Brandon Landfill
31 Corona Street
Brandon, Vermont

VT DEC Project# RU97-0128
Solid Waste Facility ID# RU080
KAS Job# 609210052

FALL 2023 SEMI-ANNUAL WATER QUALITY MONITORING REPORT

February 27, 2024

Prepared for:

Town of Brandon
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Introduction

KAS, Inc. (KAS) conducted a semi-annual water quality monitoring event on October 17, 2023 at the Brandon Landfill (Site Location Map and Site Map in Appendix A). The fall 2023 groundwater monitoring was conducted in accordance with the current landfill post-closure certification. In addition, as requested by the Vermont Department of Environmental Conservation (VT DEC), the monitoring wells were tested for per-and polyfluoroalkyl substances (PFAS), an emerging group of contaminants, that have been frequently found in landfill leachate.

Background

The 5-acre facility operated as a landfill from 1940 until its closure in 1992, and currently operates as a transfer station. Post-closure groundwater monitoring has been conducted consistently since 2016, although select wells have not been sampled for various reasons (i.e., dry, inaccessible, etc.). Manganese, arsenic, and lead remain at levels above Vermont Groundwater Enforceable Standard (VGES). Other metals that have infrequently exceeded VGES in the past include cadmium and nickel. Volatile organic compounds (VOCs) have generally remained below VGES, with the exception of naphthalene, which was found to be slightly above VGES in June 2022. May 2023 was the first time groundwater was tested for PFAS.

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 historically phased out of production and use.

Groundwater is presumed to flow in a south-southwesterly direction, towards Otter Creek, based on the topography of the area and based on the data collected to date. The current monitoring well network consists of four (4) wells: MW-1 (upgradient), MW-3 (cross-gradient), and MW-2C and MW-5 (both of which are downgradient).

Groundwater Sampling & Results

Field measurements

At the time of sample collection, groundwater was field analyzed for temperature, pH, and specific conductance using a properly calibrated YSI® meter. The depth to groundwater was gauged using a Geotech™ water level indicator. Field measurement data is tabulated in Appendix B.

Laboratory Results

A groundwater sample was collected from all monitoring wells (MW-1, MW-2C, MW-3, and MW-5). Low-flow groundwater purging and sampling techniques were used at MW-2C and MW-5. At MW-3 and MW-5, the sample was collected via bailer due to the depth of water exceeding the capacity of the peristaltic pump (e.g., >30 feet below top of casing). The groundwater samples were analyzed for:

- Total metals (e.g., arsenic, cadmium, chromium, copper, lead, iron, manganese, mercury, nickel, sodium, and zinc) via EPA Method 6010/6020;
- Chemical oxygen demand (COD) via Method 410.4;

- Chloride via Method 300.0;
- VOCs via EPA Method 8260C; and,
- PFAS via isotope dilution.

Total arsenic was reported at 0.0189 mg/L in MW-2C, which is slightly above the VGES of 0.010 mg/L. Total manganese was reported at 0.33 mg/L in MW-2C and 1.2 mg/L in MW-5, both of which are above the VGES of 0.30 mg/L. The other metals were either non-detect or at levels below VGES. Sodium, for which there is no applicable VGES, ranged from 27 mg/L to 230 mg/L, the highest concentration being at MW-2C.

Chloride ranged from 48 mg/L to 350 mg/L, the highest concentration being at MW-2C.

COD ranged from 25 mg/L to 53 mg/L, the highest concentration being at MW-2C.

No VOCs were detected above laboratory method detection limits in the samples collected, except for select VOCs at MW-2C, all of which were below VGES.

Total regulated PFAS was reported at 38.2 ng/L (MW-5) and 135 ng/L (MW-2C), both of which are above the VGES of 20 ng/L.

Current and historical analytical data are provided in tables and graphs in Appendix B. A copy of the laboratory reports is provided in Appendix C.

Quality Assurance/Quality Control

Quality assurance and quality control (QA/QC) samples included a duplicate sample that was analyzed for VOCs, metals, chloride, and COD. The results of the laboratory analysis of the duplicate sample were analyzed using a relative percent difference (RPD) analysis. The RPD is defined as 100 times the difference in reported concentration between sample and duplicate, divided by the mean of the two samples. A small RPD indicates good correlation between sample and duplicate, with 30% being the EPA Region 1 upper guideline value. The absolute RPD values ranged between 0.0 and 15.6%, which indicates good correlation/precision.

A QA/QC sample also included a trip blank for VOC analysis. No VOCs were detected in the trip blank, which indicates that potential contamination from transit, sample bottles, or laboratory conditions was not a concern.

For PFAS analysis, a QA/QC sample included an equipment rinsate blank (ERB) sample. No PFAS was detected in the ERB sample, which indicates that there was no cross contamination of PFAS from the sampler, equipment, field conditions, and/or laboratory conditions.

Trends

For field measurement data, depth to groundwater remains within the range of historical fluctuations except at MW-2C and MW-5, where the water levels are the lowest to date. pH levels appear to be exhibiting a slightly increasing trend overall, except at MW-2C where the pH is fairly stable with an average of approximately 6.50. In general, temperature and specific conductivity fluctuate within their respective historical ranges.

Overall, arsenic levels have decreased and appear to be becoming stable since their respective historical peaks at MW-2C, MW-3, and MW-5. To date, arsenic remains slightly above VGES at MW-2C.

Manganese levels continue to widely fluctuate at MW-2C and MW-5 and remain highest at MW-5. In general, sodium, chloride, and COD appear to have become more stable, except at MW-2C where levels are highest and continue to fluctuate.

For PFAS, the fall 2023 was only the second sampling event. Nonetheless, it is clear that PFAS levels are highest at MW-2C and MW-5 and appear to be decreasing overall.

Trends/graphs are provided in Appendix B.

Drinking Water Sampling

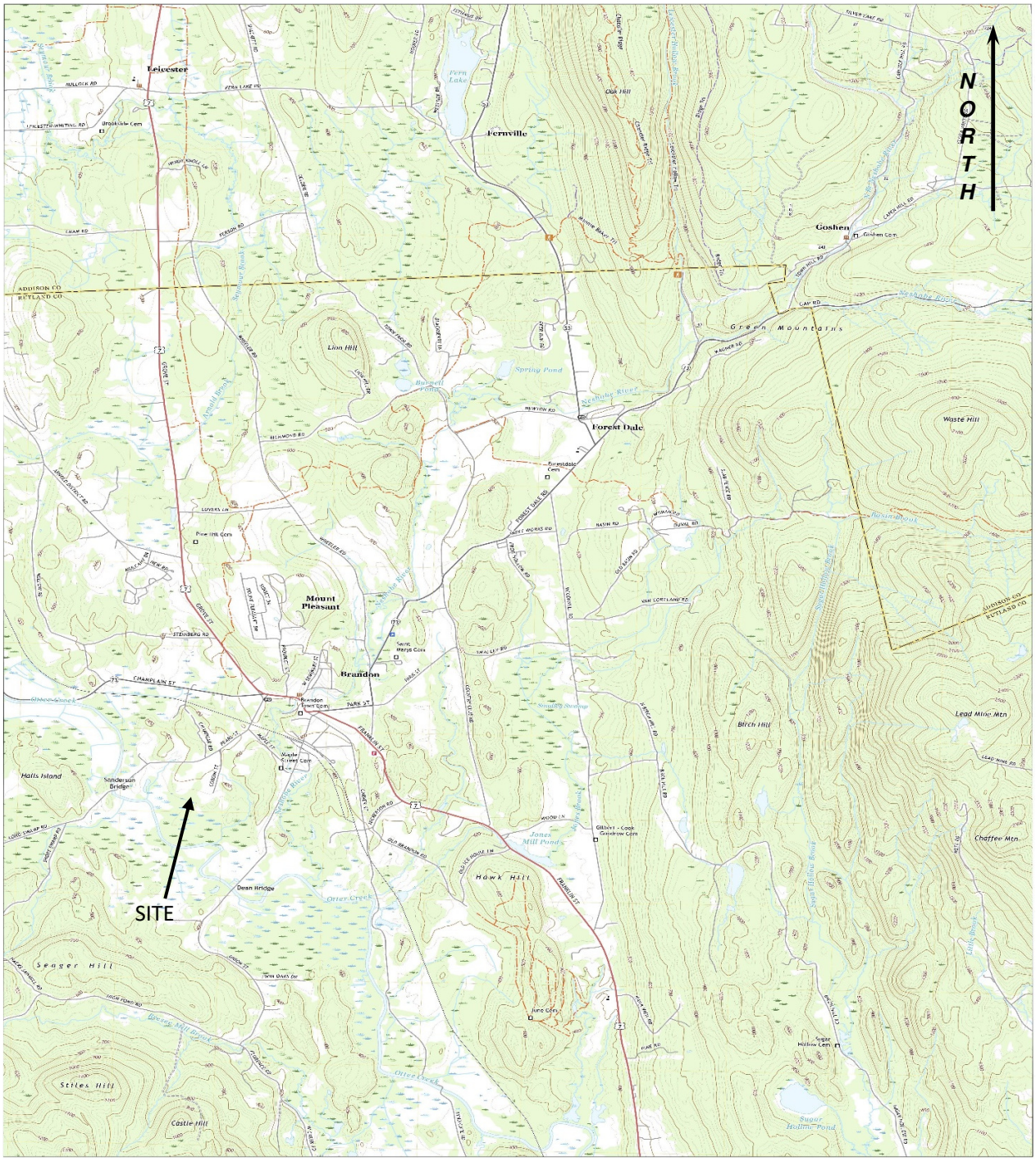
At this time, it is unknown if PFAS has impacted the deeper aquifer. In general, the surrounding residential area is served by municipal water. As shown on the Site Map (Appendix A), there are no private water supply wells downgradient from the landfill in the nearby vicinity. The nearest cross-gradient supply well is approximately 0.16 miles to the west at 806 Pearl Street. Based on the distances and locations, the risk of PFAS contamination in the supply wells is considered low at this time. On November 22, 2023, the VT DEC requested that the Town sample the drinking water at this residence to fully rule out the risk. However, the Town has not been able to obtain access from the property owner to date.

Recommendation

KAS recommends that groundwater monitoring continue in accordance with Brandon Solid Waste Facility Certification – Monitoring Requirements (7), with the next monitoring event to occur in May 2024. PFAS sampling and analysis should continue at monitoring wells MW-2C and MW-5. Furthermore, given the persistent nature of PFAS in the environment and the cost of PFAS analysis, annual monitoring is most likely sufficient to track long-term trends. This PFAS sampling approach requires the VT DEC's concurrence. Lastly, the Town should continue to try to coordinate drinking water sampling at the nearby residence per the VT DEC's request.

APPENDIX A

Site Location Map and Site Map



KAS Job Number *609210052*
Source: *USGS*

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Brandon Town Landfill
31 Corona Street, Brandon, Vermont

Site Location Map
USGS Mapping

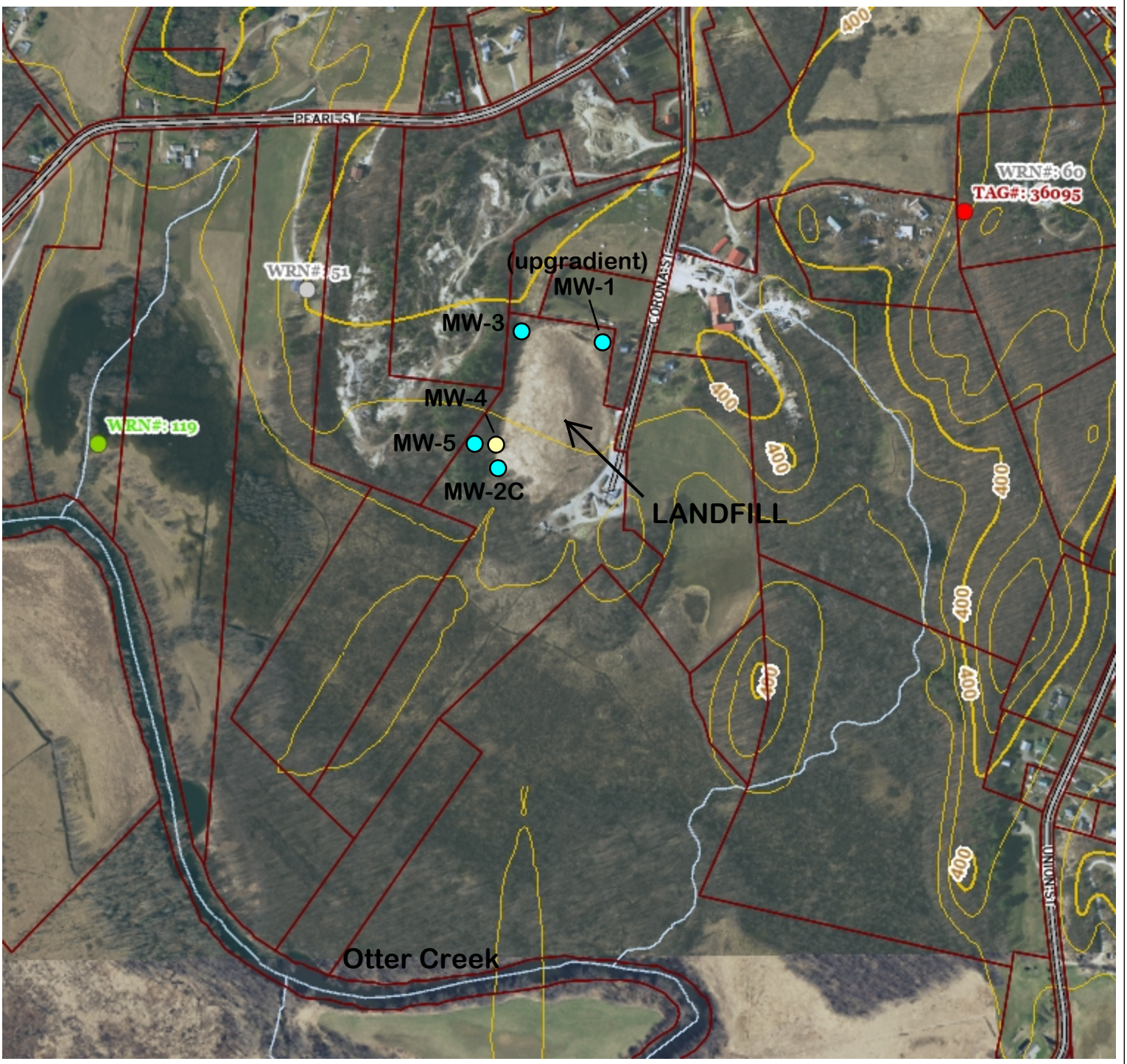
Date: 04/27/22	Drawing No. 0	Scale NTS	By: ML

VERMONT

Brandon Landfill

Vermont Agency of Natural Resources

vermont.gov



LEGEND

Private Wells

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

Public Water Sources

Markups by KAS

- Approx. location of monitoring well
- Inactive monitoring well

NOTES

Map created using ANR GIS mapping techology.

1: 6,916

September 13, 2022

351.0 0 176.00 351.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

1" = 576 Ft. 1cm = 69 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

APPENDIX B

Data Summaries

Brandon Closed Landfill

Sampling Date: October 17, 2023

Monitoring Well ID: PARAMETER	MW-1	MW-2C	MW-3	MW-5	VGES	PAL
VOCs (ug/L)						
1,4-dichlorobenzene	ND	**2.7**	ND	ND	75	38
Diethyl Ether	ND	**22.6**	ND	ND	-	-
Benzene	ND	***2.8***	ND	ND	5	0.5
Chlorobenzene	ND	**6.8**	ND	ND	100	50
t-Butanol	ND	**21.9**	ND	ND	-	-
Total Metals (mg/L)						
Arsenic	<0.0010	**0.0189**	***0.0028***	<0.0010	0.010	0.001
Cadmium	<0.0020	<0.0020	<0.0020	<0.0020	0.005	0.001
Chromium	<0.0050	<0.0050	<0.050	<0.0050	0.100	0.050
Copper	<0.020	<0.020	<0.20	<0.020	1.300	0.650
Iron	**2.0**	**29**	**7.4**	**5.8**	-	-
Lead	<0.0010	<0.0010	***0.0069***	<0.0010	0.015	0.002
Manganese	**0.11**	**0.33**	***0.21***	**1.2**	0.300	0.150
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	0.002	0.0005
Nickel	<0.0050	**0.0099**	**0.0055**	<0.0050	0.100	0.050
Sodium	**33**	**230**	**27**	**31**	-	-
Zinc	<0.020	<0.020	<0.020	<0.020	-	-
Other Analytes (mg/L)						
Chloride	**72**	**350**	**48**	**63**	-	-
COD	**25**	**53**	**28**	**10**	-	-
PFAS (ng/L)						
Perfluorohexanesulfonic acid (PFHxS)	<1.9	**15**	<4.1	**8.5**	-	-
Perfluoroheptanoic acid (PFHpA)	<1.9	**22**	<4.1	**3.7**		
Perfluorooctanoic acid (PFOA)	<1.9	**55**	<4.1	**15**		
Perfluorooctanesulfonic acid (PFOS)	<1.9	**43**	<4.1	**11**		
Perfluorononanoic acid (PFNA)	<1.9	<4.1	<4.1	<1.9		
Total Regulated PFAS	ND	**135**	ND	**38.2**	20	2
Total Non-Regulated PFAS	ND	**125**	ND	**16.5**	-	-
Field Measurements (units as noted)						
pH (std units)	7.29	6.35	7.48	6.71	-	-
Temperature (deg C)	10.8	11.4	10.5	10.7	-	-
Conductivity (uS)	995	2,319	759	1,098	-	-
Water Level (feet btoc)	30.80	9.80	32.00	5.10	-	-

Only detected or targeted VOCs are depicted

All values reported in units noted above

"-" = Not Analyzed, No Information or No Applicable Standard

ND = None Detected

<X = None Detected above Detection Limit (X)

VGES = Vermont Groundwater Enforcement Standard (GWPRS 07/06/2019)

PAL = Vermont Preventive Action Level (GWPRS 07/06/2019)

Detections are **bolded**

>VGES

Bold (italic) indicates value exceeds PAL

Brandon Closed Landfill

MW-1

Sample Date: PARAMETER	2012	4/22/2013	10/1/2013	5/29/2014	6/9/2015	10/25/2015	7/24/2016	October 2016	5/7/2017	10/28/2017	5/28/2018	10/20/2018	05/27/2019	10/26/2019	VGES	PAL
VOCs (ug/L)																
1,1-dichloroethane	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1	<1	70	35
Total Metals (mg/L)																
Arsenic	Well	Well	Well	Well	Well	Well	Well	Well	**0.001**	<0.0010	***0.0016***	<0.0010	<0.0010	<0.0010	0.010	0.001
Cadmium	Not	Not	Not	Not	Not	Not	Not	Not	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.005	0.001
Chromium	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.100	0.050
Copper	-	-	-	-	-	-	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	1.300	0.650
Iron	-	-	-	-	-	-	-	-	**0.79**	**0.51**	**3.0**	**0.62**	**0.091**	**0.26**	-	-
Lead	-	-	-	-	-	-	-	-	<0.001	<0.0010	<0.0021	<0.0010	<0.0010	<0.0010	0.015	0.002
Manganese	-	-	-	-	-	-	-	-	**0.18**	**0.14**	**0.79**	***0.21***	**0.034**	**0.028**	0.300	0.150
Mercury	-	-	-	-	-	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.002	0.0005
Nickel	-	-	-	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.100	0.050
Sodium	-	-	-	-	-	-	-	-	**40**	**40**	**38**	**42**	**42**	**38**	-	-
Zinc	-	-	-	-	-	-	-	-	**0.046**	**0.170**	**0.025**	**0.025**	<0.020	<0.020	-	-
Other Analytes (mg/L)																
Chloride	-	-	-	-	-	-	-	-	**74**	**72**	**77**	**82**	**86**	**83**	-	-
COD	-	-	-	-	-	-	-	-	**21**	**24**	**14**	**12**	<10	**39**	-	-
Field Measurements (units as noted)																
pH (std units)	-	-	-	-	-	-	-	-	6.5	6.3	6.6	6.6	6.5	6.7	-	-
Temperature (deg C)	-	-	-	-	-	-	-	-	10.7	11.6	11.8	11.9	11.2	12.1	-	-
Conductivity (uS)	-	-	-	-	-	-	-	-	1050	1030	1020	1000	1100	1050	-	-
Water Level (feet btoc)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Date: PARAMETER	10/14/2021	6/3/2022	10/27/2022	5/22/2023	10/17/23										VGES	PAL
VOCs (ug/L)																
1,1-dichloroethane	-	-	<1.0	<1.0	<1.0										70	35
Total Metals (mg/L)																
Arsenic	No	No	***0.0015***	***0.0014***	<0.0010										0.010	0.001
Cadmium	Sample	Sample	<0.0020	<0.0020	<0.0020										0.005	0.001
Chromium	-	-	<0.0050	<0.0050	<0.0050										0.100	0.050
Copper	Unable	Unable	<0.020	<0.020	<0.020										1.300	0.650
Iron	To Locate	To Locate	**2.4**	**2.4**	**2.0**										-	-
Lead	Well	Well	<0.0010	<0.0010	<0.0010										0.015	0.002
Manganese	-	-	***0.20***	***0.25***	**0.11**										0.300	0.150
Mercury	-	-	<0.0002	<0.0002	<0.0002										0.002	0.0005
Nickel	-	-	<0.0050	<0.0050	<0.0050										0.100	0.050
Sodium	-	-	**39**	**41**	**33**										-	-
Zinc	-	-	**0.024**	<0.020	<0.020										-	-
Other Analytes (mg/L)																
Chloride	-	-	**78**	**77**	**72**										-	-
COD	-	-	**59**	**74**	**25**										-	-
PFAS (ng/L)																
Perfluorohexanesulfonic acid (PFHxS)	-	-	-	<1.8	<1.9										-	-
Perfluoroheptanoic acid (PFHpA)	-	-	-	<1.8	<1.9											
Perfluorooctanoic acid (PFOA)	-	-	-	<1.8	<1.9											
Perfluorooctanesulfonic acid (PFOS)	-	-	-	**2.4**	<1.9											
Perfluorononanoic acid (PFNA)	-	-	-	<1.8	<1.9											
Total Regulated PFAS	-	-	-	***2.4***	ND										20	2
Total Non-Regulated PFAS	-	-	-	ND	ND										-	-
Field Measurements (units as noted)																
pH (std units)	-	-	7.21	7.26	7.29										-	-
Temperature (deg C)	-	-	10.8	14.5	10.8										-	-
Spec. Conductivity (uS/cm)	-	-	1,039	1,008	995										-	-
Water Level (feet btoc)	-	-	31.17	30.67	30.80										-	-

Data prior to 2021 collected by others and obtained from 2019 reports prepared by EIV Technical Services

Data 2021-present collected by KAS, Inc.

