fluorotelomer Carboxylic Acids (FTCAs)						
4,4,5,5,6,6,6-Heptafluorohexanoic acid (3:3 FTCA)	ND U	190	1	10/20/24 09:31	10/1/24	*
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	ND U	190	1	10/20/24 09:31	10/1/24	*
2H,2H,3H,3H-Perfluorodecanoic acid (7:3 FTCA)	ND U	190	1	10/20/24 09:31	10/1/24	
Perfluoroalkyl Ether Sulfonic Acids (PFESAs)						
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	ND U	4.6	1	10/20/24 09:31	10/1/24	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)						
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	4.6	1	10/20/24 09:31	10/1/24	*
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND U	4.6	1	10/20/24 09:31	10/1/24	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	ND U	4.6	1	10/20/24 09:31	10/1/24	

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/11/24 14:10
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-5S-0911	**Units:**	ng/L
Lab Code:	K2409714-004	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	78	40 - 135	10/20/24 09:31	
13C3-PFHxS	95	40 - 130	10/20/24 09:31	
13C8-PFOS	86	40 - 130	10/20/24 09:31	
13C4-PFBA	90	5 - 130	10/20/24 09:31	
13C5-PFPeA	96	40 - 130	10/20/24 09:31	
13C5-PFHxA	113	40 - 130	10/20/24 09:31	
13C4-PFHpA	86	40 - 130	10/20/24 09:31	
13C8-PFOA	89	40 - 130	10/20/24 09:31	
13C9-PFNA	90	40 - 130	10/20/24 09:31	
13C6-PFDA	83	40 - 130	10/20/24 09:31	
13C7-PFUnDA	89	30 - 130	10/20/24 09:31	
13C2-PFDoDA	76	10 - 130	10/20/24 09:31	
13C2-PFTeDA	72	10 - 130	10/20/24 09:31	
13C8-FOSA	72	40 - 130	10/20/24 09:31	
D3-MeFOSA	75	10 - 130	10/20/24 09:31	
D5-EtFOSA	79	10 - 130	10/20/24 09:31	
D7-MeFOSE	72	10 - 130	10/20/24 09:31	
D9-EtFOSE	74	10 - 130	10/20/24 09:31	
D3-MeFOSAA	78	40 - 170	10/20/24 09:31	
D5-EtFOSAA	74	25 - 135	10/20/24 09:31	
13C2-4:2 FTS	116	40 - 200	10/20/24 09:31	
13C2-6:2 FTS	101	40 - 200	10/20/24 09:31	
13C2-8:2 FTS	68	40 - 300	10/20/24 09:31	
13C3-HFPO-DA	106	40 - 130	10/20/24 09:31	

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/11/24 11:20
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-6S-0911	**Units:**	ng/L
Lab Code:	K2409714-005	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Analyte Name	Result	LOQ	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)						
Perfluorobutane sulfonic acid (PFBS)	**6.6**	4.3	1	10/20/24 10:42	10/1/24	
Perfluoropentane sulfonic acid (PFPeS)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluorohexane sulfonic acid (PFHxS)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluorooctane sulfonic acid (PFOS)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluorononane sulfonic acid (PFNS)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluorodecane sulfonic acid (PFDS)	ND U	4.3	1	10/20/24 10:42	10/1/24	*
Perfluorododecane sulfonic acid (PFDoS)	ND U	4.3	1	10/20/24 10:42	10/1/24	*
Perfluoroalkyl Carboxylic Acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	**9.1**	4.3	1	10/20/24 10:42	10/1/24	
Perfluoropentanoic acid (PFPeA)	ND U	4.3	1	10/20/24 10:42	10/1/24	*
Perfluorohexanoic acid (PFHxA)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluoroheptanoic acid (PFHpA)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluorooctanoic acid (PFOA)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluorononanoic acid (PFNA)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluorodecanoic acid (PFDA)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluoroundecanoic acid (PFUnDA)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluorododecanoic acid (PFDOA)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluorotridecanoic acid (PFTrDA)	ND U	4.3	1	10/20/24 10:42	10/1/24	*
Perfluorotetradecanoic acid (PFTDA)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluoroalkyl Sulfonamido Substances						
Perfluorooctane sulfonamide (PFOSAm)	ND U	4.3	1	10/20/24 10:42	10/1/24	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	4.3	1	10/20/24 10:42	10/1/24	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	4.3	1	10/20/24 10:42	10/1/24	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	4.3	1	10/20/24 10:42	10/1/24	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	4.3	1	10/20/24 10:42	10/1/24	*
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	4.3	1	10/20/24 10:42	10/1/24	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	4.3	1	10/20/24 10:42	10/1/24	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/11/24 11:20
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-6S-0911	**Units:**	ng/L
Lab Code:	K2409714-005	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Analyte Name	Result	LOQ	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)						
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	4.3	1	10/20/24 10:42	10/1/24	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	4.3	1	10/20/24 10:42	10/1/24	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Fluorotelomer Carboxylic Acids (FTCAs)						
4,4,5,5,6,6,6-Heptafluorohexanoic acid (3:3 FTCA)	ND U	170	1	10/20/24 10:42	10/1/24	*
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	ND U	170	1	10/20/24 10:42	10/1/24	*
2H,2H,3H,3H-Perfluorodecanoic acid (7:3 FTCA)	ND U	170	1	10/20/24 10:42	10/1/24	
Perfluoroalkyl Ether Sulfonic Acids (PFESAs)						
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA)	ND U	4.3	1	10/20/24 10:42	10/1/24	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	ND U	4.3	1	10/20/24 10:42	10/1/24	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)						
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND U	4.3	1	10/20/24 10:42	10/1/24	
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	4.3	1	10/20/24 10:42	10/1/24	*
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND U	4.3	1	10/20/24 10:42	10/1/24	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	ND U	4.3	1	10/20/24 10:42	10/1/24	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/11/24 11:20
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-6S-0911	**Units:**	ng/L
Lab Code:	K2409714-005	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	87	40 - 135	10/20/24 10:42	
13C3-PFHxS	107	40 - 130	10/20/24 10:42	
13C8-PFOS	93	40 - 130	10/20/24 10:42	
13C4-PFBA	96	5 - 130	10/20/24 10:42	
13C5-PFPeA	111	40 - 130	10/20/24 10:42	
13C5-PFHxA	118	40 - 130	10/20/24 10:42	
13C4-PFHpA	101	40 - 130	10/20/24 10:42	
13C8-PFOA	95	40 - 130	10/20/24 10:42	
13C9-PFNA	91	40 - 130	10/20/24 10:42	
13C6-PFDA	91	40 - 130	10/20/24 10:42	
13C7-PFUnDA	93	30 - 130	10/20/24 10:42	
13C2-PFDoDA	94	10 - 130	10/20/24 10:42	
13C2-PFTeDA	97	10 - 130	10/20/24 10:42	
13C8-FOSA	79	40 - 130	10/20/24 10:42	
D3-MeFOSA	77	10 - 130	10/20/24 10:42	
D5-EtFOSA	87	10 - 130	10/20/24 10:42	
D7-MeFOSE	85	10 - 130	10/20/24 10:42	
D9-EtFOSE	79	10 - 130	10/20/24 10:42	
D3-MeFOSAA	89	40 - 170	10/20/24 10:42	
D5-EtFOSAA	77	25 - 135	10/20/24 10:42	
13C2-4:2 FTS	110	40 - 200	10/20/24 10:42	
13C2-6:2 FTS	101	40 - 200	10/20/24 10:42	
13C2-8:2 FTS	79	40 - 300	10/20/24 10:42	
13C3-HFPO-DA	129	40 - 130	10/20/24 10:42	

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/11/24 15:00
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-13S-0911	**Units:**	ng/L
Lab Code:	K2409714-006	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Analyte Name	Result	LOQ	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)						
Perfluorobutane sulfonic acid (PFBS)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluoropentane sulfonic acid (PFPeS)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluorohexane sulfonic acid (PFHxS)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluorooctane sulfonic acid (PFOS)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluorononane sulfonic acid (PFNS)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluorodecane sulfonic acid (PFDS)	ND U	4.9	1	10/20/24 11:06	10/1/24	*
Perfluorododecane sulfonic acid (PFDoS)	ND U	4.9	1	10/20/24 11:06	10/1/24	*
Perfluoroalkyl Carboxylic Acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluoropentanoic acid (PFPeA)	ND U	4.9	1	10/20/24 11:06	10/1/24	*
Perfluorohexanoic acid (PFHxA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluoroheptanoic acid (PFHpA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluorooctanoic acid (PFOA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluorononanoic acid (PFNA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluorodecanoic acid (PFDA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluoroundecanoic acid (PFUnDA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluorododecanoic acid (PFDOA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluorotridecanoic acid (PFTrDA)	ND U	4.9	1	10/20/24 11:06	10/1/24	*
Perfluorotetradecanoic acid (PFTDA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluoroalkyl Sulfonamido Substances						
Perfluorooctane sulfonamide (PFOSAm)	ND U	4.9	1	10/20/24 11:06	10/1/24	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	4.9	1	10/20/24 11:06	10/1/24	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	4.9	1	10/20/24 11:06	10/1/24	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	4.9	1	10/20/24 11:06	10/1/24	*
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	4.9	1	10/20/24 11:06	10/1/24	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/11/24 15:00
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-13S-0911	**Units:**	ng/L
Lab Code:	K2409714-006	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Analyte Name	Result	LOQ	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)						
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	4.9	1	10/20/24 11:06	10/1/24	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	4.9	1	10/20/24 11:06	10/1/24	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Fluorotelomer Carboxylic Acids (FTCAs)						
4,4,5,5,6,6,6-Heptafluorohexanoic acid (3:3 FTCA)	ND U	190	1	10/20/24 11:06	10/1/24	*
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	ND U	190	1	10/20/24 11:06	10/1/24	*
2H,2H,3H,3H-Perfluorodecanoic acid (7:3 FTCA)	ND U	190	1	10/20/24 11:06	10/1/24	
Perfluoroalkyl Ether Sulfonic Acids (PFESAs)						
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	ND U	4.9	1	10/20/24 11:06	10/1/24	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)						
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	4.9	1	10/20/24 11:06	10/1/24	*
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND U	4.9	1	10/20/24 11:06	10/1/24	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	ND U	4.9	1	10/20/24 11:06	10/1/24	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	09/11/24 15:00
Sample Matrix:	Water	**Date Received:**	09/17/24 09:10
Sample Name:	MW-13S-0911	**Units:**	ng/L
Lab Code:	K2409714-006	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	85	40 - 135	10/20/24 11:06	
13C3-PFHxS	104	40 - 130	10/20/24 11:06	
13C8-PFOS	85	40 - 130	10/20/24 11:06	
13C4-PFBA	91	5 - 130	10/20/24 11:06	
13C5-PFPeA	102	40 - 130	10/20/24 11:06	
13C5-PFHxA	111	40 - 130	10/20/24 11:06	
13C4-PFHpA	97	40 - 130	10/20/24 11:06	
13C8-PFOA	91	40 - 130	10/20/24 11:06	
13C9-PFNA	91	40 - 130	10/20/24 11:06	
13C6-PFDA	89	40 - 130	10/20/24 11:06	
13C7-PFUnDA	92	30 - 130	10/20/24 11:06	
13C2-PFDoDA	79	10 - 130	10/20/24 11:06	
13C2-PFTeDA	74	10 - 130	10/20/24 11:06	
13C8-FOSA	74	40 - 130	10/20/24 11:06	
D3-MeFOSA	74	10 - 130	10/20/24 11:06	
D5-EtFOSA	81	10 - 130	10/20/24 11:06	
D7-MeFOSE	70	10 - 130	10/20/24 11:06	
D9-EtFOSE	71	10 - 130	10/20/24 11:06	
D3-MeFOSAA	76	40 - 170	10/20/24 11:06	
D5-EtFOSAA	73	25 - 135	10/20/24 11:06	
13C2-4:2 FTS	110	40 - 200	10/20/24 11:06	
13C2-6:2 FTS	109	40 - 200	10/20/24 11:06	
13C2-8:2 FTS	73	40 - 300	10/20/24 11:06	
13C3-HFPO-DA	118	40 - 130	10/20/24 11:06	

