Halifax Landfill
2044 Branch Road
Halifax, Vermont

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

SPRING 2024 ANNUAL WATER QUALITY MONITORING REPORT

May 24, 2024

Prepared for:

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Introduction

KAS, Inc. (KAS) conducted an annual water quality monitoring event on May 1, 2024 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 was collected from the Town Garage and also 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 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., facility is not eligible for custodial care status) due to elevated PFAS levels that persist in the groundwater.

PFAS compounds subject to regulation in Vermont include perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), perfluorohexanesulfonic acid (PFHxS), perfluoroheptanoic acid (PFHpA), and perfluorononanoic acid (PFNA). The VGES for PFAS is 20 nanograms per liter (ng/L) for the sum of the five regulated PFAS. There are numerous other PFAS compounds that are not regulated in Vermont, some of which are considered replacements for PFAS that have been phased out of production and use.

Currently, groundwater monitoring for PFAS is limited to 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

The groundwater at MW-3 was field analyzed for temperature, pH, and specific conductance using a properly calibrated YSI® Pro Multi-Meter. The depth to groundwater was gauged using a Geotech™ water level indicator.

Depth to groundwater in MW-3 was measured at 5.31 feet below top of casing (btoc). At the time of sampling, the water temperature was 9.3 degrees Celsius, with a pH of 6.25 standard units. 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 286 ng/L in the sample collected from MW-3, which exceeds the VGES of 20 ng/l. 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 1, 2024, 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 EPA Method 537.1. PFAS concentrations were all below the laboratory detection limit. A field blank sample was prepared by KAS at the time of sample collection but was not analyzed by the lab since there were no PFAS detections in the drinking water sample.

PFAS Trends & Discussions

Previously, the range of historical fluctuation in PFAS at MW-3 was 30 – 236 ng/L. As such, the total regulated PFAS concentration (286 ng/L) reported in the May 2024 groundwater sample is the new peak. PFAS concentrations are consistently higher in the spring and lower in the fall, which suggests that PFAS levels are influenced by fluctuations in precipitation, groundwater elevations, and/or leachate generation. Without a continued source of PFAS in the closed landfill, PFAS levels in groundwater are expected to decrease slowly over time. However, given the persistent nature of PFAS in the environment, this may take many years. Based on data collected to date, PFAS sampling at an annual frequency (e.g., every spring) is likely adequate to monitor long-term trends.

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] Other studies have found that unregulated PFAS, that are reported to be replacement compounds for PFOA and PFAS, may exceed the regulated PFAS concentrations.[2] For the October 2023 sampling, a full PFAS list (or 34 compounds) was analyzed and reported by the lab. The total regulated PFAS accounted for 76% of all PFAS reported by the lab. This indicates that although there are other non-regulated PFAS, analyzing for the shorter list of VT-regulated PFAS is adequate for monitoring PFAS impacts from the Halifax closed landfill.

At this time, the Town Garage and nearby residential/private supply wells do not appear to be impacted by PFAS. The following table is a summary of supply well sampling conducted to date.

[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

[2] Poly- and Perfluoroalkyl Substances at Wastewater Treatment Facilities and Landfill Leachate, by Weston & Sampson, January 30, 2020, available online https://dec.vermont.gov/press-release/department-environmental-conservation-releases-reports-pfas-chemicals

Table 1 – Summary of Private Drinking Water Sampling

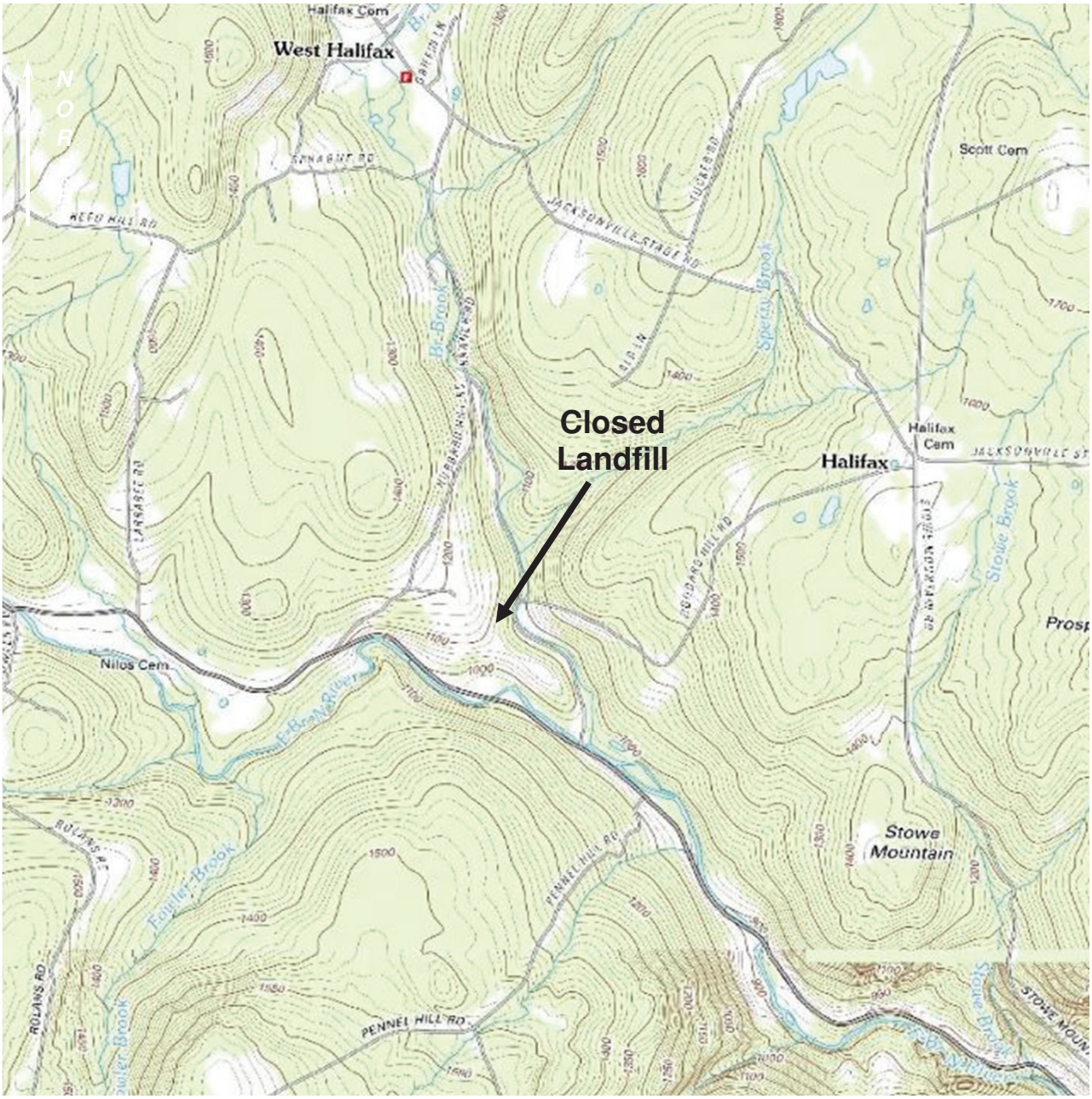
Sample ID	Address	Sampling Dates	VT-Regulated PFAS Results
Town Garage	2044 Branch Road (south of landfill)	8/30/2017, 11/18/2021, 5/25/2023, 10/4/2023, 5/1/2024	On 11/18/2021, PFOA was detected at 1.5 ng/L. For the remaining samples, PFAS was non-detect (below laboratory reporting limits).
Rafus	637 Hubbard Hill Road (north/northwest of landfill)	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, PFAS was non-detect (below laboratory reporting limits).
Phelan	1547 Branch Road (northeast of landfill)	10/23/2018, 11/18/2021	For all samples, PFAS was non-detect (below laboratory reporting limits).
Tamburrino	2136 Branch Road (south of landfill)	8/30/2017	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 2025.

