

MEMORANDUM

TO: Mark Friedman, School Business Administrator, Martha's Vineyard Public Schools

FROM: Steven LaRosa, Senior Technical Leader, Weston & Sampson Engineers, Inc.

DATE: October 28, 2022

SUBJECT: Review of Soil Analyses for Per and Polyfluorinated Alkyl Substances

Weston & Sampson Engineers, Inc. (Weston & Sampson) has reviewed the soil analytical data you provided reporting per and polyfluorinated alkyl substances (PFAS). The reported data, quality assurance and quality control information included in the two analytical reports provided were reviewed. No information regarding the sample locations, sampling methods or depths of collection were provided. The following summarizes our review findings.

Sample Collection

- 1) A total of four (4) soil samples from two (2) addresses in Oak Bluffs were collected on July 7, 2022.
 - a. 100 Edgartown Vineyard Haven Road – NW Corner, SE Corner
 - b. 50 Tradewinds Road – NW Corner, SE Corner
- 2) The samples collected at each address were submitted under two (2) chains of custody (one for each address) to EST Associates, Inc. who then transferred the samples to Alpha Analytical for analysis.
- 3) Each sample was analyzed by Alphas Analytical via their proprietary method for PFAS in soils Method 134, LCMSMS-ID. This method is an isotope dilution method based upon EPA Method 537.1. Each sample was extracted using Alphas method ALPHA 23528.
- 4) Total solids analyses were also completed for each sample to allow for reporting PFAS concentration data as “dry weight”.
- 5) Two (2) Field Blanks were collected at each address and submitted to the laboratory. At the clients request, only one (1) of these samples were analyzed for each address.
- 6) Analytical Report Lab Number L2236680 provides data for samples from 100 Edgartown Vineyard Haven Road. Analytical Report Lab Number L2236678 provides data for 50 Tradewinds Road. The provided lab reports are attached.

Case Narratives

- 1) Non-detect and estimated concentrations are reported to the Method Detection Limit (MDL).

- 2) Extracted internal standard recoveries for the soil samples were outside of acceptance criteria for a number of individual PFAS. This is a common occurrence with solids extraction and analysis for PFAS. The majority of the exigencies are seen in the lab method blank and duplicate samples.

Only one (1) soil sample, 100 Edgartown Vineyard Haven Road SE Corner showed internal standard extraction recovery outside the criteria. This was for perfluorohexanesulfonic acid (PFHxS), with a recovery of 77% versus an acceptance criteria of 78%. This minor difference in recovery percentage will not impact the accuracy of the data reported for the purposes of our evaluation.

- 3) Perfluorooctanesulfonamide (FOSA) was reported via analysis of the methanol extract due to better standard extraction efficiency. This is a common method adjustment and reports acceptable concentration data.

Overall, the QA/QC data indicates acceptable precision, comparability (lab duplicate results), and accuracy for comparison of the soil sample results to guidance levels and other PFAS results.

Results

Attached is a summary table presenting detected PFAS in the soil samples collected at the 2 addresses. The table presents concentrations of nine (9) individual PFAS concentrations. This list includes the eight (8) PFAS which were reported in at least one (1) of the soil samples and the 6 PFAS regulated by Massachusetts. Perfluorodecanoic acid (PFDA) is regulated in Massachusetts, but was not observed in any of the samples. The table contains the Massachusetts and EPA guidance concentrations for direct human contact with impact soils and protection of groundwater. The Proposed Upper Tolerance Limits (UTL) from the Vermont Background Study of PFAS in Soil are also included. The Proposed UTLs are used here as a surrogate for “background” PFAS concentrations expected at locations without known PFAS releases. The table also includes PFAS concentrations data from proposed synthetic turf components generated as part of TetraTech’s February 26, 2021 Synthetic Turf Laboratory Testing and Analysis Summary Report.

Review of the data indicates the following:

- 1) Up to eight (8) individual PFAS were reported above method detection limits in the soil samples.
- 2) All six (6) PFAS reported at 100 Edgartown Vine Haven Road were “estimated” concentrations above the Method Detection Limit (MDL), but below the laboratory Reporting Limit (RL).
- 3) Seven (7) of the eight (8) PFAS reported at 50 Tradewinds Road were estimated. Perfluorooctanesulfonic acid (PFOS) was reported above the RL in both samples.
- 4) 50 Tradewinds Road soils report consistently higher PFAS concentrations than at 100 Edgartown Vineyard Haven Road soils.

- 5) All of the PFAS reported at both addresses are below the regulatory guidance concentrations for direct contact, protection of the groundwater, and the Vermont Background Study Proposed UTLs.
- 6) The soil sample PFAS concentrations are consistently higher than in synthetic turf components. Except for perfluoropentanoic acid (PFPeA) in one of the two Brock Fill samples. It should also be noted that the MDL for the Brock Shock Pad samples are higher than the soil samples precluding concentration comparisons.

Summary

The PFAS analyses of soils collected at 100 Edgartown Vineyard Haven Road and 50 Tradewinds Road on July 7, 2022 indicates:

- 1) the presence of between three (3) and eight (8) individual PFAS at concentrations below Massachusetts and EPA guidelines for direct contact and protection of groundwater,
- 2) reported soil concentrations are below the proposed UTLs presented in the Vermont Background PFAS in Soil Study, and
- 3) the PFAS concentrations in soils are similar to, or greater than, nearly all synthetic turf component concentrations provided in the TetraTech February 26, 2021 Synthetic Turf Laboratory Testing and Analysis Summary Report. (comparison with Brock Shock Pad cannot be performed due to elevated MDLs).

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PFAS						Tetra Tech					TetraTech					Huntress			
	Massachusetts	Massachusetts	EPA	EPA	Vermont	11/24/2020					1/7/2021					7/7/2022			
	Protection of Ground Water (S-1, GW-1)	Residential Direct Contact	Protection of Ground Water	Residential Direct Contact	Background Study Proposed Upper Tolerance Limit	Greenfield Turf Grass	Brock Shock Pad	Brock Fill	Reynolds 775 Glue	MAPEI Ultra Bond	Greenfield Turf Grass	Brock Shock Pad	Brock Fill	Reynolds 775	MAPEI Ultra Bond	100 Edgartown Vineyard Haven Road NW Corner	101 Edgartown Vineyard Haven Road SE Corner	50 Tradewinds Road NW Corner	50 Tradewinds Road SE Corner
PFBA	--	--	--	--	--	ND</0.216	ND</0.216	ND</0.064	ND</0.022	ND</0.038	ND</0.038	ND</0.149	ND</0.021	ND</0.020	ND</0.021	0.064	0.118	0.065	0.102
PFPeA	--	--	--	--	--	<i>0.148</i>	ND</0.438	0.455	ND</0.045	ND</0.076	ND</0.076	ND</0.302	ND</0.042	ND</0.041	ND</0.042	ND</0.054	0.061	0.125	0.232
PFHxA	--	--	--	--	0.87	ND</0.162	ND</0.500	ND</0.149	ND</0.051	ND</0.087	ND</0.087	ND</0.344	ND</0.048	ND</0.047	ND</0.048	ND</0.062	ND</0.060	0.122	0.160
PFHxS	0.30	300	0.167	1,300	0.380	ND</0.186	ND</0.576	ND</0.172	ND</0.059	ND</0.100	ND</0.100	ND</0.397	ND</0.056	ND</0.054	ND</0.056	ND</0.071	ND</0.069	ND</0.260	ND</0.064
PFHpA	0.50	300	--	--	0.840	ND</0.139	ND</0.430	ND</0.128	ND</0.044	ND</0.075	ND</0.075	ND</0.296	ND</0.042	ND</0.040	ND</0.042	ND</0.053	0.053	0.071	0.089
PFOA	0.72	300	0.915	190	1.600	ND</0.129	ND</0.399	ND</0.119	ND</0.041	ND</0.070	ND</0.069	ND</0.275	ND</0.039	ND</0.038	ND</0.039	0.067	0.102	0.174	0.208
PFOS	2	300	0.0378	130	3.400	ND</0.400	ND</1.240	ND</0.369	ND</0.126	ND</0.216	ND</0.215	ND</0.852	ND</0.120	ND</0.116	ND</0.120	0.263	0.230	0.764	0.902
PFNA	0.32	300	0.247	190	0.440	ND</0.231	ND</0.714	ND</0.213	ND</0.073	ND</0.124	ND</0.124	ND</0.492	ND</0.069	ND</0.067	ND</0.069	ND</0.088	0.087	0.096	0.115
PFDA	0.3	300	--	--	0.390	ND</0.206	ND</0.638	ND</0.190	ND</0.065	ND</0.111	ND</0.111	ND</0.439	ND</0.062	ND</0.060	ND</0.062	ND</0.079	ND</0.077	0.142	0.178

