

Via Electronic Mail

March 29, 2018



Ms. Anna Krasko
Remediation Project Manager
USEPA – New England Region
OSRR, NH and RI Superfund
5 Post Office Square, Suite 100
Mail Cod OSRR07-1
Boston, MA 02109-3912

Re: Per- and Polyfluoroalkyl substances (PFAS) Analytical Results
L&RR Superfund Site OU 2 Remedial Investigation/Feasibility Study
North Smithfield, Rhode Island

Dear Ms. Krasko:

This letter provides results from recent sampling of select monitoring wells at the Landfill & Resource Recovery (L&RR) Superfund Site in North Smithfield, Rhode Island (the Site) for Per- and Polyfluoroalkyl substances (PFAS). Sampling was requested by the United States Environmental Protection Agency (USEPA) and Rhode Island Department of Environmental Management (RIDEM) following RIDEM's promulgation of Groundwater Quality Standards for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) on October 18, 2017, in accordance with USEPA's Health Advisory issued on May 25, 2016. The objective of this sampling event was to evaluate if PFAS compounds are present, and if present, at what level/concentration relative to regulatory levels.

Sampling was conducted in accordance with the Sampling and Analysis Plan (SAP) for PFAS submitted to USEPA and RIDEM on January 17, 2018 as a supplement to the October 11, 2016 Interim Final version of the SAP (which includes the Quality Assurance Project Plan [QAPP] and Field Sampling Plan [FSP]).

On February 12, 2018, groundwater samples were collected from the following locations:

- Downgradient overburden monitoring wells included as part of the Annual OU 1 PCSM program located along the landfill perimeter: MW-104A, CW-6B, CW-7B, CW-5B, and MW-102A;
- Upgradient overburden monitoring well included as part of the Annual OU 1 PCSM program: MW-201; and
- New bedrock monitoring location installed during the RI: BH16-3 (88-98) which refers to the 88 to 98 feet below the measuring point that corresponds to an elevation of approximately 156 to 146 feet above mean sea level (AMSL).

The locations of these monitoring wells are provided in Figure 1.

Samples were collected using low-flow groundwater sampling techniques in accordance with USEPA Region 1 Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, Revision 3 (January 19, 2010) and Standard Operating Procedure (SOP) S-7 Standard Operating Procedure for Low Stress/Low Flow Groundwater Sampling as outlined in the SAP. Due to the sensitivity of the analysis of PFAS compounds, special care was taken to minimize sample contamination due to environmental factors. Quality control samples, including a trip blank,



equipment blank, field blanks, and a field duplicate were collected as outlined in the SAP. Samples were submitted to Alpha Analytical in Mansfield, Massachusetts for analysis of PFAS compounds via Modified USEPA Method 537 which utilizes isotope dilution and reports both branched and linear isomers. Table 1 provides a summary of the analytical results of the list of 14 PFAS compounds consistent with those listed in USEPA Method 537.

A Modified Tier 1 Plus validation was performed on the analytical results by DataCheck, Inc. in accordance with the QAPP and the Region I, EPA-NE Environmental Data Review Supplement for Regional Data Review Elements and Superfund Specific Guidance/Procedures (United States EPA, 2013). Review of analytical process determined that the laboratory control samples (LCS) and LCS duplicates (LCSD) recoveries were outside the acceptance criteria for detections in select samples which led to assignment of a J+ qualifier (estimated with a high bias) to these results. The laboratory re-extracted sub-aliquots for supplemental analysis, but this process occurred just beyond the 14-day hold time. Nonetheless, results from both rounds of analysis were compared and indicated general consistency between detected results for both two datasets. Refer to Attachment 1 for a copy of the laboratory analytical report and Attachment 2 for the data validation summary.

As requested by USEPA, a recommendation for additional investigation of PFAS in groundwater has not been provided at this time. Please do not hesitate to contact me with any questions.

Sincerely,

WOODARD & CURRAN

Alan Benevides, P.E., L.S.P.
Senior Project Manager

Enclosures: Table 1 – PFAS Analytical Results
Figure 1 – PFAS Groundwater Sampling Locations
Attachment 1 – Laboratory Analytical Report
Attachment 2 – Data Validation Summary

cc: Paul Kulpa, RIDEM
L&RR PRP Group

PN: 229620.01

TABLE



Table 1
PFAS Analytical Results
L&RR Superfund Site OU 2 Remedial Investigation/Feasibility Study
North Smithfield, RI

			Upgradient	NE LF Corner		Eastern Portion of LF			South LF	East of CW-6B /MW-104B	Quality Control Samples			
Sample Location	USEPA Screening Level	USEPA Health Advisories	MW-201	CW-5B	CW-5B DUP	MW-102A	CW-6B	MW-104A	CW-7B	BH16-3 (88-98)	Trip Blank	Equipment Blank	Field Blank	Field Blank
Sample Date			2/12/2018	2/12/2018	2/12/2018	2/12/2018	2/12/2018	2/12/2018	2/12/2018	2/12/2018	2/12/2018	2/12/2018	2/12/2018	2/12/2018
PFAS (ng/l)														
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)			<1.92	<1.78	<1.72	<1.78	<1.85	<1.78	<1.85	<1.85	<1.72	<1.78	<1.78	<1.85
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)			<1.92	<1.78	<1.72	<1.78	<1.85	<1.78	<1.85	<1.85	<1.72	<1.78	<1.78	<1.85
Perfluorobutanesulfonic Acid (PFBS)	40,110		<1.92	<1.78	<1.72	<1.78	21.9 J+	3.5 J+	<1.85	12.3 J+	<1.72	<1.78	<1.78	<1.85
Perfluorodecanoic Acid (PFDA)			<1.92	<1.78	<1.72	<1.78	<1.85	<1.78	<1.85	<1.85	<1.72	<1.78	<1.78	<1.85
Perfluorododecanoic Acid (PFDoA)			<1.92	<1.78	<1.72	<1.78	<1.85	<1.78	<1.85	<1.85	<1.72	<1.78	<1.78	<1.85
Perfluoroheptanoic Acid (PFHpA)			<1.92	<1.78	<1.72	1.84 J+	53.7 J+	12.4 J+	12.1 J+	33.2 J+	<1.72	<1.78	<1.78	<1.85
Perfluorohexanesulfonic Acid (PFHxS)			<1.92	<1.78	<1.72	<1.78	72.1 J+	11.8 J+	<1.85	41.9 J+	<1.72	<1.78	<1.78	<1.85
Perfluorohexanoic Acid (PFHxA)			<1.92	3.29 J+	2.13 J+	5.77 J+	183 J+	41.8 J+	10.7 J+	121 J+	<1.72	<1.78	<1.78	<1.85
Perfluorononanoic Acid (PFNA)			<1.92	<1.78	<1.72	<1.78	<1.85	<1.78	12 J+	<1.85	<1.72	<1.78	<1.78	<1.85
Perfluorooctanesulfonic Acid (PFOS)	40.1	70	<1.92	<1.78	<1.72	<1.78	7.17 J+	<1.78	3.53 J+	9.54 J+	<1.72	<1.78	<1.78	<1.85
Perfluorooctanoic Acid (PFOA)	40.1	70	<1.92	2.30 J+	<1.72	3.26 J+	171 J+	26.3 J+	12.3 J+	104 J+	<1.72	<1.78	<1.78	<1.85
Perfluorotetradecanoic Acid (PFTA)			<1.92	<1.78	<1.72	<1.78	<1.85	<1.78	<1.85	<1.85	<1.72	<1.78	<1.78	<1.85
Perfluorotridecanoic Acid (PFTrDA)			<1.92	<1.78	<1.72	<1.78	<1.85	<1.78	<1.85	<1.85	<1.72	<1.78	<1.78	<1.85
Perfluoroundecanoic Acid (PFUnA)			<1.92	<1.78	<1.72	<1.78	<1.85	<1.78	<1.85	<1.85	<1.72	<1.78	<1.78	<1.85
Total PFOS & PFOA		70	---	2.3	---	3.26	178.17	26.3	15.83	113.54	---	---	---	---

