



## NEWS RELEASE

### WEST DES MOINES DRINKING WATER MEETS STATE AND FEDERAL GUIDELINES FOR SAFETY

## WDMWW Finds Low Levels of PFAS in Finished Water, Readings Well Below Threshold for Health Concerns

**WEST DES MOINES, Iowa** (Dec. 29, 2021) — **West Des Moines Water Works** reported today that it has been informed by the Iowa Department of Natural Resources that three of its shallow wells and finished water contain trace amounts of an emerging class of chemicals called per-and polyfluoroalkyl or **PFAS**. The sampling was conducted as part of a state-wide sampling effort being conducted by the IDNR this past fall. The threshold for health concerns for two of these compounds detected is 70 parts per trillion (ppt). The WDMWW results were a fraction of that level. The remaining compounds that were also detected in very low levels do not carry health advisories.

“Our drinking water is safe and in compliance with all standards set by the DNR and EPA,” says **Christina Murphy**, general manager of West Des Moines Water Works. “This category of chemicals is gaining awareness as water standards evolve. This is the first time any of our wells or finished water registered a detectable level of PFAS substances.”

In 2014, WDMWW finished water was tested under the Unregulated Contaminant Monitoring Rule (UCMR) for 22 PFAS compounds with no detections found. The PFAS category contains a number of compounds, two of which now carry a health advisory—perfluorooctanic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). In WDMWW finished water produced at the A.C. Ward Municipal Water Treatment Plant, the presence of PFOA and PFOS were detected at **2.9 ppt and 2.4 ppt, respectively**—well below the health advisory levels of 70 ppt.

A part per trillion or ppt amounts to one drop of water in an Olympic swimming pool. In this case, the WDMWW detections of PFOA and PFOS is 2.9 drops and 2.4 drops of water in an Olympic sized pool, respectively.

In compliance with IDNR’s testing protocol, the Water Works will increase testing and monitoring frequency. WDMWW will conduct research to determine whether the source or sources of PFAS compounds in the utility’s raw source water can be identified. Since no threat to safe drinking water currently exists, WDMWW will continue to monitor and determine appropriate strategies if levels substantially increase and near the health advisory limit.

The utility has and will continue to be in regular contact with IDNR regarding the detection of PFOA and PFOS and appropriate strategies to employ, if needed. Murphy notes that the presence could be new, but it may also reflect the availability of more refined and accurate testing, which now can detect levels as low as 1.9 ppt compared with earlier methods that could only detect levels as low as 17 ppt.

"One particular shallow well reported higher numbers than the others, and we will minimize its use until we can address its issues," Murphy adds. "We will also work with our blending processes of shallow and deep wells to achieve the lowest levels possible of these substances in the water we produce."

PFAS substances emanate from manmade chemicals used in a variety of manufacturing applications and products including carpet, waterproofed clothing, cookware coatings such as Teflon, fire-fighting foam and food packaging just to name a few. Moreover, these substances are persistent, meaning they do not degrade or break down naturally in the environment.

The full test results will be posted by the IDNR at the agency's PFAS webpage (<https://www.iowadnr.gov/Environmental-Protection/PFA>). WDMWW laboratory results is attached to this release.

More information about PFAS and the IDNR action plan is also available on the agency's website. West Des Moines Water Works will continue to test, monitor and inform its customers of detectable PFAS levels.

"Our water resources are finite and protecting them needs to be a priority not just of utilities but for all of us," Murphy concludes. "How we conduct our daily lives in terms of the products we use and how we dispose of them and our stewardship of the land we live on affects our source water quality. We need to be informed and work together to ensure that we continue to have safe, drinking water for future generations."

#### ***ABOUT WEST DES MOINES WATER WORKS***

The West Des Moines Water Works is owned by the citizens of West Des Moines and governed by a five-member Board of Trustees. Appointed by the Mayor and approved by the City Council for staggered six-year terms, the trustees formulate policies and govern the operations of the water utility. Managed by a professional staff, West Des Moines Water Works is supported solely by the revenues it generates by supplying water to the community's residents and businesses. The utility treats up to 10 million gallons of water per day, sourced from a combination of four deep wells and 17 shallow wells. The board of trustees is composed of: Scott Brennan, chair; Gretchen Tegeler, vice chair; Jody Smith; Mary Thompson; and Erin Sheriff.

-end-

For more information, Contact:

**Jamie Buelt**, spokesperson

Mobile: 360-961-0096

Office: 515-248-1808



## Environment Testing America



### ANALYTICAL REPORT

Eurofins Eaton Analytical - South Bend  
110 S Hill Street  
South Bend, IN 46617  
Tel: (574)233-4777

Laboratory Job ID: 810-7259-1  
Client Project/Site: PFC18

For:

Iowa Department of Natural Resources  
502 East 9th  
Des Moines, Iowa 50319

Attn: Claire Hruby

Authorized for release by:

12/2/2021 5:15:32 PM

Nathan Trowbridge, Manager of Project Management  
(574)233-4777

[nathan.trowbridge@eurofinset.com](mailto:nathan.trowbridge@eurofinset.com)

Designee for

Traci Chlebowski, Project Manager  
(574)233-4777  
[traci.chlebowski@eurofinset.com](mailto:traci.chlebowski@eurofinset.com)

LINKS

Review your project  
results through

**Total Access**

Have a Question?

