C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture, Landscape Architecture & Geology, D.P.C.

12 Raymond Avenue, Poughkeepsie, NY 12603
845.454.4400 www.ctmale.com

February 7, 2024 VIA EMAIL

Mr. Robert Balkind, PE
Dutchess County D.P.W. – Commissioner's Office
626 Dutchess Turnpike
Poughkeepsie, New York 12603
Email: rbalkind@dutchessny.gov

Re: *Summary Report – PFAS Test Pit Investigation at Proposed Maintenance and Storage Buildings; Hudson Valley Regional Airport Site - 18 Griffith Way, Wappingers Falls, Dutchess County, NY - NYSDEC Site 314129*
C.T. Male Project No. 18.8090

Dear Mr. Balkind:

This summary letter report (Report) has been prepared to present the findings of a limited soils investigation performed at the Hudson Valley Regional Airport. Soils at the areas of the proposed two (2) maintenance and storage buildings were investigated for the presence of Per- and Polyfluoroalkyl Substances (collectively referred to as PFAS) through the excavation of test pits and sampling of soil. A summary of field activities, analytical results, and recommendations is detailed below.

Introduction

The Hudson Valley Regional Airport is located at 18 Griffith Way in the Town of Wappinger, Dutchess County, New York. The airport property is approximately 510.8 acres in size and is identified with tax number 135689-6259-03-225301-0000 on the Town of Wappinger tax maps. A Site Location Map is included as Figure 1. The proposed two (2) buildings (the "Site") are located in the northwestern portion of the facility, adjacent to the newly constructed ARFF/SRE building, along Citation Drive. This report describes the field sampling procedures and analytical results.

The current property site use is as a regional airport known as Hudson Valley Regional Airport (POU). It is a publicly owned, public-use, General Aviation facility, servicing the aviation needs of Dutchess County, metropolitan New York City area, and the southeastern region of New York State. The airport property has several tenants that lease hangars and utilize the airport for helicopter and airplane flights for private clients or personal use. The airport operates by criteria that is outlined and regulated by the FAA pertaining to the following areas: facility requirements for airfield, terminal and general aviation areas, runways and taxiways, land use, instrumentation and lighting, general aviation requirements, fuel storage, and Aircraft Rescue and Fire Fighting (ARFF).

As stated in the Airport's Master Plan, the Federal Aviation Regulation Part 139.315 establishes a system of indexing airports that are regularly served by scheduled commuter aircraft. The overall length of the aircraft having five or more daily departures determines the airports ARFF index. The Hudson Valley Regional Airport operates as an Index A facility. The minimum rescue and firefighting equipment and agents required for Index A are as follows:

- The airport must have one vehicle carrying at least 500 pounds of sodium-based dry chemical or halon 1211;

- Or alternatively, one vehicle carrying 450 pounds of potassium-based dry chemical and water with a commensurate quantity of Aqueous Fire Fighting Foam (AFFF) agent to total 100 gallons, for simultaneous dry chemical and AFFF application.

The ARFF vehicle at the airport currently meets the Federal Aviation Regulation Part 139 requirements and has the capability of AFFF application.

The Federal Aviation Regulations also state that ARFF vehicles must be tested annually to ensure that the vehicle is working properly. Additionally, the quantity and the chemical composition of the AFFF must be held to the required standards. Interviews with the Airport Director and the fire fighters at the airport indicated that the testing area for AFFF application is the North or South end of runway 15-33. Typically, one to two 5-gallon buckets of AFFF were applied during the testing. In 2009-2010, the airport switched the type of AFFF used in the ARFF vehicle(s). The AFFF products now used are Ansulite 3% (AFC-3A) and Chemguard C301MS, which may not contain PFAS compounds based on a review of the material safety data sheets; however, there are proprietary compounds listed, which may contain the PFAS compounds of concern.

Site History

The New York State Department of Environmental Conservation (NYSDEC) has classified the airport property as a potential inactive hazardous waste disposal site (P-Site #314129) due to the presence of combined perfluorooctanoic acid (PFOA) and perfluororooctanesulfonic acid (PFOS) detected in May 2016 at concentrations in a potable drinking water supply well then located at the airport property above the Health Advisory Level (HAL) value of 70 parts per trillion set by the United States Environmental Protection Agency (USEPA). PFOS and PFOA are members of the class of substances called per- and polyfluoroalkyl substances known as PFAS. Concentrations of PFAS were also detected in nearby off-Site private water supply wells. Initial private well water samples were collected by the New York State Department of Health (NYSDOH) in September 2017. The NYSDEC informed Dutchess

County by letter (dated September 15, 2017) of the P-Site classification based on these detections. The NYSDEC also mandated an investigation in accordance with NYSDEC's technical requirements for a site characterization investigation (SC). Initial site characterization activities, a records review, and a draft SC report were submitted to the NYSDEC in December of 2019. Subsequently, additional field activities were conducted, and multiple revised draft SC reports were submitted to the NYSDEC in October 2021, August 2022, May 2023, June 2023, and October 2023. The SC report was finally approved by the NYSDEC on November 16, 2023.

Based on the records search, inspections and interviews, nine areas of concern (AOCs) were identified and investigated during the SC investigation: the firefighting AFFF testing area (AOC-1), the former Balefill Landfill (AOC-2), the former Dutchess County Landfill (AOC-3), the former Jackson Road petroleum spill (AOC-4), several stormwater outfalls that may have received AFFF during routine testing(AOC-5), the AAG hangars (former IBM Hanger, NYSDEC Site No. 314078 and Flagship Hanger, NYSDEC Site No. 314101) (AOC-6), the Aircraft Rescue and Firefighting Facilities (ARFF)[1] / maintenance building (AOC-7), the fire pond (AOC-8), and the North/South runway where AFFF was tested annually as required by the Federal Aviation Administration (FAA) (AOC-9). It should be noted that the areas where to two maintenance and storage buildings are proposed to be constructed, are not located within any of the identified AOCs. The closest AOC (AOC-4), is located at a significantly lower elevation down-gradient from the proposed construction area. Refer to Figure 2 *Site Characterization Areas of Concern Locations & Sky Harbour Hanger Location*.

The airport property is generally flat across the maintained areas immediately surrounding the airport runways, associated hangars, and airport terminal. Airport ground elevations range between approximately 100 feet above mean sea level (amsl) at the southwestern property boundary to approximately 170 feet amsl at the northeastern property boundary. The airport land was presumably filled and built up, presumably using local, repositioned soils to flatten the grade for the runways, especially in the southwestern, western, and northwestern portions of the property where grade slopes sharply toward the Wappinger Creek immediately beyond the areas that buffer the runways. Additionally, the Balefill and Dutchess County Landfill, to the northwest and northeast of the airport property, respectively, are artificially mounded from landfilling. The grade of both landfills generally slopes downward radially, but more predominantly to the north in both instances, in the direction of the Wappinger Creek. The natural topography surrounding the airport property also slopes to the northwest

[1] A new Aircraft Rescue and Firefighting Facilities (ARFF) building, situated in the southwest corner of the property, was constructed after a significant portion of the subject Site Characterization was completed. All references to the ARFF building in this report refer to the former ARFF building, which remains situated in the southeast corner of the property.

in the direction of the Wappinger Creek. The locations of the proposed Storage and Maintenance Building footprints are generally flat, grassy areas located adjacent to the asphalt parking area surrounding the existing ARFF/SRE building. Beyond the proposed building footprints, the area topography slopes to the north and west.

Overburden soils at the airport property consist primarily of silts and sands. Gravelly sections of overburden also exist but are less extensive, based on review of the soil borings for previous site investigations. Deeper sections of soil consist of glacial till with a silty-clay matrix and highly variable grain size. Till was observed or reported to be somewhat weathered, saturated, and only moderately dense in most instances. Additionally, like most overburden units encountered at the airport property, the till was not found extensively, likely having been eroded away entirely in some locations. Overburden soils generally reflect fluvial deposits expected given the airport property's proximity to the Wappinger Creek. Large portions of the airport were cut and filled to create flat ground for building and runway construction. Fill material was likely sourced (and processed) from other areas on the airport parcel, but it is unknown if off-site fill sources were also utilized.

Soils at the airport property are mapped by the United States Department of Agriculture (USDA) Web Soil Survey primarily as udorthents, or gravelly loam, likely derived from glacial outwash and kame deposits. Udorthents are described by the USDA as well drained soils that have often been disturbed or reworked by cuffing or filling in areas that are covered by buildings or pavement. The Wappinger loam and Pawling Silt loam are both mapped by the USDA in the western portions of the airport property, and are siltier, fine-grained loams that are likely derived from lake and stream sediments.

This Report was prepared in accordance with NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (May 2010) (DER-10) and 6 NYCRR 375 Environmental Remediation Programs (December 14, 2006).

Summary of Field Activities

On December 18, 2023, five (5) test pits identified as TP-21 to TP-25 were excavated by Dutchess County personnel within the area of two (2) proposed storage and maintenance buildings. The test pit locations are depicted on Figure 3 – *Test Pit Soil Sample Locations and Results at Proposed Maintenance and Storage Buildings*. Test pits TP-21 to TP-25 were excavated using a CAT excavator. Generally, test pits were excavated to depths ranging from approximately six (6) to eight (8) feet. Groundwater was encountered in TP-21 at a depth of approximately 6 feet and 3 inches below ground surface (bgs). Groundwater was not encountered at any other test pit location. Soils

generally consisted of topsoil in the upper four (4) to six (6) inches, followed by a light brown fine to coarse sand with some gravel and trace cobbles. Field test pit logs are included as Appendix A.

Shallow soil samples were collected for analysis of PFAS at depths ranging from 0-2", just below the organic root layer. Deeper test pit samples were collected for analysis of PFAS from test pits TP-22 (4-5' bgs), and TP-24 (5-6' bgs). The deeper samples were intended to evaluate the distribution of PFAS vertically.

Analytical Sampling Results

All samples were collected and analyzed in accordance with the NYSDEC's *SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) Under NYSDEC's Part 375 Remedial Programs,* April 2023 and DER-10, Technical Guidance for Site Investigation and Remediation, May 2010. Soil sample analytical results for this investigation were assessed in comparison to NYSDEC 6 NYCRR Part 375-6 Unrestricted Use Soil Cleanup Objectives (UUSCOs), Commercial use Soil Cleanup Objectives (CUSCOs), and Protection of Groundwater Soil Cleanup Objectives (PGSCOs). Equipment rise blank water samples were assessed in comparison to NYSDEC Division of Water Technical and Operational Guidance Series (TOGS 1.1.1); Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations dated October 1993; Revised June 1998; errata sheet dated January 1999; and Addenda through 2023 (NYSDEC Class GA).

Seven (7) soil grab samples were collected for PFAS analysis at the proposed maintenance and storage buildings areas. Four (4) quality assurance/quality control (QA/QC) samples including one (1) matrix spike sample, one (1) matrix spike duplicate sample, one (1) field duplicate, and one (1) equipment rinse blank sample were submitted for analysis in addition to the grab samples. No PFAS were detected in equipment rinsate blank samples.

Several PFAS compounds including PFOA and PFOS were detected in all samples at concentrations below UUSCOs. Table A on the following page summarizes PFOA and PFOS concentrations detected in soil grab samples. Soil laboratory analytical results are summarized in attached Table B. PFOA and PFOS soil concentrations in soil are depicted on Figure 2 – *PFAS Soil Concentrations at Proposed Maintenance and Storage Buildings*. Laboratory analytical results are included as Appendix B.

