



Hazen and Sawyer
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October 8, 2021

New York American Water – Dykeer Operations District
PWS ID No. NY5920065
MCL Deferral for PFOA and PFOS
Quarterly Report – Third Quarter 2021

Introduction

On behalf of New York American Water (NYAW), Hazen and Sawyer is providing this document in accordance with the requirements of the New York State Department of Health (NYSDOH) for public water suppliers who have been granted deferrals from maximum contaminant level (MCL) violations for PFOA and PFOS. NYAW was granted an MCL deferral for PFOA and PFOS in January of 2021 due to its proactive efforts toward the implementation of treatment for these compounds.

The enclosed is a report describing NYAW's progress towards maintaining the highest quality of water for their customers and meeting the deadlines set forth in the deferral approval. The original project schedule is contained in **Attachment A**.

Corrective Action Plan Milestones

Dykeer GAC Treatment

NYAW received Approval of Plans for Public Water Supply Improvement from both the NYSDOH and Westchester County Department of Health (WCDOH) in July of 2021. Upon receiving these Approvals, the project met the conditions of Town of Somers Site Plan Approval, and project construction was able to begin in late July. This represents an approximate four-month schedule variance from the original compliance timeline driven solely by the regulatory review process.

NYAW also submitted the approved plans and received a Town of Somers Building Permit (which was contingent on Health Department and Planning Board approvals) in August of 2021, completing all necessary permitting for the project.

Every effort was made by NYAW to meet the December 2021 timeframe for project completion, however, the delayed construction start due to the duration of the WCDOH and NYSDOH review will extend the completion date into 2022. NYAW anticipates submitting an updated deferral request to the NYSDOH to account for these delays and set a new compliance timeline. All necessary public notifications will be delivered when complete.

The Dykeer system has continued to minimize the usage of the affected wells by trucking in water to supplement the supply and blend down the contaminants at the system entry point.

Public Notification

Public notification communicating the start of GAC Treatment construction was delivered in a letter to customers on July 29th, 2021. Public notification regarding the presence and regulation of emerging compounds, as well as the deferral, was included in NYAW’s 2020 annual Water Quality Report/Consumer Confidence Report released in June. The report was posted on NYAW’s website and publicized via newspaper ads and bill insert. The report specific to the Dykeer Operations District is available at <https://www.amwater.com/ccr/dykeer.pdf>. In addition, NYAW has uploaded this quarterly report to its website at <https://www.amwater.com/nyaw/water-quality/Emerging-Compounds/dykeer>. Documentation of public notification is contained in **Attachment B**.

Analytical Sampling

Sample results for the wells for which deferrals were granted (#1, #3, #4, & #6) and entry point, taken during the third quarter of 2021, are contained in the table below. Full laboratory reports for each sample are contained in **Attachment C**.

Q3 2021 PFOA/PFOS water quality monitoring results (ng/l or ppt)

Location	Date Sampled	PFOA	PFOS
Well #1	7/20/2021	17.4	17.9
	8/11/2021	15.2	16.4
Well #3	7/20/2021	13.1	8.23
	8/11/2021	13.7	10.2
Well #4	7/20/2021	17	12.2
	8/11/2021	18.3	10.9
Well #6*	7/20/2021	15.9	15.4
	8/11/2021	18.7	14.1
Entry Point	7/20/2021	14.9	12.3
	8/11/2021	13.9	11.2


*Out of Service

Conclusion

As demonstrated above, NYAW is actively working to preserve the quality of water for its customers and comply with the requirements put forth by the NYSDOH. NYAW looks forward to continuing to work towards completion of its treatment facilities. The original approved schedule had an estimated Q4 2021 completion date. Due to the delays in regulatory review, the anticipated final completion is pushed back to Q1 2022. NYAW will apply for an extension from the NYSDOH before the expiration of their current deferral in December 2021.

Should you have any questions, please contact me via email at KBarrett@hazenandsawyer.com or via phone at (917) 359-6809.

Very truly yours,



Kristen Barrett, PE
Associate Vice President

Enclosures: Attachment A – Project Schedule
Attachment B – Public Notifications
Attachment C – Laboratory Reports

cc: B. Rogers, P.E. (NYSDOH)
D. Taylor (WCDOH)
W. Schneider (WCDOH)
L. DiMenna (NYAW)
J. Kilpatrick (NYAW)
C. Peters (NYAW)

ATTACHMENT A

Project Schedule

ATTACHMENT B

Public Notifications



July 29, 2021

RE: Construction of Treatment Facilities for The Willows Community and Drilling of New Water Sources

Dear Customer,

As part of New York American Water's continuing efforts to upgrade our water supply system and provide you with reliable service, we will be adding Granular Activated Carbon (GAC) treatment to the Dykeer system that serves The Willows, as well as drilling two new source water wells.

We understand these projects will take place near your residence and want to ensure you are aware of the planned construction and have a direct point-of-contact at New York American Water to discuss any concerns you may have.

Construction of the GAC facility has already begun, with light site work and underground piping installation. Future work will include the construction of a new building and installation of GAC vessels with associated piping. Drilling of the new source water wells will begin the week of August 2nd. The drilling equipment will be delivered down Krystal Drive, utilizing specialty mats as not to damage the asphalt. Please use caution around both projects and contact Chris Peters, Project Manager, at 484-707-6797 with any questions or concerns that need to be taken into consideration during construction.

Work hours will be Monday through Friday, 7:00 a.m. to 5:00 p.m, except when doing work associated with relocation of a portion of water main, requiring system shutdowns. These shutdowns will be accomplished overnight and NYAW will advise the community in advance of work. Any other work outside these hours or on weekends will only take place if needed to maintain the project schedule. We will expedite our work as best we can and make every effort to minimize impacts to residents. Your cooperation, patience and understanding is much appreciated.

Sincerely,

John Kilpatrick
Director of Engineering
New York American Water



New York American Water is committed to helping our customers understand their water consumption and conserve water. Check out our H2O Control Toolbox at nyamwater.com/conservation for tips, tools and technologies to help conserve water and save money.