Notes:

Concentrations of Per- & Polyfluorinated alkyl substances (PFAS) reported in nanograms per liter (ng/l) with a part-per-trillion equivalency.

Concentrations in BOLD indicate those detected above laboratory reporting limits.

Shaded concentrations indicate those exceeding the USEPA Health Advisories for PFOA, PFOS, or a combination of both compounds issued in May 2016.

USEPA Screening Levels were calculate using the EPA RSL calculator, found at https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search. These were developed for the L&RR Site in a memorandum dated, November 17, 2017.

< Indicates a concentration not detected above laboratory reporting limits, provided.

Equipment and field blanks collected using laboratory supplied PFAS-free water. One equipment blank was collected per piece of non-dedicated sampling equipment. One field blank was collected per each field sampling personnel.

Analytical data validated by DataCheck, Inc. in accordance with the project specific Quality Assurance Project Plan (QAPP) and the Region I, EPA-NE Environmental Data Review Supplement for Regional Data Review Elements and Superfund Specific Guidance/Procedures (United States EPA, 2013).

J+ Indicates results estimated, bias high due to LCS/LCSD recoveries outside of acceptance criteria.

FIGURE



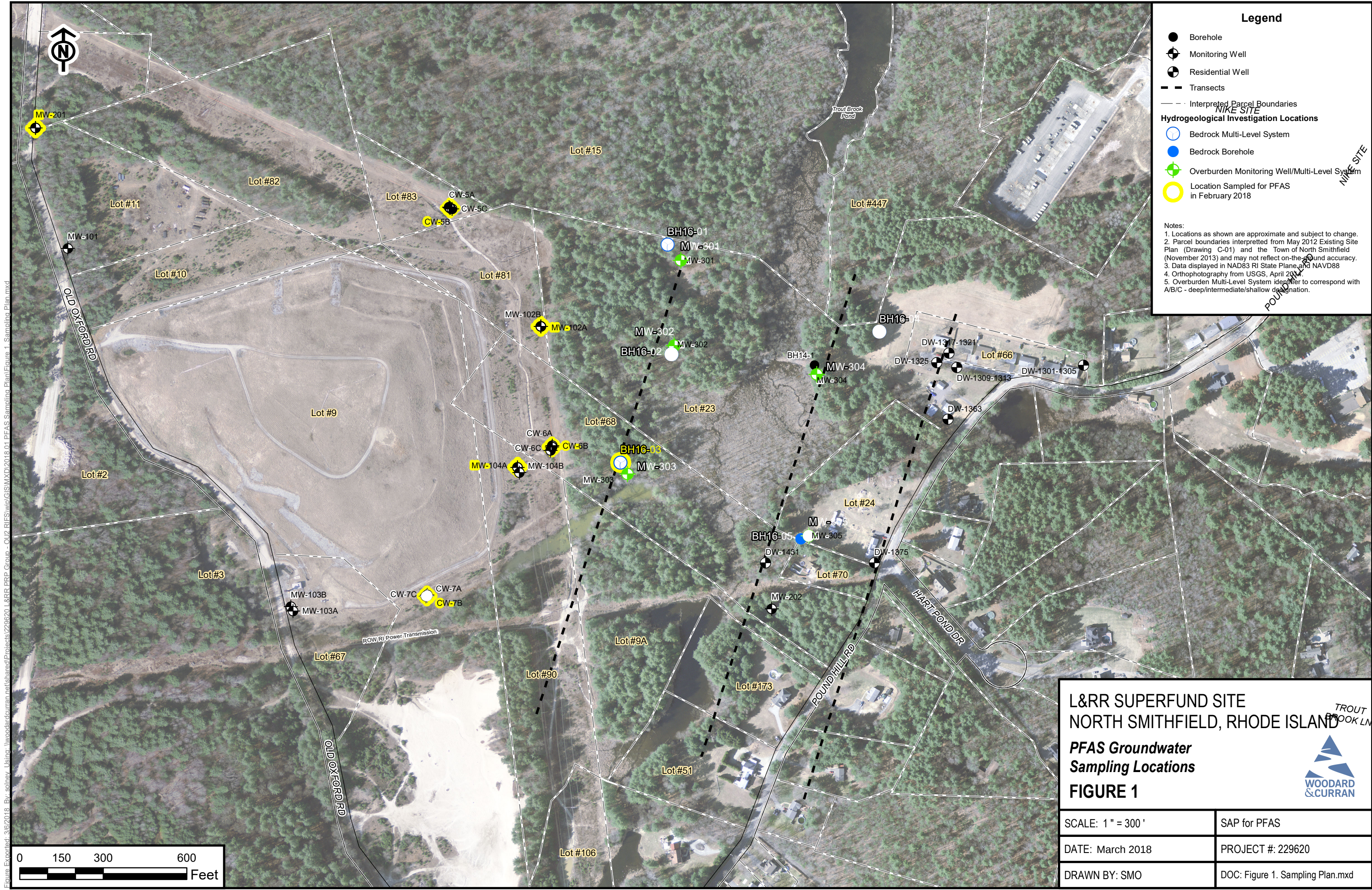


Figure Exported: 3/6/2018 By: solney Using: WoodardCurran.net\share\Projects\229620_L&RR PRP Group - Old PFAS\GIS\Map\2018.01 PFAS Sampling Plan\Figure 1. Sampling Plan.mxd