Table A
PFOA and PFOS Concentrations Detected in Soil Grab Sample

Analyte	SCOs for protection of GW (ug/kg)	SCOs for Unrestricted Use (ug/kg)	SCOs for Restricted Commercial Use (ug/kg)	Concentration (ug/kg)
PFOA	***0.8***	***0.66***	***500***	
TP-21S				0.24
TP-22				0.118
TP-22S				0.104
TP-23S				0.117
TP-24				0.09
TP-24S				0.129
TP-25				0.108
PFOS	***1.0***	***0.88***	***440***	
TP-21S				0.554
TP-22				0.128
TP-22S				0.289
TP-23S				0.294
TP-24				ND
TP-24S				0.362
TP-25S				0.577

Laboratory data has not been validated.

Conclusions and Recommendations

PFAS impacted soil has been identified at the building footprints of the proposed future maintenance and storage buildings. Several PFAS analytes were detected in soil at test pits TP-21 – TP-25, though no concentrations exceed UUSCOs.

The results of this limited investigation indicate that soil located at the proposed maintenance and storage building footprints contains PFAS at concentrations below the UUSCOs. The PFAS content of groundwater at this location is unknown. Future construction activities for the maintenance and storage buildings will include disturbance of very low-concentration PFAS impacted soil and possibly PFAS containing groundwater if limited dewatering is necessary. Since soil PFAS concentrations are below UUSCOs, no specialized handling procedures are required

beyond typical earthwork procedures. It is advisable to include erosion and sediment control and fugitive dust mitigation measures to protect against the unknown but no special measures are required per applicable PFAS regulation and/or guidance. Any excess soil generated from this project may be re-used on-site as backfill. If off-site re-use of excess material is proposed, the County should provide this sampling data (and report) to the receiving facility to disclose the PFAS content of the soil.

If you have any questions or comments, please contact Jim McIver at (845) 454-4400.

Sincerely,

C.T. MALE ASSOCIATES

James D. McIver, Jr., P.G., MBA
Managing Geologist/Regional Office Manager

Attachments:

Figures:

Figure 1 – Site Location Map
Figure 2 – PFAS Soil Concentrations at Proposed Maintenance and Storage Buildings

Tables:

Table 1: Summary of Analytical Results, Proposed Maintenance and Storge Buildings

Appendix A: Test Pit Logs
Appendix B: Laboratory Analytical Reports

ec: Eric White, Environmental Scientist IV, C.T. Male

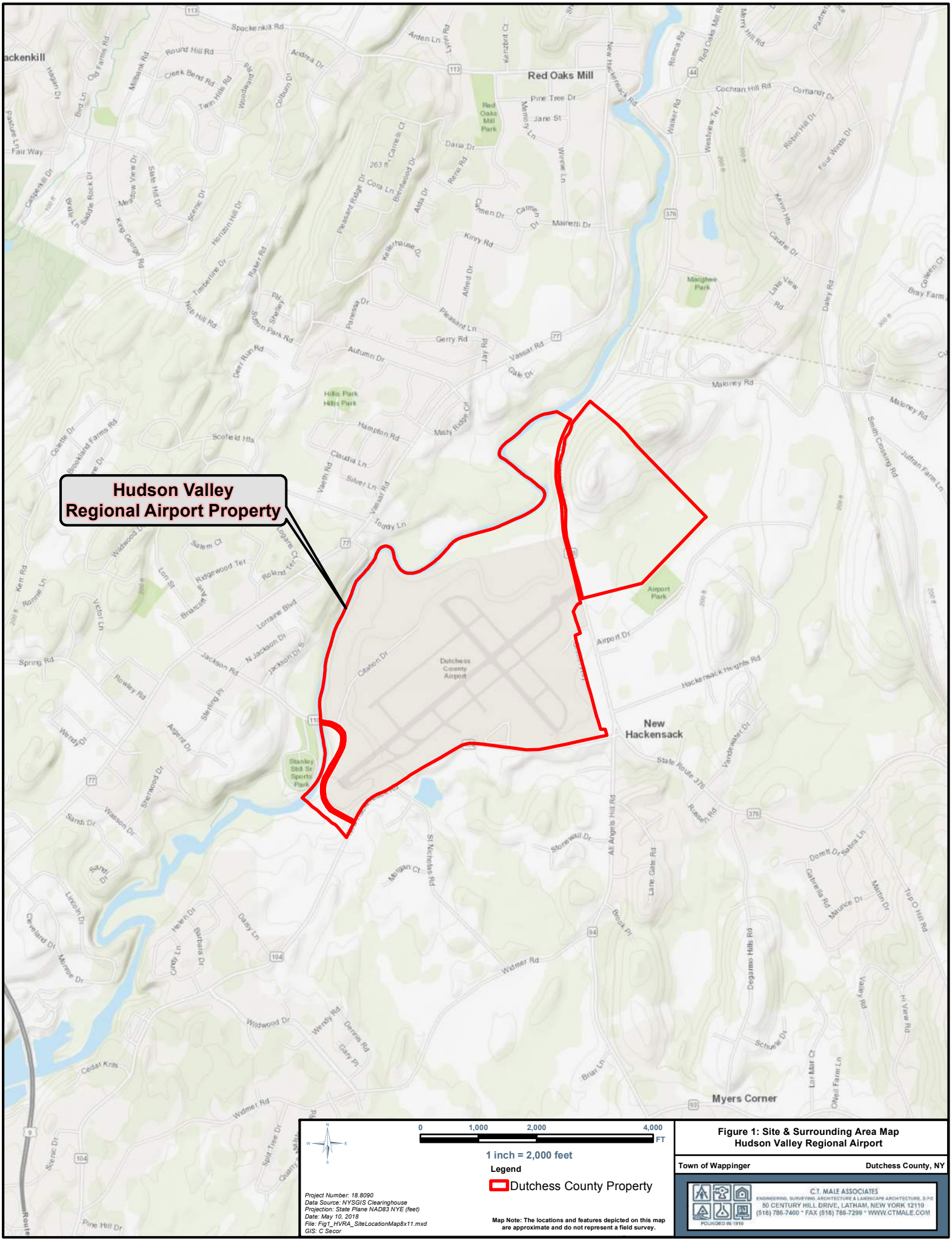

Figure 1: Site & Surrounding Area Map
Hudson Valley Regional Airport

Town of Wappinger — Dutchess County, NY

C.T. MALE ASSOCIATES
ENGINEERING, SURVEYING, ARCHITECTURE & LANDSCAPE ARCHITECTURE, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NEW YORK 12110
(518) 786-7400 * FAX (518) 786-7299 * WWW.CTMALE.COM
FOUNDED IN 1910

PROPOSED PROJECT WILL CONSOLIDATE ALL AIRPORT OPERATIONS AND MAINTENANCE VEHICLE AND EQUIPMENT STORAGE TO THIS LOCATION ON THE AIRPORT.

SAMPLE ID:	TP-22	TP-22S
ANALYTE (ug/kg)	Conc	Conc
PFOS	0.128	0.289
PFOA	0.118	0.104

SAMPLE ID:	TP-21S
ANALYTE (ug/kg)	Conc
PFOS	0.554
PFOA	0.24

SAMPLE ID:	TP-23S
ANALYTE (ug/kg)	Conc
PFOS	0.294
PFOA	0.117

SAMPLE ID:	TP-24	TP-24S
ANALYTE (ug/kg)	Conc	Conc
PFOS	ND	0.362
PFOA	0.09	0.129

SAMPLE ID:	TP-25S
ANALYTE (ug/kg)	Conc
PFOS	0.577
PFOA	0.108

TP21
TP22
TP23
TP24
TP25

PROPOSED SRE / MAINTENANCE COLD STORAGE BUILDING

PROPOSED SALT/UREA STORAGE

SEE KEYING DETAIL, DETAIL A3/CG 501

PROPOSED GAS LINE, SEE CU SERIES FOR LAYOUT AND DETAILS

FOR TURF AND SIDEWALK LAYOUT SEE A1/EL

ARFF/SRE BUILDING F.F. 145.11

HANGAR

PROPOSED WATER LINE, SEE CU SERIES FOR LAYOUT AND DETAILS

SEE ISOLATION JOINT AT FOUNDATION DETAIL, SEE DETAIL B2/CG 501

SEE KEYING DETAIL, DETAIL A3/CG 501

PROPOSED CONTINUOUS TAXIWAY EDGE MARKING, SEE DETAIL C4/CG 505

TAXIWAY "D"

GRADING LIMITS

SILT FENCE, SEE DETAIL B4/CG 503

SEPTIC SYSTEM, ITEM S-100.

JACKSON ROAD (C.R. 110)

Legend
- Proposed Test Pit Location, Shallow Soil Sampling
- Proposed Test Pit Location, Shallow & Deep Soil Sampling

C.T. MALE ASSOCIATES
ENGINEERING, SURVEYING, ARCHITECTURE & LANDSCAPE ARCHITECTURE, D.P.C
50 CENTURY HILL DRIVE, LATHAM, NEW YORK 12110
(518) 786-7400 * FAX (518) 786-7299 * WWW.CTMALE.COM
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Drawing Adapted from drawing by C&S Engineers dated December 2017

Figure 2 - Sampling Location Plan at Proposed Storage Buildings

HVRA South Side Expansion, Wappinger, NY
December 7, 2023

40 0 40 80FT.
40'

Dec. 12, 2018 - 10:19am
F:\Project\128 - DUTCHESS COUNTY\128051001 - ARFF-SRE Building\Design\CADD\Sheet Files\128051001_CG-SERIES.dwg

Table 1: Summary of Analytical Results
Proposed Maintenance and Storage Buildings
Hudson Valley Regional Airport
Dutchess County, New York

