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ANALYTICAL REPORT

PREPARED FOR

Attn: Aimee Butch
Pittsburgh Water and Sewer Authority
900 Freeport Road
Pittsburgh, Pennsylvania 15238

Generated 1/5/2023 7:55:52 AM

JOB DESCRIPTION

PFAS & Perchlorate

JOB NUMBER

410-106656-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

my EOL

Eurofins Lancaster Laboratories Environment Testing, LLC

Job Notes

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Generated
1/5/2023 7:55:52 AM

Authorized for release by
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Eurofins Lancaster Laboratories Environment Testing, LLC

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Table of Contents

Definitions/Glossary

Client: Pittsburgh Water and Sewer Authority
Project/Site: PFAS & Perchlorate

Job ID: 410-106656-1

Qualifiers

LCMS

Qualifier	Qualifier Description
!	Laboratory is not accredited for this parameter.
*1	LCS/LCSD RPD exceeds control limits.
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-106656-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

Narrative

Job Narrative
410-106656-1

Receipt
The samples were received on 11/21/2022 10:56 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.7°C

Receipt Exceptions
The following samples were submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): Raw 300 PFAS Batch QC and EP 101 PFAS Batch QCRaw 300, EP 101, Raw 300 - Field Blank and EP 101 - Field Blank

The container count for the following samples did not match what was listed on the Chain-of-Custody (COC): Raw 300 and EP 101. The laboratory received 7 total containers, while the COC lists 5 total containers.

The container count for the following samples did not match what was listed on the Chain-of-Custody (COC): Raw 300 and EP 101. The laboratory received 4 total containers, while the COC lists 2 total containers.

LCMS
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS
Method 537.1_DW: The reference method requires samples to be preserved to a pH of 6.5-7.5. The following sample was received with insufficient preservation at a pH of 5: EP 101.This does not meet regulatory requirements.

Method 537.1_DW: The reference method requires samples to be preserved to a pH of 6.5-7.5. The following sample was received with insufficient preservation at a pH of 5: Raw 300.This does not meet regulatory requirements.

Method PFC_IDA: The sample injection standard peak areas in the following samples: Raw 300 and EP 101 are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Pittsburgh Water and Sewer Authority
Project/Site: PFAS & Perchlorate

Job ID: 410-106656-1

Client Sample ID: Raw 300 — Lab Sample ID: 410-106656-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid	0.76	J cn	1.7	0.43	ng/L	1		EPA 537.1	Total/NA
Perfluoroheptanoic acid	0.82	J cn	1.7	0.43	ng/L	1		EPA 537.1	Total/NA
Perfluorohexanoic acid	1.1	J cn	1.7	0.43	ng/L	1		EPA 537.1	Total/NA
Perfluorooctanesulfonic acid	1.2	J cn	1.7	0.43	ng/L	1		EPA 537.1	Total/NA
Perfluorooctanoic acid	1.7	cn	1.7	0.43	ng/L	1		EPA 537.1	Total/NA
Perchlorate	1.0	! *1	1.0	0.23	ug/L	1		SW846 6850	Total/NA

Client Sample ID: EP 101 — Lab Sample ID: 410-106656-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid	0.71	J cn	1.7	0.41	ng/L	1		EPA 537.1	Total/NA
Perfluoroheptanoic acid	0.85	J cn	1.7	0.41	ng/L	1		EPA 537.1	Total/NA
Perfluorohexanoic acid	1.2	J cn	1.7	0.41	ng/L	1		EPA 537.1	Total/NA
Perfluorooctanesulfonic acid	1.3	J cn	1.7	0.41	ng/L	1		EPA 537.1	Total/NA
Perfluorooctanoic acid	1.7	cn	1.7	0.41	ng/L	1		EPA 537.1	Total/NA
Perchlorate	0.37	J ! *1	1.0	0.23	ug/L	1		SW846 6850	Total/NA

Client Sample ID: Raw 300 — Lab Sample ID: 410-106656-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	1.3	J cn	1.9	0.85	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid	0.79	J cn	1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid	1.8	J cn	1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid	1.1	J cn	1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid	1.1	J cn	1.9	0.95	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid	2.6	J cn	4.7	1.9	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid	1.2	J cn	1.9	0.47	ng/L	1		537 (modified)	Total/NA

Client Sample ID: EP 101 — Lab Sample ID: 410-106656-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	1.4	J cn	1.7	0.75	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid	0.92	J cn	1.7	0.41	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid	2.1	cn	1.7	0.41	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid	0.52	J cn	1.7	0.41	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid	0.98	J cn	1.7	0.41	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid	1.9	cn	1.7	0.83	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid	4.1	cn	4.1	1.7	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid	0.86	J cn	1.7	0.41	ng/L	1		537 (modified)	Total/NA

Client Sample ID: Raw 300 - Field Blank — Lab Sample ID: 410-106656-5

No Detections.

Client Sample ID: EP 101 - Field Blank — Lab Sample ID: 410-106656-6

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Pittsburgh Water and Sewer Authority
Project/Site: PFAS & Perchlorate

Job ID: 410-106656-1

Client Sample ID: Raw 300

Date Collected: 11/16/22 10:05
Date Received: 11/21/22 10:56

Lab Sample ID: 410-106656-1

Matrix: Drinking Water

Method: EPA 537.1 - EPA 537.1, Ver 1.0 Nov 2018

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	ND	cn	1.7	0.43	ng/L		11/25/22 11:07	11/29/22 08:57	1
NMeFOSAA	ND	cn	1.7	0.43	ng/L		11/25/22 11:07	11/29/22 08:57	1
Perfluorobutanesulfonic acid	**0.76**	**J cn**	1.7	0.43	ng/L		11/25/22 11:07	11/29/22 08:57	1
Perfluorodecanoic acid	ND	cn	1.7	0.43	ng/L		11/25/22 11:07	11/29/22 08:57	1
Perfluorododecanoic acid	ND	cn	1.7	0.43	ng/L		11/25/22 11:07	11/29/22 08:57	1
Perfluoroheptanoic acid	**0.82**	**J cn**	1.7	0.43	ng/L		11/25/22 11:07	11/29/22 08:57	1
Perfluorohexanesulfonic acid	ND	cn	1.7	0.43	ng/L		11/25/22 11:07	11/29/22 08:57	1
Perfluorohexanoic acid	**1.1**	**J cn**	1.7	0.43	ng/L		11/25/22 11:07	11/29/22 08:57	1
Perfluorononanoic acid	ND	cn	1.7	0.43	ng/L		11/25/22 11:07	11/29/22 08:57	1
Perfluorooctanesulfonic acid	**1.2**	**J cn**	1.7	0.43	ng/L		11/25/22 11:07	11/29/22 08:57	1
Perfluorooctanoic acid	**1.7**	**cn**	1.7	0.43	ng/L		11/25/22 11:07	11/29/22 08:57	1
Perfluorotetradecanoic acid	ND	cn	1.7	0.43	ng/L		11/25/22 11:07	11/29/22 08:57	1
Perfluorotridecanoic acid	ND	cn	1.7	0.43	ng/L		11/25/22 11:07	11/29/22 08:57	1
Perfluoroundecanoic acid	ND	cn	1.7	0.43	ng/L		11/25/22 11:07	11/29/22 08:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*87*	*cn*	*70 - 130*	*11/25/22 11:07*	*11/29/22 08:57*	*1*
13C2 PFHxA	*90*	*cn*	*70 - 130*	*11/25/22 11:07*	*11/29/22 08:57*	*1*
13C3 HFPO-DA	*90*	*cn*	*70 - 130*	*11/25/22 11:07*	*11/29/22 08:57*	*1*
d5-NEtFOSAA	*92*	*cn*	*70 - 130*	*11/25/22 11:07*	*11/29/22 08:57*	*1*

Method: SW846 6850 - Perchlorate by LC/MS or LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	**1.0**	**! *1**	1.0	0.23	ug/L		12/05/22 11:26	12/06/22 16:25	1