QC Summary Forms

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

Organic Compounds by HPLC/MS/MS

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

Client: Onsite Environmental Incorporated **Service Request:** K2409714
Project: 09-159/553-8472-006
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Extraction Method: Method

Surrogate	Control Limits	MW-2S-0912 K2409714-001	MW-3S-0912 K2409714-002	MW-4S-0911 K2409714-003
13C3-PFBS	40-135	76	80	85
13C3-PFHxS	40-130	94	86	100
13C8-PFOS	40-130	95	83	84
13C4-PFBA	5-130	90	88	92
13C5-PFPeA	40-130	99	90	96
13C5-PFHxA	40-130	108	103	115
13C4-PFHpA	40-130	95	81	90
13C8-PFOA	40-130	89	82	92
13C9-PFNA	40-130	88	84	89
13C6-PFDA	40-130	84	84	94
13C7-PFUnDA	30-130	97	90	98
13C2-PFDoDA	10-130	86	79	85
13C2-PFTeDA	10-130	86	75	85
13C8-FOSA	40-130	76	68	73
D3-MeFOSA	10-130	82	70	73
D5-EtFOSA	10-130	88	73	81
D7-MeFOSE	10-130	83	72	79
D9-EtFOSE	10-130	81	71	77
D3-MeFOSAA	40-170	91	74	79
D5-EtFOSAA	25-135	78	65	74
13C2-4:2 FTS	40-200	100	102	121
13C2-6:2 FTS	40-200	89	85	113
13C2-8:2 FTS	40-300	73	66	81
13C3-HFPO-DA	40-130	119	109	113

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Onsite Environmental Incorporated **Service Request:** K2409714
Project: 09-159/553-8472-006
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Extraction Method: Method

Surrogate	Control Limits	MW-5S-0911 K2409714-004	MW-6S-0911 K2409714-005	MW-13S-0911 K2409714-006
13C3-PFBS	40-135	78	87	85
13C3-PFHxS	40-130	95	107	104
13C8-PFOS	40-130	86	93	85
13C4-PFBA	5-130	90	96	91
13C5-PFPeA	40-130	96	111	102
13C5-PFHxA	40-130	113	118	111
13C4-PFHpA	40-130	86	101	97
13C8-PFOA	40-130	89	95	91
13C9-PFNA	40-130	90	91	91
13C6-PFDA	40-130	83	91	89
13C7-PFUnDA	30-130	89	93	92
13C2-PFDoDA	10-130	76	94	79
13C2-PFTeDA	10-130	72	97	74
13C8-FOSA	40-130	72	79	74
D3-MeFOSA	10-130	75	77	74
D5-EtFOSA	10-130	79	87	81
D7-MeFOSE	10-130	72	85	70
D9-EtFOSE	10-130	74	79	71
D3-MeFOSAA	40-170	78	89	76
D5-EtFOSAA	25-135	74	77	73
13C2-4:2 FTS	40-200	116	110	110
13C2-6:2 FTS	40-200	101	101	109
13C2-8:2 FTS	40-300	68	79	73
13C3-HFPO-DA	40-130	106	129	118

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Onsite Environmental Incorporated **Service Request:** K2409714
Project: 09-159/553-8472-006
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Extraction Method: Method

Surrogate	Control Limits	Method Blank KQ2415760-04	Lab Control Sample KQ2415760-01	Duplicate Lab Control Sample KQ2415760-02
13C3-PFBS	40-135	72	82	77
13C3-PFHxS	40-130	92	96	95
13C8-PFOS	40-130	92	95	95
13C4-PFBA	5-130	90	92	91
13C5-PFPeA	40-130	96	87	104
13C5-PFHxA	40-130	102	105	103
13C4-PFHpA	40-130	86	81	90
13C8-PFOA	40-130	89	93	90
13C9-PFNA	40-130	87	90	84
13C6-PFDA	40-130	87	91	84
13C7-PFUnDA	30-130	96	105	72
13C2-PFDoDA	10-130	90	92	43
13C2-PFTeDA	10-130	77	87	23
13C8-FOSA	40-130	70	74	69
D3-MeFOSA	10-130	73	79	71
D5-EtFOSA	10-130	79	86	81
D7-MeFOSE	10-130	75	81	80
D9-EtFOSE	10-130	73	80	77
D3-MeFOSAA	40-170	84	92	60
D5-EtFOSAA	25-135	73	82	50
13C2-4:2 FTS	40-200	103	118	105
13C2-6:2 FTS	40-200	93	109	105
13C2-8:2 FTS	40-300	73	82	74
13C3-HFPO-DA	40-130	109	105	102

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Onsite Environmental Incorporated **Service Request:** K2409714
Project: 09-159/553-8472-006
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Extraction Method: Method

Surrogate	Control Limits	Low Level Lab Control Sample KQ2415760-03
13C3-PFBS	40-135	83
13C3-PFHxS	40-130	97
13C8-PFOS	40-130	95
13C4-PFBA	5-130	103
13C5-PFPeA	40-130	102
13C5-PFHxA	40-130	113
13C4-PFHpA	40-130	91
13C8-PFOA	40-130	104
13C9-PFNA	40-130	95
13C6-PFDA	40-130	95
13C7-PFUnDA	30-130	92
13C2-PFDoDA	10-130	66
13C2-PFTeDA	10-130	30
13C8-FOSA	40-130	80
D3-MeFOSA	10-130	86
D5-EtFOSA	10-130	90
D7-MeFOSE	10-130	86
D9-EtFOSE	10-130	88
D3-MeFOSAA	40-170	87
D5-EtFOSAA	25-135	72
13C2-4:2 FTS	40-200	112
13C2-6:2 FTS	40-200	109
13C2-8:2 FTS	40-300	82
13C3-HFPO-DA	40-130	119

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ2415760-04	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Analyte Name	Result	LOQ	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)						
Perfluorobutane sulfonic acid (PFBS)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluoropentane sulfonic acid (PFPeS)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluorohexane sulfonic acid (PFHxS)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluorooctane sulfonic acid (PFOS)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluorononane sulfonic acid (PFNS)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluorodecane sulfonic acid (PFDS)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluorododecane sulfonic acid (PFDoS)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluoroalkyl Carboxylic Acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluoropentanoic acid (PFPeA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluorohexanoic acid (PFHxA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluoroheptanoic acid (PFHpA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluorooctanoic acid (PFOA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluorononanoic acid (PFNA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluorodecanoic acid (PFDA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluoroundecanoic acid (PFUnDA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluorododecanoic acid (PFDOA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluorotridecanoic acid (PFTrDA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluorotetradecanoic acid (PFTDA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluoroalkyl Sulfonamido Substances						
Perfluorooctane sulfonamide (PFOSAm)	ND U	5.0	1	10/20/24 05:57	10/1/24	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	5.0	1	10/20/24 05:57	10/1/24	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	5.0	1	10/20/24 05:57	10/1/24	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	5.0	1	10/20/24 05:57	10/1/24	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	5.0	1	10/20/24 05:57	10/1/24	

Analytical Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ2415760-04	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Analyte Name	Result	LOQ	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)						
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	5.0	1	10/20/24 05:57	10/1/24	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	5.0	1	10/20/24 05:57	10/1/24	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Fluorotelomer Carboxylic Acids (FTCAs)						
4,4,5,5,6,6,6-Heptafluorohexanoic acid (3:3 FTCA)	ND U	200	1	10/20/24 05:57	10/1/24	
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	ND U	200	1	10/20/24 05:57	10/1/24	
2H,2H,3H,3H-Perfluorodecanoic acid (7:3 FTCA)	ND U	200	1	10/20/24 05:57	10/1/24	
Perfluoroalkyl Ether Sulfonic Acids (PFESAs)						
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	ND U	5.0	1	10/20/24 05:57	10/1/24	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)						
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	5.0	1	10/20/24 05:57	10/1/24	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND U	5.0	1	10/20/24 05:57	10/1/24	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	ND U	5.0	1	10/20/24 05:57	10/1/24	