Ask  
The  
Expert

Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

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

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Definitions/Glossary . . . . .	3
Case Narrative . . . . .	4
Detection Summary . . . . .	5
Client Sample Results . . . . .	7
Isotope Dilution Summary . . . . .	15
QC Sample Results . . . . .	17
QC Association Summary . . . . .	27
Lab Chronicle . . . . .	28
Certification Summary . . . . .	29
Method Summary . . . . .	30
Sample Summary . . . . .	31
Chain of Custody . . . . .	32
Receipt Checklists . . . . .	33

# Definitions/Glossary

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Qualifiers

LCMS	Qualifier	Qualifier Description
	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
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: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Job ID: 810-7259-1

Laboratory: Eurofins Eaton Analytical - South Bend

### Narrative

Job Narrative  
810-7259-1

### Comments

No additional comments.

### Receipt

The samples were received on 11/10/2021 9:15 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 0.2° C.

### LCMS

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

### Organic Prep

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

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

# Detection Summary

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

**Client Sample ID: 236-Raw West Des Moines #6**  
**PWSID Number: IA7785007**

**Lab Sample ID: 810-7259-1**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	4.2		1.9	ng/L	1	533		Total/NA
Perfluoropentanoic acid (PFPeA)	8.3		1.9	ng/L	1	533		Total/NA
Perfluorohexanoic acid (PFHxA)	6.3		1.9	ng/L	1	533		Total/NA
Perfluoroheptanoic acid (PFHpA)	3.3		1.9	ng/L	1	533		Total/NA
Perfluorooctanoic acid (PFOA)	2.4		1.9	ng/L	1	533		Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.2		1.9	ng/L	1	533		Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.7		1.9	ng/L	1	533		Total/NA
Perfluorooctanesulfonic acid (PFOS)	16		1.9	ng/L	1	533		Total/NA

**Client Sample ID: 237-Raw West Des Moines #7**  
**PWSID Number: IA7785007**

**Lab Sample ID: 810-7259-2**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.3		1.9	ng/L	1	533		Total/NA
Perfluoropentanoic acid (PFPeA)	1.9		1.9	ng/L	1	533		Total/NA
Perfluorooctanoic acid (PFOA)	2.6		1.9	ng/L	1	533		Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.4		1.9	ng/L	1	533		Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.4		1.9	ng/L	1	533		Total/NA
Perfluorooctanesulfonic acid (PFOS)	8.0		1.9	ng/L	1	533		Total/NA

**Client Sample ID: 238-Raw West Des Moines #9**  
**PWSID Number: IA7785007**

**Lab Sample ID: 810-7259-3**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	15		1.9	ng/L	1	533		Total/NA
Perfluoropentanoic acid (PFPeA)	54		1.9	ng/L	1	533		Total/NA
Perfluorohexanoic acid (PFHxA)	45		1.9	ng/L	1	533		Total/NA
Perfluoroheptanoic acid (PFHpA)	14		1.9	ng/L	1	533		Total/NA
Perfluorooctanoic acid (PFOA)	29		1.9	ng/L	1	533		Total/NA
Perfluorobutanesulfonic acid (PFBS)	7.4		1.9	ng/L	1	533		Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.2		1.9	ng/L	1	533		Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.1		1.9	ng/L	1	533		Total/NA

**Client Sample ID: 239-Finished Water Leaving Treatment**  
**PWSID Number: IA7785007**

**Lab Sample ID: 810-7259-4**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.5		1.9	ng/L	1	533		Total/NA
Perfluoropentanoic acid (PFPeA)	4.4		1.9	ng/L	1	533		Total/NA
Perfluorohexanoic acid (PFHxA)	3.6		1.9	ng/L	1	533		Total/NA
Perfluorooctanoic acid (PFOA)	2.9		1.9	ng/L	1	533		Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.6		1.9	ng/L	1	533		Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.4		1.9	ng/L	1	533		Total/NA

**Client Sample ID: 240-QC Site 57 Trip Blank**  
**PWSID Number: IA7785007**

**Lab Sample ID: 810-7259-5**

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Eaton Analytical - South Bend

## Detection Summary

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

**Client Sample ID: 241-QC Site 57 Finish Duplicate**  
**PWSID Number: IA7785007**

**Lab Sample ID: 810-7259-6**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.5		1.8	ng/L	1	533		Total/NA
Perfluoropentanoic acid (PFPeA)	4.5		1.8	ng/L	1	533		Total/NA
Perfluorohexanoic acid (PFHxA)	3.7		1.8	ng/L	1	533		Total/NA
Perfluorooctanoic acid (PFOA)	3.0		1.8	ng/L	1	533		Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.8		1.8	ng/L	1	533		Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.8		1.8	ng/L	1	533		Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.4		1.8	ng/L	1	533		Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Eaton Analytical - South Bend