Client Sample ID: EP 101

Date Collected: 11/16/22 10:20
Date Received: 11/21/22 10:56

Lab Sample ID: 410-106656-2

Matrix: Drinking Water

Method: EPA 537.1 - EPA 537.1, Ver 1.0 Nov 2018

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	ND	cn	1.7	0.41	ng/L		11/25/22 11:07	11/29/22 09:09	1
NMeFOSAA	ND	cn	1.7	0.41	ng/L		11/25/22 11:07	11/29/22 09:09	1
Perfluorobutanesulfonic acid	**0.71**	**J cn**	1.7	0.41	ng/L		11/25/22 11:07	11/29/22 09:09	1
Perfluorodecanoic acid	ND	cn	1.7	0.41	ng/L		11/25/22 11:07	11/29/22 09:09	1
Perfluorododecanoic acid	ND	cn	1.7	0.41	ng/L		11/25/22 11:07	11/29/22 09:09	1
Perfluoroheptanoic acid	**0.85**	**J cn**	1.7	0.41	ng/L		11/25/22 11:07	11/29/22 09:09	1
Perfluorohexanesulfonic acid	ND	cn	1.7	0.41	ng/L		11/25/22 11:07	11/29/22 09:09	1
Perfluorohexanoic acid	**1.2**	**J cn**	1.7	0.41	ng/L		11/25/22 11:07	11/29/22 09:09	1
Perfluorononanoic acid	ND	cn	1.7	0.41	ng/L		11/25/22 11:07	11/29/22 09:09	1
Perfluorooctanesulfonic acid	**1.3**	**J cn**	1.7	0.41	ng/L		11/25/22 11:07	11/29/22 09:09	1
Perfluorooctanoic acid	**1.7**	**cn**	1.7	0.41	ng/L		11/25/22 11:07	11/29/22 09:09	1
Perfluorotetradecanoic acid	ND	cn	1.7	0.41	ng/L		11/25/22 11:07	11/29/22 09:09	1
Perfluorotridecanoic acid	ND	cn	1.7	0.41	ng/L		11/25/22 11:07	11/29/22 09:09	1
Perfluoroundecanoic acid	ND	cn	1.7	0.41	ng/L		11/25/22 11:07	11/29/22 09:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*97*	*cn*	*70 - 130*	*11/25/22 11:07*	*11/29/22 09:09*	*1*
13C2 PFHxA	*94*	*cn*	*70 - 130*	*11/25/22 11:07*	*11/29/22 09:09*	*1*
13C3 HFPO-DA	*93*	*cn*	*70 - 130*	*11/25/22 11:07*	*11/29/22 09:09*	*1*
d5-NEtFOSAA	*106*	*cn*	*70 - 130*	*11/25/22 11:07*	*11/29/22 09:09*	*1*

Client Sample Results

Client: Pittsburgh Water and Sewer Authority
Project/Site: PFAS & Perchlorate

Job ID: 410-106656-1

Client Sample ID: EP 101

Lab Sample ID: 410-106656-2
Matrix: Drinking Water

Date Collected: 11/16/22 10:20
Date Received: 11/21/22 10:56

Method: SW846 6850 - Perchlorate by LC/MS or LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.37	J ! *1	1.0	0.23	ug/L		12/05/22 11:26	12/06/22 16:35	1

Client Sample ID: Raw 300

Lab Sample ID: 410-106656-3
Matrix: Water

Date Collected: 11/16/22 10:05
Date Received: 11/21/22 10:56

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	1.3	J cn	1.9	0.85	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluoroheptanoic acid	0.79	J cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorooctanoic acid	1.8	J cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorononanoic acid	ND	cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorodecanoic acid	ND	cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorotridecanoic acid	ND	cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorotetradecanoic acid	ND	cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorobutanesulfonic acid	1.1	J cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorohexanesulfonic acid	ND	cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorooctanesulfonic acid	1.1	J cn	1.9	0.95	ng/L		11/29/22 17:18	12/15/22 17:24	1
NEtFOSAA	ND	cn	2.8	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
NMeFOSAA	ND	cn	1.9	0.57	ng/L		11/29/22 17:18	12/15/22 17:24	1
10:2 FTS	ND	cn	4.7	0.95	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluoropentanesulfonic acid	ND	cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluoroheptanesulfonic acid	ND	cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorononanesulfonic acid	ND	cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorodecanesulfonic acid	ND	cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorododecanesulfonic acid (PFDoS)	ND	cn	2.8	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorooctanesulfonamide	ND	cn	1.9	0.66	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorohexadecanoic acid	ND	cn	2.8	0.95	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorooctadecanoic acid	ND	cn	2.8	0.95	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorobutanoic acid	2.6	J cn	4.7	1.9	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluoropentanoic acid	1.2	J cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
NMeFOSE	ND	cn	2.8	0.95	ng/L		11/29/22 17:18	12/15/22 17:24	1
NMeFOSA	ND	*5- cn	2.8	0.95	ng/L		11/29/22 17:18	12/15/22 17:24	1
NEtFOSE	ND	cn	2.8	0.95	ng/L		11/29/22 17:18	12/15/22 17:24	1
NEtFOSA	ND	*5- cn	4.7	0.95	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluorododecanoic acid	ND	cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
Perfluoroundecanoic acid	ND	cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
4:2 Fluorotelomer sulfonic acid	ND	cn	1.9	0.47	ng/L		11/29/22 17:18	12/15/22 17:24	1
6:2 Fluorotelomer sulfonic acid	ND	cn	4.7	4.0	ng/L		11/29/22 17:18	12/15/22 17:24	1
8:2 Fluorotelomer sulfonic acid	ND	cn	2.8	0.95	ng/L		11/29/22 17:18	12/15/22 17:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*160*	*cn*	*10 - 200*	*11/29/22 17:18*	*12/15/22 17:24*	*1*
M2-8:2 FTS	*105*	*cn*	*33 - 200*	*11/29/22 17:18*	*12/15/22 17:24*	*1*
M2-6:2 FTS	*145*	*cn*	*17 - 200*	*11/29/22 17:18*	*12/15/22 17:24*	*1*
13C5 PFHxA	*88*	*cn*	*24 - 179*	*11/29/22 17:18*	*12/15/22 17:24*	*1*
13C4 PFHpA	*96*	*cn*	*31 - 182*	*11/29/22 17:18*	*12/15/22 17:24*	*1*
13C8 PFOA	*94*	*cn*	*48 - 162*	*11/29/22 17:18*	*12/15/22 17:24*	*1*
13C9 PFNA	*110*	*cn*	*51 - 167*	*11/29/22 17:18*	*12/15/22 17:24*	*1*
13C6 PFDA	*94*	*cn*	*49 - 163*	*11/29/22 17:18*	*12/15/22 17:24*	*1*

Client Sample ID: Raw 300

Lab Sample ID: 410-106656-3
Matrix: Water

Date Collected: 11/16/22 10:05
Date Received: 11/21/22 10:56

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C7 PFUnA	80	cn	34 - 174	11/29/22 17:18	12/15/22 17:24	1
13C2-PFDoDA	81	cn	17 - 176	11/29/22 17:18	12/15/22 17:24	1
13C2 PFTeDA	58	cn	10 - 179	11/29/22 17:18	12/15/22 17:24	1
13C3 PFBS	192	cn	16 - 200	11/29/22 17:18	12/15/22 17:24	1
13C3 PFHxS	95	cn	28 - 188	11/29/22 17:18	12/15/22 17:24	1
13C8 PFOS	108	cn	51 - 159	11/29/22 17:18	12/15/22 17:24	1
d3-NMeFOSAA	90	cn	31 - 174	11/29/22 17:18	12/15/22 17:24	1
d5-NEtFOSAA	86	cn	29 - 195	11/29/22 17:18	12/15/22 17:24	1
13C8 FOSA	52	cn	10 - 168	11/29/22 17:18	12/15/22 17:24	1
13C4 PFBA	100	cn	42 - 165	11/29/22 17:18	12/15/22 17:24	1
13C5 PFPeA	165	cn	38 - 187	11/29/22 17:18	12/15/22 17:24	1
d7-N-MeFOSE-M	20	cn	10 - 178	11/29/22 17:18	12/15/22 17:24	1
d3-NMePFOSA	9	*5- cn	10 - 155	11/29/22 17:18	12/15/22 17:24	1
d9-N-EtFOSE-M	18	cn	10 - 177	11/29/22 17:18	12/15/22 17:24	1
d5-NEtPFOSA	8	*5- cn	10 - 159	11/29/22 17:18	12/15/22 17:24	1

Client Sample ID: EP 101

Lab Sample ID: 410-106656-4
Matrix: Water

Date Collected: 11/16/22 10:20
Date Received: 11/21/22 10:56

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	**1.4**	**J cn**	1.7	0.75	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluoroheptanoic acid	**0.92**	**J cn**	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorooctanoic acid	**2.1**	**cn**	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorononanoic acid	**0.52**	**J cn**	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorodecanoic acid	ND	cn	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorotridecanoic acid	ND	cn	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorotetradecanoic acid	ND	cn	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorobutanesulfonic acid	**0.98**	**J cn**	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorohexanesulfonic acid	ND	cn	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorooctanesulfonic acid	**1.9**	**cn**	1.7	0.83	ng/L		11/29/22 17:18	12/15/22 17:35	1
NEtFOSAA	ND	cn	2.5	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
NMeFOSAA	ND	cn	1.7	0.50	ng/L		11/29/22 17:18	12/15/22 17:35	1
10:2 FTS	ND	cn	4.1	0.83	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluoropentanesulfonic acid	ND	cn	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluoroheptanesulfonic acid	ND	cn	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorononanesulfonic acid	ND	cn	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorodecanesulfonic acid	ND	cn	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorododecanesulfonic acid (PFDoS)	ND	cn	2.5	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorooctanesulfonamide	ND	cn	1.7	0.58	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorohexadecanoic acid	ND	cn	2.5	0.83	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorooctadecanoic acid	ND	cn	2.5	0.83	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluorobutanoic acid	**4.1**	**cn**	4.1	1.7	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluoropentanoic acid	**0.86**	**J cn**	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
NMeFOSE	ND	cn	2.5	0.83	ng/L		11/29/22 17:18	12/15/22 17:35	1
NMeFOSA	ND	cn	2.5	0.83	ng/L		11/29/22 17:18	12/15/22 17:35	1
NEtFOSE	ND	cn	2.5	0.83	ng/L		11/29/22 17:18	12/15/22 17:35	1
NEtFOSA	ND	cn	4.1	0.83	ng/L		11/29/22 17:18	12/15/22 17:35	1

