



# Environment Testing

## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Environment Testing, LLC  
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Tel: (717)656-2300

Laboratory Job ID: 410-100050-1  
Client Project/Site: PFAS & Perchlorate

For:  
Pittsburgh Water and Sewer Authority  
900 Freeport Road  
Pittsburgh, Pennsylvania 15238

Attn: Aimee Butch

Authorized for release by:  
11/8/2022 8:28:29 AM

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16



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.

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A handwritten signature in black ink, appearing to read "Stephen Gordon".

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Stephen Gordon  
Senior Project Manager  
11/8/2022 8:28:29 AM



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Detection Summary . . . . .	6
Client Sample Results . . . . .	8
Surrogate Summary . . . . .	13
Isotope Dilution Summary . . . . .	14
QC Sample Results . . . . .	15
QC Association Summary . . . . .	21
Lab Chronicle . . . . .	23
Certification Summary . . . . .	25
Method Summary . . . . .	26
Sample Summary . . . . .	27
Chain of Custody . . . . .	28
Receipt Checklists . . . . .	29

# Definitions/Glossary

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

Job ID: 410-100050-1

## Qualifiers

### LCMS

Qualifier	Qualifier Description
!	Laboratory is not accredited for this parameter.
*3	ISTD response or retention time outside acceptable 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.
α	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

# Case Narrative

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

Job ID: 410-100050-1

**Job ID: 410-100050-1**

**Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC**

## Narrative

**Job Narrative  
410-100050-1**

### Comments

No additional comments.

### Receipt

The samples were received on 9/30/2022 11:15 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 was 1.3° C.

### Receipt Exceptions

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

Method 537.1 DW: The recovery for the internal standard(s) in the following sample: Raw 300 is outside of QC acceptance limits. The sample(s) was re-extracted outside of the required holding time and the recovery for the internal standard(s) is within QC acceptance limits.

Method 537.1 DW: The recovery for the surrogate(s) d5-NEtFOSAA in the following sample: Raw 300 is outside of QC acceptance limits. The sample(s) was re-extracted outside of the required holding time and the recovery for the surrogate(s) was within QC acceptance limits.

Method 537 (modified): The recoveries for the labeled isotope(s): d3-NMePFOSA and d5-NEtPFOSA in the following sample: Raw 300 were outside the QC acceptance limits. The following action was taken: This sample was re-extracted outside of the required holding time and the recovery for labeled isotope(s): d3-NMePFOSA and d5-NEtPFOSA were within QC acceptance limits.

Method 537 (modified): The recovery for the labeled isotope: d3-NMePFOSA in the following sample: EP 101 was outside the QC acceptance limits. The following action was taken: This sample was re-extracted outside of the required holding time and the recovery for labeled isotope: d3-NMePFOSA was within QC acceptance limits.

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

### Organic Prep

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

# Detection Summary

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

Job ID: 410-100050-1

## Client Sample ID: Raw 300

## Lab Sample ID: 410-100050-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid	0.98	J cn	1.7	0.41	ng/L	1		EPA 537.1	Total/NA
Perfluoroheptanoic acid	0.66	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	1.2	J cn	1.7	0.41	ng/L	1		EPA 537.1	Total/NA

## Client Sample ID: EP 101

## Lab Sample ID: 410-100050-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid	1.1	J	1.7	0.43	ng/L	1		EPA 537.1	Total/NA
Perfluoroheptanoic acid	0.56	J	1.7	0.43	ng/L	1		EPA 537.1	Total/NA
Perfluorohexanoic acid	1.1	J	1.7	0.43	ng/L	1		EPA 537.1	Total/NA
Perfluorooctanesulfonic acid	1.4	J	1.7	0.43	ng/L	1		EPA 537.1	Total/NA
Perfluorooctanoic acid	1.3	J	1.7	0.43	ng/L	1		EPA 537.1	Total/NA

## Client Sample ID: Raw 300

## Lab Sample ID: 410-100050-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	1.0	J	1.8	0.80	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid	0.50	J	1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid	1.1	J	1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid	1.0	J	1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid	1.1	J	1.8	0.89	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid	1.0	J	1.8	0.44	ng/L	1		537 (modified)	Total/NA

## Client Sample ID: EP 101

## Lab Sample ID: 410-100050-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	1.3	J	1.6	0.74	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid	0.72	J	1.6	0.41	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid	1.4	J	1.6	0.41	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid	0.44	J	1.6	0.41	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid	1.3	J	1.6	0.41	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid	1.6	J	1.6	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide	0.75	J	1.6	0.57	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid	1.9	J	4.1	1.6	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid	1.0	J	1.6	0.41	ng/L	1		537 (modified)	Total/NA

## Client Sample ID: Raw 300 - Field Blank

## Lab Sample ID: 410-100050-5

No Detections.

## Client Sample ID: EP 101 - Field Blank

## Lab Sample ID: 410-100050-6

No Detections.

## Client Sample ID: Raw 300

## Lab Sample ID: 410-100050-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perchlorate	0.72	J!	1.0	0.23	ug/L	1		SW846 6850	Total/NA

## Client Sample ID: EP 101

## Lab Sample ID: 410-100050-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perchlorate	0.48	J!	1.0	0.23	ug/L	1		SW846 6850	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Detection Summary

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

Job ID: 410-100050-1

## Client Sample ID: Raw 300

## Lab Sample ID: 410-100050-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perchlorate	0.76	J!	1.0	0.23	ug/L	1		SW846 6850	Total/NA

## Client Sample ID: EP 101

## Lab Sample ID: 410-100050-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perchlorate	0.49	J!	1.0	0.23	ug/L	1		SW846 6850	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

# Client Sample Results

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

Job ID: 410-100050-1

**Client Sample ID: Raw 300**

Date Collected: 09/27/22 14:15

Date Received: 09/30/22 11:15

**Lab Sample ID: 410-100050-1**

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	*3 cn	1.7	0.41	ng/L		10/06/22 10:20	10/11/22 01:21	1
NMeFOSAA	ND	*3 cn	1.7	0.41	ng/L		10/06/22 10:20	10/11/22 01:21	1
<b>Perfluorobutanesulfonic acid</b>	<b>0.98</b>	<b>J cn</b>	1.7	0.41	ng/L		10/06/22 10:20	10/11/22 01:21	1
Perfluorodecanoic acid	ND	cn	1.7	0.41	ng/L		10/06/22 10:20	10/11/22 01:21	1
Perfluorododecanoic acid	ND	cn	1.7	0.41	ng/L		10/06/22 10:20	10/11/22 01:21	1
<b>Perfluoroheptanoic acid</b>	<b>0.66</b>	<b>J cn</b>	1.7	0.41	ng/L		10/06/22 10:20	10/11/22 01:21	1
Perfluorohexanesulfonic acid	ND	cn	1.7	0.41	ng/L		10/06/22 10:20	10/11/22 01:21	1
<b>Perfluorohexanoic acid</b>	<b>1.2</b>	<b>J cn</b>	1.7	0.41	ng/L		10/06/22 10:20	10/11/22 01:21	1
Perfluorononanoic acid	ND	cn	1.7	0.41	ng/L		10/06/22 10:20	10/11/22 01:21	1
<b>Perfluorooctanesulfonic acid</b>	<b>1.3</b>	<b>J cn</b>	1.7	0.41	ng/L		10/06/22 10:20	10/11/22 01:21	1
<b>Perfluorooctanoic acid</b>	<b>1.2</b>	<b>J cn</b>	1.7	0.41	ng/L		10/06/22 10:20	10/11/22 01:21	1
Perfluorotetradecanoic acid	ND	cn	1.7	0.41	ng/L		10/06/22 10:20	10/11/22 01:21	1
Perfluorotridecanoic acid	ND	cn	1.7	0.41	ng/L		10/06/22 10:20	10/11/22 01:21	1
Perfluoroundecanoic acid	ND	cn	1.7	0.41	ng/L		10/06/22 10:20	10/11/22 01:21	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C2 PFDA	103	cn	70 - 130				10/06/22 10:20	10/11/22 01:21	1
13C2 PFHxA	95	cn	70 - 130				10/06/22 10:20	10/11/22 01:21	1
13C3 HFPO-DA	84	cn	70 - 130				10/06/22 10:20	10/11/22 01:21	1
d5-NEtFOSAA	82	*3 cn	70 - 130				10/06/22 10:20	10/11/22 01:21	1