			SAMPLE ID:	FD01-20231218				TP-21S				TP-22				TP-22S			
			COLLECTION DATE:	12/18/2023				12/18/2023				12/18/2023				12/18/2023			
			SAMPLE DEPTH:	0-2"				0-2"				4-5'				0-2"			
			SAMPLE MATRIX:	SOIL				SOIL				SOIL				SOIL			
	NY-RESC	NY-PGW	NY-UNRES																
ANALYTE	(ug/kg)		(ug/kg)	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
PERFLUORINATED ALKYL ACIDS BY EPA 1633																			
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	NS	NS	NS	ND		0.787	0.164	ND		0.798	0.167	ND		0.771	0.161	ND		0.776	0.162
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	NS	NS	NS	ND		0.787	0.381	ND		0.798	0.386	ND		0.771	0.373	ND		0.776	0.376
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	NS	NS	NS	ND		0.787	0.08	ND		0.798	0.081	ND		0.771	0.078	ND		0.776	0.078
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	NS	NS	NS	ND		0.787	0.276	ND		0.798	0.279	ND		0.771	0.27	ND		0.776	0.272
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	NS	NS	NS	ND		4.92	0.497	ND		4.99	0.504	ND		4.82	0.487	ND		4.85	0.49
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	NS	NS	NS	ND		4.92	1.73	ND		4.99	1.76	ND		4.82	1.7	ND		4.85	1.71
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	NS	NS	NS	ND		0.984	0.142	ND		0.998	0.144	ND		0.964	0.139	ND		0.97	0.14
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	NS	NS	NS	ND		0.787	0.144	ND		0.798	0.146	ND		0.771	0.141	ND		0.776	0.142
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	NS	NS	NS	ND		0.787	0.193	ND		0.798	0.196	ND		0.771	0.189	ND		0.776	0.19
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	NS	NS	NS	ND		0.787	0.097	ND		0.798	0.098	ND		0.771	0.095	ND		0.776	0.095
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	NS	NS	NS	ND		0.197	0.11	ND		0.2	0.112	ND		0.193	0.108	ND		0.194	0.109
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	NS	NS	NS	ND		1.97	0.502	ND		2	0.509	ND		1.93	0.492	ND		1.94	0.495
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NS	NS	NS	ND		0.197	0.081	ND		0.2	0.082	ND		0.193	0.08	ND		0.194	0.08
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	NS	NS	NS	ND		0.197	0.098	ND		0.2	0.1	ND		0.193	0.096	ND		0.194	0.097
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	NS	NS	NS	ND		1.97	0.246	ND		2	0.25	ND		1.93	0.241	ND		1.94	0.243
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	NS	NS	NS	ND		0.197	0.098	ND		0.2	0.1	ND		0.193	0.096	ND		0.194	0.097
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	NS	NS	NS	ND		0.394	0.094	ND		0.399	0.095	ND		0.386	0.092	ND		0.388	0.092
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	NS	NS	NS	ND		0.394	0.082	ND		0.399	0.083	ND		0.386	0.08	ND		0.388	0.081
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	NS	NS	NS	ND		0.394	0.04	ND		0.399	0.041	ND		0.386	0.039	ND		0.388	0.04
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	NS	NS	NS	ND		0.394	0.031	ND		0.399	0.031	ND		0.386	0.03	ND		0.388	0.03
Perfluorobutanesulfonic Acid (PFBS)	NS	NS	NS	ND		0.197	0.043	ND		0.2	0.043	ND		0.193	0.042	ND		0.194	0.042
Perfluorobutanoic Acid (PFBA)	NS	NS	NS	ND		0.787	0.05	0.168	J	0.798	0.05	0.087	J	0.771	0.049	0.068	J	0.776	0.049
Perfluorodecanesulfonic Acid (PFDS)	NS	NS	NS	ND		0.197	0.032	ND		0.2	0.032	ND		0.193	0.031	ND		0.194	0.031
Perfluorodecanoic Acid (PFDA)	NS	NS	NS	ND		0.197	0.074	ND		0.2	0.075	ND		0.193	0.073	ND		0.194	0.073
Perfluorododecanesulfonic Acid (PFDoS)	NS	NS	NS	ND		0.197	0.038	ND		0.2	0.038	ND		0.193	0.037	ND		0.194	0.037
Perfluorododecanoic Acid (PFDoA)	NS	NS	NS	ND		0.197	0.04	ND		0.2	0.041	ND		0.193	0.039	ND		0.194	0.04
Perfluoroheptanesulfonic Acid (PFHpS)	NS	NS	NS	ND		0.197	0.036	ND		0.2	0.037	ND		0.193	0.036	ND		0.194	0.036
Perfluoroheptanoic Acid (PFHpA)	NS	NS	NS	ND		0.197	0.023	0.108	J	0.2	0.023	0.051	J	0.193	0.022	0.046	J	0.194	0.023
Perfluorohexanesulfonic Acid (PFHxS)	NS	NS	NS	ND		0.197	0.058	0.114	J	0.2	0.059	ND		0.193	0.057	ND		0.194	0.057
Perfluorohexanoic Acid (PFHxA)	NS	NS	NS	ND		0.197	0.046	0.108	J	0.2	0.046	ND		0.193	0.045	ND		0.194	0.045
Perfluorononanesulfonic Acid (PFNS)	NS	NS	NS	ND		0.197	0.042	ND		0.2	0.042	ND		0.193	0.041	ND		0.194	0.041
Perfluorononanoic Acid (PFNA)	NS	NS	NS	ND		0.197	0.077	0.211		0.2	0.078	ND		0.193	0.076	ND		0.194	0.076
Perfluorooctanesulfonamide (PFOSA)	NS	NS	NS	ND		0.197	0.043	ND		0.2	0.043	ND		0.193	0.042	ND		0.194	0.042
Perfluorooctanesulfonic Acid (PFOS)	**440**	**1.0**	**0.88**	**ND**		**0.197**	**0.078**	**0.554**		**0.2**	**0.079**	**0.128**	**J**	**0.193**	**0.076**	**0.289**		**0.194**	**0.077**
Perfluorooctanoic Acid (PFOA)	**500**	**0.8**	**0.66**	**0.084**	**J**	**0.197**	**0.051**	**0.24**		**0.2**	**0.052**	**0.118**	**J**	**0.193**	**0.05**	**0.104**	**J**	**0.194**	**0.05**
Perfluoropentanesulfonic Acid (PFPeS)	NS	NS	NS	ND		0.197	0.023	ND		0.2	0.023	ND		0.193	0.022	ND		0.194	0.023
Perfluoropentanoic Acid (PFPeA)	NS	NS	NS	ND		0.394	0.055	0.175	J	0.399	0.056	ND		0.386	0.054	ND		0.388	0.054
Perfluorotetradecanoic Acid (PFTeDA)	NS	NS	NS	ND		0.197	0.105	ND		0.2	0.106	ND		0.193	0.103	ND		0.194	0.103
Perfluorotridecanoic Acid (PFTrDA)	NS	NS	NS	ND		0.197	0.052	ND		0.2	0.053	ND		0.193	0.051	ND		0.194	0.051
Perfluoroundecanoic Acid (PFUnA)	NS	NS	NS	ND		0.197	0.05	0.089	J	0.2	0.051	ND		0.193	0.049	ND		0.194	0.05
GENERAL CHEMISTRY																			
Solids, Total	NS	NS	NS	92.7		0.1	0.1	84.2		0.1	0.1	75.8		0.1	0.1	77.4		0.1	0.1

* Comparison is not performed on parameters with non-numeric criteria.
NS denotes No Standard
NY-RESC: New York NYCRR Part 375 Commercial Criteria, New York Restricted use Criteria
NY-UNRES: New York NYCRR Part 375 New York Unrestricted use Criteria
NY-PGW: New York NYCRR Part 375 Protection of Groundwater Criteria
J - Estimated Value ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation or Reporting Limit (LOQ or RL)

Table 1: Summary of Analytical Results
Proposed Maintenance and Storage Buildings
Hudson Valley Regional Airport
Dutchess County, New York

			SAMPLE ID:	TP-23S				TP-24				TP-24S				TP-25S			
			COLLECTION DATE:	12/18/2023				12/18/2023				12/18/2023				12/18/2023			
			SAMPLE DEPTH:	0-2"				5-6'				0-2"				0-2"			
			SAMPLE MATRIX:	SOIL				SOIL				SOIL				SOIL			
	NY-RESC	NY-PGW	NY-UNRES																
ANALYTE	(ug/kg)		(ug/kg)	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
PERFLUORINATED ALKYL ACIDS BY EPA 1633																			
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	NS	NS	NS	ND		0.785	0.164	ND		0.783	0.164	ND		0.754	0.158	ND		0.754	0.158
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	NS	NS	NS	ND		0.785	0.38	ND		0.783	0.379	ND		0.754	0.365	ND		0.754	0.365
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	NS	NS	NS	ND		0.785	0.079	ND		0.783	0.079	ND		0.754	0.076	ND		0.754	0.076
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	NS	NS	NS	ND		0.785	0.275	ND		0.783	0.274	ND		0.754	0.264	ND		0.754	0.264
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	NS	NS	NS	ND		4.9	0.495	ND		4.9	0.494	ND		4.71	0.476	ND		4.71	0.476
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	NS	NS	NS	ND		4.9	1.73	ND		4.9	1.72	ND		4.71	1.66	ND		4.71	1.66
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	NS	NS	NS	ND		0.981	0.141	ND		0.979	0.141	ND		0.942	0.136	ND		0.942	0.136
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	NS	NS	NS	ND		0.785	0.144	ND		0.783	0.143	ND		0.754	0.138	ND		0.754	0.138
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	NS	NS	NS	ND		0.785	0.192	ND		0.783	0.192	ND		0.754	0.185	ND		0.754	0.185
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	NS	NS	NS	ND		0.785	0.097	ND		0.783	0.096	ND		0.754	0.093	ND		0.754	0.093
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	NS	NS	NS	ND		0.196	0.11	ND		0.196	0.11	ND		0.188	0.106	ND		0.188	0.106
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	NS	NS	NS	ND		1.96	0.501	ND		1.96	0.5	ND		1.88	0.481	ND		1.88	0.481
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NS	NS	NS	ND		0.196	0.081	ND		0.196	0.081	ND		0.188	0.078	ND		0.188	0.078
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	NS	NS	NS	ND		0.196	0.098	ND		0.196	0.098	ND		0.188	0.094	ND		0.188	0.094
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	NS	NS	NS	ND		1.96	0.246	ND		1.96	0.245	ND		1.88	0.236	ND		1.88	0.236
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	NS	NS	NS	ND		0.196	0.098	ND		0.196	0.098	ND		0.188	0.094	ND		0.188	0.094
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	NS	NS	NS	ND		0.392	0.093	ND		0.392	0.093	ND		0.377	0.09	ND		0.377	0.09
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	NS	NS	NS	ND		0.392	0.082	ND		0.392	0.082	ND		0.377	0.078	ND		0.377	0.078
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	NS	NS	NS	ND		0.392	0.04	ND		0.392	0.04	ND		0.377	0.038	ND		0.377	0.038
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	NS	NS	NS	ND		0.392	0.031	ND		0.392	0.031	ND		0.377	0.029	ND		0.377	0.029
Perfluorobutanesulfonic Acid (PFBS)	NS	NS	NS	ND		0.196	0.042	ND		0.196	0.042	ND		0.188	0.041	ND		0.188	0.041
Perfluorobutanoic Acid (PFBA)	NS	NS	NS	ND		0.785	0.049	ND		0.783	0.049	ND		0.754	0.048	ND		0.754	0.048
Perfluorodecanesulfonic Acid (PFDS)	NS	NS	NS	ND		0.196	0.031	ND		0.196	0.031	ND		0.188	0.03	ND		0.188	0.03
Perfluorodecanoic Acid (PFDA)	NS	NS	NS	0.075	J	0.196	0.074	ND		0.196	0.074	ND		0.188	0.071	0.09	J	0.188	0.071
Perfluorododecanesulfonic Acid (PFDoS)	NS	NS	NS	ND		0.196	0.038	ND		0.196	0.038	ND		0.188	0.036	ND		0.188	0.036
Perfluorododecanoic Acid (PFDoA)	NS	NS	NS	ND		0.196	0.04	ND		0.196	0.04	ND		0.188	0.038	ND		0.188	0.038
Perfluoroheptanesulfonic Acid (PFHpS)	NS	NS	NS	ND		0.196	0.036	ND		0.196	0.036	ND		0.188	0.035	ND		0.188	0.035
Perfluoroheptanoic Acid (PFHpA)	NS	NS	NS	ND		0.196	0.023	0.053	J	0.196	0.023	ND		0.188	0.022	0.055	J	0.188	0.022
Perfluorohexanesulfonic Acid (PFHxS)	NS	NS	NS	ND		0.196	0.058	ND		0.196	0.058	ND		0.188	0.056	ND		0.188	0.056
Perfluorohexanoic Acid (PFHxA)	NS	NS	NS	ND		0.196	0.046	ND		0.196	0.045	ND		0.188	0.044	ND		0.188	0.044
Perfluorononanesulfonic Acid (PFNS)	NS	NS	NS	ND		0.196	0.042	ND		0.196	0.042	ND		0.188	0.04	ND		0.188	0.04
Perfluorononanoic Acid (PFNA)	NS	NS	NS	0.151	J	0.196	0.077	ND		0.196	0.077	0.09	J	0.188	0.074	0.133	J	0.188	0.074
Perfluorooctanesulfonamide (PFOSA)	NS	NS	NS	ND		0.196	0.042	ND		0.196	0.042	ND		0.188	0.041	ND		0.188	0.041
Perfluorooctanesulfonic Acid (PFOS)	**440**	**1.0**	**0.88**	**0.294**		**0.196**	**0.078**	**ND**		**0.196**	**0.078**	**0.362**		**0.188**	**0.075**	**0.577**		**0.188**	**0.075**
Perfluorooctanoic Acid (PFOA)	**500**	**0.8**	**0.66**	**0.117**	**J**	**0.196**	**0.051**	**0.09**	**J**	**0.196**	**0.051**	**0.129**	**J**	**0.188**	**0.049**	**0.108**	**J**	**0.188**	**0.049**
Perfluoropentanesulfonic Acid (PFPeS)	NS	NS	NS	ND		0.196	0.023	ND		0.196	0.023	ND		0.188	0.022	ND		0.188	0.022
Perfluoropentanoic Acid (PFPeA)	NS	NS	NS	ND		0.392	0.055	ND		0.392	0.055	ND		0.377	0.053	ND		0.377	0.053
Perfluorotetradecanoic Acid (PFTeDA)	NS	NS	NS	ND		0.196	0.104	ND		0.196	0.104	ND		0.188	0.1	ND		0.188	0.1
Perfluorotridecanoic Acid (PFTrDA)	NS	NS	NS	ND		0.196	0.052	ND		0.196	0.052	ND		0.188	0.05	ND		0.188	0.05
Perfluoroundecanoic Acid (PFUnA)	NS	NS	NS	0.094	J	0.196	0.05	ND		0.196	0.05	ND		0.188	0.048	0.09	J	0.188	0.048
GENERAL CHEMISTRY																			
Solids, Total	NS	NS	NS	70.2		0.1	0.1	92.5		0.1	0.1	84.1		0.1	0.1	78.6		0.1	0.1