ATTACHMENT 1 – LABORATORY ANALYTICAL REPORT





ANALYTICAL REPORT

Lab Number:	L1804950
Client:	Woodard & Curran 40 Shattuck Road Suite 110 Andover, MA 01810
ATTN:	Mike Apfelbaum
Phone:	(978) 557-8150
Project Name:	L&RR
Project Number:	229620
Report Date:	03/01/18

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

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1804950-01	MW-102A	WATER	N. SMITHFIELD, RI	02/12/18 16:00	02/13/18
L1804950-02	MW-104A	WATER	N. SMITHFIELD, RI	02/12/18 11:10	02/13/18
L1804950-03	CW-5B	WATER	N. SMITHFIELD, RI	02/12/18 14:15	02/13/18
L1804950-04	CW-5B DUP	WATER	N. SMITHFIELD, RI	02/12/18 14:15	02/13/18
L1804950-05	CW-6B	WATER	N. SMITHFIELD, RI	02/12/18 13:10	02/13/18
L1804950-06	CW-7B	WATER	N. SMITHFIELD, RI	02/12/18 15:20	02/13/18
L1804950-07	MW-201	WATER	N. SMITHFIELD, RI	02/12/18 12:15	02/13/18
L1804950-08	BH16-3 (88-98)	WATER	N. SMITHFIELD, RI	02/12/18 16:55	02/13/18
L1804950-09	FB-1	WATER	N. SMITHFIELD, RI	02/12/18 12:15	02/13/18
L1804950-10	FB-2	WATER	N. SMITHFIELD, RI	02/12/18 13:15	02/13/18
L1804950-11	EB-1	WATER	N. SMITHFIELD, RI	02/12/18 17:00	02/13/18
L1804950-12	TRIP BLANK	WATER	N. SMITHFIELD, RI	02/12/18 00:00	02/13/18

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

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: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

Case Narrative (continued)

Perfluorinated Alkyl Acids by Isotope Dilution

L1804950-01 through -06 and -08 were re-extracted with the method required holding time exceeded. The results of both analysis are reported.

L1804950-01: The Extracted Internal Standard recovery was outside the acceptance criteria for 1h,1h,2h,2h-perfluoro[1,2-13c2]hexanesulfonic acid (m2-4:2fts) (175%).

L1804950-02: The Extracted Internal Standard recovery was outside the acceptance criteria for 1h,1h,2h,2h-perfluoro[1,2-13c2]hexanesulfonic acid (m2-4:2fts) (242%).

L1804950-03: The Extracted Internal Standard recovery was outside the acceptance criteria for 1h,1h,2h,2h-perfluoro[1,2-13c2]hexanesulfonic acid (m2-4:2fts) (157%).

L1804950-04: The Extracted Internal Standard recovery was outside the acceptance criteria for n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (d5-netfosaa) (152%).

L1804950-04RE: The Extracted Internal Standard recovery was outside the acceptance criteria for n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (d5-netfosaa) (153%).

L1804950-05: The Extracted Internal Standard recovery was outside the acceptance criteria for 1h,1h,2h,2h-perfluoro[1,2-13c2]hexanesulfonic acid (m2-4:2fts) (287%).

L1804950-06: The Extracted Internal Standard recovery was outside the acceptance criteria for 1h,1h,2h,2h-perfluoro[1,2-13c2]hexanesulfonic acid (m2-4:2fts) (188%).

L1804950-07: The Extracted Internal Standard recovery was outside the acceptance criteria for n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (d3-nmefosaa) (165%).

L1804950-08: The Extracted Internal Standard recovery was outside the acceptance criteria for 1h,1h,2h,2h-perfluoro[1,2-13c2]hexanesulfonic acid (m2-4:2fts) (263%).

WG1091220-1: The Extracted Internal Standard recoveries were outside the acceptance criteria for n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (d3-nmefosaa) (39%), perfluoro[13c8]octanesulfonamide (m8fosa) (4%), n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (d5-netfosaa) (28%) and perfluoro[1,2-13c2]tetradecanoic acid (m2pfteda) (7%).

The WG1091220-2 LCS recoveries, associated with L1804950-01-12, were outside the acceptance criteria for individual target compounds; re-extraction outside of holding time achieved acceptable results. The results of both extractions are reported; however, all results are considered to have a potentially high bias for

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

Case Narrative (continued)

perfluorohexanesulfonic acid (pfhxs) (167%).

The WG1091220-3 LCSD recoveries, associated with L1804950-01-12, were outside the acceptance criteria for individual target compounds; re-extraction outside of holding time achieved acceptable results. The results of both extractions are reported; however, all results are considered to have a potentially high bias for perfluorobutanesulfonic acid (pfbs) (173%), perfluorohexanoic acid (pfhxa) (160%), perfluoroheptanoic acid (pfhpa) (152%), perfluorohexanesulfonic acid (pfhxs) (183%), perfluorooctanoic acid (pfoa) (158%), perfluorononanoic acid (pfna) (159%), perfluorooctanesulfonic acid (pfos) (156%), n-ethyl perfluorooctanesulfonamidoacetic acid (netfosaa) (153%), perfluorododecanoic acid (pfdoa) (153%) and perfluorotetradecanoic acid (pfta) (162%).

WG1091220-2: The Extracted Internal Standard recovery was outside the acceptance criteria for perfluoro[13c8]octanesulfonamide (m8fosa) (8%).

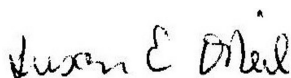
WG1091220-3: The Extracted Internal Standard recovery was outside the acceptance criteria for perfluoro[13c8]octanesulfonamide (m8fosa) (6%).