# Client Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

**Client Sample ID: 236-Raw West Des Moines #6**

**Lab Sample ID: 810-7259-1**

Date Collected: 11/09/21 13:15

Matrix: Water

Date Received: 11/10/21 09:15

PWSID Number: IA7785007

**Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	4.2		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluoropentanoic acid (PFPeA)	8.3		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluorohexanoic acid (PFHxA)	6.3		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluoroheptanoic acid (PFHpA)	3.3		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluorooctanoic acid (PFOA)	2.4		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluorononanoic acid (PFNA)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluorodecanoic acid (PFDA)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluorododecanoic acid (PFDaO)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluorobutanesulfonic acid (PFBS)	2.2		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluoropentanesulfonic acid (PFPeS)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluorohexanesulfonic acid (PFHxS)	4.7		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluoroheptanesulfonic Acid (PFHsP)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluorooctanesulfonic acid (PFOS)	16		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
1H,1H,2H,2H-Perfluoroctane sulfonic acid (6:2 FTS)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
11-Chloroeicosafafluoro-3-oxaundecan e-1-sulfonic acid	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<1.9		1.9	ng/L	11/15/21 06:30	11/16/21 01:48		1
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>		<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>	
13C4 PFBA	94		50 - 200		11/15/21 06:30	11/16/21 01:48		1
13C5 PFPeA	93		50 - 200		11/15/21 06:30	11/16/21 01:48		1
13C5 PFHxA	91		50 - 200		11/15/21 06:30	11/16/21 01:48		1
13C4 PFHpA	96		50 - 200		11/15/21 06:30	11/16/21 01:48		1
13C8 PFOA	90		50 - 200		11/15/21 06:30	11/16/21 01:48		1
13C9 PFNA	90		50 - 200		11/15/21 06:30	11/16/21 01:48		1
13C6 PFDA	92		50 - 200		11/15/21 06:30	11/16/21 01:48		1
13C7 PFUnA	91		50 - 200		11/15/21 06:30	11/16/21 01:48		1
13C2 PFDaO	88		50 - 200		11/15/21 06:30	11/16/21 01:48		1
13C3 HFPO-DA	93		50 - 200		11/15/21 06:30	11/16/21 01:48		1
13C3 PFBS	98		50 - 200		11/15/21 06:30	11/16/21 01:48		1

Eurofins Eaton Analytical - South Bend

# Client Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

**Client Sample ID: 236-Raw West Des Moines #6**  
Date Collected: 11/09/21 13:15  
Date Received: 11/10/21 09:15

**Lab Sample ID: 810-7259-1**  
Matrix: Water  
PWSID Number: IA7785007

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	93		50 - 200	11/15/21 06:30	11/16/21 01:48	1
13C2-4:2-FTS	97		50 - 200	11/15/21 06:30	11/16/21 01:48	1
13C2-6:2-FTS	90		50 - 200	11/15/21 06:30	11/16/21 01:48	1
13C2-8:2-FTS	97		50 - 200	11/15/21 06:30	11/16/21 01:48	1
13C3 PFHxS	97		50 - 200	11/15/21 06:30	11/16/21 01:48	1

**Client Sample ID: 237-Raw West Des Moines #7**  
Date Collected: 11/09/21 13:25  
Date Received: 11/10/21 09:15

**Lab Sample ID: 810-7259-2**  
Matrix: Water  
PWSID Number: IA7785007

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.3		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluoropentanoic acid (PPPeA)	1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluorohexanoic acid (PFHxA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluoroheptanoic acid (PFHpA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluorooctanoic acid (PFOA)	2.6		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluorononanoic acid (PFNA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluorodecanoic acid (PFDA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluorododecanoic acid (PFDoA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluorobutanesulfonic acid (PFBS)	5.4		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluoropentanesulfonic acid (PPPeS)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluorohexanesulfonic acid (PFHxS)	3.4		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluorooctanesulfonic acid (PFOS)	8.0		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
11-Chloroeicosafafluoro-3-oxaundecan e-1-sulfonic acid	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:15	1

# Client Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Client Sample ID: 237-Raw West Des Moines #7

Date Collected: 11/09/21 13:25  
Date Received: 11/10/21 09:15

## Lab Sample ID: 810-7259-2

Matrix: Water

PWSID Number: IA7785007

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	91		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C5 PFPeA	86		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C5 PFHxA	92		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C4 PFHpA	93		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C8 PFOA	86		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C9 PFNA	86		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C6 PFDA	86		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C7 PFUnA	85		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C2 PFDoA	82		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C3 HFPO-DA	93		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C3 PFBS	97		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C8 PFOS	90		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C2-4:2-FTS	97		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C2-6:2-FTS	86		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C2-8:2-FTS	93		50 - 200	11/15/21 06:30	11/16/21 02:15	1
13C3 PFHxS	93		50 - 200	11/15/21 06:30	11/16/21 02:15	1

## Client Sample ID: 238-Raw West Des Moines #9

Date Collected: 11/09/21 13:45  
Date Received: 11/10/21 09:15

## Lab Sample ID: 810-7259-3

Matrix: Water

PWSID Number: IA7785007

### Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	15		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluoropentanoic acid (PFPeA)	54		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluorohexanoic acid (PFHxA)	45		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluoroheptanoic acid (PFHpA)	14		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluorooctanoic acid (PFOA)	29		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluorononanoic acid (PFNA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluorodecanoic acid (PFDA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluorododecanoic acid (PFDoA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluorobutanesulfonic acid (PFBS)	7.4		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluoropentanesulfonic acid (PFPeS)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluorohexanesulfonic acid (PFHxS)	2.2		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluorooctanesulfonic acid (PFOS)	3.1		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1