* Comparison is not performed on parameters with non-numeric criteria.
NS denotes No Standard
NY-RESC: New York NYCRR Part 375 Commercial Criteria, New York Restricted use Criteria
NY-UNRES: New York NYCRR Part 375 New York Unrestricted use Criteria
NY-PGW: New York NYCRR Part 375 Protection of Groundwater Criteria
J - Estimated Value ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation or Reporting Limit (LOQ or RL)

TEST PIT LOG

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, D.P.C.
50 Century Hill Drive
Latham, NY 12110
(518) 786-7400 • FAX (581) 786-7299

PROJECT NAME:	HVRA - Sky Harbour South Side	CONTRACTOR	Dutchess County - Highway Dept.
PROJECT NUMBER:	18.8090	EQUIPMENT:	CAT excavator
LOGGED BY:	ML	DATE:	12/13/2023

TEST PIT NO. _21___

0'

0-6" Dark brown topsoil, grass, roots

6" - 2.0' Brown, coarse to fine SAND, little gravel, trace cobbles, moist.

2.0' - 5' 10" Light brown, medium to fine SAND, little gravel, trace cobbles

Wet soil at 5' 8"

5'

End of test pit +/- 5' 10"

10'

15'

TOTAL DEPTH: 5' 10"

WATER AT: wet at 5' 8"

NOTES: Sample TP-21S collected at 0-2";

TEST PIT LOG

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PROJECT NAME:	HVRA - Sky Harbour South Side	CONTRACTOR	Dutchess County - Highway Dept.
PROJECT NUMBER:	18.8090	EQUIPMENT:	CAT excavator
LOGGED BY:	ML	DATE:	12/13/2023

TEST PIT NO. _22___

0'

0-6" Dark brown topsoil, grass, roots

6" - 6' 2" Brown, coarse to fine SAND, some gravel, trace cobbles, moist.

5'

End of test pit +/- 6' 2"

10'

15'

TOTAL DEPTH: 6' 2"

WATER AT: Not encountered

NOTES: Sample TP-22S collected at 0-2";

Sample TP-22 collected at 4-5'

TEST PIT LOG

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, D.P.C.
50 Century Hill Drive
Latham, NY 12110
(518) 786-7400 • FAX (581) 786-7299

PROJECT NAME:	HVRA - Sky Harbour South Side	CONTRACTOR	Dutchess County - Highway Dept.
PROJECT NUMBER:	18.8090	EQUIPMENT:	CAT excavator
LOGGED BY:	ML	DATE:	12/13/2023

TEST PIT NO. _23___

0'

0-6" Dark brown topsoil, grass, roots

6" - 6' 8" Brown, coarse to fine SAND, some gravel, trace cobbles, moist.

3" seam of Light brown coarse to fine SAND at 4.5'

5'

End of test pit +/- 6' 8"

10'

15'

TOTAL DEPTH: 6' 8"

WATER AT: Not encountered

NOTES: Sample TP-23S collected at 0-2";

TEST PIT LOG

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Latham, NY 12110
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PROJECT NAME:	HVRA - Sky Harbour South Side	CONTRACTOR	Dutchess County - Highway Dept.
PROJECT NUMBER:	18.8090	EQUIPMENT:	CAT excavator
LOGGED BY:	ML	DATE:	12/13/2023

TEST PIT NO. _24___

0'

0-6" Dark brown topsoil, grass, roots

6" - 3.5' Brown, coarse to fine SAND, some gravel, trace cobbles, moist.

3.5' - 5' 10" Light brown coarse to fine SAND, some gravel, trace cobbles, moist.

5'

End of test pit +/- 5' 10"

10'

15'

TOTAL DEPTH: 5' 10"

WATER AT: Not encountered

NOTES: Sample TP-24S collected at 0-2";
Sample TP-24 collected at 5.0'

TEST PIT LOG

C.T. MALE ASSOCIATES
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50 Century Hill Drive
Latham, NY 12110
(518) 786-7400 • FAX (581) 786-7299

PROJECT NAME:	HVRA - Sky Harbour South Side	CONTRACTOR	Dutchess County - Highway Dept.
PROJECT NUMBER:	18.8090	EQUIPMENT:	CAT excavator
LOGGED BY:	ML	DATE:	12/13/2023

TEST PIT NO. _25___

0'

0-6" Dark brown topsoil, grass, roots

6" - 2.5' Brown, coarse to fine SAND, some gravel, trace cobbles, moist.

2.5' - 5' 8" Light brown coarse to fine SAND, little gravel, trace cobbles, moist.

5'

End of test pit +/- 5' 8"

10'

15'

TOTAL DEPTH: 5' 8"

WATER AT: Not encountered

NOTES: Sample TP-25S collected at 0-2";

ANALYTICAL REPORT

Lab Number:	L2374790
Client:	C.T. Male Associates 50 Century Hill Drive Latham, NY 12210
ATTN:	Jim Mciver
Phone:	(518) 786-7400
Project Name:	HVRA
Project Number:	18.8090
Report Date:	01/08/24

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0825), DoD (L2474), FL (E87814), IL (200081), IN (C-MA-04), KY (KY98046), LA (85084), ME (MA00030), MD (350), MI (99110) , NJ (MA015), NY (11627), NC (685), OH (CL106), OR (MA-0262), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #525-23-107-88708), 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: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2374790-01	TP-21S	SOIL	18 GRIFFITH WAY, WAPPINGERS FALLS, NY	12/18/23 12:40	12/18/23
L2374790-02	TP-22	SOIL	18 GRIFFITH WAY, WAPPINGERS FALLS, NY	12/18/23 12:15	12/18/23
L2374790-03	TP-22S	SOIL	18 GRIFFITH WAY, WAPPINGERS FALLS, NY	12/18/23 12:20	12/18/23
L2374790-04	TP-23S	SOIL	18 GRIFFITH WAY, WAPPINGERS FALLS, NY	12/18/23 11:55	12/18/23
L2374790-05	TP-24	SOIL	18 GRIFFITH WAY, WAPPINGERS FALLS, NY	12/18/23 11:30	12/18/23
L2374790-06	TP-24S	SOIL	18 GRIFFITH WAY, WAPPINGERS FALLS, NY	12/18/23 11:40	12/18/23
L2374790-07	TP-25S	SOIL	18 GRIFFITH WAY, WAPPINGERS FALLS, NY	12/18/23 11:45	12/18/23
L2374790-08	FD01-20231218	SOIL	18 GRIFFITH WAY, WAPPINGERS FALLS, NY	12/18/23 00:00	12/18/23
L2374790-09	EQUIPMENT RINSE BLANK 01	WATER	18 GRIFFITH WAY, WAPPINGERS FALLS, NY	12/18/23 12:45	12/18/23

Project Name:	HVRA	**Lab Number:**	L2374790
Project Number:	18.8090	**Report Date:**	01/08/24

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:	HVRA	**Lab Number:**	L2374790
Project Number:	18.8090	**Report Date:**	01/08/24

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.

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: Ashley Boucher

Title: Technical Director/Representative Date: 01/08/24

ORGANICS

SEMIVOLATILES

Project Name: HVRA
Project Number: 18.8090
Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-01
Client ID: TP-21S
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 12:40
Date Received: 12/18/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 144,1633
Analytical Date: 01/04/24 16:37
Analyst: PNB
Percent Solids: 84%

Extraction Method: EPA 1633
Extraction Date: 12/28/23 05:13
Cleanup Method: EPA 1633
Cleanup Date: 12/29/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	0.168	J	ng/g	0.798	0.050	1
Perfluoropentanoic Acid (PFPeA)	0.175	J	ng/g	0.399	0.056	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.200	0.043	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	0.798	0.081	1
Perfluorohexanoic Acid (PFHxA)	0.108	J	ng/g	0.200	0.046	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.200	0.023	1
Perfluoroheptanoic Acid (PFHpA)	0.108	J	ng/g	0.200	0.023	1
Perfluorohexanesulfonic Acid (PFHxS)	0.114	J	ng/g	0.200	0.059	1
Perfluorooctanoic Acid (PFOA)	0.240		ng/g	0.200	0.052	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.798	0.279	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.200	0.037	1
Perfluorononanoic Acid (PFNA)	0.211		ng/g	0.200	0.078	1
Perfluorooctanesulfonic Acid (PFOS)	0.554		ng/g	0.200	0.079	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.200	0.075	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.798	0.386	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.200	0.042	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.200	0.100	1
Perfluoroundecanoic Acid (PFUnA)	0.089	J	ng/g	0.200	0.051	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.200	0.032	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.200	0.043	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.200	0.082	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.200	0.041	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.200	0.053	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.200	0.106	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	0.798	0.098	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	0.798	0.146	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.200	0.038	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-01 Date Collected: 12/18/23 12:40

Client ID: TP-21S Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	0.798	0.196	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	0.798	0.167	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.200	0.100	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.200	0.112	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	2.00	0.250	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	2.00	0.509	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.399	0.041	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.399	0.031	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.399	0.083	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.399	0.095	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	0.998	0.144	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	4.99	0.504	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	4.99	1.76	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-01 Date Collected: 12/18/23 12:40

Client ID: TP-21S Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	77		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	81		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	83		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	83		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	82		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	86		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	80		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	83		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	82		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	82		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	81		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	77		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	91		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	77		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	78		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	70		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	85		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	75		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	61		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	79		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	70		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	87		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	88		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	78		20-150

Project Name: HVRA
Project Number: 18.8090
Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-02
Client ID: TP-22
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 12:15
Date Received: 12/18/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 144,1633
Analytical Date: 01/04/24 16:50
Analyst: PNB
Percent Solids: 76%