WE KEEP LIFE FLOWING™

newyorkamwater.com

60 Brooklyn Avenue
Merrick, NY 11566

ATTACHMENT C

Laboratory Reports



ANALYTICAL REPORT

Lab Number:	L2138909
Client:	Environmental Consultants PO Box 3148 Pouchkeepsie, NY 12603
ATTN:	Stephen Landell
Phone:	(845) 486-1030
Project Name:	DYKEER
Project Number:	DYKEER
Report Date:	08/09/21

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), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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



Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2138909
Report Date: 08/09/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2138909-01	EP	DW	KRYSTAL DRIVE SOMERS, NY	07/20/21 12:10	07/20/21
L2138909-02	WELL 1	DW	KRYSTAL DRIVE SOMERS, NY	07/20/21 12:05	07/20/21
L2138909-03	WELL 3	DW	KRYSTAL DRIVE SOMERS, NY	07/20/21 12:10	07/20/21
L2138909-04	WELL 4	DW	KRYSTAL DRIVE SOMERS, NY	07/20/21 12:15	07/20/21
L2138909-05	WELL 6	DW	KRYSTAL DRIVE SOMERS, NY	07/20/21 12:15	07/20/21
L2138909-06	FIELD BLANK	DW	KRYSTAL DRIVE SOMERS, NY	07/20/21 12:05	07/20/21

Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2138909
Report Date: 08/09/21

Case Narrative

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

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

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

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

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

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

Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2138909
Report Date: 08/09/21

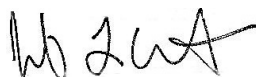
Case Narrative (continued)

Report Submission

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

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

Authorized Signature:



Jennifer L Clements

Title: Technical Director/Representative

Date: 08/09/21

ORGANICS

SEMIVOLATILES

Project Name: DYKEER**Lab Number:** L2138909**Project Number:** DYKEER**Report Date:** 08/09/21**SAMPLE RESULTS**

Lab ID: L2138909-01
 Client ID: EP
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 07/20/21 12:10
 Date Received: 07/20/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 120,522
 Analytical Date: 08/06/21 20:00
 Analyst: DB

Extraction Method: EPA 522
 Extraction Date: 08/06/21 04:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by EPA 522 - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.144	0.144	1
Surrogate			% Recovery	Qualifier	Acceptance Criteria	
1,4-Dioxane-d8			82		70-130	

Project Name: DYKEER

Lab Number: L2138909

Project Number: DYKEER

Report Date: 08/09/21

SAMPLE RESULTS

Lab ID: L2138909-01
 Client ID: EP
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 07/20/21 12:10
 Date Received: 07/20/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 133,537.1
 Analytical Date: 07/22/21 16:47
 Analyst: LV

Extraction Method: EPA 537.1
 Extraction Date: 07/22/21 07:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	7.08		ng/l	1.80	0.600	1
Perfluorohexanoic Acid (PFHxA)	8.55		ng/l	1.80	0.600	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	1.80	0.600	1
Perfluoroheptanoic Acid (PFHpA)	4.28		ng/l	1.80	0.600	1
Perfluorohexanesulfonic Acid (PFHxS)	1.90		ng/l	1.80	0.600	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.80	0.600	1
Perfluorooctanoic Acid (PFOA)	14.9		ng/l	1.80	0.600	1
Perfluorononanoic Acid (PFNA)	0.898	J	ng/l	1.80	0.600	1
Perfluorooctanesulfonic Acid (PFOS)	12.3		ng/l	1.80	0.600	1
Perfluorodecanoic Acid (PFDA)	0.647	J	ng/l	1.80	0.600	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.80	0.600	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.80	0.600	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.80	0.600	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.898	J	ng/l	1.80	0.600	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.80	0.600	1
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.80	0.600	1
Perfluorotridecanoic Acid (PFTTrDA)	ND		ng/l	1.80	0.600	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.80	0.600	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	116		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	106		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	110		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	119		70-130

Project Name: DYKEER**Lab Number:** L2138909**Project Number:** DYKEER**Report Date:** 08/09/21**SAMPLE RESULTS**

Lab ID: L2138909-02
 Client ID: WELL 1
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 07/20/21 12:05
 Date Received: 07/20/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 120,522
 Analytical Date: 08/06/21 20:25
 Analyst: DB

Extraction Method: EPA 522
 Extraction Date: 08/06/21 04:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by EPA 522 - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.150	0.150	1
Surrogate			% Recovery	Qualifier	Acceptance Criteria	
1,4-Dioxane-d8			89		70-130	

Project Name: DYKEER

Lab Number: L2138909

Project Number: DYKEER

Report Date: 08/09/21

SAMPLE RESULTS

Lab ID: L2138909-02
 Client ID: WELL 1
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 07/20/21 12:05
 Date Received: 07/20/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 133,537.1
 Analytical Date: 07/22/21 16:56
 Analyst: LV

Extraction Method: EPA 537.1
 Extraction Date: 07/22/21 07:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	9.38		ng/l	1.79	0.598	1
Perfluorohexanoic Acid (PFHxA)	10.3		ng/l	1.79	0.598	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	1.79	0.598	1
Perfluoroheptanoic Acid (PFHpA)	4.22		ng/l	1.79	0.598	1
Perfluorohexanesulfonic Acid (PFHxS)	2.29		ng/l	1.79	0.598	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.79	0.598	1
Perfluorooctanoic Acid (PFOA)	17.4		ng/l	1.79	0.598	1
Perfluorononanoic Acid (PFNA)	1.18	J	ng/l	1.79	0.598	1
Perfluorooctanesulfonic Acid (PFOS)	17.9		ng/l	1.79	0.598	1
Perfluorodecanoic Acid (PFDA)	1.07	J	ng/l	1.79	0.598	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.79	0.598	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	1.25	J	ng/l	1.79	0.598	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.79	0.598	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.75	J	ng/l	1.79	0.598	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.79	0.598	1
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.79	0.598	1
Perfluorotridecanoic Acid (PFTTrDA)	ND		ng/l	1.79	0.598	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.79	0.598	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	115		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	105		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	112		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	123		70-130

Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2138909
Report Date: 08/09/21

SAMPLE RESULTS

Lab ID: L2138909-03
 Client ID: WELL 3
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 07/20/21 12:10
 Date Received: 07/20/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Dw
 Analytical Method: 120,522
 Analytical Date: 08/06/21 20:50
 Analyst: DB

Extraction Method: EPA 522
 Extraction Date: 08/06/21 04:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by EPA 522 - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.147	0.147	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	85		70-130



Project Name: DYKEER

Lab Number: L2138909

Project Number: DYKEER

Report Date: 08/09/21

SAMPLE RESULTS

Lab ID: L2138909-03
 Client ID: WELL 3
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 07/20/21 12:10
 Date Received: 07/20/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 133,537.1
 Analytical Date: 07/22/21 17:05
 Analyst: LV

