
Halifax Landfill 2044 Branch Road Halifax, Vermont

VT DEC Project# NS95-0165
Solid Waste Facility ID# WH280
KAS Project #610110045

SPRING 2026 ANNUAL WATER QUALITY MONITORING REPORT

June 23, 2026

Prepared for:

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Introduction

KAS, Inc. (KAS) conducted an annual water quality monitoring event on May 12, 2026 at the Halifax closed landfill (Site Location Map and Site Map in Appendix A). Pursuant to the current landfill certification, issued by the Vermont Department of Environmental Conservation (VT DEC) on July 11, 2017, a groundwater sample was collected from monitoring well MW-3 and analyzed for per- and polyfluorinated compounds (PFAS). In addition, a drinking water sample from the Town Garage building was collected and analyzed for PFAS, as requested by the Town of Halifax.

Background

The unlined landfill was closed in 1995 and, since then, post-closure monitoring has been conducted for various water quality parameters (e.g., metals, chemical oxygen demand, chloride, etc.), which have since been shown to be below Vermont Groundwater Enforceable Standard (VGES) and/or exhibiting a long-term stable or decreasing trend. However, in October 2016, when the landfill first began testing for PFAS, the emerging contaminants were confirmed to be in groundwater at levels above VGES. Post-closure monitoring continues to be required (e.g., the closed landfill is not eligible for custodial care status) due to elevated PFAS levels that persist in the groundwater.

PFAS compounds currently subject to regulation in Vermont include perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), perfluorohexanesulfonic acid (PFHxS), Hexafluoropropylene Oxide Dimer Acid (HFPO-DA or GenX), and perfluorononanoic acid (PFNA). On January 31, 2026, a revision of the Vermont Groundwater Protection Rule and Strategy took effect, which included an update to the VGES and PFAS limits. The prior VGES was 20 parts per trillion (ppt) for the sum of five PFAS in drinking water. The updated VGES includes an enforcement standard for the five aforementioned PFAS compounds ranging from 4 to 10 ppt. There are numerous other PFAS compounds that are not regulated in Vermont, some of which are considered replacements for PFAS that have been historically phased out of production and use.

Currently, the contaminant of concern in groundwater is PFAS and monitoring is limited to groundwater monitoring well MW-3. Groundwater is presumed to flow southeasterly, and MW-3 is considered to be the farthest downgradient well. Based on historical sampling done in December 2016 and in November 2019, regulated PFAS levels at MW-4 were found to be below VGES (e.g., 10.05 ng/L and 6.99 ng/L, respectively).

In March 2024, the VT DEC approved the reduction of PFAS monitoring from biannual (May and October) to annual (May).

Since 2016, monitoring has also periodically included nearby residential/private drinking water samples. In general, drinking water sampling has been conducted at the request of the Town and is not specified in the VT DEC post-closure monitoring plan requirements.

Groundwater Sampling & Results

Field measurements

Depth to groundwater in MW-3 was measured at 6.22 feet below top of casing (btoc). At the time of sampling, the water temperature was 8.9 degrees Celsius, with a pH of 6.40 and a specific conductivity of 288.3 microsiemens per centimeter ($\mu\text{S}/\text{cm}$), as measured by a properly calibrated YSI® Pro Multi-Meter. All measurements were within the range of historical fluctuations. Field measurement data is presented in tables and a graph in Appendix B.

Laboratory results

A groundwater sample was collected from MW-3 via low-flow sampling techniques (peristaltic pump) to minimize turbidity in the sample. The groundwater sample was analyzed for PFAS via a lab-specific isotope dilution method. The laboratory reported a total regulated PFAS concentration of 140 ng/L in the sample collected from MW-3, with levels of PFHxS, PFOA and/or PFOS above VGES.

No PFAS were detected above laboratory method detection limits in the equipment rinse blank sample, which indicates cross contamination of PFAS from the sampler, sampling equipment, and/or ambient air was not a concern during sample collection. Current and historical analytical data are presented in a table and graph in Appendix B. A copy of the laboratory report is provided in Appendix C.

Drinking Water Sampling & Results

On May 12, 2026, KAS collected a drinking water sample from the Town Garage private supply well. The sample was collected from the pressure tank and analyzed for PFAS via a lab-specific isotope dilution method. All regulated PFAS concentrations were all below the laboratory detection limit. One non-regulated PFAS – perfluorobutanoic acid (PFBA), was reported at 2.5 ng/L. A field blank was prepared by KAS at the time of sample collection. No PFAS was detected in the field blank.

PFAS Trends & Discussions

The total regulated PFAS concentration reported at MW-3 (140 ng/L) is within the range of historical fluctuations (e.g., 30 – 236 ng/L) and has decreased from its peak in May 2024. Overall, PFAS concentrations at MW-3 continue to fluctuate widely and appear to be influenced by fluctuations in precipitation, groundwater elevations, and/or leachate generation. Additional data is needed to establish meaningful long-term trends. Once the residual source of PFAS from the closed landfill decreases, PFAS levels at MW-3 are expected to become more stable and decrease slowly over time. However, given the persistent nature of PFAS in the environment, this may take many years.

Consistent with previous findings, of the regulated PFAS compounds, PFOA and PFOS continue to exhibit the highest concentrations. This is also consistent with a Vermont landfill leachate study, which found PFOA and PFOS to be the predominant PFAS.¹ Non-regulated PFAS compounds are also typically detected at MW-3, which is more evident since May 2023 when the full PFAS list, consisting of 34 compounds, began being analyzed and reported by the lab. The total non-regulated PFAS concentration has been added to the summary data table in Appendix B. Since May 2023, the total non-regulated PFAS concentration following a similar trend as the total regulated PFAS concentration. Tracking both trends (regulated and non-regulated) may be useful should notable changes occur in the future, which may help indicate overall PFAS degradation and/or transformation.

The Branch Brook, which is downgradient to MW-3, does not appear to be impacted by PFAS based on historical data. Unless PFAS trends at MW-3 change/increase significantly, additional surface water monitoring at the Branch Brook does not appear warranted.

¹ PFAS Waste Source Testing Report, New England Waste Services of Vermont, Inc., by Sanborn, Head & Associates, Inc., October 2019, available online <https://dec.vermont.gov/press-release/department-environmental-conservation-releases-reports-pfas-chemicals>

The following table is a summary of supply well/drinking water sampling conducted to date. As shown, the nearby residential/private supply wells do not appear to be impacted by PFAS. At the Town Garage, select PFAS compounds have been reported at levels below the drinking water standard of 20 ng/L (per the Vermont Water Supply Rule for public water supply systems). This, along with infrequent detections of PFAS, suggests that the Town Garage supply well is not impacted by PFAS from the closed landfill. Should the Town continue to monitor PFAS in the Town Garage supply well, for preventative/precautionary purposes, the Town has the option to have the sample analyzed via EPA Method 537.1, which is typically used for drinking water (reports 6 to 18 individual PFAS compounds) or via a lab specific isotope dilution method for aqueous samples (reports 34 PFAS compounds). Given the higher number of PFAS reported via isotope dilution, it is KAS' opinion that this analysis method should be used.

Table 1 – Summary of Private Drinking Water Sampling

Sample ID	Address	Sampling Dates	PFAS Results
Town Garage	2044 Branch Road (south of landfill) (TAG#:19509)	8/30/2017, 11/18/2021, 5/25/2023, 10/4/2023, 5/1/2024, 5/1/2025	PFAS was non-detect (below laboratory reporting limits) except for: - On 11/18/2021, PFOA was detected at 1.5 ng/L. - On 5/1/2025, PFBA (a non-regulated PFAS in VT) was detected at 2.8 ng/L. - On 5/12/2026, PFBA (a non-regulated PFAS in VT) was detected at 2.5 ng/L.
Rafus	637 Hubbard Hill Road (north/northwest of landfill) (TAG#:16222)	12/7/2016, 8/30/2017, 10/23/2018, 10/28/2019, 5/28/2020, 11/18/2021, 5/25/2023, 10/4/2023	For all samples, VT-regulated PFAS were non-detect (below laboratory reporting limits).
Phelan	1547 Branch Road (northeast of landfill) (TAG#:34054)	10/23/2018, 11/18/2021	For all samples, VT-regulated PFAS was non-detect (below laboratory reporting limits).
Tamburrino	2136 Branch Road (south of landfill) (TAG#:68542)	8/30/2017	VT-regulated PFAS was non-detect (below laboratory reporting limits).