Extraction Method: EPA 1633
Extraction Date: 12/28/23 05:13
Cleanup Method: EPA 1633
Cleanup Date: 12/29/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	0.087	J	ng/g	0.771	0.049	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.386	0.054	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.193	0.042	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	0.771	0.078	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.193	0.045	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.193	0.022	1
Perfluoroheptanoic Acid (PFHpA)	0.051	J	ng/g	0.193	0.022	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.193	0.057	1
Perfluorooctanoic Acid (PFOA)	0.118	J	ng/g	0.193	0.050	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.771	0.270	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.193	0.036	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.193	0.076	1
Perfluorooctanesulfonic Acid (PFOS)	0.128	J	ng/g	0.193	0.076	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.193	0.073	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.771	0.373	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.193	0.041	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.193	0.096	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.193	0.049	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.193	0.031	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.193	0.042	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.193	0.080	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.193	0.039	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.193	0.051	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.193	0.103	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	0.771	0.095	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	0.771	0.141	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.193	0.037	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-02 Date Collected: 12/18/23 12:15

Client ID: TP-22 Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	0.771	0.189	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	0.771	0.161	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.193	0.096	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.193	0.108	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	1.93	0.241	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	1.93	0.492	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.386	0.039	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.386	0.030	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.386	0.080	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.386	0.092	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	0.964	0.139	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	4.82	0.487	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	4.82	1.70	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-02 Date Collected: 12/18/23 12:15

Client ID: TP-22 Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	72		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	71		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	72		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	70		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	69		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	71		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	72		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	74		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	71		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	75		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	76		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	73		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	99		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	58		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	64		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	54		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	62		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	58		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	37		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	71		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	49		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	51		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	60		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	48		20-150

Project Name: HVRA
Project Number: 18.8090
Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-03
Client ID: TP-22S
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 12:20
Date Received: 12/18/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 144,1633
Analytical Date: 01/04/24 17:03
Analyst: PNB
Percent Solids: 77%

Extraction Method: EPA 1633
Extraction Date: 12/28/23 05:13
Cleanup Method: EPA 1633
Cleanup Date: 12/29/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	0.068	J	ng/g	0.776	0.049	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.388	0.054	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.194	0.042	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	0.776	0.078	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.194	0.045	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.194	0.023	1
Perfluoroheptanoic Acid (PFHpA)	0.046	J	ng/g	0.194	0.023	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.194	0.057	1
Perfluorooctanoic Acid (PFOA)	0.104	J	ng/g	0.194	0.050	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.776	0.272	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.194	0.036	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.194	0.076	1
Perfluorooctanesulfonic Acid (PFOS)	0.289		ng/g	0.194	0.077	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.194	0.073	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.776	0.376	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.194	0.041	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.194	0.097	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.194	0.050	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.194	0.031	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.194	0.042	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.194	0.080	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.194	0.040	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.194	0.051	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.194	0.103	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	0.776	0.095	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	0.776	0.142	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.194	0.037	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-03 Date Collected: 12/18/23 12:20

Client ID: TP-22S Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	0.776	0.190	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	0.776	0.162	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.194	0.097	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.194	0.109	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	1.94	0.243	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	1.94	0.495	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.388	0.040	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.388	0.030	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.388	0.081	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.388	0.092	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	0.970	0.140	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	4.85	0.490	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	4.85	1.71	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-03 Date Collected: 12/18/23 12:20

Client ID: TP-22S Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	81		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	79		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	88		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	88		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	77		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	83		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	83		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	84		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	81		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	84		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	80		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	93		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	94		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	72		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	92		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	69		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	87		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	92		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	61		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	83		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	70		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	79		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	86		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	68		20-150

Project Name: HVRA
Project Number: 18.8090
Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-04
Client ID: TP-23S
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 11:55
Date Received: 12/18/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 144,1633
Analytical Date: 01/04/24 16:34
Analyst: JW
Percent Solids: 70%

Extraction Method: EPA 1633
Extraction Date: 12/30/23 09:39
Cleanup Method: EPA 1633
Cleanup Date: 01/02/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.785	0.049	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.392	0.055	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.196	0.042	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	0.785	0.079	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.196	0.046	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.196	0.023	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.196	0.023	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.196	0.058	1
Perfluorooctanoic Acid (PFOA)	0.117	J	ng/g	0.196	0.051	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.785	0.275	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.196	0.036	1
Perfluorononanoic Acid (PFNA)	0.151	J	ng/g	0.196	0.077	1
Perfluorooctanesulfonic Acid (PFOS)	0.294		ng/g	0.196	0.078	1
Perfluorodecanoic Acid (PFDA)	0.075	J	ng/g	0.196	0.074	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.785	0.380	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.196	0.042	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.196	0.098	1
Perfluoroundecanoic Acid (PFUnA)	0.094	J	ng/g	0.196	0.050	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.196	0.031	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.196	0.042	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.196	0.081	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.196	0.040	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.196	0.052	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.196	0.104	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	0.785	0.097	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	0.785	0.144	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.196	0.038	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-04 Date Collected: 12/18/23 11:55

Client ID: TP-23S Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	0.785	0.192	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	0.785	0.164	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.196	0.098	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.196	0.110	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	1.96	0.246	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	1.96	0.501	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.392	0.040	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.392	0.031	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.392	0.082	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.392	0.093	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	0.981	0.141	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	4.90	0.495	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	4.90	1.73	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-04 Date Collected: 12/18/23 11:55

Client ID: TP-23S Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	80		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	84		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	88		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	91		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	77		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	81		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	85		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	77		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	81		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	88		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	76		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	85		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	88		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	84		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	78		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	53		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	68		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	76		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	59		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	70		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	52		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	50		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	59		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	66		20-150

Project Name: HVRA
Project Number: 18.8090
Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-05
Client ID: TP-24
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 11:30
Date Received: 12/18/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 144,1633
Analytical Date: 01/04/24 16:47
Analyst: JW
Percent Solids: 93%

Extraction Method: EPA 1633
Extraction Date: 12/30/23 09:40
Cleanup Method: EPA 1633
Cleanup Date: 01/02/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.783	0.049	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.392	0.055	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.196	0.042	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	0.783	0.079	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.196	0.045	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.196	0.023	1
Perfluoroheptanoic Acid (PFHpA)	0.053	J	ng/g	0.196	0.023	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.196	0.058	1
Perfluorooctanoic Acid (PFOA)	0.090	J	ng/g	0.196	0.051	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.783	0.274	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.196	0.036	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.196	0.077	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.196	0.078	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.196	0.074	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.783	0.379	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.196	0.042	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.196	0.098	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.196	0.050	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.196	0.031	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.196	0.042	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.196	0.081	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.196	0.040	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.196	0.052	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.196	0.104	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	0.783	0.096	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	0.783	0.143	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.196	0.038	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-05 Date Collected: 12/18/23 11:30

Client ID: TP-24 Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	0.783	0.192	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	0.783	0.164	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.196	0.098	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.196	0.110	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	1.96	0.245	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	1.96	0.500	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.392	0.040	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.392	0.031	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.392	0.082	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.392	0.093	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	0.979	0.141	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	4.90	0.494	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	4.90	1.72	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-05 Date Collected: 12/18/23 11:30

Client ID: TP-24 Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	82		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	101		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	83		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	102		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	74		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	84		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	84		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	82		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	87		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	79		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	85		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	96		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	85		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	88		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	94		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	57		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	73		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	79		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	48		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	73		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	62		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	61		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	80		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	84		20-150

Project Name: HVRA
Project Number: 18.8090
Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-06
Client ID: TP-24S
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 11:40
Date Received: 12/18/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 144,1633
Analytical Date: 01/04/24 17:25
Analyst: JW
Percent Solids: 84%

Extraction Method: EPA 1633
Extraction Date: 12/30/23 09:40
Cleanup Method: EPA 1633
Cleanup Date: 01/02/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.754	0.048	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.377	0.053	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.188	0.041	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	0.754	0.076	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.188	0.044	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.188	0.022	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.188	0.022	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.188	0.056	1
Perfluorooctanoic Acid (PFOA)	0.129	J	ng/g	0.188	0.049	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.754	0.264	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.188	0.035	1
Perfluorononanoic Acid (PFNA)	0.090	J	ng/g	0.188	0.074	1
Perfluorooctanesulfonic Acid (PFOS)	0.362		ng/g	0.188	0.075	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.188	0.071	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.754	0.365	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.188	0.040	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.188	0.094	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.188	0.048	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.188	0.030	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.188	0.041	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.188	0.078	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.188	0.038	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.188	0.050	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.188	0.100	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	0.754	0.093	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	0.754	0.138	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.188	0.036	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-06 Date Collected: 12/18/23 11:40

Client ID: TP-24S Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	0.754	0.185	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	0.754	0.158	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.188	0.094	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.188	0.106	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	1.88	0.236	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	1.88	0.481	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.377	0.038	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.377	0.029	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.377	0.078	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.377	0.090	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	0.942	0.136	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	4.71	0.476	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	4.71	1.66	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-06 Date Collected: 12/18/23 11:40

Client ID: TP-24S Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	80		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	90		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	76		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	84		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	74		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	87		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	81		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	80		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	81		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	87		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	89		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	87		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	102		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	99		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	93		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	60		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	85		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	86		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	67		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	71		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	59		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	63		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	70		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	78		20-150

Project Name: HVRA
Project Number: 18.8090
Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-07
Client ID: TP-25S
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 11:45
Date Received: 12/18/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 144,1633
Analytical Date: 01/04/24 17:38
Analyst: JW
Percent Solids: 79%

Extraction Method: EPA 1633
Extraction Date: 12/30/23 09:40
Cleanup Method: EPA 1633
Cleanup Date: 01/02/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.754	0.048	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.377	0.053	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.188	0.041	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	0.754	0.076	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.188	0.044	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.188	0.022	1
Perfluoroheptanoic Acid (PFHpA)	0.055	J	ng/g	0.188	0.022	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.188	0.056	1
Perfluorooctanoic Acid (PFOA)	0.108	J	ng/g	0.188	0.049	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.754	0.264	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.188	0.035	1
Perfluorononanoic Acid (PFNA)	0.133	J	ng/g	0.188	0.074	1
Perfluorooctanesulfonic Acid (PFOS)	0.577		ng/g	0.188	0.075	1
Perfluorodecanoic Acid (PFDA)	0.090	J	ng/g	0.188	0.071	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.754	0.365	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.188	0.040	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.188	0.094	1
Perfluoroundecanoic Acid (PFUnA)	0.090	J	ng/g	0.188	0.048	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.188	0.030	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.188	0.041	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.188	0.078	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.188	0.038	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.188	0.050	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.188	0.100	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	0.754	0.093	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	0.754	0.138	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.188	0.036	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-07 Date Collected: 12/18/23 11:45

Client ID: TP-25S Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	0.754	0.185	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	0.754	0.158	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.188	0.094	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.188	0.106	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	1.88	0.236	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	1.88	0.481	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.377	0.038	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.377	0.029	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.377	0.078	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.377	0.090	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	0.942	0.136	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	4.71	0.476	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	4.71	1.66	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-07 Date Collected: 12/18/23 11:45

Client ID: TP-25S Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	79		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	91		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	82		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	91		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	81		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	87		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	77		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	75		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	82		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	81		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	87		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	85		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	94		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	104		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	80		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	66		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	82		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	80		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	69		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	75		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	66		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	68		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	87		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	87		20-150

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-08
Client ID: FD01-20231218
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 00:00
Date Received: 12/18/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 144,1633
Analytical Date: 01/04/24 17:51
Analyst: JW
Percent Solids: 93%