Only detected or targeted VOCs are depicted

All values reported in units noted above

"-" = Not Analyzed, No Information or No Applicable Standard

ND = None Detected

<X = None Detected above Detection Limit (X)

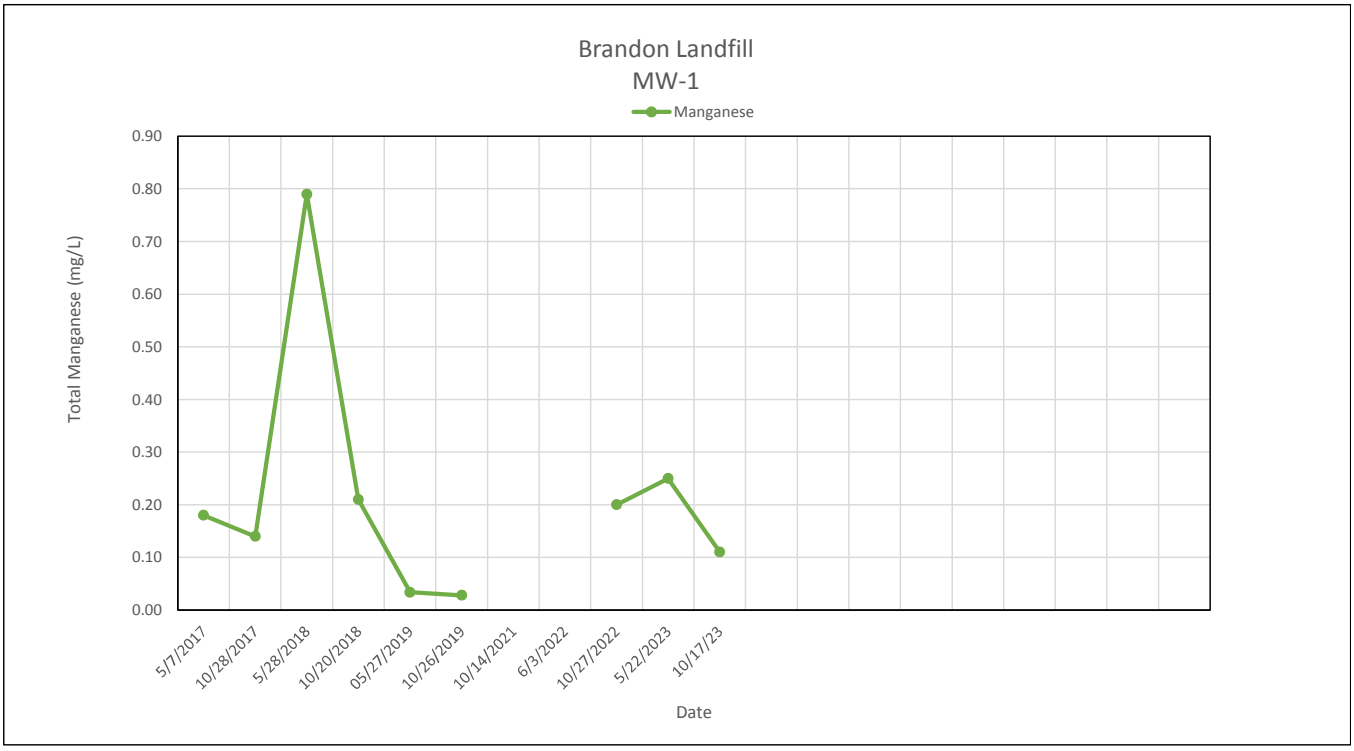
VGES = Vermont Groundwater Enforcement Standard (GWPRS 07/06/2019)

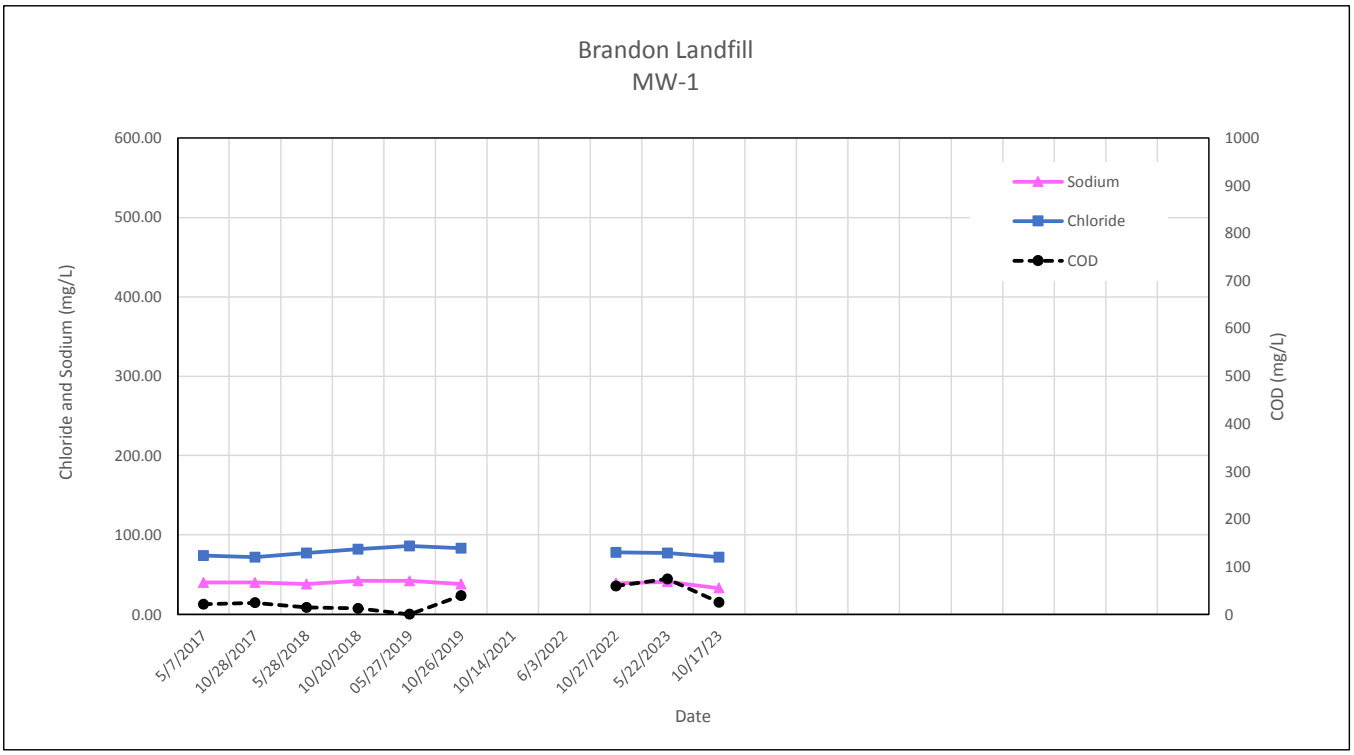
PAL = Vermont Preventive Action Level (GWPRS 07/06/2019)

Detections are **bolded**

>VGES

Bold (italic) indicates value exceeds PAL


Brandon Landfill
MW-1
Manganese
Total Manganese (mg/L)
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
5/7/2017
10/28/2017
5/28/2018
10/20/2018
05/27/2019
10/26/2019
10/14/2021
6/3/2022
10/27/2022
5/22/2023
10/17/23
Date


Brandon Landfill
MW-1
Chloride and Sodium (mg/L)
600.00
500.00
400.00
300.00
200.00
100.00
0.00
COD (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
Sodium
Chloride
COD
5/7/2017
10/28/2017
5/28/2018
10/20/2018
05/27/2019
10/26/2019
10/14/2021
6/3/2022
10/27/2022
5/22/2023
10/17/23
Date

Brandon Closed Landfill

MW-2C

Sample Date: / PARAMETER	2012	4/22/2013	10/1/2013	5/29/2014	6/9/2015	10/25/2015	7/24/2016	October 2016	5/7/2017	10/28/2017	5/28/2018	10/20/2018	05/27/2019	10/26/2019	VGES	PAL
VOCs (ug/L)																
Dichlorodifluoromethane	-	<5.0	<5.0	<5.0	<5.0	<5.0	**7.2**	-	<5.0	<5.0	<5.0	**5.0**	**1.8**	<1	-	-
Vinyl Chloride	-	<2.0	<2.0	<2.0	<2.0	<2.0	***0.7***	-	<0.5	<0.5	<0.5	<0.5	-	-	2	0.5
1,4-dichlorobenzene	**2.3**	**2.4**	**2.5**	**2.3**	**2.1**	**2.0**	**2.6**	<1.0	**2.4**	**2.2**	**1.7**	**2.7**	-	-	75	38
Acetone	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	**15.8**	<10.0	950	475
Benzene	***2.0***	***2.3***	***3.3***	***2.6***	***2.3***	***1.9***	***3.4***	<0.5	***2.9***	***2.9***	***1.3***	***3.5***	***1.2***	<0.5	5	0.5
Chlorobenzene	**5.4**	**5.3**	**4.8**	**6.0**	**5.9**	**5.0**	**7.6**	<1.0	**8.3**	**7.2**	**4.1**	**7.4**	**4.9**	<1.0	100	50
Diethyl Ether	-	**22.5**	**36.2**	**24.0**	**23.9**	**19.5**	**26.3**	-	**19.4**	**25.2**	**17.5**	**30.5**	-	-	-	-
Total Metals (mg/L)																
Arsenic	-	-	-	**0.074**	**0.026**	**0.025**	**0.027**	Data	**0.034**	**0.0409**	**0.071**	**0.0200**	**0.0213**	<0.0010	0.010	0.001
Cadmium	-	-	-	<0.002	<0.002	<0.002	**0.021**	Not	***0.0027***	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.005	0.001
Chromium	-	-	-	**0.012**	<0.005	<0.005	<0.0050	Available	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.100	0.050
Copper	-	-	-	<0.020	<0.020	<0.020	<0.020	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	1.300	0.650
Iron	-	-	-	**56**	**28**	**22**	**33**	-	**32**	**33**	**65**	**33**	**28**	**0.28**	-	-
Lead	-	-	-	***0.007***	<0.001	<0.001	<0.001	-	<0.001	<0.0010	**0.0013**	<0.0010	<0.0010	<0.0010	0.015	0.002
Manganese	-	-	-	**0.92**	**0.54**	**0.45**	**0.67**	-	**0.54**	**0.58**	**0.57**	**0.58**	**0.53**	**0.077**	0.300	0.150
Mercury	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.002	0.0005
Nickel	-	-	-	**0.022**	**0.013**	**0.012**	<0.0050	-	**0.0088**	**0.0074**	**0.0091**	**0.0095**	**0.0092**	<0.0050	0.100	0.050
Sodium	-	-	-	**170**	**160**	**130**	**230**	-	**270**	**230**	**270**	**290**	**240**	**18**	-	-
Zinc	-	-	-	**0.043**	<0.02	<0.02	<0.020	-	<0.020	<0.020	**0.025**	<0.020	<0.020	<0.020	-	-
Other Analytes (mg/L)																
Chloride	-	-	-	**203**	**280**	**290**	**380**	-	**480**	**440**	**450**	**500**	**420**	**32**	-	-
COD	-	-	-	**57**	**100**	**63**	**62**	-	**52**	**67**	**41**	**53**	**62**	**32**	-	-
Field Measurements (units as noted)																
pH (std units)	-	-	-	-	-	-	6.5	-	6.5	6.4	6.4	6.3	6.6	6.5	-	-
Temperature (deg C)	-	-	-	-	-	-	13	-	9.8	10.2	10.2	11.2	10.9	11.3	-	-
Spec. Conductivity (uS/cm)	-	-	-	-	-	-	3,010	-	2,800	2,900	2,800	2,300	2,100	2,210	-	-
Water Level (feet btoc)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Date: / PARAMETER	10/14/2021	6/3/2022	10/27/2022	5/22/2023	10/17/2023										VGES	PAL
VOCs (ug/L)																
1,4-dichlorobenzene	-	<1	-	<1.0	**2.7**										75	38
Diethyl Ether	-	**21**	-	**14.6**	**22.6**										-	-
Acetone	-	**67**	-	<10.0	<10.0										950	475
Methyl-t-butyl ether (MTBE)	-	**1.4**	-	<2.0	<2.0										11	5
Tetrahydrofuran	-	**17**	-	<10.0	<10.0										-	-
Benzene	-	<1	-	<0.5	***2.8***										5	0.5
Chlorobenzene	-	<1	-	<1.0	**6.8**										100	50
Naphthalene	-	**0.56**	-	<0.5	<0.5										0.5	0.5
t-Butanol	-	-	-	-	**21.9**										-	-
Total Metals (mg/L)																
Arsenic	No	**0.016**	No	<0.0010	**0.0189**										0.010	0.001
Cadmium	Sample	***0.0022***	Sample	<0.0020	<0.0020										0.005	0.001
Chromium	-	**0.0093**	-	<0.0050	<0.0050										0.100	0.050
Copper	Well	**0.084**	Well	<0.020	<0.020										1.300	0.650
Iron	Dry	**22**	Dry	**2.4**	**29**										-	-
Lead	-	**0.17**	-	***0.0036***	<0.0010										0.015	0.002
Manganese	-	**1.9**	-	**1.3**	**0.33**										0.300	0.150
Mercury	-	<0.0001	-	<0.0002	<0.0002										0.002	0.0005
Nickel	-	**0.033**	-	**0.0081**	**0.0099**										0.100	0.050
Sodium	-	**38**	-	**28**	**230**										-	-
Zinc	-	**0.094**	-	<0.020	<0.020										-	-
Other Analytes (mg/L)																
Chloride	-	**41**	-	**24**	**350**										-	-
COD	-	**900**	-	**77**	**53**										-	-
PFAS (ng/L)																
Perfluorohexanesulfonic acid (PFHxS)	-	-	-	**36**	**15**										-	-
Perfluoroheptanoic acid (PFHpA)	-	-	-	**18**	**22**											
Perfluorooctanoic acid (PFOA)	-	-	-	**97**	**55**											
Perfluorooctanesulfonic acid (PFOS)	-	-	-	**150**	**43**											
Perfluorononanoic acid (PFNA)	-	-	-	**4.7**	<4.1											
Total Regulated PFAS	-	-	-	**305.7**	**135**										20	2
Total Non-Regulated PFAS	-	-	-	**68.7**	**125**										-	-
Field Measurements (units as noted)																
pH (std units)	-	6.51	-	6.96	6.35										-	-
Temperature (deg C)	-	18.1	-	11.3	11.4										-	-
Spec. Conductivity (uS/cm)	-	1,643	-	1,487	2,319										-	-
Water Level (feet btoc)	-	8.20	-	8.36	9.80										-	-

Data prior to 2021 collected by others and obtained from 2019 reports prepared by EIV Technical Services

Data 2021-present collected by KAS, Inc.

Only detected or targeted VOCs are depicted

All values reported in units noted above

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ND = None Detected

<X = None Detected above Detection Limit (X)

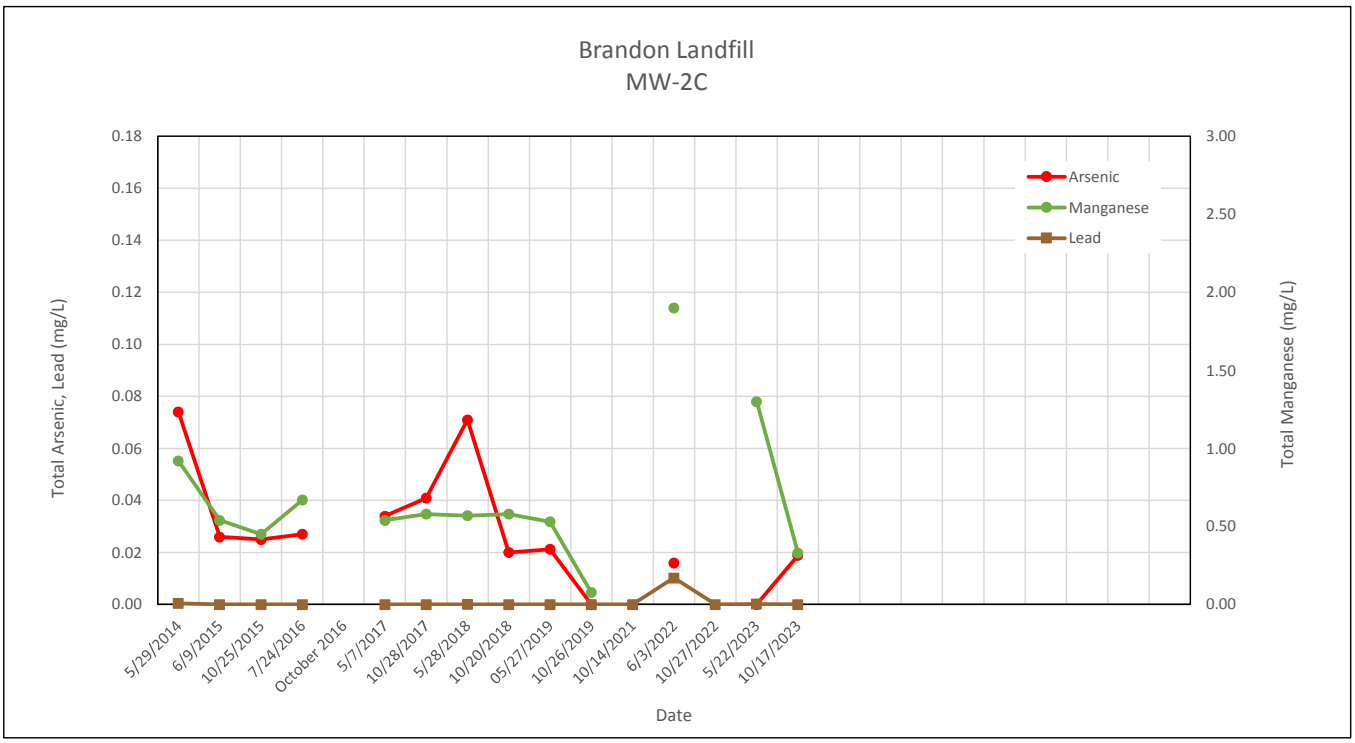
VGES = Vermont Groundwater Enforcement Standard (GWPRS 07/06/2019)

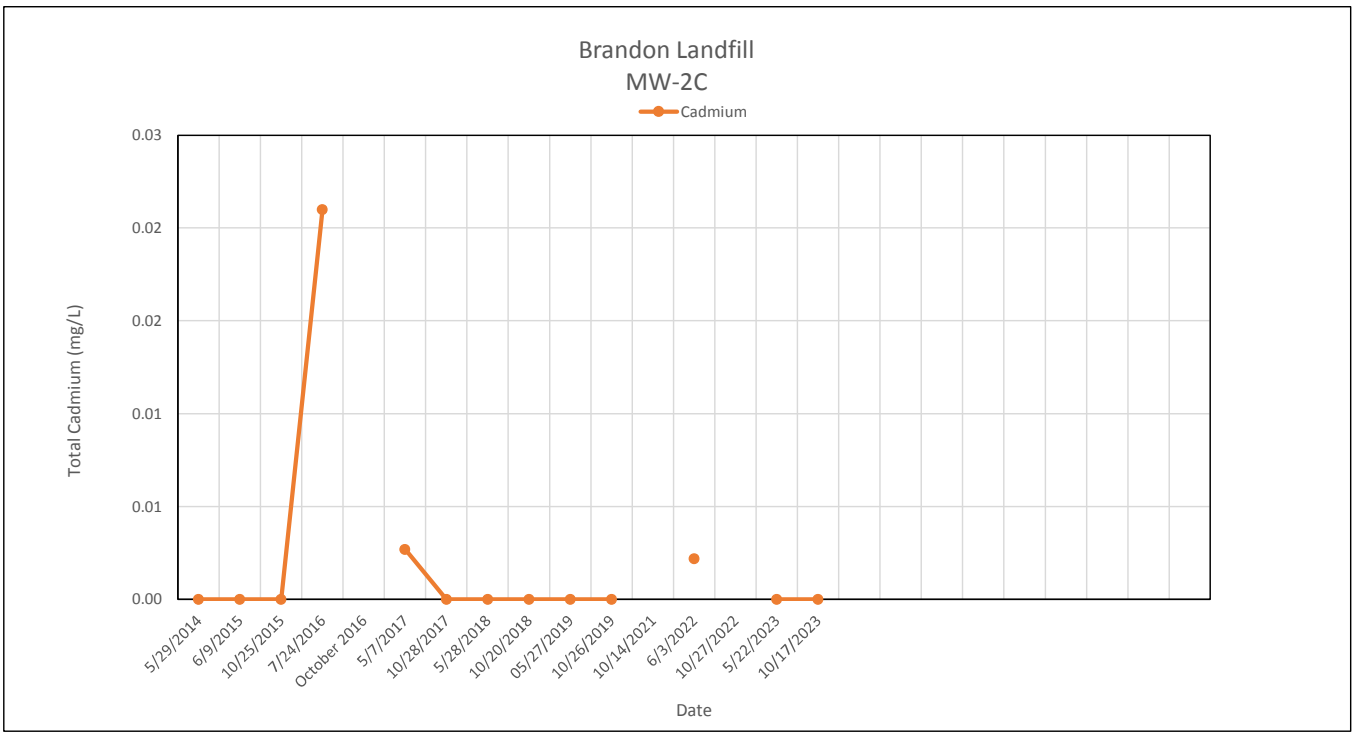
PAL = Vermont Preventive Action Level (GWPRS 07/06/2019)