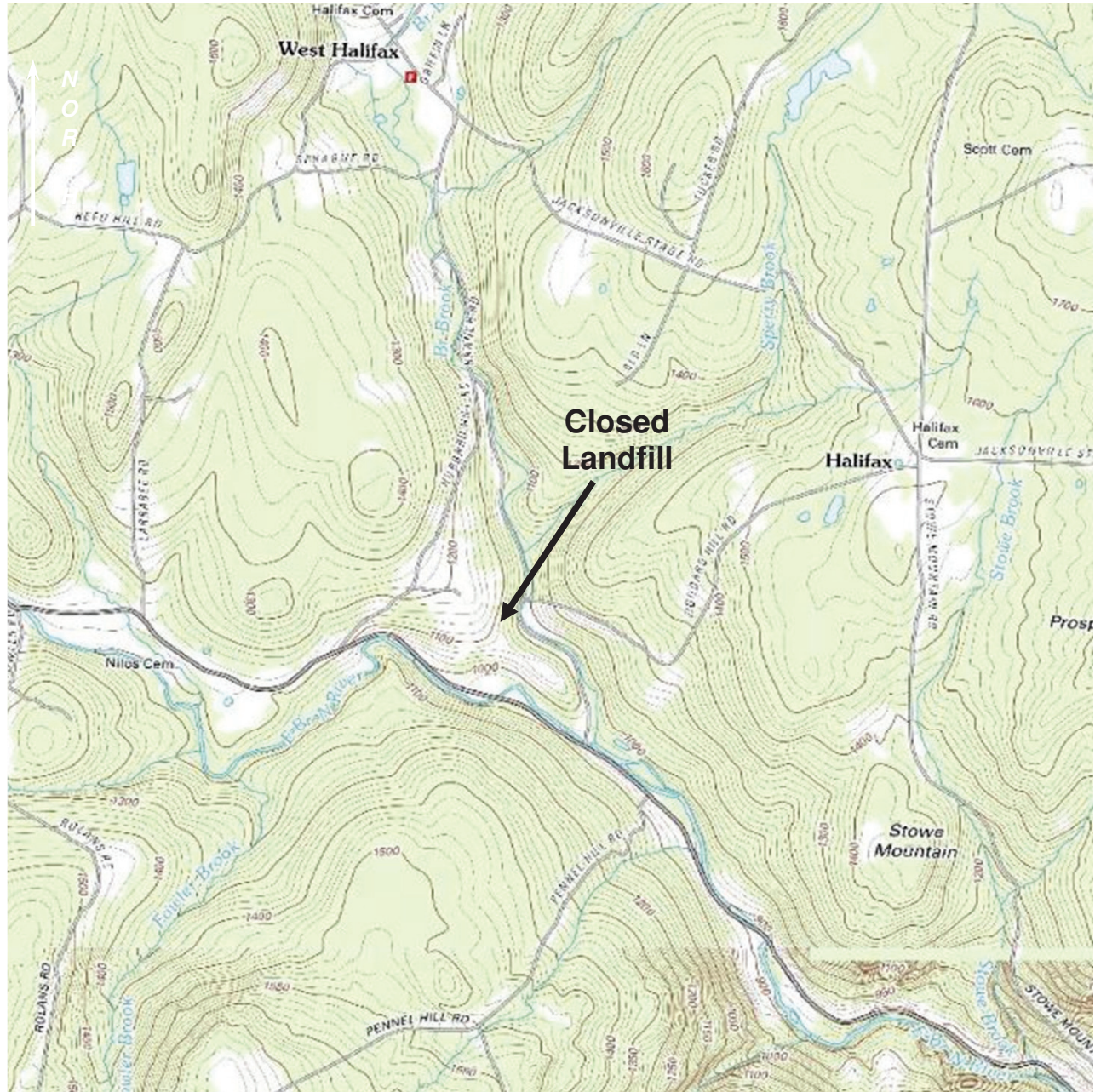
Recommendations

KAS recommends that groundwater monitoring continue in accordance with the post-closure monitoring plan and sampling frequency approved by the VT DEC, with the next monitoring event to occur in May 2027.



APPENDIX A

Site Location Map, Site Map, Sample Location Map



KAS Job Number: 610110045

Source: <http://anrmaps.vermont.gov/websites/anra5/>



TOWN OF HALIFAX CLOSED LANDFILL 2044 Branch Road, Halifax, VT

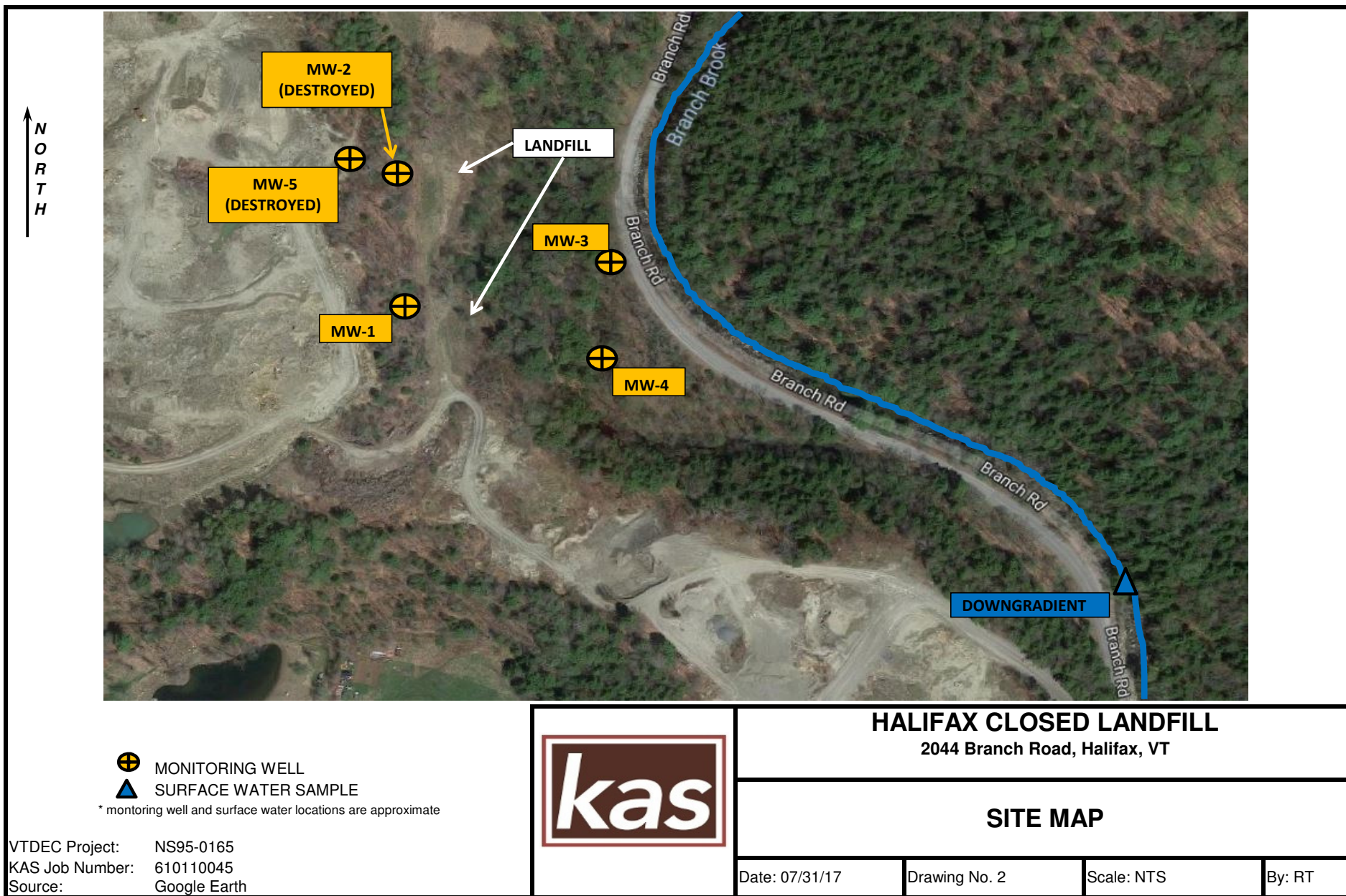
Site Location Map

Date: 05/25/16

Drawing No. 0

Scale: NTS

By: CS





LEGEND

Private Wells

- GPS Located
- Screen Digitized
- E911 Address Matched
- Welldriller/Clarion
- Unknown Location Method
- Incorrectly Located

Parcels (standardized)

NOTES

Map created using ANR GIS mapping technology.

1: 6,916

June 5, 2025



351.0 0 176.00 351.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere
© Vermont Agency of Natural Resources

1" = 576 Ft. 1cm = 69 Meters
THIS MAP IS NOT TO BE USED FOR NAVIGATION

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.