APPENDIX A

Site Location Map and Site 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

MONITORING WELL

SURFACE WATER SAMPLE

* montoring well and surface water locations are approximate

VTDEC Project: NS95-0165
KAS Job Number: 610110045
Source: Google Earth

HALIFAX CLOSED LANDFILL

2044 Branch Road, Halifax, VT

SITE MAP

Date: 07/31/17	Drawing No. 2	Scale: NTS	By: RT

APPENDIX B

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	nt	ND<0.001	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	0.01	ND<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	2.3	nt	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[E]	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

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GROUNDWATER QUALITY SUMMARY

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
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)*			nt	nt	nt	nt	nt	nt	nt	ns	ND<3.8	**11.7**	**9.2**	**13.1**	**12.3**	**10.1**	**4.8**	**14.9**	**8.49**
Perfluoroheptanoic acid (PFHpA)*			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)*	-	-	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)*			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)*			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 PFC Compounds	20	2	nt	nt	nt	nt	nt	nt	nt	ns	**30.3**	**144**	**104**	**224**	**140.6**	**167**	**105.7**	**116.1**	**94.2**

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										
pH	NA	NA	6.62	6.29	6.42	6.82	6.47	6.20	6.25										
Spec. Conductivity (µS/cm)	NA	NA	259.2	319.9	346	-	209.8	264.0	285.1										
Temperature (degrees C)	NA	NA	13.5	10.8	18.1	13.2	8.6	14.7	9.3										
Depth to Water (feet btoc)	NA	NA	5.68	5.19	6.76	6.44	5.89	6.25	5.31										
Perfluorobutanesulfonic acid (PFBS)*	NA	NA	**4.44**	**4.71**	**3.7**	ND<20	**3.7**	**3.5**	**3.6**										
Perfluorohexanesulfonic acid (PFHxS)*			**15.9**	**16.5**	**16**	ND<20	**14**	**12**	**18**										
Perfluoroheptanoic acid (PFHpA)*			**9.52**	**8.73**	**23**	ND<20	**22**	**3.7**	**46**										
Perfluorooctanoic acid (PFOA)*	-	-	**48.1**	**46.2**	**140**	**60**	**89**	**22**	**160**										
Perfluorooctanesulfonic acid (PFOS)*			**41.6**	**39.3**	**54**	**48**	**49**	**39**	**59**										
Perfluorononanoic acid (PFNA)*			**1.03**	**1.3**	**2.8**	ND<20	**2.3**	ND<1.9	**3.1**										
Total Regulated PFAS Compounds	20	2	**116.2**	**112.0**	**236**	**108**	**176**	**77**	**286**										

Notes:
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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 PFHxS, PFHpA, PFOA, PFOS and PFNA, the VGES and PAL standards applies to the individual compounds and the sum of these compounds.

= exceeds current PAL
= exceeds current VGES

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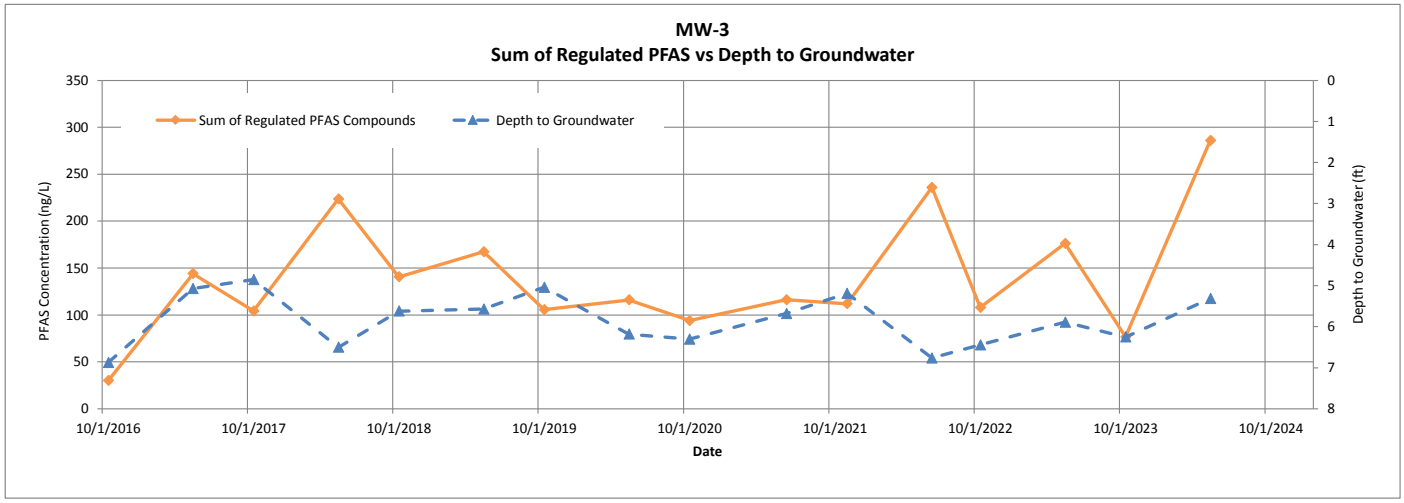
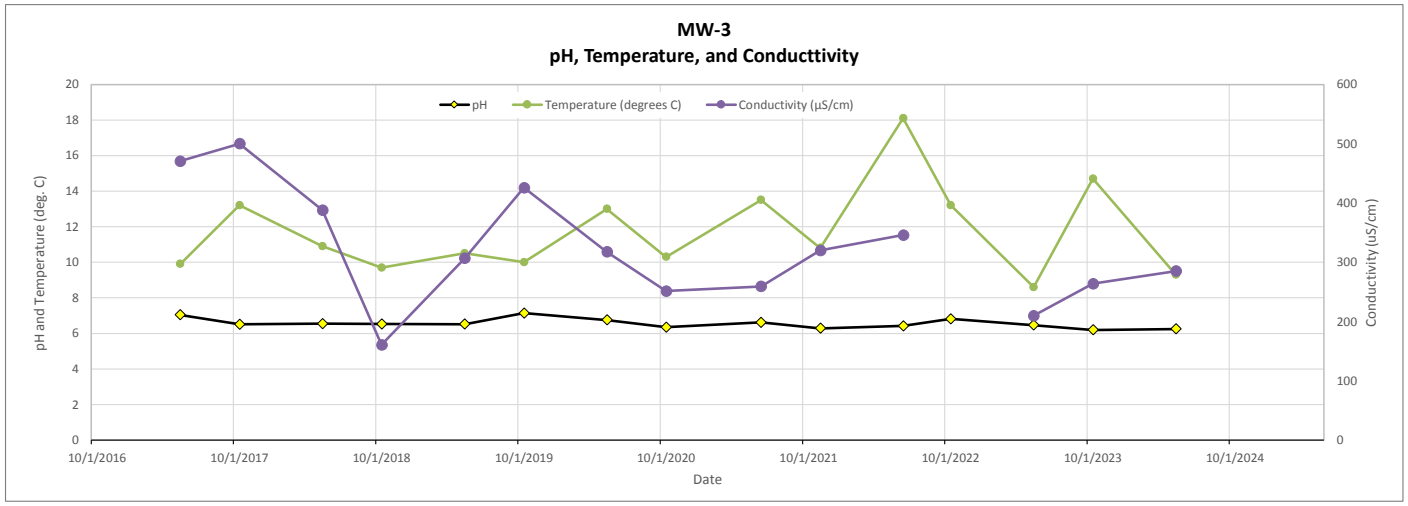