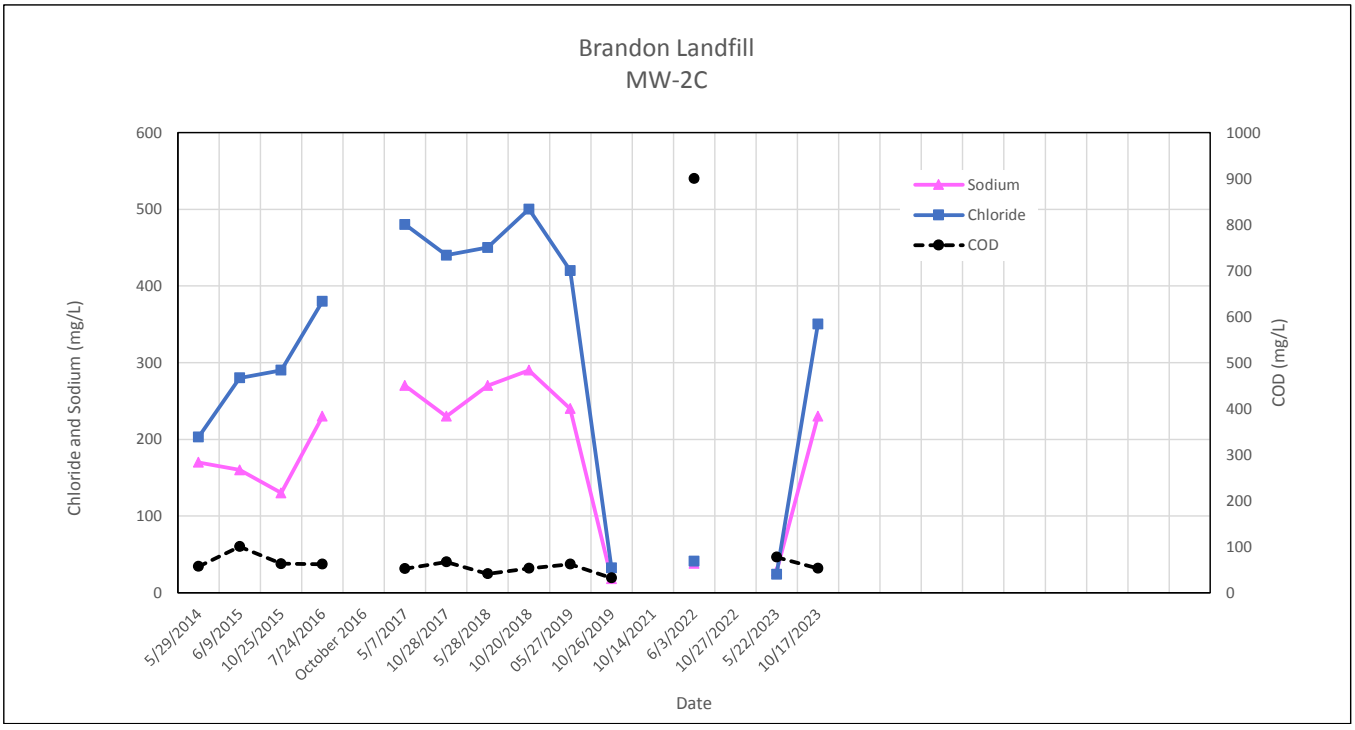
Detections are **bolded**

>VGES

Bold (italic) indicates value exceeds PAL


Brandon Landfill
MW-2C
Arsenic
Manganese
Lead
Total Arsenic, Lead (mg/L)
Total Manganese (mg/L)
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
3.00
2.50
2.00
1.50
1.00
0.50
0.00
5/29/2014
6/9/2015
10/25/2015
7/24/2016
October 2016
5/7/2017
10/28/2017
5/28/2018
10/20/2018
05/27/2019
10/26/2019
10/14/2021
6/3/2022
10/27/2022
5/22/2023
10/17/2023
Date


Brandon Landfill
MW-2C
Cadmium
Total Cadmium (mg/L)
0.03
0.02
0.02
0.01
0.01
0.00
5/29/2014
6/9/2015
10/25/2015
7/24/2016
October 2016
5/7/2017
10/28/2017
5/28/2018
10/20/2018
05/27/2019
10/26/2019
10/14/2021
6/3/2022
10/27/2022
5/22/2023
10/17/2023
Date


Brandon Landfill
MW-2C
Chloride and Sodium (mg/L)
COD (mg/L)
Sodium
Chloride
COD
600
500
400
300
200
100
0
1000
900
800
700
600
500
400
300
200
100
0
5/29/2014
6/9/2015
10/25/2015
7/24/2016
October 2016
5/7/2017
10/28/2017
5/28/2018
10/20/2018
05/27/2019
10/26/2019
10/14/2021
6/3/2022
10/27/2022
5/22/2023
10/17/2023
Date

Brandon Closed Landfill

MW-3

Sample Date: / PARAMETER	2012	4/22/2013	10/1/2013	5/29/2014	6/9/2015	10/25/2015	7/24/2016	October 2016	5/7/2017	10/28/2017	5/28/2018	10/20/2018	05/27/2019	10/26/2019	VGES	PAL
VOCs (ug/L)																
1,1-dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	-	-	-	-	-	-	-	70	35
Total Metals (mg/L)																
Arsenic	-	-	-	<0.001	***0.002***	***0.009***	Well	Well	Well	Well	Well	Well	No	No	0.010	0.001
Cadmium	-	-	-	<0.002	<0.002	<0.002	not	not	not	not	not	not	Sample	Sample	0.005	0.001
Chromium	-	-	-	<0.005	<0.005	<0.0052	sampled	sampled	sampled	sampled	sampled	sampled	-	-	0.100	0.050
Copper	-	-	-	<0.020	<0.020	<0.022	-	-	-	-	-	-	Insufficient	Insufficient	1.300	0.650
Iron	-	-	-	**0.41**	**9.1**	**29**	-	-	-	-	-	-	Amount	Amount	-	-
Lead	-	-	-	<0.001	<0.001	***0.008***	-	-	-	-	-	-	of Water	of Water	0.015	0.002
Manganese	-	-	-	<0.020	**1.1**	**1.2**	-	-	-	-	-	-	in Well	in Well	0.300	0.150
Mercury	-	-	-	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	Column	Column	0.002	0.0005
Nickel	-	-	-	**0.005**	<0.005	**0.016**	-	-	-	-	-	-	-	-	0.100	0.050
Sodium	-	-	-	**23**	**20**	**15**	-	-	-	-	-	-	-	-	-	-
Zinc	-	-	-	**0.020**	<0.020	**0.024**	-	-	-	-	-	-	-	-	-	-
Other Analytes (mg/L)																
Chloride	-	-	-	**34**	**31**	**30**	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	**11**	**34**	**34**	-	-	-	-	-	-	-	-	-	-
Field Measurements (units as noted)																
pH (std units)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Temperature (deg C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity (uS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Level (feet btoc)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Date: / PARAMETER	10/14/2021	6/3/2022	10/27/2022	5/22/2023	10/17/2023										VGES	PAL
VOCs (ug/L)																
1,1-dichloroethane	<0.5	<0.5	<1.0	<1.0	<1.0										70	35
Total Metals (mg/L)																
Arsenic	**0.17**	**0.015**	**0.030**	***0.0075***	***0.0028***										0.010	0.001
Cadmium	<0.005	<0.001	<0.0020	<0.0020	<0.0020										0.005	0.001
Chromium	**0.32**	**0.022**	<0.050	**0.0110**	<0.050										0.100	0.050
Copper	***0.82***	**0.062**	<0.20	**0.021**	<0.20										1.300	0.650
Iron	**370**	**47**	**57**	**18**	**7.4**										-	-
Lead	**0.51**	**0.036**	**0.0505**	**0.0151**	***0.0069***										0.015	0.002
Manganese	**25**	**1.5**	**2.5**	**0.55**	***0.21***										0.300	0.150
Mercury	<0.001	<0.0001	<0.0002	<0.0002	<0.0002										0.002	0.0005
Nickel	**0.49**	**0.036**	***0.0538***	**0.0140**	**0.0055**										0.100	0.050
Sodium	**26**	**28**	**23**	**26**	**27**										-	-
Zinc	**1.4**	**0.11**	<0.20	**0.042**	<0.020										-	-
Other Analytes (mg/L)																
Chloride	**34**	**56**	**98**	**44**	**48**										-	-
COD	<10	<10	**220**	**79**	**28**										-	-
PFAS (ng/L)																
Perfluorohexanesulfonic acid (PFHxS)	-	-	-	<1.8	<4.1											
Perfluoroheptanoic acid (PFHpA)	-	-	-	<1.8	<4.1											
Perfluorooctanoic acid (PFOA)	-	-	-	<1.8	<4.1										-	-
Perfluorooctanesulfonic acid (PFOS)	-	-	-	**5.2**	<4.1											
Perfluorononanoic acid (PFNA)	-	-	-	<1.8	<4.1											
Total Regulated PFAS	-	-	-	***5.2***	ND										20	2
Total Non-Regulated PFAS	-	-	-	ND	ND										-	-
Field Measurements (units as noted)																
pH (std units)	6.8	7.14	7.27	7.57	7.48										-	-
Temperature (deg C)	11.9	12.3	10.7	13.0	10.5										-	-
Spec. Conductivity (uS/cm)	740	773	378.6	715	759										-	-
Water Level (feet btoc)	33.69	30.78	33.60	31.50	32.00										-	-

Data prior to 2021 collected by others and obtained from 2019 reports prepared by EIV Technical Services

Data 2021-present collected by KAS, Inc.

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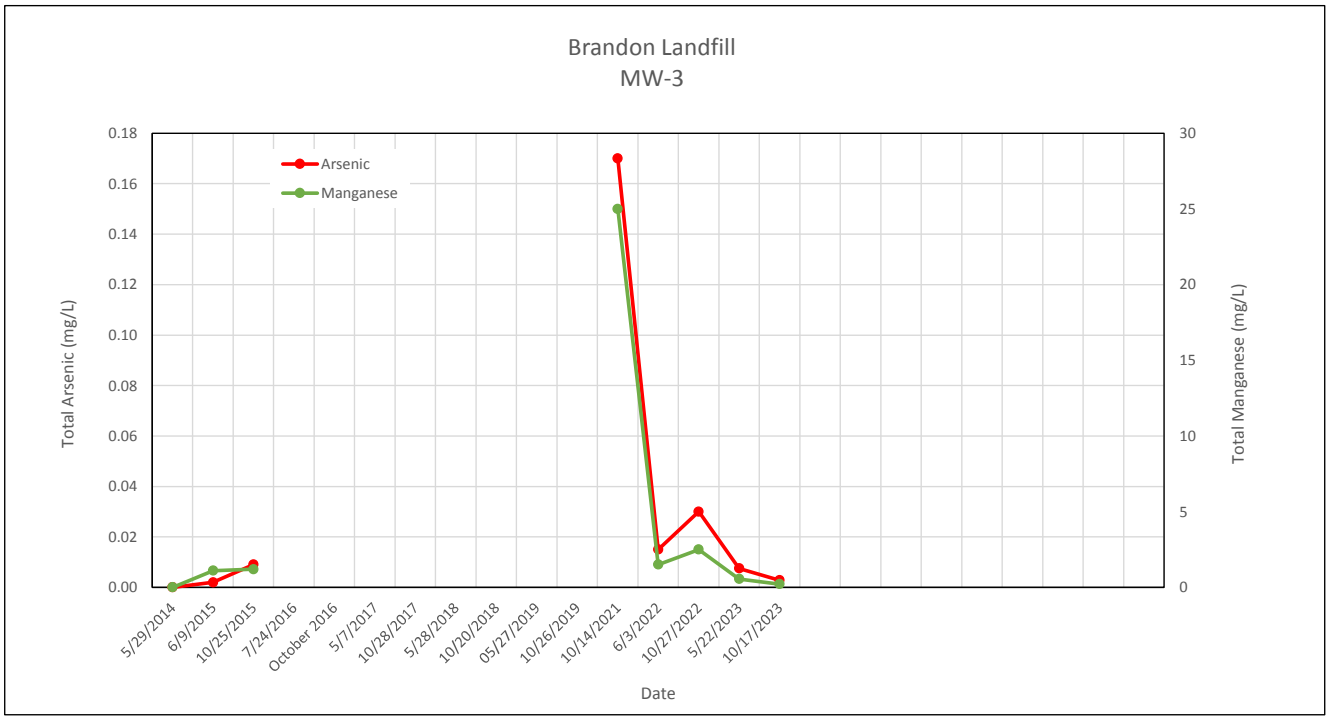
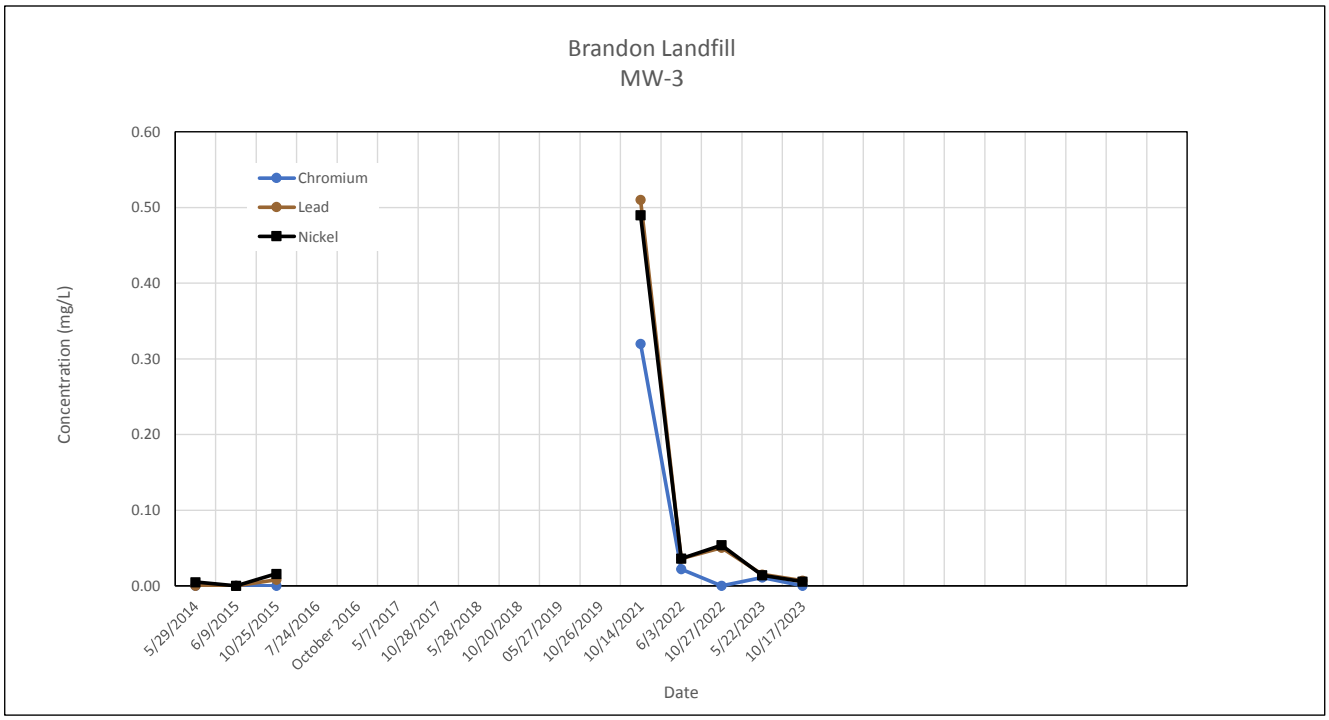
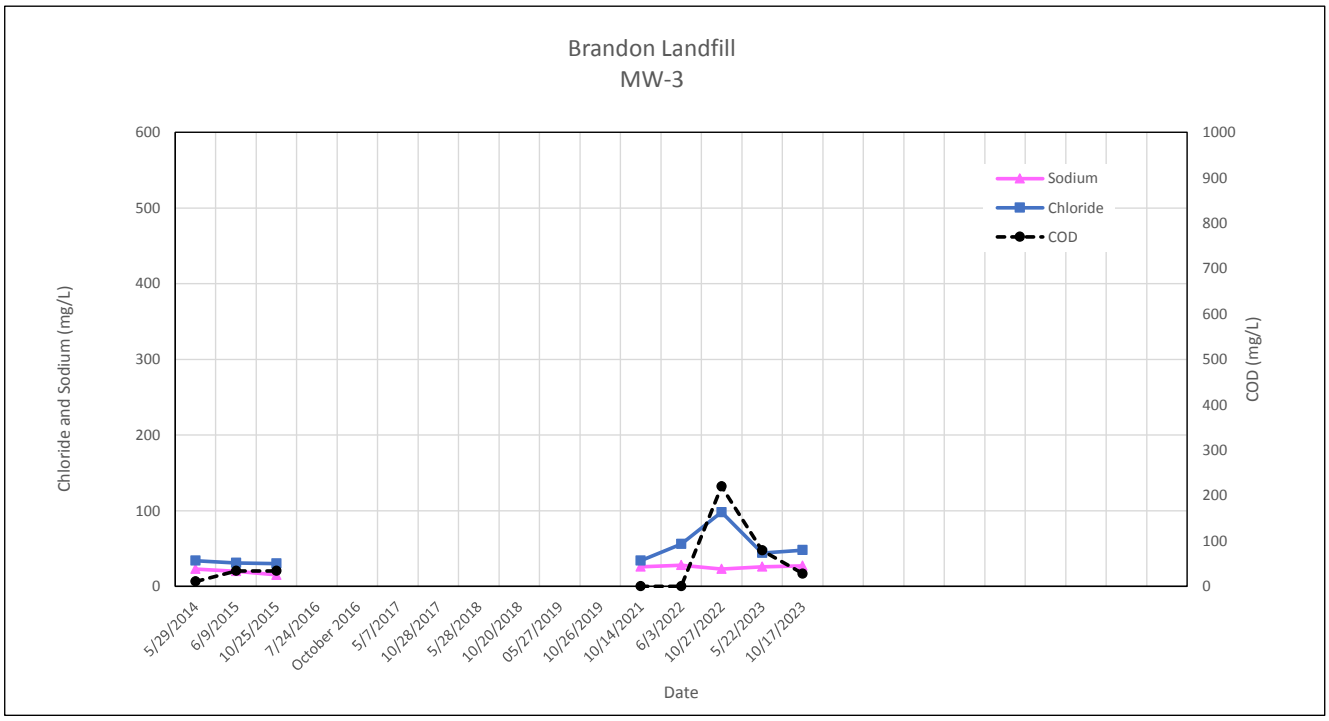
Detections are **bolded**

>VGES

Bold (italic) indicates value exceeds PAL


Brandon Landfill
MW-3
Arsenic
Manganese
Total Arsenic (mg/L)
Total Manganese (mg/L)
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
30
25
20
15
10
5
0
5/29/2014
6/9/2015
10/25/2015
7/24/2016
October 2016
5/7/2017
10/28/2017
5/28/2018
10/20/2018
05/27/2019
10/26/2019
10/14/2021
6/3/2022
10/27/2022
5/22/2023
10/17/2023
Date


Brandon Landfill
MW-3
Chromium
Lead
Nickel
Concentration (mg/L)
0.60
0.50
0.40
0.30
0.20
0.10
0.00
5/29/2014
6/9/2015
10/25/2015
7/24/2016
October 2016
5/7/2017
10/28/2017
5/28/2018
10/20/2018
05/27/2019
10/26/2019
10/14/2021
6/3/2022
10/27/2022
5/22/2023
10/17/2023
Date