**Client Sample ID: EP 101**

Date Collected: 09/27/22 14:44

Date Received: 09/30/22 11:15

**Lab Sample ID: 410-100050-2**

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		1.7	0.43	ng/L		10/06/22 10:20	10/11/22 01:33	1
NMeFOSAA	ND		1.7	0.43	ng/L		10/06/22 10:20	10/11/22 01:33	1
<b>Perfluorobutanesulfonic acid</b>	<b>1.1</b>	<b>J</b>	1.7	0.43	ng/L		10/06/22 10:20	10/11/22 01:33	1
Perfluorodecanoic acid	ND		1.7	0.43	ng/L		10/06/22 10:20	10/11/22 01:33	1
Perfluorododecanoic acid	ND		1.7	0.43	ng/L		10/06/22 10:20	10/11/22 01:33	1
<b>Perfluoroheptanoic acid</b>	<b>0.56</b>	<b>J</b>	1.7	0.43	ng/L		10/06/22 10:20	10/11/22 01:33	1
Perfluorohexanesulfonic acid	ND		1.7	0.43	ng/L		10/06/22 10:20	10/11/22 01:33	1
<b>Perfluorohexanoic acid</b>	<b>1.1</b>	<b>J</b>	1.7	0.43	ng/L		10/06/22 10:20	10/11/22 01:33	1
Perfluorononanoic acid	ND		1.7	0.43	ng/L		10/06/22 10:20	10/11/22 01:33	1
<b>Perfluorooctanesulfonic acid</b>	<b>1.4</b>	<b>J</b>	1.7	0.43	ng/L		10/06/22 10:20	10/11/22 01:33	1
<b>Perfluorooctanoic acid</b>	<b>1.3</b>	<b>J</b>	1.7	0.43	ng/L		10/06/22 10:20	10/11/22 01:33	1
Perfluorotetradecanoic acid	ND		1.7	0.43	ng/L		10/06/22 10:20	10/11/22 01:33	1
Perfluorotridecanoic acid	ND		1.7	0.43	ng/L		10/06/22 10:20	10/11/22 01:33	1
Perfluoroundecanoic acid	ND		1.7	0.43	ng/L		10/06/22 10:20	10/11/22 01:33	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C2 PFDA	93		70 - 130				10/06/22 10:20	10/11/22 01:33	1
13C2 PFHxA	91		70 - 130				10/06/22 10:20	10/11/22 01:33	1
13C3 HFPO-DA	81		70 - 130				10/06/22 10:20	10/11/22 01:33	1
d5-NEtFOSAA	84		70 - 130				10/06/22 10:20	10/11/22 01:33	1



# Client Sample Results

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

Job ID: 410-100050-1

**Client Sample ID: Raw 300**

**Lab Sample ID: 410-100050-3**

Date Collected: 09/27/22 14:15

Matrix: Water

Date Received: 09/30/22 11:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	1.0	J	1.8	0.80	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluoroheptanoic acid	0.50	J	1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorooctanoic acid	1.1	J	1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorononanoic acid	ND		1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorodecanoic acid	ND		1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorotridecanoic acid	ND		1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorotetradecanoic acid	ND		1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorobutanesulfonic acid	1.0	J	1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorohexanesulfonic acid	ND		1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorooctanesulfonic acid	1.1	J	1.8	0.89	ng/L		10/11/22 18:28	10/18/22 11:28	1
NEtFOSAA	ND		2.7	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
NMeFOSAA	ND		1.8	0.53	ng/L		10/11/22 18:28	10/18/22 11:28	1
10:2 FTS	ND		4.4	0.89	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluoropentanesulfonic acid	ND		1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluoroheptanesulfonic acid	ND		1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorononanesulfonic acid	ND		1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorodecanesulfonic acid	ND		1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.7	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorooctanesulfonamide	ND		1.8	0.62	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorohexadecanoic acid	ND		2.7	0.89	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorooctadecanoic acid	ND		2.7	0.89	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorobutanoic acid	ND		4.4	1.8	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluoropentanoic acid	1.0	J	1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
NMeFOSE	ND		2.7	0.89	ng/L		10/11/22 18:28	10/18/22 11:28	1
NMeFOSA	ND	*5-	2.7	0.89	ng/L		10/11/22 18:28	10/18/22 11:28	1
NEtFOSE	ND		2.7	0.89	ng/L		10/11/22 18:28	10/18/22 11:28	1
NEtFOSA	ND	*5-	4.4	0.89	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluorododecanoic acid	ND		1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
Perfluoroundecanoic acid	ND		1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
4:2 Fluorotelomer sulfonic acid	ND		1.8	0.44	ng/L		10/11/22 18:28	10/18/22 11:28	1
6:2 Fluorotelomer sulfonic acid	ND		4.4	3.7	ng/L		10/11/22 18:28	10/18/22 11:28	1
8:2 Fluorotelomer sulfonic acid	ND		2.7	0.89	ng/L		10/11/22 18:28	10/18/22 11:28	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	169		10 - 200	10/11/22 18:28	10/18/22 11:28	1
M2-8:2 FTS	182		33 - 200	10/11/22 18:28	10/18/22 11:28	1
M2-6:2 FTS	168		17 - 200	10/11/22 18:28	10/18/22 11:28	1
13C5 PFHxA	103		24 - 179	10/11/22 18:28	10/18/22 11:28	1
13C4 PFHpA	111		31 - 182	10/11/22 18:28	10/18/22 11:28	1
13C8 PFOA	118		48 - 162	10/11/22 18:28	10/18/22 11:28	1
13C9 PFNA	140		51 - 167	10/11/22 18:28	10/18/22 11:28	1
13C6 PFDA	106		49 - 163	10/11/22 18:28	10/18/22 11:28	1
13C7 PFUnA	96		34 - 174	10/11/22 18:28	10/18/22 11:28	1
13C2-PFDoDA	93		17 - 176	10/11/22 18:28	10/18/22 11:28	1
13C2 PFTeDA	60		10 - 179	10/11/22 18:28	10/18/22 11:28	1
13C3 PFBS	147		16 - 200	10/11/22 18:28	10/18/22 11:28	1
13C3 PFHxS	113		28 - 188	10/11/22 18:28	10/18/22 11:28	1
13C8 PFOS	130		51 - 159	10/11/22 18:28	10/18/22 11:28	1
d3-NMeFOSAA	91		31 - 174	10/11/22 18:28	10/18/22 11:28	1

# Client Sample Results

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

Job ID: 410-100050-1

**Client Sample ID: Raw 300**

**Lab Sample ID: 410-100050-3**

Date Collected: 09/27/22 14:15

Matrix: Water

Date Received: 09/30/22 11:15

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	90		29 - 195	10/11/22 18:28	10/18/22 11:28	1
13C8 FOSA	49		10 - 168	10/11/22 18:28	10/18/22 11:28	1
13C4 PFBA	122		42 - 165	10/11/22 18:28	10/18/22 11:28	1
13C5 PFPeA	142		38 - 187	10/11/22 18:28	10/18/22 11:28	1
d7-N-MeFOSE-M	23		10 - 178	10/11/22 18:28	10/18/22 11:28	1
d3-NMePFOSA	6	*5- cn	10 - 155	10/11/22 18:28	10/18/22 11:28	1
d9-N-EtFOSE-M	22		10 - 177	10/11/22 18:28	10/18/22 11:28	1
d5-NEtPFOSA	9	*5- cn	10 - 159	10/11/22 18:28	10/18/22 11:28	1