MW-3
Sum of Regulated PFAS vs Depth to Groundwater
Sum of Regulated PFAS Compounds
Depth to Groundwater
PFAS Concentration (ng/L)
Depth to Groundwater (ft)
Date
350
300
250
200
150
100
50
0
0
1
2
3
4
5
6
7
8
10/1/2016
10/1/2017
10/1/2018
10/1/2019
10/1/2020
10/1/2021
10/1/2022
10/1/2023
10/1/2024


MW-3
pH, Temperature, and Conducttivity
pH
Temperature (degrees C)
Conductivity (µS/cm)
pH and Temperature (deg. C)
Conductivity (uS/cm)
Date
20
18
16
14
12
10
8
6
4
2
0
600
500
400
300
200
100
0
10/1/2016
10/1/2017
10/1/2018
10/1/2019
10/1/2020
10/1/2021
10/1/2022
10/1/2023
10/1/2024

APPENDIX C

Laboratory Report

con-test®
A Pace Analytical® Laboratory

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

May 21, 2024

Clare Santos
KAS Environmental
589 Avenue D
Williston, VT 05495

Project Location: Hallifax, VT
Client Job Number:
Project Number: 610110045
Laboratory Work Order Number: 24E0562

Enclosed are results of analyses for samples as received by the laboratory on May 3, 2024. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

Table of Contents

Sample Summary 3

Case Narrative 4

Sample Results 6

24E0562-01 6

24E0562-02 7

24E0562-03 8

Sample Preparation Information 9

QC Data 10

Semivolatile Organic Compounds by - LC/MS-MS 10

B373475 10

B373476 11

B373565 13

Flag/Qualifier Summary 16

Internal standard Area & RT Summary 17

Certifications 21

Chain of Custody/Sample Receipt 23

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

KAS Environmental
589 Avenue D
Williston, VT 05495
ATTN: Clare Santos

REPORT DATE: 5/21/2024

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 610110045

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 24E0562

The results of analyses performed on the following samples submitted to CON-TEST, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: Hallifax, VT

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MW-3	24E0562-01	Ground Water		SOP-454 PFAS	
Field Blank FRB (MW-3)	24E0562-02	Field Blank		EPA 537.1	
Town Garuge	24E0562-03	Drinking Water		EPA 537.1	

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CASE NARRATIVE SUMMARY

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

EPA 537.1

Qualifications:

PF-04

Internal standard area <50% of associated calibration standard internal standard area. Re-analysis reported since it yielded similar internal standard non-conformace.

Analyte & Samples(s) Qualified:

D3-NMeFOSAA
24E0562-02[Field Blank FRB (MW-3)]

PF-14

Internal standard area <70% of associated continuing calibration standard internal standard area. Re-analysis reported since it yielded similar internal standard non-conformace.

Analyte & Samples(s) Qualified:

D3-NMeFOSAA
24E0562-02[Field Blank FRB (MW-3)]

PF-15

Surrogate recovery is outside of control limits. Unable to re-extract sample due to insufficient sample volume.

Analyte & Samples(s) Qualified:

D5-NEtFOSAA
24E0562-02[Field Blank FRB (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:

11Cl-PF3OUdS (F53B Major)
S104495-CCV1, S104495-CCV2

SOP-454 PFAS

Qualifications:

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

D5-NEtFOSAA
24E0562-01[MW-3]

M2-4:2FTS
S104354-CCV3

M2-8:2FTS
24E0562-01[MW-3], S104354-CCV3

M2PFTA
24E0562-01[MW-3]

M8FOSA
24E0562-01[MW-3]

MPFBA
24E0562-01[MW-3]

MPFDoA
24E0562-01[MW-3]

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The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, 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

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

Project Location: Hallifax, VT
Sample Description:
Work Order: 24E0562

Date Received: 5/3/2024

Field Sample #: MW-3
Sampled: 5/1/2024 12:06

Sample ID: 24E0562-01

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)	19	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluorobutanesulfonic acid (PFBS)	3.6	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluoropentanoic acid (PFPeA)	26	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluorohexanoic acid (PFHxA)	40	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluoroheptanesulfonic acid (PFHpS)	3.5	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluorohexanesulfonic acid (PFHxS)	18	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluoropentanesulfonic acid (PFPeS)	3.0	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluoroheptanoic acid (PFHpA)	46	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluorooctanoic acid (PFOA)	160	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluorooctanesulfonic acid (PFOS)	59	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW
Perfluorononanoic acid (PFNA)	3.1	1.8	ng/L	1		SOP-454 PFAS	5/8/24	5/8/24 18:27	QNW

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Project Location: Hallifax, VT | Sample Description: | Work Order: 24E0562

Date Received: 5/3/2024

Field Sample #: Field Blank FRB (MW-3) | Sampled: 5/1/2024 11:29

Sample ID: 24E0562-02

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
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		EPA 537.1	5/9/24	5/13/24 17:20	BLH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	90.2	70-130		5/13/24 17:20
M3HFPO-DA	88.6	70-130		5/13/24 17:20
13C-PFDA	94.1	70-130		5/13/24 17:20
D5-NEtFOSAA	**373** *	70-130	PF-15	5/13/24 17:20

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Project Location: Hallifax, VT | Sample Description: | Work Order: 24E0562

Date Received: 5/3/2024

Field Sample #: Town Garuge | Sampled: 5/1/2024 12:52

Sample ID: 24E0562-03

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
Perfluorohexanoic acid (PFHxA)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
Perfluorooctanoic acid (PFOA)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
Perfluorononanoic acid (PFNA)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
N-EtFOSAA (NEtFOSAA)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
N-MeFOSAA (NMeFOSAA)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
11Cl-PF3OUdS (F53B Major)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
9Cl-PF3ONS (F53B Minor)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8		ng/L	1		EPA 537.1	5/8/24	5/9/24 18:04	BLH

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	88.8	70-130		5/9/24 18:04
M3HFPO-DA	88.9	70-130		5/9/24 18:04
13C-PFDA	79.5	70-130		5/9/24 18:04
D5-NEtFOSAA	86.0	70-130		5/9/24 18:04

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Sample Extraction Data

Prep Method:EPA 537.1 **Analytical Method:EPA 537.1**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
24E0562-02 [Field Blank FRB (MW-3)]	B373475	266	1.00	05/09/24

Prep Method:EPA 537.1 **Analytical Method:EPA 537.1**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
24E0562-03 [Town Garuge]	B373476	271	1.00	05/08/24

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
24E0562-01 [MW-3]	B373565	277	1.00	05/08/24