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ2415760-04	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method: Draft EPA Method 1633
Prep Method: Method

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	72	40 - 135	10/20/24 05:57	
13C3-PFHxS	92	40 - 130	10/20/24 05:57	
13C8-PFOS	92	40 - 130	10/20/24 05:57	
13C4-PFBA	90	5 - 130	10/20/24 05:57	
13C5-PFPeA	96	40 - 130	10/20/24 05:57	
13C5-PFHxA	102	40 - 130	10/20/24 05:57	
13C4-PFHpA	86	40 - 130	10/20/24 05:57	
13C8-PFOA	89	40 - 130	10/20/24 05:57	
13C9-PFNA	87	40 - 130	10/20/24 05:57	
13C6-PFDA	87	40 - 130	10/20/24 05:57	
13C7-PFUnDA	96	30 - 130	10/20/24 05:57	
13C2-PFDoDA	90	10 - 130	10/20/24 05:57	
13C2-PFTeDA	77	10 - 130	10/20/24 05:57	
13C8-FOSA	70	40 - 130	10/20/24 05:57	
D3-MeFOSA	73	10 - 130	10/20/24 05:57	
D5-EtFOSA	79	10 - 130	10/20/24 05:57	
D7-MeFOSE	75	10 - 130	10/20/24 05:57	
D9-EtFOSE	73	10 - 130	10/20/24 05:57	
D3-MeFOSAA	84	40 - 170	10/20/24 05:57	
D5-EtFOSAA	73	25 - 135	10/20/24 05:57	
13C2-4:2 FTS	103	40 - 200	10/20/24 05:57	
13C2-6:2 FTS	93	40 - 200	10/20/24 05:57	
13C2-8:2 FTS	73	40 - 300	10/20/24 05:57	
13C3-HFPO-DA	109	40 - 130	10/20/24 05:57	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Analyzed:**	10/20/24
Sample Matrix:	Water	**Date Extracted:**	10/01/24

Lab Control Sample Summary
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method:	Draft EPA Method 1633	**Units:**	ng/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	858331

Low Level Lab Control Sample
KQ2415760-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	6.60	9.43	70	55-160
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	12.6	9.60	131	60-150
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	11.4	9.37	121	70-145
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	11.3	9.51	119	65-155
2H,2H,3H,3H-Perfluorodecanoic acid (7:3 FTCA)	344	300	115	50-145
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	376	300	125	70-135
4,4,5,5,6,6,6-Heptafluorohexanoic acid (3:3 FTCA)	451	300	150 *	65-130
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	10.1	9.45	107	65-145
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	9.05	9.33	97	70-155
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	9.87	10.0	99	70-140
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	9.39	10.0	94	65-145
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	12.6	10.0	126	70-145
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	15.2	10.0	152 *	70-135
N-Methylperfluorooctane sulfonamide (MeFOSA)	13.5	10.0	135	60-150
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	12.5	10.0	125	50-140
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	14.8	10.0	148 *	70-145
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	13.7	10.0	137	50-150
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA)	11.4	8.90	128	70-140
Perfluoro-3-methoxypropanoic acid (PFMPA)	12.7	10.0	127	55-140
Perfluoro-4-methoxybutanoic acid (PFMBA)	11.6	10.0	116	60-150
Perfluorobutane sulfonic acid (PFBS)	11.4	8.87	129	60-145
Perfluorobutanoic acid (PFBA)	12.9	10.0	129	70-140
Perfluorodecane sulfonic acid (PFDS)	9.00	9.65	93	60-145
Perfluorodecanoic acid (PFDA)	13.9	10.0	139	70-140
Perfluorododecane sulfonic acid (PFDoS)	3.87 J	9.70	40 *	50-145
Perfluorododecanoic acid (PFDOA)	11.7	10.0	117	70-140
Perfluoroheptane sulfonic acid (PFHpS)	13.0	9.53	136	70-150
Perfluoroheptanoic acid (PFHpA)	13.6	10.0	136	70-150
Perfluorohexane sulfonic acid (PFHxS)	11.0	9.14	121	65-145
Perfluorohexanoic acid (PFHxA)	10.7	10.0	107	70-145
Perfluorononane sulfonic acid (PFNS)	14.1	9.62	147 *	65-145

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Analyzed:**	10/20/24
Sample Matrix:	Water	**Date Extracted:**	10/01/24

Lab Control Sample Summary
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method:	Draft EPA Method 1633	**Units:**	ng/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	858331

Low Level Lab Control Sample
KQ2415760-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Perfluorononanoic acid (PFNA)	13.5	10.0	135	70-150
Perfluorooctane sulfonamide (PFOSAm)	13.1	10.0	131	70-145
Perfluorooctane sulfonic acid (PFOS)	13.8	9.28	149	55-150
Perfluorooctanoic acid (PFOA)	12.2	10.0	122	70-150
Perfluoropentane sulfonic acid (PFPeS)	12.3	9.41	131	65-140
Perfluoropentanoic acid (PFPeA)	13.4	10.0	134	65-135
Perfluorotetradecanoic acid (PFTDA)	14.4	10.0	144 *	60-140
Perfluorotridecanoic acid (PFTrDA)	20.7	10.0	207 *	65-140
Perfluoroundecanoic acid (PFUnDA)	11.1	10.0	111	70-145

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Analyzed:**	10/20/24 - 10/24/24
Sample Matrix:	Water	**Date Extracted:**	10/01/24

Duplicate Lab Control Sample Summary

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method:	Draft EPA Method 1633	**Units:**	ng/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	858331

	Lab Control Sample KQ2415760-01			Duplicate Lab Control Sample KQ2415760-02					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-Cl-PF3OUdS)	18.2	18.9	97	10.5	18.9	56	55-160	54 *	30
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	26.0	19.2	136	25.1	19.2	131	60-150	4	30
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	23.4	18.7	125	21.5	18.7	115	70-145	8	30
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	25.8	19.0	135	23.5	19.0	124	65-155	9	30
2H,2H,3H,3H-Perfluorodecanoic acid (7:3 FTCA)	427	400	107	475	400	119	50-145	11	30
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	498	400	125	564	400	141 *	70-135	12	30
4,4,5,5,6,6,6-Heptafluorohexanoic acid (3:3 FTCA)	601	400	150 *	593	400	148 *	65-130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	20.0	18.9	106	19.8	18.9	105	65-145	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	16.8	18.7	90	19.2	18.7	103	70-155	13	30
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	22.4	20.0	112	33.1	20.0	165 *	70-140	38 *	30
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	19.6	20.0	98	18.8	20.0	94	65-145	4	30
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	24.1	20.0	120	24.0	20.0	120	70-145	<1	30
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	32.4	20.0	162 *	30.9	20.0	154 *	70-135	5	30
N-Methylperfluorooctane sulfonamide (MeFOSA)	27.7	20.0	139	27.8	20.0	139	60-150	<1	30
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	23.7	20.0	119	22.1	20.0	110	50-140	7	30
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	28.7	20.0	143	27.2	20.0	136	70-145	5	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	25.5	20.0	128	27.1	20.0	136	50-150	6	30
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA)	20.6	17.8	115	22.4	17.8	126	70-140	9	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	26.3	20.0	132	23.9	20.0	119	55-140	10	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	23.9	20.0	119	22.2	20.0	111	60-150	7	30
Perfluorobutane sulfonic acid (PFBS)	21.5	17.7	121	21.3	17.7	120	60-145	1	30

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Onsite Environmental Incorporated	**Service Request:**	K2409714
Project:	09-159/553-8472-006	**Date Analyzed:**	10/20/24 - 10/24/24
Sample Matrix:	Water	**Date Extracted:**	10/01/24

Duplicate Lab Control Sample Summary

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS Compliant with Table B-24 of DOD QSM 5.4

Analysis Method:	Draft EPA Method 1633	**Units:**	ng/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	858331

	Lab Control Sample KQ2415760-01			Duplicate Lab Control Sample KQ2415760-02					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perfluorobutanoic acid (PFBA)	24.8	20.0	124	23.6	20.0	118	70-140	5	30
Perfluorodecane sulfonic acid (PFDS)	23.5	19.3	122	11.1	19.3	58 *	60-145	71 *	30
Perfluorodecanoic acid (PFDA)	27.6	20.0	138	26.2	20.0	131	70-140	5	30
Perfluorododecane sulfonic acid (PFDoS)	16.2	19.4	83	4.46 J	19.4	23 *	50-145	113 *	30
Perfluorododecanoic acid (PFDOA)	24.7	20.0	124	21.9	20.0	110	70-140	12	30
Perfluoroheptane sulfonic acid (PFHpS)	23.6	19.1	124	20.1	19.1	106	70-150	16	30
Perfluoroheptanoic acid (PFHpA)	26.7	20.0	134	25.4	20.0	127	70-150	5	30
Perfluorohexane sulfonic acid (PFHxS)	24.6	18.3	135	20.2	18.3	111	65-145	20	30
Perfluorohexanoic acid (PFHxA)	21.8	20.0	109	22.4	20.0	112	70-145	3	30
Perfluorononane sulfonic acid (PFNS)	27.1	19.2	141	18.8	19.2	97	65-145	36 *	30
Perfluorononanoic acid (PFNA)	28.6	20.0	143	26.8	20.0	134	70-150	7	30
Perfluorooctane sulfonamide (PFOSAm)	26.6	20.0	133	25.2	20.0	126	70-145	5	30
Perfluorooctane sulfonic acid (PFOS)	25.2	18.6	136	21.8	18.6	117	55-150	15	30
Perfluorooctanoic acid (PFOA)	29.1	20.0	146	22.0	20.0	110	70-150	28	30
Perfluoropentane sulfonic acid (PFPeS)	25.5	18.8	136	22.2	18.8	118	65-140	14	30
Perfluoropentanoic acid (PFPeA)	27.2	20.0	136 *	26.3	20.0	132	65-135	3	30
Perfluorotetradecanoic acid (PFTDA)	23.5	20.0	118	23.7	20.0	119	60-140	<1	30
Perfluorotridecanoic acid (PFTrDA)	27.1	20.0	135	29.7	20.0	149 *	65-140	9	30
Perfluoroundecanoic acid (PFUnDA)	23.5	20.0	117	24.0	20.0	120	70-145	2	30

October 18, 2024

Enthalpy Analytical - El Dorado Hills
Work Order No. 2409159

Mr. David Baumeister
OnSite Environmental Inc.
14648 NE 95th Street
Redmond, WA 98052

Dear Mr. Baumeister,

Enclosed are the results for the sample set received at Enthalpy Analytical - EDH on September 17, 2024 under your Project Name '553-8472-006'.