WG1091220-5: The Extracted Internal Standard recovery was outside the acceptance criteria for 1h,1h,2h,2h-perfluoro[1,2-13c2]hexanesulfonic acid (m2-4:2fts) (284%).

WG1091220-4: The Extracted Internal Standard recovery was outside the acceptance criteria for n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (d3-nmefosaa) (165%).

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: 03/01/18

ORGANICS

SEMIVOLATILES

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-01
Client ID: MW-102A
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/26/18 20:35
Analyst: AJ

Date Collected: 02/12/18 16:00
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/21/18 17:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.78	--	1
Perfluorohexanoic Acid (PFHxA)	5.77		ng/l	1.78	--	1
Perfluoroheptanoic Acid (PFHpA)	1.84		ng/l	1.78	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.78	--	1
Perfluorooctanoic Acid (PFOA)	3.26		ng/l	1.78	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.78	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.78	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.78	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.78	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.78	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.78	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.78	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.78	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.78	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-01
Client ID: MW-102A
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 16:00
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	103		50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	175	Q	50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	95		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	97		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	105		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	94		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	98		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	92		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	78		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	96		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	130		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	88		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	93		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-01 **RE**
Client ID: MW-102A
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/28/18 17:23
Analyst: AJ

Date Collected: 02/12/18 16:00
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/27/18 16:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.85	--	1
Perfluorohexanoic Acid (PFHxA)	4.34		ng/l	1.85	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.85	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.85	--	1
Perfluorooctanoic Acid (PFOA)	2.34		ng/l	1.85	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.85	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.85	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.85	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.85	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.85	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.85	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.85	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.85	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.85	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-01 **RE**
Client ID: MW-102A
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 16:00
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	98		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	94		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	90		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	97		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	90		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	92		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	96		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	96		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	113		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	104		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	121		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	81		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	91		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-02
Client ID: MW-104A
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/26/18 20:50
Analyst: AJ

Date Collected: 02/12/18 11:10
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/21/18 17:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	3.50		ng/l	1.78	--	1
Perfluorohexanoic Acid (PFHxA)	41.8		ng/l	1.78	--	1
Perfluoroheptanoic Acid (PFHpA)	12.4		ng/l	1.78	--	1
Perfluorohexanesulfonic Acid (PFHxS)	11.8		ng/l	1.78	--	1
Perfluorooctanoic Acid (PFOA)	26.3		ng/l	1.78	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.78	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.78	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.78	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.78	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.78	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.78	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.78	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.78	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.78	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-02
Client ID: MW-104A
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 11:10
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	92		50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	242	Q	50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	78		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	88		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	92		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	86		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	86		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	93		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	89		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	85		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	91		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	139		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	82		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	87		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-02 **RE**
Client ID: MW-104A
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/28/18 17:38
Analyst: AJ

Date Collected: 02/12/18 11:10
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/27/18 16:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	3.10		ng/l	1.85	--	1
Perfluorohexanoic Acid (PFHxA)	33.0		ng/l	1.85	--	1
Perfluoroheptanoic Acid (PFHpA)	10.7		ng/l	1.85	--	1
Perfluorohexanesulfonic Acid (PFHxS)	9.64		ng/l	1.85	--	1
Perfluorooctanoic Acid (PFOA)	21.9		ng/l	1.85	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.85	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.85	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.85	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.85	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.85	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.85	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.85	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.85	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.85	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-02 **RE**
Client ID: MW-104A
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 11:10
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	102		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	88		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	88		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	102		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	90		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	96		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	97		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	131		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	103		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	137		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	82		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	81		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-03
Client ID: CW-5B
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/26/18 21:05
Analyst: AJ

Date Collected: 02/12/18 14:15
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/21/18 17:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.78	--	1
Perfluorohexanoic Acid (PFHxA)	3.29		ng/l	1.78	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.78	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.78	--	1
Perfluorooctanoic Acid (PFOA)	2.30		ng/l	1.78	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.78	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.78	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.78	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.78	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.78	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.78	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.78	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.78	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.78	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-03
Client ID: CW-5B
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 14:15
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	104		50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	157	Q	50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	100		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	104		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	107		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	100		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	105		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	111		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	102		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	104		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	98		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	106		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	93		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	94		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-03 **RE**
Client ID: CW-5B
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/28/18 17:54
Analyst: AJ

Date Collected: 02/12/18 14:15
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/27/18 16:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.72	--	1
Perfluorohexanoic Acid (PFHxA)	1.76		ng/l	1.72	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.72	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.72	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.72	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.72	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.72	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.72	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.72	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.72	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.72	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.72	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.72	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.72	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-03 **RE**
Client ID: CW-5B
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 14:15
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	93		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	87		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	82		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	99		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	82		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	89		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	94		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	91		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	130		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	95		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	140		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	72		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	73		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-04
Client ID: CW-5B DUP
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/26/18 21:20
Analyst: AJ

Date Collected: 02/12/18 14:15
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/21/18 17:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.72	--	1
Perfluorohexanoic Acid (PFHxA)	2.13		ng/l	1.72	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.72	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.72	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.72	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.72	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.72	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.72	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.72	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.72	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.72	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.72	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.72	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.72	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-04
Client ID: CW-5B DUP
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 14:15
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	94		50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	150		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	89		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	91		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	97		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	88		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	90		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	93		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	92		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	102		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	97		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	152	Q	50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	83		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	88		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-04 **RE**
Client ID: CW-5B DUP
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/28/18 18:09
Analyst: AJ

Date Collected: 02/12/18 14:15
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/27/18 16:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.72	--	1
Perfluorohexanoic Acid (PFHxA)	1.73		ng/l	1.72	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.72	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.72	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.72	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.72	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.72	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.72	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.72	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.72	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.72	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.72	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.72	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.72	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-04 RE
 Client ID: CW-5B DUP
 Sample Location: N. SMITHFIELD, RI
 Sample Depth:

Date Collected: 02/12/18 14:15
 Date Received: 02/13/18
 Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	120		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	113		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	106		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	124		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	103		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	115		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	118		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	110		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	150		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	114		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	153	Q	50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	93		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	92		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-05
Client ID: CW-6B
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/26/18 21:35
Analyst: AJ