APPENDIX B

Current & Historical Sampling Data



GROUNDWATER QUALITY SUMMARY

HALIFAX LANDFILL
HALIFAX, VT

MW-3

Parameter (PPM unless noted)	VGES	PAL	SAMPLING DATE:																
			Aug-93	Dec-95	May-96	Nov-96	May-97	Oct-97	May-98	Oct-98	May-99	Oct-99	May-00	Dec-00	Oct-01	Jan-02	Jun-02	Dec-02	Jun-03
pH**	change of 1 ph unit		6.4	6.27	6.1	6.1	6.4	6.3	6.2	5.8	6.2	6	6.6	6.5	6.5	nt	6.5	6.6	6.7
Conductivity (µS/cm)**	change of 100 µS/cm		328	440	600	610	530	380	480	280	340	390	520	500	320	nt	nt	360	430
COD**	change of 25 ppm		6.9	ND<50	22	16	16	18	10	20	20	10	20	10	10	nt	30	20	20
Chloride*	250	125	14	27	29	26	20	1	17	8	14	ND<1	18	17	8	nt	15	10	12
Sodium** & ** (change of 10 ppm)	250	125	nt	23	28	27	23	15	18	11	14	nt	21	16	13	nt	39	11	16
Ca Hardness**	change of 100	NA	nt	nt	230	nt	230	160	220	120	150	190	230	190	130	nt	nt	130	220
Dissolved Chromium	0.1	0.05	nt	ND<0.05	ND<0.002	ND<0.002	0.003	ND<0.002	ND<0.002	0.004	ND<0.002	ND<0.002	ND<0.002	0.005	0.004	nt	ND<0.001	ND<0.001	ND<0.001
Dissolved Copper	1.3	0.65	nt	ND<0.05	ND<0.01	ND<0.01	0.03	ND<0.01	ND<0.01	0.02	ND<0.01	ND<0.01	0.01	0.02	0.002	nt	0.003	0.001	0.002
Dissolved Iron*	0.3	0.15	0.06	ND<0.05	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	0.18	nt	nt
Dissolved Manganese*	0.05	0.025	ND<0.02	ND<0.05	ND<0.005	0.046	0.22	0.075	0.38	0.45	0.21	0.067	0.12	0.28	0.015	nt	0.005	ND<0.005	ND<0.005
Dissolved Nickel	0.1	0.05	nt	ND<0.05	ND<0.01	ND<0.01	ND<0.01	ND<0.01	ND<0.01	ND<0.01	ND<0.01	nt	ND<0.01	ND<0.01	0.002	nt	0.003	ND<0.001	0.001
Dissolved Zinc*	5	2.5	nt	ND<0.05	0.07	0.057	0.095	0.015	0.058	0.042	0.013	0.015	0.014	0.024	0.24	nt	0.23	0.084	0.2
Dissolved Arsenic	0.05	0.005	nt	ND<0.010	ND<0.002	ND<0.01	ND<0.01	ND<0.01	ND<0.01	ND<0.01	ND<0.01	ND<0.01	ND<0.01	ND<0.01	0.003	nt	ND<0.001	ND<0.001	ND<0.001
Dissolved Cadmium	0.005	0.0025	nt	ND<0.005	ND<0.0005	ND<0.001	ND<0.001	ND<0.001	ND<0.001	nt	ND<0.001	ND<0.001	0.002	ND<0.001	ND<0.001	nt	ND<0.001	ND<0.001	ND<0.001
Dissolved Lead	0.015	0.005	nt	ND<0.005	ND<0.001	ND<0.01	ND<0.01	ND<0.01	ND<0.01	ND<0.01	0.01	ND<0.01	ND<0.01	ND<0.01	ND<0.001	nt	ND<0.001	ND<0.001	ND<0.001
Calcium	NA	NA	nt	nt	nt	nt	nt	nt	nt	2.3	nt	nt	nt	nt	nt	nt	nt	nt	nt
Methylene Chloride	0.005	0.0005	ND<10	ND<2	ND<2	ND<2	ND<2	nt	ND<2	nt	nt	ND<5	nt	nt	nt	ND<5	nt	1600*	560

Parameter (PPM unless noted)	VGES	PAL	SAMPLING DATE:																
			11/3/03	6/17/04	10/28/04	12/1/05	5/6/06	10/6/06	5/7/07	10/7/07	5/8/08	10/24/08	5/15/09	10/22/09	5/10/10	10/13/10	5/25/11	10/26/11	5/8/12
pH**	change of 1 ph unit		6.1	6.1	ns	ns	nt	6.63	5.67	6.41	6.41	6.78	6.59	NR	6.15	6.49	6.03	6.63	6.70
Conductivity (µS/cm) **	change of 100 µS/cm		450	420	ns	ns	nt	391	329	128	128	413	92	108	83.4	223.3	83.8	387.6	599
Temperature (degrees C)	change of 5.6 deg C		nt	nt	ns	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	10.9	11.7
Depth to Water (feet btoc)	NA	NA	nt	nt	ns	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	4.60	4.41
COD**	change of 25 ppm		10	20	ns	ns	121	60	ND<10	50	10	<10	28	290	29	27	11	18	nt
Chloride*	250	125	12	12	ns	ns	1460	1	10	6	9	7	2.8	6.2	ND<2.5	5.7	4.3	12	6.2
Sodium* * ** (change of 10 ppm)	250	125	17	28	ns	ns	17.6	ND<5	15	ND<5	16	13	2.3	2.7	1.9	10	2	12	13
Ca Hardness**	change of 100	NA	170	180	ns	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
Dissolved Chromium	0.1	0.05	ND<0.001	ND<0.001	ns	ns	ND<0.002	ND<0.001	0.004	ND<0.001	0.002	ND<0.001	ND<0.02	ND<0.02	ND<0.005	ND<0.005	ND<0.005	ND<0.005	nt
Dissolved Copper	1.3	0.65	0.001	0.002	ns	ns	ND<0.05	0.002	0.01	0.002	0.002	ND<0.001	ND<0.02	ND<0.02	ND<0.02	ND<0.02	ND<0.02	ND<0.020	nt
Dissolved Iron*	0.3	0.15	ND<0.05	ND<0.05	ns	ns	0.35	0.1	3.6	0.08	ND<0.05	ND<0.05	0.17	0.88	0.1	0.11	0.2	ND<0.020	ND<0.020
Dissolved Manganese*	0.05	0.025	ND<0.005	ND<0.005	ns	ns	0.05	0.006	0.079	0.007	ND<0.005	ND<0.005	ND<0.02	0.15	ND<0.02	ND<0.02	ND<0.02	ND<0.020	ND<0.020
Dissolved Nickel	0.1	0.05	ND<0.001	0.002	ns	ns	ND<0.05	0.003	0.007	0.003	0.005	0.004	ND<0.02	ND<0.02	ND<0.005	ND<0.005	ND<0.005	ND<0.005	nt
Dissolved Zinc*	5	2.5	0.078	0.13	ns	ns	ND<0.01	0.047	0.045	0.033	0.013	0.007	ND<0.02	ND<0.02	ND<0.005	ND<0.005	0.007	ND<0.020	nt
Dissolved Arsenic	0.05	0.005	ND<0.001	ND<0.001	ns	ns	ND<0.002	ND<0.002	ND<0.001	ND<0.001	ND<0.001	ND<0.001	ND<0.002	ND<0.002	ND<0.001	ND<0.001	ND<0.001	ND<0.020	nt
Dissolved Cadmium	0.005	0.0025	ND<0.001	ND<0.001	ns	ns	ND<0.0005	ND<0.0005	ND<0.001	ND<0.001	ND<0.001	ND<0.001	ND<0.002	ND<0.002	ND<0.002	ND<0.002	ND<0.002	ND<0.002	nt
Dissolved Lead	0.015	0.005	ND<0.001	ND<0.001	ns	ns	ND<0.002	ND<0.001	0.003	ND<0.001	ND<0.001	ND<0.001	ND<0.001	ND<0.001	ND<0.001	ND<0.001	ND<0.001	ND<0.001	nt
Calcium	NA	AN	nt	nt	ns	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
Methylene Chloride	0.005	0.0005	ND<5	ND<5	ns	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt

Notes:

Only detected or previously detected volatile organic compounds are listed.

btoc = below top of casing

ND<xx = Not Detected< Detection Limit

VGES = Vermont Groundwater Enforcement Standard (December 2016)

PAL = Preventative Action Level (December 2016)

NA = No VGES/PAL available

Results reported above detection limits are indicated in bold.

ns = not sampled

nt = not tested during sampling round

** = secondary groundwater quality standards (mg/L or ppm)

*** = maximum acceptable change (units as noted)

*** = All perfluorinated compound values reported in ng/L. Analysis via EPA Method 537 (short list)

VGES and PALs pertain to total metals and are provided for reference only

E - The reported value exceeds largest calibration standard. Extrapolation of the calibration curve was employed to obtain the reported value.

 = exceeds PAL = exceeds VGES = exceeds max acceptable change

Continued on next page...



GROUNDWATER QUALITY SUMMARY

HALIFAX LANDFILL
HALIFAX, VT

MW-3 (continued)