Extraction Method: EPA 1633
Extraction Date: 12/30/23 09:40
Cleanup Method: EPA 1633
Cleanup Date: 01/02/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.787	0.050	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.394	0.055	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.197	0.043	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	0.787	0.080	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.197	0.046	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.197	0.023	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.197	0.023	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.197	0.058	1
Perfluorooctanoic Acid (PFOA)	0.084	J	ng/g	0.197	0.051	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.787	0.276	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.197	0.036	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.197	0.077	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.197	0.078	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.197	0.074	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.787	0.381	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.197	0.042	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.197	0.098	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.197	0.050	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.197	0.032	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.197	0.043	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.197	0.081	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.197	0.040	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.197	0.052	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.197	0.105	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	0.787	0.097	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	0.787	0.144	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.197	0.038	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-08 Date Collected: 12/18/23 00:00

Client ID: FD01-20231218 Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	0.787	0.193	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	0.787	0.164	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.197	0.098	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.197	0.110	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	1.97	0.246	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	1.97	0.502	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.394	0.040	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.394	0.031	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.394	0.082	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.394	0.094	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	0.984	0.142	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	4.92	0.497	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	4.92	1.73	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-08 Date Collected: 12/18/23 00:00

Client ID: FD01-20231218 Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	83		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	99		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	81		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	88		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	84		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	81		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	83		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	78		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	76		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	85		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	88		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	82		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	70		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	80		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	79		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	59		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	83		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	77		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	54		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	68		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	64		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	67		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	88		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	85		20-150

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-09
Client ID: EQUIPMENT RINSE BLANK 01
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 12:45
Date Received: 12/18/23
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 144,1633
Analytical Date: 12/30/23 17:17
Analyst: ANH

Extraction Method: EPA 1633
Extraction Date: 12/22/23 11:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	6.02	0.963	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	3.01	0.805	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.50	0.504	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.02	1.57	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.50	0.444	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.50	0.263	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.50	0.301	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.50	0.361	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.50	0.655	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.02	2.03	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.50	0.406	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.50	0.474	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.50	0.685	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.50	0.609	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.02	2.34	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.50	0.466	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.50	0.820	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.50	0.655	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.50	0.346	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.50	0.406	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.50	0.813	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.50	0.692	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.50	0.564	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.50	0.399	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.02	0.843	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.02	0.948	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.50	0.572	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-09 Date Collected: 12/18/23 12:45

Client ID: EQUIPMENT RINSE BLANK 01 Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.02	1.24	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.02	1.24	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.50	0.655	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.50	0.692	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	15.0	3.54	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	15.0	1.84	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.01	0.429	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.01	0.399	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/l	3.01	0.331	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.01	1.78	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.52	2.48	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	37.6	8.80	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	37.6	5.94	1

Project Name: HVRA **Lab Number:** L2374790

Project Number: 18.8090 **Report Date:** 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-09 Date Collected: 12/18/23 12:45

Client ID: EQUIPMENT RINSE BLANK 01 Date Received: 12/18/23

Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	81		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	93		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	81		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	77		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	89		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	91		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	77		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	78		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	74		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	85		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	78		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	71		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	45		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	70		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	61		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	55		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	63		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	51		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	59		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	81		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	46		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	47		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	82		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	84		20-150

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 12/30/23 16:38
Analyst: ANH

Extraction Method: EPA 1633
Extraction Date: 12/22/23 11:30

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 09 Batch: WG1867337-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	6.40	1.02
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	3.20	0.856
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.60	0.536
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.40	1.67
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.60	0.472
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.60	0.280
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.60	0.320
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.60	0.384
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.60	0.696
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.40	2.16
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.60	0.432
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.60	0.504
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.60	0.728
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.60	0.648
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.40	2.49
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.60	0.496
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.60	0.872
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.60	0.696
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.60	0.368
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.60	0.432
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.60	0.864
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.60	0.736
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.60	0.600
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.60	0.424
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.40	0.896
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.40	1.01
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.60	0.608

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 12/30/23 16:38
Analyst: ANH

Extraction Method: EPA 1633
Extraction Date: 12/22/23 11:30

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 09 Batch: WG1867337-1					
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.40	1.32
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.40	1.32
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.60	0.696
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.60	0.736
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	16.0	3.76
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	16.0	1.96
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.20	0.456
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.20	0.424
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/l	3.20	0.352
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.20	1.89
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	8.00	2.64
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	40.0	9.36
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	40.0	6.31

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 12/30/23 16:38
Analyst: ANH

Extraction Method: EPA 1633
Extraction Date: 12/22/23 11:30

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 09 Batch: WG1867337-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	85		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	96		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	84		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	87		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	91		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	90		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	77		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	79		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	74		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	94		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	75		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	79		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	61		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	81		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	73		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	56		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	74		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	68		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	63		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	78		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	50		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	55		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	80		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	92		20-150

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 01/04/24 13:19
Analyst: PNB

Extraction Method: EPA 1633
Extraction Date: 12/28/23 05:13
Cleanup Method: EPA 1633
Cleanup Date: 12/29/23

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01-03 Batch: WG1868770-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.800	0.050
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.400	0.056
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.200	0.043
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	0.800	0.081
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.200	0.046
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.200	0.023
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.200	0.023
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.200	0.059
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.200	0.052
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.800	0.280
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.200	0.037
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.200	0.078
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.200	0.079
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.200	0.075
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.800	0.387
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.200	0.042
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.200	0.100
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.200	0.051
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.200	0.032
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.200	0.043
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.200	0.082
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.200	0.041
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.200	0.053
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.200	0.106
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	0.800	0.098
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	0.800	0.146
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.200	0.038

Project Name: HVRA
Project Number: 18.8090
Lab Number: L2374790
Report Date: 01/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 01/04/24 13:19
Analyst: PNB

Extraction Method: EPA 1633
Extraction Date: 12/28/23 05:13
Cleanup Method: EPA 1633
Cleanup Date: 12/29/23

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01-03 Batch: WG1868770-1					
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	0.800	0.196
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	0.800	0.167
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.200	0.100
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.200	0.112
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	2.00	0.250
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	2.00	0.510
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.400	0.041
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.400	0.031
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.400	0.083
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.400	0.095
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	1.00	0.144
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	5.00	0.505
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	5.00	1.76

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 01/04/24 13:19
Analyst: PNB

Extraction Method: EPA 1633
Extraction Date: 12/28/23 05:13
Cleanup Method: EPA 1633
Cleanup Date: 12/29/23

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01-03 Batch: WG1868770-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	81		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	83		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	87		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	87		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	83		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	81		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	79		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	82		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	78		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	84		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	80		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	82		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	84		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	73		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	77		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	70		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	76		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	59		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	35		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	82		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	45		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	45		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	64		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	58		20-150

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 01/04/24 15:55
Analyst: JW

Extraction Method: EPA 1633
Extraction Date: 12/30/23 09:39
Cleanup Method: EPA 1633
Cleanup Date: 01/02/24

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 04-08 Batch: WG1869725-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.800	0.050
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.400	0.056
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.200	0.043
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	0.800	0.081
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.200	0.046
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.200	0.023
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.200	0.023
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.200	0.059
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.200	0.052
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.800	0.280
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.200	0.037
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.200	0.078
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.200	0.079
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.200	0.075
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.800	0.387
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.200	0.042
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.200	0.100
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.200	0.051
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.200	0.032
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.200	0.043
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.200	0.082
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.200	0.041
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.200	0.053
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.200	0.106
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	0.800	0.098
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	0.800	0.146
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.200	0.038

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 01/04/24 15:55
Analyst: JW

Extraction Method: EPA 1633
Extraction Date: 12/30/23 09:39
Cleanup Method: EPA 1633
Cleanup Date: 01/02/24

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 04-08 Batch: WG1869725-1					
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	0.800	0.196
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	0.800	0.167
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.200	0.100
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.200	0.112
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	2.00	0.250
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	2.00	0.510
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.400	0.041
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.400	0.031
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.400	0.083
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.400	0.095
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	1.00	0.144
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	5.00	0.505
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	5.00	1.76

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 01/04/24 15:55
Analyst: JW

Extraction Method: EPA 1633
Extraction Date: 12/30/23 09:39
Cleanup Method: EPA 1633
Cleanup Date: 01/02/24

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 04-08 Batch: WG1869725-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	88		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	95		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	91		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	95		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	84		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	87		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	87		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	83		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	86		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	102		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	96		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	87		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	77		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	94		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	84		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	58		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	77		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	66		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	36		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	75		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	65		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	70		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	87		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	89		20-150

Lab Control Sample Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 09 Batch: WG1867337-2 LOW LEVEL								
Perfluorobutanoic Acid (PFBA)	114		-		40-150	-		30
Perfluoropentanoic Acid (PFPeA)	111		-		40-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	124		-		40-150	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	116		-		40-150	-		30
Perfluorohexanoic Acid (PFHxA)	108		-		40-150	-		30
Perfluoropentanesulfonic Acid (PFPeS)	113		-		40-150	-		30
Perfluoroheptanoic Acid (PFHpA)	111		-		40-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	115		-		40-150	-		30
Perfluorooctanoic Acid (PFOA)	121		-		40-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	121		-		40-150	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	143		-		40-150	-		30
Perfluorononanoic Acid (PFNA)	107		-		40-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	122		-		40-150	-		30
Perfluorodecanoic Acid (PFDA)	127		-		40-150	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	120		-		40-150	-		30
Perfluorononanesulfonic Acid (PFNS)	96		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	120		-		40-150	-		30
Perfluoroundecanoic Acid (PFUnA)	110		-		40-150	-		30
Perfluorodecanesulfonic Acid (PFDS)	92		-		40-150	-		30
Perfluorooctanesulfonamide (PFOSA)	104		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	96		-		40-150	-		30
Perfluorododecanoic Acid (PFDoA)	112		-		40-150	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: HVRA

Project Number: 18.8090

Lab Number: L2374790

Report Date: 01/08/24

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 09 Batch: WG1867337-2 LOW LEVEL								
Perfluorotridecanoic Acid (PFTrDA)	108		-		40-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	103		-		40-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	129		-		40-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	119		-		40-150	-		30
Perfluorododecanesulfonic Acid (PFDoS)	110		-		40-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	95		-		40-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	90		-		40-150	-		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	103		-		40-150	-		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	90		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	105		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	104		-		40-150	-		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	97		-		40-150	-		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	99		-		40-150	-		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	120		-		40-150	-		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	128		-		40-150	-		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	98		-		40-150	-		30
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	74		-		40-150	-		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	46		-		40-150	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: HVRA

Project Number: 18.8090

Lab Number: L2374790

Report Date: 01/08/24

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 09 Batch: WG1867337-2 LOW LEVEL								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	85				20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	101				20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	80				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	88				20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	86				20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	89				20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	80				20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	75				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	77				20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	90				20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	73				20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	71				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	66				20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	83				20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	76				20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	55				20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	76				20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	68				20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	64				20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	79				20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	43				20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	50				20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	79				20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	89				20-150

