



Sterling Environmental Engineering, P.C

September 27, 2018

Mr. Wayne D. Mizerak
NYS Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C
625 Broadway, 11th Floor
Albany, New York 12233-7014

Subject: Apple Valley Shopping Center, LaGrange, New York
Site No. 314084
Emerging Contaminants
STERLING File #23008

Dear Mr. Mizerak,

Enclosed please find the analytical report and summary table concerning the sampling for emerging contaminants conducted at the Apple Valley Shopping Center site on August 16, 2018. The sampling was observed by you and was conducted in accordance with the June 27, 2018 Groundwater Sampling and Analysis Plan. The sample locations identified in the report are indicated on the enclosed figure.

The enclosed results do not indicate the presence of any identified emerging contaminants at levels of concern.

Accordingly, we are proceeding to obtain vendor quotations to upgrade and repair the groundwater collection and air stripper treatment system with well pumps, controls and air stripper components that are properly sized for long term operations of the NYSDEC approved remedy.

Please let me know if you have any questions.

Very truly yours,

STERLING ENVIRONMENTAL ENGINEERING, P.C.

A handwritten signature in black ink, appearing to read "Mark P. Millspaugh".

Mark P. Millspaugh, P.E.

President

mark.millspaugh@sterlingenvironmental.com

MPM/bc
Via Email
Enclosures

cc: David Engel, Esq., Nolan & Heller, LLP
Christopher Brown, PVE LLC

S:\Sterling\Projects\2003 Projects\Apple Valley - 23008\Correspondence\2018\2018-09-27_PFAS Sampling Results_ltr.doc

"Serving our clients and the environment since 1993"

24 Wade Road ♦ Latham, New York 12110 ♦ Tel: 518-456-4900 ♦ Fax: 518-456-3532
E-mail: sterling@sterlingenvironmental.com ♦ Website: www.sterlingenvironmental.com

Table 1: Emerging Contaminants Analytical Results
Apple Valley Shopping Center
Lagrange, New York

LOCATION			MW-1		MW-2		MW-X (MW-4A)		DUP8162018		EQUIPMENT BLANK		FIELD BLANK	
SAMPLING DATE			8/16/2018		8/16/2018		8/16/2018		8/16/2018		8/16/2018		8/16/2018	
		Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
1,4 Dioxane by 8270D-SIM														
	1,4-Dioxane	ug/l	0.144	U	0.142	U	0.139	U	0.142	U	0.139	U	0.142	U
Perfluorinated Alkyl Acids by Isotope Dilution														
	Perfluorobutanoic Acid (PFBA)	ug/l	0.0027		0.0107		0.00586		0.0103		0.00175	U	0.0018	U
	Perfluoropentanoic Acid (PFPeA)	ug/l	0.008		0.0334		0.0141		0.0318		0.000126	J	0.0018	U
	Perfluorobutanesulfonic Acid (PFBS)	ug/l	0.000989	J	0.00236		0.00144	J	0.00201		0.00175	U	0.0018	U
	Perfluorohexanoic Acid (PFHxA)	ug/l	0.00564		0.0234		0.00869		0.0218		0.00236		0.000137	J
	Perfluoroheptanoic Acid (PFHpA)	ug/l	0.00121	J	0.00494		0.00207		0.0045		0.000318	J	0.000108	J
	Perfluorohexanesulfonic Acid (PFHxS)	ug/l	0.00178	U	0.00147	J	0.000677	J	0.00145	J	0.00175	U	0.0018	U
	Perfluorooctanoic Acid (PFOA)	ug/l	0.00151	J	0.0116		0.00447		0.00947		0.000157	J	0.000101	J
	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ug/l	0.000618	J	0.000751	J	0.00521		0.00108	J	0.0443		0.0018	U
	Perfluoroheptanesulfonic Acid (PFHpS)	ug/l	0.00178	U	0.0018	U	0.00175	U	0.000244	J	0.00175	U	0.0018	U
	Perfluorononanoic Acid (PFNA)	ug/l	0.00178	U	0.00161	J	0.000554	J	0.000802	J	0.00175	U	0.0018	U
	Perfluorooctanesulfonic Acid (PFOS)	ug/l	0.00124	J	0.0103		0.00609		0.0101		0.000294	J	0.000133	J
	Perfluorodecanoic Acid (PFDA)	ug/l	0.00178	U	0.000928	J	0.000586	J	0.00177	U	0.00175	U	0.0018	U
	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ug/l	0.00178	U	0.0018	U	0.00175	U	0.00177	U	0.00175	U	0.0018	U
	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ug/l	0.00178	U	0.000242	J	0.000386	J	0.00177	U	0.000322	J	0.0018	U
	Perfluoroundecanoic Acid (PFUnA)	ug/l	0.00178	U	0.000494	J	0.00175	U	0.00177	U	0.00175	U	0.0018	U
	Perfluorodecanesulfonic Acid (PFDS)	ug/l	0.00178	U	0.0018	U	0.000561	J	0.00177	U	0.00175	U	0.0018	U
	Perfluorooctanesulfonamide (FOSA)	ug/l	0.00178	U	0.0018	U	0.00175	U	0.00177	U	0.00175	U	0.0018	U
	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ug/l	0.00178	U	0.0018	U	0.00175	U	0.00177	U	0.00175	U	0.0018	U
	Perfluorododecanoic Acid (PFDoA)	ug/l	0.00178	U	0.0018	U	0.00175	U	0.00177	U	0.00175	U	0.0018	U
	Perfluorotridecanoic Acid (PFTrDA)	ug/l	0.00178	U	0.0018	U	0.00175	U	0.00177	U	0.00175	U	0.0018	U
	Perfluorotetradecanoic Acid (PFTA)	ug/l	0.00178	U	0.0018	U	0.00175	U	0.00177	U	0.000115	J	0.0018	U

Notes:

U = Not detected above the method detection limit.