Date Collected: 02/12/18 13:10
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/21/18 17:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	21.9		ng/l	1.85	--	1
Perfluorohexanoic Acid (PFHxA)	183		ng/l	1.85	--	1
Perfluoroheptanoic Acid (PFHpA)	53.7		ng/l	1.85	--	1
Perfluorohexanesulfonic Acid (PFHxS)	72.1		ng/l	1.85	--	1
Perfluorooctanoic Acid (PFOA)	171		ng/l	1.85	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.85	--	1
Perfluorooctanesulfonic Acid (PFOS)	7.17		ng/l	1.85	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.85	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.85	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.85	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.85	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.85	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.85	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.85	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-05
Client ID: CW-6B
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 13:10
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	98		50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	287	Q	50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	71		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	88		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	103		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	87		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	87		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	93		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	82		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	112		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	106		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	136		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	98		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	94		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-05 **RE**
Client ID: CW-6B
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/28/18 18:24
Analyst: AJ

Date Collected: 02/12/18 13:10
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/27/18 16:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	19.9		ng/l	1.85	--	1
Perfluorohexanoic Acid (PFHxA)	165		ng/l	1.85	--	1
Perfluoroheptanoic Acid (PFHpA)	47.9		ng/l	1.85	--	1
Perfluorohexanesulfonic Acid (PFHxS)	64.2		ng/l	1.85	--	1
Perfluorooctanoic Acid (PFOA)	155		ng/l	1.85	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.85	--	1
Perfluorooctanesulfonic Acid (PFOS)	5.71		ng/l	1.85	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.85	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.85	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.85	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.85	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.85	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.85	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.85	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-05 **RE**
Client ID: CW-6B
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 13:10
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	124		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	93		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	115		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	127		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	113		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	116		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	124		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	115		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	130		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	128		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	112		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	107		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	117		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-06
Client ID: CW-7B
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/26/18 21:50
Analyst: AJ

Date Collected: 02/12/18 15:20
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/21/18 17:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.85	--	1
Perfluorohexanoic Acid (PFHxA)	10.7		ng/l	1.85	--	1
Perfluoroheptanoic Acid (PFHpA)	12.1		ng/l	1.85	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.85	--	1
Perfluorooctanoic Acid (PFOA)	12.3		ng/l	1.85	--	1
Perfluorononanoic Acid (PFNA)	12.0		ng/l	1.85	--	1
Perfluorooctanesulfonic Acid (PFOS)	3.53		ng/l	1.85	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.85	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.85	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.85	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.85	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.85	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.85	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.85	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-06
Client ID: CW-7B
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 15:20
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	96		50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	188	Q	50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	92		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	105		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	110		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	95		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	92		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	96		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	144		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	97		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	126		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	85		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	94		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-06 **RE**
Client ID: CW-7B
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/28/18 18:39
Analyst: AJ

Date Collected: 02/12/18 15:20
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/27/18 16:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.85	--	1
Perfluorohexanoic Acid (PFHxA)	9.26		ng/l	1.85	--	1
Perfluoroheptanoic Acid (PFHpA)	11.1		ng/l	1.85	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.85	--	1
Perfluorooctanoic Acid (PFOA)	11.0		ng/l	1.85	--	1
Perfluorononanoic Acid (PFNA)	9.93		ng/l	1.85	--	1
Perfluorooctanesulfonic Acid (PFOS)	2.97		ng/l	1.85	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.85	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.85	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.85	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.85	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.85	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.85	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.85	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-06 RE
Client ID: CW-7B
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 15:20
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	111		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	110		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	107		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	119		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	98		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	108		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	111		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	112		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	142		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	110		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	97		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	102		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	107		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-07
Client ID: MW-201
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/26/18 22:05
Analyst: AJ

Date Collected: 02/12/18 12:15
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/21/18 17:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.92	--	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.92	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.92	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.92	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.92	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.92	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.92	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.92	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.92	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.92	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.92	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.92	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.92	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.92	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-07
Client ID: MW-201
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 12:15
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	110		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	102		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	99		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	114		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	101		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	108		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	114		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	104		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	165	Q	50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	101		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	98		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	92		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	87		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-08
Client ID: BH16-3 (88-98)
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/26/18 22:35
Analyst: AJ

Date Collected: 02/12/18 16:55
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/21/18 17:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	12.3		ng/l	1.85	--	1
Perfluorohexanoic Acid (PFHxA)	121		ng/l	1.85	--	1
Perfluoroheptanoic Acid (PFHpA)	33.2		ng/l	1.85	--	1
Perfluorohexanesulfonic Acid (PFHxS)	41.9		ng/l	1.85	--	1
Perfluorooctanoic Acid (PFOA)	104		ng/l	1.85	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.85	--	1
Perfluorooctanesulfonic Acid (PFOS)	9.54		ng/l	1.85	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.85	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.85	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.85	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.85	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.85	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.85	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.85	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-08
Client ID: BH16-3 (88-98)
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 16:55
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	98		50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	263	Q	50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	94		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	96		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	101		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	92		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	98		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	93		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	88		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	68		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	80		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	61		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	75		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	79		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-08 RE
Client ID: BH16-3 (88-98)
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/28/18 18:54
Analyst: AJ

Date Collected: 02/12/18 16:55
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/27/18 16:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	11.2		ng/l	1.85	--	1
Perfluorohexanoic Acid (PFHxA)	106		ng/l	1.85	--	1
Perfluoroheptanoic Acid (PFHpA)	28.9		ng/l	1.85	--	1
Perfluorohexanesulfonic Acid (PFHxS)	39.4		ng/l	1.85	--	1
Perfluorooctanoic Acid (PFOA)	92.3		ng/l	1.85	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.85	--	1
Perfluorooctanesulfonic Acid (PFOS)	5.80		ng/l	1.85	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.85	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.85	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.85	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.85	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.85	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.85	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.85	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-08 RE
Client ID: BH16-3 (88-98)
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 16:55
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	105		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	107		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	103		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	105		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	97		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	102		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	108		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	103		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	107		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	93		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	70		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	77		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	90		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-09
Client ID: FB-1
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/26/18 18:19
Analyst: AJ

Date Collected: 02/12/18 12:15
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/21/18 17:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.78	--	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.78	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.78	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.78	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.78	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.78	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.78	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.78	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.78	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.78	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.78	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.78	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.78	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.78	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-09
Client ID: FB-1
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 12:15
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	108		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	93		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	94		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	110		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	98		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	101		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	108		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	99		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	87		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	83		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	73		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	92		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	61		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-10
Client ID: FB-2
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/26/18 18:34
Analyst: AJ