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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
Batch B373475 - EPA 537.1										
Blank (B373475-BLK1)				Prepared: 05/09/24 Analyzed: 05/10/24						
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L							
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L							
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L							
Surrogate: 13C-PFHxA	*28.7*		ng/L	36.4		78.9	70-130			
Surrogate: M3HFPO-DA	*30.4*		ng/L	36.4		83.4	70-130			
Surrogate: 13C-PFDA	*30.1*		ng/L	36.4		82.8	70-130			
Surrogate: D5-NEtFOSAA	*113*		ng/L	146		77.9	70-130			
LCS (B373475-BS1)				Prepared: 05/09/24 Analyzed: 05/10/24						
Perfluorobutanesulfonic acid (PFBS)	13.8	1.7	ng/L	15.3		90.1	70-130			
Perfluorohexanoic acid (PFHxA)	16.5	1.7	ng/L	17.3		95.6	70-130			
Perfluorohexanesulfonic acid (PFHxS)	15.6	1.7	ng/L	15.8		98.6	70-130			
Perfluoroheptanoic acid (PFHpA)	18.9	1.7	ng/L	17.3		109	70-130			
Perfluorooctanoic acid (PFOA)	16.9	1.7	ng/L	17.3		97.9	70-130			
Perfluorooctanesulfonic acid (PFOS)	13.0	1.7	ng/L	16.0		81.1	70-130			
Perfluorononanoic acid (PFNA)	18.4	1.7	ng/L	17.3		107	70-130			
Perfluorodecanoic acid (PFDA)	17.0	1.7	ng/L	17.3		98.3	70-130			
N-EtFOSAA (NEtFOSAA)	14.1	1.7	ng/L	17.3		81.8	70-130			
Perfluoroundecanoic acid (PFUnA)	15.9	1.7	ng/L	17.3		92.1	70-130			
N-MeFOSAA (NMeFOSAA)	14.3	1.7	ng/L	17.3		82.8	70-130			
Perfluorododecanoic acid (PFDoA)	14.4	1.7	ng/L	17.3		83.5	70-130			
Perfluorotridecanoic acid (PFTrDA)	13.8	1.7	ng/L	17.3		79.7	70-130			
Perfluorotetradecanoic acid (PFTA)	14.1	1.7	ng/L	17.3		81.5	70-130			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	16.2	1.7	ng/L	17.3		94.1	70-130			
11Cl-PF3OUdS (F53B Major)	13.4	1.7	ng/L	16.3		82.5	70-130			
9Cl-PF3ONS (F53B Minor)	16.2	1.7	ng/L	16.1		100	70-130			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	16.8	1.7	ng/L	16.3		103	70-130			
Surrogate: 13C-PFHxA	*27.3*		ng/L	34.5		79.1	70-130			
Surrogate: M3HFPO-DA	*29.1*		ng/L	34.5		84.1	70-130			
Surrogate: 13C-PFDA	*28.5*		ng/L	34.5		82.6	70-130			
Surrogate: D5-NEtFOSAA	*98.2*		ng/L	138		71.1	70-130			

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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
Batch B373475 - EPA 537.1										
LCS Dup (B373475-BSD1)				Prepared: 05/09/24 Analyzed: 05/10/24						
Perfluorobutanesulfonic acid (PFBS)	15.0	1.8	ng/L	16.2		92.5	70-130	8.14	30	
Perfluorohexanoic acid (PFHxA)	17.8	1.8	ng/L	18.2		97.6	70-130	7.61	30	
Perfluorohexanesulfonic acid (PFHxS)	17.1	1.8	ng/L	16.7		103	70-130	9.58	30	
Perfluoroheptanoic acid (PFHpA)	19.8	1.8	ng/L	18.2		109	70-130	4.96	30	
Perfluorooctanoic acid (PFOA)	18.4	1.8	ng/L	18.2		101	70-130	8.60	30	
Perfluorooctanesulfonic acid (PFOS)	14.0	1.8	ng/L	16.9		82.9	70-130	7.70	30	
Perfluorononanoic acid (PFNA)	19.1	1.8	ng/L	18.2		105	70-130	4.06	30	
Perfluorodecanoic acid (PFDA)	18.4	1.8	ng/L	18.2		101	70-130	8.14	30	
N-EtFOSAA (NEtFOSAA)	15.5	1.8	ng/L	18.2		85.2	70-130	9.62	30	
Perfluoroundecanoic acid (PFUnA)	16.5	1.8	ng/L	18.2		90.5	70-130	3.74	30	
N-MeFOSAA (NMeFOSAA)	15.4	1.8	ng/L	18.2		84.2	70-130	7.21	30	
Perfluorododecanoic acid (PFDoA)	15.0	1.8	ng/L	18.2		82.1	70-130	3.88	30	
Perfluorotridecanoic acid (PFTrDA)	14.6	1.8	ng/L	18.2		79.9	70-130	5.77	30	
Perfluorotetradecanoic acid (PFTA)	15.0	1.8	ng/L	18.2		82.4	70-130	6.62	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	16.2	1.8	ng/L	18.2		88.8	70-130	0.297	30	
11Cl-PF3OUdS (F53B Major)	15.2	1.8	ng/L	17.2		88.3	70-130	12.3	30	
9Cl-PF3ONS (F53B Minor)	16.8	1.8	ng/L	17.0		98.6	70-130	3.76	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	18.1	1.8	ng/L	17.2		105	70-130	7.51	30	
Surrogate: 13C-PFHxA	*28.9*		ng/L	36.5		79.2	70-130			
Surrogate: M3HFPO-DA	*30.3*		ng/L	36.5		83.2	70-130			
Surrogate: 13C-PFDA	*30.4*		ng/L	36.5		83.3	70-130			
Surrogate: D5-NEtFOSAA	*112*		ng/L	146		76.7	70-130			
Batch B373476 - EPA 537.1										
Blank (B373476-BLK1)				Prepared: 05/08/24 Analyzed: 05/09/24						
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L							
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L							
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L							
Surrogate: 13C-PFHxA	*34.4*		ng/L	38.2		89.9	70-130			
Surrogate: M3HFPO-DA	*36.1*		ng/L	38.2		94.5	70-130			
Surrogate: 13C-PFDA	*32.0*		ng/L	38.2		83.7	70-130			
Surrogate: D5-NEtFOSAA	*139*		ng/L	153		90.9	70-130			