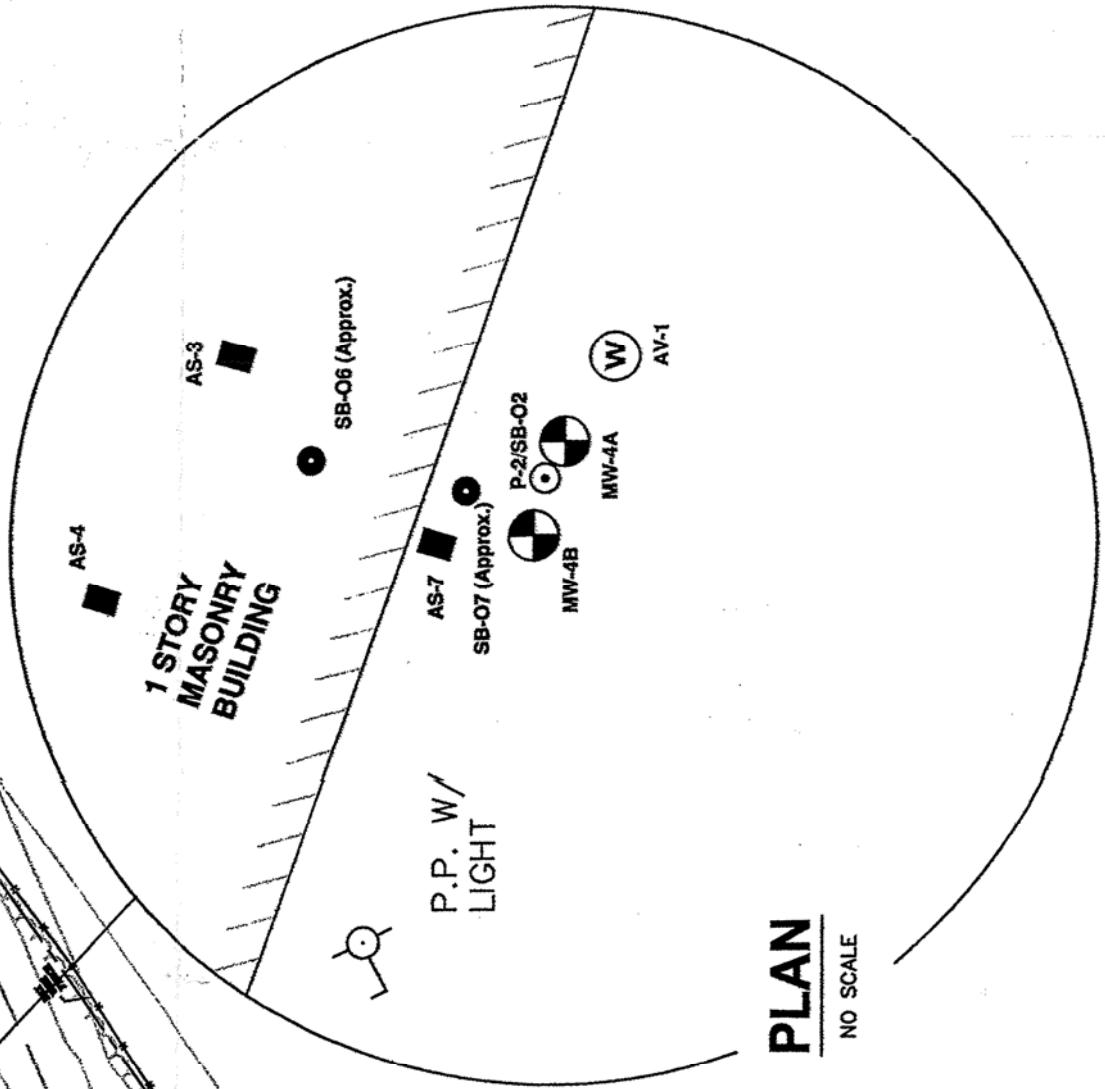
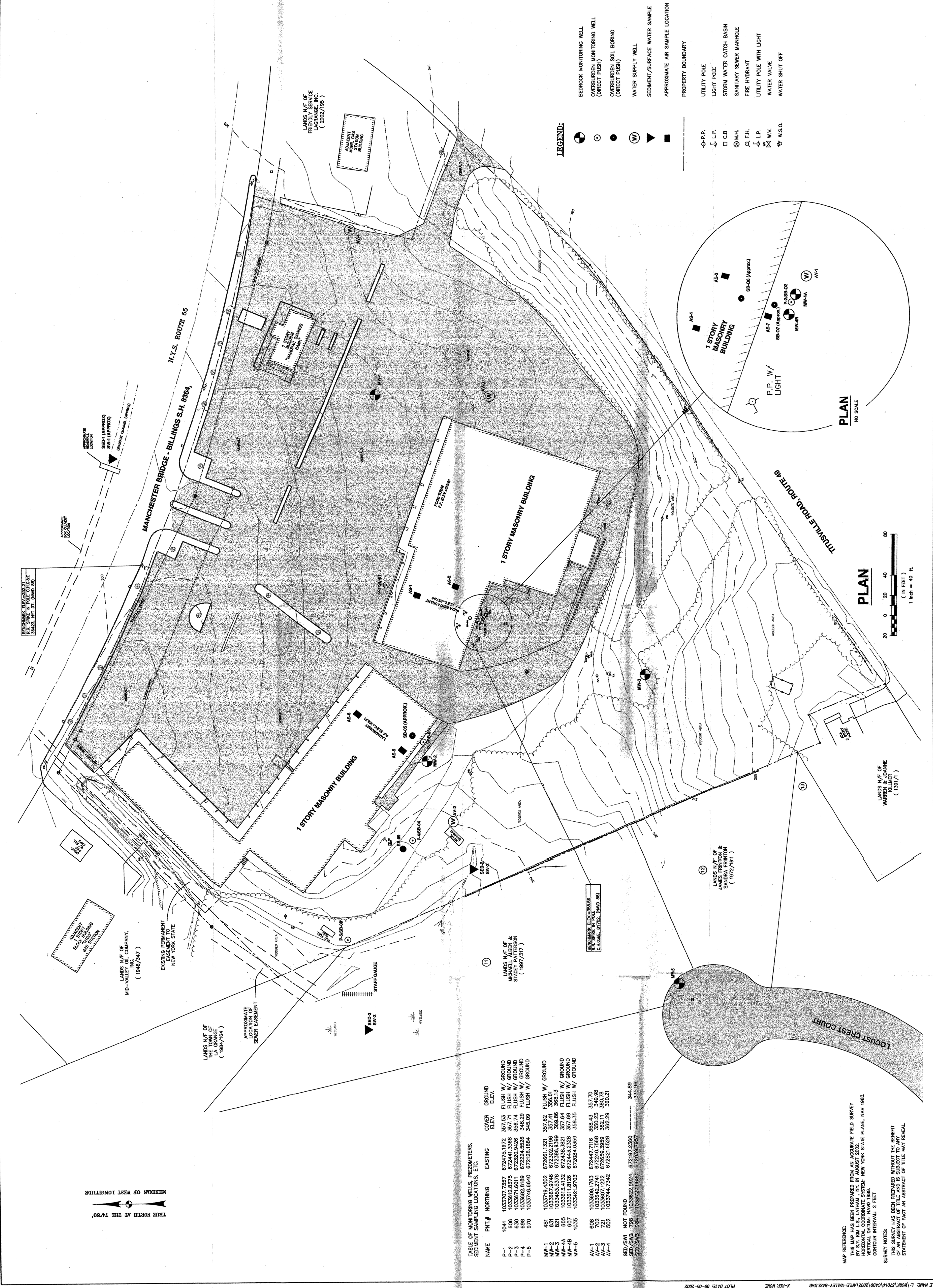
J = Result is less than the laboratory reporting limit but greater than or equal to the method detection limit, and the concentration is an approximate value.