Lab Control Sample Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 09 Batch: WG1867337-3								
Perfluorobutanoic Acid (PFBA)	104		-		40-150	-		30
Perfluoropentanoic Acid (PFPeA)	110		-		40-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	103		-		40-150	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	108		-		40-150	-		30
Perfluorohexanoic Acid (PFHxA)	110		-		40-150	-		30
Perfluoropentanesulfonic Acid (PFPeS)	116		-		40-150	-		30
Perfluoroheptanoic Acid (PFHpA)	102		-		40-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	106		-		40-150	-		30
Perfluorooctanoic Acid (PFOA)	116		-		40-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	112		-		40-150	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	144		-		40-150	-		30
Perfluorononanoic Acid (PFNA)	95		-		40-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	124		-		40-150	-		30
Perfluorodecanoic Acid (PFDA)	110		-		40-150	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	121		-		40-150	-		30
Perfluorononanesulfonic Acid (PFNS)	97		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	119		-		40-150	-		30
Perfluoroundecanoic Acid (PFUnA)	102		-		40-150	-		30
Perfluorodecanesulfonic Acid (PFDS)	87		-		40-150	-		30
Perfluorooctanesulfonamide (PFOSA)	115		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	109		-		40-150	-		30
Perfluorododecanoic Acid (PFDoA)	97		-		40-150	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 09 Batch: WG1867337-3								
Perfluorotridecanoic Acid (PFTrDA)	88		-		40-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	103		-		40-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	110		-		40-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	110		-		40-150	-		30
Perfluorododecanesulfonic Acid (PFDoS)	101		-		40-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	77		-		40-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	69		-		40-150	-		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	111		-		40-150	-		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	116		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	106		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	110		-		40-150	-		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	96		-		40-150	-		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	100		-		40-150	-		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	119		-		40-150	-		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	150		-		40-150	-		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	111		-		40-150	-		30
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	83		-		40-150	-		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	53		-		40-150	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 09 Batch: WG1867337-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	83				20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	95				20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	87				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	88				20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	84				20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	90				20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	78				20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	76				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	75				20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	96				20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	76				20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	65				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	54				20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	78				20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	67				20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	53				20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	72				20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	61				20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	58				20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	80				20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	50				20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	56				20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	84				20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	90				20-150

Lab Control Sample Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-03 Batch: WG1868770-2 LOW LEVEL								
Perfluorobutanoic Acid (PFBA)	108		-		40-150	-		30
Perfluoropentanoic Acid (PFPeA)	104		-		40-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	101		-		40-150	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	109		-		40-150	-		30
Perfluorohexanoic Acid (PFHxA)	103		-		40-150	-		30
Perfluoropentanesulfonic Acid (PFPeS)	110		-		40-150	-		30
Perfluoroheptanoic Acid (PFHpA)	108		-		40-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	110		-		40-150	-		30
Perfluorooctanoic Acid (PFOA)	108		-		40-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	96		-		40-150	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	107		-		40-150	-		30
Perfluorononanoic Acid (PFNA)	121		-		40-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	89		-		40-150	-		30
Perfluorodecanoic Acid (PFDA)	101		-		40-150	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	106		-		40-150	-		30
Perfluorononanesulfonic Acid (PFNS)	105		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	99		-		40-150	-		30
Perfluoroundecanoic Acid (PFUnA)	112		-		40-150	-		30
Perfluorodecanesulfonic Acid (PFDS)	99		-		40-150	-		30
Perfluorooctanesulfonamide (PFOSA)	100		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	117		-		40-150	-		30
Perfluorododecanoic Acid (PFDoA)	98		-		40-150	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-03 Batch: WG1868770-2 LOW LEVEL								
Perfluorotridecanoic Acid (PFTrDA)	75		-		40-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	117		-		40-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	117		-		40-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	108		-		40-150	-		30
Perfluorododecanesulfonic Acid (PFDoS)	69		-		40-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	104		-		40-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	86		-		40-150	-		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	84		-		40-150	-		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	94		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	102		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	114		-		40-150	-		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	105		-		40-150	-		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	121		-		40-150	-		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	115		-		40-150	-		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	118		-		40-150	-		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	96		-		40-150	-		30
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	92		-		40-150	-		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	56		-		40-150	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-03 Batch: WG1868770-2 LOW LEVEL								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	81				20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	82				20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	88				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	84				20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	84				20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	82				20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	80				20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	83				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	83				20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	84				20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	78				20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	81				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	78				20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	64				20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	76				20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	67				20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	71				20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	65				20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	37				20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	85				20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	56				20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	53				20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	71				20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	64				20-150

Lab Control Sample Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-03 Batch: WG1868770-3								
Perfluorobutanoic Acid (PFBA)	96		-		40-150	-		30
Perfluoropentanoic Acid (PFPeA)	96		-		40-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	98		-		40-150	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	95		-		40-150	-		30
Perfluorohexanoic Acid (PFHxA)	100		-		40-150	-		30
Perfluoropentanesulfonic Acid (PFPeS)	116		-		40-150	-		30
Perfluoroheptanoic Acid (PFHpA)	100		-		40-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	99		-		40-150	-		30
Perfluorooctanoic Acid (PFOA)	90		-		40-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	89		-		40-150	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	101		-		40-150	-		30
Perfluorononanoic Acid (PFNA)	106		-		40-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	99		-		40-150	-		30
Perfluorodecanoic Acid (PFDA)	86		-		40-150	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	99		-		40-150	-		30
Perfluorononanesulfonic Acid (PFNS)	103		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	103		-		40-150	-		30
Perfluoroundecanoic Acid (PFUnA)	91		-		40-150	-		30
Perfluorodecanesulfonic Acid (PFDS)	89		-		40-150	-		30
Perfluorooctanesulfonamide (PFOSA)	96		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	120		-		40-150	-		30
Perfluorododecanoic Acid (PFDoA)	94		-		40-150	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-03 Batch: WG1868770-3								
Perfluorotridecanoic Acid (PFTrDA)	82		-		40-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	96		-		40-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	106		-		40-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	108		-		40-150	-		30
Perfluorododecanesulfonic Acid (PFDoS)	71		-		40-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	97		-		40-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	91		-		40-150	-		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	98		-		40-150	-		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	95		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	99		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	102		-		40-150	-		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	106		-		40-150	-		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	118		-		40-150	-		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	112		-		40-150	-		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	115		-		40-150	-		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	93		-		40-150	-		30
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	101		-		40-150	-		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	76		-		40-150	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-03 Batch: WG1868770-3

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	87				20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	83				20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	92				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	93				20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	82				20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	87				20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	83				20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	87				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	91				20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	86				20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	84				20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	92				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	83				20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	79				20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	85				20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	70				20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	77				20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	75				20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	52				20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	87				20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	56				20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	55				20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	71				20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	68				20-150

Lab Control Sample Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 04-08 Batch: WG1869725-2 LOW LEVEL								
Perfluorobutanoic Acid (PFBA)	113		-		40-150	-		30
Perfluoropentanoic Acid (PFPeA)	114		-		40-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	104		-		40-150	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	106		-		40-150	-		30
Perfluorohexanoic Acid (PFHxA)	107		-		40-150	-		30
Perfluoropentanesulfonic Acid (PFPeS)	108		-		40-150	-		30
Perfluoroheptanoic Acid (PFHpA)	116		-		40-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	104		-		40-150	-		30
Perfluorooctanoic Acid (PFOA)	110		-		40-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	106		-		40-150	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	145		-		40-150	-		30
Perfluorononanoic Acid (PFNA)	108		-		40-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	130		-		40-150	-		30
Perfluorodecanoic Acid (PFDA)	100		-		40-150	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	110		-		40-150	-		30
Perfluorononanesulfonic Acid (PFNS)	95		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	126		-		40-150	-		30
Perfluoroundecanoic Acid (PFUnA)	110		-		40-150	-		30
Perfluorodecanesulfonic Acid (PFDS)	79		-		40-150	-		30
Perfluorooctanesulfonamide (PFOSA)	102		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	128		-		40-150	-		30
Perfluorododecanoic Acid (PFDoA)	106		-		40-150	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 04-08 Batch: WG1869725-2 LOW LEVEL								
Perfluorotridecanoic Acid (PFTrDA)	81		-		40-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	112		-		40-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	121		-		40-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	126		-		40-150	-		30
Perfluorododecanesulfonic Acid (PFDoS)	47		-		40-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	89		-		40-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	75		-		40-150	-		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	119		-		40-150	-		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	125		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	102		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	108		-		40-150	-		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	92		-		40-150	-		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	107		-		40-150	-		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	119		-		40-150	-		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	107		-		40-150	-		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	96		-		40-150	-		30
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	82		-		40-150	-		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	64		-		40-150	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 04-08 Batch: WG1869725-2 LOW LEVEL								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	78				20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	88				20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	82				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	93				20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	80				20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	81				20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	82				20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	76				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	81				20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	85				20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	71				20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	87				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	66				20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	73				20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	67				20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	53				20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	70				20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	56				20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	28				20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	67				20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	52				20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	52				20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	66				20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	69				20-150

Lab Control Sample Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 04-08 Batch: WG1869725-3								
Perfluorobutanoic Acid (PFBA)	105		-		40-150	-		30
Perfluoropentanoic Acid (PFPeA)	111		-		40-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	114		-		40-150	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	108		-		40-150	-		30
Perfluorohexanoic Acid (PFHxA)	105		-		40-150	-		30
Perfluoropentanesulfonic Acid (PFPeS)	111		-		40-150	-		30
Perfluoroheptanoic Acid (PFHpA)	113		-		40-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	104		-		40-150	-		30
Perfluorooctanoic Acid (PFOA)	102		-		40-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	106		-		40-150	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	131		-		40-150	-		30
Perfluorononanoic Acid (PFNA)	103		-		40-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	133		-		40-150	-		30
Perfluorodecanoic Acid (PFDA)	110		-		40-150	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	116		-		40-150	-		30
Perfluorononanesulfonic Acid (PFNS)	92		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	120		-		40-150	-		30
Perfluoroundecanoic Acid (PFUnA)	107		-		40-150	-		30
Perfluorodecanesulfonic Acid (PFDS)	87		-		40-150	-		30
Perfluorooctanesulfonamide (PFOSA)	98		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	126		-		40-150	-		30
Perfluorododecanoic Acid (PFDoA)	104		-		40-150	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 04-08 Batch: WG1869725-3								
Perfluorotridecanoic Acid (PFTrDA)	81		-		40-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	107		-		40-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	112		-		40-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	112		-		40-150	-		30
Perfluorododecanesulfonic Acid (PFDoS)	61		-		40-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	103		-		40-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	89		-		40-150	-		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	124		-		40-150	-		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	115		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	110		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	113		-		40-150	-		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	90		-		40-150	-		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	102		-		40-150	-		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	112		-		40-150	-		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	107		-		40-150	-		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	91		-		40-150	-		30
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	83		-		40-150	-		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	74		-		40-150	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 04-08 Batch: WG1869725-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	88				20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	105				20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	89				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	96				20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	93				20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	94				20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	87				20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	87				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	88				20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	85				20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	78				20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	81				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	84				20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	86				20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	76				20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	59				20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	75				20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	61				20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	36				20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	81				20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	59				20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	58				20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	75				20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	81				20-150

Matrix Spike Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090
Lab Number: L2374790
Report Date: 01/08/24

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 EPA 1633 - Mansfield Lab Associated sample(s): 04-08 QC Batch ID: WG1869725-4 WG1869725-5 QC Sample: L2374790-05 Client ID: TP-24												
Perfluorobutanoic Acid (PFBA)	ND	7.89	8.52	108		8.42	107		40-150	1		30
Perfluoropentanoic Acid (PFPeA)	ND	3.94	4.46	113		4.41	112		40-150	1		30
Perfluorobutanesulfonic Acid (PFBS)	ND	1.75	2.00	114		2.14	123		40-150	7		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	7.4	8.33	113		8.06	109		40-150	3		30
Perfluorohexanoic Acid (PFHxA)	ND	1.97	2.35	119		2.01	102		40-150	16		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	1.86	2.25	121		2.30	124		40-150	2		30
Perfluoroheptanoic Acid (PFHpA)	0.053J	1.97	2.19	108		2.23	111		40-150	2		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	1.8	1.91	106		1.84	102		40-150	4		30
Perfluorooctanoic Acid (PFOA)	0.090J	1.97	2.14	104		1.96	95		40-150	9		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	7.5	8.24	110		7.95	106		40-150	4		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.88	2.27	121		2.28	122		40-150	0		30
Perfluorononanoic Acid (PFNA)	ND	1.97	2.32	118		2.35	120		40-150	1		30
Perfluorooctanesulfonic Acid (PFOS)	ND	1.83	2.24	122		2.20	121		40-150	2		30
Perfluorodecanoic Acid (PFDA)	ND	1.97	1.97	100		2.26	115		40-150	14		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	7.58	8.46	112		7.85	104		40-150	7		30
Perfluorononanesulfonic Acid (PFNS)	ND	1.9	1.68	89		1.73	92		40-150	3		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	1.97	2.56	130		2.33	119		40-150	9		30
Perfluoroundecanoic Acid (PFUnA)	ND	1.97	2.09	106		2.05	104		40-150	2		30
Perfluorodecanesulfonic Acid (PFDS)	ND	1.9	1.64	86		1.80	95		40-150	9		30
Perfluorooctanesulfonamide (PFOSA)	ND	1.97	1.96F	99		1.94	99		40-150	1		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.97	2.26	115		2.04	104		40-150	10		30
Perfluorododecanoic Acid (PFDoA)	ND	1.97	2.25	114		2.00	102		40-150	12		30