Enthalpy Analytical - EDH is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at kathy.zipp@enthalpy.com.

Thank you for choosing Enthalpy Analytical - EDH as part of your analytical support team.

Sincerely,

Kathy Zipp
Project Manager

Enthalpy Analytical - EDH Work Order No. 2409159
Case Narrative

Sample Condition on Receipt:

Six water samples were received and stored securely in accordance with Enthalpy Analytical - EDH standard operating procedures and EPA methodology. The samples were received in good condition and within the method temperature requirements.

Analytical Notes:

EPA Method 1613B

The samples were extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 1613B using a ZB-DIOXIN GC column.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limit in the Method Blank. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2409159-01	MW-2S-0912	12-Sep-24 10:50	17-Sep-24 11:46	Amber Glass NM Bottle, 1L
				Amber Glass NM Bottle, 1L
2409159-02	MW-3S-0912	12-Sep-24 09:00	17-Sep-24 11:46	Amber Glass NM Bottle, 1L
				Amber Glass NM Bottle, 1L
2409159-03	MW-4S-0911	11-Sep-24 09:30	17-Sep-24 11:46	Amber Glass NM Bottle, 1L
				Amber Glass NM Bottle, 1L
2409159-04	MW-5S-0911	11-Sep-24 14:10	17-Sep-24 11:46	Amber Glass NM Bottle, 1L
				Amber Glass NM Bottle, 1L
2409159-05	MW-6S-0911	11-Sep-24 11:20	17-Sep-24 11:46	Amber Glass NM Bottle, 1L
				Amber Glass NM Bottle, 1L
2409159-06	MW-13S-0911	11-Sep-24 15:00	17-Sep-24 11:46	Amber Glass NM Bottle, 1L
				Amber Glass NM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank **EPA Method 1613B**

Client Data
Name: OnSite Environmental Inc.
Project: 553-8472-006
Matrix: Aqueous

Laboratory Data
Lab Sample: B24J053-BLK1
QC Batch: B24J053 Date Extracted: 07-Oct-24
Sample Size: 1.00 L Column: ZB-DIOXIN

Analyte	Conc. (pg/L)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	1.06			14-Oct-24 11:42	1
1,2,3,7,8-PeCDD	ND	1.57			14-Oct-24 11:42	1
1,2,3,4,7,8-HxCDD	ND	1.93			14-Oct-24 11:42	1
1,2,3,6,7,8-HxCDD	ND	1.86			14-Oct-24 11:42	1
1,2,3,7,8,9-HxCDD	ND	2.29			14-Oct-24 11:42	1
1,2,3,4,6,7,8-HpCDD	ND	2.26			14-Oct-24 11:42	1
OCDD	ND		12.8		14-Oct-24 11:42	1
2,3,7,8-TCDF	ND	0.794			14-Oct-24 11:42	1
1,2,3,7,8-PeCDF	ND	0.982			14-Oct-24 11:42	1
2,3,4,7,8-PeCDF	ND	0.849			14-Oct-24 11:42	1
1,2,3,4,7,8-HxCDF	ND	0.878			14-Oct-24 11:42	1
1,2,3,6,7,8-HxCDF	ND	0.904			14-Oct-24 11:42	1
2,3,4,6,7,8-HxCDF	ND	0.967			14-Oct-24 11:42	1
1,2,3,7,8,9-HxCDF	ND	1.24			14-Oct-24 11:42	1
1,2,3,4,6,7,8-HpCDF	ND	1.08			14-Oct-24 11:42	1
1,2,3,4,7,8,9-HpCDF	ND	1.61			14-Oct-24 11:42	1
OCDF	ND	2.76			14-Oct-24 11:42	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.00					
Totals						
Total TCDD	ND	1.06				
Total PeCDD	ND	1.57				
Total HxCDD	ND	2.29				
Total HpCDD	ND	2.26				
Total TCDF	ND	0.794				
Total PeCDF	ND	0.982				
Total HxCDF	ND	1.24				
Total HpCDF	ND	1.61				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	80.1	25 - 164		14-Oct-24 11:42	1
13C-1,2,3,7,8-PeCDD	IS	82.8	25 - 181		14-Oct-24 11:42	1
13C-1,2,3,4,7,8-HxCDD	IS	81.0	32 - 141		14-Oct-24 11:42	1
13C-1,2,3,6,7,8-HxCDD	IS	86.7	28 - 130		14-Oct-24 11:42	1
13C-1,2,3,7,8,9-HxCDD	IS	81.2	32 - 141		14-Oct-24 11:42	1
13C-1,2,3,4,6,7,8-HpCDD	IS	80.8	23 - 140		14-Oct-24 11:42	1
13C-OCDD	IS	72.1	17 - 157		14-Oct-24 11:42	1
13C-2,3,7,8-TCDF	IS	89.7	24 - 169		14-Oct-24 11:42	1
13C-1,2,3,7,8-PeCDF	IS	105	24 - 185		14-Oct-24 11:42	1
13C-2,3,4,7,8-PeCDF	IS	106	21 - 178		14-Oct-24 11:42	1
13C-1,2,3,4,7,8-HxCDF	IS	79.5	26 - 152		14-Oct-24 11:42	1
13C-1,2,3,6,7,8-HxCDF	IS	77.9	26 - 123		14-Oct-24 11:42	1
13C-2,3,4,6,7,8-HxCDF	IS	79.8	28 - 136		14-Oct-24 11:42	1
13C-1,2,3,7,8,9-HxCDF	IS	83.3	29 - 147		14-Oct-24 11:42	1
13C-1,2,3,4,6,7,8-HpCDF	IS	78.9	28 - 143		14-Oct-24 11:42	1
13C-1,2,3,4,7,8,9-HpCDF	IS	84.8	26 - 138		14-Oct-24 11:42	1
13C-OCDF	IS	72.3	17 - 157		14-Oct-24 11:42	1
37Cl-2,3,7,8-TCDD	CRS	84.7	35 - 197		14-Oct-24 11:42	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: OPR **EPA Method 1613B**

Client Data
Name: OnSite Environmental Inc.
Project: 553-8472-006
Matrix: Aqueous

Laboratory Data
Lab Sample: B24J053-BS1
QC Batch: B24J053 Date Extracted: 07-Oct-24 14:13
Sample Size: 1.00 L Column: ZB-DIOXIN

Analyte	Amt Found (pg/L)	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	201	200	101	67-158		11-Oct-24 13:48	1
1,2,3,7,8-PeCDD	1060	1000	106	70-142		11-Oct-24 13:48	1
1,2,3,4,7,8-HxCDD	975	1000	97.5	70-164		11-Oct-24 13:48	1
1,2,3,6,7,8-HxCDD	976	1000	97.6	76-134		11-Oct-24 13:48	1
1,2,3,7,8,9-HxCDD	931	1000	93.1	64-162		11-Oct-24 13:48	1
1,2,3,4,6,7,8-HpCDD	1070	1000	107	70-140		11-Oct-24 13:48	1
OCDD	2340	2000	117	78-144		11-Oct-24 13:48	1
2,3,7,8-TCDF	181	200	90.7	75-158		11-Oct-24 13:48	1
1,2,3,7,8-PeCDF	1000	1000	100	80-134		11-Oct-24 13:48	1
2,3,4,7,8-PeCDF	1010	1000	101	68-160		11-Oct-24 13:48	1
1,2,3,4,7,8-HxCDF	1030	1000	103	72-134		11-Oct-24 13:48	1
1,2,3,6,7,8-HxCDF	1040	1000	104	84-130		11-Oct-24 13:48	1
2,3,4,6,7,8-HxCDF	1020	1000	102	70-156		11-Oct-24 13:48	1
1,2,3,7,8,9-HxCDF	1020	1000	102	78-130		11-Oct-24 13:48	1
1,2,3,4,6,7,8-HpCDF	1020	1000	102	82-122		11-Oct-24 13:48	1
1,2,3,4,7,8,9-HpCDF	1020	1000	102	78-138		11-Oct-24 13:48	1
OCDF	2080	2000	104	63-170		11-Oct-24 13:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	81.4	20-175		11-Oct-24 13:48	1
13C-1,2,3,7,8-PeCDD	IS	84.4	21-227		11-Oct-24 13:48	1
13C-1,2,3,4,7,8-HxCDD	IS	89.7	21-193		11-Oct-24 13:48	1
13C-1,2,3,6,7,8-HxCDD	IS	94.9	25-163		11-Oct-24 13:48	1
13C-1,2,3,7,8,9-HxCDD	IS	90.4	21-193		11-Oct-24 13:48	1
13C-1,2,3,4,6,7,8-HpCDD	IS	70.1	26-166		11-Oct-24 13:48	1
13C-OCDD	IS	43.1	13-199		11-Oct-24 13:48	1
13C-2,3,7,8-TCDF	IS	92.2	22-152		11-Oct-24 13:48	1
13C-1,2,3,7,8-PeCDF	IS	98.1	21-192		11-Oct-24 13:48	1
13C-2,3,4,7,8-PeCDF	IS	97.7	13-328		11-Oct-24 13:48	1
13C-1,2,3,4,7,8-HxCDF	IS	89.1	19-202		11-Oct-24 13:48	1
13C-1,2,3,6,7,8-HxCDF	IS	88.9	21-159		11-Oct-24 13:48	1
13C-2,3,4,6,7,8-HxCDF	IS	84.9	22-176		11-Oct-24 13:48	1
13C-1,2,3,7,8,9-HxCDF	IS	79.1	17-205		11-Oct-24 13:48	1
13C-1,2,3,4,6,7,8-HpCDF	IS	79.3	21-158		11-Oct-24 13:48	1
13C-1,2,3,4,7,8,9-HpCDF	IS	69.7	20-186		11-Oct-24 13:48	1
13C-OCDF	IS	42.7	13-199		11-Oct-24 13:48	1
37Cl-2,3,7,8-TCDD	CRS	90.3	31-191		11-Oct-24 13:48	1