Client Sample ID: EP 101

Lab Sample ID: 410-106656-4
Matrix: Water

Date Collected: 11/16/22 10:20
Date Received: 11/21/22 10:56

Method: EPA 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid	ND	cn	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
Perfluoroundecanoic acid	ND	cn	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
4:2 Fluorotelomer sulfonic acid	ND	cn	1.7	0.41	ng/L		11/29/22 17:18	12/15/22 17:35	1
6:2 Fluorotelomer sulfonic acid	ND	cn	4.1	3.5	ng/L		11/29/22 17:18	12/15/22 17:35	1
8:2 Fluorotelomer sulfonic acid	ND	cn	2.5	0.83	ng/L		11/29/22 17:18	12/15/22 17:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*151*	*cn*	*10 - 200*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
M2-8:2 FTS	*97*	*cn*	*33 - 200*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
M2-6:2 FTS	*135*	*cn*	*17 - 200*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
13C5 PFHxA	*83*	*cn*	*24 - 179*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
13C4 PFHpA	*85*	*cn*	*31 - 182*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
13C8 PFOA	*88*	*cn*	*48 - 162*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
13C9 PFNA	*107*	*cn*	*51 - 167*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
13C6 PFDA	*83*	*cn*	*49 - 163*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
13C7 PFUnA	*73*	*cn*	*34 - 174*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
13C2-PFDoDA	*80*	*cn*	*17 - 176*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
13C2 PFTeDA	*77*	*cn*	*10 - 179*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
13C3 PFBS	*161*	*cn*	*16 - 200*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
13C3 PFHxS	*90*	*cn*	*28 - 188*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
13C8 PFOS	*95*	*cn*	*51 - 159*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
d3-NMeFOSAA	*81*	*cn*	*31 - 174*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
d5-NEtFOSAA	*84*	*cn*	*29 - 195*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
13C8 FOSA	*49*	*cn*	*10 - 168*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
13C4 PFBA	*93*	*cn*	*42 - 165*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
13C5 PFPeA	*140*	*cn*	*38 - 187*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
d7-N-MeFOSE-M	*35*	*cn*	*10 - 178*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
d3-NMePFOSA	*12*	*cn*	*10 - 155*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
d9-N-EtFOSE-M	*37*	*cn*	*10 - 177*	*11/29/22 17:18*	*12/15/22 17:35*	*1*
d5-NEtPFOSA	*13*	*cn*	*10 - 159*	*11/29/22 17:18*	*12/15/22 17:35*	*1*

Client Sample ID: Raw 300 - Field Blank

Lab Sample ID: 410-106656-5
Matrix: Drinking Water

Date Collected: 11/16/22 10:05
Date Received: 11/21/22 10:56

Method: EPA 537.1 - EPA 537.1, Ver 1.0 Nov 2018

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:32	1
NMeFOSAA	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:32	1
Perfluorobutanesulfonic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:32	1
Perfluorodecanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:32	1
Perfluorododecanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:32	1
Perfluoroheptanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:32	1
Perfluorohexanesulfonic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:32	1
Perfluorohexanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:32	1
Perfluorononanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:32	1
Perfluorooctanesulfonic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:32	1
Perfluorooctanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:32	1
Perfluorotetradecanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:32	1
Perfluorotridecanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:32	1
Perfluoroundecanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:32	1

Client Sample Results

Client: Pittsburgh Water and Sewer Authority
Project/Site: PFAS & Perchlorate

Job ID: 410-106656-1

Client Sample ID: Raw 300 - Field Blank

Lab Sample ID: 410-106656-5
Matrix: Drinking Water

Date Collected: 11/16/22 10:05
Date Received: 11/21/22 10:56

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*97*		*70 - 130*	*11/25/22 11:07*	*11/29/22 09:32*	*1*
13C2 PFHxA	*99*		*70 - 130*	*11/25/22 11:07*	*11/29/22 09:32*	*1*
13C3 HFPO-DA	*102*		*70 - 130*	*11/25/22 11:07*	*11/29/22 09:32*	*1*
d5-NEtFOSAA	*105*		*70 - 130*	*11/25/22 11:07*	*11/29/22 09:32*	*1*

Client Sample ID: EP 101 - Field Blank

Lab Sample ID: 410-106656-6
Matrix: Drinking Water

Date Collected: 11/16/22 10:20
Date Received: 11/21/22 10:56

Method: EPA 537.1 - EPA 537.1, Ver 1.0 Nov 2018

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:43	1
NMeFOSAA	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:43	1
Perfluorobutanesulfonic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:43	1
Perfluorodecanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:43	1
Perfluorododecanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:43	1
Perfluoroheptanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:43	1
Perfluorohexanesulfonic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:43	1
Perfluorohexanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:43	1
Perfluorononanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:43	1
Perfluorooctanesulfonic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:43	1
Perfluorooctanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:43	1
Perfluorotetradecanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:43	1
Perfluorotridecanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:43	1
Perfluoroundecanoic acid	ND		1.8	0.44	ng/L		11/25/22 11:07	11/29/22 09:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*96*		*70 - 130*	*11/25/22 11:07*	*11/29/22 09:43*	*1*
13C2 PFHxA	*97*		*70 - 130*	*11/25/22 11:07*	*11/29/22 09:43*	*1*
13C3 HFPO-DA	*103*		*70 - 130*	*11/25/22 11:07*	*11/29/22 09:43*	*1*
d5-NEtFOSAA	*104*		*70 - 130*	*11/25/22 11:07*	*11/29/22 09:43*	*1*

Surrogate Summary

Client: Pittsburgh Water and Sewer Authority
Project/Site: PFAS & Perchlorate

Job ID: 410-106656-1

Method: EPA 537.1 - EPA 537.1, Ver 1.0 Nov 2018

Matrix: Drinking Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	**Client Sample ID**	**PFDA (70-130)**	**PFHxA (70-130)**	**HFPODA (70-130)**	**d5NEFOS (70-130)**
410-106656-1	Raw 300	87 cn	90 cn	90 cn	92 cn
410-106656-2	EP 101	97 cn	94 cn	93 cn	106 cn
410-106656-5	Raw 300 - Field Blank	97	99	102	105
410-106656-6	EP 101 - Field Blank	96	97	103	104
LCS 410-320853/2-A	Lab Control Sample	104	93	93	87
LCSD 410-320853/3-A	Lab Control Sample Dup	102	97	96	113
MB 410-320853/1-A	Method Blank	92	90	94	89

Surrogate Legend

PFDA = 13C2 PFDA
PFHxA = 13C2 PFHxA
HFPODA = 13C3 HFPO-DA
d5NEFOS = d5-NEtFOSAA

Isotope Dilution Summary

Client: Pittsburgh Water and Sewer Authority
Project/Site: PFAS & Perchlorate

Job ID: 410-106656-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (10-200)	M282FTS (33-200)	M262FTS (17-200)	13C5PHA (24-179)	C4PFHA (31-182)	C8PFOA (48-162)	C9PFNA (51-167)	C6PFDA (49-163)
410-106656-3	Raw 300	160 cn	105 cn	145 cn	88 cn	96 cn	94 cn	110 cn	94 cn
410-106656-4	EP 101	151 cn	97 cn	135 cn	83 cn	85 cn	88 cn	107 cn	83 cn
LCS 410-321827/2-A	Lab Control Sample	112	109	116	121	124	123	141	117
LCS 410-331871/2-A	Lab Control Sample	120	118	110	122	120	114	117	112
LCSD 410-321827/3-A	Lab Control Sample Dup	103	92	102	108	108	104	121	94
LCSD 410-331871/3-A	Lab Control Sample Dup	129	119	104	125	120	117	132	120
MB 410-321827/1-A	Method Blank	106	103	117	106	109	98	118	97
MB 410-331871/1-A	Method Blank	106	94	90	115	104	101	102	98