Parameter (PPM unless noted)	VGES	PAL	SAMPLING DATE:																
			10/9/12	5/30/13	10/16/13	5/15/14	10/21/14	5/28/15	10/29/15	May-16	10/19/16	5/30/2017	10/25/2017	5/30/2018	10/23/2018	5/29/2019	10/28/2019	5/28/2020	10/27/2020
pH	NA	NA	6.06	6.71	6.09	6.05	5.73	6.56	6.71	ns	nt	7.04	6.51	6.55	6.53	6.52	7.14	6.75	6.35
Conductivity (µS/cm)	NA	NA	293	215.6	625	358.1	187	376	340.6	ns	nt	470.7	500	388	160.7	306.8	425.9	317.6	251.5
Temperature (degrees C)	NA	NA	11.5	15.7	11.3	12.5	13.2	10.7	13.0	ns	nt	9.9	13.2	10.9	9.7	10.5	10.0	13.0	10.3
Depth to Water (feet btoc)	NA	NA	5.63	4.38	5.49	5.23	5.34	5.55	4.51	ns	6.87	5.07	4.85	6.50	5.62	5.57	5.04	6.18	6.30
COD	NA	NA	nt	22	nt	nt	nt	nt	nt	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt
Chloride	NA	NA	19	12	6.5	5.7	6.7	4.5	52	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt
Sodium	NA	NA	12	13	nt	nt	nt	nt	nt	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt
Dissolved Chromium	0.1	0.05	nt	ND<0.005	nt	nt	nt	nt	nt	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt
Dissolved Copper	1.3	0.65	nt	ND<0.020	nt	nt	nt	nt	nt	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt
Dissolved Iron	NA	NA	ND<0.020	ND<0.020	0.030	0.086	0.020	ND<0.020	ND<0.020	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt
Dissolved Manganese	0.3	0.15	ND<0.020	ND<0.020	ND<0.020	ND<0.020	ND<0.020	ND<0.020	ND<0.020	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt
Dissolved Nickel	0.1	0.05	nt	ND<0.005	nt	nt	nt	nt	nt	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt
Dissolved Zinc	NA	NA	nt	ND<0.020	nt	nt	nt	nt	nt	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt
Dissolved Arsenic	0.05	0.005	nt	ND<0.001	nt	nt	nt	nt	nt	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt
Dissolved Cadmium	0.005	0.001	nt	ND<0.002	nt	nt	nt	nt	nt	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt
Dissolved Lead	0.015	0.002	nt	ND<0.001	nt	nt	nt	nt	nt	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	10	NA	nt	nt	nt	nt	nt	nt	nt	ns	nt	nt	nt	nt	nt	nt	nt	nt	nt
Perfluorobutanesulfonic acid (PFBS)*	NA	NA	nt	nt	nt	nt	nt	nt	nt	ns	ND<11	ND<6.6	ND<6.6	3.75	ND<6.6	ND<6.6	ND<5.1	3.55	1.87
Perfluorohexanesulfonic acid (PFHxS)*	10	NA	nt	nt	nt	nt	nt	nt	nt	ns	11.7	9.2	13.1	12.3	10.1	4.8	14.9	8.49	
Perfluoroheptanoic acid (PFHpA)*	-	NA	nt	nt	nt	nt	nt	nt	nt	ns	2.06	22	13.2	41.2	15.1	21.4	10.3	9.38	7.64
Perfluorooctanoic acid (PFOA)*	4	NA	nt	nt	nt	nt	nt	nt	nt	ns	11.5	78.2	44.9	134	76.8	106	52.8	58.1	42.6
Perfluorooctanesulfonic acid (PFOS)*	4	NA	nt	nt	nt	nt	nt	nt	nt	ns	16.7	32.1	37	33.3	36.4	30	37.8	33.7	34.5
Perfluorononanoic acid (PFNA)*	10	NA	nt	nt	nt	nt	nt	nt	nt	ns	ND<2.3	ND<1.5	ND<1.5	1.9	ND<1.5	ND<1.5	ND<1.8	ND<2.0	0.93
Total Regulated PFAS Compounds	NA	NA	nt	nt	nt	nt	nt	nt	nt	ns	28.2	122	91	180	125.5	146	95.4	106.7	85.6

Parameter (ng/L unless noted)	VGES	PAL	SAMPLING DATE:										
			6/2/2021	11/18/21	6/7/22	10/26/22	5/25/23	10/4/23	5/1/24	5/1/25	5/12/26		
pH (standard units)	NA	NA	6.62	6.29	6.42	6.82	6.47	6.20	6.25	6.29	6.40		
Spec. Conductivity (µS/cm)	NA	NA	259.2	319.9	346	-	209.8	264.0	285.1	250.0	288.3		
Temperature (degrees C)	NA	NA	13.5	10.8	18.1	13.2	8.6	14.7	9.3	9.8	8.9		
Depth to Water (feet btoc)	NA	NA	5.68	5.19	6.76	6.44	5.89	6.25	5.31	5.71	6.22		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	10	NA	nt	nt	nt	nt	ND<1.9	ND<1.9	ND<1.8	ND<1.9	ND<1.8		
Perfluorobutanesulfonic acid (PFBS)*	NA	NA	4.44	4.71	3.7	ND<20	3.7	3.5	3.6	3.6	8.5		
Perfluorohexanesulfonic acid (PFHxS)*	10	NA	15.9	16.5	16	ND<20	14	12	18	14	23		
Perfluoroheptanoic acid (PFHpA)*	NA	NA	9.52	8.73	23	ND<20	22	3.7	46	14	14		
Perfluorooctanoic acid (PFOA)*	4	NA	48.1	46.2	140	60	89	22	160	73	68		
Perfluorooctanesulfonic acid (PFOS)*	4	NA	41.6	39.3	54	48	49	39	59	41	47		
Perfluorononanoic acid (PFNA)*	10	NA	1.03	1.3	2.8	ND<20	2.3	ND<1.9	3.1	ND<1.9	1.9		
Total Regulated PFAS Compounds	NA	NA	106.6	103.3	213	108	154	73	240	128	140		
Total Non-Regulated PFAS Compounds	NA	NA	-	-	-	-	43	13	95	33	57		

Notes:

Only detected or previously detected volatile organic compounds are listed.

btoc = below top of casing

ND<xx = Not Detected< Detection Limit

VGES = Vermont Groundwater Enforcement Standard (January 2026)

PAL = Preventative Action Level (July 2019)

NA = No VGES/PAL available

Results reported above detection limits are indicated in bold.

ns = not sampled

nt = not tested during sampling round

VGES and PALs pertain to total metals and are provided for reference only

E - The reported value exceeds largest calibration standard. Extrapolation of the calibration curve was employed to obtain the reported value.

* = All perfluorinated compound values reported in ng/L. Analysis via EPA Method 537 (short list). For HFPO-DA, PFHxS, PFOA, PFOS and PFNA, the VGES and PAL standards applies to the individual compounds.

	= exceeds current PAL
	= exceeds current VGES

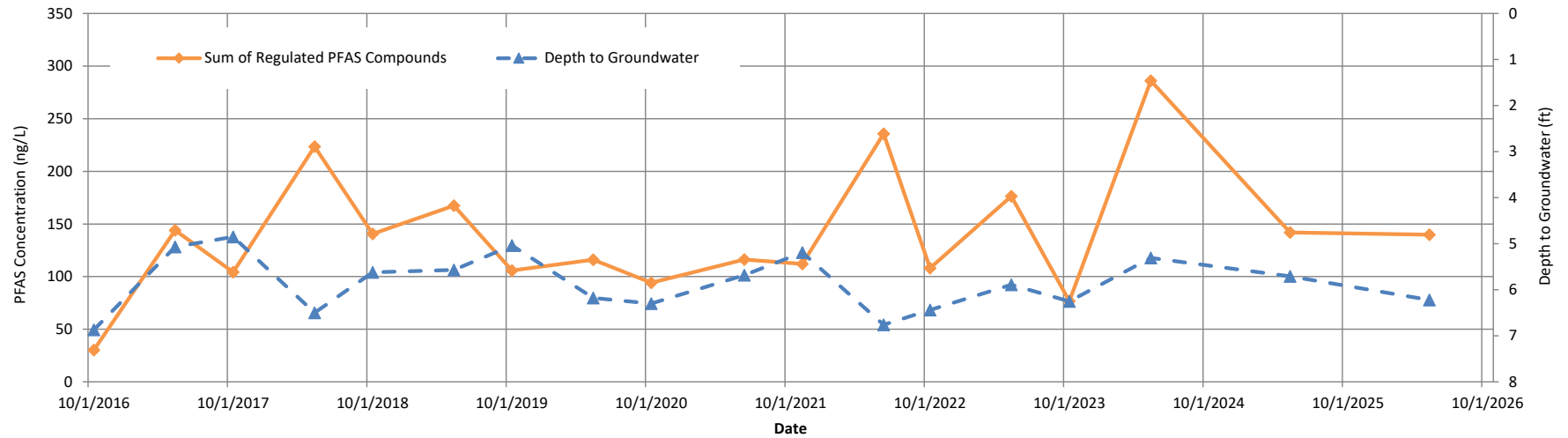


GROUNDWATER QUALITY SUMMARY

HALIFAX LANDFILL
HALIFAX, VT

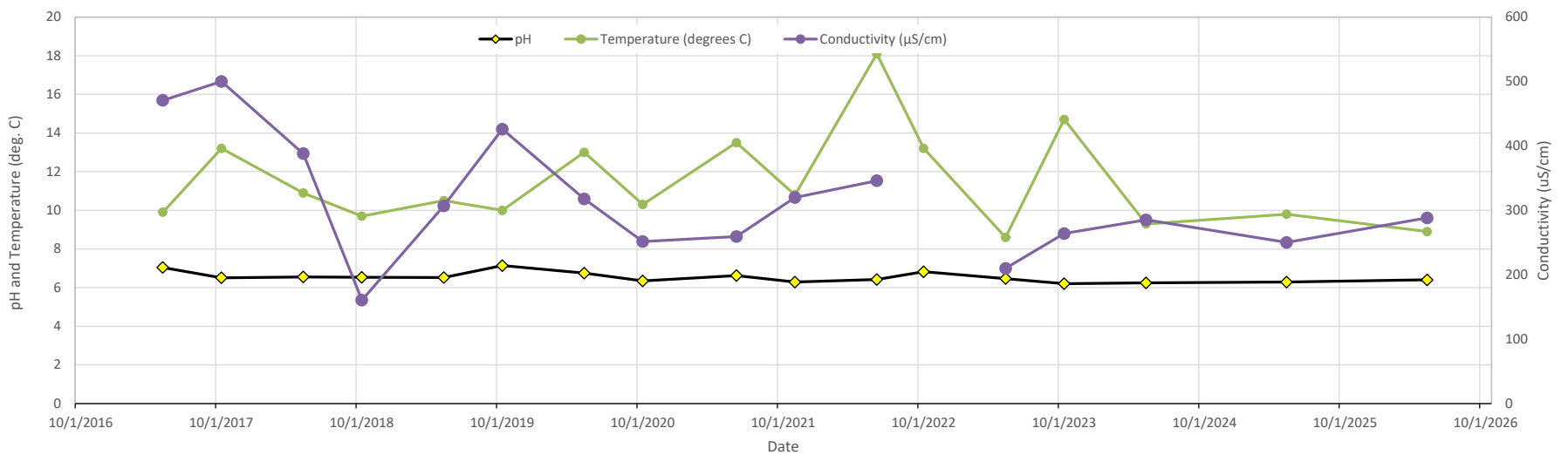
MW-3

Sum of Regulated PFAS vs Depth to Groundwater



MW-3

pH, Temperature, and Conductivity





APPENDIX C

Laboratory Report

May 29, 2026

Jeremy Roberts
KAS Environmental
589 Avenue D
Williston, VT 05495

Project Location: Halifax, VT
Client Job Number:
Project Number: 610110045
Laboratory Work Order Number: 26E1504

Enclosed are results of analyses for samples as received by the laboratory on May 15, 2026. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kaitlyn A. Feliciano
Project Manager

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Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

KAS Environmental
589 Avenue D
Williston, VT 05495
ATTN: Jeremy Roberts

REPORT DATE: 5/29/2026

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 610110045

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 26E1504

The results of analyses performed on the following samples submitted to Pace Analytical Services, LLC - East Longmeadow, Ma, are found in this report.