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NO	Earth Tech	NO	NO	NO	NO
REVISIONS					
DATE					
DRN/CHK					

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F A R T H T E C H

APPLE VALLEY SHOPPING CENTER
SITE # 3-14-084
LAGRANGE, NEW YORK
SITE PLAN
REMEDIAL INVESTIGATION / FEASIBILITY STUDY

DATE SEPTEMBER, 2002
PROJECT NO 37014
FILENAME 37014
SHEET NO 1 of 1
DRAWING NO
Figure 4



NAME	PNT.#	NORTHING	EASTING	COVER	ELEV.	GROUND
P-1	1041	1033707.7357	672475.1972	357.53	FLUSH W/ GROUND	
P-2	806	1033612.8375	672441.3368	357.71	FLUSH W/ GROUND	
P-3	630	1033871.6011	672320.9426	356.74	FLUSH W/ GROUND	
P-4	698	1033682.8189	672224.6526	348.29	FLUSH W/ GROUND	
P-5	970	1033746.6640	672126.1864	346.09	FLUSH W/ GROUND	
MW-1	481	1033719.4502	672661.1321	357.62	FLUSH W/ GROUND	
MW-2	821	1033653.5378	672386.6389	369.86	368.13	
MW-3	821	1033653.5378	672386.6389	369.86	368.13	
MW-4	605	1033613.4132	672436.3621	357.64	FLUSH W/ GROUND	
MW-5	607	1033611.8126	672443.2328	357.69	FLUSH W/ GROUND	
AV-1	1035	1033421.9703	672084.0369	356.35	FLUSH W/ GROUND	
AV-2	608	1033609.1763	672447.7116	358.43	357.70	
AV-3	721	1033607.1222	672659.3959	362.11	360.78	
AV-4	502	1033744.7542	672821.6528	362.29	360.21	
SED/SWI	NOT FOUND					
SED/SW2	798	1033622.9924	672187.2360		344.89	
SED/SW3	984	1033727.9680	672039.7957		353.96	

TABLE OF MONITORING WELLS, PIEZOMETERS, SEDIMENT SAMPLING LOCATIONS, ETC.

MAP REFERENCE:
THIS MAP WAS PREPARED FROM AN ACCURATE FIELD SURVEY BY S. J. LATHAM, N.Y., IN AUGUST 2002.
HORIZONTAL COORDINATE SYSTEM: NEW YORK STATE PLANE, MAY 1983.
VERTICAL DATUM: NAVD 1988.
CONTOUR INTERVAL: 2 FEET.

SURVEY NOTES:
THIS SURVEY HAS BEEN PREPARED WITHOUT THE BENEFIT OF A FIELD SURVEY OF THE AREA. THE SURVEYOR'S STATEMENT OF FACT AND ABSTRACT OF TITLE MAY REVEAL.



ANALYTICAL REPORT

Lab Number:	L1832351
Client:	Sterling Environmental Eng 24 Wade Road Latham, NY 12110
ATTN:	Vedran Cirkovic
Phone:	(518) 456-4900
Project Name:	APPLE VALLEY
Project Number:	23008
Report Date:	09/12/18

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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



Project Name: APPLE VALLEY
Project Number: 23008

Lab Number: L1832351
Report Date: 09/12/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1832351-01	MW-1	WATER	LAGRANGE, NY	08/16/18 10:50	08/16/18
L1832351-02	MW-2	WATER	LAGRANGE, NY	08/16/18 14:00	08/16/18
L1832351-03	MW-X	WATER	LAGRANGE, NY	08/16/18 12:10	08/16/18
L1832351-04	DUP8162018	WATER	LAGRANGE, NY	08/16/18 00:00	08/16/18
L1832351-05	EQUIPMENT BLANK	WATER	LAGRANGE, NY	08/16/18 09:50	08/16/18
L1832351-06	FIELD BLANK	WATER	LAGRANGE, NY	08/16/18 09:40	08/16/18

Project Name: APPLE VALLEY
Project Number: 23008

Lab Number: L1832351
Report Date: 09/12/18

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. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated 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.

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 table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

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 Client Service Representative 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 Client Services at 800-624-9220 with any questions.

Project Name: APPLE VALLEY
Project Number: 23008

Lab Number: L1832351
Report Date: 09/12/18

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.