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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
Batch B373476 - EPA 537.1										
LCS (B373476-BS1)				Prepared: 05/08/24 Analyzed: 05/09/24						
Perfluorobutanesulfonic acid (PFBS)	1.81	1.9	ng/L	1.66		109	50-150			
Perfluorohexanoic acid (PFHxA)	1.94	1.9	ng/L	1.87		104	50-150			
Perfluorohexanesulfonic acid (PFHxS)	1.81	1.9	ng/L	1.71		106	50-150			
Perfluoroheptanoic acid (PFHpA)	1.90	1.9	ng/L	1.87		102	50-150			
Perfluorooctanoic acid (PFOA)	1.86	1.9	ng/L	1.87		99.3	50-150			
Perfluorooctanesulfonic acid (PFOS)	1.32	1.9	ng/L	1.74		75.9	50-150			
Perfluorononanoic acid (PFNA)	1.91	1.9	ng/L	1.87		102	50-150			
Perfluorodecanoic acid (PFDA)	1.85	1.9	ng/L	1.87		99.0	50-150			
N-EtFOSAA (NEtFOSAA)	1.55	1.9	ng/L	1.87		82.9	50-150			
Perfluoroundecanoic acid (PFUnA)	1.80	1.9	ng/L	1.87		96.2	50-150			
N-MeFOSAA (NMeFOSAA)	1.45	1.9	ng/L	1.87		77.6	50-150			
Perfluorododecanoic acid (PFDoA)	2.06	1.9	ng/L	1.87		110	50-150			
Perfluorotridecanoic acid (PFTrDA)	2.13	1.9	ng/L	1.87		113	50-150			
Perfluorotetradecanoic acid (PFTA)	2.05	1.9	ng/L	1.87		109	50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	2.73	1.9	ng/L	1.87		146	50-150			
11Cl-PF3OUdS (F53B Major)	1.97	1.9	ng/L	1.77		112	50-150			
9Cl-PF3ONS (F53B Minor)	2.06	1.9	ng/L	1.75		118	50-150			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.67	1.9	ng/L	1.77		94.2	50-150			
Surrogate: 13C-PFHxA	*34.8*		ng/L	37.5		92.8	70-130			
Surrogate: M3HFPO-DA	*36.6*		ng/L	37.5		97.8	70-130			
Surrogate: 13C-PFDA	*31.3*		ng/L	37.5		83.7	70-130			
Surrogate: D5-NEtFOSAA	*133*		ng/L	150		88.5	70-130			
LCS Dup (B373476-BSD1)				Prepared: 05/08/24 Analyzed: 05/09/24						
Perfluorobutanesulfonic acid (PFBS)	1.69	1.9	ng/L	1.66		102	50-150	6.89	50	
Perfluorohexanoic acid (PFHxA)	1.84	1.9	ng/L	1.87		98.5	50-150	5.54	50	
Perfluorohexanesulfonic acid (PFHxS)	1.72	1.9	ng/L	1.71		101	50-150	5.10	50	
Perfluoroheptanoic acid (PFHpA)	1.75	1.9	ng/L	1.87		93.7	50-150	8.27	50	
Perfluorooctanoic acid (PFOA)	1.61	1.9	ng/L	1.87		86.1	50-150	14.5	50	
Perfluorooctanesulfonic acid (PFOS)	1.34	1.9	ng/L	1.73		77.2	50-150	1.40	50	
Perfluorononanoic acid (PFNA)	1.73	1.9	ng/L	1.87		92.8	50-150	9.51	50	
Perfluorodecanoic acid (PFDA)	1.67	1.9	ng/L	1.87		89.5	50-150	10.3	50	
N-EtFOSAA (NEtFOSAA)	1.18	1.9	ng/L	1.87		63.1	50-150	27.4	50	
Perfluoroundecanoic acid (PFUnA)	1.74	1.9	ng/L	1.87		93.1	50-150	3.57	50	
N-MeFOSAA (NMeFOSAA)	1.38	1.9	ng/L	1.87		74.0	50-150	4.95	50	
Perfluorododecanoic acid (PFDoA)	1.92	1.9	ng/L	1.87		103	50-150	7.33	50	
Perfluorotridecanoic acid (PFTrDA)	1.85	1.9	ng/L	1.87		98.8	50-150	14.1	50	
Perfluorotetradecanoic acid (PFTA)	1.95	1.9	ng/L	1.87		105	50-150	4.69	50	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	2.44	1.9	ng/L	1.87		131	50-150	11.0	50	
11Cl-PF3OUdS (F53B Major)	1.96	1.9	ng/L	1.76		111	50-150	0.594	50	
9Cl-PF3ONS (F53B Minor)	1.97	1.9	ng/L	1.74		113	50-150	4.15	50	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.58	1.9	ng/L	1.77		89.3	50-150	5.54	50	
Surrogate: 13C-PFHxA	*32.7*		ng/L	37.4		87.5	70-130			
Surrogate: M3HFPO-DA	*34.8*		ng/L	37.4		93.2	70-130			
Surrogate: 13C-PFDA	*30.6*		ng/L	37.4		81.8	70-130			
Surrogate: D5-NEtFOSAA	*128*		ng/L	149		85.8	70-130			

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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
Batch B373565 - SOP 454-PFAAS										
Blank (B373565-BLK1)				Prepared: 05/08/24 Analyzed: 05/09/24						
Perfluorobutanoic acid (PFBA)	ND	1.8	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L							
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L							
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L							
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L							
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L							
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L							
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L							
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L							
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L							
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L							
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L							
LCS (B373565-BS1)				Prepared: 05/08/24 Analyzed: 05/09/24						
Perfluorobutanoic acid (PFBA)	10.3	1.9	ng/L	9.49		109	73-129			
Perfluorobutanesulfonic acid (PFBS)	9.03	1.9	ng/L	8.40		108	72-130			
Perfluoropentanoic acid (PFPeA)	10.1	1.9	ng/L	9.49		107	72-129			
Perfluorohexanoic acid (PFHxA)	10.1	1.9	ng/L	9.49		106	72-129			
11Cl-PF3OUdS (F53B Major)	10.9	1.9	ng/L	8.94		122	43.3-138			
9Cl-PF3ONS (F53B Minor)	10.0	1.9	ng/L	8.85		113	52-140			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.60	1.9	ng/L	8.94		96.2	53.7-152			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	9.70	1.9	ng/L	9.49		102	42.1-145			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.81	1.9	ng/L	9.12		96.6	67-138			
Perfluorodecanoic acid (PFDA)	10.6	1.9	ng/L	9.49		111	71-129			
Perfluorododecanoic acid (PFDoA)	7.99	1.9	ng/L	9.49		84.1	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	9.29	1.9	ng/L	8.45		110	52.7-147			

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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
Batch B373565 - SOP 454-PFAAS										
LCS (B373565-BS1)				Prepared: 05/08/24 Analyzed: 05/09/24						
Perfluoroheptanesulfonic acid (PFHpS)	10.7	1.9	ng/L	9.07		118	69-134			
N-EtFOSAA (NEtFOSAA)	11.2	1.9	ng/L	9.49		118	61-135			
N-MeFOSAA (NMeFOSAA)	12.1	1.9	ng/L	9.49		128	65-136			
Perfluorotetradecanoic acid (PFTA)	9.99	1.9	ng/L	9.49		105	71-132			
Perfluorotridecanoic acid (PFTrDA)	8.55	1.9	ng/L	9.49		90.0	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	8.79	1.9	ng/L	8.88		99.1	63-143			
Perfluorodecanesulfonic acid (PFDS)	8.54	1.9	ng/L	9.16		93.2	53-142			
Perfluorooctanesulfonamide (FOSA)	10.3	1.9	ng/L	9.49		108	67-137			
Perfluorononanesulfonic acid (PFNS)	9.45	1.9	ng/L	9.12		104	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	9.88	1.9	ng/L	9.49		104	50-150			
Perfluoro-1-butanesulfonamide (FBSA)	9.74	1.9	ng/L	9.49		103	50-150			
Perfluorohexanesulfonic acid (PFHxS)	9.20	1.9	ng/L	8.69		106	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	10.7	1.9	ng/L	9.49		113	53.8-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	10.2	1.9	ng/L	9.49		107	54.5-152			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.95	1.9	ng/L	9.02		110	64-140			
Perfluoropentanesulfonic acid (PFPeS)	9.74	1.9	ng/L	8.93		109	71-127			
Perfluoroundecanoic acid (PFUnA)	9.31	1.9	ng/L	9.49		98.0	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.6	1.9	ng/L	9.49		112	50.5-159			
Perfluoroheptanoic acid (PFHpA)	9.50	1.9	ng/L	9.49		100	72-130			
Perfluorooctanoic acid (PFOA)	9.29	1.9	ng/L	9.49		97.9	71-133			
Perfluorooctanesulfonic acid (PFOS)	10.6	1.9	ng/L	8.78		121	65-140			
Perfluorononanoic acid (PFNA)	10.2	1.9	ng/L	9.49		107	69-130			
LCS Dup (B373565-BSD1)				Prepared & Analyzed: 05/08/24						
Perfluorobutanoic acid (PFBA)	10.1	1.8	ng/L	9.13		110	73-129	2.51	30	
Perfluorobutanesulfonic acid (PFBS)	8.51	1.8	ng/L	8.08		105	72-130	5.99	30	
Perfluoropentanoic acid (PFPeA)	9.77	1.8	ng/L	9.13		107	72-129	3.57	30	
Perfluorohexanoic acid (PFHxA)	9.35	1.8	ng/L	9.13		102	72-129	7.44	30	
11Cl-PF3OUdS (F53B Major)	9.48	1.8	ng/L	8.60		110	43.3-138	14.0	30	
9Cl-PF3ONS (F53B Minor)	9.05	1.8	ng/L	8.51		106	52-140	10.1	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.21	1.8	ng/L	8.60		95.4	53.7-152	4.69	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	9.71	1.8	ng/L	9.13		106	42.1-145	0.139	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	10.0	1.8	ng/L	8.76		114	67-138	12.7	30	
Perfluorodecanoic acid (PFDA)	10.3	1.8	ng/L	9.13		113	71-129	2.25	30	
Perfluorododecanoic acid (PFDoA)	9.31	1.8	ng/L	9.13		102	72-134	15.3	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	9.19	1.8	ng/L	8.13		113	52.7-147	1.10	30	
Perfluoroheptanesulfonic acid (PFHpS)	9.62	1.8	ng/L	8.72		110	69-134	10.5	30	
N-EtFOSAA (NEtFOSAA)	11.9	1.8	ng/L	9.13		130	61-135	5.89	30	
N-MeFOSAA (NMeFOSAA)	12.3	1.8	ng/L	9.13		135	65-136	1.14	30	
Perfluorotetradecanoic acid (PFTA)	9.26	1.8	ng/L	9.13		101	71-132	7.58	30	
Perfluorotridecanoic acid (PFTrDA)	9.32	1.8	ng/L	9.13		102	65-144	8.64	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	8.32	1.8	ng/L	8.54		97.4	63-143	5.60	30	
Perfluorodecanesulfonic acid (PFDS)	8.11	1.8	ng/L	8.81		92.1	53-142	5.10	30	
Perfluorooctanesulfonamide (FOSA)	10.2	1.8	ng/L	9.13		112	67-137	1.02	30	
Perfluorononanesulfonic acid (PFNS)	8.79	1.8	ng/L	8.76		100	69-127	7.21	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	9.78	1.8	ng/L	9.13		107	50-150	1.05	30	
Perfluoro-1-butanesulfonamide (FBSA)	9.62	1.8	ng/L	9.13		105	50-150	1.29	30	
Perfluorohexanesulfonic acid (PFHxS)	8.84	1.8	ng/L	8.35		106	68-131	3.90	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	9.76	1.8	ng/L	9.13		107	53.8-150	9.06	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	9.18	1.8	ng/L	9.13		101	54.5-152	10.1	30	