Brandon Landfill
MW-3
Chloride and Sodium (mg/L)
COD (mg/L)
Date
Sodium
Chloride
COD
600
500
400
300
200
100
0
1000
900
800
700
600
500
400
300
200
100
0
5/29/2014
6/9/2015
10/25/2015
7/24/2016
October 2016
5/7/2017
10/28/2017
5/28/2018
10/20/2018
05/27/2019
10/26/2019
10/14/2021
6/3/2022
10/27/2022
5/22/2023
10/17/2023

Brandon Closed Landfill

MW-5

Sample Date: / PARAMETER	2012	4/22/2013	10/1/2013	5/29/2014	6/9/2015	10/25/2015	7/24/2016	October 2016	5/7/2017	10/28/2017	5/28/2018	10/20/2018	05/27/2019	10/26/2019	VGES	PAL
VOCs (ug/L)																
1,1-dichloroethane	<1.0	-	**1.1**	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	70	35
Diethyl Ether	-	-	**6.0**	<5.0	<5.0	-	<5.0	-	<5.0	-	-	-	-	-	-	-
Total Metals (mg/L)																
Arsenic	-	Well	-	***0.004***	***0.003***	Well	***0.032***	Data	***0.006***	***0.006***	***0.0040***	***0.0011***	<0.0010	**0.121**	0.010	0.001
Cadmium	-	Not	-	<0.002	<0.002	not	**0.010**	not	**0.0061**	**0.0061**	**0.0083**	***0.0027***	<0.0020	<0.0020	0.005	0.001
Chromium	-	Sampled	-	<0.005	<0.005	sampled	**0.020**	available	**0.0056**	**0.0056**	<0.0050	<0.0050	<0.0050	<0.0050	0.100	0.050
Copper	-	-	-	<0.020	<0.020		**0.076**		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	1.300	0.650
Iron	-	-	-	**31**	**16**		**120**		**21**	**21**	**13**	**4**	**0.22**	**48**	-	-
Lead	-	-	-	***0.003***	***0.003***	-	**0.044**	-	***0.0080***	***0.0080***	***0.0080***	***0.0022***	<0.0010	<0.0010	0.015	0.002
Manganese	-	-	-	**1.4**	**1.3**	-	**2.6**	-	**0.78**	**0.78**	**1.2**	**0.38**	**1.0**	**0.89**	0.300	0.150
Mercury	-	-	-	<0.0002	<0.0002	-	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.002	0.0005
Nickel	-	-	-	**0.007**	**0.0066**	-	**0.025**	-	**0.0084**	**0.0084**	**0.0082**	<0.0050	<0.0050	**0.0077**	0.100	0.050
Sodium	-	-	-	**26**	**21**	-	**18**	-	**24**	**24**	**25**	**31**	**33**	**150**	-	-
Zinc	-	-	-	**0.020**	**0.020**	-	**0.11**	-	**0.026**	**0.026**	<0.020	<0.020	<0.020	<0.020	-	-
Other Analytes (mg/L)																
Chloride	-	-	-	**38**	**32**	-	**33**	-	**42**	**43**	**40**	**64**	**64**	**260**	-	-
COD	-	-	-	**30**	**25**	-	**54**	-	**31**	**13**	**30**	<10	<10	**45**	-	-
Field Measurements (units as noted)																
pH (std units)	-	-	-	-	-	-	6.4	-	6.0	6.1	6.2	6.2	6.3	6.4	-	-
Temperature (deg C)	-	-	-	-	-	-	15	-	10.7	10.6	10.8	12.0	11.8	11.9	-	-
Conductivity (uS)	-	-	-	-	-	-	-	-	1,160	1,090	1,080	1,120	1,080	1,100	-	-
Water Level (feet btoc)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Date: / PARAMETER	10/14/2021	6/3/2022	10/27/2022	5/22/2023	10/17/2023										VGES	PAL
VOCs (ug/L)																
1,1-dichloroethane	-	<0.5	<1.0	<1.0	<1.0										70	35
Total Metals (mg/L)																
Arsenic	No	**0.0042**	**0.0170**	<0.0010	<0.0010										0.010	0.001
Cadmium	Sample	***0.0016***	<0.0020	<0.0020	<0.0020										0.005	0.001
Chromium		**0.0013**	**0.0052**	<0.0050	<0.0050										0.100	0.050
Copper	Well	**0.0053**	**0.024**	<0.020	<0.020										1.300	0.650
Iron	Inaccessible	**8.0**	**30**	**0.52**	**5.8**										-	-
Lead	Due to	***0.0029***	**0.0175**	<0.0010	<0.0010										0.015	0.002
Manganese	Lock	**1.9**	**1.3**	**2.1**	**1.2**										0.300	0.150
Mercury		<0.0001	<0.0002	<0.0002	<0.0002										0.002	0.0005
Nickel		**0.0074**	**0.0197**	<0.0050	<0.0050										0.100	0.050
Sodium		**30**	**34**	**34**	**31**										-	-
Zinc		**0.014**	**0.047**	<0.020	<0.020										-	-
Other Analytes (mg/L)																
Chloride	-	**52**	**59**	**59**	**63**										-	-
COD	-	<10	**58**	**35**	**10**										-	-
PFAS (ng/L)																
Perfluorohexanesulfonic acid (PFHxS)	-	-	-	**17**	**8.5**										-	-
Perfluoroheptanoic acid (PFHpA)	-	-	-	**5.1**	**3.7**											
Perfluorooctanoic acid (PFOA)	-	-	-	**30**	**15**											
Perfluorooctanesulfonic acid (PFOS)	-	-	-	**14**	**11**											
Perfluorononanoic acid (PFNA)	-	-	-	<1.9	<1.9											
Total Regulated PFAS	-	-	-	**66.1**	**38.2**										20	2
Total Non-Regulated PFAS	-	-	-	**14.8**	**16.5**										-	-
Field Measurements (units as noted)																
pH (std units)	-	6.58	7.18	6.69	6.71										-	-
Temperature (deg C)	-	13.2	11.7	10.1	10.7										-	-
Spec. Conductivity (uS/cm)	-	1,109	-	826	1,098										-	-
Water Level (feet btoc)	-	4.79	4.97	4.79	5.10										-	-

Data prior to 2021 collected by others and obtained from 2019 reports prepared by EIV Technical Services

Data 2021-present collected by KAS, Inc.

Only detected or targeted VOCs are depicted

All values reported in units noted above

"-" = Not Analyzed, No Information or No Applicable Standard

ND = None Detected

<X = None Detected above Detection Limit (X)

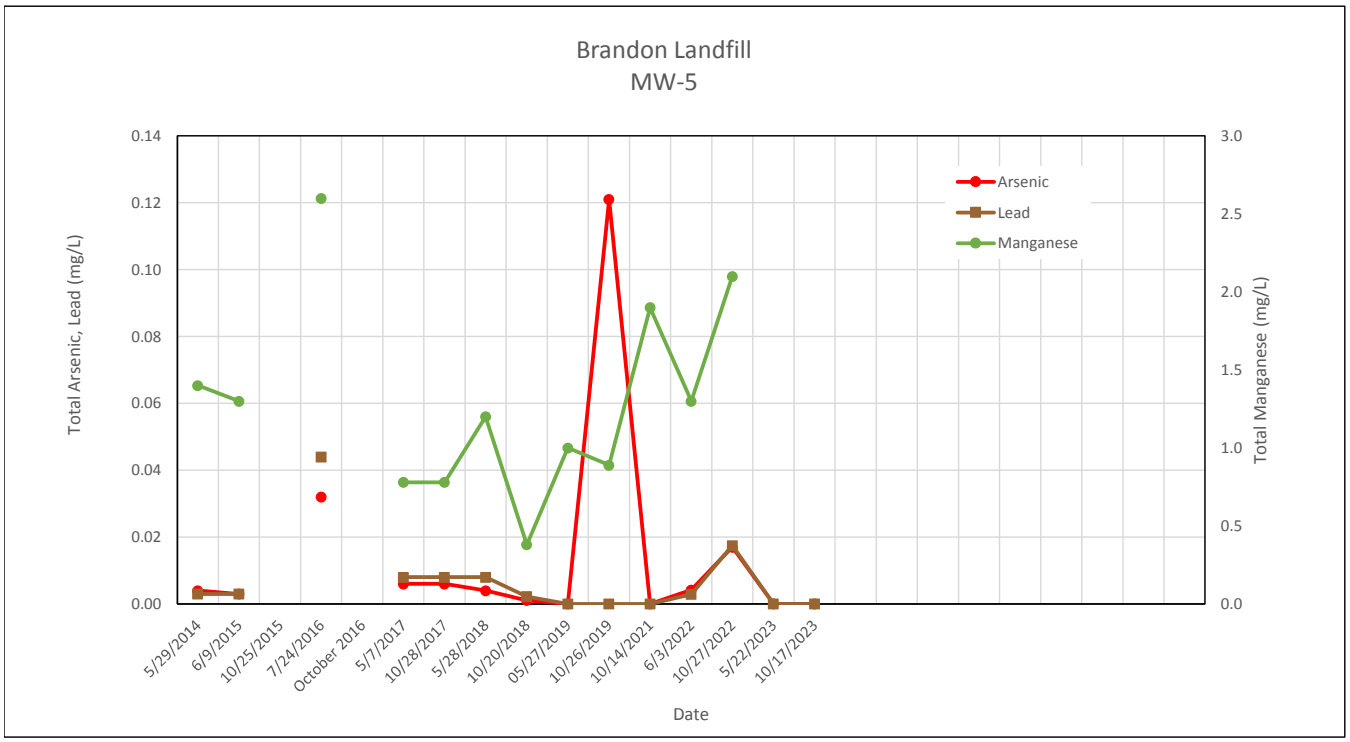
VGES = Vermont Groundwater Enforcement Standard (GWPRS 07/06/2019)

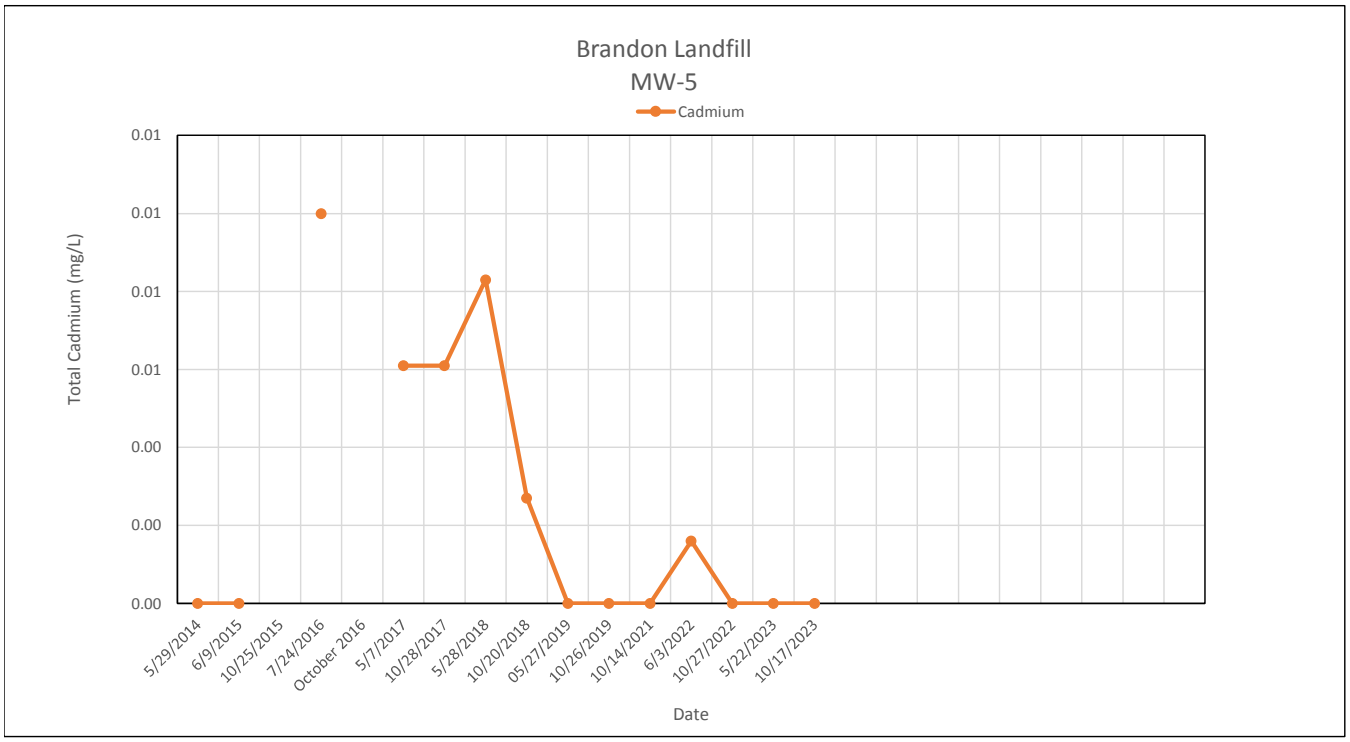
PAL = Vermont Preventive Action Level (GWPRS 07/06/2019)

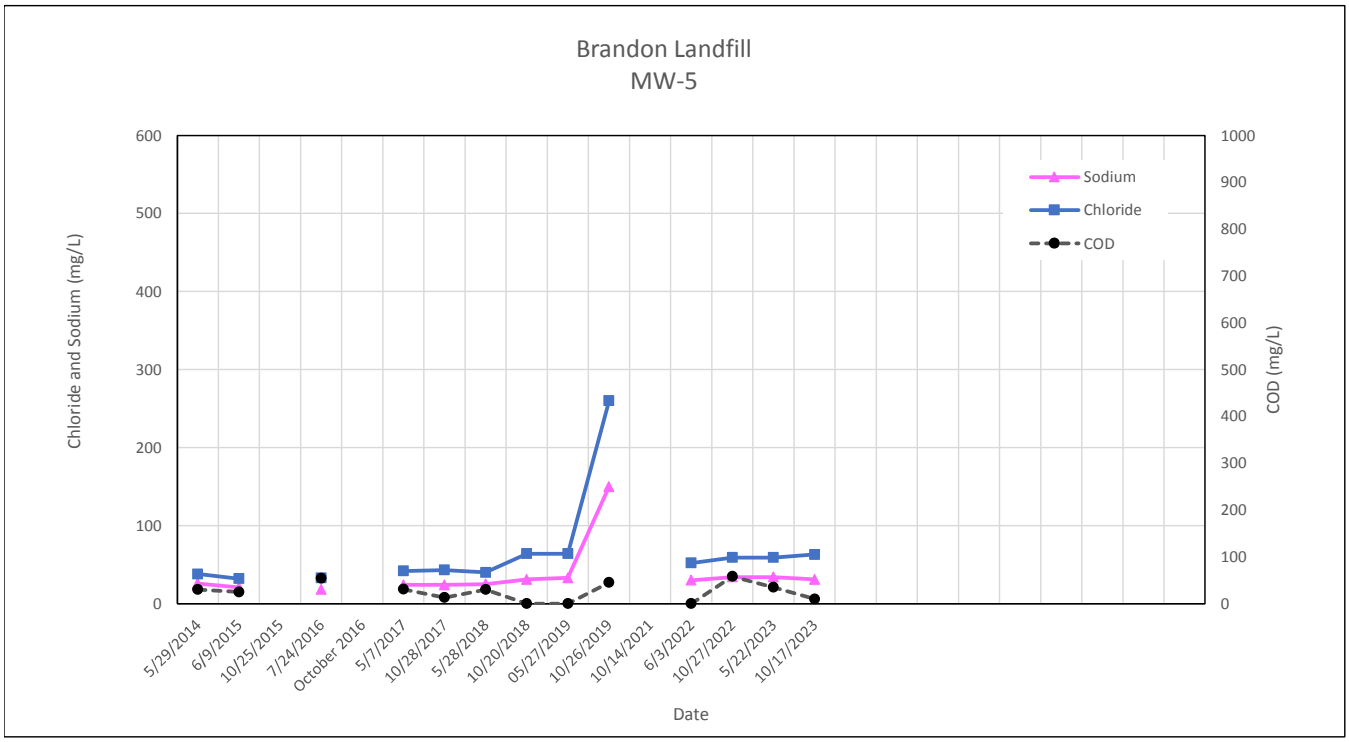
Detections are **bolded**

>VGES

Bold (italic) indicates value exceeds PAL


Brandon Landfill
MW-5
Total Arsenic, Lead (mg/L)
Total Manganese (mg/L)
Arsenic
Lead
Manganese
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
3.0
2.5
2.0
1.5
1.0
0.5
0.0
5/29/2014
6/9/2015
10/25/2015
7/24/2016
October 2016
5/7/2017
10/28/2017
5/28/2018
10/20/2018
05/27/2019
10/26/2019
10/14/2021
6/3/2022
10/27/2022
5/22/2023
10/17/2023
Date


Brandon Landfill
MW-5
Cadmium
Total Cadmium (mg/L)
0.01
0.01
0.01
0.01
0.00
0.00
0.00
5/29/2014
6/9/2015
10/25/2015
7/24/2016
October 2016
5/7/2017
10/28/2017
5/28/2018
10/20/2018
05/27/2019
10/26/2019
10/14/2021
6/3/2022
10/27/2022
5/22/2023
10/17/2023
Date


Brandon Landfill
MW-5
Chloride and Sodium (mg/L)
COD (mg/L)
Date
Sodium
Chloride
COD
600
500
400
300
200
100
0
1000
900
800
700
600
500
400
300
200
100
0
5/29/2014
6/9/2015
10/25/2015
7/24/2016
October 2016
5/7/2017
10/28/2017
5/28/2018
10/20/2018
05/27/2019
10/26/2019
10/14/2021
6/3/2022
10/27/2022
5/22/2023
10/17/2023

Brandon Closed Landfill

Quality Assurance/Quality Control Samples

Sample ID: *Sample Date:* PARAMETER	Trip Blank 10/17/2023	Duplicate 10/17/2023	MW-2C 10/17/2023	RPD (%)
VOCs (ug/L)				
1,4-dichlorobenzene	ND	2.6	2.7	3.8
Diethyl Ether	ND	20.8	22.6	8.3
Acetone	ND	<10.0	<10.0	-
Methyl-t-butyl ether (MTBE)	ND	<2.0	<2.0	-
Tetrahydrofuran	ND	<10.0	<10.0	-
Benzene	ND	2.8	2.8	0.0
Chlorobenzene	ND	6.8	6.8	0.0
Naphthalene	ND	<0.5	<0.5	-
t-Butanol	ND	25.6	21.9	15.6
Total VOCs	ND	58.6	56.8	3.1
Total Metals (mg/L)				
Arsenic	-	0.0194	0.0189	2.6
Cadmium	-	<0.0020	<0.0020	-
Chromium	-	<0.0050	<0.0050	-
Copper	-	<0.020	<0.020	-
Iron	-	29	29	0.0
Lead	-	<0.0010	<0.0010	-
Manganese	-	0.32	0.33	3.1
Mercury	-	<0.0002	<0.0002	-
Nickel	-	0.0103	0.0099	4.0
Sodium	-	220	230	4.4
Zinc	-	<0.020	<0.020	-
Other Analytes (mg/L)				
Chloride	-	360	350	2.8
COD	-	54	53	1.9

Only detected or targeted VOCs are depicted

All values reported in units noted above

"-" = Not Analyzed, RPD could not be calculated due to non-detects or No Applicable Standard

ND = None Detected

<X = None Detected above Detection Limit (X)

RPD = The results of the laboratory analysis of the duplicate sample were analyzed using a relative percent difference (RPD) analysis. The RPD is defined as 100 times the difference in reported concentration between sample and duplicate, divided by the mean of the two samples. A small RPD indicates good correlation between sample and duplicate.

APPENDIX C

Laboratory Reports

ENDYNE Inc.
Environmental Laboratories

Laboratory Report

KAS, Inc 100306
PO Box 787
Williston, VT 05495

Atten: Clare Santos

PROJECT: Brandon Landfill
WORK ORDER: **2310-33161**
DATE RECEIVED: October 18, 2023
DATE REPORTED: November 09, 2023
SAMPLER: WR

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. All required method quality control elements including instrument calibration were performed in accordance with method requirements and determined to be acceptable unless otherwise noted.

The column labeled Lab/Tech in the accompanying report denotes the laboratory facility where the testing was performed and the technician who conducted the assay. A "W" designates the Williston, VT lab under NELAC certification ELAP 11263; "R" designates the Lebanon, NH facility under certification NH 2037 and "N" the Plattsburgh, NY lab under certification ELAP 11892. "Sub" indicates the testing was performed by a subcontracted laboratory. The accreditation status of the subcontracted lab is referenced in the corresponding NELAC and Qual fields.

The NELAC column also denotes the accreditation status of each laboratory for each reported parameter. "A" indicates the referenced laboratory is NELAC accredited for the parameter reported. "N" indicates the laboratory is not accredited. "U" indicates that NELAC does not offer accreditation for that parameter in that specific matrix. Test results denoted with an "A" meet all National Environmental Laboratory Accreditation Program requirements except where denoted by pertinent data qualifiers. Test results are representative of the samples as they were received at the laboratory

Endyne, Inc. warrants, to the best of its knowledge and belief, the accuracy of the analytical test results contained in this report, but makes no other warranty, expressed or implied, especially no warranties of merchantability or fitness for a particular purpose.