Perfluorinated Alkyl Acids by Isotope Dilution

L1832351: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

WG1150723:: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

The continuing calibration standard WG1154270-6, associated with L1832351 as well as the associated QC, had the response for the extracted internal standards 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) (243.2%D), N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) (171.3%D), Perfluoro[13C8]Octanesulfonamide (M8FOSA) (47.6%D) and N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) (191.2%D) outside the acceptance criteria for the method. The associated target analytes were within acceptance criteria, therefore no further action was taken.

The continuing calibration standard WG1154270-7, associated with L1832351 as well as the associated QC, had the response for the extracted internal standards 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) (195.9%D), N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) (177%D), and N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) (189.4%D) outside the acceptance criteria for the method. The associated target analytes were within acceptance criteria, therefore no further action was taken.

The continuing calibration standard WG1154270-5, associated with L1832351 as well as the associated QC, had the response for the extracted internal standards 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) (155.7%D), N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) (205.7%D), Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) (164.4%D) and N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) (193.8%D) above the acceptance criteria for the method. The associated target analytes were within acceptance criteria, therefore no further action was taken.

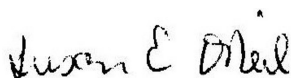
The continuing calibration standard WG1152634-1, associated with L1832351 as well as the associated QC,

Project Name: APPLE VALLEY**Lab Number:** L1832351**Project Number:** 23008**Report Date:** 09/12/18**Case Narrative (continued)**

had the response for the extracted internal standard 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) (165.1%D) above the acceptance criteria for the method. The associated target analyte was within acceptance criteria, therefore no further action was taken.

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:



Susan O' Neil

Title: Technical Director/Representative

Date: 09/12/18

ORGANICS

SEMIVOLATILES

Project Name: APPLE VALLEY
Project Number: 23008

Lab Number: L1832351
Report Date: 09/12/18

SAMPLE RESULTS

Lab ID: L1832351-01
 Client ID: MW-1
 Sample Location: LAGRANGE, NY

Date Collected: 08/16/18 10:50
 Date Received: 08/16/18
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 08/24/18 16:01
 Analyst: PS

Extraction Method: EPA 3510C
 Extraction Date: 08/23/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	144	72.1	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	26			15-110		

Project Name: APPLE VALLEY

Project Number: 23008

Lab Number: L1832351

Report Date: 09/12/18

SAMPLE RESULTS

Lab ID: L1832351-01
 Client ID: MW-1
 Sample Location: LAGRANGE, NY

Date Collected: 08/16/18 10:50
 Date Received: 08/16/18
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 122,537(M)
 Analytical Date: 09/11/18 18:39
 Analyst: AJ

Extraction Method: EPA 537
 Extraction Date: 08/26/18 08:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	2.70		ng/l	1.78	0.117	1
Perfluoropentanoic Acid (PFPeA)	8.00		ng/l	1.78	0.076	1
Perfluorobutanesulfonic Acid (PFBS)	0.989	J	ng/l	1.78	0.098	1
Perfluorohexanoic Acid (PFHxA)	5.64		ng/l	1.78	0.113	1
Perfluoroheptanoic Acid (PFHpA)	1.21	J	ng/l	1.78	0.083	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.78	0.096	1
Perfluorooctanoic Acid (PFOA)	1.51	J	ng/l	1.78	0.045	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.618	J	ng/l	1.78	0.173	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.78	0.138	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.78	0.090	1
Perfluorooctanesulfonic Acid (PFOS)	1.24	J	ng/l	1.78	0.100	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.78	0.170	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.78	0.260	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.78	0.224	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.78	0.171	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.78	0.198	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.78	0.202	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.78	0.333	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.78	0.082	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.78	0.081	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.78	0.064	1

Project Name: APPLE VALLEY

Lab Number: L1832351

Project Number: 23008

Report Date: 09/12/18

SAMPLE RESULTS

Lab ID: L1832351-01

Date Collected: 08/16/18 10:50

Client ID: MW-1

Date Received: 08/16/18

Sample Location: LAGRANGE, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Surrogate	% Recovery			Qualifier	Acceptance Criteria	
Perfluoro[13C4]Butanoic Acid (MPFBA)	98				2-156	
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	123				16-173	
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	95				31-159	
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	80				21-145	
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	82				30-139	
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	103				47-153	
Perfluoro[13C8]Octanoic Acid (M8PFOA)	100				36-149	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	214				1-244	
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	102				34-146	
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	103				42-146	
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	95				38-144	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	236			Q	7-170	
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	198			Q	1-181	
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	93				40-144	
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	14				1-87	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	176			Q	23-146	
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	95				24-161	
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	121				33-143	

Project Name: APPLE VALLEY**Project Number:** 23008**Lab Number:** L1832351**Report Date:** 09/12/18**SAMPLE RESULTS**

Lab ID: L1832351-02
 Client ID: MW-2
 Sample Location: LAGRANGE, NY

Date Collected: 08/16/18 14:00
 Date Received: 08/16/18
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 08/24/18 16:26
 Analyst: PS

Extraction Method: EPA 3510C
 Extraction Date: 08/23/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	142	70.8	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	24			15-110		

Project Name: APPLE VALLEY

Project Number: 23008

Lab Number: L1832351

Report Date: 09/12/18

SAMPLE RESULTS

Lab ID: L1832351-02
 Client ID: MW-2
 Sample Location: LAGRANGE, NY

Date Collected: 08/16/18 14:00
 Date Received: 08/16/18
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 122,537(M)
 Analytical Date: 09/11/18 18:55
 Analyst: AJ

Extraction Method: EPA 537
 Extraction Date: 08/26/18 08:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	10.7		ng/l	1.80	0.118	1
Perfluoropentanoic Acid (PFPeA)	33.4		ng/l	1.80	0.077	1
Perfluorobutanesulfonic Acid (PFBS)	2.36		ng/l	1.80	0.099	1
Perfluorohexanoic Acid (PFHxA)	23.4		ng/l	1.80	0.114	1
Perfluoroheptanoic Acid (PFHpA)	4.94		ng/l	1.80	0.083	1
Perfluorohexanesulfonic Acid (PFHxS)	1.47	J	ng/l	1.80	0.097	1
Perfluorooctanoic Acid (PFOA)	11.6		ng/l	1.80	0.046	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.751	J	ng/l	1.80	0.175	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.80	0.140	1
Perfluorononanoic Acid (PFNA)	1.61	J	ng/l	1.80	0.091	1
Perfluorooctanesulfonic Acid (PFOS)	10.3		ng/l	1.80	0.101	1
Perfluorodecanoic Acid (PFDA)	0.928	J	ng/l	1.80	0.172	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.80	0.262	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.242	J	ng/l	1.80	0.226	1
Perfluoroundecanoic Acid (PFUnA)	0.494	J	ng/l	1.80	0.172	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.80	0.201	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.80	0.205	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.80	0.336	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.80	0.083	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.80	0.082	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.80	0.065	1