Date Collected: 02/12/18 13:15
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/21/18 17:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.85	--	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.85	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.85	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.85	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.85	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.85	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.85	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.85	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.85	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.85	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.85	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.85	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.85	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.85	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-10
Client ID: FB-2
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 13:15
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	103		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	91		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	95		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	97		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	94		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	91		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	97		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	98		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	97		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	122		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	102		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	92		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-11
Client ID: EB-1
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/26/18 18:49
Analyst: AJ

Date Collected: 02/12/18 17:00
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/21/18 17:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.78	--	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.78	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.78	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.78	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.78	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.78	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.78	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.78	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.78	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.78	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.78	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.78	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.78	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.78	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-11
Client ID: EB-1
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 17:00
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	110		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	102		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	98		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	109		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	97		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	96		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	110		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	101		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	91		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	89		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	79		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	94		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	93		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-12
Client ID: TRIP BLANK
Sample Location: N. SMITHFIELD, RI
Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 02/26/18 19:04
Analyst: AJ

Date Collected: 02/12/18 00:00
Date Received: 02/13/18
Field Prep: Not Specified

Extraction Method: EPA 537
Extraction Date: 02/21/18 17:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.72	--	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.72	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.72	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.72	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.72	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.72	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.72	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.72	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.72	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.72	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.72	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.72	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.72	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.72	--	1

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

SAMPLE RESULTS

Lab ID: L1804950-12
Client ID: TRIP BLANK
Sample Location: N. SMITHFIELD, RI
Sample Depth:

Date Collected: 02/12/18 00:00
Date Received: 02/13/18
Field Prep: Not Specified

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	109		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	92		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	90		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	112		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	97		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	93		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	101		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	95		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	85		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	78		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	82		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	93		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	84		50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 122,537(M)
Analytical Date: 02/26/18 17:19
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 02/21/18 17:30

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-12 Batch: WG1091220-1					
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	--
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	--
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	--
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	--
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	--
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	--
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	--
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	--
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	--
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	--
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	--
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	--
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	--
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	--

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 122,537(M)
Analytical Date: 02/26/18 17:19
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 02/21/18 17:30

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-12 Batch: WG1091220-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	62		50-150
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	85		50-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	89		50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	93		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	81		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	83		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	88		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	80		50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	105		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	85		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	81		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	82		50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	90		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	39	Q	50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	70		50-150
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	4	Q	50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	28	Q	50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	56		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	7	Q	50-150

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 122,537(M)
Analytical Date: 02/28/18 16:38
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 02/27/18 16:30

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-06,08 Batch: WG1092804-1					
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	--
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	--
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	--
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	--
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	--
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	--
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	--
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	--
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	--
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	--
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	--
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	--
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	--

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 122,537(M)
Analytical Date: 02/28/18 16:38
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 02/27/18 16:30

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-06,08 Batch: WG1092804-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	77		50-150
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	101		50-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	104		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	100		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	95		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	100		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	91		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	101		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	104		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	96		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	108		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	119		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	103		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	103		50-150

Lab Control Sample Analysis

Batch Quality Control

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-12 Batch: WG1091220-2 WG1091220-3								
Perfluorobutanesulfonic Acid (PFBS)	149		173	Q	50-150	15		30
Perfluorohexanoic Acid (PFHxA)	148		160	Q	50-150	8		30
Perfluoroheptanoic Acid (PFHpA)	141		152	Q	50-150	8		30
Perfluorohexanesulfonic Acid (PFHxS)	167	Q	183	Q	50-150	9		30
Perfluorooctanoic Acid (PFOA)	137		158	Q	50-150	14		30
Perfluorononanoic Acid (PFNA)	139		159	Q	50-150	13		30
Perfluorooctanesulfonic Acid (PFOS)	138		156	Q	50-150	12		30
Perfluorodecanoic Acid (PFDA)	129		156	Q	50-150	19		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	133		147		50-150	10		30
Perfluoroundecanoic Acid (PFUnA)	136		143		50-150	5		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	127		153	Q	50-150	19		30
Perfluorododecanoic Acid (PFDoA)	130		153	Q	50-150	16		30
Perfluorotridecanoic Acid (PFTrDA)	107		131		50-150	20		30
Perfluorotetradecanoic Acid (PFTA)	144		162	Q	50-150	12		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-12 Batch: WG1091220-2 WG1091220-3

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	82		76		50-150
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	99		88		50-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	108		97		50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	112		107		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	95		87		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	91		86		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	106		95		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	99		83		50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	111		91		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	105		88		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	104		93		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	99		88		50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	113		112		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	94		91		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	93		84		50-150
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	8	Q	6	Q	50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	101		79		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	102		87		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	86		78		50-150

Lab Control Sample Analysis

Batch Quality Control

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06,08 Batch: WG1092804-2 WG1092804-3								
Perfluorobutanesulfonic Acid (PFBS)	121		110		50-150	10		30
Perfluorohexanoic Acid (PFHxA)	115		102		50-150	12		30
Perfluoroheptanoic Acid (PFHpA)	111		100		50-150	10		30
Perfluorohexanesulfonic Acid (PFHxS)	124		119		50-150	4		30
Perfluorooctanoic Acid (PFOA)	106		98		50-150	8		30
Perfluorononanoic Acid (PFNA)	117		108		50-150	8		30
Perfluorooctanesulfonic Acid (PFOS)	100		98		50-150	2		30
Perfluorodecanoic Acid (PFDA)	112		95		50-150	16		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	107		91		50-150	16		30
Perfluoroundecanoic Acid (PFUnA)	102		95		50-150	7		30
Perfluorododecanoic Acid (PFDoA)	112		94		50-150	17		30
Perfluorotridecanoic Acid (PFTTrDA)	104		86		50-150	19		30
Perfluorotetradecanoic Acid (PFTA)	111		100		50-150	10		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06,08 Batch: WG1092804-2 WG1092804-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	67		71		50-150
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	88		90		50-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	91		88		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	78		84		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	78		84		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	96		87		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	79		85		50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	83		88		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	95		88		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	84		86		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	92		74		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	95		88		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	76		82		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	87		88		50-150