Eurofins Eaton Analytical - South Bend

# Client Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Client Sample ID: 238-Raw West Des Moines #9

Date Collected: 11/09/21 13:45  
Date Received: 11/10/21 09:15

## Lab Sample ID: 810-7259-3

Matrix: Water

PWSID Number: IA7785007

### Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonan	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
e-1-sulfonic acid								
11-Chloroeicosfluoro-3-oxaundecan	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
e-1-sulfonic acid								
Perfluoro-4-methoxybutanoic acid (PFMBA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<1.9		1.9	ng/L		11/15/21 06:30	11/16/21 02:42	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C4 PFBA	92		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C5 PFPeA	85		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C5 PFHxA	93		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C4 PFHpA	96		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C8 PFOA	89		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C9 PFNA	90		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C6 PFDA	91		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C7 PFUnA	91		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C2 PFDaO	87		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C3 HFPO-DA	92		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C3 PFBS	97		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C8 PFOS	90		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C2-4:2-FTS	96		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C2-6:2-FTS	85		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C2-8:2-FTS	93		50 - 200			11/15/21 06:30	11/16/21 02:42	1
13C3 PFHxS	94		50 - 200			11/15/21 06:30	11/16/21 02:42	1

## Client Sample ID: 239-Finished Water Leaving Treatment

Date Collected: 11/09/21 13:05  
Date Received: 11/10/21 09:15

## Lab Sample ID: 810-7259-4

Matrix: Drinking Water  
PWSID Number: IA7785007

### Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.5		1.9	ng/L		11/16/21 06:09	11/16/21 22:08	1
Perfluoropentanoic acid (PFPeA)	4.4		1.9	ng/L		11/16/21 06:09	11/16/21 22:08	1
Perfluorohexanoic acid (PFHxA)	3.6		1.9	ng/L		11/16/21 06:09	11/16/21 22:08	1
Perfluoroheptanoic acid (PFHpA)	<1.9		1.9	ng/L		11/16/21 06:09	11/16/21 22:08	1
Perfluorooctanoic acid (PFOA)	2.9		1.9	ng/L		11/16/21 06:09	11/16/21 22:08	1
Perfluorononanoic acid (PFNA)	<1.9		1.9	ng/L		11/16/21 06:09	11/16/21 22:08	1
Perfluorodecanoic acid (PFDA)	<1.9		1.9	ng/L		11/16/21 06:09	11/16/21 22:08	1
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	ng/L		11/16/21 06:09	11/16/21 22:08	1
Perfluorododecanoic acid (PFDaO)	<1.9		1.9	ng/L		11/16/21 06:09	11/16/21 22:08	1
Perfluorobutanesulfonic acid (PFBS)	2.6		1.9	ng/L		11/16/21 06:09	11/16/21 22:08	1
Perfluoropentanesulfonic acid (PFPeS)	<1.9		1.9	ng/L		11/16/21 06:09	11/16/21 22:08	1
Perfluorohexanesulfonic acid (PFHxS)	<1.9		1.9	ng/L		11/16/21 06:09	11/16/21 22:08	1
Perfluoroheptanesulfonic Acid (PFHps)	<1.9		1.9	ng/L		11/16/21 06:09	11/16/21 22:08	1
Perfluorooctanesulfonic acid (PFOS)	2.4		1.9	ng/L		11/16/21 06:09	11/16/21 22:08	1

Eurofins Eaton Analytical - South Bend

# Client Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Client Sample ID: 239-Finished Water Leaving Treatment

Date Collected: 11/09/21 13:05  
Date Received: 11/10/21 09:15

## Lab Sample ID: 810-7259-4

Matrix: Drinking Water  
PWSID Number: IA7785007

### Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:08		1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:08		1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:08		1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:08		1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:08		1
4,8-Dioxa-3H-perflurononanoic acid (ADONA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:08		1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:08		1
11-Chloroeicosafafluoro-3-oxaundecan e-1-sulfonic acid	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:08		1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:08		1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:08		1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:08		1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C4 PFBA	91		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C5 PFPeA	89		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C5 PFHxA	90		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C4 PFHpA	88		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C8 PFOA	83		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C9 PFNA	82		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C6 PFDA	83		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C7 PFUnA	83		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C2 PFDmA	82		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C3 HFPO-DA	95		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C3 PFBS	99		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C8 PFOS	95		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C2-4:2-FTS	88		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C2-6:2-FTS	88		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C2-8:2-FTS	94		50 - 200			11/16/21 06:09	11/16/21 22:08	1
13C3 PFHxS	95		50 - 200			11/16/21 06:09	11/16/21 22:08	1

## Client Sample ID: 240-QC Site 57 Trip Blank

Date Collected: 11/09/21 13:00  
Date Received: 11/10/21 09:15

## Lab Sample ID: 810-7259-5

Matrix: Drinking Water  
PWSID Number: IA7785007

### Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluoropentanoic acid (PFPeA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluorohexanoic acid (PFHxA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluoroheptanoic acid (PFHpA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluorooctanoic acid (PFOA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluorononanoic acid (PFNA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1