Project Name: APPLE VALLEY

Lab Number: L1832351

Project Number: 23008

Report Date: 09/12/18

SAMPLE RESULTS

Lab ID: L1832351-02

Date Collected: 08/16/18 14:00

Client ID: MW-2

Date Received: 08/16/18

Sample Location: LAGRANGE, NY

Field Prep: Not Specified

Sample Depth:

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	101		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	115		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	76		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	67		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	87		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	105		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	101		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	202		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	109		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	100		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	94		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	255	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	173		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	94		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	21		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	158	Q	23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	105		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	121		33-143

Project Name: APPLE VALLEY
Project Number: 23008

Lab Number: L1832351
Report Date: 09/12/18

SAMPLE RESULTS

Lab ID: L1832351-03
Client ID: MW-X
Sample Location: LAGRANGE, NY

Date Collected: 08/16/18 12:10
Date Received: 08/16/18
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 08/24/18 16:51
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 08/23/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	139	69.4	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	25			15-110		

Project Name: APPLE VALLEY

Project Number: 23008

Lab Number: L1832351

Report Date: 09/12/18

SAMPLE RESULTS

Lab ID: L1832351-03
 Client ID: MW-X
 Sample Location: LAGRANGE, NY

Date Collected: 08/16/18 12:10
 Date Received: 08/16/18
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 122,537(M)
 Analytical Date: 08/31/18 16:38
 Analyst: AJ

Extraction Method: EPA 537
 Extraction Date: 08/26/18 08:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	5.86		ng/l	1.75	0.115	1
Perfluoropentanoic Acid (PFPeA)	14.1		ng/l	1.75	0.075	1
Perfluorobutanesulfonic Acid (PFBS)	1.44	J	ng/l	1.75	0.097	1
Perfluorohexanoic Acid (PFHxA)	8.69		ng/l	1.75	0.111	1
Perfluoroheptanoic Acid (PFHpA)	2.07		ng/l	1.75	0.081	1
Perfluorohexanesulfonic Acid (PFHxS)	0.677	J	ng/l	1.75	0.094	1
Perfluorooctanoic Acid (PFOA)	4.47		ng/l	1.75	0.044	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	5.21		ng/l	1.75	0.170	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.75	0.136	1
Perfluorononanoic Acid (PFNA)	0.554	J	ng/l	1.75	0.088	1
Perfluorooctanesulfonic Acid (PFOS)	6.09		ng/l	1.75	0.098	1
Perfluorodecanoic Acid (PFDA)	0.586	J	ng/l	1.75	0.167	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.75	0.255	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.386	J	ng/l	1.75	0.220	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.75	0.168	1
Perfluorodecanesulfonic Acid (PFDS)	0.561	J	ng/l	1.75	0.195	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.75	0.199	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.75	0.327	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.75	0.080	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.75	0.079	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.75	0.063	1

Project Name: APPLE VALLEY

Lab Number: L1832351

Project Number: 23008

Report Date: 09/12/18

SAMPLE RESULTS

Lab ID: L1832351-03

Date Collected: 08/16/18 12:10

Client ID: MW-X

Date Received: 08/16/18

Sample Location: LAGRANGE, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Surrogate	% Recovery			Qualifier	Acceptance Criteria	
Perfluoro[13C4]Butanoic Acid (MPFBA)	95				2-156	
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	100				16-173	
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	94				31-159	
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	81				21-145	
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	90				30-139	
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	99				47-153	
Perfluoro[13C8]Octanoic Acid (M8PFOA)	95				36-149	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	194				1-244	
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	98				34-146	
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99				42-146	
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	90				38-144	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	167				7-170	
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	124				1-181	
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	99				40-144	
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	18				1-87	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	157			Q	23-146	
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	105				24-161	
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	115				33-143	

Project Name: APPLE VALLEY
Project Number: 23008

Lab Number: L1832351
Report Date: 09/12/18

SAMPLE RESULTS

Lab ID: L1832351-04
Client ID: DUP8162018
Sample Location: LAGRANGE, NY

Date Collected: 08/16/18 00:00
Date Received: 08/16/18
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 08/24/18 18:04
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 08/23/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	142	70.8	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	23			15-110		

Project Name: APPLE VALLEY

Project Number: 23008

Lab Number: L1832351

Report Date: 09/12/18

SAMPLE RESULTS

Lab ID: L1832351-04
 Client ID: DUP8162018
 Sample Location: LAGRANGE, NY

Date Collected: 08/16/18 00:00
 Date Received: 08/16/18
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 122,537(M)
 Analytical Date: 09/11/18 19:28
 Analyst: AJ

Extraction Method: EPA 537
 Extraction Date: 08/26/18 08:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	10.3		ng/l	1.77	0.116	1
Perfluoropentanoic Acid (PFPeA)	31.8		ng/l	1.77	0.076	1
Perfluorobutanesulfonic Acid (PFBS)	2.01		ng/l	1.77	0.097	1
Perfluorohexanoic Acid (PFHxA)	21.8		ng/l	1.77	0.112	1
Perfluoroheptanoic Acid (PFHpA)	4.50		ng/l	1.77	0.082	1
Perfluorohexanesulfonic Acid (PFHxS)	1.45	J	ng/l	1.77	0.095	1
Perfluorooctanoic Acid (PFOA)	9.47		ng/l	1.77	0.045	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.08	J	ng/l	1.77	0.171	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.244	J	ng/l	1.77	0.137	1
Perfluorononanoic Acid (PFNA)	0.802	J	ng/l	1.77	0.089	1
Perfluorooctanesulfonic Acid (PFOS)	10.1		ng/l	1.77	0.099	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.77	0.168	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.77	0.257	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.77	0.221	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.77	0.169	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.77	0.196	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.77	0.200	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.77	0.329	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.77	0.081	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.77	0.080	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.77	0.064	1