Reviewed by:

Harry B. Locker, Ph.D.
Laboratory Director

CLIENT: KAS, Inc
PROJECT: Brandon Landfill

WORK ORDER: **2310-33161**
DATE RECEIVED: 10/18/2023

001 Site: MW-1 Date Sampled: 10/17/23 Time: 14:05

Parameter	Result	Units	Method	Analysis Date	Lab/Tech	NELAC	Qual.
Chloride	72	mg/L	EPA 300.0	10/18/23 18:18	W ECM	A	
COD	25	mg/L	EPA 410.4	10/24/23	N WEP	A	
Metals Digestion	Digested		EPA 3015A	11/2/23	W MLR	A	
Arsenic, Total	< 0.0010	mg/L	EPA 6020B	11/6/23 15:18	W RSB	A	
Cadmium, Total	< 0.0020	mg/L	EPA 6020B	11/6/23 15:18	W RSB	A	
Chromium, Total	< 0.0050	mg/L	EPA 6020B	11/6/23 15:18	W RSB	A	
Copper, Total	< 0.020	mg/L	EPA 6020B	11/6/23 15:18	W RSB	A	
Iron, Total	2.0	mg/L	EPA 6010C	11/7/23 18:50	W MLR	A	
Lead, Total	< 0.0010	mg/L	EPA 6020B	11/6/23 15:18	W RSB	A	
Manganese, Total	0.11	mg/L	EPA 6020B	11/6/23 15:18	W RSB	A	
Mercury, Total	< 0.0002	mg/L	EPA 6020B	11/6/23 15:18	W RSB	N	
Nickel, Total	< 0.0050	mg/L	EPA 6020B	11/6/23 15:18	W RSB	A	
Sodium, Total	33	mg/L	EPA 6010C	11/7/23 18:50	W MLR	A	
Zinc, Total	< 0.020	mg/L	EPA 6020B	11/6/23 15:18	W RSB	A	

002 Site: MW-2C Date Sampled: 10/17/23 Time: 11:50

Parameter	Result	Units	Method	Analysis Date	Lab/Tech	NELAC	Qual.
Chloride	350	mg/L	EPA 300.0	10/20/23 21:42	W ECM	A	
COD	53	mg/L	EPA 410.4	10/24/23	N WEP	A	
Metals Digestion	Digested		EPA 3015A	11/2/23	W MLR	A	
Arsenic, Total	0.0189	mg/L	EPA 6020B	11/6/23 15:23	W RSB	A	
Cadmium, Total	< 0.0020	mg/L	EPA 6020B	11/6/23 15:23	W RSB	A	
Chromium, Total	< 0.0050	mg/L	EPA 6020B	11/6/23 15:23	W RSB	A	
Copper, Total	< 0.020	mg/L	EPA 6020B	11/6/23 15:23	W RSB	A	
Iron, Total	29	mg/L	EPA 6010C	11/7/23 18:56	W MLR	A	
Lead, Total	< 0.0010	mg/L	EPA 6020B	11/6/23 15:23	W RSB	A	
Manganese, Total	0.33	mg/L	EPA 6020B	11/6/23 15:23	W RSB	A	
Mercury, Total	< 0.0002	mg/L	EPA 6020B	11/6/23 15:23	W RSB	N	
Nickel, Total	0.0099	mg/L	EPA 6020B	11/6/23 15:23	W RSB	A	
Sodium, Total	230	mg/L	EPA 6010C	11/7/23 19:01	W MLR	A	
Zinc, Total	< 0.020	mg/L	EPA 6020B	11/6/23 15:23	W RSB	A	

003 Site: MW-3 Date Sampled: 10/17/23 Time: 10:35

Parameter	Result	Units	Method	Analysis Date	Lab/Tech	NELAC	Qual.
Chloride	48	mg/L	EPA 300.0	10/18/23 18:58	W ECM	A	
COD	28	mg/L	EPA 410.4	10/24/23	N WEP	A	
Metals Digestion	Digested		EPA 3015A	11/2/23	W MLR	A	
Arsenic, Total	0.0028	mg/L	EPA 6020B	11/6/23 15:27	W RSB	A	
Cadmium, Total	< 0.0020	mg/L	EPA 6020B	11/6/23 15:27	W RSB	A	
Chromium, Total	< 0.0050	mg/L	EPA 6020B	11/6/23 15:27	W RSB	A	
Copper, Total	< 0.020	mg/L	EPA 6020B	11/6/23 15:27	W RSB	A	
Iron, Total	7.4	mg/L	EPA 6010C	11/7/23 19:06	W MLR	A	
Lead, Total	0.0069	mg/L	EPA 6020B	11/6/23 15:27	W RSB	A	
Manganese, Total	0.21	mg/L	EPA 6020B	11/6/23 15:27	W RSB	A	

CLIENT: KAS, Inc
PROJECT: Brandon Landfill

WORK ORDER: **2310-33161**
DATE RECEIVED: 10/18/2023

003 Site: MW-3 Date Sampled: 10/17/23 Time: 10:35

Parameter	Result	Units	Method	Analysis Date		Lab/Tech	NELAC	Qual.
Mercury, Total	< 0.0002	mg/L	EPA 6020B	11/6/23	15:27	W RSB	N	
Nickel, Total	0.0055	mg/L	EPA 6020B	11/6/23	15:27	W RSB	A	
Sodium, Total	27	mg/L	EPA 6010C	11/7/23	19:06	W MLR	A	
Zinc, Total	< 0.020	mg/L	EPA 6020B	11/6/23	15:27	W RSB	A	

004 Site: MW-5 Date Sampled: 10/17/23 Time: 12:56

Parameter	Result	Units	Method	Analysis Date		Lab/Tech	NELAC	Qual.
Chloride	63	mg/L	EPA 300.0	10/18/23	19:18	W ECM	A	
COD	10	mg/L	EPA 410.4	10/24/23		N WEP	A	
Metals Digestion	Digested		EPA 3015A	11/2/23		W MLR	A	
Arsenic, Total	< 0.0010	mg/L	EPA 6020B	11/6/23	15:32	W RSB	A	
Cadmium, Total	< 0.0020	mg/L	EPA 6020B	11/6/23	15:32	W RSB	A	
Chromium, Total	< 0.0050	mg/L	EPA 6020B	11/6/23	15:32	W RSB	A	
Copper, Total	< 0.020	mg/L	EPA 6020B	11/6/23	15:32	W RSB	A	
Iron, Total	5.8	mg/L	EPA 6010C	11/7/23	19:11	W MLR	A	
Lead, Total	< 0.0010	mg/L	EPA 6020B	11/6/23	15:32	W RSB	A	
Manganese, Total	1.2	mg/L	EPA 6020B	11/6/23	15:32	W RSB	A	
Mercury, Total	< 0.0002	mg/L	EPA 6020B	11/6/23	15:32	W RSB	N	
Nickel, Total	< 0.0050	mg/L	EPA 6020B	11/6/23	15:32	W RSB	A	
Sodium, Total	31	mg/L	EPA 6010C	11/7/23	19:11	W MLR	A	
Zinc, Total	< 0.020	mg/L	EPA 6020B	11/6/23	15:32	W RSB	A	

005 Site: Duplicate Date Sampled: 10/17/23 Time: 11:50

Parameter	Result	Units	Method	Analysis Date		Lab/Tech	NELAC	Qual.
Chloride	360	mg/L	EPA 300.0	10/19/23	15:08	W ECM	A	
COD	54	mg/L	EPA 410.4	10/24/23		N WEP	A	
Metals Digestion	Digested		EPA 3015A	11/2/23		W MLR	A	
Arsenic, Total	0.0194	mg/L	EPA 6020B	11/6/23	15:36	W RSB	A	
Cadmium, Total	< 0.0020	mg/L	EPA 6020B	11/6/23	15:36	W RSB	A	
Chromium, Total	< 0.0050	mg/L	EPA 6020B	11/6/23	15:36	W RSB	A	
Copper, Total	< 0.020	mg/L	EPA 6020B	11/6/23	15:36	W RSB	A	
Iron, Total	29	mg/L	EPA 6010C	11/7/23	19:17	W MLR	A	
Lead, Total	< 0.0010	mg/L	EPA 6020B	11/6/23	15:36	W RSB	A	
Manganese, Total	0.32	mg/L	EPA 6020B	11/6/23	15:36	W RSB	A	
Mercury, Total	< 0.0002	mg/L	EPA 6020B	11/6/23	15:36	W RSB	N	
Nickel, Total	0.0103	mg/L	EPA 6020B	11/6/23	15:36	W RSB	A	
Sodium, Total	220	mg/L	EPA 6010C	11/7/23	19:22	W MLR	A	
Zinc, Total	< 0.020	mg/L	EPA 6020B	11/6/23	15:36	W RSB	A	

CLIENT: KAS, Inc
PROJECT: Brandon Landfill

WORK ORDER: **2310-33161**
DATE RECEIVED: 10/18/2023

TEST METHOD: EPA 8260C

001 Site: MW-1 Sampled: 10/17/23 14:05 Test Date: 10/26/23 W TRP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Dichlorodifluoromethane	< 5.0	ug/L	A		Chloromethane	< 3.0	ug/L	A	
Vinyl chloride	< 0.5	ug/L	A		Bromomethane	< 0.5	ug/L	A	
Chloroethane	< 5.0	ug/L	A		Trichlorofluoromethane	< 2.0	ug/L	A	
Diethyl ether	< 5.0	ug/L	N		1,1-Dichloroethene	< 0.7	ug/L	A	
Acetone	< 10.0	ug/L	A		Carbon disulfide	< 5.0	ug/L	A	
Methylene chloride	< 5.0	ug/L	A		t-Butanol	< 20.0	ug/L	N	
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	A		trans-1,2-Dichloroethene	< 1.0	ug/L	A	
Di-isopropyl ether (DIPE)	< 2.0	ug/L	N		1,1-Dichloroethane	< 1.0	ug/L	A	
Ethyl-t-butyl ether (ETBE)	< 2.0	ug/L	N		2-Butanone	< 10.0	ug/L	A	
2,2-Dichloropropane	< 1.0	ug/L	N		cis-1,2-Dichloroethene	< 1.0	ug/L	A	
Bromochloromethane	< 0.8	ug/L	A		Chloroform	< 1.0	ug/L	A	
Tetrahydrofuran	< 10.0	ug/L	N		1,1,1-Trichloroethane	< 1.0	ug/L	A	
Carbon tetrachloride	< 0.5	ug/L	A		1,1-Dichloropropene	< 1.0	ug/L	N	
Benzene	< 0.5	ug/L	A		t-Amylmethyl ether (TAME)	< 2.0	ug/L	N	
1,2-Dichloroethane	< 0.5	ug/L	A		Trichloroethene	< 0.5	ug/L	A	
1,2-Dichloropropane	< 0.5	ug/L	A		Dibromomethane	< 2.0	ug/L	A	
Bromodichloromethane	< 0.5	ug/L	A		cis-1,3-Dichloropropene	< 1.0	ug/L	A	
4-Methyl-2-pentanone (MIBK)	< 10.0	ug/L	A		Toluene	< 1.0	ug/L	A	
trans-1,3-Dichloropropene	< 1.0	ug/L	A		1,1,2-Trichloroethane	< 1.0	ug/L	A	
Tetrachloroethene	< 0.5	ug/L	A		1,3-Dichloropropane	< 1.0	ug/L	N	
2-Hexanone	< 10.0	ug/L	A		Dibromochloromethane	< 1.0	ug/L	A	
1,2-Dibromoethane	< 2.0	ug/L	A		Chlorobenzene	< 1.0	ug/L	A	
Ethylbenzene	< 1.0	ug/L	A		1,1,1,2-Tetrachloroethane	< 2.0	ug/L	A	
Xylenes, Total	< 2.0	ug/L	A		Styrene	< 1.0	ug/L	A	
Bromoform	< 2.0	ug/L	A		Isopropylbenzene	< 1.0	ug/L	A	
1,1,2,2-Tetrachloroethane	< 2.0	ug/L	A		Bromobenzene	< 1.0	ug/L	A	
n-Propylbenzene	< 1.0	ug/L	A		1,2,3-Trichloropropane	< 2.0	ug/L	A	
2-Chlorotoluene	< 1.0	ug/L	A		1,3,5-Trimethylbenzene	< 1.0	ug/L	A	
4-Chlorotoluene	< 1.0	ug/L	A		t-Butylbenzene	< 1.0	ug/L	A	
1,2,4-Trimethylbenzene	< 1.0	ug/L	A		s-Butylbenzene	< 1.0	ug/L	A	
4-Isopropyltoluene	< 1.0	ug/L	A		1,3-Dichlorobenzene	< 1.0	ug/L	A	
1,4-Dichlorobenzene	< 1.0	ug/L	A		1,2,3-Trimethylbenzene	< 1.0	ug/L	U	
n-Butylbenzene	< 1.0	ug/L	A		1,2-Dichlorobenzene	< 1.0	ug/L	A	
1,2-Dibromo-3-Chloropropane	< 2.0	ug/L	A		1,2,4-Trichlorobenzene	< 2.0	ug/L	A	
1,3,5-Trichlorobenzene	< 2.0	ug/L	N		Hexachlorobutadiene	< 0.5	ug/L	A	
Naphthalene	< 0.5	ug/L	A		1,2,3-Trichlorobenzene	< 0.5	ug/L	A	
Surr. 1 (Dibromofluoromethane)	104	%	A		Surr. 2 (Toluene d8)	97	%	A	
Surr. 3 (4-Bromofluorobenzene)	100	%	A		Unidentified Peaks	0		U	

CLIENT: KAS, Inc
PROJECT: Brandon Landfill

WORK ORDER: **2310-33161**
DATE RECEIVED: 10/18/2023

TEST METHOD: EPA 8260C

002 Site: MW-2C Sampled: 10/17/23 11:50 Test Date: 10/26/23 W TRP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Dichlorodifluoromethane	< 5.0	ug/L	A		Chloromethane	< 3.0	ug/L	A	
Vinyl chloride	< 0.5	ug/L	A		Bromomethane	< 0.5	ug/L	A	
Chloroethane	< 5.0	ug/L	A		Trichlorofluoromethane	< 2.0	ug/L	A	
Diethyl ether	22.6	ug/L	N		1,1-Dichloroethene	< 0.7	ug/L	A	
Acetone	< 10.0	ug/L	A		Carbon disulfide	< 5.0	ug/L	A	
Methylene chloride	< 5.0	ug/L	A		t-Butanol	21.9	ug/L	N	
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	A		trans-1,2-Dichloroethene	< 1.0	ug/L	A	
Di-isopropyl ether (DIPE)	< 2.0	ug/L	N		1,1-Dichloroethane	< 1.0	ug/L	A	
Ethyl-t-butyl ether (ETBE)	< 2.0	ug/L	N		2-Butanone	< 10.0	ug/L	A	
2,2-Dichloropropane	< 1.0	ug/L	N		cis-1,2-Dichloroethene	< 1.0	ug/L	A	
Bromochloromethane	< 0.8	ug/L	A		Chloroform	< 1.0	ug/L	A	
Tetrahydrofuran	< 10.0	ug/L	N		1,1,1-Trichloroethane	< 1.0	ug/L	A	
Carbon tetrachloride	< 0.5	ug/L	A		1,1-Dichloropropene	< 1.0	ug/L	N	
Benzene	2.8	ug/L	A		t-Amylmethyl ether (TAME)	< 2.0	ug/L	N	
1,2-Dichloroethane	< 0.5	ug/L	A		Trichloroethene	< 0.5	ug/L	A	
1,2-Dichloropropane	< 0.5	ug/L	A		Dibromomethane	< 2.0	ug/L	A	
Bromodichloromethane	< 0.5	ug/L	A		cis-1,3-Dichloropropene	< 1.0	ug/L	A	
4-Methyl-2-pentanone (MIBK)	< 10.0	ug/L	A		Toluene	< 1.0	ug/L	A	
trans-1,3-Dichloropropene	< 1.0	ug/L	A		1,1,2-Trichloroethane	< 1.0	ug/L	A	
Tetrachloroethene	< 0.5	ug/L	A		1,3-Dichloropropane	< 1.0	ug/L	N	
2-Hexanone	< 10.0	ug/L	A		Dibromochloromethane	< 1.0	ug/L	A	
1,2-Dibromoethane	< 2.0	ug/L	A		Chlorobenzene	6.8	ug/L	A	
Ethylbenzene	< 1.0	ug/L	A		1,1,1,2-Tetrachloroethane	< 2.0	ug/L	A	
Xylenes, Total	< 2.0	ug/L	A		Styrene	< 1.0	ug/L	A	
Bromoform	< 2.0	ug/L	A		Isopropylbenzene	< 1.0	ug/L	A	
1,1,2,2-Tetrachloroethane	< 2.0	ug/L	A		Bromobenzene	< 1.0	ug/L	A	
n-Propylbenzene	< 1.0	ug/L	A		1,2,3-Trichloropropane	< 2.0	ug/L	A	
2-Chlorotoluene	< 1.0	ug/L	A		1,3,5-Trimethylbenzene	< 1.0	ug/L	A	
4-Chlorotoluene	< 1.0	ug/L	A		t-Butylbenzene	< 1.0	ug/L	A	
1,2,4-Trimethylbenzene	< 1.0	ug/L	A		s-Butylbenzene	< 1.0	ug/L	A	
4-Isopropyltoluene	< 1.0	ug/L	A		1,3-Dichlorobenzene	< 1.0	ug/L	A	
1,4-Dichlorobenzene	2.7	ug/L	A		1,2,3-Trimethylbenzene	< 1.0	ug/L	U	
n-Butylbenzene	< 1.0	ug/L	A		1,2-Dichlorobenzene	< 1.0	ug/L	A	
1,2-Dibromo-3-Chloropropane	< 2.0	ug/L	A		1,2,4-Trichlorobenzene	< 2.0	ug/L	A	
1,3,5-Trichlorobenzene	< 2.0	ug/L	N		Hexachlorobutadiene	< 0.5	ug/L	A	
Naphthalene	< 0.5	ug/L	A		1,2,3-Trichlorobenzene	< 0.5	ug/L	A	
Surr. 1 (Dibromofluoromethane)	103	%	A		Surr. 2 (Toluene d8)	98	%	A	
Surr. 3 (4-Bromofluorobenzene)	99	%	A		Unidentified Peaks	1		U	

CLIENT: KAS, Inc
PROJECT: Brandon Landfill

WORK ORDER: **2310-33161**
DATE RECEIVED: 10/18/2023

TEST METHOD: EPA 8260C

003 Site: MW-3 Sampled: 10/17/23 10:35 Test Date: 10/26/23 W TRP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Dichlorodifluoromethane	< 5.0	ug/L	A		Chloromethane	< 3.0	ug/L	A	
Vinyl chloride	< 0.5	ug/L	A		Bromomethane	< 0.5	ug/L	A	
Chloroethane	< 5.0	ug/L	A		Trichlorofluoromethane	< 2.0	ug/L	A	
Diethyl ether	< 5.0	ug/L	N		1,1-Dichloroethene	< 0.7	ug/L	A	
Acetone	< 10.0	ug/L	A		Carbon disulfide	< 5.0	ug/L	A	
Methylene chloride	< 5.0	ug/L	A		t-Butanol	< 20.0	ug/L	N	
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	A		trans-1,2-Dichloroethene	< 1.0	ug/L	A	
Di-isopropyl ether (DIPE)	< 2.0	ug/L	N		1,1-Dichloroethane	< 1.0	ug/L	A	
Ethyl-t-butyl ether (ETBE)	< 2.0	ug/L	N		2-Butanone	< 10.0	ug/L	A	
2,2-Dichloropropane	< 1.0	ug/L	N		cis-1,2-Dichloroethene	< 1.0	ug/L	A	
Bromochloromethane	< 0.8	ug/L	A		Chloroform	< 1.0	ug/L	A	
Tetrahydrofuran	< 10.0	ug/L	N		1,1,1-Trichloroethane	< 1.0	ug/L	A	
Carbon tetrachloride	< 0.5	ug/L	A		1,1-Dichloropropene	< 1.0	ug/L	N	
Benzene	< 0.5	ug/L	A		t-Amylmethyl ether (TAME)	< 2.0	ug/L	N	
1,2-Dichloroethane	< 0.5	ug/L	A		Trichloroethene	< 0.5	ug/L	A	
1,2-Dichloropropane	< 0.5	ug/L	A		Dibromomethane	< 2.0	ug/L	A	
Bromodichloromethane	< 0.5	ug/L	A		cis-1,3-Dichloropropene	< 1.0	ug/L	A	
4-Methyl-2-pentanone (MIBK)	< 10.0	ug/L	A		Toluene	< 1.0	ug/L	A	
trans-1,3-Dichloropropene	< 1.0	ug/L	A		1,1,2-Trichloroethane	< 1.0	ug/L	A	
Tetrachloroethene	< 0.5	ug/L	A		1,3-Dichloropropane	< 1.0	ug/L	N	
2-Hexanone	< 10.0	ug/L	A		Dibromochloromethane	< 1.0	ug/L	A	
1,2-Dibromoethane	< 2.0	ug/L	A		Chlorobenzene	< 1.0	ug/L	A	
Ethylbenzene	< 1.0	ug/L	A		1,1,1,2-Tetrachloroethane	< 2.0	ug/L	A	
Xylenes, Total	< 2.0	ug/L	A		Styrene	< 1.0	ug/L	A	
Bromoform	< 2.0	ug/L	A		Isopropylbenzene	< 1.0	ug/L	A	
1,1,2,2-Tetrachloroethane	< 2.0	ug/L	A		Bromobenzene	< 1.0	ug/L	A	
n-Propylbenzene	< 1.0	ug/L	A		1,2,3-Trichloropropane	< 2.0	ug/L	A	
2-Chlorotoluene	< 1.0	ug/L	A		1,3,5-Trimethylbenzene	< 1.0	ug/L	A	
4-Chlorotoluene	< 1.0	ug/L	A		t-Butylbenzene	< 1.0	ug/L	A	
1,2,4-Trimethylbenzene	< 1.0	ug/L	A		s-Butylbenzene	< 1.0	ug/L	A	
4-Isopropyltoluene	< 1.0	ug/L	A		1,3-Dichlorobenzene	< 1.0	ug/L	A	
1,4-Dichlorobenzene	< 1.0	ug/L	A		1,2,3-Trimethylbenzene	< 1.0	ug/L	U	
n-Butylbenzene	< 1.0	ug/L	A		1,2-Dichlorobenzene	< 1.0	ug/L	A	
1,2-Dibromo-3-Chloropropane	< 2.0	ug/L	A		1,2,4-Trichlorobenzene	< 2.0	ug/L	A	
1,3,5-Trichlorobenzene	< 2.0	ug/L	N		Hexachlorobutadiene	< 0.5	ug/L	A	
Naphthalene	< 0.5	ug/L	A		1,2,3-Trichlorobenzene	< 0.5	ug/L	A	
Surr. 1 (Dibromofluoromethane)	106	%	A		Surr. 2 (Toluene d8)	100	%	A	
Surr. 3 (4-Bromofluorobenzene)	93	%	A		Unidentified Peaks	0		U	