Extraction Method: EPA 537.1
 Extraction Date: 07/22/21 07:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	5.18		ng/l	1.73	0.577	1
Perfluorohexanoic Acid (PFHxA)	8.50		ng/l	1.73	0.577	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	1.73	0.577	1
Perfluoroheptanoic Acid (PFHpA)	3.94		ng/l	1.73	0.577	1
Perfluorohexanesulfonic Acid (PFHxS)	1.59	J	ng/l	1.73	0.577	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.73	0.577	1
Perfluorooctanoic Acid (PFOA)	13.1		ng/l	1.73	0.577	1
Perfluorononanoic Acid (PFNA)	0.588	J	ng/l	1.73	0.577	1
Perfluorooctanesulfonic Acid (PFOS)	8.23		ng/l	1.73	0.577	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.73	0.577	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.73	0.577	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.73	0.577	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.73	0.577	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.73	0.577	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.73	0.577	1
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.73	0.577	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.73	0.577	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.73	0.577	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	127		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	116		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	99		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	112		70-130

Project Name: DYKEER**Lab Number:** L2138909**Project Number:** DYKEER**Report Date:** 08/09/21**SAMPLE RESULTS**

Lab ID: L2138909-04
 Client ID: WELL 4
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 07/20/21 12:15
 Date Received: 07/20/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 120,522
 Analytical Date: 08/06/21 21:16
 Analyst: DB

Extraction Method: EPA 522
 Extraction Date: 08/06/21 04:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by EPA 522 - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.147	0.147	1
Surrogate			% Recovery	Qualifier	Acceptance Criteria	
1,4-Dioxane-d8			79		70-130	

Project Name: DYKEER

Lab Number: L2138909

Project Number: DYKEER

Report Date: 08/09/21

SAMPLE RESULTS

Lab ID: L2138909-04
 Client ID: WELL 4
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 07/20/21 12:15
 Date Received: 07/20/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 133,537.1
 Analytical Date: 07/22/21 17:13
 Analyst: LV

Extraction Method: EPA 537.1
 Extraction Date: 07/22/21 07:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	8.20		ng/l	1.84	0.614	1
Perfluorohexanoic Acid (PFHxA)	9.64		ng/l	1.84	0.614	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	1.84	0.614	1
Perfluoroheptanoic Acid (PFHpA)	5.11		ng/l	1.84	0.614	1
Perfluorohexanesulfonic Acid (PFHxS)	2.17		ng/l	1.84	0.614	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.84	0.614	1
Perfluorooctanoic Acid (PFOA)	17.0		ng/l	1.84	0.614	1
Perfluorononanoic Acid (PFNA)	0.920	J	ng/l	1.84	0.614	1
Perfluorooctanesulfonic Acid (PFOS)	12.2		ng/l	1.84	0.614	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.84	0.614	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.84	0.614	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.84	0.614	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.84	0.614	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.84	0.614	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.84	0.614	1
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.84	0.614	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.84	0.614	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.84	0.614	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	107		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	106		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	94		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	98		70-130

Project Name: DYKEER**Lab Number:** L2138909**Project Number:** DYKEER**Report Date:** 08/09/21**SAMPLE RESULTS**

Lab ID: L2138909-05
 Client ID: WELL 6
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 07/20/21 12:15
 Date Received: 07/20/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 120,522
 Analytical Date: 08/06/21 21:40
 Analyst: DB

Extraction Method: EPA 522
 Extraction Date: 08/06/21 04:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by EPA 522 - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.144	0.144	1
Surrogate			% Recovery	Qualifier	Acceptance Criteria	
1,4-Dioxane-d8			80		70-130	

Project Name: DYKEER**Lab Number:** L2138909**Project Number:** DYKEER**Report Date:** 08/09/21**SAMPLE RESULTS**

Lab ID: L2138909-05
 Client ID: WELL 6
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 07/20/21 12:15
 Date Received: 07/20/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 133,537.1
 Analytical Date: 07/22/21 17:22
 Analyst: LV

Extraction Method: EPA 537.1
 Extraction Date: 07/22/21 07:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	8.24		ng/l	1.76	0.588	1
Perfluorohexanoic Acid (PFHxA)	10.1		ng/l	1.76	0.588	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	1.76	0.588	1
Perfluoroheptanoic Acid (PFHpA)	4.12		ng/l	1.76	0.588	1
Perfluorohexanesulfonic Acid (PFHxS)	2.22		ng/l	1.76	0.588	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.76	0.588	1
Perfluorooctanoic Acid (PFOA)	15.9		ng/l	1.76	0.588	1
Perfluorononanoic Acid (PFNA)	0.986	J	ng/l	1.76	0.588	1
Perfluorooctanesulfonic Acid (PFOS)	15.4		ng/l	1.76	0.588	1
Perfluorodecanoic Acid (PFDA)	0.915	J	ng/l	1.76	0.588	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.76	0.588	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.76	0.588	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.76	0.588	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.23	J	ng/l	1.76	0.588	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.76	0.588	1
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.76	0.588	1
Perfluorotridecanoic Acid (PFTTrDA)	ND		ng/l	1.76	0.588	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.76	0.588	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	114		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	110		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	104		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	111		70-130

Project Name: DYKEER

Lab Number: L2138909

Project Number: DYKEER

Report Date: 08/09/21

SAMPLE RESULTS

Lab ID: L2138909-06
 Client ID: FIELD BLANK
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 07/20/21 12:05
 Date Received: 07/20/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 133,537.1
 Analytical Date: 07/22/21 17:31
 Analyst: LV

Extraction Method: EPA 537.1
 Extraction Date: 07/22/21 07:26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.93	0.646	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.93	0.646	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	1.93	0.646	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.93	0.646	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.93	0.646	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.93	0.646	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.93	0.646	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.93	0.646	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.93	0.646	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.93	0.646	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.93	0.646	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.93	0.646	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.93	0.646	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.93	0.646	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.93	0.646	1
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.93	0.646	1
Perfluorotridecanoic Acid (PFTTrDA)	ND		ng/l	1.93	0.646	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.93	0.646	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	112		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	112		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	98		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	116		70-130

Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2138909
Report Date: 08/09/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 133,537.1
Analytical Date: 07/22/21 13:54
Analyst: LV

Extraction Method: EPA 537.1
Extraction Date: 07/22/21 07:26

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab for sample(s): 01-06 Batch: WG1526573-1					
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.668
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.668
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	2.00	0.668
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.668
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.668
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	0.668
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.668
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.668
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.668
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.668
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	0.668
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.668
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.668
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.668
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.668
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	0.668
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.668
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.668

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	108		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	108		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	102		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	114		70-130

Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2138909
Report Date: 08/09/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 120,522
Analytical Date: 08/06/21 08:12
Analyst: DB