Project Name: APPLE VALLEY

Lab Number: L1832351

Project Number: 23008

Report Date: 09/12/18

SAMPLE RESULTS

Lab ID: L1832351-04

Date Collected: 08/16/18 00:00

Client ID: DUP8162018

Date Received: 08/16/18

Sample Location: LAGRANGE, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Surrogate	% Recovery			Qualifier	Acceptance Criteria	
Perfluoro[13C4]Butanoic Acid (MPFBA)	101				2-156	
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	114				16-173	
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	100				31-159	
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	81				21-145	
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	87				30-139	
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	112				47-153	
Perfluoro[13C8]Octanoic Acid (M8PFOA)	98				36-149	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	207				1-244	
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	105				34-146	
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	102				42-146	
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	94				38-144	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	175			Q	7-170	
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	191			Q	1-181	
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	101				40-144	
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	24				1-87	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	187			Q	23-146	
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	105				24-161	
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	132				33-143	

Project Name: APPLE VALLEY**Project Number:** 23008**Lab Number:** L1832351**Report Date:** 09/12/18**SAMPLE RESULTS**

Lab ID: L1832351-05
 Client ID: EQUIPMENT BLANK
 Sample Location: LAGRANGE, NY

Date Collected: 08/16/18 09:50
 Date Received: 08/16/18
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 08/24/18 18:29
 Analyst: PS

Extraction Method: EPA 3510C
 Extraction Date: 08/23/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	139	69.4	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	28			15-110		

Project Name: APPLE VALLEY**Lab Number:** L1832351**Project Number:** 23008**Report Date:** 09/12/18**SAMPLE RESULTS**

Lab ID: L1832351-05
 Client ID: EQUIPMENT BLANK
 Sample Location: LAGRANGE, NY

Date Collected: 08/16/18 09:50
 Date Received: 08/16/18
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 122,537(M)
 Analytical Date: 09/11/18 19:45
 Analyst: AJ

Extraction Method: EPA 537
 Extraction Date: 08/26/18 08:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.75	0.115	1
Perfluoropentanoic Acid (PFPeA)	0.126	J	ng/l	1.75	0.075	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.75	0.096	1
Perfluorohexanoic Acid (PFHxA)	2.36		ng/l	1.75	0.110	1
Perfluoroheptanoic Acid (PFHpA)	0.318	J	ng/l	1.75	0.081	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.75	0.094	1
Perfluorooctanoic Acid (PFOA)	0.157	J	ng/l	1.75	0.044	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	44.3		ng/l	1.75	0.170	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.75	0.136	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.75	0.088	1
Perfluorooctanesulfonic Acid (PFOS)	0.294	J	ng/l	1.75	0.098	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.75	0.166	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.75	0.254	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.322	J	ng/l	1.75	0.219	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.75	0.167	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.75	0.194	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.75	0.198	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.75	0.326	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.75	0.080	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.75	0.079	1
Perfluorotetradecanoic Acid (PFTA)	0.115	J	ng/l	1.75	0.063	1

Project Name: APPLE VALLEY

Lab Number: L1832351

Project Number: 23008

Report Date: 09/12/18

SAMPLE RESULTS

Lab ID: L1832351-05

Date Collected: 08/16/18 09:50

Client ID: EQUIPMENT BLANK

Date Received: 08/16/18

Sample Location: LAGRANGE, NY

Field Prep: Not Specified

Sample Depth:

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	107		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	130		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	103		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	88		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	90		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	111		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	109		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	206		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	117		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	100		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	103		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	201	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	177		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	108		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	5		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	170	Q	23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	135		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	143		33-143

Project Name: APPLE VALLEY**Project Number:** 23008**Lab Number:** L1832351**Report Date:** 09/12/18**SAMPLE RESULTS**

Lab ID: L1832351-06
 Client ID: FIELD BLANK
 Sample Location: LAGRANGE, NY

Date Collected: 08/16/18 09:40
 Date Received: 08/16/18
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 08/24/18 18:56
 Analyst: PS

Extraction Method: EPA 3510C
 Extraction Date: 08/23/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	142	70.8	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	27			15-110		

Project Name: APPLE VALLEY

Lab Number: L1832351

Project Number: 23008

Report Date: 09/12/18

SAMPLE RESULTS

Lab ID: L1832351-06
 Client ID: FIELD BLANK
 Sample Location: LAGRANGE, NY

Date Collected: 08/16/18 09:40
 Date Received: 08/16/18
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 122,537(M)
 Analytical Date: 09/11/18 20:01
 Analyst: AJ

Extraction Method: EPA 537
 Extraction Date: 08/26/18 08:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.80	0.118	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.80	0.077	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.80	0.099	1
Perfluorohexanoic Acid (PFHxA)	0.137	J	ng/l	1.80	0.114	1
Perfluoroheptanoic Acid (PFHpA)	0.108	J	ng/l	1.80	0.083	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.80	0.097	1
Perfluorooctanoic Acid (PFOA)	0.101	J	ng/l	1.80	0.045	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.80	0.174	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.80	0.140	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.80	0.091	1
Perfluorooctanesulfonic Acid (PFOS)	0.133	J	ng/l	1.80	0.100	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.80	0.171	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.80	0.262	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.80	0.225	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.80	0.172	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.80	0.200	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.80	0.204	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.80	0.335	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.80	0.082	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.80	0.081	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.80	0.065	1

Project Name: APPLE VALLEY

Lab Number: L1832351

Project Number: 23008

Report Date: 09/12/18

SAMPLE RESULTS

Lab ID: L1832351-06
 Client ID: FIELD BLANK
 Sample Location: LAGRANGE, NY

Date Collected: 08/16/18 09:40
 Date Received: 08/16/18
 Field Prep: Not Specified