**Client Sample ID: EP 101**

**Lab Sample ID: 410-100050-4**

Date Collected: 09/27/22 14:44

Matrix: Water

Date Received: 09/30/22 11:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	1.3	J	1.6	0.74	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluoroheptanoic acid	0.72	J	1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorooctanoic acid	1.4	J	1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorononanoic acid	ND		1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorodecanoic acid	0.44	J	1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorotridecanoic acid	ND		1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorotetradecanoic acid	ND		1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorobutanesulfonic acid	1.3	J	1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorohexanesulfonic acid	ND		1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorooctanesulfonic acid	1.6		1.6	0.82	ng/L		10/11/22 18:28	10/18/22 11:39	1
NEtFOSAA	ND		2.5	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
NMeFOSAA	ND		1.6	0.49	ng/L		10/11/22 18:28	10/18/22 11:39	1
10:2 FTS	ND		4.1	0.82	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluoropentanesulfonic acid	ND		1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluoroheptanesulfonic acid	ND		1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorononanesulfonic acid	ND		1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorodecanesulfonic acid	ND		1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.5	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorooctanesulfonamide	0.75	J	1.6	0.57	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorohexadecanoic acid	ND		2.5	0.82	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorooctadecanoic acid	ND		2.5	0.82	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorobutanoic acid	1.9	J	4.1	1.6	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluoropentanoic acid	1.0	J	1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
NMeFOSE	ND		2.5	0.82	ng/L		10/11/22 18:28	10/18/22 11:39	1
NMeFOSA	ND	*5-	2.5	0.82	ng/L		10/11/22 18:28	10/18/22 11:39	1
NEtFOSE	ND		2.5	0.82	ng/L		10/11/22 18:28	10/18/22 11:39	1
NEtFOSA	ND	*5-	4.1	0.82	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluorododecanoic acid	ND		1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
Perfluoroundecanoic acid	ND		1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
4:2 Fluorotelomer sulfonic acid	ND		1.6	0.41	ng/L		10/11/22 18:28	10/18/22 11:39	1
6:2 Fluorotelomer sulfonic acid	ND		4.1	3.4	ng/L		10/11/22 18:28	10/18/22 11:39	1
8:2 Fluorotelomer sulfonic acid	ND		2.5	0.82	ng/L		10/11/22 18:28	10/18/22 11:39	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
M2-4:2 FTS	159		10 - 200				10/11/22 18:28	10/18/22 11:39	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

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

Job ID: 410-100050-1

**Client Sample ID: EP 101**

**Lab Sample ID: 410-100050-4**

**Date Collected: 09/27/22 14:44**

**Matrix: Water**

**Date Received: 09/30/22 11:15**

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	127		33 - 200	10/11/22 18:28	10/18/22 11:39	1
M2-6:2 FTS	164		17 - 200	10/11/22 18:28	10/18/22 11:39	1
13C5 PFHxA	105		24 - 179	10/11/22 18:28	10/18/22 11:39	1
13C4 PFHpA	117		31 - 182	10/11/22 18:28	10/18/22 11:39	1
13C8 PFOA	121		48 - 162	10/11/22 18:28	10/18/22 11:39	1
13C9 PFNA	132		51 - 167	10/11/22 18:28	10/18/22 11:39	1
13C6 PFDA	113		49 - 163	10/11/22 18:28	10/18/22 11:39	1
13C7 PFUnA	109		34 - 174	10/11/22 18:28	10/18/22 11:39	1
13C2-PFDoDA	106		17 - 176	10/11/22 18:28	10/18/22 11:39	1
13C2 PFTeDA	77		10 - 179	10/11/22 18:28	10/18/22 11:39	1
13C3 PFBS	157		16 - 200	10/11/22 18:28	10/18/22 11:39	1
13C3 PFHxS	115		28 - 188	10/11/22 18:28	10/18/22 11:39	1
13C8 PFOS	122		51 - 159	10/11/22 18:28	10/18/22 11:39	1
d3-NMeFOSAA	97		31 - 174	10/11/22 18:28	10/18/22 11:39	1
d5-NEtFOSAA	91		29 - 195	10/11/22 18:28	10/18/22 11:39	1
13C8 FOSA	64		10 - 168	10/11/22 18:28	10/18/22 11:39	1
13C4 PFBA	126		42 - 165	10/11/22 18:28	10/18/22 11:39	1
13C5 PFPeA	142		38 - 187	10/11/22 18:28	10/18/22 11:39	1
d7-N-MeFOSE-M	55		10 - 178	10/11/22 18:28	10/18/22 11:39	1
d3-NMePFOSA	6	*5- cn	10 - 155	10/11/22 18:28	10/18/22 11:39	1
d9-N-EtFOSE-M	49		10 - 177	10/11/22 18:28	10/18/22 11:39	1
d5-NEtPFOSA	8	*5-	10 - 159	10/11/22 18:28	10/18/22 11:39	1

**Client Sample ID: Raw 300 - Field Blank**

**Lab Sample ID: 410-100050-5**

**Date Collected: 09/27/22 14:15**

**Matrix: Drinking Water**

**Date Received: 09/30/22 11:15**

**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		1.9	0.47	ng/L		10/06/22 10:20	10/11/22 01:44	1
NMeFOSAA	ND		1.9	0.47	ng/L		10/06/22 10:20	10/11/22 01:44	1
Perfluorobutanesulfonic acid	ND		1.9	0.47	ng/L		10/06/22 10:20	10/11/22 01:44	1
Perfluorodecanoic acid	ND		1.9	0.47	ng/L		10/06/22 10:20	10/11/22 01:44	1
Perfluorododecanoic acid	ND		1.9	0.47	ng/L		10/06/22 10:20	10/11/22 01:44	1
Perfluoroheptanoic acid	ND		1.9	0.47	ng/L		10/06/22 10:20	10/11/22 01:44	1
Perfluorohexanesulfonic acid	ND		1.9	0.47	ng/L		10/06/22 10:20	10/11/22 01:44	1
Perfluorohexanoic acid	ND		1.9	0.47	ng/L		10/06/22 10:20	10/11/22 01:44	1
Perfluorononanoic acid	ND		1.9	0.47	ng/L		10/06/22 10:20	10/11/22 01:44	1
Perfluorooctanesulfonic acid	ND		1.9	0.47	ng/L		10/06/22 10:20	10/11/22 01:44	1
Perfluorooctanoic acid	ND		1.9	0.47	ng/L		10/06/22 10:20	10/11/22 01:44	1
Perfluorotetradecanoic acid	ND		1.9	0.47	ng/L		10/06/22 10:20	10/11/22 01:44	1
Perfluorotridecanoic acid	ND		1.9	0.47	ng/L		10/06/22 10:20	10/11/22 01:44	1
Perfluoroundecanoic acid	ND		1.9	0.47	ng/L		10/06/22 10:20	10/11/22 01:44	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C2 PFDA	97		70 - 130	10/06/22 10:20	10/11/22 01:44	1			
13C2 PFHxA	97		70 - 130	10/06/22 10:20	10/11/22 01:44	1			
13C3 HFPO-DA	86		70 - 130	10/06/22 10:20	10/11/22 01:44	1			
d5-NEtFOSAA	82		70 - 130	10/06/22 10:20	10/11/22 01:44	1			