Eurofins Eaton Analytical - South Bend

# Client Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Client Sample ID: 240-QC Site 57 Trip Blank

Date Collected: 11/09/21 13:00

Date Received: 11/10/21 09:15

## Lab Sample ID: 810-7259-5

Matrix: Drinking Water

PWSID Number: IA7785007

### Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluorododecanoic acid (PFDaA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluorobutanesulfonic acid (PFBS)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluoropentanesulfonic acid (PFPeS)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluorohexanesulfonic acid (PFHxS)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluorooctanesulfonic acid (PFOS)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
1H,1H,2H,2H-Perfluoroctane sulfonic acid (6:2 FTS)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
11-Chloroeicosafaluoro-3-oxaundecan e-1-sulfonic acid	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<1.9		1.9	ng/L	11/16/21 06:09	11/16/21 22:35		1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C4 PFBA	91		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C5 PFPeA	89		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C5 PFHxA	92		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C4 PFHpA	93		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C8 PFOA	92		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C9 PFNA	94		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C6 PFDA	92		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C7 PFUnA	85		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C2 PFDaA	80		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C3 HFPO-DA	107		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C3 PFBS	94		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C8 PFOS	91		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C2-4:2-FTS	86		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C2-6:2-FTS	84		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C2-8:2-FTS	92		50 - 200			11/16/21 06:09	11/16/21 22:35	1
13C3 PFHxS	94		50 - 200			11/16/21 06:09	11/16/21 22:35	1

Eurofins Eaton Analytical - South Bend

# Client Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Client Sample ID: 241-QC Site 57 Finish Duplicate

Date Collected: 11/09/21 13:07

Date Received: 11/10/21 09:15

## Lab Sample ID: 810-7259-6

Matrix: Drinking Water

PWSID Number: IA7785007

### Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.5		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluoropentanoic acid (PFPeA)	4.5		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluorohexanoic acid (PFHxA)	3.7		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluoroheptanoic acid (PFHpA)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluorooctanoic acid (PFOA)	3.0		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluorononanoic acid (PFNA)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluorobutanesulfonic acid (PFBS)	2.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluorohexanesulfonic acid (PFHxS)	1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluorooctanesulfonic acid (PFOS)	2.4		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
11-Chloroeicosafafluoro-3-oxaundecan e-1-sulfonic acid	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<1.8		1.8	ng/L		11/16/21 06:09	11/16/21 22:49	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C4 PFBA	87		50 - 200			11/16/21 06:09	11/16/21 22:49	1
13C5 PFPeA	87		50 - 200			11/16/21 06:09	11/16/21 22:49	1
13C5 PFHxA	87		50 - 200			11/16/21 06:09	11/16/21 22:49	1
13C4 PFHpA	83		50 - 200			11/16/21 06:09	11/16/21 22:49	1
13C8 PFOA	75		50 - 200			11/16/21 06:09	11/16/21 22:49	1
13C9 PFNA	71		50 - 200			11/16/21 06:09	11/16/21 22:49	1
13C6 PFDA	70		50 - 200			11/16/21 06:09	11/16/21 22:49	1
13C7 PFUnA	70		50 - 200			11/16/21 06:09	11/16/21 22:49	1
13C2 PFDoA	70		50 - 200			11/16/21 06:09	11/16/21 22:49	1
13C3 HFPO-DA	85		50 - 200			11/16/21 06:09	11/16/21 22:49	1
13C3 PFBS	91		50 - 200			11/16/21 06:09	11/16/21 22:49	1

Eurofins Eaton Analytical - South Bend

# Client Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

**Client Sample ID: 241-QC Site 57 Finish Duplicate**  
**Date Collected: 11/09/21 13:07**  
**Date Received: 11/10/21 09:15**

**Lab Sample ID: 810-7259-6**  
**Matrix: Drinking Water**  
**PWSID Number: IA7785007**

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	91		50 - 200	11/16/21 06:09	11/16/21 22:49	1
13C2-4:2-FTS	89		50 - 200	11/16/21 06:09	11/16/21 22:49	1
13C2-6:2-FTS	85		50 - 200	11/16/21 06:09	11/16/21 22:49	1
13C2-8:2-FTS	93		50 - 200	11/16/21 06:09	11/16/21 22:49	1
13C3 PFHxS	91		50 - 200	11/16/21 06:09	11/16/21 22:49	1

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

# Isotope Dilution Summary

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (50-200)	PPPeA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	C6PFDA (50-200)	13C7PUA (50-200)
810-7259-4	239-Finished Water Leaving Treatment	91	89	90	88	83	82	83	83
810-7259-4 LMS	239-Finished Water Leaving Treatment	90	88	88	86	81	80	82	82
810-7259-5	240-QC Site 57 Trip Blank	91	89	92	93	92	94	92	85
810-7259-6	241-QC Site 57 Finish Duplicate	87	87	87	83	75	71	70	70
LCS 810-7368/3-A	Lab Control Sample	91	89	90	91	91	92	89	83
LLCS 810-7368/2-A	Lab Control Sample	95	93	94	95	96	96	94	88
MB 810-7368/1-A	Method Blank	81	79	80	81	82	84	84	84

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA (50-200)	HFPEDA (50-200)	C3PFBS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)	C3PFHS (50-200)
810-7259-4	239-Finished Water Leaving Treatment	82	95	99	95	88	88	94	95
810-7259-4 LMS	239-Finished Water Leaving Treatment	80	87	95	92	88	84	94	94
810-7259-5	240-QC Site 57 Trip Blank	80	107	94	91	86	84	92	94
810-7259-6	241-QC Site 57 Finish Duplicate	70	85	91	91	89	85	93	91
LCS 810-7368/3-A	Lab Control Sample	79	106	92	90	86	89	87	90
LLCS 810-7368/2-A	Lab Control Sample	83	97	97	94	89	90	91	97
MB 810-7368/1-A	Method Blank	83	73	94	92	86	87	92	92