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	13C7PUA (34-174)	PFDoDA (17-176)	PFTDA (10-179)	C3PFBS (16-200)	C3PFHS (28-188)	C8PFOS (51-159)	d3NMFOS (31-174)	d5NEFOS (29-195)
410-106656-3	Raw 300	80 cn	81 cn	58 cn	192 cn	95 cn	108 cn	90 cn	86 cn
410-106656-4	EP 101	73 cn	80 cn	77 cn	161 cn	90 cn	95 cn	81 cn	84 cn
LCS 410-321827/2-A	Lab Control Sample	113	112	113	120	114	130	116	112
LCS 410-331871/2-A	Lab Control Sample	113	112	106	108	123	125	109	109
LCSD 410-321827/3-A	Lab Control Sample Dup	110	92	91	101	110	106	96	98
LCSD 410-331871/3-A	Lab Control Sample Dup	113	109	110	110	117	127	120	111
MB 410-321827/1-A	Method Blank	96	80	60	104	102	107	96	101
MB 410-331871/1-A	Method Blank	94	89	93	95	104	104	96	84

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	PFOSA (10-168)	PFBA (42-165)	PFPeA (38-187)	NMFM (10-178)	d3NMFSA (10-155)	NEFM (10-177)	d5NPFSA (10-159)
410-106656-3	Raw 300	52 cn	100 cn	165 cn	20 cn	9 *5- cn	18 cn	8 *5- cn
410-106656-4	EP 101	49 cn	93 cn	140 cn	35 cn	12 cn	37 cn	13 cn
LCS 410-321827/2-A	Lab Control Sample	96	126	125	92	66	88	76
LCS 410-331871/2-A	Lab Control Sample	110	122	116	101	86	107	83
LCSD 410-321827/3-A	Lab Control Sample Dup	82	104	103	79	55	77	59
LCSD 410-331871/3-A	Lab Control Sample Dup	119	125	118	113	83	111	85
MB 410-321827/1-A	Method Blank	83	106	112	23	47	22	47
MB 410-331871/1-A	Method Blank	91	107	102	79	65	81	65

Surrogate Legend

M242FTS = M2-4:2 FTS
M282FTS = M2-8:2 FTS
M262FTS = M2-6:2 FTS
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoDA = 13C2-PFDoDA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
PFOSA = 13C8 FOSA

Isotope Dilution Summary

Client: Pittsburgh Water and Sewer Authority
Job ID: 410-106656-1
Project/Site: PFAS & Perchlorate

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
NMFM = d7-N-MeFOSE-M
d3NMFSA = d3-NMePFOSA
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 410-321827/1-A
Matrix: Water
Analysis Batch: 327097

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 321827

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	ND		2.0	0.90	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluoroheptanoic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorooctanoic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorononanoic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorodecanoic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorotridecanoic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorotetradecanoic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorobutanesulfonic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorohexanesulfonic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorooctanesulfonic acid	ND		2.0	1.0	ng/L		11/29/22 17:18	12/14/22 18:23	1
NEtFOSAA	ND		3.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
NMeFOSAA	ND		2.0	0.60	ng/L		11/29/22 17:18	12/14/22 18:23	1
10:2 FTS	ND		5.0	1.0	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluoropentanesulfonic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluoroheptanesulfonic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorononanesulfonic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorodecanesulfonic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorooctanesulfonamide	ND		2.0	0.70	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorohexadecanoic acid	ND		3.0	1.0	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorooctadecanoic acid	ND		3.0	1.0	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorobutanoic acid	ND		5.0	2.0	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluoropentanoic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
NMeFOSE	ND		3.0	1.0	ng/L		11/29/22 17:18	12/14/22 18:23	1
NMeFOSA	ND		3.0	1.0	ng/L		11/29/22 17:18	12/14/22 18:23	1
NEtFOSE	ND		3.0	1.0	ng/L		11/29/22 17:18	12/14/22 18:23	1
NEtFOSA	ND		5.0	1.0	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluorododecanoic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
Perfluoroundecanoic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
4:2 Fluorotelomer sulfonic acid	ND		2.0	0.50	ng/L		11/29/22 17:18	12/14/22 18:23	1
6:2 Fluorotelomer sulfonic acid	ND		5.0	4.2	ng/L		11/29/22 17:18	12/14/22 18:23	1
8:2 Fluorotelomer sulfonic acid	ND		3.0	1.0	ng/L		11/29/22 17:18	12/14/22 18:23	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*106*		*10 - 200*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
M2-8:2 FTS	*103*		*33 - 200*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
M2-6:2 FTS	*117*		*17 - 200*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
13C5 PFHxA	*106*		*24 - 179*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
13C4 PFHpA	*109*		*31 - 182*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
13C8 PFOA	*98*		*48 - 162*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
13C9 PFNA	*118*		*51 - 167*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
13C6 PFDA	*97*		*49 - 163*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
13C7 PFUnA	*96*		*34 - 174*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
13C2-PFDoDA	*80*		*17 - 176*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
13C2 PFTeDA	*60*		*10 - 179*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
13C3 PFBS	*104*		*16 - 200*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
13C3 PFHxS	*102*		*28 - 188*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
13C8 PFOS	*107*		*51 - 159*	*11/29/22 17:18*	*12/14/22 18:23*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 410-321827/1-A
Matrix: Water
Analysis Batch: 327097

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 321827

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d3-NMeFOSAA	*96*		*31 - 174*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
d5-NEtFOSAA	*101*		*29 - 195*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
13C8 FOSA	*83*		*10 - 168*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
13C4 PFBA	*106*		*42 - 165*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
13C5 PFPeA	*112*		*38 - 187*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
d7-N-MeFOSE-M	*23*		*10 - 178*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
d3-NMePFOSA	*47*		*10 - 155*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
d9-N-EtFOSE-M	*22*		*10 - 177*	*11/29/22 17:18*	*12/14/22 18:23*	*1*
d5-NEtPFOSA	*47*		*10 - 159*	*11/29/22 17:18*	*12/14/22 18:23*	*1*

Lab Sample ID: LCS 410-321827/2-A
Matrix: Water
Analysis Batch: 327097

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 321827

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanoic acid	25.6	21.5		ng/L		84	58 - 139
Perfluoroheptanoic acid	25.6	21.3		ng/L		83	59 - 145
Perfluorooctanoic acid	25.6	20.2		ng/L		79	51 - 145
Perfluorononanoic acid	25.6	22.3		ng/L		87	61 - 139
Perfluorodecanoic acid	25.6	23.1		ng/L		90	56 - 138
Perfluorotridecanoic acid	25.6	25.2		ng/L		98	58 - 146
Perfluorotetradecanoic acid	25.6	23.8		ng/L		93	62 - 139
Perfluorobutanesulfonic acid	22.7	20.7		ng/L		91	53 - 138
Perfluorohexanesulfonic acid	23.3	22.1		ng/L		95	58 - 134
Perfluorooctanesulfonic acid	23.7	20.3		ng/L		86	45 - 150
NEtFOSAA	25.6	22.2		ng/L		87	55 - 134
NMeFOSAA	25.6	24.1		ng/L		94	59 - 140
10:2 FTS	24.7	20.4		ng/L		83	50 - 146
Perfluoropentanesulfonic acid	24.0	22.2		ng/L		93	55 - 140
Perfluoroheptanesulfonic acid	24.4	19.7		ng/L		81	56 - 140
Perfluorononanesulfonic acid	24.6	21.7		ng/L		88	59 - 136
Perfluorodecanesulfonic acid	24.7	22.0		ng/L		89	55 - 137
Perfluorododecanesulfonic acid (PFDoS)	24.8	19.9		ng/L		80	48 - 138
Perfluorooctanesulfonamide	25.6	24.1		ng/L		94	43 - 167
Perfluorohexadecanoic acid	25.6	19.1		ng/L		75	41 - 158
Perfluorooctadecanoic acid	25.6	18.1		ng/L		71	29 - 172
Perfluorobutanoic acid	25.6	19.9		ng/L		78	59 - 136
Perfluoropentanoic acid	25.6	22.6		ng/L		88	57 - 141
NMeFOSE	25.6	23.0		ng/L		90	55 - 144
NMeFOSA	25.6	30.9		ng/L		121	64 - 143
NEtFOSE	25.6	25.3		ng/L		99	60 - 136
NEtFOSA	25.6	27.2		ng/L		106	61 - 134
Perfluorododecanoic acid	25.6	21.8		ng/L		85	59 - 143
Perfluoroundecanoic acid	25.6	22.3		ng/L		87	60 - 141
4:2 Fluorotelomer sulfonic acid	23.9	23.0		ng/L		96	55 - 139
6:2 Fluorotelomer sulfonic acid	24.3	22.4		ng/L		92	28 - 173
8:2 Fluorotelomer sulfonic acid	24.5	22.1		ng/L		90	55 - 138