Matrix Spike Analysis

Batch Quality Control

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

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): 01-12 QC Batch ID: WG1091220-5 QC Sample: L1804950-08 Client ID: BH16-3 (88-98)												
Perfluorobutanesulfonic Acid (PFBS)	12.3	32.8	58.8	142	-	-	-	-	50-150	-	-	30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	34.6	49.0	141	-	-	-	-	50-150	-	-	30
Perfluorohexanoic Acid (PFHxA)	121	37	167	124	-	-	-	-	50-150	-	-	30
Perfluoropentanesulfonic Acid (PFPeS)	2.32	34.8	53.4	147	-	-	-	-	50-150	-	-	30
Perfluoroheptanoic Acid (PFHpA)	33.2	37	82.3	133	-	-	-	-	50-150	-	-	30
Perfluorohexanesulfonic Acid (PFHxS)	41.9	33.8	92.0	148	-	-	-	-	50-150	-	-	30
Perfluorooctanoic Acid (PFOA)	104	37	153	132	-	-	-	-	50-150	-	-	30
Perfluorononanoic Acid (PFNA)	ND	37	52.0	140	-	-	-	-	50-150	-	-	30
Perfluorooctanesulfonic Acid (PFOS)	9.54	34.3	49.2	116	-	-	-	-	50-150	-	-	30
Perfluorodecanoic Acid (PFDA)	ND	37	51.0	138	-	-	-	-	50-150	-	-	30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	37	47.9	129	-	-	-	-	50-150	-	-	30
Perfluoroundecanoic Acid (PFUnA)	ND	37	47.1	127	-	-	-	-	50-150	-	-	30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	37	48.4	131	-	-	-	-	50-150	-	-	30
Perfluorododecanoic Acid (PFDoA)	ND	37	47.3	128	-	-	-	-	50-150	-	-	30
Perfluorotridecanoic Acid (PFTrDA)	ND	37	45.1	122	-	-	-	-	50-150	-	-	30
Perfluorotetradecanoic Acid (PFTA)	ND	37	54.7	148	-	-	-	-	50-150	-	-	30

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	284	Q			50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	61				50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	74				50-150

Matrix Spike Analysis

Batch Quality Control

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

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): 01-12 QC Batch ID: WG1091220-5 QC Sample: L1804950-08 Client ID: BH16-3 (88-98)												

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	75				50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	89				50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	100				50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	97				50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	111				50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	82				50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	77				50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	103				50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	94				50-150
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	96				50-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	107				50-150

Lab Duplicate Analysis Batch Quality Control

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-12 QC Batch ID: WG1091220-4 QC Sample: L1804950-07 Client ID: MW-201						
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/l	NC		30
Perfluorohexanoic Acid (PFHxA)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ng/l	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	ND	ND	ng/l	NC		30
Perfluorononanoic Acid (PFNA)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	ND	ND	ng/l	NC		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	110		102		50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	102		100		50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	99		97		50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	114		109		50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	101		101		50-150

Lab Duplicate Analysis Batch Quality Control

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-12 QC Batch ID: WG1091220-4 QC Sample: L1804950-07 Client ID: MW-201						

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	108		107		50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	114		104		50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	104		104		50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	165	Q	115		50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	101		91		50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	98		79		50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	92		90		50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	87		81		50-150

Project Name: L&RR**Lab Number:** L1804950**Project Number:** 229620**Report Date:** 03/01/18**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(*)
L1804950-01A	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-01B	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-01C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-02A	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-02B	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-02C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-03A	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-03B	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-03C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-04A	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-04B	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-04C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-05A	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-05B	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-05C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-06A	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-06B	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-06C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-07A	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-07B	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-07C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-08A	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-08B	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)

Project Name: L&RR**Lab Number:** L1804950**Project Number:** 229620**Report Date:** 03/01/18**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1804950-08C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-09A	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-10A	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-11A	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-11B	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-11C	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)
L1804950-12A	3 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		2.4	Y	Absent		A2-537-ISOTOPE(14)

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

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).
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.
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.

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

Report Format: Data Usability Report



Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

Data Qualifiers

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. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: L&RR
Project Number: 229620

Lab Number: L1804950
Report Date: 03/01/18

REFERENCES

- 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.



MANSFIELD CHAIN OF CUSTODY

PAGE 1 OF 2

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information

Client: Woodard & Curran
Address: 40 Shattuck Rd #110
Andover MA 01810
Phone: (978) 557-8150
Fax:

Email: mapfelbaum@woodardcurran.com

☐ These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

PLEASE NOTE *Use project specific compound reporting list
MS/MSD (at unit cost) will be omitted unless you check here: ☐

Project Information

Project Name: LERR
Project Location: N. Smithfield RI
Project #: 229620
Project Manager: Mike Apfelbaum
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: Time:

Date Rec'd in Lab: 2/13/18

ALPHA Job #: L1804950

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program Criteria

ANALYSIS PFAS #											TOTAL # BOTTLES



MANSFIELD CHAIN OF CUSTODY

PAGE 2 OF 2

WESTBORO, MA
TEL: 508-896-9220
FAX: 508-896-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information

Client: *Woodard & Curran*
Address: *40 Shattuck Rd #110*
Andover MA 01810
Phone: *(978) 557-8150*

Fax:

Email: *mapfelbaum@woodardcurran.com*☐ These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

PLEASE NOTE *Use project specific compound reporting list
MS/MSD (at unit cost) will be omitted unless you check here: ☐

Project Information

Project Name: *L & RR*
Project Location: *N. Smithfield RI*
Project #: *229620*
Project Manager: *Mike Apfelbaum*
ALPHA Quote #:

Turn-Around Time

☐ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: Time:

Date Rec'd in Lab: *2/13/18*ALPHA Job #: *L1804950*

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program Criteria

SAMPLE HANDLING

Filtration _____
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Sample Specific Comments

TOTAL # BOTTLES

3

1

Container Type P

Preservative O

Relinquished By:

Date/Time

Received By:

Date/Time

Samuel J. Quinn
Mike AAL

2/13/18 12:30
2/13/18 17:25
2-13-18 19:35

Michelle AAL
Donna M. Matt
B. B. B.

2/13/18 12:30
2/13/18 17:25
2/13/18 19:35

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

ATTACHMENT 2 – DATA VALIDATION SUMMARY



**L&RR
PROJECT SUMMARY**

Alpha Analytical Job Number: L1804950

Validation was performed on the organic analytical data collected by Woodard & Curran, Inc. at the L&RR Site in North Smithfield, Rhode Island. The data validation was conducted in accordance with "USEPA National Functional Guidelines for Organic Superfund Methods Data Review" January 2017; "EPA New England Environmental Data Review Supplement For Regional Data Review Elements and Superfund Specific Guidance/Procedures" April 2013, the Quality Assurance Project Plan (QAPP); and the referenced methods.