Extraction Method: EPA 522
Extraction Date: 08/06/21 04:00

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by EPA 522 - Mansfield Lab for sample(s): 01-05 Batch: WG1532311-1					
1,4-Dioxane	ND		ug/l	0.150	0.150

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	82		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: DYKEER

Lab Number: L2138909

Project Number: DYKEER

Report Date: 08/09/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-06 Batch: WG1526573-2								
Perfluorobutanesulfonic Acid (PFBS)	97		-		70-130	-		30
Perfluorohexanoic Acid (PFHxA)	96		-		70-130	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	100		-		70-130	-		30
Perfluoroheptanoic Acid (PFHpA)	102		-		70-130	-		30
Perfluorohexanesulfonic Acid (PFHxS)	90		-		70-130	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	127		-		70-130	-		30
Perfluorooctanoic Acid (PFOA)	112		-		70-130	-		30
Perfluorononanoic Acid (PFNA)	100		-		70-130	-		30
Perfluorooctanesulfonic Acid (PFOS)	103		-		70-130	-		30
Perfluorodecanoic Acid (PFDA)	124		-		70-130	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	79		-		70-130	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	104		-		70-130	-		30
Perfluoroundecanoic Acid (PFUnA)	94		-		70-130	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	104		-		70-130	-		30
Perfluorododecanoic Acid (PFDoA)	88		-		70-130	-		30
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	102		-		70-130	-		30
Perfluorotridecanoic Acid (PFTrDA)	96		-		70-130	-		30
Perfluorotetradecanoic Acid (PFTA)	124		-		70-130	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: DYKEER

Project Number: DYKEER

Lab Number: L2138909

Report Date: 08/09/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-06 Batch: WG1526573-2

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	113				70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	111				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	116				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	129				70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2138909
Report Date: 08/09/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by EPA 522 - Mansfield Lab Associated sample(s): 01-05 Batch: WG1532311-2 WG1532311-3								
1,4-Dioxane	74		72		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	83		79		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: DYKEER

Lab Number: L2138909

Project Number: DYKEER

Report Date: 08/09/21

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Sample Associated sample(s): 01-06 QC Batch ID: WG1526573-3 QC Sample: L2138289-01 Client ID: MS												
Perfluorobutanesulfonic Acid (PFBS)	ND	1.63	1.80J	110		-	-		70-130	-		30
Perfluorohexanoic Acid (PFHxA)	ND	1.84	1.98	108		-	-		70-130	-		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	1.84	1.91	104		-	-		70-130	-		30
Perfluoroheptanoic Acid (PFHpA)	ND	1.84	1.80J	98		-	-		70-130	-		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	1.68	1.36J	81		-	-		70-130	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	1.74	2.17	125		-	-		70-130	-		30
Perfluorooctanoic Acid (PFOA)	ND	1.84	2.39	130		-	-		70-130	-		30
Perfluorononanoic Acid (PFNA)	ND	1.84	2.17	118		-	-		70-130	-		30
Perfluorooctanesulfonic Acid (PFOS)	ND	1.71	2.43	142		-	-		70-130	-		30
Perfluorodecanoic Acid (PFDA)	ND	1.84	2.50	136		-	-		70-130	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	1.72	1.58J	92		-	-		70-130	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	1.84	2.02	110		-	-		70-130	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	1.84	1.98	108		-	-		70-130	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.84	2.46	134		-	-		70-130	-		30
Perfluorododecanoic Acid (PFDoA)	ND	1.84	1.98	108		-	-		70-130	-		30
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	1.73	1.91	110		-	-		70-130	-		30
Perfluorotridecanoic Acid (PFTrDA)	ND	1.84	1.95	106		-	-		70-130	-		30
Perfluorotetradecanoic Acid (PFTTA)	ND	1.84	2.28	124		-	-		70-130	-		30

Matrix Spike Analysis

Batch Quality Control

Project Name: DYKEER

Lab Number: L2138909

Project Number: DYKEER

Report Date: 08/09/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1526573-3 QC Sample: L2138289-01 Client ID: MS Sample

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	133	Q			70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	130				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	120				70-130
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	124				70-130

Lab Duplicate Analysis

Batch Quality Control

Project Name: DYKEER

Project Number: DYKEER

Lab Number: L2138909

Report Date: 08/09/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1526573-4 QC Sample: L2138438-01 Client ID: DUP Sample						
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/l	NC		30
Perfluorohexanoic Acid (PFHxA)	ND	ND	ng/l	NC		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ng/l	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/l	NC		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	0.691J	0.657J	ng/l	NC		30
Perfluorononanoic Acid (PFNA)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	0.655J	0.694J	ng/l	NC		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	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
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30

Lab Duplicate Analysis

Batch Quality Control

Project Name: DYKEER

Project Number: DYKEER

Lab Number: L2138909

Report Date: 08/09/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1526573-4 QC Sample: L2138438-01 Client ID: DUP Sample						

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	123		114		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	119		113		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	112		106		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	129		129		70-130

Project Name: DYKEER**Lab Number:** L2138909**Project Number:** DYKEER**Report Date:** 08/09/21**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138909-01A	Plastic 250ml Trizma preserved	A	NA		3.6	Y	Absent		A2-537.1(14)
L2138909-01B	Plastic 250ml Trizma preserved	A	NA		3.6	Y	Absent		A2-537.1(14)
L2138909-01C	Amber 500ml NaSulfite/NaHSO4 preserved	D	<4	<4	3.1	Y	Absent		A2-14DIOXANE-522(28)
L2138909-01D	Amber 500ml NaSulfite/NaHSO4 preserved	D	<4	<4	3.1	Y	Absent		A2-14DIOXANE-522(28)
L2138909-02A	Plastic 250ml Trizma preserved	A	NA		3.6	Y	Absent		A2-537.1(14)
L2138909-02B	Plastic 250ml Trizma preserved	A	NA		3.6	Y	Absent		A2-537.1(14)
L2138909-02C	Amber 500ml NaSulfite/NaHSO4 preserved	D	<4	<4	3.1	Y	Absent		A2-14DIOXANE-522(28)
L2138909-02D	Amber 500ml NaSulfite/NaHSO4 preserved	D	<4	<4	3.1	Y	Absent		A2-14DIOXANE-522(28)
L2138909-03A	Plastic 250ml Trizma preserved	A	NA		3.6	Y	Absent		A2-537.1(14)
L2138909-03B	Plastic 250ml Trizma preserved	A	NA		3.6	Y	Absent		A2-537.1(14)
L2138909-03C	Amber 500ml NaSulfite/NaHSO4 preserved	D	<4	<4	3.1	Y	Absent		A2-14DIOXANE-522(28)
L2138909-03D	Amber 500ml NaSulfite/NaHSO4 preserved	D	<4	<4	3.1	Y	Absent		A2-14DIOXANE-522(28)
L2138909-04A	Plastic 250ml Trizma preserved	A	NA		3.6	Y	Absent		A2-537.1(14)
L2138909-04B	Plastic 250ml Trizma preserved	A	NA		3.6	Y	Absent		A2-537.1(14)
L2138909-04C	Amber 500ml NaSulfite/NaHSO4 preserved	D	<4	<4	3.1	Y	Absent		A2-14DIOXANE-522(28)
L2138909-04D	Amber 500ml NaSulfite/NaHSO4 preserved	D	<4	<4	3.1	Y	Absent		A2-14DIOXANE-522(28)
L2138909-05A	Plastic 250ml Trizma preserved	A	NA		3.6	Y	Absent		A2-537.1(14)
L2138909-05B	Plastic 250ml Trizma preserved	A	NA		3.6	Y	Absent		A2-537.1(14)
L2138909-05C	Amber 500ml NaSulfite/NaHSO4 preserved	D	<4	<4	3.1	Y	Absent		A2-14DIOXANE-522(28)
L2138909-05D	Amber 500ml NaSulfite/NaHSO4 preserved	D	<4	<4	3.1	Y	Absent		A2-14DIOXANE-522(28)
L2138909-06A	Plastic 250ml Trizma preserved	C	NA		4.8	Y	Absent		A2-537.1(14)