BOLD - Detected above reporting limit

ITALICS - Estimated Concentration

ND</ - None Detected above Method Detection Limit

All results in ug/Kg; ng/g



ANALYTICAL REPORT

Lab Number:	L2236678
Client:	Huntress Associates 17 Tewksbury Street Andover, MA 01810
ATTN:	Christian Huntress
Phone:	(978) 470-8882
Project Name:	MARTHA'S VINEYARD PFAS SOIL
Project Number:	Not Specified
Report Date:	07/28/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236678
Report Date: 07/28/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2236678-01	NW CORNER	SOIL	50 TRADEWINDS ROAD OAKS BLUFF, MA 02557	07/07/22 13:35	07/07/22
L2236678-02	OAK BLUFFS FIELD BLANK	WATER	50 TRADEWINDS ROAD OAKS BLUFF, MA 02557	07/07/22 13:35	07/07/22
L2236678-03	SE CORNER	SOIL	50 TRADEWINDS ROAD OAKS BLUFF, MA 02557	07/07/22 13:45	07/07/22
L2236678-04	SE OAK BLUFFS FIELD BLANK	WATER	50 TRADEWINDS ROAD OAKS BLUFF, MA 02557	07/07/22 13:45	07/07/22

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236678
Report Date: 07/28/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236678
Report Date: 07/28/22

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2236678-04: A sample identified as "SE OAK BLUFFS FIELD BLANK" was received, but not listed on the Chain of Custody. At the client's request, this sample was not analyzed.

Perfluorinated Alkyl Acids by Isotope Dilution

L2236678-01, WG1661908-1, and WG1661908-2: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

L2236678-01 and -03: The MeOH fraction of the extraction is reported for perfluorooctanesulfonamide (fosa) due to better extraction efficiency of the perfluoro[13c8]octanesulfonamide (m8fosa) Extracted Internal Standard.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Alycia Mogayzel

Title: Technical Director/Representative

Date: 07/28/22

ORGANICS

SEMIVOLATILES

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236678**Project Number:** Not Specified**Report Date:** 07/28/22**SAMPLE RESULTS**

Lab ID: L2236678-01
 Client ID: NW CORNER
 Sample Location: 50 TRADEWINDS ROAD OAKS BLUFF, MA 02557

Date Collected: 07/07/22 13:35
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/13/22 21:42
 Analyst: MP
 Percent Solids: 88%

Extraction Method: ALPHA 23528
 Extraction Date: 07/12/22 18:40

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	0.065	J	ng/g	0.521	0.024	1
Perfluoropentanoic Acid (PFPeA)	0.125	J	ng/g	0.521	0.048	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.260	0.041	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	1.04	0.067	1
Perfluorohexanoic Acid (PFHxA)	0.122	J	ng/g	0.521	0.055	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	1.04	0.087	1
Perfluoroheptanoic Acid (PFHpA)	0.071	J	ng/g	0.260	0.047	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.260	0.063	1
Perfluorooctanoic Acid (PFOA)	0.174	J	ng/g	0.260	0.044	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.521	0.187	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.521	0.142	1
Perfluorononanoic Acid (PFNA)	0.096	J	ng/g	0.260	0.078	1
Perfluorooctanesulfonic Acid (PFOS)	0.764		ng/g	0.260	0.135	1
Perfluorodecanoic Acid (PFDA)	0.142	J	ng/g	0.260	0.070	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.521	0.299	1
Perfluoronanesulfonic Acid (PFNS)	ND		ng/g	1.04	0.311	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.521	0.210	1
Perfluoroundecanoic Acid (PFUnA)	0.071	JF	ng/g	0.521	0.049	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.521	0.159	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.521	0.088	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.521	0.073	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.521	0.213	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	0.521	0.056	1

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236678
Report Date: 07/28/22

SAMPLE RESULTS

Lab ID: L2236678-01
 Client ID: NW CORNER
 Sample Location: 50 TRADEWINDS ROAD OAKS BLUFF, MA 02557

Date Collected: 07/07/22 13:35
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	77		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	76		58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	88		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	105		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	80		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	81		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	84		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	88		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	112		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	98		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	103		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	90		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	122		19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	52		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	87		61-155
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	55		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	77		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	63		24-159

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236678**Project Number:** Not Specified**Report Date:** 07/28/22**SAMPLE RESULTS**

Lab ID: L2236678-01
 Client ID: NW CORNER
 Sample Location: 50 TRADEWINDS ROAD OAKS BLUFF, MA 02557

Date Collected: 07/07/22 13:35
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/27/22 16:50
 Analyst: RS
 Percent Solids: 88%

Extraction Method: ALPHA 23528
 Extraction Date: 07/12/22 18:40

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorooctanesulfonamide (FOSA)	ND		ng/g	0.521	0.102	1
Surrogate (Extracted Internal Standard)			% Recovery	Qualifier	Acceptance Criteria	
Perfluoro[13C8]Octanesulfonamide (M8FOSA)			125	Q	5-117	

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236678**Project Number:** Not Specified**Report Date:** 07/28/22**SAMPLE RESULTS**

Lab ID: L2236678-02
 Client ID: OAK BLUFFS FIELD BLANK
 Sample Location: 50 TRADEWINDS ROAD OAKS BLUFF, MA 02557

Date Collected: 07/07/22 13:35
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/25/22 22:00
 Analyst: SG

Extraction Method: ALPHA 23528
 Extraction Date: 07/15/22 12:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.82	0.371	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.82	0.360	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.82	0.216	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	1.82	0.411	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.82	0.298	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.82	0.223	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.82	0.205	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.82	0.342	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.82	0.214	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.82	1.21	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.82	0.625	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.82	0.283	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.82	0.458	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.82	0.276	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.82	1.10	1
Perfluoronanesulfonic Acid (PFNS)	ND		ng/l	1.82	1.02	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.82	0.589	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.82	0.236	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.82	0.890	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.82	0.527	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.82	0.730	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.82	0.338	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.82	0.297	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.82	0.225	1