PROJECT LOCATION: Halifax, VT

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Town Garage	26E1504-01	Drinking Water		SOP-454 PFAS	
Field Blank	26E1504-02	Field Blank		SOP-454 PFAS	
MW-3	26E1504-03	Ground Water		SOP-454 PFAS	
MW-3 ERB	26E1504-04	Equipment Blank Water		SOP-454 PFAS	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SOP-454 PFAS**Qualifications:****PF-17**

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:**M2-8:2FTS**

26E1504-02[Field Blank], 26E1504-04[MW-3 ERB]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:**MPFBA**

26E1504-03[MW-3]

V-20

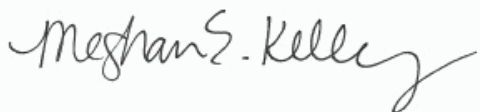
Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:**Hexafluoropropylene oxide dimer acid (HFPO-DA)**

S135381-CCV1

The results of analyses reported only relate to samples submitted to Pace Analytical Services, LLC - East Longmeadow, Ma, for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Meghan E. Kelley
Reporting Specialist

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Halifax, VT

Sample Description:

Work Order: 26E1504

Date Received: 5/15/2026

Field Sample #: Town Garage

Sampled: 5/12/2026 12:18

Sample ID: 26E1504-01

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	MCL/SMCL		Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
		RL	MA ORSG							
Perfluorobutanoic acid (PFBA)	2.5	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
11Cl-PF3OUdS	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
9Cl-PF3ONS	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluorooctanoic acid (PFOA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW
Perfluorononanoic acid (PFNA)	ND	1.8		ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:15	QNW

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Halifax, VT

Sample Description:

Work Order: 26E1504

Date Received: 5/15/2026

Field Sample #: Field Blank

Sampled: 5/12/2026 12:20

Sample ID: 26E1504-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
11Cl-PF3OUdS	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
9Cl-PF3ONS	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:23	QNW

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Halifax, VT

Sample Description:

Work Order: 26E1504

Date Received: 5/15/2026

Field Sample #: MW-3

Sampled: 5/12/2026 13:23

Sample ID: 26E1504-03

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	5.4	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluorobutanesulfonic acid (PFBS)	8.5	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluoropentanoic acid (PFPeA)	8.7	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluorohexanoic acid (PFHxA)	12	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
11Cl-PF3OUdS	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
9Cl-PF3ONS	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluoroheptanesulfonic acid (PFHpS)	2.1	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluorohexanesulfonic acid (PFHxS)	23	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluoropentanesulfonic acid (PFPeS)	6.0	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluoroheptanoic acid (PFHpA)	14	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluorooctanoic acid (PFOA)	68	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluorooctanesulfonic acid (PFOS)	47	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW
Perfluorononanoic acid (PFNA)	1.9	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:30	QNW

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Halifax, VT

Sample Description:

Work Order: 26E1504

Date Received: 5/15/2026

Field Sample #: MW-3 ERB

Sampled: 5/12/2026 13:00

Sample ID: 26E1504-04

Sample Matrix: Equipment Blank Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
11Cl-PF3OUdS	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
9Cl-PF3ONS	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	8.2	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/26/26	5/27/26 17:37	QNW



Sample Extraction Data

Prep Method:SOP 454-PFAAS **Analytical Method:**SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
26E1504-01 [Town Garage]	B428521	284	1.00	05/26/26
26E1504-02 [Field Blank]	B428521	283	1.00	05/26/26
26E1504-03 [MW-3]	B428521	282	1.00	05/26/26
26E1504-04 [MW-3 ERB]	B428521	279	1.00	05/26/26

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QUALITY CONTROL
Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B428521 - SOP 454-PFAAS
Blank (B428521-BLK1)

Prepared: 05/26/26 Analyzed: 05/27/26

Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L
11Cl-PF3OUdS	ND	2.0	ng/L
9Cl-PF3ONS	ND	2.0	ng/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0	ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	2.0	ng/L
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	2.0	ng/L
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L
N-EtFOSAA (NEtFOSAA)	ND	2.0	ng/L
N-MeFOSAA (NMeFOSAA)	ND	2.0	ng/L
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	2.0	ng/L
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L
Perfluorononanesulfonic acid (PFNS)	ND	2.0	ng/L
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	2.0	ng/L
Perfluoro-1-butanesulfonamide (FBSA)	ND	2.0	ng/L
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	2.0	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	2.0	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	2.0	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	2.0	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L

LCS (B428521-BS1)

Prepared: 05/26/26 Analyzed: 05/28/26

Perfluorobutanoic acid (PFBA)	9.29	2.0	ng/L	10.00	92.9	73-129
Perfluorobutanesulfonic acid (PFBS)	10.9	2.0	ng/L	10.00	109	72-130
Perfluoropentanoic acid (PFPeA)	10.0	2.0	ng/L	10.00	100	72-129
Perfluorohexanoic acid (PFHxA)	9.62	2.0	ng/L	10.00	96.2	72-129
11Cl-PF3OUdS	8.33	2.0	ng/L	10.00	83.3	43.8-129
9Cl-PF3ONS	8.71	2.0	ng/L	10.00	87.1	46.5-129
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.06	2.0	ng/L	10.00	90.6	51.1-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	14.0	2.0	ng/L	10.00	140	37.8-156
8:2 Fluorotelomersulfonic acid (8:2FTS A)	9.80	2.0	ng/L	10.00	98.0	67-138
Perfluorodecanoic acid (PFDA)	9.00	2.0	ng/L	10.00	90.0	71-129
Perfluorododecanoic acid (PFDoA)	9.18	2.0	ng/L	10.00	91.8	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	10.3	2.0	ng/L	10.00	103	53.1-150

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QUALITY CONTROL
Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B428521 - SOP 454-PFAAS
LCS (B428521-BS1)

Prepared: 05/26/26 Analyzed: 05/28/26

Perfluoroheptanesulfonic acid (PFHpS)	9.48	2.0	ng/L	10.00		94.8	69-134			
N-EtFOSAA (NEtFOSAA)	9.44	2.0	ng/L	10.00		94.4	61-135			
N-MeFOSAA (NMeFOSAA)	8.72	2.0	ng/L	10.00		87.2	65-136			
Perfluorotetradecanoic acid (PFTA)	9.13	2.0	ng/L	10.00		91.3	71-132			
Perfluorotridecanoic acid (PFTDA)	8.05	2.0	ng/L	10.00		80.5	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	11.6	2.0	ng/L	10.00		116	63-143			
Perfluorodecanesulfonic acid (PFDS)	8.31	2.0	ng/L	10.00		83.1	53-142			
Perfluorooctanesulfonamide (FOSA)	8.44	2.0	ng/L	10.00		84.4	67-137			
Perfluorononanesulfonic acid (PFNS)	9.73	2.0	ng/L	10.00		97.3	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	7.58	2.0	ng/L	10.00		75.8	49.7-149			
Perfluoro-1-butanedisulfonamide (FBSA)	9.39	2.0	ng/L	10.00		93.9	49.6-143			
Perfluorohexanesulfonic acid (PFHxS)	11.0	2.0	ng/L	10.00		110	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	10.2	2.0	ng/L	10.00		102	58.6-147			
Perfluoro-5-oxahexanoic acid (PFMBA)	9.43	2.0	ng/L	10.00		94.3	57.6-137			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	11.3	2.0	ng/L	10.00		113	64-140			
Perfluoropentanesulfonic acid (PFPeS)	7.97	2.0	ng/L	10.00		79.7	71-127			
Perfluoroundecanoic acid (PFUnA)	8.45	2.0	ng/L	10.00		84.5	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	7.92	2.0	ng/L	10.00		79.2	53-150			
Perfluoroheptanoic acid (PFHpA)	9.00	2.0	ng/L	10.00		90.0	72-130			
Perfluorooctanoic acid (PFOA)	7.22	2.0	ng/L	10.00		72.2	71-133			
Perfluorooctanesulfonic acid (PFOS)	8.78	2.0	ng/L	10.00		87.8	65-140			
Perfluorononanoic acid (PFNA)	8.41	2.0	ng/L	10.00		84.1	69-130			

LCS Dup (B428521-BSD1)