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
M2-4:2 FTS	112		10 - 200
M2-8:2 FTS	109		33 - 200
M2-6:2 FTS	116		17 - 200
13C5 PFHxA	121		24 - 179
13C4 PFHpA	124		31 - 182
13C8 PFOA	123		48 - 162
13C9 PFNA	141		51 - 167
13C6 PFDA	117		49 - 163
13C7 PFUnA	113		34 - 174
13C2-PFDoDA	112		17 - 176
13C2 PFTeDA	113		10 - 179
13C3 PFBS	120		16 - 200
13C3 PFHxS	114		28 - 188
13C8 PFOS	130		51 - 159
d3-NMeFOSAA	116		31 - 174
d5-NEtFOSAA	112		29 - 195
13C8 FOSA	96		10 - 168
13C4 PFBA	126		42 - 165
13C5 PFPeA	125		38 - 187
d7-N-MeFOSE-M	92		10 - 178
d3-NMePFOSA	66		10 - 155
d9-N-EtFOSE-M	88		10 - 177
d5-NEtPFOSA	76		10 - 159

Lab Sample ID: LCSD 410-321827/3-A
Matrix: Water
Analysis Batch: 327097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 321827

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanoic acid	25.6	22.2		ng/L		87	58 - 139	3	30
Perfluoroheptanoic acid	25.6	21.1		ng/L		82	59 - 145	1	30
Perfluorooctanoic acid	25.6	23.3		ng/L		91	51 - 145	14	30
Perfluorononanoic acid	25.6	22.3		ng/L		87	61 - 139	0	30
Perfluorodecanoic acid	25.6	23.4		ng/L		92	56 - 138	1	30
Perfluorotridecanoic acid	25.6	24.8		ng/L		97	58 - 146	2	30
Perfluorotetradecanoic acid	25.6	24.4		ng/L		95	62 - 139	3	30
Perfluorobutanesulfonic acid	22.7	21.4		ng/L		94	53 - 138	3	30
Perfluorohexanesulfonic acid	23.3	19.2		ng/L		82	58 - 134	14	30
Perfluorooctanesulfonic acid	23.7	21.9		ng/L		92	45 - 150	7	30
NEtFOSAA	25.6	24.6		ng/L		96	55 - 134	10	30
NMeFOSAA	25.6	23.5		ng/L		92	59 - 140	3	30
10:2 FTS	24.7	22.5		ng/L		91	50 - 146	10	30
Perfluoropentanesulfonic acid	24.0	22.0		ng/L		92	55 - 140	1	30
Perfluoroheptanesulfonic acid	24.4	19.0		ng/L		78	56 - 140	3	30
Perfluorononanesulfonic acid	24.6	22.0		ng/L		89	59 - 136	1	30
Perfluorodecanesulfonic acid	24.7	23.4		ng/L		95	55 - 137	6	30
Perfluorododecanesulfonic acid (PFDoS)	24.8	21.4		ng/L		86	48 - 138	8	30
Perfluorooctanesulfonamide	25.6	25.5		ng/L		100	43 - 167	6	30
Perfluorohexadecanoic acid	25.6	21.0		ng/L		82	41 - 158	10	30
Perfluorooctadecanoic acid	25.6	20.0		ng/L		78	29 - 172	10	30
Perfluorobutanoic acid	25.6	21.1		ng/L		82	59 - 136	6	30

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 410-321827/3-A
Matrix: Water
Analysis Batch: 327097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 321827

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanoic acid			25.6	22.4		ng/L		87	57 - 141	1	30
NMeFOSE			25.6	25.3		ng/L		99	55 - 144	10	30
NMeFOSA			25.6	30.7		ng/L		120	64 - 143	0	30
NEtFOSE			25.6	24.8		ng/L		97	60 - 136	2	30
NEtFOSA			25.6	31.4		ng/L		123	61 - 134	15	30
Perfluorododecanoic acid			25.6	23.9		ng/L		93	59 - 143	9	30
Perfluoroundecanoic acid			25.6	21.8		ng/L		85	60 - 141	2	30
4:2 Fluorotelomer sulfonic acid			23.9	22.4		ng/L		94	55 - 139	2	30
6:2 Fluorotelomer sulfonic acid			24.3	23.3		ng/L		96	28 - 173	4	30
8:2 Fluorotelomer sulfonic acid			24.5	23.1		ng/L		94	55 - 138	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-4:2 FTS	*103*		*10 - 200*
M2-8:2 FTS	*92*		*33 - 200*
M2-6:2 FTS	*102*		*17 - 200*
13C5 PFHxA	*108*		*24 - 179*
13C4 PFHpA	*108*		*31 - 182*
13C8 PFOA	*104*		*48 - 162*
13C9 PFNA	*121*		*51 - 167*
13C6 PFDA	*94*		*49 - 163*
13C7 PFUnA	*110*		*34 - 174*
13C2-PFDoDA	*92*		*17 - 176*
13C2 PFTeDA	*91*		*10 - 179*
13C3 PFBS	*101*		*16 - 200*
13C3 PFHxS	*110*		*28 - 188*
13C8 PFOS	*106*		*51 - 159*
d3-NMeFOSAA	*96*		*31 - 174*
d5-NEtFOSAA	*98*		*29 - 195*
13C8 FOSA	*82*		*10 - 168*
13C4 PFBA	*104*		*42 - 165*
13C5 PFPeA	*103*		*38 - 187*
d7-N-MeFOSE-M	*79*		*10 - 178*
d3-NMePFOSA	*55*		*10 - 155*
d9-N-EtFOSE-M	*77*		*10 - 177*
d5-NEtPFOSA	*59*		*10 - 159*

Lab Sample ID: MB 410-331871/1-A
Matrix: Water
Analysis Batch: 332116

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 331871

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	ND		2.0	0.90	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluoroheptanoic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorooctanoic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorononanoic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorodecanoic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorotridecanoic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorotetradecanoic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorobutanesulfonic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 410-331871/1-A
Matrix: Water
Analysis Batch: 332116

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 331871

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorooctanesulfonic acid	ND		2.0	1.0	ng/L		01/02/23 11:27	01/04/23 11:47	1
NEtFOSAA	ND		3.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
NMeFOSAA	ND		2.0	0.60	ng/L		01/02/23 11:27	01/04/23 11:47	1
10:2 FTS	ND		5.0	1.0	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluoropentanesulfonic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluoroheptanesulfonic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorononanesulfonic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorodecanesulfonic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorooctanesulfonamide	ND		2.0	0.70	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorohexadecanoic acid	ND		3.0	1.0	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorooctadecanoic acid	ND		3.0	1.0	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorobutanoic acid	ND		5.0	2.0	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluoropentanoic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
NMeFOSE	ND		3.0	1.0	ng/L		01/02/23 11:27	01/04/23 11:47	1
NMeFOSA	ND		3.0	1.0	ng/L		01/02/23 11:27	01/04/23 11:47	1
NEtFOSE	ND		3.0	1.0	ng/L		01/02/23 11:27	01/04/23 11:47	1
NEtFOSA	ND		5.0	1.0	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluorododecanoic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
Perfluoroundecanoic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
4:2 Fluorotelomer sulfonic acid	ND		2.0	0.50	ng/L		01/02/23 11:27	01/04/23 11:47	1
6:2 Fluorotelomer sulfonic acid	ND		5.0	4.2	ng/L		01/02/23 11:27	01/04/23 11:47	1
8:2 Fluorotelomer sulfonic acid	ND		3.0	1.0	ng/L		01/02/23 11:27	01/04/23 11:47	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*106*		*10 - 200*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
M2-8:2 FTS	*94*		*33 - 200*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
M2-6:2 FTS	*90*		*17 - 200*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
13C5 PFHxA	*115*		*24 - 179*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
13C4 PFHpA	*104*		*31 - 182*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
13C8 PFOA	*101*		*48 - 162*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
13C9 PFNA	*102*		*51 - 167*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
13C6 PFDA	*98*		*49 - 163*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
13C7 PFUnA	*94*		*34 - 174*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
13C2-PFDoDA	*89*		*17 - 176*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
13C2 PFTeDA	*93*		*10 - 179*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
13C3 PFBS	*95*		*16 - 200*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
13C3 PFHxS	*104*		*28 - 188*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
13C8 PFOS	*104*		*51 - 159*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
d3-NMeFOSAA	*96*		*31 - 174*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
d5-NEtFOSAA	*84*		*29 - 195*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
13C8 FOSA	*91*		*10 - 168*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
13C4 PFBA	*107*		*42 - 165*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
13C5 PFPeA	*102*		*38 - 187*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
d7-N-MeFOSE-M	*79*		*10 - 178*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
d3-NMePFOSA	*65*		*10 - 155*	*01/02/23 11:27*	*01/04/23 11:47*	*1*
d9-N-EtFOSE-M	*81*		*10 - 177*	*01/02/23 11:27*	*01/04/23 11:47*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 410-331871/1-A
Matrix: Water
Analysis Batch: 332116

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 331871

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d5-NEtPFOSA	*65*		*10 - 159*	*01/02/23 11:27*	*01/04/23 11:47*	*1*