Matrix Spike Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090
Lab Number: L2374790
Report Date: 01/08/24

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 EPA 1633 - Mansfield Lab Associated sample(s): 04-08 QC Batch ID: WG1869725-4 WG1869725-5 QC Sample: L2374790-05 Client ID: TP-24												
Perfluorotridecanoic Acid (PFTrDA)	ND	1.97	1.54	78		1.61	82		40-150	4		30
Perfluorotetradecanoic Acid (PFTeDA)	ND	1.97	2.15	109		2.09	106		40-150	3		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	7.89	8.65	110		8.95	114		40-150	3		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	7.46	8.98	120		9.72	131		40-150	8		30
Perfluorododecanesulfonic Acid (PFDoS)	ND	1.91	1.17	61		1.52	80		40-150	26		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	7.38	7.79	106		7.50	102		40-150	4		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	7.46	7.09	95		7.16	96		40-150	1		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.97	2.36	120		2.36	120		40-150	0		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.97	2.36	120		2.32	118		40-150	2		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	19.7	21.9	111		21.3	108		40-150	3		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	19.7	23.1	117		21.7	110		40-150	6		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	3.94	3.86	98		3.69	94		40-150	5		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	3.94	4.10	104		4.10	104		40-150	0		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	3.51	4.79	136		4.18	119		40-150	14		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	3.94	5.06	128		4.53	115		40-150	11		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND	9.86	9.74	99		9.72	99		40-150	0		30
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	49.3	45.0	91		33.8	69		40-150	28		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND	49.3	32.9	67		30.1	61		40-150	9		30

Matrix Spike Analysis
Batch Quality Control

Project Name: HVRA
Project Number: 18.8090
Lab Number: L2374790
Report Date: 01/08/24

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 EPA 1633 - Mansfield Lab Associated sample(s): 04-08 QC Batch ID: WG1869725-4 WG1869725-5 QC Sample: L2374790-05 Client ID: TP-24												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	87		82		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	94		96		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	90		88		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	67		51		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	75		67		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	86		69		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	68		53		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	83		81		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	82		68		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	83		82		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	60		51		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	84		68		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	91		86		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	81		79		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	82		68		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	81		83		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	90		84		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	66		68		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	34		41		20-150
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	81		79		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	96		92		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	75		75		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	74		82		20-150

Matrix Spike Analysis

Batch Quality Control

Project Name: HVRA

Project Number: 18.8090

Lab Number: L2374790

Report Date: 01/08/24

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 EPA 1633 - Mansfield Lab Associated sample(s): 04-08 QC Batch ID: WG1869725-4 WG1869725-5 QC Sample: L2374790-05 Client ID: TP-24												

Surrogate	*MS % Recovery*	*MS Qualifier*	*MSD % Recovery*	*MSD Qualifier*	*Acceptance Criteria*
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	79		69		20-150

INORGANICS
&
MISCELLANEOUS

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-01
Client ID: TP-21S
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 12:40
Date Received: 12/18/23
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	84.2		%	0.100	0.100	1	-	12/20/23 00:06	121,2540G	CLF

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-02
Client ID: TP-22
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 12:15
Date Received: 12/18/23
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	75.8		%	0.100	0.100	1	-	12/20/23 00:06	121,2540G	CLF

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-03
Client ID: TP-22S
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 12:20
Date Received: 12/18/23
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	77.4		%	0.100	0.100	1	-	12/20/23 00:06	121,2540G	CLF

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-04
Client ID: TP-23S
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 11:55
Date Received: 12/18/23
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	70.2		%	0.100	0.100	1	-	12/20/23 00:06	121,2540G	CLF

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-05
Client ID: TP-24
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 11:30
Date Received: 12/18/23
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	92.5		%	0.100	0.100	1	-	12/20/23 00:06	121,2540G	CLF

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-06
Client ID: TP-24S
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 11:40
Date Received: 12/18/23
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	84.1		%	0.100	0.100	1	-	12/20/23 00:06	121,2540G	CLF

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-07
Client ID: TP-25S
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 11:45
Date Received: 12/18/23
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	78.6		%	0.100	0.100	1	-	12/20/23 00:06	121,2540G	CLF

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

SAMPLE RESULTS

Lab ID: L2374790-08
Client ID: FD01-20231218
Sample Location: 18 GRIFFITH WAY, WAPPINGERS FALLS, NY

Date Collected: 12/18/23 00:00
Date Received: 12/18/23
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	92.7		%	0.100	0.100	1	-	12/20/23 00:06	121,2540G	CLF

Lab Duplicate Analysis

Batch Quality Control

Project Name: HVRA

Project Number: 18.8090

Lab Number: L2374790

Report Date: 01/08/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 01-08 QC Batch ID: WG1866071-1 QC Sample: L2374790-05 Client ID: TP-24						
Solids, Total	92.5	91.4	%	1		10

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

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(*)
L2374790-01A	Plastic 8oz unpreserved	A	NA		5.3	Y	Absent		A2-1633-DRAFT(90)
L2374790-01B	Plastic 2oz unpreserved for TS	A	NA		5.3	Y	Absent		A2-TS(7)
L2374790-02A	Plastic 8oz unpreserved	A	NA		5.3	Y	Absent		A2-1633-DRAFT(90)
L2374790-02B	Plastic 2oz unpreserved for TS	A	NA		5.3	Y	Absent		A2-TS(7)
L2374790-03A	Plastic 8oz unpreserved	A	NA		5.3	Y	Absent		A2-1633-DRAFT(90)
L2374790-03B	Plastic 2oz unpreserved for TS	A	NA		5.3	Y	Absent		A2-TS(7)
L2374790-04A	Plastic 8oz unpreserved	A	NA		5.3	Y	Absent		A2-1633-DRAFT(90)
L2374790-04B	Plastic 2oz unpreserved for TS	A	NA		5.3	Y	Absent		A2-TS(7)
L2374790-05A	Plastic 8oz unpreserved	A	NA		5.3	Y	Absent		A2-1633-DRAFT(90)
L2374790-05A1	Plastic 8oz unpreserved	A	NA		5.3	Y	Absent		A2-1633-DRAFT(90)
L2374790-05A2	Plastic 8oz unpreserved	A	NA		5.3	Y	Absent		A2-1633-DRAFT(90)
L2374790-05B	Plastic 2oz unpreserved for TS	A	NA		5.3	Y	Absent		A2-TS(7)
L2374790-05B1	Plastic 2oz unpreserved for TS	A	NA		5.3	Y	Absent		A2-TS(7)
L2374790-05B2	Plastic 2oz unpreserved for TS	A	NA		5.3	Y	Absent		A2-TS(7)
L2374790-06A	Plastic 8oz unpreserved	A	NA		5.3	Y	Absent		A2-1633-DRAFT(90)
L2374790-06B	Plastic 2oz unpreserved for TS	A	NA		5.3	Y	Absent		A2-TS(7)
L2374790-07A	Plastic 8oz unpreserved	A	NA		5.3	Y	Absent		A2-1633-DRAFT(90)
L2374790-07B	Plastic 2oz unpreserved for TS	A	NA		5.3	Y	Absent		A2-TS(7)
L2374790-08A	Plastic 8oz unpreserved	A	NA		5.3	Y	Absent		A2-1633-DRAFT(90)
L2374790-08B	Plastic 2oz unpreserved for TS	A	NA		5.3	Y	Absent		A2-TS(7)
L2374790-09A	Plastic 500ml unpreserved	A	NA		5.3	Y	Absent		A2-1633-DRAFT(28)
L2374790-09B	Plastic 500ml unpreserved	A	NA		5.3	Y	Absent		A2-1633-DRAFT(28)

*Values in parentheses indicate holding time in days

Project Name: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

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/PFTeDA	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/PFDoS	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
Perfluoropropanesulfonic Acid	PFPrS	423-41-6
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/PFOSA	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-Chloroeicosafluoro-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	PFEESA	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: HVRA
Project Number: 18.8090

Lab Number: L2374790
Report Date: 01/08/24

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
FLUOROTELOMER CARBOXYLIC ACIDS (FTCAs)		
3-Perfluoroheptyl Propanoic Acid	7:3FTCA	812-70-4
2H,2H,3H,3H-Perfluorooctanoic Acid	5:3FTCA	914637-49-3
3-Perfluoropropyl Propanoic Acid	3:3FTCA	356-02-5

Project Name:	HVRA	**Lab Number:**	L2374790
Project Number:	18.8090	**Report Date:**	01/08/24

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:	HVRA	**Lab Number:**	L2374790
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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:	HVRA	**Lab Number:**	L2374790
Project Number:	18.8090	**Report Date:**	01/08/24

Data Qualifiers

Identified Compounds (TICs). For calculated parameters, this represents that one or more values used in the calculation were estimated.

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.)

Project Name:	HVRA	**Lab Number:**	L2374790
Project Number:	18.8090	**Report Date:**	01/08/24

REFERENCES

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

144 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS. Draft EPA Method 1633, EPA Document 821-D-22-001, June 2022.

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 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 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 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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
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, **LACHAT 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).
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.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 12/19/23

ALPHA Job #: L2374790

Client Information

Client: C.T. Male Associates
Address: 50 century Hill Dr. Latham, NY 12110
Phone: 518-786-7400
Fax:
Email: J.mciver@ctmale.com

Project Information

Project Name: HVRA
Project Location: 18 Griffith way, Wappingers Falls, NY
Project # 18.8090
(Use Project name as Project #) ☐
Project Manager: Jim McIver / Eric White
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☒ ASP-B
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Billing Information

☒ Same as Client Info
PO #

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please also send results to ewhite@ctmale.com and to mloughlin@ctmale.com

Please specify Metals or TAL.

ANALYSIS

PFAS EPA method 1633
TS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PFAS	TS	Sample Specific Comments	Total Bottle
74790-01	TP-21S	12/18/23	12:40	Soil	ML	✓	✓		2
-02	TP-22		12:15		ML	✓	✓		2
-03	TP-22S		12:20		ML	✓	✓		2
-04	TP-23S		11:55		ML	✓	✓		2
-05	TP-24		11:30		ML	✓	✓	MS/MSD	6
-06	TP-24S		11:40		ML	✓	✓		2
-07	TP-25S		11:45		ML	✓	✓		2
-08	FD01-20231218		—		ML	✓	✓		2
-09	Equipment Rinse Blank 01		12:45	Water	ML	✓			2

Container Type: P P
Preservative: A A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	12/18/23 15:22		12/18/23 1522
AR	12/18/23 1522		12/19/23 0030
KB	12/19/23 1100		12/19/23 1500
A. Ruiz AAL	12/19/23 1600		12/19/23 16:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)