Sample Depth:

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	112		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	141		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	110		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	89		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	94		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	122		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	115		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	224		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	119		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	114		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	114		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	240	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	200	Q	1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	110		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	13		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	197	Q	23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	141		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	147	Q	33-143

Project Name: APPLE VALLEY

Lab Number: L1832351

Project Number: 23008

Report Date: 09/12/18

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D-SIM
 Analytical Date: 08/24/18 13:07
 Analyst: PS

Extraction Method: EPA 3510C
 Extraction Date: 08/23/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-06 Batch: WG1149678-1					
1,4-Dioxane	ND		ng/l	150	75.0

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	31		15-110

Project Name: APPLE VALLEY

Lab Number: L1832351

Project Number: 23008

Report Date: 09/12/18

Method Blank Analysis Batch Quality Control

Analytical Method: 122,537(M)
 Analytical Date: 08/31/18 15:15
 Analyst: AJ

Extraction Method: EPA 537
 Extraction Date: 08/26/18 08:35

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-06 Batch: WG1150723-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.131
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.086
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.110
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.126
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.092
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.108
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.050
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.468	J	ng/l	2.00	0.194
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.155
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.101
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.112
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.190
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	0.291
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.250
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.191
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.222
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.227
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.373
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.092
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.090
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.072

Project Name: APPLE VALLEY

Lab Number: L1832351

Project Number: 23008

Report Date: 09/12/18

Method Blank Analysis Batch Quality Control

Analytical Method: 122,537(M)
 Analytical Date: 08/31/18 15:15
 Analyst: AJ

Extraction Method: EPA 537
 Extraction Date: 08/26/18 08:35

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-06 Batch: WG1150723-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	105		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	121		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	116		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	97		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	107		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	124		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	104		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	178		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	108		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	117		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	98		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	195	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	99		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	116		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	16		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	92		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	118		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	118		33-143

Lab Control Sample Analysis

Batch Quality Control

Project Name: APPLE VALLEY

Project Number: 23008

Lab Number: L1832351

Report Date: 09/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-06 Batch: WG1149678-2 WG1149678-3								
1,4-Dioxane	114		115		40-140	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	28		32		15-110

Lab Control Sample Analysis

Batch Quality Control

Project Name: APPLE VALLEY

Project Number: 23008

Lab Number: L1832351

Report Date: 09/12/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 Batch: WG1150723-2 WG1150723-3								
Perfluorobutanoic Acid (PFBA)	99		95		67-148	4		30
Perfluoropentanoic Acid (PFPeA)	108		103		63-161	5		30
Perfluorobutanesulfonic Acid (PFBS)	98		95		65-157	3		30
Perfluorohexanoic Acid (PFHxA)	109		103		69-168	6		30
Perfluoroheptanoic Acid (PFHpA)	94		90		58-159	4		30
Perfluorohexanesulfonic Acid (PFHxS)	103		100		69-177	3		30
Perfluorooctanoic Acid (PFOA)	103		96		63-159	7		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	103		96		49-187	7		30
Perfluoroheptanesulfonic Acid (PFHpS)	102		96		61-179	6		30
Perfluorononanoic Acid (PFNA)	111		98		68-171	12		30
Perfluorooctanesulfonic Acid (PFOS)	86		85		52-151	1		30
Perfluorodecanoic Acid (PFDA)	105		103		63-171	2		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	105		98		56-173	7		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	98		96		60-166	2		30
Perfluoroundecanoic Acid (PFUnA)	90		86		60-153	5		30
Perfluorodecanesulfonic Acid (PFDS)	73		70		38-156	4		30
Perfluorooctanesulfonamide (FOSA)	88		103		46-170	16		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	116		123		45-170	6		30
Perfluorododecanoic Acid (PFDoA)	95		99		67-153	4		30
Perfluorotridecanoic Acid (PFTrDA)	81		87		48-158	7		30
Perfluorotetradecanoic Acid (PFTA)	86		91		59-182	6		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: APPLE VALLEY

Project Number: 23008

Lab Number: L1832351

Report Date: 09/12/18

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 Batch: WG1150723-2 WG1150723-3

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	105		99		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	118		113		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	111		108		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	95		93		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	108		105		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	116		112		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	107		102		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	163		148		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	111		119		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	109		108		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	105		98		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	171	Q	184	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	104		101		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	114		109		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	10		16		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	95		97		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	117		109		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	129		127		33-143

Matrix Spike Analysis

Batch Quality Control

Project Name: APPLE VALLEY

Project Number: 23008

Lab Number: L1832351

Report Date: 09/12/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1149678-4 WG1149678-5 QC Sample: L1832351-03 Client ID: MW-X												
1,4-Dioxane	ND	4630	5440	118		5320	115		40-140	2		30