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236678**Project Number:** Not Specified**Report Date:** 07/28/22**SAMPLE RESULTS**

Lab ID: L2236678-02
 Client ID: OAK BLUFFS FIELD BLANK
 Sample Location: 50 TRADEWINDS ROAD OAKS BLUFF, MA 02557

Date Collected: 07/07/22 13:35
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	98		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	126		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	107		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	84		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	107		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	99		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	101		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	102		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	82		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	108		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	106		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	97		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	82		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	71		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	96		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	56		5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	77		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	91		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	97		22-136

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236678**Project Number:** Not Specified**Report Date:** 07/28/22**SAMPLE RESULTS**

Lab ID: L2236678-03
 Client ID: SE CORNER
 Sample Location: 50 TRADEWINDS ROAD OAKS BLUFF, MA 02557

Date Collected: 07/07/22 13:45
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/13/22 22:15
 Analyst: MP
 Percent Solids: 86%

Extraction Method: ALPHA 23528
 Extraction Date: 07/12/22 18:40

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	0.102	J	ng/g	0.532	0.024	1
Perfluoropentanoic Acid (PFPeA)	0.232	J	ng/g	0.532	0.049	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.266	0.042	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	1.06	0.069	1
Perfluorohexanoic Acid (PFHxA)	0.160	JF	ng/g	0.532	0.056	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	1.06	0.089	1
Perfluoroheptanoic Acid (PFHpA)	0.089	J	ng/g	0.266	0.048	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.266	0.064	1
Perfluorooctanoic Acid (PFOA)	0.208	J	ng/g	0.266	0.045	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.532	0.191	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.532	0.145	1
Perfluorononanoic Acid (PFNA)	0.115	J	ng/g	0.266	0.080	1
Perfluorooctanesulfonic Acid (PFOS)	0.902		ng/g	0.266	0.138	1
Perfluorodecanoic Acid (PFDA)	0.178	J	ng/g	0.266	0.071	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.532	0.305	1
Perfluoronanesulfonic Acid (PFNS)	ND		ng/g	1.06	0.318	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.532	0.214	1
Perfluoroundecanoic Acid (PFUnA)	0.130	J	ng/g	0.532	0.050	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.532	0.163	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.532	0.090	1
Perfluorododecanoic Acid (PFDoA)	0.081	JF	ng/g	0.532	0.075	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.532	0.218	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	0.532	0.058	1

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236678**Project Number:** Not Specified**Report Date:** 07/28/22**SAMPLE RESULTS**

Lab ID: L2236678-03

Date Collected: 07/07/22 13:45

Client ID: SE CORNER

Date Received: 07/07/22

Sample Location: 50 TRADEWINDS ROAD OAKS BLUFF, MA 02557

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	72		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	73		58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	90		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	95		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	80		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	81		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	86		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	88		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	109		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	102		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	97		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	89		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	128		19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	47		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	85		61-155
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	53		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	76		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	61		24-159

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236678**Project Number:** Not Specified**Report Date:** 07/28/22**SAMPLE RESULTS**

Lab ID: L2236678-03
 Client ID: SE CORNER
 Sample Location: 50 TRADEWINDS ROAD OAKS BLUFF, MA 02557

Date Collected: 07/07/22 13:45
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/20/22 13:02
 Analyst: RS
 Percent Solids: 86%

Extraction Method: ALPHA 23528
 Extraction Date: 07/12/22 18:40

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorooctanesulfonamide (FOSA)	ND		ng/g	0.532	0.104	1
Surrogate (Extracted Internal Standard)			% Recovery	Qualifier	Acceptance Criteria	
Perfluoro[13C8]Octanesulfonamide (M8FOSA)			112		5-117	

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236678
Report Date: 07/28/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/13/22 19:13
Analyst: MP

Extraction Method: ALPHA 23528
Extraction Date: 07/12/22 18:40

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01,03 Batch: WG1661908-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.500	0.023
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.500	0.046
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.250	0.039
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	1.00	0.065
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.500	0.053
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	1.00	0.084
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.250	0.045
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.250	0.061
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.250	0.042
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.500	0.180
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.500	0.136
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.250	0.075
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.250	0.130
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.250	0.067
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.500	0.287
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	1.00	0.299
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.500	0.202
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.500	0.047
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.500	0.153
Perfluorooctanesulfonamide (FOSA)	ND		ng/g	0.500	0.098
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.500	0.085
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.500	0.070
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.500	0.204
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	0.500	0.054

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236678
Report Date: 07/28/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/13/22 19:13
Analyst: MP

Extraction Method: ALPHA 23528
Extraction Date: 07/12/22 18:40

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01,03 Batch: WG1661908-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	63		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	55	Q	58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	63	Q	74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	68		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	62	Q	66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	32	Q	71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	55	Q	78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	66	Q	75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	76		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	71	Q	72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	70	Q	79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	64	Q	75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	75		19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	45		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	64		61-155
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	20		5-117
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	39		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	54		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	32		24-159

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236678
Report Date: 07/28/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/20/22 12:48
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 07/12/22 18:40

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01,03 Batch: WG1661908-1					
Perfluorooctanesulfonamide (FOSA)	ND		ng/g	0.500	0.098

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	119	Q	5-117

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236678
Report Date: 07/28/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/16/22 19:28
Analyst: SG

Extraction Method: ALPHA 23528
Extraction Date: 07/15/22 12:00

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 02 Batch: WG1663342-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	2.00	0.452
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.328
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	2.00	0.245
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	2.00	1.12
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236678
Report Date: 07/28/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/16/22 19:28
Analyst: SG

Extraction Method: ALPHA 23528
Extraction Date: 07/15/22 12:00

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 02 Batch: WG1663342-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	101		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	103		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	105		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	82		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	108		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	107		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	106		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	106		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	97		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	109		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	106		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	92		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	110		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	73		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	102		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	62		5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	66		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	94		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	79		22-136

Lab Control Sample Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Lab Number: L2236678

Project Number: Not Specified

Report Date: 07/28/22

Parameter	LCS	Qual	LCS	Qual	%Recovery	RPD	Qual	RPD
	%Recovery		%Recovery		Limits			Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01,03 Batch: WG1661908-2								
Perfluorobutanoic Acid (PFBA)	101		-		71-135	-		30
Perfluoropentanoic Acid (PFPeA)	99		-		69-132	-		30
Perfluorobutanesulfonic Acid (PFBS)	100		-		72-128	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	111		-		62-145	-		30
Perfluorohexanoic Acid (PFHxA)	98		-		70-132	-		30
Perfluoropentanesulfonic Acid (PFPeS)	98		-		73-123	-		30
Perfluoroheptanoic Acid (PFHpA)	97		-		71-131	-		30
Perfluorohexanesulfonic Acid (PFHxS)	116		-		67-130	-		30
Perfluorooctanoic Acid (PFOA)	96		-		69-133	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	112		-		64-140	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	89		-		70-132	-		30
Perfluorononanoic Acid (PFNA)	82		-		72-129	-		30
Perfluorooctanesulfonic Acid (PFOS)	99		-		68-136	-		30
Perfluorodecanoic Acid (PFDA)	88		-		69-133	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	134		-		65-137	-		30
Perfluorononanesulfonic Acid (PFNS)	81		-		69-125	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	109		-		63-144	-		30
Perfluoroundecanoic Acid (PFUnA)	124		-		64-136	-		30
Perfluorodecanesulfonic Acid (PFDS)	73		-		59-134	-		30
Perfluorooctanesulfonamide (FOSA)	97		-		67-137	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	99		-		61-139	-		30
Perfluorododecanoic Acid (PFDoA)	102		-		69-135	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Lab Number: L2236678