Lab Sample ID: LCS 410-331871/2-A
Matrix: Water
Analysis Batch: 332116

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 331871

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanoic acid	25.6	20.9		ng/L		82	58 - 139
Perfluoroheptanoic acid	25.6	21.6		ng/L		84	59 - 145
Perfluorooctanoic acid	25.6	21.5		ng/L		84	51 - 145
Perfluorononanoic acid	25.6	22.6		ng/L		88	61 - 139
Perfluorodecanoic acid	25.6	21.4		ng/L		84	56 - 138
Perfluorotridecanoic acid	25.6	21.4		ng/L		83	58 - 146
Perfluorotetradecanoic acid	25.6	22.1		ng/L		86	62 - 139
Perfluorobutanesulfonic acid	22.7	19.7		ng/L		87	53 - 138
Perfluorohexanesulfonic acid	23.3	18.6		ng/L		79	58 - 134
Perfluorooctanesulfonic acid	23.7	19.8		ng/L		84	45 - 150
NEtFOSAA	25.6	21.9		ng/L		86	55 - 134
NMeFOSAA	25.6	19.9		ng/L		78	59 - 140
10:2 FTS	24.7	18.0		ng/L		73	50 - 146
Perfluoropentanesulfonic acid	24.0	19.1		ng/L		80	55 - 140
Perfluoroheptanesulfonic acid	24.4	18.7		ng/L		77	56 - 140
Perfluorononanesulfonic acid	24.6	19.3		ng/L		79	59 - 136
Perfluorodecanesulfonic acid	24.7	19.2		ng/L		78	55 - 137
Perfluorododecanesulfonic acid (PFDoS)	24.8	19.2		ng/L		78	48 - 138
Perfluorooctanesulfonamide	25.6	21.6		ng/L		84	43 - 167
Perfluorohexadecanoic acid	25.6	19.3		ng/L		76	41 - 158
Perfluorooctadecanoic acid	25.6	19.9		ng/L		78	29 - 172
Perfluorobutanoic acid	25.6	17.8		ng/L		70	59 - 136
Perfluoropentanoic acid	25.6	19.7		ng/L		77	57 - 141
NMeFOSE	25.6	20.9		ng/L		81	55 - 144
NMeFOSA	25.6	20.4		ng/L		80	64 - 143
NEtFOSE	25.6	19.9		ng/L		78	60 - 136
NEtFOSA	25.6	21.9		ng/L		86	61 - 134
Perfluorododecanoic acid	25.6	19.4		ng/L		76	59 - 143
Perfluoroundecanoic acid	25.6	21.6		ng/L		84	60 - 141
4:2 Fluorotelomer sulfonic acid	23.9	19.5		ng/L		81	55 - 139
6:2 Fluorotelomer sulfonic acid	24.3	20.2		ng/L		83	28 - 173
8:2 Fluorotelomer sulfonic acid	24.5	17.4		ng/L		71	55 - 138

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*120*		*10 - 200*
M2-8:2 FTS	*118*		*33 - 200*
M2-6:2 FTS	*110*		*17 - 200*
13C5 PFHxA	*122*		*24 - 179*
13C4 PFHpA	*120*		*31 - 182*
13C8 PFOA	*114*		*48 - 162*
13C9 PFNA	*117*		*51 - 167*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 410-331871/2-A
Matrix: Water
Analysis Batch: 332116

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 331871

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C6 PFDA	*112*		*49 - 163*
13C7 PFUnA	*113*		*34 - 174*
13C2-PFDoDA	*112*		*17 - 176*
13C2 PFTeDA	*106*		*10 - 179*
13C3 PFBS	*108*		*16 - 200*
13C3 PFHxS	*123*		*28 - 188*
13C8 PFOS	*125*		*51 - 159*
d3-NMeFOSAA	*109*		*31 - 174*
d5-NEtFOSAA	*109*		*29 - 195*
13C8 FOSA	*110*		*10 - 168*
13C4 PFBA	*122*		*42 - 165*
13C5 PFPeA	*116*		*38 - 187*
d7-N-MeFOSE-M	*101*		*10 - 178*
d3-NMePFOSA	*86*		*10 - 155*
d9-N-EtFOSE-M	*107*		*10 - 177*
d5-NEtPFOSA	*83*		*10 - 159*

Lab Sample ID: LCSD 410-331871/3-A
Matrix: Water
Analysis Batch: 332116

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 331871

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanoic acid			25.6	20.9		ng/L		81	58 - 139	0	30
Perfluoroheptanoic acid			25.6	21.8		ng/L		85	59 - 145	1	30
Perfluorooctanoic acid			25.6	21.8		ng/L		85	51 - 145	1	30
Perfluorononanoic acid			25.6	20.5		ng/L		80	61 - 139	10	30
Perfluorodecanoic acid			25.6	21.3		ng/L		83	56 - 138	1	30
Perfluorotridecanoic acid			25.6	20.0		ng/L		78	58 - 146	7	30
Perfluorotetradecanoic acid			25.6	21.7		ng/L		85	62 - 139	2	30
Perfluorobutanesulfonic acid			22.7	19.2		ng/L		85	53 - 138	2	30
Perfluorohexanesulfonic acid			23.3	19.1		ng/L		82	58 - 134	3	30
Perfluorooctanesulfonic acid			23.7	19.6		ng/L		83	45 - 150	1	30
NEtFOSAA			25.6	20.8		ng/L		81	55 - 134	5	30
NMeFOSAA			25.6	18.6		ng/L		72	59 - 140	7	30
10:2 FTS			24.7	18.4		ng/L		75	50 - 146	2	30
Perfluoropentanesulfonic acid			24.0	18.9		ng/L		79	55 - 140	1	30
Perfluoroheptanesulfonic acid			24.4	19.1		ng/L		78	56 - 140	2	30
Perfluorononanesulfonic acid			24.6	19.6		ng/L		80	59 - 136	1	30
Perfluorodecanesulfonic acid			24.7	19.0		ng/L		77	55 - 137	1	30
Perfluorododecanesulfonic acid (PFDoS)			24.8	18.6		ng/L		75	48 - 138	3	30
Perfluorooctanesulfonamide			25.6	19.7		ng/L		77	43 - 167	9	30
Perfluorohexadecanoic acid			25.6	19.6		ng/L		77	41 - 158	2	30
Perfluorooctadecanoic acid			25.6	18.1		ng/L		71	29 - 172	9	30
Perfluorobutanoic acid			25.6	17.6		ng/L		69	59 - 136	1	30
Perfluoropentanoic acid			25.6	19.8		ng/L		77	57 - 141	0	30
NMeFOSE			25.6	20.4		ng/L		80	55 - 144	2	30
NMeFOSA			25.6	21.8		ng/L		85	64 - 143	6	30
NEtFOSE			25.6	20.5		ng/L		80	60 - 136	3	30

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 410-331871/3-A
Matrix: Water
Analysis Batch: 332116

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 331871

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
NEtFOSA			25.6	21.3		ng/L		83	61 - 134	3	30
Perfluorododecanoic acid			25.6	22.1		ng/L		86	59 - 143	13	30
Perfluoroundecanoic acid			25.6	20.7		ng/L		81	60 - 141	4	30
4:2 Fluorotelomer sulfonic acid			23.9	18.3		ng/L		77	55 - 139	6	30
6:2 Fluorotelomer sulfonic acid			24.3	22.4		ng/L		92	28 - 173	10	30
8:2 Fluorotelomer sulfonic acid			24.5	19.9		ng/L		81	55 - 138	14	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-4:2 FTS	*129*		*10 - 200*
M2-8:2 FTS	*119*		*33 - 200*
M2-6:2 FTS	*104*		*17 - 200*
13C5 PFHxA	*125*		*24 - 179*
13C4 PFHpA	*120*		*31 - 182*
13C8 PFOA	*117*		*48 - 162*
13C9 PFNA	*132*		*51 - 167*
13C6 PFDA	*120*		*49 - 163*
13C7 PFUnA	*113*		*34 - 174*
13C2-PFDoDA	*109*		*17 - 176*
13C2 PFTeDA	*110*		*10 - 179*
13C3 PFBS	*110*		*16 - 200*
13C3 PFHxS	*117*		*28 - 188*
13C8 PFOS	*127*		*51 - 159*
d3-NMeFOSAA	*120*		*31 - 174*
d5-NEtFOSAA	*111*		*29 - 195*
13C8 FOSA	*119*		*10 - 168*
13C4 PFBA	*125*		*42 - 165*
13C5 PFPeA	*118*		*38 - 187*
d7-N-MeFOSE-M	*113*		*10 - 178*
d3-NMePFOSA	*83*		*10 - 155*
d9-N-EtFOSE-M	*111*		*10 - 177*
d5-NEtPFOSA	*85*		*10 - 159*