# Client Sample Results

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

Job ID: 410-100050-1

**Client Sample ID: EP 101 - Field Blank**

**Lab Sample ID: 410-100050-6**

Date Collected: 09/27/22 14:44

Matrix: Drinking Water

Date Received: 09/30/22 11:15

**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		2.0	0.49	ng/L		10/06/22 10:20	10/11/22 01:56	1
NMeFOSAA	ND		2.0	0.49	ng/L		10/06/22 10:20	10/11/22 01:56	1
Perfluorobutanesulfonic acid	ND		2.0	0.49	ng/L		10/06/22 10:20	10/11/22 01:56	1
Perfluorodecanoic acid	ND		2.0	0.49	ng/L		10/06/22 10:20	10/11/22 01:56	1
Perfluorododecanoic acid	ND		2.0	0.49	ng/L		10/06/22 10:20	10/11/22 01:56	1
Perfluoroheptanoic acid	ND		2.0	0.49	ng/L		10/06/22 10:20	10/11/22 01:56	1
Perfluorohexanesulfonic acid	ND		2.0	0.49	ng/L		10/06/22 10:20	10/11/22 01:56	1
Perfluorohexanoic acid	ND		2.0	0.49	ng/L		10/06/22 10:20	10/11/22 01:56	1
Perfluorononanoic acid	ND		2.0	0.49	ng/L		10/06/22 10:20	10/11/22 01:56	1
Perfluorooctanesulfonic acid	ND		2.0	0.49	ng/L		10/06/22 10:20	10/11/22 01:56	1
Perfluorooctanoic acid	ND		2.0	0.49	ng/L		10/06/22 10:20	10/11/22 01:56	1
Perfluorotetradecanoic acid	ND		2.0	0.49	ng/L		10/06/22 10:20	10/11/22 01:56	1
Perfluorotridecanoic acid	ND		2.0	0.49	ng/L		10/06/22 10:20	10/11/22 01:56	1
Perfluoroundecanoic acid	ND		2.0	0.49	ng/L		10/06/22 10:20	10/11/22 01:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	99		70 - 130	10/06/22 10:20	10/11/22 01:56	1
13C2 PFHxA	94		70 - 130	10/06/22 10:20	10/11/22 01:56	1
13C3 HFPO-DA	86		70 - 130	10/06/22 10:20	10/11/22 01:56	1
d5-NEtFOSAA	80		70 - 130	10/06/22 10:20	10/11/22 01:56	1

**Client Sample ID: Raw 300**

**Lab Sample ID: 410-100050-7**

Date Collected: 09/27/22 14:15

Matrix: Drinking Water

Date Received: 09/30/22 11:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.72	J!	1.0	0.23	ug/L		10/05/22 12:31	10/06/22 16:54	1

**Client Sample ID: EP 101**

**Lab Sample ID: 410-100050-8**

Date Collected: 09/27/22 14:44

Matrix: Drinking Water

Date Received: 09/30/22 11:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.48	J!	1.0	0.23	ug/L		10/05/22 12:31	10/06/22 17:04	1

**Client Sample ID: Raw 300**

**Lab Sample ID: 410-100050-9**

Date Collected: 09/27/22 14:15

Matrix: Drinking Water

Date Received: 09/30/22 11:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.76	J!	1.0	0.23	ug/L		10/03/22 12:33	10/03/22 16:38	1

**Client Sample ID: EP 101**

**Lab Sample ID: 410-100050-10**

Date Collected: 09/27/22 14:44

Matrix: Drinking Water

Date Received: 09/30/22 11:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.49	J!	1.0	0.23	ug/L		10/03/22 12:33	10/03/22 16:48	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Surrogate Summary

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

Job ID: 410-100050-1

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

**Matrix: Drinking Water**

**Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		PFDA (70-130)	PFHxA (70-130)	HFPODA (70-130)	d5NEFOS (70-130)
410-100050-1	Raw 300	103 cn	95 cn	84 cn	82 *3 cn
410-100050-2	EP 101	93	91	81	84
410-100050-5	Raw 300 - Field Blank	97	97	86	82
410-100050-6	EP 101 - Field Blank	99	94	86	80
LCS 410-303798/2-A	Lab Control Sample	107	100	93	87
MB 410-303798/1-A	Method Blank	102	98	91	87

**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: 410-100050-1

## 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)
410-100050-3	Raw 300	169	182	168	103	111	118	140	106
410-100050-4	EP 101	159	127	164	105	117	121	132	113
LCS 410-305495/2-A	Lab Control Sample	137	121	113	116	122	116	142	122
LCSD 410-305495/3-A	Lab Control Sample Dup	128	115	117	109	113	119	125	112
MB 410-305495/1-A	Method Blank	128	107	95	111	112	110	134	111

### 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)
410-100050-3	Raw 300	96	93	60	147	113	130	91	90
410-100050-4	EP 101	109	106	77	157	115	122	97	91
LCS 410-305495/2-A	Lab Control Sample	124	131	123	127	122	138	111	109
LCSD 410-305495/3-A	Lab Control Sample Dup	111	109	104	113	114	115	102	99
MB 410-305495/1-A	Method Blank	114	107	104	106	108	122	102	99

### 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)
410-100050-3	Raw 300	49	122	142	23	6 *5- cn	22	9 *5- cn
410-100050-4	EP 101	64	126	142	55	6 *5- cn	49	8 *5-
LCS 410-305495/2-A	Lab Control Sample	86	132	134	86	37	85	63
LCSD 410-305495/3-A	Lab Control Sample Dup	80	114	115	84	40	85	66
MB 410-305495/1-A	Method Blank	78	113	118	87	38	85	63

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

# QC Sample Results

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

Job ID: 410-100050-1

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

**Lab Sample ID: MB 410-305495/1-A**  
**Matrix: Water**  
**Analysis Batch: 307494**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 305495**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	ND		2.0	0.90	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluoroheptanoic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorooctanoic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorononanoic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorodecanoic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorotridecanoic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorotetradecanoic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorobutanesulfonic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorohexanesulfonic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorooctanesulfonic acid	ND		2.0	1.0	ng/L		10/11/22 18:28	10/18/22 07:24	1
NEtFOSAA	ND		3.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
NMeFOSAA	ND		2.0	0.60	ng/L		10/11/22 18:28	10/18/22 07:24	1
10:2 FTS	ND		5.0	1.0	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluoropentanesulfonic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluoroheptanesulfonic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorononanesulfonic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorodecanesulfonic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorododecanesulfonic acid (PFDoS)	ND		3.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorooctanesulfonamide	ND		2.0	0.70	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorohexadecanoic acid	ND		3.0	1.0	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorooctadecanoic acid	ND		3.0	1.0	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorobutanoic acid	ND		5.0	2.0	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluoropentanoic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
NMeFOSE	ND		3.0	1.0	ng/L		10/11/22 18:28	10/18/22 07:24	1
NMeFOSA	ND		3.0	1.0	ng/L		10/11/22 18:28	10/18/22 07:24	1
NEtFOSE	ND		3.0	1.0	ng/L		10/11/22 18:28	10/18/22 07:24	1
NEtFOSA	ND		5.0	1.0	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluorododecanoic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
Perfluoroundecanoic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
4:2 Fluorotelomer sulfonic acid	ND		2.0	0.50	ng/L		10/11/22 18:28	10/18/22 07:24	1
6:2 Fluorotelomer sulfonic acid	ND		5.0	4.2	ng/L		10/11/22 18:28	10/18/22 07:24	1
8:2 Fluorotelomer sulfonic acid	ND		3.0	1.0	ng/L		10/11/22 18:28	10/18/22 07:24	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	128		10 - 200	10/11/22 18:28	10/18/22 07:24	1
M2-8:2 FTS	107		33 - 200	10/11/22 18:28	10/18/22 07:24	1
M2-6:2 FTS	95		17 - 200	10/11/22 18:28	10/18/22 07:24	1
13C5 PFHxA	111		24 - 179	10/11/22 18:28	10/18/22 07:24	1
13C4 PFHpA	112		31 - 182	10/11/22 18:28	10/18/22 07:24	1
13C8 PFOA	110		48 - 162	10/11/22 18:28	10/18/22 07:24	1
13C9 PFNA	134		51 - 167	10/11/22 18:28	10/18/22 07:24	1
13C6 PFDA	111		49 - 163	10/11/22 18:28	10/18/22 07:24	1
13C7 PFUnA	114		34 - 174	10/11/22 18:28	10/18/22 07:24	1
13C2-PFDoDA	107		17 - 176	10/11/22 18:28	10/18/22 07:24	1
13C2 PFTeDA	104		10 - 179	10/11/22 18:28	10/18/22 07:24	1
13C3 PFBS	106		16 - 200	10/11/22 18:28	10/18/22 07:24	1
13C3 PFHxS	108		28 - 188	10/11/22 18:28	10/18/22 07:24	1
13C8 PFOS	122		51 - 159	10/11/22 18:28	10/18/22 07:24	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# QC Sample Results