Project Number: Not Specified

Report Date: 07/28/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01,03 Batch: WG1661908-2								
Perfluorotridecanoic Acid (PFTTrDA)	99		-		66-139	-		30
Perfluorotetradecanoic Acid (PFTTA)	75		-		69-133	-		30

Surrogate (Extracted Internal Standard)	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Perfluoro[13C4]Butanoic Acid (MPFBA)	57	Q			61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	51	Q			58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	57	Q			74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	53				14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	49	Q			66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	57	Q			71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	56	Q			78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	61	Q			75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	66				20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	73				72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	63	Q			79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	62	Q			75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	74				19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	43				31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	54	Q			61-155
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	20				5-117
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	41				34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	46	Q			54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	31				24-159

Lab Control Sample Analysis Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236678
Report Date: 07/28/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01,03 Batch: WG1661908-2								
Perfluorooctanesulfonamide (FOSA)	100		-		67-137	-		30

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	119	Q			5-117

Lab Control Sample Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Lab Number: L2236678

Project Number: Not Specified

Report Date: 07/28/22

Parameter	LCS	Qual	LCSD	Qual	%Recovery	RPD	Qual	RPD
	%Recovery		%Recovery		Limits			Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02 Batch: WG1663342-2								
Perfluorobutanoic Acid (PFBA)	106		-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	106		-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	103		-		65-157	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	120		-		37-219	-		30
Perfluorohexanoic Acid (PFHxA)	106		-		69-168	-		30
Perfluoropentanesulfonic Acid (PFPeS)	104		-		52-156	-		30
Perfluoroheptanoic Acid (PFHpA)	104		-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	122		-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	109		-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	110		-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	108		-		61-179	-		30
Perfluorononanoic Acid (PFNA)	105		-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	115		-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	119		-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	98		-		56-173	-		30
Perfluorononanesulfonic Acid (PFNS)	110		-		48-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	101		-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	103		-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	93		-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	101		-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	100		-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	104		-		67-153	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Lab Number: L2236678

Project Number: Not Specified

Report Date: 07/28/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02 Batch: WG1663342-2								
Perfluorotridecanoic Acid (PFTTrDA)	128		-		48-158	-		30
Perfluorotetradecanoic Acid (PFTA)	115		-		59-182	-		30

Surrogate (Extracted Internal Standard)	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Perfluoro[13C4]Butanoic Acid (MPFBA)	99				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	96				62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	98				70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	77				12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	104				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	101				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	97				71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	98				62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	95				14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	102				59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	95				69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	83				62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	119				10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	84				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	99				55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	64				5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	81				27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	88				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	71				22-136

Matrix Spike Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236678
Report Date: 07/28/22

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1661908-3 QC Sample: L2236677-01 Client ID: MS Sample												
Perfluoroheptanoic Acid (PFHpA)	3.72	7.19	10.4	93		-	-		71-131	-		30
Perfluorohexanesulfonic Acid (PFHxS)	0.102J	6.57	7.70	116		-	-		67-130	-		30
Perfluorooctanoic Acid (PFOA)	13.3	7.19	18.9	78		-	-		69-133	-		30
Perfluorononanoic Acid (PFNA)	3.67	7.19	9.42	80		-	-		72-129	-		30
Perfluorooctanesulfonic Acid (PFOS)	19.0	6.67	23.8	72		-	-		68-136	-		30
Perfluorodecanoic Acid (PFDA)	9.91	7.19	15.4	76		-	-		69-133	-		30

<i>Surrogate (Extracted Internal Standard)</i>	<i>MS % Recovery</i>	<i>Qualifier</i>	<i>MSD % Recovery</i>	<i>Qualifier</i>	<i>Acceptance Criteria</i>
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	100				75-130
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	89				71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	90				78-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	108				79-136
Perfluoro[13C8]Octanoic Acid (M8PFOA)	97				75-130
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	112				72-140

Matrix Spike Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Lab Number: L2236678

Project Number: Not Specified

Report Date: 07/28/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02 QC Batch ID: WG1663342-3 QC Sample: L2236127-01 Client ID: MS Sample												
Perfluorooctanoic Acid (PFOA)	37.7	39.5	81.1	110		-	-		63-159	-		30
Perfluorooctanesulfonic Acid (PFOS)	63.7	36.7	110	126		-	-		52-151	-		30

Surrogate (Extracted Internal Standard)	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	84				69-131
Perfluoro[13C8]Octanoic Acid (M8PFOA)	76				62-129

Lab Duplicate Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Project Number: Not Specified

Lab Number: L2236678

Report Date: 07/28/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1661908-4 QC Sample: L2236678-01 Client ID: NW CORNER						
Perfluorobutanoic Acid (PFBA)	0.065J	0.067J	ng/g	NC		30
Perfluoropentanoic Acid (PFPeA)	0.125J	0.160J	ng/g	NC		30
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/g	NC		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ng/g	NC		30
Perfluorohexanoic Acid (PFHxA)	0.122J	0.134J	ng/g	NC		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	ND	ng/g	NC		30
Perfluoroheptanoic Acid (PFHpA)	0.071J	0.076J	ng/g	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/g	NC		30
Perfluorooctanoic Acid (PFOA)	0.174J	0.189J	ng/g	NC		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ng/g	NC		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ng/g	NC		30
Perfluorononanoic Acid (PFNA)	0.096J	0.097J	ng/g	NC		30
Perfluorooctanesulfonic Acid (PFOS)	0.764	0.848	ng/g	10		30
Perfluorodecanoic Acid (PFDA)	0.142J	0.140J	ng/g	NC		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ng/g	NC		30
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ng/g	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/g	NC		30
Perfluoroundecanoic Acid (PFUnA)	0.071JF	0.071JF	ng/g	NC		30
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ng/g	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/g	NC		30

Lab Duplicate Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Project Number: Not Specified

Lab Number: L2236678

Report Date: 07/28/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1661908-4 QC Sample: L2236678-01 Client ID: NW CORNER						
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/g	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/g	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/g	NC		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	77		84		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	76		80		58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	88		94		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	105		109		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	80		87		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	81		86		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	84		92		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	88		93		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	112		114		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	98		105		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	103		107		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	90		97		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	122		121		19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	52		55		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	87		92		61-155
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	55		56		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	77		80		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	63		65		24-159

Lab Duplicate Analysis
Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Project Number: Not Specified

Lab Number: L2236678

Report Date: 07/28/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02 QC Batch ID: WG1663342-4 QC Sample: L2236127-02 Client ID: DUP Sample						
Perfluorooctanoic Acid (PFOA)	26.6	24.9	ng/l	7		30
Perfluorooctanesulfonic Acid (PFOS)	20.1	21.6	ng/l	7		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanoic Acid (M8PFOA)	74		78		62-129
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	97		92		69-131



INORGANICS & MISCELLANEOUS

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236678**Project Number:** Not Specified**Report Date:** 07/28/22**SAMPLE RESULTS**