Sample ID: MW-2S-0912 **EPA Method 1613B**

Client Data
Name: OnSite Environmental Inc.
Project: 553-8472-006
Matrix: Water
Date Collected: 12-Sep-24 10:50

Laboratory Data
Lab Sample: 2409159-01
QC Batch: B24J053
Sample Size: 1.04 L
Date Received: 17-Sep-24 11:46
Date Extracted: 07-Oct-24
Column: ZB-DIOXIN

Analyte	Conc. (pg/L)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.797			14-Oct-24 12:28	1
1,2,3,7,8-PeCDD	ND	0.959			14-Oct-24 12:28	1
1,2,3,4,7,8-HxCDD	ND	1.28			14-Oct-24 12:28	1
1,2,3,6,7,8-HxCDD	ND	1.30			14-Oct-24 12:28	1
1,2,3,7,8,9-HxCDD	ND	1.44			14-Oct-24 12:28	1
1,2,3,4,6,7,8-HpCDD	ND	1.90			14-Oct-24 12:28	1
OCDD	2.60			J	14-Oct-24 12:28	1
2,3,7,8-TCDF	ND	0.652			14-Oct-24 12:28	1
1,2,3,7,8-PeCDF	ND	0.585			14-Oct-24 12:28	1
2,3,4,7,8-PeCDF	ND	0.548			14-Oct-24 12:28	1
1,2,3,4,7,8-HxCDF	ND	0.685			14-Oct-24 12:28	1
1,2,3,6,7,8-HxCDF	ND	0.736			14-Oct-24 12:28	1
2,3,4,6,7,8-HxCDF	ND	0.743			14-Oct-24 12:28	1
1,2,3,7,8,9-HxCDF	ND	1.05			14-Oct-24 12:28	1
1,2,3,4,6,7,8-HpCDF	ND	0.835			14-Oct-24 12:28	1
1,2,3,4,7,8,9-HpCDF	ND	1.33			14-Oct-24 12:28	1
OCDF	ND	1.83			14-Oct-24 12:28	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.000780					
Totals						
Total TCDD	ND	0.797				
Total PeCDD	ND	0.959				
Total HxCDD	ND	1.44				
Total HpCDD	ND	1.90				
Total TCDF	ND	0.652				
Total PeCDF	ND	0.585				
Total HxCDF	ND	1.05				
Total HpCDF	ND	1.33				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	88.2	25 - 164		14-Oct-24 12:28	1
13C-1,2,3,7,8-PeCDD	IS	88.2	25 - 181		14-Oct-24 12:28	1
13C-1,2,3,4,7,8-HxCDD	IS	92.8	32 - 141		14-Oct-24 12:28	1
13C-1,2,3,6,7,8-HxCDD	IS	93.1	28 - 130		14-Oct-24 12:28	1
13C-1,2,3,7,8,9-HxCDD	IS	92.0	32 - 141		14-Oct-24 12:28	1
13C-1,2,3,4,6,7,8-HpCDD	IS	91.3	23 - 140		14-Oct-24 12:28	1
13C-OCDD	IS	85.8	17 - 157		14-Oct-24 12:28	1
13C-2,3,7,8-TCDF	IS	94.0	24 - 169		14-Oct-24 12:28	1
13C-1,2,3,7,8-PeCDF	IS	107	24 - 185		14-Oct-24 12:28	1
13C-2,3,4,7,8-PeCDF	IS	100	21 - 178		14-Oct-24 12:28	1
13C-1,2,3,4,7,8-HxCDF	IS	90.9	26 - 152		14-Oct-24 12:28	1
13C-1,2,3,6,7,8-HxCDF	IS	92.0	26 - 123		14-Oct-24 12:28	1
13C-2,3,4,6,7,8-HxCDF	IS	93.6	28 - 136		14-Oct-24 12:28	1
13C-1,2,3,7,8,9-HxCDF	IS	92.0	29 - 147		14-Oct-24 12:28	1
13C-1,2,3,4,6,7,8-HpCDF	IS	94.2	28 - 143		14-Oct-24 12:28	1
13C-1,2,3,4,7,8,9-HpCDF	IS	96.7	26 - 138		14-Oct-24 12:28	1
13C-OCDF	IS	90.7	17 - 157		14-Oct-24 12:28	1
37Cl-2,3,7,8-TCDD	CRS	86.0	35 - 197		14-Oct-24 12:28	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: MW-3S-0912 **EPA Method 1613B**

Client Data
Name: OnSite Environmental Inc.
Project: 553-8472-006
Matrix: Water
Date Collected: 12-Sep-24 09:00

Laboratory Data
Lab Sample: 2409159-02
QC Batch: B24J053
Sample Size: 1.03 L
Date Received: 17-Sep-24 11:46
Date Extracted: 07-Oct-24
Column: ZB-DIOXIN

Analyte	Conc. (pg/L)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	1.92			14-Oct-24 13:15	1
1,2,3,7,8-PeCDD	ND	2.10			14-Oct-24 13:15	1
1,2,3,4,7,8-HxCDD	ND	1.72			14-Oct-24 13:15	1
1,2,3,6,7,8-HxCDD	ND	2.20			14-Oct-24 13:15	1
1,2,3,7,8,9-HxCDD	ND	2.55			14-Oct-24 13:15	1
1,2,3,4,6,7,8-HpCDD	3.83			J	14-Oct-24 13:15	1
OCDD	21.7			J	14-Oct-24 13:15	1
2,3,7,8-TCDF	ND	1.31			14-Oct-24 13:15	1
1,2,3,7,8-PeCDF	ND	1.27			14-Oct-24 13:15	1
2,3,4,7,8-PeCDF	ND	1.25			14-Oct-24 13:15	1
1,2,3,4,7,8-HxCDF	ND	1.36			14-Oct-24 13:15	1
1,2,3,6,7,8-HxCDF	ND	1.47			14-Oct-24 13:15	1
2,3,4,6,7,8-HxCDF	ND	1.59			14-Oct-24 13:15	1
1,2,3,7,8,9-HxCDF	ND	2.09			14-Oct-24 13:15	1
1,2,3,4,6,7,8-HpCDF	ND	1.59			14-Oct-24 13:15	1
1,2,3,4,7,8,9-HpCDF	ND	1.78			14-Oct-24 13:15	1
OCDF	4.02			J	14-Oct-24 13:15	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.0460					
Totals						
Total TCDD	ND	1.92				
Total PeCDD	ND	2.10				
Total HxCDD	ND	2.55				
Total HpCDD	7.14			J		
Total TCDF	ND	1.31				
Total PeCDF	ND	1.27				
Total HxCDF	ND	2.09				
Total HpCDF	ND	1.78				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	77.1	25 - 164		14-Oct-24 13:15	1
13C-1,2,3,7,8-PeCDD	IS	80.6	25 - 181		14-Oct-24 13:15	1
13C-1,2,3,4,7,8-HxCDD	IS	97.4	32 - 141		14-Oct-24 13:15	1
13C-1,2,3,6,7,8-HxCDD	IS	77.3	28 - 130		14-Oct-24 13:15	1
13C-1,2,3,7,8,9-HxCDD	IS	81.0	32 - 141		14-Oct-24 13:15	1
13C-1,2,3,4,6,7,8-HpCDD	IS	102	23 - 140		14-Oct-24 13:15	1
13C-OCDD	IS	106	17 - 157		14-Oct-24 13:15	1
13C-2,3,7,8-TCDF	IS	90.7	24 - 169		14-Oct-24 13:15	1
13C-1,2,3,7,8-PeCDF	IS	114	24 - 185		14-Oct-24 13:15	1
13C-2,3,4,7,8-PeCDF	IS	107	21 - 178		14-Oct-24 13:15	1
13C-1,2,3,4,7,8-HxCDF	IS	79.7	26 - 152		14-Oct-24 13:15	1
13C-1,2,3,6,7,8-HxCDF	IS	76.8	26 - 123		14-Oct-24 13:15	1
13C-2,3,4,6,7,8-HxCDF	IS	79.3	28 - 136		14-Oct-24 13:15	1
13C-1,2,3,7,8,9-HxCDF	IS	77.4	29 - 147		14-Oct-24 13:15	1
13C-1,2,3,4,6,7,8-HpCDF	IS	78.8	28 - 143		14-Oct-24 13:15	1
13C-1,2,3,4,7,8,9-HpCDF	IS	115	26 - 138		14-Oct-24 13:15	1
13C-OCDF	IS	107	17 - 157		14-Oct-24 13:15	1
37Cl-2,3,7,8-TCDD	CRS	71.2	35 - 197		14-Oct-24 13:15	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: MW-4S-0911 **EPA Method 1613B**

Client Data
Name: OnSite Environmental Inc.
Project: 553-8472-006
Matrix: Water
Date Collected: 11-Sep-24 09:30

Laboratory Data
Lab Sample: 2409159-03
QC Batch: B24J053
Sample Size: 1.01 L
Date Received: 17-Sep-24 11:46
Date Extracted: 07-Oct-24
Column: ZB-DIOXIN