### Surrogate Legend

PFBA = 13C4 PFBA  
 PPPeA = 13C5 PPPeA  
 13C5PHA = 13C5 PFHxA  
 C4PFHA = 13C4 PFHpa  
 C8PFOA = 13C8 PFOA  
 C9PFNA = 13C9 PFNA  
 C6PFDA = 13C6 PFDA  
 13C7PUA = 13C7 PFUnA  
 PFDoA = 13C2 PFDoA  
 HFPODA = 13C3 HFPO-DA  
 C3PFBS = 13C3 PFBS  
 C8PFOS = 13C8 PFOS  
 42FTS = 13C2-4:2-FTS  
 62FTS = 13C2-6:2-FTS  
 82FTS = 13C2-8:2-FTS  
 C3PFHS = 13C3 PFHxS

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (50-200)	PPPeA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	C6PFDA (50-200)	13C7PUA (50-200)
810-7259-1	236-Raw West Des Moines #6	94	93	91	96	90	90	92	91
810-7259-1 MS	236-Raw West Des Moines #6	91	86	91	90	83	82	84	84
810-7259-2	237-Raw West Des Moines #7	91	86	92	93	86	86	86	85
810-7259-2 DU	237-Raw West Des Moines #7	88	81	90	90	83	83	83	84
810-7259-3	238-Raw West Des Moines #9	92	85	93	96	89	90	91	91
LLCS 810-7275/2-A	Lab Control Sample	86	84	88	91	90	92	92	92
MB 810-7275/1-A	Method Blank	90	87	92	92	91	93	92	90

Eurofins Eaton Analytical - South Bend

# Isotope Dilution Summary

Client: Iowa Department of Natural Resources  
 Project/Site: PFC18

Job ID: 810-7259-1

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA (50-200)	HFPoDA (50-200)	C3PFBS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)	C3PFHS (50-200)
810-7259-1	236-Raw West Des Moines #6	88	93	98	93	97	90	97	97
810-7259-1 MS	236-Raw West Des Moines #6	84	92	99	91	100	90	97	95
810-7259-2	237-Raw West Des Moines #7	82	93	97	90	97	86	93	93
810-7259-2 DU	237-Raw West Des Moines #7	83	92	97	91	95	85	95	96
810-7259-3	238-Raw West Des Moines #9	87	92	97	90	96	85	93	94
LLCS 810-7275/2-A	Lab Control Sample	89	81	96	92	96	90	93	93
MB 810-7275/1-A	Method Blank	88	83	96	91	92	92	94	94

### Surrogate Legend

PFBA = 13C4 PFBA

PPPeA = 13C5 PPPeA

13C5PHA = 13C5 PFHxA

C4PFHA = 13C4 PFHpA

C8PFOA = 13C8 PFOA

C9PFNA = 13C9 PFNA

C6PFDA = 13C6 PFDA

13C7PUA = 13C7 PFUnA

PFDoA = 13C2 PFDoA

HFPoDA = 13C3 HFPO-DA

C3PFBS = 13C3 PFBS

C8PFOS = 13C8 PFOS

42FTS = 13C2-4:2-FTS

62FTS = 13C2-6:2-FTS

82FTS = 13C2-8:2-FTS

C3PFHS = 13C3 PFHxS

# QC Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

**Lab Sample ID: MB 810-7275/1-A**

**Matrix: Water**

**Analysis Batch: 7354**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 7275**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluoropentanesulfonic acid (PPPeS)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluoroheptanesulfonic Acid (PFHpS)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
1H,1H,2H,2H-Perfluoroctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L	11/15/21 06:30	11/15/21 21:31		1

Isotope Dilution	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	90		50 - 200	11/15/21 06:30	11/15/21 21:31	1
13C5 PFPeA	87		50 - 200	11/15/21 06:30	11/15/21 21:31	1
13C5 PFHxA	92		50 - 200	11/15/21 06:30	11/15/21 21:31	1
13C4 PFHpA	92		50 - 200	11/15/21 06:30	11/15/21 21:31	1
13C8 PFOA	91		50 - 200	11/15/21 06:30	11/15/21 21:31	1
13C9 PFNA	93		50 - 200	11/15/21 06:30	11/15/21 21:31	1
13C6 PFDA	92		50 - 200	11/15/21 06:30	11/15/21 21:31	1
13C7 PFUnA	90		50 - 200	11/15/21 06:30	11/15/21 21:31	1
13C2 PFDoA	88		50 - 200	11/15/21 06:30	11/15/21 21:31	1
13C3 HFPO-DA	83		50 - 200	11/15/21 06:30	11/15/21 21:31	1
13C3 PFBS	96		50 - 200	11/15/21 06:30	11/15/21 21:31	1
13C8 PFOS	91		50 - 200	11/15/21 06:30	11/15/21 21:31	1

Eurofins Eaton Analytical - South Bend

# QC Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

**Lab Sample ID: MB 810-7275/1-A**

**Matrix: Water**

**Analysis Batch: 7354**

<i>Isotope Dilution</i>	<i>MB</i>	<i>MB</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C2-4:2-FTS		92			50 - 200
13C2-6:2-FTS		92			50 - 200
13C2-8:2-FTS		94			50 - 200
13C3 PFHxS		94			50 - 200