Lab ID: L2236678-01

Date Collected: 07/07/22 13:35

Client ID: NW CORNER

Date Received: 07/07/22

Sample Location: 50 TRADEWINDS ROAD OAKS BLUFF, MA 02557

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	87.5		%	0.100	0.100	1	-	07/12/22 11:52	121,2540G	NG



Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236678**Project Number:** Not Specified**Report Date:** 07/28/22**SAMPLE RESULTS**

Lab ID: L2236678-03

Date Collected: 07/07/22 13:45

Client ID: SE CORNER

Date Received: 07/07/22

Sample Location: 50 TRADEWINDS ROAD OAKS BLUFF, MA 02557

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	85.8		%	0.100	0.100	1	-	07/12/22 11:52	121,2540G	NG



Lab Duplicate Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Project Number: Not Specified

Lab Number: L2236678

Report Date: 07/28/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1661791-1 QC Sample: L2234924-03 Client ID: DUP Sample						
Solids, Total	74.4	75.4	%	1		10

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236678**Project Number:** Not Specified**Report Date:** 07/28/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236678-01A	Plastic 8oz unpreserved	A	NA		5.0	Y	Absent		A2-537-ISOTOPE(14)
L2236678-01B	Plastic 2oz unpreserved for TS	A	NA		5.0	Y	Absent		A2-TS(7)
L2236678-02A	Plastic 250ml unpreserved	A	NA		5.0	Y	Absent		A2-537-ISOTOPE(14)
L2236678-03A	Plastic 8oz unpreserved	A	NA		5.0	Y	Absent		A2-537-ISOTOPE(14)
L2236678-03B	Plastic 2oz unpreserved for TS	A	NA		5.0	Y	Absent		A2-TS(7)
L2236678-04A	Plastic 250ml unpreserved	A	NA		5.0	Y	Absent		CANCELLED()

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236678**Project Number:** Not Specified**Report Date:** 07/28/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236678
Report Date: 07/28/22

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236678
Report Date: 07/28/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers



Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236678
Report Date: 07/28/22

REFERENCES

- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.
- 134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



CHAIN OF CUSTODY RECORD

Associates, Inc.

Laboratory: L2230678 Alpha 7/7/22

Client Huntress Sports
Address 17 Tewksbury Street Andover, MA 01810
Contact Christian Huntress
Phone # 978-758-6290
Email chris@huntressassociates.com

Project Name Martha's Vineyard PFAS Soil Sampling
Address 50 Tradewinds Road Oaks Bluff, MA 02557
Contact Chris Huntress
Location ID # Oaks Bluff Elementary tel: 978-758-6290
Description PO#

Field ID / Point of Collection	Collection		Matrix	# of bottles			Preservation							PFAS (537 Isotope Dilution)								
	Date	Time		Type			HCL	NaOH	HNO3	H2SO4	MEOH	Other	None									
				Glass	Plastic	VOA's																
<u>NW Corner</u>	<u>7/7/22</u>	<u>1335</u>	4		2																	
<u>Oak Bluffs Field Blank</u>			6		2																	
<u>SE Corner</u>	<u>7/7/22</u>	<u>1345</u>	4		2																	
<u>Field Blank</u>			6		2																	

PAGE 2 of 2
 EST to Invoice: **Huntress Sports**
 Lab to Invoice: **Huntress Sports**
 Lab Report to: **Huntress Sports**
 Billing Reference: **Q#02359**
 Comments:

Turnaround Information

Std. 10 Day Turnaround
 7 Day RUSH
 4 Day RUSH
 3 Day RUSH
 2 Day RUSH
 1 Day RUSH

Approved By: _____

QA/QC

SPECIAL QA/QC or DATA Requirements: _____

Additional Information

Bottle Set to Include:
 PFAS 537-Isotope: 1x 8oz plastic Unpreserved
 TS: 1x 2oz plastic Unpreserved
 Field Blank: 1x 250mL Plastic Unpreserved + 1x 250mL Plastic Unpreserved w/ H2O

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler: <u>D. P. [Signature]</u>	Date Time: <u>7/7/22 1736</u>	Received By: <u>[Signature] -RAL</u>	Date Time: <u>7/7/22 1936</u>
Relinquished by:	Date Time:	Received By:	Date Time:
Relinquished by:	Date Time:	Received By:	Date Time:

Seal # Preserve where applicable On Ice Temp.



ANALYTICAL REPORT

Lab Number:	L2236680
Client:	Huntress Associates 17 Tewksbury Street Andover, MA 01810
ATTN:	Christian Huntress
Phone:	(978) 470-8882
Project Name:	MARTHA'S VINEYARD PFAS SOIL
Project Number:	Not Specified
Report Date:	07/27/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236680
Report Date: 07/27/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2236680-01	NW CORNER	SOIL	100 EDGARTOWN VINEYARD HAVEN ROAD OAKS BLUFF, MA 02557	07/07/22 12:25	07/07/22
L2236680-02	MVRHS FIELD BLANK	WATER	100 EDGARTOWN VINEYARD HAVEN ROAD OAKS BLUFF, MA 02557	07/07/22 12:25	07/07/22
L2236680-03	SE CORNER	SOIL	100 EDGARTOWN VINEYARD HAVEN ROAD OAKS BLUFF, MA 02557	07/07/22 12:40	07/07/22
L2236680-04	SE MVRHS FIELD BLANK	WATER	100 EDGARTOWN VINEYARD HAVEN ROAD OAKS BLUFF, MA 02557	07/07/22 12:40	07/07/22

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236680
Report Date: 07/27/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236680
Report Date: 07/27/22

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2236680-04: A sample identified as "SE MVRHS FIELD BLANK" was received, but not listed on the Chain of Custody. At the client's request, this sample was not analyzed.

Perfluorinated Alkyl Acids by Isotope Dilution

L2236680-01 and -03: The MeOH fraction of the extraction is reported for perfluorooctanesulfonamide (fosa) due to better extraction efficiency of the perfluoro[13c8]octanesulfonamide (m8fosa) Extracted Internal Standard.

L2236680-03, WG1661908-1 and WG1661908-2: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Alycia Mogayzel

Title: Technical Director/Representative

Date: 07/27/22

ORGANICS

SEMIVOLATILES

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236680**Project Number:** Not Specified**Report Date:** 07/27/22**SAMPLE RESULTS**

Lab ID: L2236680-01
 Client ID: NW CORNER
 Sample Location: 100 EDGARTOWN VINEYARD HAVEN ROAD OAKS
 BLUFF, MA 02557

Date Collected: 07/07/22 12:25
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/13/22 22:32
 Analyst: MP
 Percent Solids: 78%

Extraction Method: ALPHA 23528
 Extraction Date: 07/12/22 18:40

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	0.064	J	ng/g	0.589	0.027	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.589	0.054	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.295	0.046	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	1.18	0.076	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.589	0.062	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	1.18	0.098	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.295	0.053	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.295	0.071	1
Perfluorooctanoic Acid (PFOA)	0.067	J	ng/g	0.295	0.049	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.589	0.212	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.589	0.161	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.295	0.088	1
Perfluorooctanesulfonic Acid (PFOS)	0.263	J	ng/g	0.295	0.153	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.295	0.079	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.589	0.338	1
Perfluoronanesulfonic Acid (PFNS)	ND		ng/g	1.18	0.352	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.589	0.238	1
Perfluoroundecanoic Acid (PFUnA)	0.062	J	ng/g	0.589	0.055	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.589	0.180	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.589	0.100	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.589	0.083	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.589	0.241	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	0.589	0.064	1