Method: EPA 537.1 - EPA 537.1, Ver 1.0 Nov 2018

Lab Sample ID: MB 410-320853/1-A
Matrix: Drinking Water
Analysis Batch: 321263

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 320853

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	ND		2.0	0.50	ng/L		11/25/22 11:07	11/29/22 06:38	1
NMeFOSAA	ND		2.0	0.50	ng/L		11/25/22 11:07	11/29/22 06:38	1
Perfluorobutanesulfonic acid	ND		2.0	0.50	ng/L		11/25/22 11:07	11/29/22 06:38	1
Perfluorodecanoic acid	ND		2.0	0.50	ng/L		11/25/22 11:07	11/29/22 06:38	1
Perfluorododecanoic acid	ND		2.0	0.50	ng/L		11/25/22 11:07	11/29/22 06:38	1
Perfluoroheptanoic acid	ND		2.0	0.50	ng/L		11/25/22 11:07	11/29/22 06:38	1
Perfluorohexanesulfonic acid	ND		2.0	0.50	ng/L		11/25/22 11:07	11/29/22 06:38	1
Perfluorohexanoic acid	ND		2.0	0.50	ng/L		11/25/22 11:07	11/29/22 06:38	1
Perfluorononanoic acid	ND		2.0	0.50	ng/L		11/25/22 11:07	11/29/22 06:38	1
Perfluorooctanesulfonic acid	ND		2.0	0.50	ng/L		11/25/22 11:07	11/29/22 06:38	1

Method: EPA 537.1 - EPA 537.1, Ver 1.0 Nov 2018 (Continued)

Lab Sample ID: MB 410-320853/1-A
Matrix: Drinking Water
Analysis Batch: 321263

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 320853

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	ND		2.0	0.50	ng/L		11/25/22 11:07	11/29/22 06:38	1
Perfluorotetradecanoic acid	ND		2.0	0.50	ng/L		11/25/22 11:07	11/29/22 06:38	1
Perfluorotridecanoic acid	ND		2.0	0.50	ng/L		11/25/22 11:07	11/29/22 06:38	1
Perfluoroundecanoic acid	ND		2.0	0.50	ng/L		11/25/22 11:07	11/29/22 06:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*92*		*70 - 130*	*11/25/22 11:07*	*11/29/22 06:38*	*1*
13C2 PFHxA	*90*		*70 - 130*	*11/25/22 11:07*	*11/29/22 06:38*	*1*
13C3 HFPO-DA	*94*		*70 - 130*	*11/25/22 11:07*	*11/29/22 06:38*	*1*
d5-NEtFOSAA	*89*		*70 - 130*	*11/25/22 11:07*	*11/29/22 06:38*	*1*

Lab Sample ID: LCS 410-320853/2-A
Matrix: Drinking Water
Analysis Batch: 322712

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 320853

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
NEtFOSAA	20.5	19.9		ng/L		97	70 - 130
NMeFOSAA	20.5	17.0		ng/L		83	70 - 130
Perfluorobutanesulfonic acid	18.1	13.9		ng/L		77	70 - 130
Perfluorodecanoic acid	20.5	18.0		ng/L		88	70 - 130
Perfluorododecanoic acid	20.5	17.8		ng/L		87	70 - 130
Perfluoroheptanoic acid	20.5	18.5		ng/L		90	70 - 130
Perfluorohexanesulfonic acid	18.7	17.2		ng/L		92	70 - 130
Perfluorohexanoic acid	20.5	17.1		ng/L		83	70 - 130
Perfluorononanoic acid	20.5	17.3		ng/L		84	70 - 130
Perfluorooctanesulfonic acid	19.0	17.4		ng/L		92	70 - 130
Perfluorooctanoic acid	20.5	17.6		ng/L		86	70 - 130
Perfluorotetradecanoic acid	20.5	16.2		ng/L		79	70 - 130
Perfluorotridecanoic acid	20.5	17.5		ng/L		85	70 - 130
Perfluoroundecanoic acid	20.5	18.3		ng/L		89	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*104*		*70 - 130*
13C2 PFHxA	*93*		*70 - 130*
13C3 HFPO-DA	*93*		*70 - 130*
d5-NEtFOSAA	*87*		*70 - 130*

Lab Sample ID: LCSD 410-320853/3-A
Matrix: Drinking Water
Analysis Batch: 322712

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 320853

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
NEtFOSAA	20.5	19.1		ng/L		93	70 - 130	4	30
NMeFOSAA	20.5	17.2		ng/L		84	70 - 130	1	30
Perfluorobutanesulfonic acid	18.1	13.8		ng/L		76	70 - 130	1	30
Perfluorodecanoic acid	20.5	18.0		ng/L		88	70 - 130	0	30
Perfluorododecanoic acid	20.5	17.7		ng/L		86	70 - 130	1	30
Perfluoroheptanoic acid	20.5	18.5		ng/L		90	70 - 130	0	30

Method: EPA 537.1 - EPA 537.1, Ver 1.0 Nov 2018 (Continued)

Lab Sample ID: LCSD 410-320853/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Drinking Water — **Prep Type: Total/NA**
Analysis Batch: 322712 — **Prep Batch: 320853**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid	18.7	17.7		ng/L		95	70 - 130	3	30
Perfluorohexanoic acid	20.5	17.7		ng/L		86	70 - 130	4	30
Perfluorononanoic acid	20.5	17.4		ng/L		85	70 - 130	1	30
Perfluorooctanesulfonic acid	19.0	16.7		ng/L		88	70 - 130	4	30
Perfluorooctanoic acid	20.5	18.2		ng/L		89	70 - 130	4	30
Perfluorotetradecanoic acid	20.5	16.2		ng/L		79	70 - 130	0	30
Perfluorotridecanoic acid	20.5	17.0		ng/L		83	70 - 130	3	30
Perfluoroundecanoic acid	20.5	17.7		ng/L		87	70 - 130	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*102*		*70 - 130*
13C2 PFHxA	*97*		*70 - 130*
13C3 HFPO-DA	*96*		*70 - 130*
d5-NEtFOSAA	*113*		*70 - 130*

Method: SW846 6850 - Perchlorate by LC/MS or LC/MS/MS

Lab Sample ID: MB 410-323713/1-A — **Client Sample ID: Method Blank**
Matrix: Drinking Water — **Prep Type: Total/NA**
Analysis Batch: 323718 — **Prep Batch: 323713**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		1.0	0.23	ug/L		12/05/22 11:26	12/06/22 13:43	1

Lab Sample ID: LCS 410-323713/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Drinking Water — **Prep Type: Total/NA**
Analysis Batch: 323718 — **Prep Batch: 323713**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	1.00	1.00		ug/L		100	80 - 120

Lab Sample ID: LCSD 410-323713/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Drinking Water — **Prep Type: Total/NA**
Analysis Batch: 323718 — **Prep Batch: 323713**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	1.00	1.19	*1	ug/L		119	80 - 120	17	15

QC Association Summary

Client: Pittsburgh Water and Sewer Authority
Project/Site: PFAS & Perchlorate

Job ID: 410-106656-1

LCMS

Prep Batch: 320853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-106656-1	Raw 300	Total/NA	Drinking Water	537.1 DW Prep	
410-106656-2	EP 101	Total/NA	Drinking Water	537.1 DW Prep	
410-106656-5	Raw 300 - Field Blank	Total/NA	Drinking Water	537.1 DW Prep	
410-106656-6	EP 101 - Field Blank	Total/NA	Drinking Water	537.1 DW Prep	
MB 410-320853/1-A	Method Blank	Total/NA	Drinking Water	537.1 DW Prep	
LCS 410-320853/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1 DW Prep	
LCSD 410-320853/3-A	Lab Control Sample Dup	Total/NA	Drinking Water	537.1 DW Prep	

Analysis Batch: 321263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-106656-1	Raw 300	Total/NA	Drinking Water	EPA 537.1	320853
410-106656-2	EP 101	Total/NA	Drinking Water	EPA 537.1	320853
410-106656-5	Raw 300 - Field Blank	Total/NA	Drinking Water	EPA 537.1	320853
410-106656-6	EP 101 - Field Blank	Total/NA	Drinking Water	EPA 537.1	320853
MB 410-320853/1-A	Method Blank	Total/NA	Drinking Water	EPA 537.1	320853

Prep Batch: 321827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-106656-3	Raw 300	Total/NA	Water	3535	
410-106656-3 - RA	Raw 300	Total/NA	Water	3535	
410-106656-4 - RA	EP 101	Total/NA	Water	3535	
410-106656-4	EP 101	Total/NA	Water	3535	
MB 410-321827/1-A	Method Blank	Total/NA	Water	3535	
LCS 410-321827/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 410-321827/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 322712

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-320853/2-A	Lab Control Sample	Total/NA	Drinking Water	EPA 537.1	320853
LCSD 410-320853/3-A	Lab Control Sample Dup	Total/NA	Drinking Water	EPA 537.1	320853

Prep Batch: 323713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-106656-1	Raw 300	Total/NA	Drinking Water	6850 Prep	
410-106656-2	EP 101	Total/NA	Drinking Water	6850 Prep	
MB 410-323713/1-A	Method Blank	Total/NA	Drinking Water	6850 Prep	
LCS 410-323713/2-A	Lab Control Sample	Total/NA	Drinking Water	6850 Prep	
LCSD 410-323713/3-A	Lab Control Sample Dup	Total/NA	Drinking Water	6850 Prep	