CLIENT: KAS, Inc
PROJECT: Brandon Landfill

WORK ORDER: **2310-33161**
DATE RECEIVED: 10/18/2023

TEST METHOD: EPA 8260C

004 Site: MW-5 Sampled: 10/17/23 12:56 Test Date: 10/26/23 W TRP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Dichlorodifluoromethane	< 5.0	ug/L	A		Chloromethane	< 3.0	ug/L	A	
Vinyl chloride	< 0.5	ug/L	A		Bromomethane	< 0.5	ug/L	A	
Chloroethane	< 5.0	ug/L	A		Trichlorofluoromethane	< 2.0	ug/L	A	
Diethyl ether	< 5.0	ug/L	N		1,1-Dichloroethene	< 0.7	ug/L	A	
Acetone	< 10.0	ug/L	A		Carbon disulfide	< 5.0	ug/L	A	
Methylene chloride	< 5.0	ug/L	A		t-Butanol	< 20.0	ug/L	N	
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	A		trans-1,2-Dichloroethene	< 1.0	ug/L	A	
Di-isopropyl ether (DIPE)	< 2.0	ug/L	N		1,1-Dichloroethane	< 1.0	ug/L	A	
Ethyl-t-butyl ether (ETBE)	< 2.0	ug/L	N		2-Butanone	< 10.0	ug/L	A	
2,2-Dichloropropane	< 1.0	ug/L	N		cis-1,2-Dichloroethene	< 1.0	ug/L	A	
Bromochloromethane	< 0.8	ug/L	A		Chloroform	< 1.0	ug/L	A	
Tetrahydrofuran	< 10.0	ug/L	N		1,1,1-Trichloroethane	< 1.0	ug/L	A	
Carbon tetrachloride	< 0.5	ug/L	A		1,1-Dichloropropene	< 1.0	ug/L	N	
Benzene	< 0.5	ug/L	A		t-Amylmethyl ether (TAME)	< 2.0	ug/L	N	
1,2-Dichloroethane	< 0.5	ug/L	A		Trichloroethene	< 0.5	ug/L	A	
1,2-Dichloropropane	< 0.5	ug/L	A		Dibromomethane	< 2.0	ug/L	A	
Bromodichloromethane	< 0.5	ug/L	A		cis-1,3-Dichloropropene	< 1.0	ug/L	A	
4-Methyl-2-pentanone (MIBK)	< 10.0	ug/L	A		Toluene	< 1.0	ug/L	A	
trans-1,3-Dichloropropene	< 1.0	ug/L	A		1,1,2-Trichloroethane	< 1.0	ug/L	A	
Tetrachloroethene	< 0.5	ug/L	A		1,3-Dichloropropane	< 1.0	ug/L	N	
2-Hexanone	< 10.0	ug/L	A		Dibromochloromethane	< 1.0	ug/L	A	
1,2-Dibromoethane	< 2.0	ug/L	A		Chlorobenzene	< 1.0	ug/L	A	
Ethylbenzene	< 1.0	ug/L	A		1,1,1,2-Tetrachloroethane	< 2.0	ug/L	A	
Xylenes, Total	< 2.0	ug/L	A		Styrene	< 1.0	ug/L	A	
Bromoform	< 2.0	ug/L	A		Isopropylbenzene	< 1.0	ug/L	A	
1,1,2,2-Tetrachloroethane	< 2.0	ug/L	A		Bromobenzene	< 1.0	ug/L	A	
n-Propylbenzene	< 1.0	ug/L	A		1,2,3-Trichloropropane	< 2.0	ug/L	A	
2-Chlorotoluene	< 1.0	ug/L	A		1,3,5-Trimethylbenzene	< 1.0	ug/L	A	
4-Chlorotoluene	< 1.0	ug/L	A		t-Butylbenzene	< 1.0	ug/L	A	
1,2,4-Trimethylbenzene	< 1.0	ug/L	A		s-Butylbenzene	< 1.0	ug/L	A	
4-Isopropyltoluene	< 1.0	ug/L	A		1,3-Dichlorobenzene	< 1.0	ug/L	A	
1,4-Dichlorobenzene	< 1.0	ug/L	A		1,2,3-Trimethylbenzene	< 1.0	ug/L	U	
n-Butylbenzene	< 1.0	ug/L	A		1,2-Dichlorobenzene	< 1.0	ug/L	A	
1,2-Dibromo-3-Chloropropane	< 2.0	ug/L	A		1,2,4-Trichlorobenzene	< 2.0	ug/L	A	
1,3,5-Trichlorobenzene	< 2.0	ug/L	N		Hexachlorobutadiene	< 0.5	ug/L	A	
Naphthalene	< 0.5	ug/L	A		1,2,3-Trichlorobenzene	< 0.5	ug/L	A	
Surr. 1 (Dibromofluoromethane)	105	%	A		Surr. 2 (Toluene d8)	104	%	A	
Surr. 3 (4-Bromofluorobenzene)	96	%	A		Unidentified Peaks	0		U	

CLIENT: KAS, Inc
PROJECT: Brandon Landfill

WORK ORDER: **2310-33161**
DATE RECEIVED: 10/18/2023

TEST METHOD: EPA 8260C

005 Site: Duplicate Sampled: 10/17/23 11:50 Test Date: 10/26/23 W TRP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Dichlorodifluoromethane	< 5.0	ug/L	A		Chloromethane	< 3.0	ug/L	A	
Vinyl chloride	< 0.5	ug/L	A		Bromomethane	< 0.5	ug/L	A	
Chloroethane	< 5.0	ug/L	A		Trichlorofluoromethane	< 2.0	ug/L	A	
Diethyl ether	20.8	ug/L	N		1,1-Dichloroethene	< 0.7	ug/L	A	
Acetone	< 10.0	ug/L	A		Carbon disulfide	< 5.0	ug/L	A	
Methylene chloride	< 5.0	ug/L	A		t-Butanol	25.6	ug/L	N	
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	A		trans-1,2-Dichloroethene	< 1.0	ug/L	A	
Di-isopropyl ether (DIPE)	< 2.0	ug/L	N		1,1-Dichloroethane	< 1.0	ug/L	A	
Ethyl-t-butyl ether (ETBE)	< 2.0	ug/L	N		2-Butanone	< 10.0	ug/L	A	
2,2-Dichloropropane	< 1.0	ug/L	N		cis-1,2-Dichloroethene	< 1.0	ug/L	A	
Bromochloromethane	< 0.8	ug/L	A		Chloroform	< 1.0	ug/L	A	
Tetrahydrofuran	< 10.0	ug/L	N		1,1,1-Trichloroethane	< 1.0	ug/L	A	
Carbon tetrachloride	< 0.5	ug/L	A		1,1-Dichloropropene	< 1.0	ug/L	N	
Benzene	2.8	ug/L	A		t-Amylmethyl ether (TAME)	< 2.0	ug/L	N	
1,2-Dichloroethane	< 0.5	ug/L	A		Trichloroethene	< 0.5	ug/L	A	
1,2-Dichloropropane	< 0.5	ug/L	A		Dibromomethane	< 2.0	ug/L	A	
Bromodichloromethane	< 0.5	ug/L	A		cis-1,3-Dichloropropene	< 1.0	ug/L	A	
4-Methyl-2-pentanone (MIBK)	< 10.0	ug/L	A		Toluene	< 1.0	ug/L	A	
trans-1,3-Dichloropropene	< 1.0	ug/L	A		1,1,2-Trichloroethane	< 1.0	ug/L	A	
Tetrachloroethene	< 0.5	ug/L	A		1,3-Dichloropropane	< 1.0	ug/L	N	
2-Hexanone	< 10.0	ug/L	A		Dibromochloromethane	< 1.0	ug/L	A	
1,2-Dibromoethane	< 2.0	ug/L	A		Chlorobenzene	6.8	ug/L	A	
Ethylbenzene	< 1.0	ug/L	A		1,1,1,2-Tetrachloroethane	< 2.0	ug/L	A	
Xylenes, Total	< 2.0	ug/L	A		Styrene	< 1.0	ug/L	A	
Bromoform	< 2.0	ug/L	A		Isopropylbenzene	< 1.0	ug/L	A	
1,1,2,2-Tetrachloroethane	< 2.0	ug/L	A		Bromobenzene	< 1.0	ug/L	A	
n-Propylbenzene	< 1.0	ug/L	A		1,2,3-Trichloropropane	< 2.0	ug/L	A	
2-Chlorotoluene	< 1.0	ug/L	A		1,3,5-Trimethylbenzene	< 1.0	ug/L	A	
4-Chlorotoluene	< 1.0	ug/L	A		t-Butylbenzene	< 1.0	ug/L	A	
1,2,4-Trimethylbenzene	< 1.0	ug/L	A		s-Butylbenzene	< 1.0	ug/L	A	
4-Isopropyltoluene	< 1.0	ug/L	A		1,3-Dichlorobenzene	< 1.0	ug/L	A	
1,4-Dichlorobenzene	2.6	ug/L	A		1,2,3-Trimethylbenzene	< 1.0	ug/L	U	
n-Butylbenzene	< 1.0	ug/L	A		1,2-Dichlorobenzene	< 1.0	ug/L	A	
1,2-Dibromo-3-Chloropropane	< 2.0	ug/L	A		1,2,4-Trichlorobenzene	< 2.0	ug/L	A	
1,3,5-Trichlorobenzene	< 2.0	ug/L	N		Hexachlorobutadiene	< 0.5	ug/L	A	
Naphthalene	< 0.5	ug/L	A		1,2,3-Trichlorobenzene	< 0.5	ug/L	A	
Surr. 1 (Dibromofluoromethane)	103	%	A		Surr. 2 (Toluene d8)	99	%	A	
Surr. 3 (4-Bromofluorobenzene)	100	%	A		Unidentified Peaks	1		U	

CLIENT: KAS, Inc
PROJECT: Brandon Landfill

WORK ORDER: **2310-33161**
DATE RECEIVED: 10/18/2023

TEST METHOD: EPA 8260C

006 Site: Trip Blank Sampled: 9/29/23 15:57 Test Date: 10/26/23 W TRP

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Dichlorodifluoromethane	< 5.0	ug/L	A		Chloromethane	< 3.0	ug/L	A	
Vinyl chloride	< 0.5	ug/L	A		Bromomethane	< 0.5	ug/L	A	
Chloroethane	< 5.0	ug/L	A		Trichlorofluoromethane	< 2.0	ug/L	A	
Diethyl ether	< 5.0	ug/L	N		1,1-Dichloroethene	< 0.7	ug/L	A	
Acetone	< 10.0	ug/L	A		Carbon disulfide	< 5.0	ug/L	A	
Methylene chloride	< 5.0	ug/L	A		t-Butanol	< 20.0	ug/L	N	
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	A		trans-1,2-Dichloroethene	< 1.0	ug/L	A	
Di-isopropyl ether (DIPE)	< 2.0	ug/L	N		1,1-Dichloroethane	< 1.0	ug/L	A	
Ethyl-t-butyl ether (ETBE)	< 2.0	ug/L	N		2-Butanone	< 10.0	ug/L	A	
2,2-Dichloropropane	< 1.0	ug/L	N		cis-1,2-Dichloroethene	< 1.0	ug/L	A	
Bromochloromethane	< 0.8	ug/L	A		Chloroform	< 1.0	ug/L	A	
Tetrahydrofuran	< 10.0	ug/L	N		1,1,1-Trichloroethane	< 1.0	ug/L	A	
Carbon tetrachloride	< 0.5	ug/L	A		1,1-Dichloropropene	< 1.0	ug/L	N	
Benzene	< 0.5	ug/L	A		t-Amylmethyl ether (TAME)	< 2.0	ug/L	N	
1,2-Dichloroethane	< 0.5	ug/L	A		Trichloroethene	< 0.5	ug/L	A	
1,2-Dichloropropane	< 0.5	ug/L	A		Dibromomethane	< 2.0	ug/L	A	
Bromodichloromethane	< 0.5	ug/L	A		cis-1,3-Dichloropropene	< 1.0	ug/L	A	
4-Methyl-2-pentanone (MIBK)	< 10.0	ug/L	A		Toluene	< 1.0	ug/L	A	
trans-1,3-Dichloropropene	< 1.0	ug/L	A		1,1,2-Trichloroethane	< 1.0	ug/L	A	
Tetrachloroethene	< 0.5	ug/L	A		1,3-Dichloropropane	< 1.0	ug/L	N	
2-Hexanone	< 10.0	ug/L	A		Dibromochloromethane	< 1.0	ug/L	A	
1,2-Dibromoethane	< 2.0	ug/L	A		Chlorobenzene	< 1.0	ug/L	A	
Ethylbenzene	< 1.0	ug/L	A		1,1,1,2-Tetrachloroethane	< 2.0	ug/L	A	
Xylenes, Total	< 2.0	ug/L	A		Styrene	< 1.0	ug/L	A	
Bromoform	< 2.0	ug/L	A		Isopropylbenzene	< 1.0	ug/L	A	
1,1,2,2-Tetrachloroethane	< 2.0	ug/L	A		Bromobenzene	< 1.0	ug/L	A	
n-Propylbenzene	< 1.0	ug/L	A		1,2,3-Trichloropropane	< 2.0	ug/L	A	
2-Chlorotoluene	< 1.0	ug/L	A		1,3,5-Trimethylbenzene	< 1.0	ug/L	A	
4-Chlorotoluene	< 1.0	ug/L	A		t-Butylbenzene	< 1.0	ug/L	A	
1,2,4-Trimethylbenzene	< 1.0	ug/L	A		s-Butylbenzene	< 1.0	ug/L	A	
4-Isopropyltoluene	< 1.0	ug/L	A		1,3-Dichlorobenzene	< 1.0	ug/L	A	
1,4-Dichlorobenzene	< 1.0	ug/L	A		1,2,3-Trimethylbenzene	< 1.0	ug/L	U	
n-Butylbenzene	< 1.0	ug/L	A		1,2-Dichlorobenzene	< 1.0	ug/L	A	
1,2-Dibromo-3-Chloropropane	< 2.0	ug/L	A		1,2,4-Trichlorobenzene	< 2.0	ug/L	A	
1,3,5-Trichlorobenzene	< 2.0	ug/L	N		Hexachlorobutadiene	< 0.5	ug/L	A	
Naphthalene	< 0.5	ug/L	A		1,2,3-Trichlorobenzene	< 0.5	ug/L	A	
Surr. 1 (Dibromofluoromethane)	103	%	A		Surr. 2 (Toluene d8)	98	%	A	
Surr. 3 (4-Bromofluorobenzene)	100	%	A		Unidentified Peaks	0		U	

Brandon Landfill

Endyne Inc. COC

Prepared: 5/2/23

2310-33161

KAS, Inc
Brandon Landfill

Bill to:	Report to:		
Amy King	Clare Santos	Customer #	10
KAS, Inc.	KAS, Inc		
P.O. Box 787	PO Box 787		BRANDC
Williston VT 05495	Williston VT 05495		
Ph: (802) 383-0486	info@kas-consulting.com;clares@ka		W-1003(

MW-1

Sampled Date/Time: 10/17/23@1405 Sampler: WR

COD	1 - 40mL Vial	H2SO4 pH<2
Chloride	1 -2 oz-Plastics Anion	<6C
Arsenic, Total	1 - 16 oz Plastic Total Metal:	HNO3 pH< 2 ____
Cadmium, Total		
Chromium, Total		
Copper, Total		
Iron, Total		
Lead, Total		
Manganese, Total		
Mercury, Total		
Nickel, Total		
Sodium, Total		
Zinc, Total		
VOC w/Oxygenates,Water 8260	2 - 40ml vials	<6C, HCl

MW-2C

Sampled Date/Time: 10/17/23@1150 Sampler: CS

COD	1 - 40mL Vial	H2SO4 pH<2
Chloride	1 -2 oz-Plastics Anion	<6C
Arsenic, Total	1 - 16 oz Plastic Total Metal:	HNO3 pH< 2 ____
Cadmium, Total		
Chromium, Total		
Copper, Total		
Iron, Total		
Lead, Total		
Manganese, Total		
Mercury, Total		
Nickel, Total		
Sodium, Total		
Zinc, Total		
VOC w/Oxygenates,Water 8260	2 - 40ml vials	<6C, HCl

MW-3

Sampled Date/Time: 10/17/23@1035 Sampler: CS

COD	1 - 40mL Vial	H2SO4 pH<2
Chloride	1 -2 oz-Plastics Anion	<6C
Arsenic, Total	1 - 16 oz Plastic Total Metal:	HNO3 pH< 2 ____
Cadmium, Total		
Chromium, Total		
Copper, Total		
Iron, Total		
Lead, Total		
Manganese, Total		
Mercury, Total		
Nickel, Total		
Sodium, Total		
Zinc, Total		
VOC w/Oxygenates,Water 8260	2 - 40ml vials	<6C, HCl

MW-5	Sampled Date/Time: 10/17/23 @ 1256	Sampler: CS
COD	1 - 40mL Vial	H2SO4 pH<2
Chloride	1 -2 oz-Plastics Anion	<6C
Arsenic, Total	1 - 16 oz Plastic Total Metal:	HNO3 pH< 2 ____
Cadmium, Total		
Chromium, Total		
Copper, Total		
Iron, Total		
Lead, Total		
Manganese, Total		
Mercury, Total		
Nickel, Total		
Sodium, Total		
Zinc, Total		
VOC w/Oxygenates,Water 8260	2 - 40ml vials	<6C, HCl

Duplicate	Sampled Date/Time: 10/17/23 @ 1150	Sampler: CS
COD	1 - 40mL Vial	H2SO4 pH<2
Chloride	1 -2 oz-Plastics Anion	<6C
Arsenic, Total	1 - 16 oz Plastic Total Metal:	HNO3 pH< 2 ____
Cadmium, Total		
Chromium, Total		
Copper, Total		
Iron, Total		
Lead, Total		
Manganese, Total		
Mercury, Total		
Nickel, Total		
Sodium, Total		
Zinc, Total		
VOC w/Oxygenates,Water 8260	2 - 40ml vials	<6C, HCl

Trip Blank	Sampled Date/Time: 9/29/23 @ 3:57pm	Sampler: Eileen
VOC w/Oxygenates,Water 8260	2 - 40ml vials	<6C, HCl

Relinquished by: [signature] 10/17/23 1540 Date Time

Accepted by: Eileen Cooney 10/18/23 @ 1029 Date Time

Relinquished by: CS 10/18/23 10:26 Date Time

Received by: ____ Date Time

Sites/Parameters correct as listed. Client Initials CS

Client Authorization to use Subcontract lab Client Initials CS

Sample origin: VT [X] NH [ ] NY [ ] Other [ ]

Special reporting instructions: (PO#) ____

Requested Turnaround Time: (Routine) Rush Due Date ____

Lab use Only

Delv: Client

Temp C: 5.3

Comment:

Tmpl Ck

Log by

ENDYNE Inc.
www.endynelabs.com

160 James Brown Dr.
Williston, VT 05495
Ph 802-879-4333
Fax 802-879-7103

56 Etna Road
Lebanon, NH 03766
Ph 603-678-4891
Fax 603-678-4893

315 New York Rd.
Plattsburgh, NY 12903
Ph 518-563-1720
Fax 518-563-0052

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November 7, 2023

Clare Santos
KAS Environmental
589 Avenue D
Williston, VT 05495

Project Location: Brandon, VT
Client Job Number:
Project Number: 609210052
Laboratory Work Order Number: 23J2719

Enclosed are results of analyses for samples as received by the laboratory on October 19, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

Table of Contents

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: 11/7/2023

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 609210052

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23J2719

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

PROJECT LOCATION: Brandon, VT

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
ERB	23J2719-01	Equipment Blank Water		SOP-454 PFAS	
MW-2C	23J2719-02	Ground Water		SOP-454 PFAS	
MW-1	23J2719-03	Ground Water		SOP-454 PFAS	
MW-3	23J2719-04	Ground Water		SOP-454 PFAS	
MW-5	23J2719-05	Ground Water		SOP-454 PFAS	

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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.