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236680**Project Number:** Not Specified**Report Date:** 07/27/22**SAMPLE RESULTS**

Lab ID: L2236680-01

Date Collected: 07/07/22 12:25

Client ID: NW CORNER

Date Received: 07/07/22

Sample Location: 100 EDGARTOWN VINEYARD HAVEN ROAD OAKS
BLUFF, MA 02557

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	79		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	78		58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	86		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	94		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	82		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	82		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	84		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	87		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	99		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	97		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	96		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	87		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	110		19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	45		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	80		61-155
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	45		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	69		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	27		24-159

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236680**Project Number:** Not Specified**Report Date:** 07/27/22**SAMPLE RESULTS**

Lab ID: L2236680-01
 Client ID: NW CORNER
 Sample Location: 100 EDGARTOWN VINEYARD HAVEN ROAD OAKS
 BLUFF, MA 02557

Date Collected: 07/07/22 12:25
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/20/22 13:09
 Analyst: RS
 Percent Solids: 78%

Extraction Method: ALPHA 23528
 Extraction Date: 07/12/22 18:40

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorooctanesulfonamide (FOSA)	ND		ng/g	0.589	0.116	1
Surrogate (Extracted Internal Standard)			% Recovery	Qualifier	Acceptance Criteria	
Perfluoro[13C8]Octanesulfonamide (M8FOSA)			108		5-117	

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236680**Project Number:** Not Specified**Report Date:** 07/27/22**SAMPLE RESULTS**

Lab ID: L2236680-02
 Client ID: MVRHS FIELD BLANK
 Sample Location: 100 EDGARTOWN VINEYARD HAVEN ROAD OAKS
 BLUFF, MA 02557

Date Collected: 07/07/22 12:25
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/25/22 22:17
 Analyst: SG

Extraction Method: ALPHA 23528
 Extraction Date: 07/15/22 12:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.88	0.384	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.88	0.373	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.88	0.224	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	1.88	0.425	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.88	0.309	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.88	0.231	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.88	0.212	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.88	0.354	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.88	0.222	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.88	1.25	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.88	0.648	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.88	0.294	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.88	0.474	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.88	0.286	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.88	1.14	1
Perfluoronanesulfonic Acid (PFNS)	ND		ng/l	1.88	1.05	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.88	0.610	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.88	0.245	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.88	0.922	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.88	0.546	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.88	0.757	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.88	0.350	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.88	0.308	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.88	0.233	1

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236680**Project Number:** Not Specified**Report Date:** 07/27/22**SAMPLE RESULTS**

Lab ID: L2236680-02

Date Collected: 07/07/22 12:25

Client ID: MVRHS FIELD BLANK

Date Received: 07/07/22

Sample Location: 100 EDGARTOWN VINEYARD HAVEN ROAD OAKS
BLUFF, MA 02557

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	102		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	128		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	107		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	81		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	106		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	103		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	100		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	104		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	79		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	111		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	105		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	99		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	83		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	83		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	108		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	58		5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	79		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	97		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	100		22-136

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236680**Project Number:** Not Specified**Report Date:** 07/27/22**SAMPLE RESULTS**

Lab ID: L2236680-03
 Client ID: SE CORNER
 Sample Location: 100 EDGARTOWN VINEYARD HAVEN ROAD OAKS
 BLUFF, MA 02557

Date Collected: 07/07/22 12:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/13/22 23:05
 Analyst: MP
 Percent Solids: 82%

Extraction Method: ALPHA 23528
 Extraction Date: 07/12/22 18:40

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	0.118	J	ng/g	0.574	0.026	1
Perfluoropentanoic Acid (PFPeA)	0.061	J	ng/g	0.574	0.053	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.287	0.045	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	1.15	0.074	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.574	0.060	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	1.15	0.096	1
Perfluoroheptanoic Acid (PFHpA)	0.053	J	ng/g	0.287	0.052	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.287	0.069	1
Perfluorooctanoic Acid (PFOA)	0.102	J	ng/g	0.287	0.048	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.574	0.206	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.574	0.157	1
Perfluorononanoic Acid (PFNA)	0.087	J	ng/g	0.287	0.086	1
Perfluorooctanesulfonic Acid (PFOS)	0.230	J	ng/g	0.287	0.149	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.287	0.077	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.574	0.329	1
Perfluoronanesulfonic Acid (PFNS)	ND		ng/g	1.15	0.343	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.574	0.231	1
Perfluoroundecanoic Acid (PFUnA)	0.072	JF	ng/g	0.574	0.054	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.574	0.176	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.574	0.097	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.574	0.080	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.574	0.235	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	0.574	0.062	1

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236680**Project Number:** Not Specified**Report Date:** 07/27/22**SAMPLE RESULTS**

Lab ID: L2236680-03

Date Collected: 07/07/22 12:40

Client ID: SE CORNER

Date Received: 07/07/22

Sample Location: 100 EDGARTOWN VINEYARD HAVEN ROAD OAKS
BLUFF, MA 02557

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	76		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	73		58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	82		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	89		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	79		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	79		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	77	Q	78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	83		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	90		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	94		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	91		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	84		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	108		19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	38		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	73		61-155
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	35		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	63		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	25		24-159

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236680**Project Number:** Not Specified**Report Date:** 07/27/22**SAMPLE RESULTS**

Lab ID: L2236680-03
 Client ID: SE CORNER
 Sample Location: 100 EDGARTOWN VINEYARD HAVEN ROAD OAKS
 BLUFF, MA 02557

Date Collected: 07/07/22 12:40
 Date Received: 07/07/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/20/22 13:16
 Analyst: RS
 Percent Solids: 82%

Extraction Method: ALPHA 23528
 Extraction Date: 07/12/22 18:40

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Perfluorooctanesulfonamide (FOSA)	ND		ng/g	0.574	0.112	1
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Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	105		5-117

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236680
Report Date: 07/27/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/13/22 19:13
Analyst: MP

Extraction Method: ALPHA 23528
Extraction Date: 07/12/22 18:40

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01,03 Batch: WG1661908-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.500	0.023
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.500	0.046
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.250	0.039
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	1.00	0.065
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.500	0.053
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	1.00	0.084
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.250	0.045
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.250	0.061
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.250	0.042
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.500	0.180
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.500	0.136
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.250	0.075
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.250	0.130
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.250	0.067
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.500	0.287
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	1.00	0.299
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.500	0.202
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.500	0.047
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.500	0.153
Perfluorooctanesulfonamide (FOSA)	ND		ng/g	0.500	0.098
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.500	0.085
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.500	0.070
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.500	0.204
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	0.500	0.054

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236680
Report Date: 07/27/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/13/22 19:13
Analyst: MP

Extraction Method: ALPHA 23528
Extraction Date: 07/12/22 18:40

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01,03 Batch: WG1661908-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	63		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	55	Q	58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	63	Q	74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	68		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	62	Q	66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	32	Q	71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	55	Q	78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	66	Q	75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	76		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	71	Q	72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	70	Q	79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	64	Q	75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	75		19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	45		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	64		61-155
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	20		5-117
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	39		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	54		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	32		24-159

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236680
Report Date: 07/27/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/20/22 12:48
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 07/12/22 18:40

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01,03 Batch: WG1661908-1					
Perfluorooctanesulfonamide (FOSA)	ND		ng/g	0.500	0.098