Analyte	Conc. (pg/L)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	1.18			14-Oct-24 14:02	1
1,2,3,7,8-PeCDD	ND	2.00			14-Oct-24 14:02	1
1,2,3,4,7,8-HxCDD	ND	1.60			14-Oct-24 14:02	1
1,2,3,6,7,8-HxCDD	ND	1.93			14-Oct-24 14:02	1
1,2,3,7,8,9-HxCDD	ND	1.81			14-Oct-24 14:02	1
1,2,3,4,6,7,8-HpCDD	73.7				14-Oct-24 14:02	1
OCDD	ND	4.11			14-Oct-24 14:02	1
2,3,7,8-TCDF	ND	0.875			14-Oct-24 14:02	1
1,2,3,7,8-PeCDF	ND	1.25			14-Oct-24 14:02	1
2,3,4,7,8-PeCDF	ND	1.38			14-Oct-24 14:02	1
1,2,3,4,7,8-HxCDF	1.59			J	14-Oct-24 14:02	1
1,2,3,6,7,8-HxCDF	1.40			J	14-Oct-24 14:02	1
2,3,4,6,7,8-HxCDF	1.94			J	14-Oct-24 14:02	1
1,2,3,7,8,9-HxCDF	ND	1.58			14-Oct-24 14:02	1
1,2,3,4,6,7,8-HpCDF	17.7			J	14-Oct-24 14:02	1
1,2,3,4,7,8,9-HpCDF	2.68			J	14-Oct-24 14:02	1
OCDF	104				14-Oct-24 14:02	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	1.47					
Totals						
Total TCDD	ND	1.18				
Total PeCDD	ND	2.00				
Total HxCDD	9.69		21.7	J		
Total HpCDD	128					
Total TCDF	ND	0.875				
Total PeCDF	ND	1.38				
Total HxCDF	13.5		15.2	J		
Total HpCDF	64.3					

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	84.3	25 - 164		14-Oct-24 14:02	1
13C-1,2,3,7,8-PeCDD	IS	84.3	25 - 181		14-Oct-24 14:02	1
13C-1,2,3,4,7,8-HxCDD	IS	91.2	32 - 141		14-Oct-24 14:02	1
13C-1,2,3,6,7,8-HxCDD	IS	77.5	28 - 130		14-Oct-24 14:02	1
13C-1,2,3,7,8,9-HxCDD	IS	91.5	32 - 141		14-Oct-24 14:02	1
13C-1,2,3,4,6,7,8-HpCDD	IS	80.2	23 - 140		14-Oct-24 14:02	1
13C-OCDD	IS	78.1	17 - 157		14-Oct-24 14:02	1
13C-2,3,7,8-TCDF	IS	100	24 - 169		14-Oct-24 14:02	1
13C-1,2,3,7,8-PeCDF	IS	114	24 - 185		14-Oct-24 14:02	1
13C-2,3,4,7,8-PeCDF	IS	94.0	21 - 178		14-Oct-24 14:02	1
13C-1,2,3,4,7,8-HxCDF	IS	87.4	26 - 152		14-Oct-24 14:02	1
13C-1,2,3,6,7,8-HxCDF	IS	89.0	26 - 123		14-Oct-24 14:02	1
13C-2,3,4,6,7,8-HxCDF	IS	89.4	28 - 136		14-Oct-24 14:02	1
13C-1,2,3,7,8,9-HxCDF	IS	94.0	29 - 147		14-Oct-24 14:02	1
13C-1,2,3,4,6,7,8-HpCDF	IS	84.1	28 - 143		14-Oct-24 14:02	1
13C-1,2,3,4,7,8,9-HpCDF	IS	94.3	26 - 138		14-Oct-24 14:02	1
13C-OCDF	IS	83.2	17 - 157		14-Oct-24 14:02	1
37Cl-2,3,7,8-TCDD	CRS	86.6	35 - 197		14-Oct-24 14:02	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: MW-5S-0911 **EPA Method 1613B**

Client Data
Name: OnSite Environmental Inc.
Project: 553-8472-006
Matrix: Water
Date Collected: 11-Sep-24 14:10

Laboratory Data
Lab Sample: 2409159-04
QC Batch: B24J053
Sample Size: 1.03 L
Date Received: 17-Sep-24 11:46
Date Extracted: 07-Oct-24
Column: ZB-DIOXIN

Analyte	Conc. (pg/L)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	1.57			14-Oct-24 14:48	1
1,2,3,7,8-PeCDD	ND	1.87			14-Oct-24 14:48	1
1,2,3,4,7,8-HxCDD	ND	2.07			14-Oct-24 14:48	1
1,2,3,6,7,8-HxCDD	ND	2.40			14-Oct-24 14:48	1
1,2,3,7,8,9-HxCDD	ND	2.42			14-Oct-24 14:48	1
1,2,3,4,6,7,8-HpCDD	ND	3.53			14-Oct-24 14:48	1
OCDD	12.6			J	14-Oct-24 14:48	1
2,3,7,8-TCDF	ND	1.27			14-Oct-24 14:48	1
1,2,3,7,8-PeCDF	ND	1.42			14-Oct-24 14:48	1
2,3,4,7,8-PeCDF	ND	1.04			14-Oct-24 14:48	1
1,2,3,4,7,8-HxCDF	ND	1.55			14-Oct-24 14:48	1
1,2,3,6,7,8-HxCDF	ND	1.55			14-Oct-24 14:48	1
2,3,4,6,7,8-HxCDF	ND	1.51			14-Oct-24 14:48	1
1,2,3,7,8,9-HxCDF	ND	1.94			14-Oct-24 14:48	1
1,2,3,4,6,7,8-HpCDF	ND	2.07			14-Oct-24 14:48	1
1,2,3,4,7,8,9-HpCDF	ND	2.72			14-Oct-24 14:48	1
OCDF	ND	7.13			14-Oct-24 14:48	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.00378					
Totals						
Total TCDD	ND	1.57				
Total PeCDD	ND	1.87				
Total HxCDD	ND	2.42				
Total HpCDD	ND	3.53				
Total TCDF	ND	1.27				
Total PeCDF	ND	1.42				
Total HxCDF	ND	1.94				
Total HpCDF	ND	2.72				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	72.4	25 - 164		14-Oct-24 14:48	1
13C-1,2,3,7,8-PeCDD	IS	77.2	25 - 181		14-Oct-24 14:48	1
13C-1,2,3,4,7,8-HxCDD	IS	68.6	32 - 141		14-Oct-24 14:48	1
13C-1,2,3,6,7,8-HxCDD	IS	65.8	28 - 130		14-Oct-24 14:48	1
13C-1,2,3,7,8,9-HxCDD	IS	65.1	32 - 141		14-Oct-24 14:48	1
13C-1,2,3,4,6,7,8-HpCDD	IS	55.5	23 - 140		14-Oct-24 14:48	1
13C-OCDD	IS	33.4	17 - 157		14-Oct-24 14:48	1
13C-2,3,7,8-TCDF	IS	82.6	24 - 169		14-Oct-24 14:48	1
13C-1,2,3,7,8-PeCDF	IS	85.9	24 - 185		14-Oct-24 14:48	1
13C-2,3,4,7,8-PeCDF	IS	91.1	21 - 178		14-Oct-24 14:48	1
13C-1,2,3,4,7,8-HxCDF	IS	54.0	26 - 152		14-Oct-24 14:48	1
13C-1,2,3,6,7,8-HxCDF	IS	55.0	26 - 123		14-Oct-24 14:48	1
13C-2,3,4,6,7,8-HxCDF	IS	63.9	28 - 136		14-Oct-24 14:48	1
13C-1,2,3,7,8,9-HxCDF	IS	67.4	29 - 147		14-Oct-24 14:48	1
13C-1,2,3,4,6,7,8-HpCDF	IS	51.1	28 - 143		14-Oct-24 14:48	1
13C-1,2,3,4,7,8,9-HpCDF	IS	63.7	26 - 138		14-Oct-24 14:48	1
13C-OCDF	IS	37.9	17 - 157		14-Oct-24 14:48	1
37Cl-2,3,7,8-TCDD	CRS	63.7	35 - 197		14-Oct-24 14:48	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: MW-6S-0911 **EPA Method 1613B**

Client Data
Name: OnSite Environmental Inc.
Project: 553-8472-006
Matrix: Water
Date Collected: 11-Sep-24 11:20

Laboratory Data
Lab Sample: 2409159-05
QC Batch: B24J053
Sample Size: 1.01 L
Date Received: 17-Sep-24 11:46
Date Extracted: 07-Oct-24
Column: ZB-DIOXIN