Project Name: DYKEER

Project Number: DYKEER

Serial_No:08092119:08

Lab Number: L2138909

Report Date: 08/09/21

Container Information

Container ID Container Type

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
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Project Name: DYKEER
Project Number: DYKEER

Serial_No:08092119:08
Lab Number: L2138909
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PFAS PARAMETER SUMMARY

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

Project Name: DYKEER
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GLOSSARY

Acronyms

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

Report Format: DU Report with 'J' Qualifiers



Project Name: DYKEER
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Footnotes

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

Terms

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

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

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

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

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

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

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

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

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

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



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Data Qualifiers

- 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.

Project Name: DYKEER
Project Number: DYKEER

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REFERENCES

- 120 Determination of 1,4-Dioxane in Drinking Water by Solid Phase Extraction (SPE) and Gas Chromatography/Mass Spectrometry (GC/MS) with Selected Ion Monitoring (SIM). EPA Method 522, EPA/600/R-08/101. Version 1.0, September 2008.
- 133 Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537.1, EPA/600/R-18/352. Version 1.0, November 2018.

LIMITATION OF LIABILITIES

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

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



Certification Information

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

Westborough Facility

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

EPA 625/625.1: alpha-Terpineol

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

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

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

Mansfield Facility

SM 2540D: TSS

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

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

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

Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water

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

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

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

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

Non-Potable Water

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

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

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

EPA 624.1: Volatile Halocarbons & Aromatics,

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

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

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

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

Mansfield Facility:

Drinking Water

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

EPA 522, EPA 537.1.

Non-Potable Water


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

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

EPA 245.1 Hg.

SM2340B

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

 NEW YORK CHAIN OF CUSTODY	Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105	Page 1 of 1	Date Rec'd in Lab 7/21/21	ALPHA Job # 62138909																																																																																																																																																																					
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ANALYTICAL REPORT

Lab Number:	L2143190
Client:	Environmental Consultants PO Box 3148 Pouchkeepsie, NY 12603
ATTN:	Stephen Landell
Phone:	(845) 486-1030
Project Name:	DYKEER
Project Number:	DYKEER
Report Date:	08/26/21

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

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

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



Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2143190
Report Date: 08/26/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2143190-01	EP	DW	KRYSTAL DRIVE SOMERS, NY	08/11/21 12:25	08/11/21
L2143190-02	WELL 1	DW	KRYSTAL DRIVE SOMERS, NY	08/11/21 12:30	08/11/21
L2143190-03	WELL 3	DW	KRYSTAL DRIVE SOMERS, NY	08/11/21 12:35	08/11/21
L2143190-04	WELL 4	DW	KRYSTAL DRIVE SOMERS, NY	08/11/21 12:30	08/11/21
L2143190-05	WELL 6	DW	KRYSTAL DRIVE SOMERS, NY	08/11/21 12:35	08/11/21
L2143190-06	FIELD BLANK	DW	KRYSTAL DRIVE SOMERS, NY	08/11/21 12:25	08/11/21

Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2143190
Report Date: 08/26/21

Case Narrative

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

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

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

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

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

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

Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2143190
Report Date: 08/26/21

Case Narrative (continued)

Report Submission

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

Perfluorinated Alkyl Acids

WG1535620-2: The LCS recoveries, associated with L2143190-01, -02, -03, -05, and -06, are within the 50-150% acceptance criteria for low level Perfluorinated Alkyl Acids.

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

Authorized Signature:



Alycia Mogayzel

Title: Technical Director/Representative

Date: 08/26/21

ORGANICS

SEMIVOLATILES

Project Name: DYKEER

Lab Number: L2143190

Project Number: DYKEER

Report Date: 08/26/21

SAMPLE RESULTS

Lab ID: L2143190-01
 Client ID: EP
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 08/11/21 12:25
 Date Received: 08/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 133,537.1
 Analytical Date: 08/17/21 12:59
 Analyst: JW

Extraction Method: EPA 537.1
 Extraction Date: 08/16/21 18:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	6.77		ng/l	1.79	0.598	1
Perfluorohexanoic Acid (PFHxA)	7.88		ng/l	1.79	0.598	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	1.79	0.598	1
Perfluoroheptanoic Acid (PFHpA)	3.76		ng/l	1.79	0.598	1
Perfluorohexanesulfonic Acid (PFHxS)	2.15		ng/l	1.79	0.598	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.79	0.598	1
Perfluorooctanoic Acid (PFOA)	13.9		ng/l	1.79	0.598	1
Perfluorononanoic Acid (PFNA)	1.00	J	ng/l	1.79	0.598	1
Perfluorooctanesulfonic Acid (PFOS)	11.2		ng/l	1.79	0.598	1
Perfluorodecanoic Acid (PFDA)	0.609	J	ng/l	1.79	0.598	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.79	0.598	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.79	0.598	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.79	0.598	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.752	J	ng/l	1.79	0.598	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.79	0.598	1
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.79	0.598	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.79	0.598	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.79	0.598	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	99		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	95		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	110		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	102		70-130