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	119	Q	5-117

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236680
Report Date: 07/27/22

Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/16/22 19:28
Analyst: SG

Extraction Method: ALPHA 23528
Extraction Date: 07/15/22 12:00

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 02 Batch: WG1663342-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	2.00	0.452
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.328
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	2.00	0.245
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	2.00	1.12
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236680
Report Date: 07/27/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/16/22 19:28
Analyst: SG

Extraction Method: ALPHA 23528
Extraction Date: 07/15/22 12:00

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 02 Batch: WG1663342-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	101		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	103		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	105		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	82		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	108		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	107		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	106		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	106		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	97		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	109		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	106		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	92		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	110		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	73		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	102		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	62		5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	66		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	94		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	79		22-136

Lab Control Sample Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Lab Number: L2236680

Project Number: Not Specified

Report Date: 07/27/22

Parameter	LCS	Qual	LCS	Qual	%Recovery	RPD	Qual	RPD
	%Recovery		%Recovery		Limits			Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01,03 Batch: WG1661908-2								
Perfluorobutanoic Acid (PFBA)	101		-		71-135	-		30
Perfluoropentanoic Acid (PFPeA)	99		-		69-132	-		30
Perfluorobutanesulfonic Acid (PFBS)	100		-		72-128	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	111		-		62-145	-		30
Perfluorohexanoic Acid (PFHxA)	98		-		70-132	-		30
Perfluoropentanesulfonic Acid (PFPeS)	98		-		73-123	-		30
Perfluoroheptanoic Acid (PFHpA)	97		-		71-131	-		30
Perfluorohexanesulfonic Acid (PFHxS)	116		-		67-130	-		30
Perfluorooctanoic Acid (PFOA)	96		-		69-133	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	112		-		64-140	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	89		-		70-132	-		30
Perfluorononanoic Acid (PFNA)	82		-		72-129	-		30
Perfluorooctanesulfonic Acid (PFOS)	99		-		68-136	-		30
Perfluorodecanoic Acid (PFDA)	88		-		69-133	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	134		-		65-137	-		30
Perfluorononanesulfonic Acid (PFNS)	81		-		69-125	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	109		-		63-144	-		30
Perfluoroundecanoic Acid (PFUnA)	124		-		64-136	-		30
Perfluorodecanesulfonic Acid (PFDS)	73		-		59-134	-		30
Perfluorooctanesulfonamide (FOSA)	97		-		67-137	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	99		-		61-139	-		30
Perfluorododecanoic Acid (PFDoA)	102		-		69-135	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Lab Number: L2236680

Project Number: Not Specified

Report Date: 07/27/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01,03 Batch: WG1661908-2								
Perfluorotridecanoic Acid (PFTTrDA)	99		-		66-139	-		30
Perfluorotetradecanoic Acid (PFTA)	75		-		69-133	-		30

Surrogate (Extracted Internal Standard)	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Perfluoro[13C4]Butanoic Acid (MPFBA)	57	Q			61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	51	Q			58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	57	Q			74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	53				14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	49	Q			66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	57	Q			71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	56	Q			78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	61	Q			75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	66				20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	73				72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	63	Q			79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	62	Q			75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	74				19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	43				31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	54	Q			61-155
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	20				5-117
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	41				34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	46	Q			54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	31				24-159

Lab Control Sample Analysis Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236680
Report Date: 07/27/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01,03 Batch: WG1661908-2								
Perfluorooctanesulfonamide (FOSA)	100		-		67-137	-		30

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	119	Q			5-117

Lab Control Sample Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Lab Number: L2236680

Project Number: Not Specified

Report Date: 07/27/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02 Batch: WG1663342-2								
Perfluorobutanoic Acid (PFBA)	106		-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	106		-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	103		-		65-157	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	120		-		37-219	-		30
Perfluorohexanoic Acid (PFHxA)	106		-		69-168	-		30
Perfluoropentanesulfonic Acid (PFPeS)	104		-		52-156	-		30
Perfluoroheptanoic Acid (PFHpA)	104		-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	122		-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	109		-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	110		-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	108		-		61-179	-		30
Perfluorononanoic Acid (PFNA)	105		-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	115		-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	119		-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	98		-		56-173	-		30
Perfluorononanesulfonic Acid (PFNS)	110		-		48-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	101		-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	103		-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	93		-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	101		-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	100		-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	104		-		67-153	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Lab Number: L2236680

Project Number: Not Specified

Report Date: 07/27/22

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02 Batch: WG1663342-2								
Perfluorotridecanoic Acid (PFTTrDA)	128		-		48-158	-		30
Perfluorotetradecanoic Acid (PFTA)	115		-		59-182	-		30

Surrogate (Extracted Internal Standard)	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Perfluoro[13C4]Butanoic Acid (MPFBA)	99				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	96				62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	98				70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	77				12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	104				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	101				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	97				71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	98				62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	95				14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	102				59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	95				69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	83				62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	119				10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	84				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	99				55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	64				5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	81				27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	88				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	71				22-136

Matrix Spike Analysis Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236680
Report Date: 07/27/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1661908-3 QC Sample: L2236677-01 Client ID: MS Sample												
Perfluoroheptanoic Acid (PFHpA)	3.72	7.19	10.4	93		-	-		71-131	-		30
Perfluorohexanesulfonic Acid (PFHxS)	0.102J	6.57	7.70	116		-	-		67-130	-		30
Perfluorooctanoic Acid (PFOA)	13.3	7.19	18.9	78		-	-		69-133	-		30
Perfluorononanoic Acid (PFNA)	3.67	7.19	9.42	80		-	-		72-129	-		30
Perfluorooctanesulfonic Acid (PFOS)	19.0	6.67	23.8	72		-	-		68-136	-		30
Perfluorodecanoic Acid (PFDA)	9.91	7.19	15.4	76		-	-		69-133	-		30

Surrogate (Extracted Internal Standard)	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	100				75-130
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	89				71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	90				78-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	108				79-136
Perfluoro[13C8]Octanoic Acid (M8PFOA)	97				75-130
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	112				72-140



Matrix Spike Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Lab Number: L2236680

Project Number: Not Specified

Report Date: 07/27/22

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02 QC Batch ID: WG1663342-3 QC Sample: L2236127-01 Client ID: MS Sample												
Perfluorooctanoic Acid (PFOA)	37.7	39.5	81.1	110		-	-		63-159	-		30
Perfluorooctanesulfonic Acid (PFOS)	63.7	36.7	110	126		-	-		52-151	-		30

<i>Surrogate (Extracted Internal Standard)</i>	<i>MS % Recovery</i>	<i>Qualifier</i>	<i>MSD % Recovery</i>	<i>Qualifier</i>	<i>Acceptance Criteria</i>
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	84				69-131
Perfluoro[13C8]Octanoic Acid (M8PFOA)	76				62-129

Lab Duplicate Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Project Number: Not Specified