Analyte	Conc. (pg/L)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	1.22			14-Oct-24 15:35	1
1,2,3,7,8-PeCDD	ND	1.91			14-Oct-24 15:35	1
1,2,3,4,7,8-HxCDD	ND	1.98			14-Oct-24 15:35	1
1,2,3,6,7,8-HxCDD	ND	1.99			14-Oct-24 15:35	1
1,2,3,7,8,9-HxCDD	ND	2.05			14-Oct-24 15:35	1
1,2,3,4,6,7,8-HpCDD	ND	2.23			14-Oct-24 15:35	1
OCDD	13.4			J	14-Oct-24 15:35	1
2,3,7,8-TCDF	ND	1.10			14-Oct-24 15:35	1
1,2,3,7,8-PeCDF	ND	1.25			14-Oct-24 15:35	1
2,3,4,7,8-PeCDF	ND	1.19			14-Oct-24 15:35	1
1,2,3,4,7,8-HxCDF	ND	1.26			14-Oct-24 15:35	1
1,2,3,6,7,8-HxCDF	ND	1.28			14-Oct-24 15:35	1
2,3,4,6,7,8-HxCDF	ND	1.38			14-Oct-24 15:35	1
1,2,3,7,8,9-HxCDF	ND	1.66			14-Oct-24 15:35	1
1,2,3,4,6,7,8-HpCDF	ND	1.53			14-Oct-24 15:35	1
1,2,3,4,7,8,9-HpCDF	ND	2.11			14-Oct-24 15:35	1
OCDF	ND	3.02			14-Oct-24 15:35	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.00402					
Totals						
Total TCDD	ND	1.22				
Total PeCDD	ND	1.91				
Total HxCDD	ND	2.05				
Total HpCDD	ND	2.23				
Total TCDF	ND	1.10				
Total PeCDF	ND	1.25				
Total HxCDF	ND	1.66				
Total HpCDF	ND	2.11				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	81.7	25 - 164		14-Oct-24 15:35	1
13C-1,2,3,7,8-PeCDD	IS	87.7	25 - 181		14-Oct-24 15:35	1
13C-1,2,3,4,7,8-HxCDD	IS	85.7	32 - 141		14-Oct-24 15:35	1
13C-1,2,3,6,7,8-HxCDD	IS	84.0	28 - 130		14-Oct-24 15:35	1
13C-1,2,3,7,8,9-HxCDD	IS	84.9	32 - 141		14-Oct-24 15:35	1
13C-1,2,3,4,6,7,8-HpCDD	IS	81.7	23 - 140		14-Oct-24 15:35	1
13C-OCDD	IS	76.6	17 - 157		14-Oct-24 15:35	1
13C-2,3,7,8-TCDF	IS	94.5	24 - 169		14-Oct-24 15:35	1
13C-1,2,3,7,8-PeCDF	IS	108	24 - 185		14-Oct-24 15:35	1
13C-2,3,4,7,8-PeCDF	IS	107	21 - 178		14-Oct-24 15:35	1
13C-1,2,3,4,7,8-HxCDF	IS	82.6	26 - 152		14-Oct-24 15:35	1
13C-1,2,3,6,7,8-HxCDF	IS	81.5	26 - 123		14-Oct-24 15:35	1
13C-2,3,4,6,7,8-HxCDF	IS	85.3	28 - 136		14-Oct-24 15:35	1
13C-1,2,3,7,8,9-HxCDF	IS	91.4	29 - 147		14-Oct-24 15:35	1
13C-1,2,3,4,6,7,8-HpCDF	IS	76.9	28 - 143		14-Oct-24 15:35	1
13C-1,2,3,4,7,8,9-HpCDF	IS	94.2	26 - 138		14-Oct-24 15:35	1
13C-OCDF	IS	79.7	17 - 157		14-Oct-24 15:35	1
37Cl-2,3,7,8-TCDD	CRS	78.2	35 - 197		14-Oct-24 15:35	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

Sample ID: MW-13S-0911 **EPA Method 1613B**

Client Data

Name: OnSite Environmental Inc.
Project: 553-8472-006
Matrix: Water
Date Collected: 11-Sep-24 15:00

Laboratory Data

Lab Sample: 2409159-06
QC Batch: B24J053
Sample Size: 1.03 L
Date Received: 17-Sep-24 11:46
Date Extracted: 07-Oct-24
Column: ZB-DIOXIN

Analyte	Conc. (pg/L)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.895			14-Oct-24 16:22	1
1,2,3,7,8-PeCDD	ND	1.65			14-Oct-24 16:22	1
1,2,3,4,7,8-HxCDD	ND	2.08			14-Oct-24 16:22	1
1,2,3,6,7,8-HxCDD	ND	2.29			14-Oct-24 16:22	1
1,2,3,7,8,9-HxCDD	ND	2.37			14-Oct-24 16:22	1
1,2,3,4,6,7,8-HpCDD	ND	3.11			14-Oct-24 16:22	1
OCDD	ND	6.67			14-Oct-24 16:22	1
2,3,7,8-TCDF	ND	0.683			14-Oct-24 16:22	1
1,2,3,7,8-PeCDF	ND	1.06			14-Oct-24 16:22	1
2,3,4,7,8-PeCDF	ND	0.854			14-Oct-24 16:22	1
1,2,3,4,7,8-HxCDF	ND	1.03			14-Oct-24 16:22	1
1,2,3,6,7,8-HxCDF	ND	1.09			14-Oct-24 16:22	1
2,3,4,6,7,8-HxCDF	ND	1.15			14-Oct-24 16:22	1
1,2,3,7,8,9-HxCDF	ND	1.48			14-Oct-24 16:22	1
1,2,3,4,6,7,8-HpCDF	ND	1.59			14-Oct-24 16:22	1
1,2,3,4,7,8,9-HpCDF	ND	2.14			14-Oct-24 16:22	1
OCDF	ND	5.06			14-Oct-24 16:22	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	0.00					
Totals						
Total TCDD	ND	0.895				
Total PeCDD	ND	1.65				
Total HxCDD	ND	2.37				
Total HpCDD	ND	3.11				
Total TCDF	ND	0.683				
Total PeCDF	ND	1.06				
Total HxCDF	ND	1.48				
Total HpCDF	ND	2.14				

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	81.7	25 - 164		14-Oct-24 16:22	1
13C-1,2,3,7,8-PeCDD	IS	74.4	25 - 181		14-Oct-24 16:22	1
13C-1,2,3,4,7,8-HxCDD	IS	67.5	32 - 141		14-Oct-24 16:22	1
13C-1,2,3,6,7,8-HxCDD	IS	67.0	28 - 130		14-Oct-24 16:22	1
13C-1,2,3,7,8,9-HxCDD	IS	63.1	32 - 141		14-Oct-24 16:22	1
13C-1,2,3,4,6,7,8-HpCDD	IS	53.6	23 - 140		14-Oct-24 16:22	1
13C-OCDD	IS	32.8	17 - 157		14-Oct-24 16:22	1
13C-2,3,7,8-TCDF	IS	92.6	24 - 169		14-Oct-24 16:22	1
13C-1,2,3,7,8-PeCDF	IS	85.2	24 - 185		14-Oct-24 16:22	1
13C-2,3,4,7,8-PeCDF	IS	88.6	21 - 178		14-Oct-24 16:22	1
13C-1,2,3,4,7,8-HxCDF	IS	65.1	26 - 152		14-Oct-24 16:22	1
13C-1,2,3,6,7,8-HxCDF	IS	63.1	26 - 123		14-Oct-24 16:22	1
13C-2,3,4,6,7,8-HxCDF	IS	66.9	28 - 136		14-Oct-24 16:22	1
13C-1,2,3,7,8,9-HxCDF	IS	68.7	29 - 147		14-Oct-24 16:22	1
13C-1,2,3,4,6,7,8-HpCDF	IS	49.3	28 - 143		14-Oct-24 16:22	1
13C-1,2,3,4,7,8,9-HpCDF	IS	59.5	26 - 138		14-Oct-24 16:22	1
13C-OCDF	IS	36.3	17 - 157		14-Oct-24 16:22	1
37Cl-2,3,7,8-TCDD	CRS	92.9	35 - 197		14-Oct-24 16:22	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Enthalpy Analytical - EDH Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
Nevada Division of Environmental Protection	CA00413
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters can be found at Enthalpy.com/Resources/Accreditations.

2409159

3.2 °C

OnSite Environmental Inc.

14648 NE 95th Street, Redmond, WA 98052 · (425) 883-3881

Laboratory Reference #: 09-159

Laboratory: Enthalpy Analytical - El Dorado Hills

Turnaround Request

Project Manager: David Baumeister

Attention: Jennifer Miller

1 Day | 2 Day | 3 Day

email: dbaumeister@onsite-env.com

Address: 1104 Windfield Way, El Dorado Hills, CA 95762

Standard

Project Number: 553-8472-006

Phone Number: (916) 673-1520

Other:

Project Name:

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analyses
	MW-2S-0912	9/12/24	10:50	W	2	Dioxins/Furans
	MW-3S-0912	9/12/24	9:00	W	2	Dioxins/Furans
	MW-4S-0911	9/11/24	9:30	W	2	Dioxins/Furans
	MW-5S-0911	9/11/24	14:10	W	2	Dioxins/Furans - MS/MSD
	MW-6S-0911	9/11/24	11:20	W	2	Dioxins/Furans
	MW-13S-0911	9/11/24	15:00	W	2	Dioxins/Furans

Signature	Company	Date	Time	Comments/Special Instructions
Relinquished by:	OSE UPS	9/16/24	1600	EIM
Received by:				
Relinquished by:	UPS			
Received by:	EDH Enthalpy	09/17/24	11:46	
Relinquished by:				
Received by:				

CoC/Label Reconciliation Report WO# 2409159

LabNumber	CoC Sample ID	SampleAlias	Sample Date/Time	Container	BaseMatrix	Sample Comments
2409159-01	A MW-2S-0912		12-Sep-24 10:50	Amber Glass NM Bottle, 1L	Aqueous	
2409159-01	B MW-2S-0912		12-Sep-24 10:50	Amber Glass NM Bottle, 1L	Aqueous	
2409159-02	A MW-3S-0912		12-Sep-24 09:00	Amber Glass NM Bottle, 1L	Aqueous	
2409159-02	B MW-3S-0912		12-Sep-24 09:00	Amber Glass NM Bottle, 1L	Aqueous	
2409159-03	A MW-4S-0911		11-Sep-24 09:30	Amber Glass NM Bottle, 1L	Aqueous	
2409159-03	B MW-4S-0911		11-Sep-24 09:30	Amber Glass NM Bottle, 1L	Aqueous	
2409159-04	A MW-5S-0911		11-Sep-24 14:10	Amber Glass NM Bottle, 1L	Aqueous	
2409159-04	B MW-5S-0911		11-Sep-24 14:10	Amber Glass NM Bottle, 1L	Aqueous	
2409159-05	A MW-6S-0911		11-Sep-24 11:20	Amber Glass NM Bottle, 1L	Aqueous	
2409159-05	B MW-6S-0911		11-Sep-24 11:20	Amber Glass NM Bottle, 1L	Aqueous	
2409159-06	A MW-13S-0911		11-Sep-24 15:00	Amber Glass NM Bottle, 1L	Aqueous	
2409159-06	B MW-13S-0911		11-Sep-24 15:00	Amber Glass NM Bottle, 1L	Aqueous	

C2

C1

A

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)	✓		

Comments:

C1 = Cooler #1

C2 = Cooler #2

A) No time listed on sample label.