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SOP-454 PFAS

Qualifications:

D-01

Sample extracted/prepared at a dilution due to sample matrix.

Analyte & Samples(s) Qualified:

23J2719-02RE1[MW-2C], 23J2719-04[MW-3]

L-01

Laboratory fortified blank/laboratory control sample recovery outside of control limits. Data validation is not affected since all results are "not detected" for all samples in this batch for this compound and bias is on the high side.

Analyte & Samples(s) Qualified:

N-EtFOSAA (NEtFOSAA)
23J2719-01[ERB], 23J2719-04[MW-3], B356040-BLK1

N-MeFOSAA (NMeFOSAA)
B356040-BS1

L-05

Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

N-EtFOSAA (NEtFOSAA)
B356040-BS1

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
23J2719-01[ERB], 23J2719-04[MW-3]

PF-18

Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.

Analyte & Samples(s) Qualified:

M2-4:2FTS
23J2719-02RE1[MW-2C]

M2-6:2FTS
23J2719-02RE1[MW-2C]

M2PFTA
23J2719-03RE1[MW-1], 23J2719-05RE1[MW-5]

MPFBA
23J2719-02RE1[MW-2C]

MPFDoA
23J2719-03RE1[MW-1]

PF-20

Quantifying ion signal to noise ratio is <10. Detection is suspect.

Analyte & Samples(s) Qualified:

Perfluoropentanoic acid (PFPeA)
23J2719-02RE1[MW-2C]

PF-22

Qualifier ion ratio >150% of associated calibration. Detection is suspect.

Analyte & Samples(s) Qualified:

Perfluorooctanesulfonic acid (PFOS)
23J2719-02RE1[MW-2C]

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S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

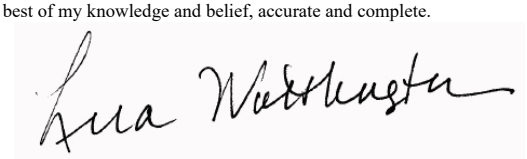
M7PFUnA
23J2719-05RE1[MW-5]

M8FOSA
23J2719-03RE1[MW-1], 23J2719-05RE1[MW-5]

MPFBA
23J2719-05RE1[MW-5]

MPFDoA
23J2719-05RE1[MW-5]

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.



Lisa A. Worthington
Technical Representative

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

Project Location: Brandon, VT | Sample Description: | Work Order: 23J2719

Date Received: 10/19/2023

Field Sample #: ERB | Sampled: 10/17/2023 10:18

Sample ID: 23J2719-01

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	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1	L-01	SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 13:46	QNW

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Project Location: Brandon, VT | Sample Description: | Work Order: 23J2719

Date Received: 10/19/2023

Field Sample #: MW-2C | Sampled: 10/17/2023 11:50

Sample ID: 23J2719-02

Sample Matrix: Ground Water

Sample Flags: D-01

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	52	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluoropentanoic acid (PFPeA)	42	4.1	ng/L	1	PF-20	SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluorohexanoic acid (PFHxA)	31	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluorodecanoic acid (PFDA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluorohexanesulfonic acid (PFHxS)	15	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluoroheptanoic acid (PFHpA)	22	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluorooctanoic acid (PFOA)	55	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluorooctanesulfonic acid (PFOS)	43	4.1	ng/L	1	PF-22	SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW
Perfluorononanoic acid (PFNA)	ND	4.1	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:25	QNW

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Project Location: Brandon, VT | Sample Description: | Work Order: 23J2719

Date Received: 10/19/2023

Field Sample #: MW-1 | Sampled: 10/17/2023 14:05

Sample ID: 23J2719-03

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)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:32	QNW

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Project Location: Brandon, VT | Sample Description: | Work Order: 23J2719

Date Received: 10/19/2023

Field Sample #: MW-3 | Sampled: 10/17/2023 10:35

Sample ID: 23J2719-04

Sample Matrix: Ground Water

Sample Flags: D-01

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	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluoropentanoic acid (PFPeA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluorohexanoic acid (PFHxA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluorodecanoic acid (PFDA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1	L-01	SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluoroheptanoic acid (PFHpA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluorooctanoic acid (PFOA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW
Perfluorononanoic acid (PFNA)	ND	4.1	ng/L	1		SOP-454 PFAS	10/24/23	10/26/23 14:15	QNW

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Project Location: Brandon, VT | Sample Description: | Work Order: 23J2719

Date Received: 10/19/2023

Field Sample #: MW-5 | Sampled: 10/17/2023 12:56

Sample ID: 23J2719-05

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)	5.1	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluorobutanesulfonic acid (PFBS)	2.3	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluoropentanoic acid (PFPeA)	3.8	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluorohexanoic acid (PFHxA)	5.3	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluorohexanesulfonic acid (PFHxS)	8.5	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluoroheptanoic acid (PFHpA)	3.7	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluorooctanoic acid (PFOA)	15	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluorooctanesulfonic acid (PFOS)	11	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		SOP-454 PFAS	11/1/23	11/2/23 11:39	QNW

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Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23J2719-01 [ERB]	B356040	261	1.00	10/24/23
23J2719-04 [MW-3]	B356040	123	1.00	10/24/23

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23J2719-02RE1 [MW-2C]	B356692	121	1.00	11/01/23
23J2719-03RE1 [MW-1]	B356692	266	1.00	11/01/23
23J2719-05RE1 [MW-5]	B356692	262	1.00	11/01/23

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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 B356040 - SOP 454-PFAAS										
Blank (B356040-BLK1)				Prepared: 10/24/23 Analyzed: 10/26/23						
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							L-01
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 (B356040-BS1)				Prepared: 10/24/23 Analyzed: 10/26/23						
Perfluorobutanoic acid (PFBA)	9.63	1.8	ng/L	9.07		106	73-129			
Perfluorobutanesulfonic acid (PFBS)	7.86	1.8	ng/L	8.03		97.8	72-130			
Perfluoropentanoic acid (PFPeA)	9.56	1.8	ng/L	9.07		105	72-129			
Perfluorohexanoic acid (PFHxA)	9.80	1.8	ng/L	9.07		108	72-129			
11Cl-PF3OUdS (F53B Major)	7.51	1.8	ng/L	8.55		87.9	43.3-138			
9Cl-PF3ONS (F53B Minor)	7.48	1.8	ng/L	8.46		88.4	52-140			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.55	1.8	ng/L	8.55		112	53.7-152			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.53	1.8	ng/L	9.07		83.0	42.1-145			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.60	1.8	ng/L	8.71		98.8	67-138			
Perfluorodecanoic acid (PFDA)	11.2	1.8	ng/L	9.07		124	71-129			
Perfluorododecanoic acid (PFDoA)	10.1	1.8	ng/L	9.07		111	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	8.31	1.8	ng/L	8.08		103	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 B356040 - SOP 454-PFAAS											
LCS (B356040-BS1)				Prepared: 10/24/23 Analyzed: 10/26/23							
Perfluoroheptanesulfonic acid (PFHpS)	9.85	1.8	ng/L	8.66		114		69-134			
N-EtFOSAA (NEtFOSAA)	13.3	1.8	ng/L	9.07		**147**	*	61-135			L-05
N-MeFOSAA (NMeFOSAA)	14.4	1.8	ng/L	9.07		**158**	*	65-136			L-01
Perfluorotetradecanoic acid (PFTA)	8.87	1.8	ng/L	9.07		97.8		71-132			
Perfluorotridecanoic acid (PFTrDA)	10.9	1.8	ng/L	9.07		120		65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	8.48	1.8	ng/L	8.48		100		63-143			
Perfluorodecanesulfonic acid (PFDS)	8.35	1.8	ng/L	8.76		95.4		53-142			
Perfluorooctanesulfonamide (FOSA)	10.1	1.8	ng/L	9.07		111		67-137			
Perfluorononanesulfonic acid (PFNS)	9.64	1.8	ng/L	8.71		111		69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	7.96	1.8	ng/L	9.07		87.7		50-150			
Perfluoro-1-butanesulfonamide (FBSA)	8.69	1.8	ng/L	9.07		95.8		50-150			
Perfluorohexanesulfonic acid (PFHxS)	9.26	1.8	ng/L	8.30		112		68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	9.54	1.8	ng/L	9.07		105		53.8-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	10.0	1.8	ng/L	9.07		110		54.5-152			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	10.3	1.8	ng/L	8.62		119		64-140			
Perfluoropentanesulfonic acid (PFPeS)	8.11	1.8	ng/L	8.53		95.1		71-127			
Perfluoroundecanoic acid (PFUnA)	9.65	1.8	ng/L	9.07		106		69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	9.51	1.8	ng/L	9.07		105		50.5-159			
Perfluoroheptanoic acid (PFHpA)	8.35	1.8	ng/L	9.07		92.0		72-130			
Perfluorooctanoic acid (PFOA)	8.51	1.8	ng/L	9.07		93.8		71-133			
Perfluorooctanesulfonic acid (PFOS)	8.28	1.8	ng/L	8.39		98.7		65-140			
Perfluorononanoic acid (PFNA)	9.27	1.8	ng/L	9.07		102		69-130			
Batch B356692 - SOP 454-PFAAS											
Blank (B356692-BLK1)				Prepared: 11/01/23 Analyzed: 11/02/23							
Perfluorobutanoic acid (PFBA)	ND	1.9	ng/L								
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L								
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L								
Perfluorohexanoic acid (PFHxA)	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								
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L								
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L								
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L								
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L								
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L								
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L								
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L								
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L								
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L								
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L								
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L								
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L								
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L								
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L								
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L								
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L								
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L								

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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 B356692 - SOP 454-PFAAS										
Blank (B356692-BLK1)				Prepared: 11/01/23 Analyzed: 11/02/23						
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L							
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L							
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	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							
LCS (B356692-BS1)				Prepared: 11/01/23 Analyzed: 11/02/23						
Perfluorobutanoic acid (PFBA)	9.37	1.9	ng/L	9.36		100	73-129			
Perfluorobutanesulfonic acid (PFBS)	8.14	1.9	ng/L	8.28		98.2	72-130			
Perfluoropentanoic acid (PFPeA)	9.51	1.9	ng/L	9.36		102	72-129			
Perfluorohexanoic acid (PFHxA)	9.27	1.9	ng/L	9.36		99.1	72-129			
11Cl-PF3OUdS (F53B Major)	7.71	1.9	ng/L	8.82		87.4	43.3-138			
9Cl-PF3ONS (F53B Minor)	7.92	1.9	ng/L	8.72		90.8	52-140			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.43	1.9	ng/L	8.82		95.6	53.7-152			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	9.70	1.9	ng/L	9.36		104	42.1-145			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	9.32	1.9	ng/L	8.99		104	67-138			
Perfluorodecanoic acid (PFDA)	9.94	1.9	ng/L	9.36		106	71-129			
Perfluorododecanoic acid (PFDoA)	10.8	1.9	ng/L	9.36		115	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	8.27	1.9	ng/L	8.33		99.2	52.7-147			
Perfluoroheptanesulfonic acid (PFHpS)	8.98	1.9	ng/L	8.94		100	69-134			
N-EtFOSAA (NEtFOSAA)	10.5	1.9	ng/L	9.36		113	61-135			
N-MeFOSAA (NMeFOSAA)	12.5	1.9	ng/L	9.36		134	65-136			
Perfluorotetradecanoic acid (PFTA)	9.92	1.9	ng/L	9.36		106	71-132			
Perfluorotridecanoic acid (PFTrDA)	9.76	1.9	ng/L	9.36		104	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	8.94	1.9	ng/L	8.75		102	63-143			
Perfluorodecanesulfonic acid (PFDS)	8.69	1.9	ng/L	9.03		96.2	53-142			
Perfluorooctanesulfonamide (FOSA)	10.0	1.9	ng/L	9.36		107	67-137			
Perfluorononanesulfonic acid (PFNS)	8.93	1.9	ng/L	8.99		99.4	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	8.31	1.9	ng/L	9.36		88.8	50-150			
Perfluoro-1-butanesulfonamide (FBSA)	9.08	1.9	ng/L	9.36		97.0	50-150			
Perfluorohexanesulfonic acid (PFHxS)	8.45	1.9	ng/L	8.57		98.7	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	9.64	1.9	ng/L	9.36		103	53.8-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	10.7	1.9	ng/L	9.36		114	54.5-152			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.92	1.9	ng/L	8.89		112	64-140			
Perfluoropentanesulfonic acid (PFPeS)	8.10	1.9	ng/L	8.80		92.0	71-127			
Perfluoroundecanoic acid (PFUnA)	9.55	1.9	ng/L	9.36		102	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.91	1.9	ng/L	9.36		95.2	50.5-159			
Perfluoroheptanoic acid (PFHpA)	9.17	1.9	ng/L	9.36		98.0	72-130			
Perfluorooctanoic acid (PFOA)	9.18	1.9	ng/L	9.36		98.1	71-133			
Perfluorooctanesulfonic acid (PFOS)	8.59	1.9	ng/L	8.66		99.3	65-140			
Perfluorononanoic acid (PFNA)	9.58	1.9	ng/L	9.36		102	69-130			

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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 B356692 - SOP 454-PFAAS										
LCS Dup (B356692-BSD1)				Prepared: 11/01/23 Analyzed: 11/02/23						
Perfluorobutanoic acid (PFBA)	9.55	2.0	ng/L	9.78		97.6	73-129	1.84	30	
Perfluorobutanesulfonic acid (PFBS)	8.36	2.0	ng/L	8.66		96.5	72-130	2.66	30	
Perfluoropentanoic acid (PFPeA)	9.81	2.0	ng/L	9.78		100	72-129	3.16	30	
Perfluorohexanoic acid (PFHxA)	9.37	2.0	ng/L	9.78		95.8	72-129	1.04	30	
11Cl-PF3OUdS (F53B Major)	7.64	2.0	ng/L	9.21		82.9	43.3-138	0.900	30	
9Cl-PF3ONS (F53B Minor)	8.21	2.0	ng/L	9.12		90.0	52-140	3.52	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.92	2.0	ng/L	9.21		96.8	53.7-152	5.74	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	9.01	2.0	ng/L	9.78		92.2	42.1-145	7.33	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	9.12	2.0	ng/L	9.39		97.1	67-138	2.17	30	
Perfluorodecanoic acid (PFDA)	9.95	2.0	ng/L	9.78		102	71-129	0.123	30	
Perfluorododecanoic acid (PFDoA)	10.8	2.0	ng/L	9.78		110	72-134	0.0928	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	8.35	2.0	ng/L	8.71		95.9	52.7-147	0.968	30	
Perfluoroheptanesulfonic acid (PFHpS)	9.92	2.0	ng/L	9.34		106	69-134	9.94	30	
N-EtFOSAA (NEtFOSAA)	10.7	2.0	ng/L	9.78		109	61-135	1.44	30	
N-MeFOSAA (NMeFOSAA)	12.6	2.0	ng/L	9.78		129	65-136	0.552	30	
Perfluorotetradecanoic acid (PFTA)	10.5	2.0	ng/L	9.78		108	71-132	6.00	30	
Perfluorotridecanoic acid (PFTrDA)	9.39	2.0	ng/L	9.78		96.0	65-144	3.90	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.51	2.0	ng/L	9.15		104	63-143	6.22	30	
Perfluorodecanesulfonic acid (PFDS)	9.46	2.0	ng/L	9.44		100	53-142	8.48	30	
Perfluorooctanesulfonamide (FOSA)	10.1	2.0	ng/L	9.78		103	67-137	1.01	30	
Perfluorononanesulfonic acid (PFNS)	7.77	2.0	ng/L	9.39		82.8	69-127	13.9	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	8.68	2.0	ng/L	9.78		88.7	50-150	4.31	30	
Perfluoro-1-butanesulfonamide (FBSA)	9.21	2.0	ng/L	9.78		94.2	50-150	1.46	30	
Perfluorohexanesulfonic acid (PFHxS)	9.16	2.0	ng/L	8.95		102	68-131	8.08	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	9.70	2.0	ng/L	9.78		99.2	53.8-150	0.636	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	10.9	2.0	ng/L	9.78		112	54.5-152	1.90	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.20	2.0	ng/L	9.29		99.0	64-140	7.49	30	
Perfluoropentanesulfonic acid (PFPeS)	8.86	2.0	ng/L	9.20		96.3	71-127	9.00	30	
Perfluoroundecanoic acid (PFUnA)	10.3	2.0	ng/L	9.78		105	69-133	7.51	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	9.07	2.0	ng/L	9.78		92.7	50.5-159	1.72	30	
Perfluoroheptanoic acid (PFHpA)	9.65	2.0	ng/L	9.78		98.7	72-130	5.14	30	
Perfluorooctanoic acid (PFOA)	9.76	2.0	ng/L	9.78		99.8	71-133	6.10	30	
Perfluorooctanesulfonic acid (PFOS)	8.61	2.0	ng/L	9.05		95.1	65-140	0.160	30	
Perfluorononanoic acid (PFNA)	9.67	2.0	ng/L	9.78		98.8	69-130	0.935	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.
D-01	Sample extracted/prepared at a dilution due to sample matrix.
L-01	Laboratory fortified blank/laboratory control sample recovery outside of control limits. Data validation is not affected since all results are "not detected" for all samples in this batch for this compound and bias is on the high side.
L-05	Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.
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.
PF-18	Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.
PF-20	Quantifying ion signal to noise ratio is <10. Detection is suspect.
PF-22	Qualifier ion ratio >150% of associated calibration. Detection is suspect.
S-29	Extracted Internal Standard is outside of control limits.