Prepared: 05/26/26 Analyzed: 05/28/26

Perfluorobutanoic acid (PFBA)	10.5	2.0	ng/L	10.00		105	73-129	12.0	30	
Perfluorobutanesulfonic acid (PFBS)	11.9	2.0	ng/L	10.00		119	72-130	9.40	30	
Perfluoropentanoic acid (PFPeA)	11.0	2.0	ng/L	10.00		110	72-129	9.43	30	
Perfluorohexanoic acid (PFHxA)	10.7	2.0	ng/L	10.00		107	72-129	10.4	30	
11Cl-PF3OUdS	9.69	2.0	ng/L	10.00		96.9	43.8-129	15.1	27.2	
9Cl-PF3ONS	9.29	2.0	ng/L	10.00		92.9	46.5-129	6.38	24.3	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	10.0	2.0	ng/L	10.00		100	51.1-131	10.2	20.3	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	13.4	2.0	ng/L	10.00		134	37.8-156	4.69	25.4	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	10.8	2.0	ng/L	10.00		108	67-138	9.30	30	
Perfluorodecanoic acid (PFDA)	10.6	2.0	ng/L	10.00		106	71-129	16.2	30	
Perfluorododecanoic acid (PFDoA)	10.2	2.0	ng/L	10.00		102	72-134	10.9	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	11.6	2.0	ng/L	10.00		116	53.1-150	11.8	18.3	
Perfluoroheptanesulfonic acid (PFHpS)	10.3	2.0	ng/L	10.00		103	69-134	8.21	30	
N-EtFOSAA (NEtFOSAA)	10.4	2.0	ng/L	10.00		104	61-135	9.46	30	
N-MeFOSAA (NMeFOSAA)	9.41	2.0	ng/L	10.00		94.1	65-136	7.66	30	
Perfluorotetradecanoic acid (PFTA)	9.43	2.0	ng/L	10.00		94.3	71-132	3.21	30	
Perfluorotridecanoic acid (PFTDA)	8.56	2.0	ng/L	10.00		85.6	65-144	6.12	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	12.7	2.0	ng/L	10.00		127	63-143	8.66	30	
Perfluorodecanesulfonic acid (PFDS)	9.24	2.0	ng/L	10.00		92.4	53-142	10.6	30	
Perfluorooctanesulfonamide (FOSA)	9.66	2.0	ng/L	10.00		96.6	67-137	13.5	30	
Perfluorononanesulfonic acid (PFNS)	10.1	2.0	ng/L	10.00		101	69-127	3.57	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	8.07	2.0	ng/L	10.00		80.7	49.7-149	6.27	23.8	
Perfluoro-1-butanedisulfonamide (FBSA)	9.85	2.0	ng/L	10.00		98.5	49.6-143	4.76	19	
Perfluorohexanesulfonic acid (PFHxS)	13.0	2.0	ng/L	10.00		130	68-131	16.5	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	11.4	2.0	ng/L	10.00		114	58.6-147	11.2	17.8	
Perfluoro-5-oxahexanoic acid (PFMBA)	10.3	2.0	ng/L	10.00		103	57.6-137	9.30	17.8	

QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B428521 - SOP 454-PFAAS

LCS Dup (B428521-BSD1)

Prepared: 05/26/26 Analyzed: 05/28/26

6:2 Fluorotelomersulfonic acid (6:2FTS A)	13.6	2.0	ng/L	10.00		136	64-140	18.8	30	
Perfluoropentanesulfonic acid (PFPeS)	9.34	2.0	ng/L	10.00		93.4	71-127	15.9	30	
Perfluoroundecanoic acid (PFUnA)	9.40	2.0	ng/L	10.00		94.0	69-133	10.7	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.87	2.0	ng/L	10.00		88.7	53-150	11.4	18.5	
Perfluoroheptanoic acid (PFHpA)	10.0	2.0	ng/L	10.00		100	72-130	10.9	30	
Perfluorooctanoic acid (PFOA)	8.02	2.0	ng/L	10.00		80.2	71-133	10.4	30	
Perfluorooctanesulfonic acid (PFOS)	8.67	2.0	ng/L	10.00		86.7	65-140	1.23	30	
Perfluorononanoic acid (PFNA)	8.91	2.0	ng/L	10.00		89.1	69-130	5.83	30	