Project Name: DYKEER

Lab Number: L2143190

Project Number: DYKEER

Report Date: 08/26/21

SAMPLE RESULTS

Lab ID: L2143190-02
 Client ID: WELL 1
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 08/11/21 12:30
 Date Received: 08/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 133,537.1
 Analytical Date: 08/17/21 13:07
 Analyst: JW

Extraction Method: EPA 537.1
 Extraction Date: 08/16/21 18:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	8.88		ng/l	1.75	0.586	1
Perfluorohexanoic Acid (PFHxA)	9.54		ng/l	1.75	0.586	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	1.75	0.586	1
Perfluoroheptanoic Acid (PFHpA)	3.65		ng/l	1.75	0.586	1
Perfluorohexanesulfonic Acid (PFHxS)	2.88		ng/l	1.75	0.586	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.75	0.586	1
Perfluorooctanoic Acid (PFOA)	15.2		ng/l	1.75	0.586	1
Perfluorononanoic Acid (PFNA)	1.26	J	ng/l	1.75	0.586	1
Perfluorooctanesulfonic Acid (PFOS)	16.4		ng/l	1.75	0.586	1
Perfluorodecanoic Acid (PFDA)	0.772	J	ng/l	1.75	0.586	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.75	0.586	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.807	J	ng/l	1.75	0.586	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.75	0.586	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.65	J	ng/l	1.75	0.586	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.75	0.586	1
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.75	0.586	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.75	0.586	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.75	0.586	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	93		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	78		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	101		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	93		70-130

Project Name: DYKEER

Lab Number: L2143190

Project Number: DYKEER

Report Date: 08/26/21

SAMPLE RESULTS

Lab ID: L2143190-03
 Client ID: WELL 3
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 08/11/21 12:35
 Date Received: 08/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 133,537.1
 Analytical Date: 08/17/21 13:16
 Analyst: JW

Extraction Method: EPA 537.1
 Extraction Date: 08/16/21 18:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	5.72		ng/l	1.73	0.578	1
Perfluorohexanoic Acid (PFHxA)	8.52		ng/l	1.73	0.578	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	1.73	0.578	1
Perfluoroheptanoic Acid (PFHpA)	3.53		ng/l	1.73	0.578	1
Perfluorohexanesulfonic Acid (PFHxS)	1.97		ng/l	1.73	0.578	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.73	0.578	1
Perfluorooctanoic Acid (PFOA)	13.7		ng/l	1.73	0.578	1
Perfluorononanoic Acid (PFNA)	0.797	J	ng/l	1.73	0.578	1
Perfluorooctanesulfonic Acid (PFOS)	10.2		ng/l	1.73	0.578	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.73	0.578	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.73	0.578	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.73	0.578	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.73	0.578	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.73	0.578	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.73	0.578	1
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.73	0.578	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.73	0.578	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.73	0.578	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	104		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	91		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	116		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	103		70-130

Project Name: DYKEER

Lab Number: L2143190

Project Number: DYKEER

Report Date: 08/26/21

SAMPLE RESULTS

Lab ID: L2143190-04
 Client ID: WELL 4
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 08/11/21 12:30
 Date Received: 08/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 133,537.1
 Analytical Date: 08/22/21 01:45
 Analyst: SL

Extraction Method: EPA 537.1
 Extraction Date: 08/21/21 04:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	8.11		ng/l	1.86	0.621	1
Perfluorohexanoic Acid (PFHxA)	9.93		ng/l	1.86	0.621	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	1.86	0.621	1
Perfluoroheptanoic Acid (PFHpA)	5.13		ng/l	1.86	0.621	1
Perfluorohexanesulfonic Acid (PFHxS)	2.49		ng/l	1.86	0.621	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.86	0.621	1
Perfluorooctanoic Acid (PFOA)	18.3		ng/l	1.86	0.621	1
Perfluorononanoic Acid (PFNA)	0.967	J	ng/l	1.86	0.621	1
Perfluorooctanesulfonic Acid (PFOS)	10.9		ng/l	1.86	0.621	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.86	0.621	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.86	0.621	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.86	0.621	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.86	0.621	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.86	0.621	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.86	0.621	1
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.86	0.621	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.86	0.621	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.86	0.621	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	100		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	98		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	98		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	104		70-130

Project Name: DYKEER**Lab Number:** L2143190**Project Number:** DYKEER**Report Date:** 08/26/21**SAMPLE RESULTS**

Lab ID: L2143190-05
 Client ID: WELL 6
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 08/11/21 12:35
 Date Received: 08/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 133,537.1
 Analytical Date: 08/17/21 13:24
 Analyst: JW

Extraction Method: EPA 537.1
 Extraction Date: 08/16/21 18:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	9.47		ng/l	1.85	0.618	1
Perfluorohexanoic Acid (PFHxA)	10.4		ng/l	1.85	0.618	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	1.85	0.618	1
Perfluoroheptanoic Acid (PFHpA)	5.36		ng/l	1.85	0.618	1
Perfluorohexanesulfonic Acid (PFHxS)	3.03		ng/l	1.85	0.618	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.85	0.618	1
Perfluorooctanoic Acid (PFOA)	18.7		ng/l	1.85	0.618	1
Perfluorononanoic Acid (PFNA)	1.18	J	ng/l	1.85	0.618	1
Perfluorooctanesulfonic Acid (PFOS)	14.1		ng/l	1.85	0.618	1
Perfluorodecanoic Acid (PFDA)	0.666	J	ng/l	1.85	0.618	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.85	0.618	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.85	0.618	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.85	0.618	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.666	J	ng/l	1.85	0.618	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.85	0.618	1
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.85	0.618	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.85	0.618	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.85	0.618	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	98		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	90		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	109		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	107		70-130

Project Name: DYKEER

Lab Number: L2143190

Project Number: DYKEER

Report Date: 08/26/21

SAMPLE RESULTS

Lab ID: L2143190-06
 Client ID: FIELD BLANK
 Sample Location: KRYSTAL DRIVE SOMERS, NY

Date Collected: 08/11/21 12:25
 Date Received: 08/11/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 133,537.1
 Analytical Date: 08/17/21 13:33
 Analyst: JW

Extraction Method: EPA 537.1
 Extraction Date: 08/16/21 18:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.78	0.594	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.78	0.594	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	1.78	0.594	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.78	0.594	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.78	0.594	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.78	0.594	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.78	0.594	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.78	0.594	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.78	0.594	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.78	0.594	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.78	0.594	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.78	0.594	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.78	0.594	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.78	0.594	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.78	0.594	1
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.78	0.594	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.78	0.594	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.78	0.594	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	97		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	96		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	107		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	100		70-130

Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2143190
Report Date: 08/26/21

Method Blank Analysis Batch Quality Control

Analytical Method: 133,537.1
Analytical Date: 08/17/21 10:22
Analyst: JW

Extraction Method: EPA 537.1
Extraction Date: 08/16/21 18:45

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab for sample(s): 01-03,05-06 Batch: WG1535620-1					
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.668
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.668
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	2.00	0.668
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.668
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.668
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	0.668
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.668
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.668
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.668
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.668
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	0.668
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.668
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.668
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.668
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.668
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	0.668
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.668
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.668

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	100		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	100		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	113		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	106		70-130

Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2143190
Report Date: 08/26/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 133,537.1
Analytical Date: 08/22/21 01:27
Analyst: SL

Extraction Method: EPA 537.1
Extraction Date: 08/21/21 04:45

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab for sample(s): 04 Batch: WG1537603-1					
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.668
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.668
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	2.00	0.668
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.668
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.668
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	0.668
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.668
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.668
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.668
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.668
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	0.668
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.668
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.668
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.668
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.668
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	0.668
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.668
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.668

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	99		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	106		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	98		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	108		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: DYKEER

Lab Number: L2143190

Project Number: DYKEER

Report Date: 08/26/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-03,05-06 Batch: WG1535620-2								
Perfluorobutanesulfonic Acid (PFBS)	97		-		70-130	-		30
Perfluorohexanoic Acid (PFHxA)	94		-		70-130	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	84		-		70-130	-		30
Perfluoroheptanoic Acid (PFHpA)	106		-		70-130	-		30
Perfluorohexanesulfonic Acid (PFHxS)	103		-		70-130	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	89		-		70-130	-		30
Perfluorooctanoic Acid (PFOA)	100		-		70-130	-		30
Perfluorononanoic Acid (PFNA)	110		-		70-130	-		30
Perfluorooctanesulfonic Acid (PFOS)	97		-		70-130	-		30
Perfluorodecanoic Acid (PFDA)	94		-		70-130	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	94		-		70-130	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	90		-		70-130	-		30
Perfluoroundecanoic Acid (PFUnA)	112		-		70-130	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	92		-		70-130	-		30
Perfluorododecanoic Acid (PFDoA)	120		-		70-130	-		30
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	85		-		70-130	-		30
Perfluorotridecanoic Acid (PFTrDA)	138		-		70-130	-		30
Perfluorotetradecanoic Acid (PFTA)	108		-		70-130	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: DYKEER

Project Number: DYKEER

Lab Number: L2143190

Report Date: 08/26/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-03,05-06 Batch: WG1535620-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	93				70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	101				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	102				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	106				70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: DYKEER

Lab Number: L2143190

Project Number: DYKEER

Report Date: 08/26/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 04 Batch: WG1537603-2								
Perfluorobutanesulfonic Acid (PFBS)	92		-		70-130	-		30
Perfluorohexanoic Acid (PFHxA)	94		-		70-130	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	88		-		70-130	-		30
Perfluoroheptanoic Acid (PFHpA)	104		-		70-130	-		30
Perfluorohexanesulfonic Acid (PFHxS)	96		-		70-130	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	114		-		70-130	-		30
Perfluorooctanoic Acid (PFOA)	108		-		70-130	-		30
Perfluorononanoic Acid (PFNA)	106		-		70-130	-		30
Perfluorooctanesulfonic Acid (PFOS)	90		-		70-130	-		30
Perfluorodecanoic Acid (PFDA)	102		-		70-130	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	101		-		70-130	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	102		-		70-130	-		30
Perfluoroundecanoic Acid (PFUnA)	106		-		70-130	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	120		-		70-130	-		30
Perfluorododecanoic Acid (PFDoA)	114		-		70-130	-		30
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	91		-		70-130	-		30
Perfluorotridecanoic Acid (PFTrDA)	120		-		70-130	-		30
Perfluorotetradecanoic Acid (PFTA)	122		-		70-130	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: DYKEER

Project Number: DYKEER

Lab Number: L2143190

Report Date: 08/26/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 04 Batch: WG1537603-2

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	102				70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	108				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	103				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	115				70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: DYKEER

Lab Number: L2143190

Project Number: DYKEER

Report Date: 08/26/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab MS Sample												
Associated sample(s): 01-03,05-06 QC Batch ID: WG1535620-3 QC Sample: L2143076-01 Client ID:												
Perfluorobutanesulfonic Acid (PFBS)	2.61	1.65	3.94	81		-	-		70-130	-		30
Perfluorohexanoic Acid (PFHxA)	6.03	1.86	7.58	83		-	-		70-130	-		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	1.86	1.38J	74		-	-		70-130	-		30
Perfluoroheptanoic Acid (PFHpA)	4.86	1.86	6.43	84		-	-		70-130	-		30
Perfluorohexanesulfonic Acid (PFHxS)	2.50	1.7	4.01	89		-	-		70-130	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	1.76	1.45J	83		-	-		70-130	-		30
Perfluorooctanoic Acid (PFOA)	7.21	1.86	9.10	102		-	-		70-130	-		30
Perfluorononanoic Acid (PFNA)	1.03J	1.86	3.12	168	Q	-	-		70-130	-		30
Perfluorooctanesulfonic Acid (PFOS)	6.81	1.72	8.51	99		-	-		70-130	-		30
Perfluorodecanoic Acid (PFDA)	ND	1.86	2.12	114		-	-		70-130	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	1.73	1.49J	86		-	-		70-130	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	1.86	1.71J	92		-	-		70-130	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	1.86	1.86	100		-	-		70-130	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.86	2.01	108		-	-		70-130	-		30
Perfluorododecanoic Acid (PFDoA)	ND	1.86	1.97	106		-	-		70-130	-		30
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	1.75	1.38J	79		-	-		70-130	-		30
Perfluorotridecanoic Acid (PFTrDA)	ND	1.86	2.19	118		-	-		70-130	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	1.86	1.93	104		-	-		70-130	-		30

Matrix Spike Analysis

Batch Quality Control

Project Name: DYKEER

Lab Number: L2143190

Project Number: DYKEER

Report Date: 08/26/21

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab MS Sample												
Associated sample(s): 01-03,05-06												
QC Batch ID: WG1535620-3												
QC Sample: L2143076-01												
Client ID:												

<i>Surrogate</i>	<i>MS</i>		<i>MSD</i>		<i>Acceptance Criteria</i>
	<i>% Recovery</i>	<i>Qualifier</i>	<i>% Recovery</i>	<i>Qualifier</i>	
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	84				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	109				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	111				70-130
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	92				70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: DYKEER