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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
Batch B373565 - SOP 454-PFAAS										
LCS Dup (B373565-BSD1)				Prepared & Analyzed: 05/08/24						
6:2 Fluorotelomersulfonic acid (6:2FTS A)	10.2	1.8	ng/L	8.67		118	64-140	2.64	30	
Perfluoropentanesulfonic acid (PFPeS)	9.19	1.8	ng/L	8.58		107	71-127	5.86	30	
Perfluoroundecanoic acid (PFUnA)	9.39	1.8	ng/L	9.13		103	69-133	0.892	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.1	1.8	ng/L	9.13		110	50.5-159	4.94	30	
Perfluoroheptanoic acid (PFHpA)	9.10	1.8	ng/L	9.13		99.7	72-130	4.25	30	
Perfluorooctanoic acid (PFOA)	9.43	1.8	ng/L	9.13		103	71-133	1.50	30	
Perfluorooctanesulfonic acid (PFOS)	8.73	1.8	ng/L	8.45		103	65-140	19.7	30	
Perfluorononanoic acid (PFNA)	8.88	1.8	ng/L	9.13		97.3	69-130	13.5	30	

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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-04	Internal standard area <50% of associated calibration standard internal standard area. Re-analysis reported since it yielded similar internal standard non-conformace.
PF-14	Internal standard area <70% of associated continuing calibration standard internal standard area. Re-analysis reported since it yielded similar internal standard non-conformace.
PF-15	Surrogate recovery is outside of control limits. Unable to re-extract sample due to insufficient sample volume.
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
MW-3 (24E0562-01)			Lab File ID: 24E0562-01.d			Analyzed: 05/08/24 18:27			
M8FOSA	353462	3.716783	715,946.00	3.724783	49	50 - 150	-0.0080	+/-0.50	*
M2-4:2FTS	215812.7	2.27195	289,969.00	2.312983	74	50 - 150	-0.0410	+/-0.50	
M2PFTA	881670.2	4.073317	3,053,647.00	4.08945	29	50 - 150	-0.0161	+/-0.50	*
M2-8:2FTS	101125	3.538883	202,541.00	3.562767	50	50 - 150	-0.0239	+/-0.50	
MPFBA	446007.9	0.8594834	1,000,798.00	0.8678	45	50 - 150	-0.0083	+/-0.50	*
M3HFPO-DA	163161.6	2.589867	167,354.00	2.6226	97	50 - 150	-0.0327	+/-0.50	
M6PFDA	978807.8	3.5394	1,516,796.00	3.555333	65	50 - 150	-0.0159	+/-0.50	
M3PFBS	245819.8	1.662333	332,016.00	1.69545	74	50 - 150	-0.0331	+/-0.50	
M7PFUnA	1045981	3.689933	1,951,994.00	3.706117	54	50 - 150	-0.0162	+/-0.50	
M2-6:2FTS	152649.8	3.180483	169,936.00	3.1966	90	50 - 150	-0.0161	+/-0.50	
M5PFPeA	692285.2	1.49915	961,749.00	1.523967	72	50 - 150	-0.0248	+/-0.50	
M5PFHxA	1461029	2.355567	1,823,761.00	2.397233	80	50 - 150	-0.0417	+/-0.50	
M3PFHxS	175458	2.95305	234,181.00	2.969233	75	50 - 150	-0.0162	+/-0.50	
M4PFHpA	1505228	2.921683	2,011,578.00	2.938133	75	50 - 150	-0.0165	+/-0.50	
M8PFOA	1337367	3.189233	1,831,473.00	3.214	73	50 - 150	-0.0248	+/-0.50	
M8PFOS	152783.1	3.380167	226,316.00	3.396117	68	50 - 150	-0.0159	+/-0.50	
M9PFNA	1088667	3.3812	1,433,116.00	3.397167	76	50 - 150	-0.0160	+/-0.50	
MPFDoA	889669.6	3.824833	2,292,687.00	3.848833	39	50 - 150	-0.0240	+/-0.50	*
D5-NEtFOSAA	224323	3.697417	460,878.00	3.713583	49	50 - 150	-0.0162	+/-0.50	*
D3-NMeFOSAA	271826.1	3.617633	494,047.00	3.63355	55	50 - 150	-0.0159	+/-0.50	
Field Blank FRB (MW-3) (24E0562-02)			Lab File ID: 24E0562-02R.d			Analyzed: 05/13/24 17:20			
13C-PFOA	555068.6	3.3036	462,754.00	3.3036	120	50 - 150	0.0000	+/-0.50	
13C-PFOS	293566.3	3.573067	261,457.00	3.581217	112	50 - 150	-0.0082	+/-0.50	
D3-NMeFOSAA	185167.3	3.847533	860,602.00	3.872733	22	50 - 150	-0.0252	+/-0.50	*
Town Garuge (24E0562-03)			Lab File ID: 24E0562-03.d			Analyzed: 05/09/24 18:04			
13C-PFOA	281071.8	3.183217	450,723.00	3.183217	62	50 - 150	0.0000	+/-0.50	
13C-PFOS	169615.7	3.475917	315,714.00	3.475917	54	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	546889.1	3.755033	640,556.00	3.755033	85	50 - 150	0.0000	+/-0.50	
Blank (B373475-BLK1)			Lab File ID: B373475-BLK1.d			Analyzed: 05/10/24 18:48			
13C-PFOA	210850.9	3.1926	272,588.00	3.1926	77	50 - 150	0.0000	+/-0.50	
13C-PFOS	114701	3.475917	151,203.00	3.475917	76	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	445458.3	3.763317	520,235.00	3.763317	86	50 - 150	0.0000	+/-0.50	
LCS (B373475-BS1)			Lab File ID: B373475-BS1.d			Analyzed: 05/10/24 18:34			
13C-PFOA	195302.6	3.1926	272,588.00	3.1926	72	50 - 150	0.0000	+/-0.50	
13C-PFOS	106640.5	3.475917	151,203.00	3.475917	71	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	406492	3.763317	520,235.00	3.763317	78	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