Analysis Batch: 323718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-106656-1	Raw 300	Total/NA	Drinking Water	SW846 6850	323713
410-106656-2	EP 101	Total/NA	Drinking Water	SW846 6850	323713
MB 410-323713/1-A	Method Blank	Total/NA	Drinking Water	SW846 6850	323713
LCS 410-323713/2-A	Lab Control Sample	Total/NA	Drinking Water	SW846 6850	323713
LCSD 410-323713/3-A	Lab Control Sample Dup	Total/NA	Drinking Water	SW846 6850	323713

Analysis Batch: 325744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-106656-3 - RA	Raw 300	Total/NA	Water	537 (modified)	321827
410-106656-4 - RA	EP 101	Total/NA	Water	537 (modified)	321827

QC Association Summary

Client: Pittsburgh Water and Sewer Authority
Project/Site: PFAS & Perchlorate

Job ID: 410-106656-1

LCMS

Analysis Batch: 327097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-321827/1-A	Method Blank	Total/NA	Water	537 (modified)	321827
LCS 410-321827/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	321827
LCSD 410-321827/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	321827

Analysis Batch: 327614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-106656-3	Raw 300	Total/NA	Water	537 (modified)	321827
410-106656-4	EP 101	Total/NA	Water	537 (modified)	321827

Prep Batch: 331871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-106656-3 - RE	Raw 300	Total/NA	Water	3535	
MB 410-331871/1-A	Method Blank	Total/NA	Water	3535	
LCS 410-331871/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 410-331871/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 332116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-106656-3 - RE	Raw 300	Total/NA	Water	537 (modified)	331871
MB 410-331871/1-A	Method Blank	Total/NA	Water	537 (modified)	331871
LCS 410-331871/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	331871
LCSD 410-331871/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	331871

Lab Chronicle

Client: Pittsburgh Water and Sewer Authority
Project/Site: PFAS & Perchlorate

Job ID: 410-106656-1

Client Sample ID: Raw 300
Date Collected: 11/16/22 10:05
Date Received: 11/21/22 10:56

Lab Sample ID: 410-106656-1
Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW Prep			320853	HQ8B	ELLE	11/25/22 11:07
Total/NA	Analysis	EPA 537.1		1	321263	DCS9	ELLE	11/29/22 08:57
Total/NA	Prep	6850 Prep			323713	UAD3	ELLE	12/05/22 11:26
Total/NA	Analysis	SW846 6850		1	323718	UAD3	ELLE	12/06/22 16:25

Client Sample ID: EP 101
Date Collected: 11/16/22 10:20
Date Received: 11/21/22 10:56

Lab Sample ID: 410-106656-2
Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW Prep			320853	HQ8B	ELLE	11/25/22 11:07
Total/NA	Analysis	EPA 537.1		1	321263	DCS9	ELLE	11/29/22 09:09
Total/NA	Prep	6850 Prep			323713	UAD3	ELLE	12/05/22 11:26
Total/NA	Analysis	SW846 6850		1	323718	UAD3	ELLE	12/06/22 16:35

Client Sample ID: Raw 300
Date Collected: 11/16/22 10:05
Date Received: 11/21/22 10:56

Lab Sample ID: 410-106656-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535	RA		321827	K9VR	ELLE	11/29/22 17:18
Total/NA	Analysis	537 (modified)	RA	1	325744	MT26	ELLE	12/11/22 11:32
Total/NA	Prep	3535			321827	K9VR	ELLE	11/29/22 17:18
Total/NA	Analysis	537 (modified)		1	327614	UUV6	ELLE	12/15/22 17:24
Total/NA	Prep	3535	RE		331871	D5VP	ELLE	01/02/23 11:27
Total/NA	Analysis	537 (modified)	RE	1	332116	QD9Y	ELLE	01/04/23 13:29

Client Sample ID: EP 101
Date Collected: 11/16/22 10:20
Date Received: 11/21/22 10:56

Lab Sample ID: 410-106656-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535	RA		321827	K9VR	ELLE	11/29/22 17:18
Total/NA	Analysis	537 (modified)	RA	1	325744	MT26	ELLE	12/11/22 11:43
Total/NA	Prep	3535			321827	K9VR	ELLE	11/29/22 17:18
Total/NA	Analysis	537 (modified)		1	327614	UUV6	ELLE	12/15/22 17:35

Client Sample ID: Raw 300 - Field Blank
Date Collected: 11/16/22 10:05
Date Received: 11/21/22 10:56

Lab Sample ID: 410-106656-5
Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW Prep			320853	HQ8B	ELLE	11/25/22 11:07
Total/NA	Analysis	EPA 537.1		1	321263	DCS9	ELLE	11/29/22 09:32

Lab Chronicle

Client: Pittsburgh Water and Sewer Authority
Project/Site: PFAS & Perchlorate

Job ID: 410-106656-1

Client Sample ID: EP 101 - Field Blank

Date Collected: 11/16/22 10:20
Date Received: 11/21/22 10:56

Lab Sample ID: 410-106656-6

Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW Prep			320853	HQ8B	ELLE	11/25/22 11:07
Total/NA	Analysis	EPA 537.1		1	321263	DCS9	ELLE	11/29/22 09:43

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Pittsburgh Water and Sewer Authority
Project/Site: PFAS & Perchlorate

Job ID: 410-106656-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Pennsylvania	NELAP	36-00037	01-31-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SW846 6850	6850 Prep	Drinking Water	Perchlorate

Method Summary

Client: Pittsburgh Water and Sewer Authority
Project/Site: PFAS & Perchlorate

Job ID: 410-106656-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	ELLE
EPA 537.1	EPA 537.1, Ver 1.0 Nov 2018	EPA	ELLE
SW846 6850	Perchlorate by LC/MS or LC/MS/MS	SW846	ELLE
3535	Solid-Phase Extraction (SPE)	SW846	ELLE
537.1 DW Prep	Extraction of Perfluorinated Alkyl Acids	EPA	ELLE
6850 Prep	Perchlorate Water Prep	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Pittsburgh Water and Sewer Authority
Project/Site: PFAS & Perchlorate

Job ID: 410-106656-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-106656-1	Raw 300	Drinking Water	11/16/22 10:05	11/21/22 10:56
410-106656-2	EP 101	Drinking Water	11/16/22 10:20	11/21/22 10:56
410-106656-3	Raw 300	Water	11/16/22 10:05	11/21/22 10:56
410-106656-4	EP 101	Water	11/16/22 10:20	11/21/22 10:56
410-106656-5	Raw 300 - Field Blank	Drinking Water	11/16/22 10:05	11/21/22 10:56
410-106656-6	EP 101 - Field Blank	Drinking Water	11/16/22 10:20	11/21/22 10:56

410-106656 Chain of Custody

; Environme

Chain of Custody Record

eurofins
Environment Testing

	Sampler: Robert Gomez	Lab PM: Gordon, Stephen J	Carrier Tracking No(s):	COC No: 410-25352-7775.1
Linda Leopold	Phone:	E-Mail: Stephen.Gordon@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: Pittsburgh Water and Sewer Authority	PWSID:			Job #:
Address: 900 Freeport Road	Due Date Requested:			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238	Compliance Project: Δ Yes Δ No			
Phone:	PO #: Purchase Order not required			
Email:	WO #:			
Project Name: PFAS & Perchlorate	Project #: 41004440			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	537.1_DW - PFAS DW 14 compounds	6850 - Perchlorate by LC/MS or LC/MS/MS	PFC_IDA - PFAS 32 Compounds	537.1_DW - PFAS DW 14 compounds	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	Y	N	N	N	X	
Raw 300	11/16/22	1005	G	Drinking Wate			2					
EP 101	11/16/22	1020	G	Drinking Wate			2					
Raw 300	11/16/22	1005	G	Water					2			
EP 101	11/16/22	1020	G	Water					2			
Raw 300	11/16/22	1005	G	Drinking Wate				2				
EP101	11/16/22	1020	G	Drinking Wate				2				
Raw 300	11/16/22	1005	G	DW				1				
EP 101	11/16/22	1020	G	DW				1				
Raw 300 - Field Blank	11/16/22	1005	G	DW						2		
EP101 - Field Blank	11/16/22	1020	G	DW						2		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 11-21-22 1358	Company	Received by:	Date/Time	Company
Relinquished by: Robert Gomez	Date/Time: 11/16/22 1038	Company: PWSA	Received by:	Date/Time	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 11/21/22 1056	Company: ELAT

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.7

Ver: 06/08/2021

CJ

1/5/2023 MR

Login Sample Receipt Checklist

Client: Pittsburgh Water and Sewer Authority

Job Number: 410-106656-1

Login Number: 106656
List Number: 1
Creator: Jeremiah, Cory T

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	