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

Job ID: 410-100050-1

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

**Lab Sample ID: MB 410-305495/1-A**  
**Matrix: Water**  
**Analysis Batch: 307494**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 305495**

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
d3-NMeFOSAA	102		31 - 174	10/11/22 18:28	10/18/22 07:24	1
d5-NEtFOSAA	99		29 - 195	10/11/22 18:28	10/18/22 07:24	1
13C8 FOSA	78		10 - 168	10/11/22 18:28	10/18/22 07:24	1
13C4 PFBA	113		42 - 165	10/11/22 18:28	10/18/22 07:24	1
13C5 PFPeA	118		38 - 187	10/11/22 18:28	10/18/22 07:24	1
d7-N-MeFOSE-M	87		10 - 178	10/11/22 18:28	10/18/22 07:24	1
d3-NMePFOSA	38		10 - 155	10/11/22 18:28	10/18/22 07:24	1
d9-N-EtFOSE-M	85		10 - 177	10/11/22 18:28	10/18/22 07:24	1
d5-NEtPFOSA	63		10 - 159	10/11/22 18:28	10/18/22 07:24	1

**Lab Sample ID: LCS 410-305495/2-A**  
**Matrix: Water**  
**Analysis Batch: 307494**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 305495**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorohexanoic acid	25.6	18.7		ng/L		73	58 - 139
Perfluoroheptanoic acid	25.6	17.7		ng/L		69	59 - 145
Perfluorooctanoic acid	25.6	19.7		ng/L		77	51 - 145
Perfluorononanoic acid	25.6	19.0		ng/L		74	61 - 139
Perfluorodecanoic acid	25.6	20.4		ng/L		80	56 - 138
Perfluorotridecanoic acid	25.6	18.8		ng/L		73	58 - 146
Perfluorotetradecanoic acid	25.6	19.2		ng/L		75	62 - 139
Perfluorobutanesulfonic acid	22.7	17.6		ng/L		78	53 - 138
Perfluorohexanesulfonic acid	23.3	16.3		ng/L		70	58 - 134
Perfluorooctanesulfonic acid	23.7	17.6		ng/L		74	45 - 150
NEtFOSAA	25.6	19.6		ng/L		77	55 - 134
NMeFOSAA	25.6	19.6		ng/L		77	59 - 140
10:2 FTS	24.7	20.5		ng/L		83	50 - 146
Perfluoropentanesulfonic acid	24.0	18.5		ng/L		77	55 - 140
Perfluoroheptanesulfonic acid	24.4	18.0		ng/L		74	56 - 140
Perfluorononanesulfonic acid	24.6	15.6		ng/L		64	59 - 136
Perfluorodecanesulfonic acid	24.7	16.2		ng/L		66	55 - 137
Perfluorododecanesulfonic acid (PFDoS)	24.8	17.7		ng/L		72	48 - 138
Perfluorooctanesulfonamide	25.6	21.8		ng/L		85	43 - 167
Perfluorohexadecanoic acid	25.6	18.7		ng/L		73	41 - 158
Perfluorooctadecanoic acid	25.6	19.1		ng/L		75	29 - 172
Perfluorobutanoic acid	25.6	18.8		ng/L		74	59 - 136
Perfluoropentanoic acid	25.6	18.7		ng/L		73	57 - 141
NMeFOSE	25.6	20.8		ng/L		81	55 - 144
NMeFOSA	25.6	32.9		ng/L		128	64 - 143
NEtFOSE	25.6	21.5		ng/L		84	60 - 136
NEtFOSA	25.6	21.9		ng/L		85	61 - 134
Perfluorododecanoic acid	25.6	16.9		ng/L		66	59 - 143
Perfluoroundecanoic acid	25.6	19.7		ng/L		77	60 - 141
4:2 Fluorotelomer sulfonic acid	23.9	16.9		ng/L		71	55 - 139
6:2 Fluorotelomer sulfonic acid	24.3	20.8		ng/L		86	28 - 173
8:2 Fluorotelomer sulfonic acid	24.5	19.2		ng/L		78	55 - 138



# QC Sample Results

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

Job ID: 410-100050-1

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

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
M2-4:2 FTS	137		10 - 200
M2-8:2 FTS	121		33 - 200
M2-6:2 FTS	113		17 - 200
13C5 PFHxA	116		24 - 179
13C4 PFHpA	122		31 - 182
13C8 PFOA	116		48 - 162
13C9 PFNA	142		51 - 167
13C6 PFDA	122		49 - 163
13C7 PFUnA	124		34 - 174
13C2-PFDoDA	131		17 - 176
13C2 PFTeDA	123		10 - 179
13C3 PFBS	127		16 - 200
13C3 PFHxS	122		28 - 188
13C8 PFOS	138		51 - 159
d3-NMeFOSAA	111		31 - 174
d5-NEtFOSAA	109		29 - 195
13C8 FOSA	86		10 - 168
13C4 PFBA	132		42 - 165
13C5 PFPeA	134		38 - 187
d7-N-MeFOSE-M	86		10 - 178
d3-NMePFOSA	37		10 - 155
d9-N-EtFOSE-M	85		10 - 177
d5-NEtPFOSA	63		10 - 159

Lab Sample ID: LCSD 410-305495/3-A  
Matrix: Water  
Analysis Batch: 307494

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 305495

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD
									Limit
Perfluorohexanoic acid	25.6	19.5		ng/L		76	58 - 139	4	30
Perfluoroheptanoic acid	25.6	19.6		ng/L		77	59 - 145	11	30
Perfluorooctanoic acid	25.6	17.9		ng/L		70	51 - 145	10	30
Perfluorononanoic acid	25.6	18.8		ng/L		73	61 - 139	1	30
Perfluorodecanoic acid	25.6	20.2		ng/L		79	56 - 138	1	30
Perfluorotridecanoic acid	25.6	17.6		ng/L		69	58 - 146	7	30
Perfluorotetradecanoic acid	25.6	20.1		ng/L		79	62 - 139	5	30
Perfluorobutanesulfonic acid	22.7	17.9		ng/L		79	53 - 138	2	30
Perfluorohexanesulfonic acid	23.3	16.6		ng/L		71	58 - 134	2	30
Perfluorooctanesulfonic acid	23.7	18.9		ng/L		80	45 - 150	7	30
NEtFOSAA	25.6	19.1		ng/L		75	55 - 134	2	30
NMeFOSAA	25.6	19.3		ng/L		75	59 - 140	2	30
10:2 FTS	24.7	20.5		ng/L		83	50 - 146	0	30
Perfluoropentanesulfonic acid	24.0	18.5		ng/L		77	55 - 140	0	30
Perfluoroheptanesulfonic acid	24.4	17.2		ng/L		71	56 - 140	5	30
Perfluorononanesulfonic acid	24.6	17.0		ng/L		69	59 - 136	8	30
Perfluorodecanesulfonic acid	24.7	16.4		ng/L		66	55 - 137	1	30
Perfluorododecanesulfonic acid (PFDoS)	24.8	18.8		ng/L		76	48 - 138	6	30
Perfluorooctanesulfonamide	25.6	23.3		ng/L		91	43 - 167	7	30
Perfluorohexadecanoic acid	25.6	18.8		ng/L		73	41 - 158	0	30
Perfluorooctadecanoic acid	25.6	19.2		ng/L		75	29 - 172	0	30
Perfluorobutanoic acid	25.6	18.9		ng/L		74	59 - 136	0	30