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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
ERB (23J2719-01)			Lab File ID: 23J2719-01.d			Analyzed: 10/26/23 13:46			
M8FOSA	649866.3	3.964583	883,388.00	3.964583	74	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	165914.5	2.439333	137,183.00	2.431017	121	50 - 150	0.0083	+/-0.50	
M2PFTA	1837554	4.232617	2,042,530.00	4.232617	90	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	857603.7	3.7231	339,467.00	3.7231	253	50 - 150	0.0000	+/-0.50	*
MPFBA	907309.6	1.033533	1,145,367.00	1.025233	79	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	278110.4	2.773833	273,774.00	2.773833	102	50 - 150	0.0000	+/-0.50	
M6PFDA	1835236	3.723617	2,026,094.00	3.723633	91	50 - 150	0.0000	+/-0.50	
M3PFBS	337712	1.845233	402,123.00	1.83695	84	50 - 150	0.0083	+/-0.50	
M7PFUnA	1617316	3.86575	1,795,461.00	3.86575	90	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	146868.7	3.380233	128,128.00	3.380233	115	50 - 150	0.0000	+/-0.50	
M5PFPeA	866152.1	1.673467	1,055,325.00	1.6652	82	50 - 150	0.0083	+/-0.50	
M5PFHxA	1397099	2.523067	1,666,865.00	2.51485	84	50 - 150	0.0082	+/-0.50	
M3PFHxS	260633	3.153433	297,009.00	3.14535	88	50 - 150	0.0081	+/-0.50	
M4PFHpA	1558767	3.113417	1,760,854.00	3.113417	89	50 - 150	0.0000	+/-0.50	
M8PFOA	1792204	3.388967	1,981,240.00	3.388967	90	50 - 150	0.0000	+/-0.50	
M8PFOS	281463.3	3.580283	309,780.00	3.5723	91	50 - 150	0.0080	+/-0.50	
M9PFNA	1500319	3.581317	1,689,149.00	3.573333	89	50 - 150	0.0080	+/-0.50	
MPFDoA	1460331	4.0007	1,668,129.00	4.000717	88	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	366239	3.873417	396,791.00	3.873433	92	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	384014.6	3.801483	406,268.00	3.8015	95	50 - 150	0.0000	+/-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-2C (23J2719-02RE1)			Lab File ID: 23J2719-02RE1.d			Analyzed: 11/02/23 11:25			
M8FOSA	435904.2	3.9406	786,457.00	3.9406	55	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	281471.3	2.406417	129,020.00	2.4228	218	50 - 150	-0.0164	+/-0.50	*
M2PFTA	958395.7	4.232633	1,566,900.00	4.232617	61	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	371781.6	3.723117	426,722.00	3.7231	87	50 - 150	0.0000	+/-0.50	
MPFBA	239510.7	1.016917	911,085.00	1.016917	26	50 - 150	0.0000	+/-0.50	*
M3HFPO-DA	131238.6	2.757483	233,964.00	2.76565	56	50 - 150	-0.0082	+/-0.50	
M6PFDA	1060081	3.723633	1,789,108.00	3.723633	59	50 - 150	0.0000	+/-0.50	
M3PFBS	211745.4	1.820383	345,826.00	1.828667	61	50 - 150	-0.0083	+/-0.50	
M7PFUnA	1044637	3.865767	1,522,534.00	3.86575	69	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	296355.2	3.3722	123,368.00	3.372183	240	50 - 150	0.0000	+/-0.50	*
M5PFPeA	446171.5	1.64865	839,658.00	1.656917	53	50 - 150	-0.0083	+/-0.50	
M5PFHxA	863340.6	2.498433	1,331,668.00	2.506633	65	50 - 150	-0.0082	+/-0.50	
M3PFHxS	159709.7	3.137283	247,882.00	3.14535	64	50 - 150	-0.0081	+/-0.50	
M4PFHpA	911777.5	3.1053	1,399,941.00	3.113417	65	50 - 150	-0.0081	+/-0.50	
M8PFOA	1010832	3.380917	1,630,661.00	3.388967	62	50 - 150	-0.0080	+/-0.50	
M8PFOS	170390.5	3.5723	274,716.00	3.5723	62	50 - 150	0.0000	+/-0.50	
M9PFNA	936803.3	3.573333	1,456,870.00	3.573333	64	50 - 150	0.0000	+/-0.50	
MPFDoA	886887.1	3.992717	1,422,454.00	4.0007	62	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	252049.7	3.873433	362,541.00	3.873417	70	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	240008.8	3.793533	355,949.00	3.793517	67	50 - 150	0.0000	+/-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-1 (23J2719-03RE1)			Lab File ID: 23J2719-03RE1.d			Analyzed: 11/02/23 11:32			
M8FOSA	252325.5	3.9406	786,457.00	3.9406	32	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	122340.4	2.4228	129,020.00	2.4228	95	50 - 150	0.0000	+/-0.50	
M2PFTA	228940.6	4.232617	1,566,900.00	4.232617	15	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	357242.6	3.7231	426,722.00	3.7231	84	50 - 150	0.0000	+/-0.50	
MPFBA	488108.2	1.025233	911,085.00	1.016917	54	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	141134.3	2.757467	233,964.00	2.76565	60	50 - 150	-0.0082	+/-0.50	
M6PFDA	979228.8	3.723617	1,789,108.00	3.723633	55	50 - 150	0.0000	+/-0.50	
M3PFBS	223054.3	1.828667	345,826.00	1.828667	64	50 - 150	0.0000	+/-0.50	
M7PFUnA	775440.5	3.86575	1,522,534.00	3.86575	51	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	176323.8	3.372183	123,368.00	3.372183	143	50 - 150	0.0000	+/-0.50	
M5PFPeA	542778.8	1.656917	839,658.00	1.656917	65	50 - 150	0.0000	+/-0.50	
M5PFHxA	915313.1	2.506633	1,331,668.00	2.506633	69	50 - 150	0.0000	+/-0.50	
M3PFHxS	161162	3.14535	247,882.00	3.14535	65	50 - 150	0.0000	+/-0.50	
M4PFHpA	993722.8	3.105283	1,399,941.00	3.113417	71	50 - 150	-0.0081	+/-0.50	
M8PFOA	1092586	3.380917	1,630,661.00	3.388967	67	50 - 150	-0.0080	+/-0.50	
M8PFOS	158974.6	3.5723	274,716.00	3.5723	58	50 - 150	0.0000	+/-0.50	
M9PFNA	958856.6	3.573333	1,456,870.00	3.573333	66	50 - 150	0.0000	+/-0.50	
MPFDoA	549905.5	3.992717	1,422,454.00	4.0007	39	50 - 150	-0.0080	+/-0.50	*
D5-NEtFOSAA	195409.1	3.873417	362,541.00	3.873417	54	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	211294.9	3.793517	355,949.00	3.793517	59	50 - 150	0.0000	+/-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 (23J2719-04)			Lab File ID: 23J2719-04.d			Analyzed: 10/26/23 14:15			
M8FOSA	717072	3.964583	883,388.00	3.964583	81	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	172610.2	2.439333	137,183.00	2.431017	126	50 - 150	0.0083	+/-0.50	
M2PFTA	1402098	4.232617	2,042,530.00	4.232617	69	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	586437.4	3.731067	339,467.00	3.7231	173	50 - 150	0.0080	+/-0.50	*
MPFBA	991064.2	1.033533	1,145,367.00	1.025233	87	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	256455.7	2.782017	273,774.00	2.773833	94	50 - 150	0.0082	+/-0.50	
M6PFDA	1853547	3.7316	2,026,094.00	3.723633	91	50 - 150	0.0080	+/-0.50	
M3PFBS	349519.5	1.853533	402,123.00	1.83695	87	50 - 150	0.0166	+/-0.50	
M7PFUnA	1624093	3.86575	1,795,461.00	3.86575	90	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	161452.3	3.380233	128,128.00	3.380233	126	50 - 150	0.0000	+/-0.50	
M5PFPeA	947095.1	1.673467	1,055,325.00	1.6652	90	50 - 150	0.0083	+/-0.50	
M5PFHxA	1495332	2.531267	1,666,865.00	2.51485	90	50 - 150	0.0164	+/-0.50	
M3PFHxS	267618	3.153433	297,009.00	3.14535	90	50 - 150	0.0081	+/-0.50	
M4PFHpA	1652807	3.122317	1,760,854.00	3.113417	94	50 - 150	0.0089	+/-0.50	
M8PFOA	1913248	3.397017	1,981,240.00	3.388967	97	50 - 150	0.0080	+/-0.50	
M8PFOS	275183.3	3.580283	309,780.00	3.5723	89	50 - 150	0.0080	+/-0.50	
M9PFNA	1567056	3.581317	1,689,149.00	3.573333	93	50 - 150	0.0080	+/-0.50	
MPFDoA	1407724	4.0007	1,668,129.00	4.000717	84	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	394238.1	3.873417	396,791.00	3.873433	99	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	367716.2	3.801483	406,268.00	3.8015	91	50 - 150	0.0000	+/-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-5 (23J2719-05RE1)			Lab File ID: 23J2719-05RE1.d			Analyzed: 11/02/23 11:39			
M8FOSA	223788.3	3.9406	786,457.00	3.9406	28	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	127232	2.4146	129,020.00	2.4228	99	50 - 150	-0.0082	+/-0.50	
M2PFTA	132755.5	4.232633	1,566,900.00	4.232617	08	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	326453.1	3.7231	426,722.00	3.7231	77	50 - 150	0.0000	+/-0.50	
MPFBA	387028.3	1.025233	911,085.00	1.016917	42	50 - 150	0.0083	+/-0.50	*
M3HFPO-DA	143738.8	2.757467	233,964.00	2.76565	61	50 - 150	-0.0082	+/-0.50	
M6PFDA	972239.5	3.723633	1,789,108.00	3.723633	54	50 - 150	0.0000	+/-0.50	
M3PFBS	229240.9	1.828667	345,826.00	1.828667	66	50 - 150	0.0000	+/-0.50	
M7PFUnA	727281.2	3.86575	1,522,534.00	3.86575	48	50 - 150	0.0000	+/-0.50	*
M2-6:2FTS	147603.9	3.372183	123,368.00	3.372183	120	50 - 150	0.0000	+/-0.50	
M5PFPeA	527800.9	1.656917	839,658.00	1.656917	63	50 - 150	0.0000	+/-0.50	
M5PFHxA	866029.3	2.498417	1,331,668.00	2.506633	65	50 - 150	-0.0082	+/-0.50	
M3PFHxS	161829.5	3.137267	247,882.00	3.14535	65	50 - 150	-0.0081	+/-0.50	
M4PFHpA	936858.7	3.105283	1,399,941.00	3.113417	67	50 - 150	-0.0081	+/-0.50	
M8PFOA	1112033	3.380917	1,630,661.00	3.388967	68	50 - 150	-0.0080	+/-0.50	
M8PFOS	155452.4	3.5723	274,716.00	3.5723	57	50 - 150	0.0000	+/-0.50	
M9PFNA	921137.2	3.573333	1,456,870.00	3.573333	63	50 - 150	0.0000	+/-0.50	
MPFDoA	448188.8	3.992717	1,422,454.00	4.0007	32	50 - 150	-0.0080	+/-0.50	*
D5-NEtFOSAA	193099.4	3.8653	362,541.00	3.873417	53	50 - 150	-0.0081	+/-0.50	
D3-NMeFOSAA	191243.9	3.793517	355,949.00	3.793517	54	50 - 150	0.0000	+/-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 (B356040-BLK1)			Lab File ID: B356040-BLK1.d			Analyzed: 10/26/23 12:34			
M8FOSA	636149.1	3.964583	883,388.00	3.964567	72	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	161583.3	2.439333	137,183.00	2.45575	118	50 - 150	-0.0164	+/-0.50	
M2PFTA	1447929	4.232617	2,042,530.00	4.240684	71	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	491923.7	3.731067	339,467.00	3.731067	145	50 - 150	0.0000	+/-0.50	
MPFBA	838991.4	1.033533	1,145,367.00	1.025233	73	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	276162.2	2.782017	273,774.00	2.7902	101	50 - 150	-0.0082	+/-0.50	
M6PFDA	1622787	3.7316	2,026,094.00	3.731583	80	50 - 150	0.0000	+/-0.50	
M3PFBS	314110.7	1.845233	402,123.00	1.853533	78	50 - 150	-0.0083	+/-0.50	
M7PFUnA	1310798	3.86575	1,795,461.00	3.873917	73	50 - 150	-0.0082	+/-0.50	
M2-6:2FTS	137829.8	3.380233	128,128.00	3.388283	108	50 - 150	-0.0080	+/-0.50	
M5PFPeA	789291.8	1.673467	1,055,325.00	1.681733	75	50 - 150	-0.0083	+/-0.50	
M5PFHxA	1315058	2.531267	1,666,865.00	2.539483	79	50 - 150	-0.0082	+/-0.50	
M3PFHxS	236527.6	3.153433	297,009.00	3.1615	80	50 - 150	-0.0081	+/-0.50	
M4PFHpA	1402846	3.122317	1,760,854.00	3.1304	80	50 - 150	-0.0081	+/-0.50	
M8PFOA	1654209	3.397017	1,981,240.00	3.397017	83	50 - 150	0.0000	+/-0.50	
M8PFOS	231461.6	3.580283	309,780.00	3.580283	75	50 - 150	0.0000	+/-0.50	
M9PFNA	1380059	3.581317	1,689,149.00	3.581317	82	50 - 150	0.0000	+/-0.50	
MPFDoA	1197267	4.0007	1,668,129.00	4.0087	72	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	291182.3	3.873417	396,791.00	3.8814	73	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	319825.4	3.801483	406,268.00	3.80945	79	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 (B356040-BS1)			Lab File ID: B356040-BS1.d			Analyzed: 10/26/23 12:26			
M8FOSA	644430.4	3.964583	883,388.00	3.964567	73	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	155393.2	2.439333	137,183.00	2.45575	113	50 - 150	-0.0164	+/-0.50	
M2PFTA	1542264	4.232617	2,042,530.00	4.240684	76	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	498999.9	3.7231	339,467.00	3.731067	147	50 - 150	-0.0080	+/-0.50	
MPFBA	861673.2	1.033533	1,145,367.00	1.025233	75	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	320094.3	2.782017	273,774.00	2.7902	117	50 - 150	-0.0082	+/-0.50	
M6PFDA	1668650	3.7316	2,026,094.00	3.731583	82	50 - 150	0.0000	+/-0.50	
M3PFBS	323244.4	1.853533	402,123.00	1.853533	80	50 - 150	0.0000	+/-0.50	
M7PFUnA	1385515	3.86575	1,795,461.00	3.873917	77	50 - 150	-0.0082	+/-0.50	
M2-6:2FTS	132437.4	3.380233	128,128.00	3.388283	103	50 - 150	-0.0080	+/-0.50	
M5PFPeA	819830.9	1.673467	1,055,325.00	1.681733	78	50 - 150	-0.0083	+/-0.50	
M5PFHxA	1344793	2.531267	1,666,865.00	2.539483	81	50 - 150	-0.0082	+/-0.50	
M3PFHxS	243132.5	3.153433	297,009.00	3.1615	82	50 - 150	-0.0081	+/-0.50	
M4PFHpA	1452179	3.122317	1,760,854.00	3.1304	82	50 - 150	-0.0081	+/-0.50	
M8PFOA	1702530	3.397017	1,981,240.00	3.397017	86	50 - 150	0.0000	+/-0.50	
M8PFOS	239105.4	3.580283	309,780.00	3.580283	77	50 - 150	0.0000	+/-0.50	
M9PFNA	1409997	3.581317	1,689,149.00	3.581317	83	50 - 150	0.0000	+/-0.50	
MPFDoA	1248935	4.000717	1,668,129.00	4.0087	75	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	291595.1	3.873433	396,791.00	3.8814	73	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	311719.5	3.801483	406,268.00	3.80945	77	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 (B356692-BLK1)			Lab File ID: B356692-BLK1.d			Analyzed: 11/02/23 10:41			
M8FOSA	484777.8	3.9406	786,457.00	3.9406	62	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	112160.1	2.4228	129,020.00	2.4228	87	50 - 150	0.0000	+/-0.50	
M2PFTA	971520.8	4.232617	1,566,900.00	4.232617	62	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	349051.5	3.7231	426,722.00	3.7231	82	50 - 150	0.0000	+/-0.50	
MPFBA	582696.8	1.016917	911,085.00	1.016917	64	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	169681.9	2.76565	233,964.00	2.76565	73	50 - 150	0.0000	+/-0.50	
M6PFDA	1191930	3.723617	1,789,108.00	3.723633	67	50 - 150	0.0000	+/-0.50	
M3PFBS	235606.6	1.83695	345,826.00	1.828667	68	50 - 150	0.0083	+/-0.50	
M7PFUnA	995728.3	3.86575	1,522,534.00	3.86575	65	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	115945.7	3.372183	123,368.00	3.372183	94	50 - 150	0.0000	+/-0.50	
M5PFPeA	552662.1	1.656917	839,658.00	1.656917	66	50 - 150	0.0000	+/-0.50	
M5PFHxA	908442.4	2.51485	1,331,668.00	2.506633	68	50 - 150	0.0082	+/-0.50	
M3PFHxS	167981.3	3.14535	247,882.00	3.14535	68	50 - 150	0.0000	+/-0.50	
M4PFHpA	972911.1	3.113417	1,399,941.00	3.113417	69	50 - 150	0.0000	+/-0.50	
M8PFOA	1175810	3.388967	1,630,661.00	3.388967	72	50 - 150	0.0000	+/-0.50	
M8PFOS	172097.9	3.5723	274,716.00	3.5723	63	50 - 150	0.0000	+/-0.50	
M9PFNA	1034466	3.573333	1,456,870.00	3.573333	71	50 - 150	0.0000	+/-0.50	
MPFDoA	874363.9	4.0007	1,422,454.00	4.0007	61	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	238274.3	3.873417	362,541.00	3.873417	66	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	248581.3	3.793517	355,949.00	3.793517	70	50 - 150	0.0000	+/-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 (B356692-BS1)			Lab File ID: B356692-BS1.d			Analyzed: 11/02/23 10:27			
M8FOSA	478423.8	3.9406	786,457.00	3.9406	61	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	97855.11	2.4228	129,020.00	2.4228	76	50 - 150	0.0000	+/-0.50	
M2PFTA	919750.1	4.232617	1,566,900.00	4.232617	59	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	347401	3.7231	426,722.00	3.7231	81	50 - 150	0.0000	+/-0.50	
MPFBA	563701.5	1.016917	911,085.00	1.016917	62	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	155660.9	2.76565	233,964.00	2.76565	67	50 - 150	0.0000	+/-0.50	
M6PFDA	1090837	3.723633	1,789,108.00	3.723633	61	50 - 150	0.0000	+/-0.50	
M3PFBS	228292	1.828667	345,826.00	1.828667	66	50 - 150	0.0000	+/-0.50	
M7PFUnA	948806.6	3.86575	1,522,534.00	3.86575	62	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	100745.5	3.372183	123,368.00	3.372183	82	50 - 150	0.0000	+/-0.50	
M5PFPeA	544554.1	1.656917	839,658.00	1.656917	65	50 - 150	0.0000	+/-0.50	
M5PFHxA	888732.7	2.506633	1,331,668.00	2.506633	67	50 - 150	0.0000	+/-0.50	
M3PFHxS	167577.3	3.14535	247,882.00	3.14535	68	50 - 150	0.0000	+/-0.50	
M4PFHpA	960460.6	3.113417	1,399,941.00	3.113417	69	50 - 150	0.0000	+/-0.50	
M8PFOA	1151729	3.388967	1,630,661.00	3.388967	71	50 - 150	0.0000	+/-0.50	
M8PFOS	163316.3	3.5723	274,716.00	3.5723	59	50 - 150	0.0000	+/-0.50	
M9PFNA	959799.8	3.573333	1,456,870.00	3.573333	66	50 - 150	0.0000	+/-0.50	
MPFDoA	811554.8	4.000717	1,422,454.00	4.0007	57	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	230535.9	3.873433	362,541.00	3.873417	64	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	231800.7	3.793517	355,949.00	3.793517	65	50 - 150	0.0000	+/-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 (B356692-BSD1)			Lab File ID: B356692-BSD1.d			Analyzed: 11/02/23 10:34			
M8FOSA	548864.1	3.9406	786,457.00	3.9406	70	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	117705.9	2.4228	129,020.00	2.4228	91	50 - 150	0.0000	+/-0.50	
M2PFTA	1149250	4.232633	1,566,900.00	4.232617	73	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	390535.9	3.7231	426,722.00	3.7231	92	50 - 150	0.0000	+/-0.50	
MPFBA	651715.6	1.016917	911,085.00	1.016917	72	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	198796	2.76565	233,964.00	2.76565	85	50 - 150	0.0000	+/-0.50	
M6PFDA	1293091	3.723633	1,789,108.00	3.723633	72	50 - 150	0.0000	+/-0.50	
M3PFBS	263794.7	1.828667	345,826.00	1.828667	76	50 - 150	0.0000	+/-0.50	
M7PFUnA	1092067	3.86575	1,522,534.00	3.86575	72	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	119628.9	3.372183	123,368.00	3.372183	97	50 - 150	0.0000	+/-0.50	
M5PFPeA	622638.1	1.656917	839,658.00	1.656917	74	50 - 150	0.0000	+/-0.50	
M5PFHxA	1019613	2.506633	1,331,668.00	2.506633	77	50 - 150	0.0000	+/-0.50	
M3PFHxS	187047	3.14535	247,882.00	3.14535	75	50 - 150	0.0000	+/-0.50	
M4PFHpA	1073502	3.105283	1,399,941.00	3.113417	77	50 - 150	-0.0081	+/-0.50	
M8PFOA	1283630	3.388967	1,630,661.00	3.388967	79	50 - 150	0.0000	+/-0.50	
M8PFOS	188337.7	3.5723	274,716.00	3.5723	69	50 - 150	0.0000	+/-0.50	
M9PFNA	1123364	3.573333	1,456,870.00	3.573333	77	50 - 150	0.0000	+/-0.50	
MPFDoA	965876.8	4.000717	1,422,454.00	4.0007	68	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	269814.8	3.873433	362,541.00	3.873417	74	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	263166.8	3.793517	355,949.00	3.793517	74	50 - 150	0.0000	+/-0.50	

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
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
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
NY	New York State Department of Health	10899 NELAP	04/1/2024
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2024
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024

2352719

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CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 5_07/13/2021

Page 1 of 1

Company Name:	KAS, Inc
Address:	Williston, VT
Phone:	802-318-0486
Project Name:	Brandon Landfill
Project Location:	Brandon, VT
Project Number:	609210052
Project Manager:	C. Santos
Pace Quote Name/Number:	
Invoice Recipient:	
Sampled By:	WR, CS

Requested Turnaround Time			
7-Day	☐	10-Day	☐
PFAS 10-Day (std)	☒	Due Date:	
Rush-Approval Required			
1-Day	☐	3-Day	☐
2-Day	☐	4-Day	☐
Data Delivery			
Format:	PDF ☒	EXCEL ☒	
Other:			
CLP Like Data Pkg Required:	☐		
Email To:	cleveque@kas-consulting.com		
Fax To #:			

Dissolved Metals Samples	
○	Field Filtered
○	Lab to Filter
Orthophosphate Samples	
○	Field Filtered
○	Lab to Filter

PCB ONLY

SOXHLET ☐

NON SOXHLET ☐

ANALYSIS REQUESTED

Pace Work Order #	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	Matrix Code	Conc. Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	None	PFAS Isotope Dilution (Full List)														
2	EQB	10/17/23	1018	Grab	GW				X				X														
3	MW-2C		1150																								
4	MW-1		1405																								
1	MW-3		1035																								
5	MW-5	↓	1256	↓	↓				↓				↓														

[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)

Relinquished by: (signature)		Date/Time: 10/17/23 1540
Received by: (signature)	RIO VDS	Date/Time: 10-19-23
Relinquished by: (signature)	RIO VDS	Date/Time: 10-19-23 1610
Received by: (signature)		Date/Time: 10.19.23 1022
Relinquished by: (signature)		Date/Time: 10.19.23 1349
Received by: (signature)		Date/Time: 10/19/23 1349
Relinquished by: (signature)		Date/Time:
Received by: (signature)		Date/Time:

Client Comments:
Analyze EQB only if there's a detection in the other samples.

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

Project Entity

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

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

Lab 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.

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

Log In Back-Sheet

Client MAS

Project Brandon Tunnel

MCP/RCP Required N/A

Deliverable Package Requirement N/A

Location Brandon VT

PWSID# (When Applicable) N/A

Arrival Method:

Courier ☑ Fed Ex ☐ Walk In ☐ Other ☐

Received By / Date / Time EM 10/19/23 1349

Back-Sheet By / Date / Time LA 10/20/23 0858

Temperature Method Gun #5

Temp ☑ < 6° C Actual Temperature 4.7

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.

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

Sample																				
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																				

Soils Jars	(Circle Amb/Clear)	
Ambers	1 Liter	
	250mL	
	100mL	
Plastics	1 Liter	
	500mL	
	250mL	
VOA Vials		
Other / Fill in		