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.
S-29	Extracted Internal Standard is outside of control limits.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Town Garage (26E1504-01) Lab File ID: 26E1504-01.d Analyzed: 05/27/26 17:15									
M8FOSA	647669.8	4.006866	883,051.00	4.006866	73	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	144936.1	2.417167	224,462.00	2.3925	65	50 - 150	0.0247	+/-0.50	
M2PFTA	1496867	4.250717	1,959,224.00	4.234583	76	50 - 150	0.0161	+/-0.50	
M2-8:2FTS	197195.5	3.757533	134,877.00	3.74955	146	50 - 150	0.0080	+/-0.50	
MPFBA	930715.3	1.067917	1,273,405.00	1.0679	73	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	144145	2.751317	172,128.00	2.734983	84	50 - 150	0.0163	+/-0.50	
M6PFDA	1076798	3.75805	1,167,408.00	3.7421	92	50 - 150	0.0159	+/-0.50	
M3PFBS	389586.2	1.845767	450,210.00	1.829167	87	50 - 150	0.0166	+/-0.50	
M7PFUnA	1023044	3.892167	1,179,152.00	3.87625	87	50 - 150	0.0159	+/-0.50	
M2-6:2FTS	73017.41	3.406433	89,812.00	3.398383	81	50 - 150	0.0080	+/-0.50	
M5PFPeA	1001636	1.6745	1,195,581.00	1.666217	84	50 - 150	0.0083	+/-0.50	
M5PFHxA	2129901	2.492433	2,370,976.00	2.476017	90	50 - 150	0.0164	+/-0.50	
M3PFHxS	250926.8	3.17235	294,371.00	3.16425	85	50 - 150	0.0081	+/-0.50	
M4PFHpA	2081427	3.132383	2,375,684.00	3.124267	88	50 - 150	0.0081	+/-0.50	
M8PFOA	1948797	3.42315	2,037,758.00	3.407067	96	50 - 150	0.0161	+/-0.50	
M8PFOS	251549	3.606567	286,505.00	3.598267	88	50 - 150	0.0083	+/-0.50	
M9PFNA	1219397	3.60755	1,368,844.00	3.5993	89	50 - 150	0.0082	+/-0.50	
MPFDoA	1013879	4.019017	1,246,598.00	4.003033	81	50 - 150	0.0160	+/-0.50	
D5-NEtFOSAA	191482.2	3.891717	204,245.00	3.88375	94	50 - 150	0.0080	+/-0.50	
D3-NMeFOSAA	256325.8	3.827933	237,357.00	3.812	108	50 - 150	0.0159	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Field Blank (26E1504-02)			Lab File ID: 26E1504-02.d			Analyzed: 05/27/26 17:23			
M8FOSA	594716.9	4.00685	883,051.00	4.006866	67	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	168556.8	2.41715	224,462.00	2.3925	75	50 - 150	0.0246	+/-0.50	
M2PFTA	1131625	4.2507	1,959,224.00	4.234583	58	50 - 150	0.0161	+/-0.50	
M2-8:2FTS	285251.9	3.765483	134,877.00	3.74955	211	50 - 150	0.0159	+/-0.50	*
MPFBA	995687.4	1.0679	1,273,405.00	1.0679	78	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	155480.8	2.751317	172,128.00	2.734983	90	50 - 150	0.0163	+/-0.50	
M6PFDA	1084018	3.758033	1,167,408.00	3.7421	93	50 - 150	0.0159	+/-0.50	
M3PFBS	360099.3	1.84575	450,210.00	1.829167	80	50 - 150	0.0166	+/-0.50	
M7PFUnA	982123.7	3.892167	1,179,152.00	3.87625	83	50 - 150	0.0159	+/-0.50	
M2-6:2FTS	62991.1	3.406417	89,812.00	3.398383	70	50 - 150	0.0080	+/-0.50	
M5PFPeA	928726.4	1.674483	1,195,581.00	1.666217	78	50 - 150	0.0083	+/-0.50	
M5PFHxA	1974652	2.492417	2,370,976.00	2.476017	83	50 - 150	0.0164	+/-0.50	
M3PFHxS	232972.2	3.172333	294,371.00	3.16425	79	50 - 150	0.0081	+/-0.50	
M4PFHpA	1882999	3.132367	2,375,684.00	3.124267	79	50 - 150	0.0081	+/-0.50	
M8PFOA	1853067	3.423133	2,037,758.00	3.407067	91	50 - 150	0.0161	+/-0.50	
M8PFOS	232949.7	3.606567	286,505.00	3.598267	81	50 - 150	0.0083	+/-0.50	
M9PFNA	1123943	3.60755	1,368,844.00	3.5993	82	50 - 150	0.0082	+/-0.50	
MPFDoA	974118.2	4.019	1,246,598.00	4.003033	78	50 - 150	0.0160	+/-0.50	
D5-NEtFOSAA	194741.9	3.89965	204,245.00	3.88375	95	50 - 150	0.0159	+/-0.50	
D3-NMeFOSAA	286894.7	3.81995	237,357.00	3.812	121	50 - 150	0.0080	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-3 (26E1504-03) Lab File ID: 26E1504-03.d Analyzed: 05/27/26 17:30									
M8FOSA	587114.8	4.006883	883,051.00	4.006866	66	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	231637.7	2.408933	224,462.00	2.3925	103	50 - 150	0.0164	+/-0.50	
M2PFTA	1643014	4.250733	1,959,224.00	4.234583	84	50 - 150	0.0162	+/-0.50	
M2-8:2FTS	190288.9	3.757533	134,877.00	3.74955	141	50 - 150	0.0080	+/-0.50	
MPFBA	600215.5	1.0679	1,273,405.00	1.0679	47	50 - 150	0.0000	+/-0.50	*
M3HFPO-DA	172346.5	2.751317	172,128.00	2.734983	100	50 - 150	0.0163	+/-0.50	
M6PFDA	1173912	3.758067	1,167,408.00	3.7421	101	50 - 150	0.0160	+/-0.50	
M3PFBS	410650.5	1.837467	450,210.00	1.829167	91	50 - 150	0.0083	+/-0.50	
M7PFUnA	1190732	3.892183	1,179,152.00	3.87625	101	50 - 150	0.0159	+/-0.50	
M2-6:2FTS	102607.9	3.406433	89,812.00	3.398383	114	50 - 150	0.0080	+/-0.50	
M5PFPeA	1034139	1.674483	1,195,581.00	1.666217	86	50 - 150	0.0083	+/-0.50	
M5PFHxA	2316268	2.492417	2,370,976.00	2.476017	98	50 - 150	0.0164	+/-0.50	
M3PFHxS	277899.2	3.17235	294,371.00	3.16425	94	50 - 150	0.0081	+/-0.50	
M4PFHpA	2271880	3.132383	2,375,684.00	3.124267	96	50 - 150	0.0081	+/-0.50	
M8PFOA	2165942	3.423167	2,037,758.00	3.407067	106	50 - 150	0.0161	+/-0.50	
M8PFOS	268683.2	3.606583	286,505.00	3.598267	94	50 - 150	0.0083	+/-0.50	
M9PFNA	1326485	3.607567	1,368,844.00	3.5993	97	50 - 150	0.0083	+/-0.50	
MPFDoA	1239221	4.019033	1,246,598.00	4.003033	99	50 - 150	0.0160	+/-0.50	
D5-NEtFOSAA	251210.4	3.891733	204,245.00	3.88375	123	50 - 150	0.0080	+/-0.50	
D3-NMeFOSAA	299533.2	3.82795	237,357.00	3.812	126	50 - 150	0.0160	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-3 ERB (26E1504-04) Lab File ID: 26E1504-04.d Analyzed: 05/27/26 17:37									
M8FOSA	705368.9	4.006866	883,051.00	4.006866	80	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	204814.8	2.41715	224,462.00	2.3925	91	50 - 150	0.0246	+/-0.50	
M2PFTA	1855201	4.250717	1,959,224.00	4.234583	95	50 - 150	0.0161	+/-0.50	
M2-8:2FTS	250021	3.765483	134,877.00	3.74955	185	50 - 150	0.0159	+/-0.50	*
MPFBA	1200277	1.0679	1,273,405.00	1.0679	94	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	184611.5	2.751317	172,128.00	2.734983	107	50 - 150	0.0163	+/-0.50	
M6PFDA	1262953	3.75805	1,167,408.00	3.7421	108	50 - 150	0.0159	+/-0.50	
M3PFBS	436880	1.84575	450,210.00	1.829167	97	50 - 150	0.0166	+/-0.50	
M7PFUnA	1179721	3.892167	1,179,152.00	3.87625	100	50 - 150	0.0159	+/-0.50	
M2-6:2FTS	84972.67	3.406417	89,812.00	3.398383	95	50 - 150	0.0080	+/-0.50	
M5PFPeA	1132057	1.674483	1,195,581.00	1.666217	95	50 - 150	0.0083	+/-0.50	
M5PFHxA	2368967	2.492417	2,370,976.00	2.476017	100	50 - 150	0.0164	+/-0.50	
M3PFHxS	283400.3	3.17235	294,371.00	3.16425	96	50 - 150	0.0081	+/-0.50	
M4PFHpA	2315921	3.132383	2,375,684.00	3.124267	97	50 - 150	0.0081	+/-0.50	
M8PFOA	2230437	3.423133	2,037,758.00	3.407067	109	50 - 150	0.0161	+/-0.50	
M8PFOS	275274.4	3.606567	286,505.00	3.598267	96	50 - 150	0.0083	+/-0.50	
M9PFNA	1372936	3.60755	1,368,844.00	3.5993	100	50 - 150	0.0082	+/-0.50	
MPFDaA	1216817	4.019017	1,246,598.00	4.003033	98	50 - 150	0.0160	+/-0.50	
D5-NEtFOSAA	230260.5	3.899667	204,245.00	3.88375	113	50 - 150	0.0159	+/-0.50	
D3-NMeFOSAA	316446.1	3.819967	237,357.00	3.812	133	50 - 150	0.0080	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B428521-BLK1)			Lab File ID: B428521-BLK1.d			Analyzed: 05/27/26 16:39			
M8FOSA	594521.9	4.006866	883,051.00	4.006866	67	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	125747	2.41715	224,462.00	2.3925	56	50 - 150	0.0246	+/-0.50	
M2PFTA	1263037	4.250717	1,959,224.00	4.234583	64	50 - 150	0.0161	+/-0.50	
M2-8:2FTS	88503.23	3.757517	134,877.00	3.74955	66	50 - 150	0.0080	+/-0.50	
MPFBA	1004024	1.0679	1,273,405.00	1.0679	79	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	151360.3	2.751317	172,128.00	2.734983	88	50 - 150	0.0163	+/-0.50	
M6PFDA	996921.4	3.758033	1,167,408.00	3.7421	85	50 - 150	0.0159	+/-0.50	
M3PFBS	358887.7	1.84575	450,210.00	1.829167	80	50 - 150	0.0166	+/-0.50	
M7PFUnA	940711.9	3.892167	1,179,152.00	3.87625	80	50 - 150	0.0159	+/-0.50	
M2-6:2FTS	57869	3.406417	89,812.00	3.398383	64	50 - 150	0.0080	+/-0.50	
M5PFPeA	936758.1	1.674483	1,195,581.00	1.666217	78	50 - 150	0.0083	+/-0.50	
M5PFHxA	1973707	2.492417	2,370,976.00	2.476017	83	50 - 150	0.0164	+/-0.50	
M3PFHxS	236676.5	3.172333	294,371.00	3.16425	80	50 - 150	0.0081	+/-0.50	
M4PFHpA	1886789	3.132383	2,375,684.00	3.124267	79	50 - 150	0.0081	+/-0.50	
M8PFOA	1786359	3.423133	2,037,758.00	3.407067	88	50 - 150	0.0161	+/-0.50	
M8PFOS	230213.3	3.606567	286,505.00	3.598267	80	50 - 150	0.0083	+/-0.50	
M9PFNA	1101841	3.60755	1,368,844.00	3.5993	80	50 - 150	0.0082	+/-0.50	
MPFDoA	947560.1	4.019	1,246,598.00	4.003033	76	50 - 150	0.0160	+/-0.50	
D5-NEtFOSAA	178333.4	3.899667	204,245.00	3.88375	87	50 - 150	0.0159	+/-0.50	
D3-NMeFOSAA	206416.2	3.827933	237,357.00	3.812	87	50 - 150	0.0159	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B428521-BS1)		Lab File ID: B428521-BS1.d				Analyzed: 05/28/26 15:42			
M8FOSA	696514.6	4.014867	917,113.00	4.01485	76	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	202545.9	2.499167	220,374.00	2.499167	92	50 - 150	0.0000	+/-0.50	
M2PFTA	1566471	4.283	2,055,337.00	4.282983	76	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	155365	3.7894	120,942.00	3.789383	128	50 - 150	0.0000	+/-0.50	
MPFBA	1175276	1.092833	1,264,224.00	1.092833	93	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	106594.6	2.824917	164,401.00	2.824917	65	50 - 150	0.0000	+/-0.50	
M6PFDA	1207067	3.78195	1,206,613.00	3.789917	100	50 - 150	-0.0080	+/-0.50	
M3PFBS	417648.4	1.913983	433,101.00	1.905717	96	50 - 150	0.0083	+/-0.50	
M7PFUnA	1108814	3.9242	1,221,762.00	3.9242	91	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	99142.77	3.43925	90,658.00	3.439233	109	50 - 150	0.0000	+/-0.50	
M5PFPeA	1101413	1.732967	1,153,899.00	1.732967	95	50 - 150	0.0000	+/-0.50	
M5PFHxA	2298994	2.582967	2,313,323.00	2.58295	99	50 - 150	0.0000	+/-0.50	
M3PFHxS	285713.8	3.2128	290,534.00	3.212783	98	50 - 150	0.0000	+/-0.50	
M4PFHpA	2226118	3.181667	2,305,301.00	3.18165	97	50 - 150	0.0000	+/-0.50	
M8PFOA	2089574	3.455783	1,975,014.00	3.455767	106	50 - 150	0.0000	+/-0.50	
M8PFOS	267603.1	3.638433	290,870.00	3.638417	92	50 - 150	0.0000	+/-0.50	
M9PFNA	1317334	3.639417	1,416,358.00	3.6394	93	50 - 150	0.0000	+/-0.50	
MPFDoA	1138699	4.050983	1,323,722.00	4.058967	86	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	188090.2	3.9317	226,301.00	3.931683	83	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	230278.2	3.8602	265,186.00	3.8602	87	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS Dup (B428521-BSD1)			Lab File ID: B428521-BSD1.d			Analyzed: 05/28/26 15:50			
M8FOSA	642088.5	4.014867	917,113.00	4.01485	70	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	208297.6	2.49915	220,374.00	2.499167	95	50 - 150	0.0000	+/-0.50	
M2PFTA	1518548	4.282983	2,055,337.00	4.282983	74	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	123957.4	3.781417	120,942.00	3.789383	102	50 - 150	-0.0080	+/-0.50	
MPFBA	1080546	1.092833	1,264,224.00	1.092833	85	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	128410.8	2.824917	164,401.00	2.824917	78	50 - 150	0.0000	+/-0.50	
M6PFDA	1117486	3.78195	1,206,613.00	3.789917	93	50 - 150	-0.0080	+/-0.50	
M3PFBS	386619.8	1.905717	433,101.00	1.905717	89	50 - 150	0.0000	+/-0.50	
M7PFUnA	1083551	3.9242	1,221,762.00	3.9242	89	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	74661.04	3.43925	90,658.00	3.439233	82	50 - 150	0.0000	+/-0.50	
M5PFPeA	1024492	1.732967	1,153,899.00	1.732967	89	50 - 150	0.0000	+/-0.50	
M5PFHxA	2145488	2.58295	2,313,323.00	2.58295	93	50 - 150	0.0000	+/-0.50	
M3PFHxS	251212.4	3.212783	290,534.00	3.212783	86	50 - 150	0.0000	+/-0.50	
M4PFHpA	2057816	3.181667	2,305,301.00	3.18165	89	50 - 150	0.0000	+/-0.50	
M8PFOA	1957540	3.455767	1,975,014.00	3.455767	99	50 - 150	0.0000	+/-0.50	
M8PFOS	254022.8	3.638417	290,870.00	3.638417	87	50 - 150	0.0000	+/-0.50	
M9PFNA	1233267	3.6394	1,416,358.00	3.6394	87	50 - 150	0.0000	+/-0.50	
MPFDoA	1146565	4.050983	1,323,722.00	4.058967	87	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	183439.1	3.9317	226,301.00	3.931683	81	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	233458	3.8602	265,186.00	3.8602	88	50 - 150	0.0000	+/-0.50	