Eurofins Lancaster Laboratories Environment Testing, LLC

# QC Sample Results

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

Job ID: 410-100050-1

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

**Lab Sample ID: LCSD 410-305495/3-A**  
**Matrix: Water**  
**Analysis Batch: 307494**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 305495**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanoic acid	25.6	19.2		ng/L		75	57 - 141	3	30
NMeFOSE	25.6	21.0		ng/L		82	55 - 144	1	30
NMeFOSA	25.6	30.5		ng/L		119	64 - 143	8	30
NEtFOSE	25.6	19.8		ng/L		77	60 - 136	8	30
NEtFOSA	25.6	22.5		ng/L		88	61 - 134	3	30
Perfluorododecanoic acid	25.6	18.4		ng/L		72	59 - 143	9	30
Perfluoroundecanoic acid	25.6	20.6		ng/L		81	60 - 141	5	30
4:2 Fluorotelomer sulfonic acid	23.9	17.1		ng/L		71	55 - 139	1	30
6:2 Fluorotelomer sulfonic acid	24.3	18.7		ng/L		77	28 - 173	10	30
8:2 Fluorotelomer sulfonic acid	24.5	18.3		ng/L		75	55 - 138	5	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
M2-4:2 FTS	128		10 - 200
M2-8:2 FTS	115		33 - 200
M2-6:2 FTS	117		17 - 200
13C5 PFHxA	109		24 - 179
13C4 PFHpA	113		31 - 182
13C8 PFOA	119		48 - 162
13C9 PFNA	125		51 - 167
13C6 PFDA	112		49 - 163
13C7 PFUnA	111		34 - 174
13C2-PFDoDA	109		17 - 176
13C2 PFTeDA	104		10 - 179
13C3 PFBS	113		16 - 200
13C3 PFHxS	114		28 - 188
13C8 PFOS	115		51 - 159
d3-NMeFOSAA	102		31 - 174
d5-NEtFOSAA	99		29 - 195
13C8 FOSA	80		10 - 168
13C4 PFBA	114		42 - 165
13C5 PFPeA	115		38 - 187
d7-N-MeFOSE-M	84		10 - 178
d3-NMePFOSA	40		10 - 155
d9-N-EtFOSE-M	85		10 - 177
d5-NEtPFOSA	66		10 - 159

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

**Lab Sample ID: MB 410-303798/1-A**  
**Matrix: Drinking Water**  
**Analysis Batch: 304856**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 303798**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	ND		2.0	0.50	ng/L		10/06/22 10:20	10/10/22 21:30	1
NMeFOSAA	ND		2.0	0.50	ng/L		10/06/22 10:20	10/10/22 21:30	1
Perfluorobutanesulfonic acid	ND		2.0	0.50	ng/L		10/06/22 10:20	10/10/22 21:30	1
Perfluorodecanoic acid	ND		2.0	0.50	ng/L		10/06/22 10:20	10/10/22 21:30	1
Perfluorododecanoic acid	ND		2.0	0.50	ng/L		10/06/22 10:20	10/10/22 21:30	1
Perfluoroheptanoic acid	ND		2.0	0.50	ng/L		10/06/22 10:20	10/10/22 21:30	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# QC Sample Results

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

Job ID: 410-100050-1

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

**Lab Sample ID: MB 410-303798/1-A**  
**Matrix: Drinking Water**  
**Analysis Batch: 304856**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 303798**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorohexanesulfonic acid	ND		2.0	0.50	ng/L		10/06/22 10:20	10/10/22 21:30	1
Perfluorohexanoic acid	ND		2.0	0.50	ng/L		10/06/22 10:20	10/10/22 21:30	1
Perfluorononanoic acid	ND		2.0	0.50	ng/L		10/06/22 10:20	10/10/22 21:30	1
Perfluorooctanesulfonic acid	ND		2.0	0.50	ng/L		10/06/22 10:20	10/10/22 21:30	1
Perfluorooctanoic acid	ND		2.0	0.50	ng/L		10/06/22 10:20	10/10/22 21:30	1
Perfluorotetradecanoic acid	ND		2.0	0.50	ng/L		10/06/22 10:20	10/10/22 21:30	1
Perfluorotridecanoic acid	ND		2.0	0.50	ng/L		10/06/22 10:20	10/10/22 21:30	1
Perfluoroundecanoic acid	ND		2.0	0.50	ng/L		10/06/22 10:20	10/10/22 21:30	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C2 PFDA	102		70 - 130	10/06/22 10:20	10/10/22 21:30	1
13C2 PFHxA	98		70 - 130	10/06/22 10:20	10/10/22 21:30	1
13C3 HFPO-DA	91		70 - 130	10/06/22 10:20	10/10/22 21:30	1
d5-NEtFOSAA	87		70 - 130	10/06/22 10:20	10/10/22 21:30	1

**Lab Sample ID: LCS 410-303798/2-A**  
**Matrix: Drinking Water**  
**Analysis Batch: 304856**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 303798**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
NEtFOSAA	20.5	17.7		ng/L		86	70 - 130
NMeFOSAA	20.5	17.8		ng/L		87	70 - 130
Perfluorobutanesulfonic acid	18.1	14.6		ng/L		80	70 - 130
Perfluorodecanoic acid	20.5	18.6		ng/L		91	70 - 130
Perfluorododecanoic acid	20.5	19.5		ng/L		95	70 - 130
Perfluoroheptanoic acid	20.5	20.1		ng/L		98	70 - 130
Perfluorohexanesulfonic acid	18.7	18.3		ng/L		98	70 - 130
Perfluorohexanoic acid	20.5	18.2		ng/L		89	70 - 130
Perfluorononanoic acid	20.5	19.7		ng/L		96	70 - 130
Perfluorooctanesulfonic acid	19.0	17.3		ng/L		91	70 - 130
Perfluorooctanoic acid	20.5	19.7		ng/L		96	70 - 130
Perfluorotetradecanoic acid	20.5	19.2		ng/L		94	70 - 130
Perfluorotridecanoic acid	20.5	18.5		ng/L		90	70 - 130
Perfluoroundecanoic acid	20.5	19.6		ng/L		96	70 - 130

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
13C2 PFDA	107		70 - 130
13C2 PFHxA	100		70 - 130
13C3 HFPO-DA	93		70 - 130
d5-NEtFOSAA	87		70 - 130

# QC Sample Results

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

Job ID: 410-100050-1

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

**Lab Sample ID: MB 410-302480/1-A**  
**Matrix: Drinking Water**  
**Analysis Batch: 302510**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 302480**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		1.0	0.23	ug/L		10/03/22 12:33	10/03/22 14:14	1

**Lab Sample ID: LCS 410-302480/2-A**  
**Matrix: Drinking Water**  
**Analysis Batch: 302510**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 302480**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	1.00	1.20		ug/L		119	80 - 120

**Lab Sample ID: LCSD 410-302480/3-A**  
**Matrix: Drinking Water**  
**Analysis Batch: 302510**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 302480**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	1.00	1.11		ug/L		110	80 - 120	8	15

**Lab Sample ID: MB 410-303392/1-A**  
**Matrix: Drinking Water**  
**Analysis Batch: 303426**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 303392**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		1.0	0.23	ug/L		10/05/22 12:31	10/06/22 13:52	1

**Lab Sample ID: LCS 410-303392/2-A**  
**Matrix: Drinking Water**  
**Analysis Batch: 303426**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 303392**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	1.00	1.13		ug/L		113	80 - 120

**Lab Sample ID: LCSD 410-303392/3-A**  
**Matrix: Drinking Water**  
**Analysis Batch: 303426**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 303392**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	1.00	1.13		ug/L		112	80 - 120	0	15