SDG	ANALYSIS
L1084950	PFAAs

PFAAs=PFBS, PFHxA, PFHpA, PFHxS, PFOA, PFNA, PFOS, PFDA, NMeFOSAA, PFUnA, NEtFOSAA, PFDoA, PFTrDA, and PFTA by EPA Method 537, modified

Field Sample ID	Alpha Analytical ID
MW-102A	L1084950-01
MW-104A	L1084950-02
CW-5B	L1084950-03
CW-5B DUP	L1084950-04
CW-6B	L1084950-05
CW-7B	L1084950-06
MW-201	L1084950-07
BH16-3 (88-98)	L1084950-08
FB-1	L1084950-09
FB-2	L1084950-10
EB-1	L1084950-11
TRIP BLANK	L1084950-12

The data were evaluated and were based on the following parameters:

Organics

- Data completeness check
- Holding times
- Sample preservation
- Blank results
- Extractable internal standard recoveries
- Matrix spike results
- Laboratory duplicates
- Field duplicates
- Laboratory control sample results

Organics

Data Completeness Check

All data necessary to perform a modified Tier I Plus data validation were present.

L&RR
PROJECT SUMMARY

Alpha Analytical Job Number: L1804950

Holding Times

All samples for PFAAs were extracted and/or analyzed within technical holding times with the following exceptions. Samples MW-102A (L1804950-01), MW-104A (L1804950-02), CW-5B (L1804950-03), CW-5B DUP (L1804950-04), CW-6B (L1804950-05), CW-7B (L1804950-06), and BH16-3 (88-98) (L1804950-08) were re-extracted beyond the 14 day holding time limit. All detected and non-detected results in re-extracted samples MW-102A (L1804950-01), MW-104A (L1804950-02), CW-5B (L1804950-03), CW-5B DUP (L1804950-04), CW-6B (L1804950-05), CW-7B (L1804950-06), and BH16-3 (88-98) (L1804950-08) were qualified as estimated (J-/UJ) since the extraction holding time was exceeded.

Sample Preservation

Samples were received at 2.4 degrees Celsius. No qualifications are applied to the data.

Blank Results

All PFAAs method blanks were non-detect (ND) for all target compounds. No qualifications are applied to the data.

PFAAs field blank samples, FB-1 (L1804950-09) and FB-2 (L1804950-10), PFAAs equipment blank sample, EB-1 (L1804950-11), and PFAAs trip blank sample, TRIP BLANK (L1804950-12), were ND for all target compounds. No qualifications are applied to the data.

Extractable Internal Standard Recoveries

All PFAAs extractable internal standards (IS) met percent recovery (%R) acceptance criteria (50-150%) with the following exceptions:

Lab ID	Sample ID	Extractable IS	%R	Qualifier
L1084950-01	MW-102A	1	175	None, not used to quantitate any reported analyte
L1084950-02	MW-104A	1	242	None, not used to quantitate any reported analyte
L1084950-03	CW-5B	1	157	None, not used to quantitate any reported analyte
L1084950-04	CW-5B DUP	2	152	None, sample ND for affected analyte
L1084950-04RE	CW-5B DUP RE	2	153	None, sample ND for affected analyte
L1084950-05	CW-6B	1	287	None, not used to quantitate any reported analyte
L1084950-06	CW-7B	1	188	None, not used to quantitate any reported analyte
L1084950-07	MW-201	2	165	None, sample ND for affected analyte
L1084950-08	BH16-3 (88-98)	1	263	None, not used to quantitate any reported analyte

1=1H, 1H, 2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)

2=N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)

Additionally, some extractable IS in the method blank, LCS, and LCSD associated with the original extraction failed %R acceptance criteria. The laboratory re-extracted some but not all affected samples. No further qualifications were applied to the data.

**L&RR
PROJECT SUMMARY**

Alpha Analytical Job Number: L1804950

Matrix Spike (MS) Results

The PFAAs MS performed on sample BH16-3 (88-98) (L1084950-08) met %R acceptance criteria. No qualifications are applied to the data.

Laboratory Duplicates

The PFAAs laboratory duplicate performed on sample MW-201 (L1084950-07) met percent difference (%D) acceptance criteria. No qualifications are applied to the data.

Field Duplicates

PFAAs field duplicate samples CW-5B (L1084950-03)/CW-5B DUP (L1084950-04) and the re-extraction of these field duplicate samples met %D acceptance criteria. No qualifications are applied to the data.

Laboratory Control Sample/Laboratory Control Sample Duplicate Results

All PFAAs laboratory control samples/laboratory control sample duplicates (LCS/LCSD) met %R (50-150%) and RPD (<30%) acceptance criteria with the following exceptions:

Compound	%R/%R	Affected Samples	Qualifier
Perfluorobutanesulfonic Acid (PFBS)	OK/173	All original extracts	J+, L1084950-02, 05, 08
Perfluorohexanoic Acid (PFHxA)	OK/160	All original extracts	J+, L1084950-01, 02, 03, 04, 05, 06, 08
Perfluoroheptanoic Acid (PFHpA)	OK/152	All original extracts	J+, L1084950-01, 02, 05, 06, 08
Perfluorohexanesulfonic Acid (PFHxS)	167/183	All original extracts	J+, L1084950-02, 05, 08
Perfluorooctanoic Acid (PFOA)	OK/158	All original extracts	J+, L1084950-01, 02, 03, 04, 05, 06, 08
Perfluorononanoic Acid (PFNA)	OK/159	All original extracts	J+, L1084950-06
Perfluorooctanesulfonic Acid (PFOS)	OK/156	All original extracts	J+, L1084950-05, 06, 08
Perfluorodecanoic Acid (PFDA)	OK/156	All original extracts	None, samples ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	OK/153	All original extracts	None, samples ND
Perfluorododecanoic Acid (PFDoA)	OK/153	All original extracts	None, samples ND
Perfluorotetradecanoic Acid (PFTA)	OK/162	All original extracts	None, samples ND

Samples which had detections for any of the affected analytes listed above were re-extracted out of hold time. The re-extracted LCS/LCSD had acceptable recoveries for all analytes.

Data Check, Inc.
P.O. Box 29
81 Meaderboro Road
New Durham, NH 03855
Gloria J. Switalski:
President

Date:

3/22/2018