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-454 PFAS in Water</i>	
Perfluorobutanoic acid (PFBA)	NH-P,PA,NY
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA,NY
Perfluoropentanoic acid (PFPeA)	NH-P,PA,NY
Perfluorohexanoic acid (PFHxA)	NH-P,PA,NY
11Cl-PF3OUdS	NH-P,PA,NY
9Cl-PF3ONS	NH-P,PA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA,NY
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA,NY
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P,PA
Perfluorodecanoic acid (PFDA)	NH-P,PA,NY
Perfluorododecanoic acid (PFDoA)	NH-P,PA,NY
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	NH-P,PA,NY
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA,NY
N-EtFOSAA (NEtFOSAA)	NH-P,PA,NY
N-MeFOSAA (NMeFOSAA)	NH-P,PA,NY
Perfluorotetradecanoic acid (PFTA)	NH-P,PA,NY
Perfluorotridecanoic acid (PFTrDA)	NH-P,PA,NY
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P,PA,NY
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA
Perfluorooctanesulfonamide (FOSA)	NH-P,PA
Perfluorononanesulfonic acid (PFNS)	NH-P,PA
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P,PA
Perfluoro-1-butanefulfonamide (FBSA)	NH-P,PA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA,NY
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P,PA,NY
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P,PA,NY
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P,PA,NY
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA,NY
Perfluoroundecanoic acid (PFUnA)	NH-P,PA,NY
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA
Perfluoroheptanoic acid (PFHpA)	NH-P,PA,NY
Perfluorooctanoic acid (PFOA)	NH-P,PA,NY
Perfluorooctanesulfonic acid (PFOS)	NH-P,PA,NY
Perfluorononanoic acid (PFNA)	NH-P,PA,NY

Pace Analytical Services, LLC - East Longmeadow, Ma, operates under the following certifications and accreditations:

Code	Description	Number	Expires
NY	New York State Department of Health	10899 NELAP	04/1/2027
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2026
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2027



Phone: 413-525-2332
Fax: 413-525-6405

CHAIN OF CUSTODY RECORD

Access COC's and Support Requests

Company Name: KAS, Inc.
Address: 589 Avenue D, Suite 10 Wallingford, VT
Phone: (802) 353-0436
Project Name: Halifax Landfill
Project Location: Halifax, VT
Project Number: 610110045
Project Manager: Jeremy Roberts
Pace Quote Name/Number:
Invoice Recipient: Amy King
Sampled By: Emily Halskerson

Requested Turnaround Time		Dissolved Metals Samples	
7-Day ☐	10-Day ☐	☐	Field Filtered
PFAS 10-Day (std) ☒	Due Date:	☐	Lab to Filter
Rush-Approval Required		Orthophosphate Samples	
1-Day ☐	3-Day ☐	☐	Field Filtered
2-Day ☐	4-Day ☐	☐	Lab to Filter
Data Delivery			
Format: PDF ☒	EXCEL ☒	<u>PCB ONLY</u>	
Other: _____		SOXHLET	☐
CLP Like Data Pkg Required: ☐		NON SOXHLET	☐
Email To: _____			
Fax To #: _____			

ANALYSIS REQUESTED

[illegible]

2	Preservation Code
	Courier Use Only
	<u>Total Number Of:</u>
	VIALS _____
	GLASS _____
	PLASTIC _____
	BACTERIA _____
	ENCORE _____
	Glassware in the fridge?
	Y / N

[illegible]

Glassware in freezer? Y / N
Prepackaged Cooler? Y / N
*Pace Analytical is not responsible for missing samples from prepacked coolers

1 Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please
define)

² **Preservation Codes:**
I = Iced

H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Detection Limit Requirements		Special Requirements
MA		☐ MA MCP Required
		☐ MCP Certification Form Required
CT		☐ CT RCP Required
		☐ RCP Certification Form Required
		☐ MA State DW Required
Other:	PWSID #	

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

NELAP and AIHA-LAP, LLC Accredited	
☐	Other
☐	☐ Chromatogram
	☐ AIHA-LAP, LLC

Project Entity							
Government	☐	Municipality	☐	MWRA	☐	WRTA	☐
Federal	☐	21 J	☐	School	☐		
City	☐	Brownfield	☐	MBTA	☐		

Comments:

Disclaimer: Pace Analytical is not responsible for any omitted information on the Chain of Custody. The Chain of Custody is a legal document that must be complete and accurate and is used to determine what analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Pace Analytical values your partnership on each project and will try to assist with missing information, but will not be held accountable.

ENV-FRM-ELON-0001 v09_Sample Receiving Checklist

Log In Back-Sheet

Client KAS Inc
 Project Halifax landfill
 MCP/RCP Required no
 Deliverable Package Requirement none
 Location Halifax, VT
 PWSID# (When Applicable) n/a
 Arrival Method:
 Courier ☒ Fed Ex ☐ Walk In ☐ Other ☐
 Received By / Date / Time Mem 5/15/26 2020
 Back-Sheet By / Date / Time Mem 5/19/26 0549
 Temperature Method Gun # 6
 WV samples: Yes (see note*) / No (follow normal procedure)
 Temp < 6° C Actual Temperature 18
 Rush Samples: Yes / No Notify NO
 Short Hold: Yes / No Notify NO

Notes regarding Samples/COC outside of SOP:

+ Received DUP sample not on
 COC, added as sample #5, analysis
 placed on hold.

Sample Receipt Checklist – (Rejection Criteria Listing – Using Acceptance Policy)
 Any False statement will be brought to the attention of the Client – True or False

	True	False
Received on Ice	☒	☐
Received in Cooler	☒	☐
Custody Seal: DATE TIME	☐	☒
COC Relinquished	☒	☐
COC/Samples Labels Agree	☒	☐
All Samples in Good Condition	☒	☐
Samples Received within Holding Time	☒	☐
Is there enough Volume	☒	☐
Proper Media/Container Used	☒	☐
Splitting Samples Required	☐	☒
MS/MSD	☐	☒
Trip Blanks	☐	☒
Lab to Filters	☐	☒
COC Legible	☒	☐
COC Included: (Check all included)		
Client ☒	Analysis ☒	Sampler Name ☒
Project ☒	IDs ☒	Collection Date/Time ☒
All Samples Proper pH:	<u>N/A</u>	☐
Samples Chlorinated:	<u>N/A</u>	☐

Additional Container Notes

***Note: West Virginia requires all samples to have their temperature taken. Note any outliers.**

	Soils				Ambers Glass								Plastics												Vials								Other									
	16 (oz)	8 (oz)	4 (oz)	2 (oz)	1L			250mL			100 (mL)	Other	1L	500mL		250mL						125 (mL)	80 (mL)	Encore		8oz	Other		VOA 40mL						20mL							
	C / A	C / A	C / A	C / A	Unp.	HCl	H ₂ SO ₄	Unp.	Phos.	HCl	H ₂ SO ₄	Unp.	8oz-BR	Unp.	H ₂ SO ₄	Unp.	H ₂ SO ₄	Unp.	Triz	H ₂ SO ₄	HNO ₃	Amm. Ace	NaOH	NaOH+ZnAce	Unp.	Unp.	25g	5g	Unp.	Bag	Bac / Col	Unp.	HCl	MeOH	DI	NaHSO ₄	H ₂ SO ₄	Asc. Acid	Unp.	HCl		
1																		2																								
2																		1																								
3																		2																								
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