# QC Association Summary

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

Job ID: 410-100050-1

## LCMS

### Prep Batch: 302480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-100050-9	Raw 300	Total/NA	Drinking Water	6850 Prep	
410-100050-10	EP 101	Total/NA	Drinking Water	6850 Prep	
MB 410-302480/1-A	Method Blank	Total/NA	Drinking Water	6850 Prep	
LCS 410-302480/2-A	Lab Control Sample	Total/NA	Drinking Water	6850 Prep	
LCSD 410-302480/3-A	Lab Control Sample Dup	Total/NA	Drinking Water	6850 Prep	

### Analysis Batch: 302510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-100050-9	Raw 300	Total/NA	Drinking Water	SW846 6850	302480
410-100050-10	EP 101	Total/NA	Drinking Water	SW846 6850	302480
MB 410-302480/1-A	Method Blank	Total/NA	Drinking Water	SW846 6850	302480
LCS 410-302480/2-A	Lab Control Sample	Total/NA	Drinking Water	SW846 6850	302480
LCSD 410-302480/3-A	Lab Control Sample Dup	Total/NA	Drinking Water	SW846 6850	302480

### Prep Batch: 303392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-100050-7	Raw 300	Total/NA	Drinking Water	6850 Prep	
410-100050-8	EP 101	Total/NA	Drinking Water	6850 Prep	
MB 410-303392/1-A	Method Blank	Total/NA	Drinking Water	6850 Prep	
LCS 410-303392/2-A	Lab Control Sample	Total/NA	Drinking Water	6850 Prep	
LCSD 410-303392/3-A	Lab Control Sample Dup	Total/NA	Drinking Water	6850 Prep	

### Analysis Batch: 303426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-100050-7	Raw 300	Total/NA	Drinking Water	SW846 6850	303392
410-100050-8	EP 101	Total/NA	Drinking Water	SW846 6850	303392
MB 410-303392/1-A	Method Blank	Total/NA	Drinking Water	SW846 6850	303392
LCS 410-303392/2-A	Lab Control Sample	Total/NA	Drinking Water	SW846 6850	303392
LCSD 410-303392/3-A	Lab Control Sample Dup	Total/NA	Drinking Water	SW846 6850	303392

### Prep Batch: 303798

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-100050-1	Raw 300	Total/NA	Drinking Water	537.1 DW Prep	
410-100050-2	EP 101	Total/NA	Drinking Water	537.1 DW Prep	
410-100050-5	Raw 300 - Field Blank	Total/NA	Drinking Water	537.1 DW Prep	
410-100050-6	EP 101 - Field Blank	Total/NA	Drinking Water	537.1 DW Prep	
MB 410-303798/1-A	Method Blank	Total/NA	Drinking Water	537.1 DW Prep	
LCS 410-303798/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1 DW Prep	

### Analysis Batch: 304856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-100050-1	Raw 300	Total/NA	Drinking Water	EPA 537.1	303798
410-100050-2	EP 101	Total/NA	Drinking Water	EPA 537.1	303798
410-100050-5	Raw 300 - Field Blank	Total/NA	Drinking Water	EPA 537.1	303798
410-100050-6	EP 101 - Field Blank	Total/NA	Drinking Water	EPA 537.1	303798
MB 410-303798/1-A	Method Blank	Total/NA	Drinking Water	EPA 537.1	303798
LCS 410-303798/2-A	Lab Control Sample	Total/NA	Drinking Water	EPA 537.1	303798

### Prep Batch: 305495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-100050-3	Raw 300	Total/NA	Water	3535	

# QC Association Summary

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

Job ID: 410-100050-1

## LCMS (Continued)

### Prep Batch: 305495 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-100050-4	EP 101	Total/NA	Water	3535	
MB 410-305495/1-A	Method Blank	Total/NA	Water	3535	
LCS 410-305495/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 410-305495/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

### Prep Batch: 305722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-100050-1 - RE	Raw 300	Total/NA	Drinking Water	537.1 DW Prep	
MB 410-305722/1-A	Method Blank	Total/NA	Drinking Water	537.1 DW Prep	
LCS 410-305722/2-A	Lab Control Sample	Total/NA	Drinking Water	537.1 DW Prep	
LCSD 410-305722/3-A	Lab Control Sample Dup	Total/NA	Drinking Water	537.1 DW Prep	

### Analysis Batch: 306797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-100050-1 - RE	Raw 300	Total/NA	Drinking Water	EPA 537.1	305722
MB 410-305722/1-A	Method Blank	Total/NA	Drinking Water	EPA 537.1	305722
LCS 410-305722/2-A	Lab Control Sample	Total/NA	Drinking Water	EPA 537.1	305722
LCSD 410-305722/3-A	Lab Control Sample Dup	Total/NA	Drinking Water	EPA 537.1	305722

### Analysis Batch: 307494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-100050-3	Raw 300	Total/NA	Water	537 (modified)	305495
410-100050-4	EP 101	Total/NA	Water	537 (modified)	305495
MB 410-305495/1-A	Method Blank	Total/NA	Water	537 (modified)	305495
LCS 410-305495/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	305495
LCSD 410-305495/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	305495

### Prep Batch: 313446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-100050-3 - RE	Raw 300	Total/NA	Water	3535	
410-100050-4 - RE	EP 101	Total/NA	Water	3535	
MB 410-313446/1-A	Method Blank	Total/NA	Water	3535	
LCS 410-313446/3-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 410-313446/4-A	Lab Control Sample Dup	Total/NA	Water	3535	

### Analysis Batch: 314050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-100050-3 - RE	Raw 300	Total/NA	Water	537 (modified)	313446
410-100050-4 - RE	EP 101	Total/NA	Water	537 (modified)	313446
MB 410-313446/1-A	Method Blank	Total/NA	Water	537 (modified)	313446
LCS 410-313446/3-A	Lab Control Sample	Total/NA	Water	537 (modified)	313446
LCSD 410-313446/4-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	313446

# Lab Chronicle

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

Job ID: 410-100050-1

## Client Sample ID: Raw 300

Date Collected: 09/27/22 14:15

Date Received: 09/30/22 11:15

## Lab Sample ID: 410-100050-1

Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW Prep			303798	HQ8B	ELLE	10/06/22 10:20
Total/NA	Analysis	EPA 537.1		1	304856	PY4D	ELLE	10/11/22 01:21
Total/NA	Prep	537.1 DW Prep	RE		305722	HQ8B	ELLE	10/12/22 10:33
Total/NA	Analysis	EPA 537.1	RE	1	306797	DCS9	ELLE	10/15/22 04:39

## Client Sample ID: EP 101

Date Collected: 09/27/22 14:44

Date Received: 09/30/22 11:15

## Lab Sample ID: 410-100050-2

Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW Prep			303798	HQ8B	ELLE	10/06/22 10:20
Total/NA	Analysis	EPA 537.1		1	304856	PY4D	ELLE	10/11/22 01:33

## Client Sample ID: Raw 300

Date Collected: 09/27/22 14:15

Date Received: 09/30/22 11:15

## Lab Sample ID: 410-100050-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535	RE		313446	M4QQ	ELLE	11/03/22 07:55
Total/NA	Analysis	537 (modified)	RE	1	314050	PY4D	ELLE	11/05/22 03:20
Total/NA	Prep	3535			305495	GMZ5	ELLE	10/11/22 18:28
Total/NA	Analysis	537 (modified)		1	307494	QD9Y	ELLE	10/18/22 11:28

## Client Sample ID: EP 101

Date Collected: 09/27/22 14:44

Date Received: 09/30/22 11:15

## Lab Sample ID: 410-100050-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535	RE		313446	M4QQ	ELLE	11/03/22 07:55
Total/NA	Analysis	537 (modified)	RE	1	314050	PY4D	ELLE	11/05/22 03:31
Total/NA	Prep	3535			305495	GMZ5	ELLE	10/11/22 18:28
Total/NA	Analysis	537 (modified)		1	307494	QD9Y	ELLE	10/18/22 11:39