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 ~~None~~ Other

Verifed by/Date: KA 09/17/24
XAO 09/17/24

Chain of Custody

Page 1 of 1

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Parametrix
Project Number: 553-8472-006
Project Name: DTG Yakima LPL
Project Manager: Mike Brady
Sampled by: C. Bourgeois

Turnaround Request (in working days)

(Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Days ☐ 3 Days
- ■ Standard (7 Days) (TPH analysis 5 Days)
- ☐ _____ (other)

Laboratory Number: 09-159

PF

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	VOCs (8260D – WAC 173-351 Appendix I) Naphthalene; SIM-VC and 1,2-EDB	NWTPH-Gx	NWTPH-Dx	Total Metals (Fe, Mn, Mg)	Dissolved Metals (Fe, Mn, Mg, Ca, K, Na)	Nitrate, chloride, sulfate	TDS, Alkalinity, Bicarbonate	Ammonia	TOC	Dioxins & furans EPA 1633 (PFAS)	% Moisture
1	MW-2S- 0912	9/12/24	1050	Water	15	X	X	X	X	X	X	X	X	X	X	
2	MW-3S- 0912	9/12/24	900	Water	15	X	X	X	X	X	X	X	X	X	X	
3	MW-4S- 0911	9/11/24	930	Water	15	X	X	X	X	X	X	X	X	X	X	
4	MW-5S- 0911		1410	Water	~~25~~ 35	X	X	X	X	X	X	X	X	X	X	
5	MW-6S- 0911		1120	Water	15	X	X	X	X	X	X	X	X	X	X	
6	MW-13S- 0911	↓	1500	Water	15	X	X	X	X	X	X	X	X	X	X	
7	Trip Blank	9/12/24	~~1500~~	Water	3	X	X									

	Signature	Company	Date	Time
Relinquished		Parametrix	9/12/24	1540
Received		OSE	9/12/24	1540
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

MS/MSD extra volume provided for MW-5S-

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

Attachment C

Hazard Index Calculations

PFAS Hazard Index MCL Calculation Tool

Enter Site Information

Date:	September 12, 2024
Site Name:	Rocky Top Environmental LPL
Sample Name:	MW-3S

Data Input

PFAS Chemical	PFAS Concentration at Water Source[1] (ppt or ng/L)	Composition Ratio of the PFAS Mixture (percent)	Health-Based Water Concentration (HBWC) (ppt or ng/L)		Hazard Index[2] (HI) (Eq. 1)	Percent Contribution to the Hazard Index
HFPO-DA	0	0.0%	10	a	0.00E+00	0.0%
PFBS	13	66.0%	2,000	b	6.50E-03	1.0%
PFHxS	6.7	34.0%	10	a	6.70E-01	99.0%
PFNA	0	0.0%	10	a	0.00E+00	0.0%
Totals	**20**	**100.0%**	---		**0.7**	**100.0%**

Notes:

a - HBWCs for PFHxS, PFNA, and HFPO-DA are also individually applied as MCLGs and MCLs.

b - EPA derived a HBWC of 2,000 ng/L for PFBS but did not establish an MCLG or MCL. Although PFBS is not regulated individually (i.e., with an individual MCL), it must be included in the hazard index MCL calculation for the PFAS mixture (i.e., sum of HQs for HFPO-DA, PFBS, PFHxS, and PFNA).

[1] This calculator applies to any current or potential future source of drinking water including groundwater and surface water sources. For the HI evaluation, each sample analyses should include results for all four PFAS chemicals (i.e., HFPO-DA, PFBS, PFHxS, and PFNA).

[2] It's recommeded to consult with a toxicologist within Ecology's TCP Policy and Technical Support Unit for assistence in developing PFAS cleanup levels for mixtures that exceed an HI MCL of 1 (360-407-7170).

Acronyms

HBWC = Health-Based Water Concentration.
HI = Hazard index
HQ = Hazard quotient
MCL = Maximum contaminant level
MCLG = Maximum contaminant level goal
MDL = Method detection limit
MTCA = Model Toxics Control Act
NPDWR = National Primary Drinking Water Regulation
ng/L = Nanogram per liter; same as ppt
PFAS = per- and polyfluoroalkyl substances
ppt = part per trillion; same as ng/L
PQL = Practical quantitation limit

Remark:

Equation 1

$$\text{Hazard Index} = \left(\frac{PFHxS_{ppt}}{10\ ppt}\right) + \left(\frac{PFNA_{ppt}}{10\ ppt}\right) + \left(\frac{HFPO-DA_{ppt}}{10\ ppt}\right) + \left(\frac{PFBS_{ppt}}{2{,}000\ ppt}\right)$$

Note: Each individual fraction is called a Hazard Quotient or HQ.

PFAS Hazard Index MCL Calculation Tool

Enter Site Information

Date:	September 12, 2024
Site Name:	Rocky Top Environmental LPL
Sample Name:	MW-4S

Data Input

PFAS Chemical	PFAS Concentration at Water Source[1] (ppt or ng/L)	Composition Ratio of the PFAS Mixture (percent)	Health-Based Water Concentration (HBWC) (ppt or ng/L)		Hazard Index[2] (HI) (Eq. 1)	Percent Contribution to the Hazard Index
HFPO-DA	0	0.0%	10	a	0.00E+00	0.0%
PFBS	4.8	100.0%	2,000	b	2.40E-03	100.0%
PFHxS	0	0.0%	10	a	0.00E+00	0.0%
PFNA	0	0.0%	10	a	0.00E+00	0.0%
Totals	**5**	**100.0%**	---		**0.002**	**100.0%**

Notes:

a - HBWCs for PFHxS, PFNA, and HFPO-DA are also individually applied as MCLGs and MCLs.

b - EPA derived a HBWC of 2,000 ng/L for PFBS but did not establish an MCLG or MCL. Although PFBS is not regulated individually (i.e., with an individual MCL), it must be included in the hazard index MCL calculation for the PFAS mixture (i.e., sum of HQs for HFPO-DA, PFBS, PFHxS, and PFNA).

[1] This calculator applies to any current or potential future source of drinking water including groundwater and surface water sources. For the HI evaluation, each sample analyses should include results for all four PFAS chemicals (i.e., HFPO-DA, PFBS, PFHxS, and PFNA).

[2] It's recommeded to consult with a toxicologist within Ecology's TCP Policy and Technical Support Unit for assistence in developing PFAS cleanup levels for mixtures that exceed an HI MCL of 1 (360-407-7170).

Acronyms

HBWC = Health-Based Water Concentration.
HI = Hazard index
HQ = Hazard quotient
MCL = Maximum contaminant level
MCLG = Maximum contaminant level goal
MDL = Method detection limit
MTCA = Model Toxics Control Act
NPDWR = National Primary Drinking Water Regulation
ng/L = Nanogram per liter; same as ppt
PFAS = per- and polyfluoroalkyl substances
ppt = part per trillion; same as ng/L
PQL = Practical quantitation limit

Remark:

Equation 1

$$\text{Hazard Index} = \left(\frac{PFHxS_{ppt}}{10\ ppt}\right) + \left(\frac{PFNA_{ppt}}{10\ ppt}\right) + \left(\frac{HFPO-DA_{ppt}}{10\ ppt}\right) + \left(\frac{PFBS_{ppt}}{2{,}000\ ppt}\right)$$

Note: Each individual fraction is called a Hazard Quotient or HQ.

PFAS Hazard Index MCL Calculation Tool

Enter Site Information

Date:	September 12, 2024
Site Name:	Rocky Top Environmental LPL
Sample Name:	MW-6S

Data Input

PFAS Chemical	PFAS Concentration at Water Source[1] (ppt or ng/L)	Composition Ratio of the PFAS Mixture (percent)	Health-Based Water Concentration (HBWC) (ppt or ng/L)		Hazard Index[2] (HI) (Eq. 1)	Percent Contribution to the Hazard Index
HFPO-DA	0	0.0%	10	a	0.00E+00	0.0%
PFBS	6.6	100.0%	2,000	b	3.30E-03	100.0%
PFHxS	0	0.0%	10	a	0.00E+00	0.0%
PFNA	0	0.0%	10	a	0.00E+00	0.0%
Totals	**7**	**100.0%**	---		**0.003**	**100.0%**

Notes:

a - HBWCs for PFHxS, PFNA, and HFPO-DA are also individually applied as MCLGs and MCLs.

b - EPA derived a HBWC of 2,000 ng/L for PFBS but did not establish an MCLG or MCL. Although PFBS is not regulated individually (i.e., with an individual MCL), it must be included in the hazard index MCL calculation for the PFAS mixture (i.e., sum of HQs for HFPO-DA, PFBS, PFHxS, and PFNA).

[1] This calculator applies to any current or potential future source of drinking water including groundwater and surface water sources. For the HI evaluation, each sample analyses should include results for all four PFAS chemicals (i.e., HFPO-DA, PFBS, PFHxS, and PFNA).

[2] It's recommeded to consult with a toxicologist within Ecology's TCP Policy and Technical Support Unit for assistence in developing PFAS cleanup levels for mixtures that exceed an HI MCL of 1 (360-407-7170).

Acronyms

HBWC = Health-Based Water Concentration.
HI = Hazard index
HQ = Hazard quotient
MCL = Maximum contaminant level
MCLG = Maximum contaminant level goal
MDL = Method detection limit
MTCA = Model Toxics Control Act
NPDWR = National Primary Drinking Water Regulation
ng/L = Nanogram per liter; same as ppt
PFAS = per- and polyfluoroalkyl substances
ppt = part per trillion; same as ng/L
PQL = Practical quantitation limit

Remark:

Equation 1

$$\text{Hazard Index} = \left(\frac{PFHxS_{ppt}}{10\ ppt}\right) + \left(\frac{PFNA_{ppt}}{10\ ppt}\right) + \left(\frac{HFPO-DA_{ppt}}{10\ ppt}\right) + \left(\frac{PFBS_{ppt}}{2{,}000\ ppt}\right)$$

Note: Each individual fraction is called a Hazard Quotient or HQ.