EPA 537.1

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS Dup (B373475-BSD1)			Lab File ID: B373475-BSD1.d			Analyzed: 05/10/24 18:41			
13C-PFOA	196336	3.1926	272,588.00	3.1926	72	50 - 150	0.0000	+/-0.50	
13C-PFOS	105752.4	3.475917	151,203.00	3.475917	70	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	414981.7	3.763317	520,235.00	3.763317	80	50 - 150	0.0000	+/-0.50	
Blank (B373476-BLK1)			Lab File ID: B373476-BLK1.d			Analyzed: 05/09/24 17:57			
13C-PFOA	292147.2	3.183217	450,723.00	3.183217	65	50 - 150	0.0000	+/-0.50	
13C-PFOS	179416.6	3.475917	315,714.00	3.475917	57	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	557263.3	3.763317	640,556.00	3.755033	87	50 - 150	0.0083	+/-0.50	
LCS (B373476-BS1)			Lab File ID: B373476-BS1.d			Analyzed: 05/09/24 17:43			
13C-PFOA	279146	3.183217	450,723.00	3.183217	62	50 - 150	0.0000	+/-0.50	
13C-PFOS	173320.1	3.475917	315,714.00	3.475917	55	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	534923.4	3.755033	640,556.00	3.755033	84	50 - 150	0.0000	+/-0.50	
LCS Dup (B373476-BSD1)			Lab File ID: B373476-BSD1.d			Analyzed: 05/09/24 17:50			
13C-PFOA	282995.1	3.183217	450,723.00	3.183217	63	50 - 150	0.0000	+/-0.50	
13C-PFOS	177116	3.475917	315,714.00	3.475917	56	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	546013.1	3.755033	640,556.00	3.755033	85	50 - 150	0.0000	+/-0.50	
Blank (B373565-BLK1)			Lab File ID: B373565-BLK1.d			Analyzed: 05/09/24 18:26			
M8FOSA	527909.3	3.716783	902,782.00	3.716783	58	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	226425.8	2.296583	409,893.00	2.3048	55	50 - 150	-0.0082	+/-0.50	
M2PFTA	2266331	4.0814	3,721,979.00	4.081383	61	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	169028.9	3.554817	255,580.00	3.554817	66	50 - 150	0.0000	+/-0.50	
MPFBA	795798.2	0.8678	1,205,955.00	0.8678	66	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	194895.6	2.614417	235,203.00	2.614433	83	50 - 150	0.0000	+/-0.50	
M6PFDA	1342767	3.547367	1,874,628.00	3.555333	72	50 - 150	-0.0080	+/-0.50	
M3PFBS	280455.6	1.687167	394,489.00	1.69545	71	50 - 150	-0.0083	+/-0.50	
M7PFUnA	1425062	3.697933	2,171,229.00	3.697933	66	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	185999.5	3.188533	233,851.00	3.196617	80	50 - 150	-0.0081	+/-0.50	
M5PFPeA	797322.5	1.523967	1,159,831.00	1.523967	69	50 - 150	0.0000	+/-0.50	
M5PFHxA	1570669	2.3802	2,273,697.00	2.389017	69	50 - 150	-0.0088	+/-0.50	
M3PFHxS	202859.8	2.96115	293,703.00	2.96925	69	50 - 150	-0.0081	+/-0.50	
M4PFHpA	1727466	2.929783	2,518,225.00	2.93815	69	50 - 150	-0.0084	+/-0.50	
M8PFOA	1646963	3.206017	2,280,312.00	3.206033	72	50 - 150	0.0000	+/-0.50	
M8PFOS	194690.4	3.396133	291,255.00	3.396133	67	50 - 150	0.0000	+/-0.50	
M9PFNA	1264018	3.397167	1,767,732.00	3.397167	72	50 - 150	0.0000	+/-0.50	
MPFDoA	1564729	3.840833	2,430,767.00	3.840833	64	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	330580.3	3.705583	518,068.00	3.705583	64	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	384219.9	3.6256	570,251.00	3.63355	67	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
LCS (B373565-BS1)			Lab File ID: B373565-BS1R.d			Analyzed: 05/09/24 18:18			
M8FOSA	596649.2	3.716783	902,782.00	3.716783	66	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	250858.6	2.304783	409,893.00	2.3048	61	50 - 150	0.0000	+/-0.50	
M2PFTA	2382051	4.081383	3,721,979.00	4.081383	64	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	197393.6	3.554817	255,580.00	3.554817	77	50 - 150	0.0000	+/-0.50	
MPFBA	865326.8	0.8678	1,205,955.00	0.8678	72	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	203426.6	2.614417	235,203.00	2.614433	86	50 - 150	0.0000	+/-0.50	
M6PFDA	1379999	3.547367	1,874,628.00	3.555333	74	50 - 150	-0.0080	+/-0.50	
M3PFBS	304687.1	1.687167	394,489.00	1.69545	77	50 - 150	-0.0083	+/-0.50	
M7PFUnA	1541323	3.697917	2,171,229.00	3.697933	71	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	196536.7	3.18855	233,851.00	3.196617	84	50 - 150	-0.0081	+/-0.50	
M5PFPeA	872047.3	1.523983	1,159,831.00	1.523967	75	50 - 150	0.0000	+/-0.50	
M5PFHxA	1721401	2.389	2,273,697.00	2.389017	76	50 - 150	0.0000	+/-0.50	
M3PFHxS	219074.8	2.96115	293,703.00	2.96925	75	50 - 150	-0.0081	+/-0.50	
M4PFHpA	1853225	2.929783	2,518,225.00	2.93815	74	50 - 150	-0.0084	+/-0.50	
M8PFOA	1775181	3.206017	2,280,312.00	3.206033	78	50 - 150	0.0000	+/-0.50	
M8PFOS	203224.3	3.396133	291,255.00	3.396133	70	50 - 150	0.0000	+/-0.50	
M9PFNA	1338661	3.397167	1,767,732.00	3.397167	76	50 - 150	0.0000	+/-0.50	
MPFDoA	1698714	3.840833	2,430,767.00	3.840833	70	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	359991.3	3.705567	518,068.00	3.705583	69	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	414358.7	3.6256	570,251.00	3.63355	73	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
LCS Dup (B373565-BSD1)			Lab File ID: B373565-BSD1.d			Analyzed: 05/08/24 17:08			
M8FOSA	585348.8	3.724767	715,946.00	3.724783	82	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	240831.6	2.296567	289,969.00	2.312983	83	50 - 150	-0.0164	+/-0.50	
M2PFTA	2577703	4.081383	3,053,647.00	4.08945	84	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	179751	3.5548	202,541.00	3.562767	89	50 - 150	-0.0080	+/-0.50	
MPFBA	900749.3	0.8678	1,000,798.00	0.8678	90	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	206795.3	2.606233	167,354.00	2.6226	124	50 - 150	-0.0164	+/-0.50	
M6PFDA	1387795	3.54735	1,516,796.00	3.555333	91	50 - 150	-0.0080	+/-0.50	
M3PFBS	313007.3	1.687167	332,016.00	1.69545	94	50 - 150	-0.0083	+/-0.50	
M7PFUnA	1639660	3.697917	1,951,994.00	3.706117	84	50 - 150	-0.0082	+/-0.50	
M2-6:2FTS	199366.4	3.188533	169,936.00	3.1966	117	50 - 150	-0.0081	+/-0.50	
M5PFPeA	903929.6	1.5157	961,749.00	1.523967	94	50 - 150	-0.0083	+/-0.50	
M5PFHxA	1793130	2.380183	1,823,761.00	2.397233	98	50 - 150	-0.0170	+/-0.50	
M3PFHxS	229864	2.96115	234,181.00	2.969233	98	50 - 150	-0.0081	+/-0.50	
M4PFHpA	1948980	2.929767	2,011,578.00	2.938133	97	50 - 150	-0.0084	+/-0.50	
M8PFOA	1798150	3.206017	1,831,473.00	3.214	98	50 - 150	-0.0080	+/-0.50	
M8PFOS	221983.8	3.388133	226,316.00	3.396117	98	50 - 150	-0.0080	+/-0.50	
M9PFNA	1422575	3.389183	1,433,116.00	3.397167	99	50 - 150	-0.0080	+/-0.50	
MPFDoA	1754845	3.840817	2,292,687.00	3.848833	77	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	335949.2	3.705567	460,878.00	3.713583	73	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	429561.6	3.625583	494,047.00	3.63355	87	50 - 150	-0.0080	+/-0.50	