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 7275**

**Lab Sample ID: LLCS 810-7275/2-A**

**Matrix: Water**

**Analysis Batch: 7354**

<b>Analyte</b>	<b>Spike Added</b>	<b>LLCS</b>	<b>LLCS</b>	<b>Unit</b>	<b>D</b>	<b>%Rec</b>	<b>%Rec.</b>	<b>Limits</b>
		<b>Result</b>	<b>Qualifier</b>					
Perfluorobutanoic acid (PFBA)	1.97	1.79	J	ng/L		91	50 - 150	
Perfluoropentanoic acid (PPPeA)	1.97	1.82	J	ng/L		93	50 - 150	
Perfluorohexanoic acid (PFHxA)	1.97	1.66	J	ng/L		84	50 - 150	
Perfluoroheptanoic acid (PFHpA)	1.97	1.69	J	ng/L		86	50 - 150	
Perfluorooctanoic acid (PFOA)	1.97	1.68	J	ng/L		85	50 - 150	
Perfluorononanoic acid (PFNA)	1.97	1.64	J	ng/L		83	50 - 150	
Perfluorodecanoic acid (PFDA)	1.97	1.65	J	ng/L		84	50 - 150	
Perfluoroundecanoic acid (PFUnA)	1.97	1.63	J	ng/L		82	50 - 150	
Perfluorododecanoic acid (PFDaO)	1.97	1.67	J	ng/L		85	50 - 150	
Perfluorobutanesulfonic acid (PFBS)	1.75	1.51	J	ng/L		86	50 - 150	
Perfluoropentanesulfonic acid (PPPeS)	1.85	1.46	J	ng/L		79	50 - 150	
Perfluorohexanesulfonic acid (PFHxS)	1.80	1.54	J	ng/L		86	50 - 150	
Perfluoroheptanesulfonic Acid (PFHpS)	1.88	1.58	J	ng/L		84	50 - 150	
Perfluorooctanesulfonic acid (PFOS)	1.83	1.60	J	ng/L		88	50 - 150	
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	1.76	1.42	J	ng/L		81	50 - 150	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.85	1.65	J	ng/L		89	50 - 150	
1H,1H,2H,2H-Perfluoroctane sulfonic acid (6:2 FTS)	1.88	1.66	J	ng/L		88	50 - 150	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.89	1.58	J	ng/L		84	50 - 150	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1.97	1.69	J	ng/L		86	50 - 150	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.87	1.54	J	ng/L		82	50 - 150	
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	1.84	1.53	J	ng/L		83	50 - 150	
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid	1.86	1.47	J	ng/L		79	50 - 150	
Perfluoro-4-methoxybutanoic acid (PFMBA)	1.97	1.63	J	ng/L		83	50 - 150	
Perfluoro-3-methoxypropanoic acid (PFMPA)	1.97	1.59	J	ng/L		80	50 - 150	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.97	1.74	J	ng/L		88	50 - 150	

Eurofins Eaton Analytical - South Bend

# QC Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

<b>Isotope Dilution</b>	<b>LLCS</b>	<b>LLCS</b>	
	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>
13C4 PFBA	86		50 - 200
13C5 PFPeA	84		50 - 200
13C5 PFHxA	88		50 - 200
13C4 PFHpA	91		50 - 200
13C8 PFOA	90		50 - 200
13C9 PFNA	92		50 - 200
13C6 PFDA	92		50 - 200
13C7 PFUnA	92		50 - 200
13C2 PFDoA	89		50 - 200
13C3 HFPO-DA	81		50 - 200
13C3 PFBS	96		50 - 200
13C8 PFOS	92		50 - 200
13C2-4:2-FTS	96		50 - 200
13C2-6:2-FTS	90		50 - 200
13C2-8:2-FTS	93		50 - 200
13C3 PFHxS	93		50 - 200

Lab Sample ID: 810-7259-1 MS

Matrix: Water

Analysis Batch: 7354

Client Sample ID: 236-Raw West Des Moines #6

Prep Type: Total/NA

Prep Batch: 7275

<b>Analyte</b>	<b>Sample</b>	<b>Sample</b>	<b>Spike</b>	<b>MS</b>	<b>MS</b>	<b>Unit</b>	<b>D</b>	<b>%Rec</b>	<b>%Rec.</b>
	<b>Result</b>	<b>Qualifier</b>	<b>Added</b>	<b>Result</b>	<b>Qualifier</b>				
Perfluorobutanoic acid (PFBA)	4.2		192	186		ng/L		95	70 - 130
Perfluoropentanoic acid (PFPeA)	8.3		192	195		ng/L		97	70 - 130
Perfluorohexanoic acid (PFHxA)	6.3		192	189		ng/L		95	70 - 130
Perfluoroheptanoic acid (PFHpA)	3.3		192	187		ng/L		96	70 - 130
Perfluorooctanoic acid (PFOA)	2.4		192	186		ng/L		96	70 - 130
Perfluorononanoic acid (PFNA)	<1.9		192	187		ng/L		97	70 - 130
Perfluorodecanoic acid (PFDA)	<1.9		192	185		ng/L		96	70 - 130
Perfluoroundecanoic acid (PFUnA)	<1.9		192	186		ng/L		97	70 - 130
Perfluorododecanoic acid (PFDoA)	<1.9		192	188		ng/L		98	70 - 130
Perfluorobutanesulfonic acid (PFBS)	2.2		170	166		ng/L		96	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<1.9		180	174		ng/L		96	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	4.7		175	173		ng/L		96	70 - 130
Perfluoroheptanesulfonic Acid (PFHpS)	<1.9		183	176		ng/L		96	70 - 130
Perfluorooctanesulfonic acid (PFOS)	16		178	185		ng/L		95	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.9		171	161		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<1.9		180	172		ng/L		95	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<1.9		183	176		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<1.9		184	174		ng/L		94	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.9		192	201		ng/L		105	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.9		181	171		ng/L		94	70 - 130