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	25		22		15-110

Matrix Spike Analysis

Batch Quality Control

Project Name: APPLE VALLEY

Project Number: 23008

Lab Number: L1832351

Report Date: 09/12/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1150723-4 WG1150723-5 QC Sample: L1832351-03 Client ID: MW-X												
Perfluorobutanoic Acid (PFBA)	5.86	35.2	42.2	103		42.7	103		67-148	1		30
Perfluoropentanoic Acid (PFPeA)	14.1	35.2	52.0	108		52.3	107		63-161	1		30
Perfluorobutanesulfonic Acid (PFBS)	1.44J	35.2	39.1	111		37.6	105		65-157	4		30
Perfluorohexanoic Acid (PFHxA)	8.69	35.2	48.7	114		49.5	114		69-168	2		30
Perfluoroheptanoic Acid (PFHpA)	2.07	35.2	38.0	102		37.0	98		58-159	3		30
Perfluorohexanesulfonic Acid (PFHxS)	0.677J	35.2	37.1	105		37.2	104		69-177	0		30
Perfluorooctanoic Acid (PFOA)	4.47	35.2	44.9	115		40.7	101		63-159	10		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	5.21	35.2	50.6	129		45.0	111		49-187	12		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	35.2	35.1	100		36.2	101		61-179	3		30
Perfluorononanoic Acid (PFNA)	0.554J	35.2	40.7	116		42.7	120		68-171	5		30
Perfluorooctanesulfonic Acid (PFOS)	6.09	35.2	46.1	114		38.8	92		52-151	17		30
Perfluorodecanoic Acid (PFDA)	0.586J	35.2	39.9	113		41.6	116		63-171	4		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	35.2	39.6	112		43.2	121		56-173	9		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.386J	35.2	37.4	106		37.0	104		60-166	1		30
Perfluoroundecanoic Acid (PFUnA)	ND	35.2	35.0	99		32.9	92		60-153	6		30
Perfluorodecanesulfonic Acid (PFDS)	0.561J	35.2	25.5	72		26.9	75		38-156	5		30
Perfluorooctanesulfonamide (FOSA)	ND	35.2	36.1	103		37.9	106		46-170	5		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	35.2	41.6	118		41.8	117		45-170	0		30
Perfluorododecanoic Acid (PFDoA)	ND	35.2	35.2	100		36.4	102		67-153	3		30
Perfluorotridecanoic Acid (PFTrDA)	ND	35.2	27.1	77		29.6	83		48-158	9		30
Perfluorotetradecanoic Acid (PFTA)	ND	35.2	35.2	100		34.0	95		59-182	3		30

Matrix Spike Analysis

Batch Quality Control

Project Name: APPLE VALLEY

Project Number: 23008

Lab Number: L1832351

Report Date: 09/12/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1150723-4 WG1150723-5 QC Sample: L1832351-03 Client ID: MW-X												

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	213	Q	185	Q	7-170
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	224		207		1-244
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	159	Q	189	Q	23-146
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	149		149		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	111		114		40-144
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	95		99		38-144
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	86		88		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	97		102		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	113		115		47-153
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	119		122		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	116		131		33-143
Perfluoro[13C4]Butanoic Acid (MPFBA)	99		101		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	102		111		16-173
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	18		21		1-87
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	111		113		42-146
Perfluoro[13C8]Octanoic Acid (M8PFOA)	102		104		36-149
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	105		105		34-146
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	104		111		31-159

Project Name: APPLE VALLEY**Lab Number:** L1832351**Project Number:** 23008**Report Date:** 09/12/18**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1832351-01A	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-01B	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-01C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-01D	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-01E	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-02A	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-02B	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-02C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-02D	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-02E	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-03A	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-03A1	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-03A2	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-03B	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-03B1	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-03B2	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-03C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-03D	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-03E	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-03F	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-03G	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-03H	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)

Project Name: APPLE VALLEY**Lab Number:** L1832351**Project Number:** 23008**Report Date:** 09/12/18**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1832351-03I	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-03J	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-03K	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-04A	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-04B	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-04C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-04D	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-04E	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-05A	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-05B	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-05C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-05D	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-05E	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-06A	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-06B	Amber 500ml unpreserved	B	7	7	3.3	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1832351-06C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1832351-06D	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		-
L1832351-06E	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.9	Y	Absent		-

Project Name: APPLE VALLEY
Project Number: 23008

Lab Number: L1832351
Report Date: 09/12/18

GLOSSARY

Acronyms

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.
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.
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.
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.

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.

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'.

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.

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.

Report Format: DU Report with 'J' Qualifiers



Project Name: APPLE VALLEY
Project Number: 23008

Lab Number: L1832351
Report Date: 09/12/18

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- 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.
- 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.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- 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.
- 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 Identified Compounds (TICs).
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Project Name: APPLE VALLEY
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Report Date: 09/12/18

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 122 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537, EPA/600/R-08/092. Version 1.1, September 2009.

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 its 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: m/p-xylene, o-xylene

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

EPA 8270D: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

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

Mansfield Facility

SM 2540D: TSS

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

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water

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

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

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

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

Non-Potable Water

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

Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, 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 624: Volatile Halocarbons & Aromatics,

EPA 608: 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: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

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

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Be, Cd, Cr, Cu, 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.

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, Pb, Mn, Ni, Se, Ag, 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 Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193		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 8/16/18		ALPHA Job # L1832351	
		Project Information Project Name: Apple Valley Project Location: Lanesville NY Project # 23008 (Use Project name as Project #) ☐		Deliverables ☐ ASP-A ☒ ASP-B ☐ EQulS (1 File) ☐ EQulS (4 File) ☐ Other		Billing Information ☐ Same as Client Info PO #			
Client Information Client: Address: Phone: Fax: Email: See Other		Project Manager: Vedran Cirkovic / Andrew Millspaugh ALPHAQuote #: Turn-Around Time Standard ☒ Due Date: Rush (only if pre approved) ☐ # of Days:		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: Andrew. Millspaugh @ Sterlingenvironmental.com Vedran. Cirkovic @ Sterlingenvironmental.com Please specify Metals or TAL.						ANALYSIS PFAS EPA537 1,4-Dioxane 82700-41-5		Sample Filtration ☐ Done ☐ Lab to do Preservation ☐ Lab to do (Please Specify below)	
ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date Time		Sample Matrix	Sampler's Initials			Sample Specific Comments Total Bottles	
2351-01	MW-1	8/16/18	1050	GW	V/BW				
-02	MW-2		1400						
-03	MW-X		1210						
-03	MS-MW-X		1220						
-03	MSD-MW-X		1220						
-04	DUP 8162018								
-05	Equipment Blank		950						
-06	Field Blank		940						
Preservative Code:		Container Code		Westboro: Certification No: MA935		Container Type		Preservative	
A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Mansfield: Certification No: MA015		P A		O A	
Form No: 01-25 HC (rev. 30-Sept-2013)		Relinquished By:		Date/Time		Received By:		Date/Time	
		2351-01		8/16/18 1530		Robert Miller		8/16/18 1530	
		Vedran Cirkovic		8/16/18 1800		Robert Miller		8/16/18 1800	
		Andrew Millspaugh		8/16/18 1800		Robert Miller		8/17/18 0130	
		M		8/17/18 0510		Robert Miller		8/17/18 0510	

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.)