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA 537.1 in Drinking Water	
Perfluorobutanesulfonic acid (PFBS)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
Perfluorohexanoic acid (PFHxA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
Perfluorohexanesulfonic acid (PFHxS)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
Perfluoroheptanoic acid (PFHpA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
Perfluorooctanoic acid (PFOA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
Perfluorooctanesulfonic acid (PFOS)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
Perfluorononanoic acid (PFNA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
Perfluorodecanoic acid (PFDA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
N-EtFOSAA (NEtFOSAA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
Perfluoroundecanoic acid (PFUnA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
N-MeFOSAA (NMeFOSAA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
Perfluorododecanoic acid (PFDoA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
Perfluorotridecanoic acid (PFTrDA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
Perfluorotetradecanoic acid (PFTA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
11Cl-PF3OUdS (F53B Major)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
9Cl-PF3ONS (F53B Minor)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	VT-DW,NJ,CT,ME,PA,MI,MA,NY,NH,OH
SOP-454 PFAS in Water	
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 (F53B Major)	NH-P,PA,NY
9Cl-PF3ONS (F53B Minor)	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 (PFEESA)	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-butanesulfonamide (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

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP-454 PFAS in Water	
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

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
MA	Massachusetts DEP	M-MA100	06/30/2024
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2025
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2025
NJ	New Jersey DEP	MA007 NELAP	06/30/2024
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2024
ME	State of Maine	MA00100	06/9/2025
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2024
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024
MI	Dept. of Env, Great Lakes, and Energy	9100	06/30/2024
OH	Ohio Environmental Protection Agency	87781	04/1/2025

24E0562

http://www.pacelabs.com

Doc # 381 Rev 5_07/13/2021

Pace Analytical

Phone: 413-525-2332
Fax: 413-525-6405
Access COC's and Support Requests

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name:	KAS, Inc.
Address:	589 Ave. D, Ste. 10, Williston, VT, 05495
Phone:	802-383-0486
Project Name:	Halifax Landfill
Project Location:	Halifax, VT
Project Number:	6101100 45
Project Manager:	Clare Santos
Pace Quote Name/Number:	
Invoice Recipient:	
Sampled By:	Wyatt Rollins

Requested Turnaround Time: 7-Day ☐ 10-Day ☑ PFAS 10-Day (std) ☐ Due Date:

Rush-Approval Required: 1-Day ☐ 3-Day ☐ 2-Day ☐ 4-Day ☐

Dissolved Metals Samples: ○ Field Filtered ○ Lab to Filter

Orthophosphate Samples: ○ Field Filtered ○ Lab to Filter

Data Delivery: Format: PDF ☑ EXCEL ☑ Other: CLP Like Data Pkg Required: ☐ Email To: ClareS@kas-consulting.com Fax To #:

PCB ONLY: SOXHLET ☐ NON SOXHLET ☐

ANALYSIS REQUESTED

Pace Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1]Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS Isotope Dilution (Full List)	PFAS 537.1 (Full List)
1	MW-3	5/1/24	12:06	Grab	GW				2			X	
2	Field Blank ERB (MW3)	↓	11:29	↓	↓				1				X
3	Town Garage	↓	12:52	↓	DW				2				X
4	Field Blank Town Garage	↓	12:38	↓	↓				1				X

Relinquished by: (signature) Wyatt Rollins	Date/Time: 5/1/24 16:00	
Received by: (signature)	Date/Time: 5/3/24 1125	
Relinquished by: (signature)	Date/Time: 5/3/24 1600	
Received by: (signature) 5/3/24 1600	Date/Time: 3.9	
Relinquished by: (signature)	Date/Time:	
Received by: (signature)	Date/Time:	
Relinquished by: (signature)	Date/Time:	
Received by: (signature)	Date/Time:	

Client Comments: Analyze field blanks only if there's a detection in the sample.

Detection Limit Requirements: MA ☐ CT ☐ Other: VT

Special Requirements: ☐ MA MCP Required; MCP Certification Form Required; ☐ CT RCP Required; RCP Certification Form Required; ☐ MA State DW Required; 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

NELAC and AIHA-LAP, LLC Accredited

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

Other: ☐ Chromatogram ☐ AIHA-LAP,LLC

[2] Preservation Code

Courier Use Only
Total Number Of:
VIALS_____
GLASS_____
PLASTIC_____
BACTERIA_____
ENCORE_____

Glassware in the fridge? Y / N
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)

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.

Table of Contents

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist
	Effective Date: 07/13/2023

Log In Back-Sheet

Client KAS

Project 610110045

MCP/RCP Required na

Deliverable Package Requirement na

Location VT

PWSID# (When Applicable) NA

Arrival Method:

Courier ☑ Fed Ex ☐ Walk In ☐ Other ☐

Received By / Date / Time STM 5/3/24 1600

Back-Sheet By / Date / Time CR 5/4/24 1140

Temperature Method gun # 6

Temp < 6° C Actual Temperature 39

Rush Samples: Yes / (No) Notify

Short Hold: Yes / (No) Notify

Notes regarding Samples/COC outside of SOP:

Login 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: N/A ☑ ☐

Additional Container Notes

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

Qualtrax ID: 120836

DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist

Effective Date: 07/13/2023

Sample	Soils Jars (Circle Amb/Clear)				Ambers							Plastics											VOA Vials					Other / Fill in					
					1 Liter			250mL			100mL	1 Liter		500mL		250mL																	
	16oz Amb/Clear	8oz Amb/Clear	4oz Amb/Clear	2oz Amb/Clear	Unpreserved	HCL	Sulfuric	Sulfuric	Phosphoric	HCl	Unpreserved	Unpreserved	Sulfuric	Unpreserved	Sulfuric	Unpreserved	Trizma	Sulfuric	Nitric	NaOH	Ammonium Acetate	NaOH/Zinc	Unpreserved	HCl	MeOH	D.I. Water	BiSulfate	Col/Bact					
1																2	2	2															
2																	1																
3																	2																
4																	1																
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