Lab Number: L2143190

Project Number: DYKEER

Report Date: 08/26/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1537603-3 QC Sample: L2143720-01 Client ID: MS Sample												
Perfluorobutanesulfonic Acid (PFBS)	3.18	1.66	4.71	92		-	-		70-130	-		30
Perfluorohexanoic Acid (PFHxA)	1.38J	1.87	3.44	184	Q	-	-		70-130	-		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	1.87	1.94	104		-	-		70-130	-		30
Perfluoroheptanoic Acid (PFHpA)	0.674J	1.87	2.95	158	Q	-	-		70-130	-		30
Perfluorohexanesulfonic Acid (PFHxS)	2.81	1.71	4.48	98		-	-		70-130	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	1.76	2.17	123		-	-		70-130	-		30
Perfluorooctanoic Acid (PFOA)	3.63	1.87	5.87	120		-	-		70-130	-		30
Perfluorononanoic Acid (PFNA)	ND	1.87	2.32	124		-	-		70-130	-		30
Perfluorooctanesulfonic Acid (PFOS)	4.49	1.73	6.02	88		-	-		70-130	-		30
Perfluorodecanoic Acid (PFDA)	ND	1.87	2.24	120		-	-		70-130	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	1.74	1.72J	99		-	-		70-130	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	1.87	2.06	110		-	-		70-130	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	1.87	2.17	116		-	-		70-130	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.87	2.17	116		-	-		70-130	-		30
Perfluorododecanoic Acid (PFDoA)	ND	1.87	2.20	118		-	-		70-130	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	1.76	1.68J	95		-	-		70-130	-		30
Perfluorotridecanoic Acid (PFTrDA)	ND	1.87	2.17	116		-	-		70-130	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	1.87	2.35	126		-	-		70-130	-		30

Matrix Spike Analysis

Batch Quality Control

Project Name: DYKEER

Lab Number: L2143190

Project Number: DYKEER

Report Date: 08/26/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1537603-3 QC Sample: L2143720-01 Client ID: MS Sample

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	114				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	123				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	109				70-130
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	112				70-130

Lab Duplicate Analysis

Batch Quality Control

Project Name: DYKEER

Project Number: DYKEER

Lab Number: L2143190

Report Date: 08/26/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-03,05-06 QC Batch ID: WG1535620-4 QC Sample: L2143080-02 Client ID: DUP Sample						
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/l	NC		30
Perfluorohexanoic Acid (PFHxA)	ND	ND	ng/l	NC		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ng/l	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/l	NC		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	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
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	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
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30

Lab Duplicate Analysis

Batch Quality Control

Project Name: DYKEER

Project Number: DYKEER

Lab Number: L2143190

Report Date: 08/26/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-03,05-06 QC Batch ID: WG1535620-4 QC Sample: L2143080-02						
Client ID: DUP Sample						

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	92		93		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	83		89		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	101		104		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	106		100		70-130

Lab Duplicate Analysis

Batch Quality Control

Project Name: DYKEER

Project Number: DYKEER

Lab Number: L2143190

Report Date: 08/26/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1537603-4 QC Sample: L2143841-02 Client ID: DUP Sample						
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/l	NC		30
Perfluorohexanoic Acid (PFHxA)	ND	ND	ng/l	NC		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ng/l	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/l	NC		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	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
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	1.54J	1.45J	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
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30

Lab Duplicate Analysis

Batch Quality Control

Project Name: DYKEER

Project Number: DYKEER

Lab Number: L2143190

Report Date: 08/26/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1537603-4 QC Sample: L2143841-02 Client ID: DUP Sample						

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	107		101		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	103		103		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	100		95		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	106		107		70-130

Project Name: DYKEER**Lab Number:** L2143190**Project Number:** DYKEER**Report Date:** 08/26/21**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(*)
L2143190-01A	Plastic 250ml Trizma preserved	A	NA		3.4	Y	Absent		A2-537.1(14)
L2143190-01B	Plastic 250ml Trizma preserved	A	NA		3.4	Y	Absent		A2-537.1(14)
L2143190-02A	Plastic 250ml Trizma preserved	A	NA		3.4	Y	Absent		A2-537.1(14)
L2143190-02B	Plastic 250ml Trizma preserved	A	NA		3.4	Y	Absent		A2-537.1(14)
L2143190-03A	Plastic 250ml Trizma preserved	A	NA		3.4	Y	Absent		A2-537.1(14)
L2143190-03B	Plastic 250ml Trizma preserved	A	NA		3.4	Y	Absent		A2-537.1(14)
L2143190-04A	Plastic 250ml Trizma preserved	A	NA		3.4	Y	Absent		A2-537.1(14)
L2143190-04B	Plastic 250ml Trizma preserved	A	NA		3.4	Y	Absent		ARCHIVE()
L2143190-05A	Plastic 250ml Trizma preserved	A	NA		3.4	Y	Absent		A2-537.1(14)
L2143190-05B	Plastic 250ml Trizma preserved	A	NA		3.4	Y	Absent		A2-537.1(14)
L2143190-06A	Plastic 250ml Trizma preserved	A	NA		3.4	Y	Absent		A2-537.1(14)

Project Name: DYKEER
Project Number: DYKEER

Serial_No:08262115:27
Lab Number: L2143190
Report Date: 08/26/21

PFAS PARAMETER SUMMARY

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

Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2143190
Report Date: 08/26/21

GLOSSARY

Acronyms

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

Report Format: DU Report with 'J' Qualifiers



Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2143190
Report Date: 08/26/21

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.

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

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

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

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

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

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

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

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

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2143190
Report Date: 08/26/21

Data Qualifiers

- 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.

Report Format: DU Report with 'J' Qualifiers



Project Name: DYKEER
Project Number: DYKEER

Lab Number: L2143190
Report Date: 08/26/21

REFERENCES

- 133 Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537.1, EPA/600/R-18/352. Version 1.0, November 2018.

LIMITATION OF LIABILITIES

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

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



Certification Information

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

Westborough Facility

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

EPA 625/625.1: alpha-Terpineol

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

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

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

Mansfield Facility

SM 2540D: TSS

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

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

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

Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water

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

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

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

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

Non-Potable Water

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

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

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

EPA 624.1: Volatile Halocarbons & Aromatics,

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

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

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

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

Mansfield Facility:

Drinking Water

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

EPA 522, EPA 537.1.

Non-Potable Water

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

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

EPA 245.1 Hg.

SM2340B

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