## Client Sample ID: Raw 300 - Field Blank

Date Collected: 09/27/22 14:15

Date Received: 09/30/22 11:15

## Lab Sample ID: 410-100050-5

Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW Prep			303798	HQ8B	ELLE	10/06/22 10:20
Total/NA	Analysis	EPA 537.1		1	304856	PY4D	ELLE	10/11/22 01:44

# Lab Chronicle

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

Job ID: 410-100050-1

## Client Sample ID: EP 101 - Field Blank

Date Collected: 09/27/22 14:44

Date Received: 09/30/22 11:15

## Lab Sample ID: 410-100050-6

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			303798	HQ8B	ELLE	10/06/22 10:20
Total/NA	Analysis	EPA 537.1		1	304856	PY4D	ELLE	10/11/22 01:56

## Client Sample ID: Raw 300

Date Collected: 09/27/22 14:15

Date Received: 09/30/22 11:15

## Lab Sample ID: 410-100050-7

Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	6850 Prep			303392	UAD3	ELLE	10/05/22 12:31
Total/NA	Analysis	SW846 6850		1	303426	UAD3	ELLE	10/06/22 16:54

## Client Sample ID: EP 101

Date Collected: 09/27/22 14:44

Date Received: 09/30/22 11:15

## Lab Sample ID: 410-100050-8

Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	6850 Prep			303392	UAD3	ELLE	10/05/22 12:31
Total/NA	Analysis	SW846 6850		1	303426	UAD3	ELLE	10/06/22 17:04

## Client Sample ID: Raw 300

Date Collected: 09/27/22 14:15

Date Received: 09/30/22 11:15

## Lab Sample ID: 410-100050-9

Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	6850 Prep			302480	UAD3	ELLE	10/03/22 12:33
Total/NA	Analysis	SW846 6850		1	302510	UAD3	ELLE	10/03/22 16:38

## Client Sample ID: EP 101

Date Collected: 09/27/22 14:44

Date Received: 09/30/22 11:15

## Lab Sample ID: 410-100050-10

Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	6850 Prep			302480	UAD3	ELLE	10/03/22 12:33
Total/NA	Analysis	SW846 6850		1	302510	UAD3	ELLE	10/03/22 16:48

### 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: 410-100050-1

## 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: 410-100050-1

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



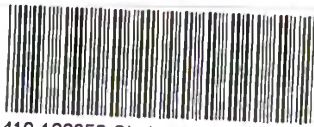
# Sample Summary

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

Job ID: 410-100050-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-100050-1	Raw 300	Drinking Water	09/27/22 14:15	09/30/22 11:15
410-100050-2	EP 101	Drinking Water	09/27/22 14:44	09/30/22 11:15
410-100050-3	Raw 300	Water	09/27/22 14:15	09/30/22 11:15
410-100050-4	EP 101	Water	09/27/22 14:44	09/30/22 11:15
410-100050-5	Raw 300 - Field Blank	Drinking Water	09/27/22 14:15	09/30/22 11:15
410-100050-6	EP 101 - Field Blank	Drinking Water	09/27/22 14:44	09/30/22 11:15
410-100050-7	Raw 300	Drinking Water	09/27/22 14:15	09/30/22 11:15
410-100050-8	EP 101	Drinking Water	09/27/22 14:44	09/30/22 11:15
410-100050-9	Raw 300	Drinking Water	09/27/22 14:15	09/30/22 11:15
410-100050-10	EP 101	Drinking Water	09/27/22 14:44	09/30/22 11:15

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vironme

# Chain of Custody Record



Environment Testing  
America

410-100050 Chain of Custody

Sampler <i>Robert Gomez</i>	Lab PM Gordon, Stephen J	Camera Tracking No(s)	COC No 410-25351-7775.1
Phone	E-Mail Stephen.Gordon@et.eurofinsus.com	State of Origin	Page Page 1 of 1

Linda Leopold

Company  
Pittsburgh Water and Sewer Authority

PWSID  
*S020038*

### Analysis Requested

Address:  
900 Freepoint Road

Due Date Requested:

City  
Pittsburgh

TAT Requested (days):

State, Zip:  
PA, 15238

Compliance Project:  Yes  No

Phone:

PO #  
Purchase Order not required

Email:

WO #:

Project Name:  
PFAS & Perchlorate

Project #:  
41004440

Site:

SSOW#:

Sample Identification

Sample Date

Sample Time

Sample Type  
(C=comp, G=grab)

Matrix  
(Water, Solid, Dross/Sludge, BT-Tissue, A-Air)

537.1_DW - PFAS DW 14 compounds	6850 - Perchlorate by LC/MS/MS	PFC_IDA - PFAS 32 Compounds	537.1_DW - PFAS DW 14 compounds
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Preservation Codes:

A - HCL	M - Hexar
B - NaOH	N - None
C - Zn Acetate	O - AsNI <sub>2</sub>
D - Nitric Acid	P - Na <sub>2</sub> OAS
E - NaHSO <sub>4</sub>	Q - Na <sub>2</sub> SO <sub>3</sub>
F - MeOH	R - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>
G - Amchlor	S - H <sub>2</sub> SO <sub>4</sub>
H - Ascorbic Acid	T - TSP Dodecylhydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Y - Trizma
	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	537.1_DW - PFAS DW 14 compounds	6850 - Perchlorate by LC/MS/MS	PFC_IDA - PFAS 32 Compounds	537.1_DW - PFAS DW 14 compounds	Special Instructions/Note:
<i>Raw 300</i>	<i>9/27/22</i>	<i>1415</i>	<i>G</i>	<i>Drinking Water</i>	<i>2</i>	<i>2</i>			
<i>EP 101</i>	<i>9/27/22</i>	<i>1444</i>	<i>G</i>	<i>Drinking Water</i>	<i>2</i>	<i>2</i>			
<i>Raw 300</i>	<i>9/27/22</i>	<i>1415</i>	<i>G</i>	<i>Water</i>			<i>2</i>		
<i>EP 101</i>	<i>9/27/22</i>	<i>1444</i>	<i>G</i>	<i>Water</i>			<i>2</i>		
<i>Raw 300 - Field Blank</i>	<i>9/27/22</i>	<i>1415</i>	<i>G</i>	<i>Drinking Water</i>			<i>2</i>		
<i>EP 101 - Field Blank</i>	<i>9/27/22</i>	<i>1444</i>	<i>G</i>	<i>Drinking Water</i>			<i>2</i>		
<i>Raw 300</i>	<i>9/27/22</i>	<i>1415</i>	<i>G</i>	<i>DW</i>			<i>1</i>		
<i>EP 101</i>	<i>9/27/22</i>	<i>1444</i>	<i>G</i>	<i>DW</i>			<i>1</i>		
<i>Raw 300</i>	<i>9/27/22</i>	<i>1415</i>	<i>G</i>	<i>DW</i>			<i>2</i>		
<i>EP 101</i>	<i>9/27/22</i>	<i>1444</i>	<i>G</i>	<i>DW</i>			<i>2</i>		

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 *SDale* Date/Time *8/12/22 14:40* Company \_\_\_\_\_ Received by \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company \_\_\_\_\_

Relinquished by *Robert Gomez* Date/Time *9/30/22 0800* Company *PWSA* Received by \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company \_\_\_\_\_

Relinquished by \_\_\_\_\_ Date/Time \_\_\_\_\_ Company \_\_\_\_\_ Received by *ET* Date/Time: *9/30/22 11:15* Company *ET/ET*

Custody Seals Intact:  Yes  No Custody Seal No.: \_\_\_\_\_ Cooler Temperature(s) °C and Other Remarks: *1.3*

MB



# Login Sample Receipt Checklist

Client: Pittsburgh Water and Sewer Authority

Job Number: 410-100050-1

**Login Number: 100050**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 1**

**Creator: Ballard, Megan**

Question	Answer	Comment
The cooler's custody seal is intact.	True	
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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , 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.	True	
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 $>6\text{mm}$ in diameter (none, if from WV)?	N/A	