Lab Number: L2236680

Report Date: 07/27/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1661908-4 QC Sample: L2236678-01 Client ID: DUP Sample						
Perfluorobutanoic Acid (PFBA)	0.065J	0.067J	ng/g	NC		30
Perfluoropentanoic Acid (PFPeA)	0.125J	0.160J	ng/g	NC		30
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/g	NC		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ng/g	NC		30
Perfluorohexanoic Acid (PFHxA)	0.122J	0.134J	ng/g	NC		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	ND	ng/g	NC		30
Perfluoroheptanoic Acid (PFHpA)	0.071J	0.076J	ng/g	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/g	NC		30
Perfluorooctanoic Acid (PFOA)	0.174J	0.189J	ng/g	NC		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ng/g	NC		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ng/g	NC		30
Perfluorononanoic Acid (PFNA)	0.096J	0.097J	ng/g	NC		30
Perfluorooctanesulfonic Acid (PFOS)	0.764	0.848	ng/g	10		30
Perfluorodecanoic Acid (PFDA)	0.142J	0.140J	ng/g	NC		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ng/g	NC		30
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ng/g	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/g	NC		30
Perfluoroundecanoic Acid (PFUnA)	0.071JF	0.071JF	ng/g	NC		30
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ng/g	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/g	NC		30

Lab Duplicate Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Project Number: Not Specified

Lab Number: L2236680

Report Date: 07/27/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1661908-4 QC Sample: L2236678-01 Client ID: DUP Sample						
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/g	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/g	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/g	NC		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	77		84		61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	76		80		58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	88		94		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	105		109		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	80		87		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	81		86		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	84		92		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	88		93		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	112		114		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	98		105		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	103		107		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	90		97		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	122		121		19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	52		55		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	87		92		61-155
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	55		56		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	77		80		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	63		65		24-159

Lab Duplicate Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Project Number: Not Specified

Lab Number: L2236680

Report Date: 07/27/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02 QC Batch ID: WG1663342-4 QC Sample: L2236127-02 Client ID: DUP Sample						
Perfluorooctanoic Acid (PFOA)	26.6	24.9	ng/l	7		30
Perfluorooctanesulfonic Acid (PFOS)	20.1	21.6	ng/l	7		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanoic Acid (M8PFOA)	74		78		62-129
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	97		92		69-131

INORGANICS & MISCELLANEOUS

Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236680
Report Date: 07/27/22

SAMPLE RESULTS

Lab ID: L2236680-01 Date Collected: 07/07/22 12:25
 Client ID: NW CORNER Date Received: 07/07/22
 Sample Location: 100 EDGARTOWN VINEYARD HAVEN ROAD OAKS BLUFF, MA 02557 Field Prep: Not Specified
 Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	78.0		%	0.100	0.100	1	-	07/12/22 11:52	121,2540G	NG



Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236680**Project Number:** Not Specified**Report Date:** 07/27/22**SAMPLE RESULTS**

Lab ID: L2236680-03

Date Collected: 07/07/22 12:40

Client ID: SE CORNER

Date Received: 07/07/22

Sample Location: 100 EDGARTOWN VINEYARD HAVEN ROAD OAKS BLUFF,
MA 02557

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	81.6		%	0.100	0.100	1	-	07/12/22 11:52	121,2540G	NG



Lab Duplicate Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD PFAS SOIL

Project Number: Not Specified

Lab Number: L2236680

Report Date: 07/27/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1661791-1 QC Sample: L2234924-03 Client ID: DUP Sample						
Solids, Total	74.4	75.4	%	1		10

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236680**Project Number:** Not Specified**Report Date:** 07/27/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2236680-01A	Plastic 8oz unpreserved	A	NA		5.0	Y	Absent		A2-537-ISOTOPE(14)
L2236680-01B	Plastic 2oz unpreserved for TS	A	NA		5.0	Y	Absent		A2-TS(7)
L2236680-02A	Plastic 250ml unpreserved	A	NA		5.0	Y	Absent		A2-537-ISOTOPE(14)
L2236680-03A	Plastic 8oz unpreserved	A	NA		5.0	Y	Absent		A2-537-ISOTOPE(14)
L2236680-03B	Plastic 8oz unpreserved	A	NA		5.0	Y	Absent		A2-TS(7)
L2236680-04A	Plastic 250ml Trizma preserved	A	NA		5.0	Y	Absent		CANCELLED()

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236680**Project Number:** Not Specified**Report Date:** 07/27/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name: MARTHA'S VINEYARD PFAS SOIL**Lab Number:** L2236680**Project Number:** Not Specified**Report Date:** 07/27/22**Footnotes**

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: MARTHA'S VINEYARD PFAS SOIL
Project Number: Not Specified

Lab Number: L2236680
Report Date: 07/27/22

Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers



Project Name: MARTHA'S VINEYARD PFAS SOIL

Lab Number: L2236680

Project Number: Not Specified

Report Date: 07/27/22

REFERENCES

- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.
- 134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



CHAIN OF CUSTODY RECORD

Associates, Inc.

Laboratory: L2236080 Alpha 7/7/22

Client Huntress Sports
Address 17 Tewksbury Street Andover, MA 01810
Contact Christian Huntress
Phone # 978-758-6290
Email chris@huntressassociates.com

Project Name Martha's Vineyard PFAS Soil Sampling
Address 100 Edgartown Vineyard Haven Road Oaks Bluff, MA 02557
Contact Mike Taus, Facilities Director (or Chris Huntress)
Location ID # MVRHS **tel:** 617-838-4247
Description PO#

MATRIX	Analytical Information					
	1. Wastewater	2. Groundwater	3. Drinking Water	4. Soil	5. Surface Water	6. Other
PFAS (537 Isotope Dilution)						

PAGE 1 of 2
 EST to Invoice: **Huntress Sports**
 Lab to Invoice: **Huntress Sports**
 Lab Report to: **Huntress Sports**
 Billing Reference: **Q#02359**
 Comments:

Field ID / Point of Collection	Collection		Matrix	# of bottles			Preservation						PFAS (537 Isotope Dilution)	
	Date	Time		Type			HCL	NaOH	HNO3	H2SO4	MEOH	Other		None
				Glass	Plastic	VOA's								
<u>NW Corner</u>	<u>7/7/22</u>	<u>1225</u>	<u>4</u>		<u>2</u>								<u>X</u>	<u>X</u>
<u>MVRHS Field Blank</u>	<u>7/7/22</u>	<u>1225</u>	<u>6</u>		<u>2</u>								<u>X</u>	<u>X</u>
<u>SE Corner</u>	<u>7/7/22</u>	<u>1240</u>	<u>4</u>		<u>2</u>								<u>X</u>	<u>X</u>
<u>Field Blank</u>			<u>6</u>		<u>2</u>								<u>X</u>	<u>X</u>

<input checked="" type="checkbox"/> Std. 10 Day Turnaround <input type="checkbox"/> 7 Day RUSH <input type="checkbox"/> 4 Day RUSH <input type="checkbox"/> 3 Day RUSH <input type="checkbox"/> 2 Day RUSH <input type="checkbox"/> 1 Day RUSH	Approved By: _____ _____ _____ _____ _____	SPECIAL QA/QC or DATA Requirements: _____	Additional Information Bottle Set to Include: PFAS 537-Isotope: 1x 8oz plastic Unpreserved TS: 1x 2oz plastic Unpreserved Field Blank: 1x 250mL Plastic Unpreserved + 1x 250mL Plastic Unpreserved w/ H2O
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Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler: <u>D-P [Signature]</u>	Date Time: <u>7/7/22 1736</u>	Received By: <u>[Signature] -PAC</u>	Date Time: <u>7/7/22 1936</u>
Relinquished by:	Date Time:	Received By:	Date Time:
Relinquished by:	Date Time:	Received By:	Date Time:

Seal # Preserve where applicable On Ice Temp.