Eurofins Eaton Analytical - South Bend

# QC Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: 810-7259-1 MS				Client Sample ID: 236-Raw West Des Moines #6					
				Prep Type: Total/NA Prep Batch: 7275					
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec.	Limits
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	<1.9		179	174		ng/L	97	70 - 130	
11-Chloroeicosafauro-3-oxaundecane-1-sulfonic acid	<1.9		181	171		ng/L	94	70 - 130	
Perfluoro-4-methoxybutanoic acid (PFMBA)	<1.9		192	177		ng/L	92	70 - 130	
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.9		192	187		ng/L	97	70 - 130	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<1.9		192	206		ng/L	107	70 - 130	
<b>Isotope Dilution</b>									
		MS %Recovery	MS Qualifier	Limits					
13C4 PFBA		91		50 - 200					
13C5 PFPeA		86		50 - 200					
13C5 PFHxA		91		50 - 200					
13C4 PFHpA		90		50 - 200					
13C8 PFOA		83		50 - 200					
13C9 PFNA		82		50 - 200					
13C6 PFDA		84		50 - 200					
13C7 PFUnA		84		50 - 200					
13C2 PFDoA		84		50 - 200					
13C3 HFPO-DA		92		50 - 200					
13C3 PFBS		99		50 - 200					
13C8 PFOS		91		50 - 200					
13C2-4:2-FTS		100		50 - 200					
13C2-6:2-FTS		90		50 - 200					
13C2-8:2-FTS		97		50 - 200					
13C3 PFHxS		95		50 - 200					

Lab Sample ID: 810-7259-2 DU				Client Sample ID: 237-Raw West Des Moines #7					
				Prep Type: Total/NA Prep Batch: 7275					
Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D	RPD	Limit
Perfluorobutanoic acid (PFBA)	3.3			3.28		ng/L		0.5	30
Perfluoropentanoic acid (PFPeA)	1.9			<2.0		ng/L		NC	30
Perfluorohexanoic acid (PFHxA)	<1.9			<2.0		ng/L		NC	30
Perfluoroheptanoic acid (PFHpA)	<1.9			<2.0		ng/L		NC	30
Perfluorooctanoic acid (PFOA)	2.6			2.62		ng/L		1	30
Perfluorononanoic acid (PFNA)	<1.9			<2.0		ng/L		NC	30
Perfluorodecanoic acid (PFDA)	<1.9			<2.0		ng/L		NC	30
Perfluoroundecanoic acid (PFUnA)	<1.9			<2.0		ng/L		NC	30
Perfluorododecanoic acid (PFDoA)	<1.9			<2.0		ng/L		NC	30
Perfluorobutanesulfonic acid (PFBS)	5.4			5.37		ng/L		0.4	30
Perfluoropentanesulfonic acid (PFPeS)	<1.9			<2.0		ng/L		NC	30
Perfluorohexamenesulfonic acid (PFHxS)	3.4			3.23		ng/L		4	30

# QC Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: 810-7259-2 DU				Client Sample ID: 237-Raw West Des Moines #7					
Matrix: Water				Prep Type: Total/NA					
Analysis Batch: 7354				Prep Batch: 7275					
Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Perfluoroheptanesulfonic Acid (PFHpS)	<1.9			<2.0		ng/L		NC	30
Perfluorooctanesulfonic acid (PFOS)	8.0			7.76		ng/L		3	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.9			<2.0		ng/L		NC	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<1.9			<2.0		ng/L		NC	30
1H,1H,2H,2H-Perfluoroctane sulfonic acid (6:2 FTS)	<1.9			<2.0		ng/L		NC	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<1.9			<2.0		ng/L		NC	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.9			<2.0		ng/L		NC	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.9			<2.0		ng/L		NC	30
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	<1.9			<2.0		ng/L		NC	30
11-Chloroeicosafauro-3-oxaundecane-1-sulfonic acid	<1.9			<2.0		ng/L		NC	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<1.9			<2.0		ng/L		NC	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.9			<2.0		ng/L		NC	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<1.9			<2.0		ng/L		NC	30
DU DU									
Isotope Dilution	%Recovery	Qualifier	Limits						
13C4 PFBA	88		50 - 200						
13C5 PFPeA	81		50 - 200						
13C5 PFHxA	90		50 - 200						
13C4 PFHpA	90		50 - 200						
13C8 PFOA	83		50 - 200						
13C9 PFNA	83		50 - 200						
13C6 PFDA	83		50 - 200						
13C7 PFUnA	84		50 - 200						
13C2 PFDoA	83		50 - 200						
13C3 HFPO-DA	92		50 - 200						
13C3 PFBS	97		50 - 200						
13C8 PFOS	91		50 - 200						
13C2-4:2-FTS	95		50 - 200						
13C2-6:2-FTS	85		50 - 200						
13C2-8:2-FTS	95		50 - 200						
13C3 PFHxS	96		50 - 200						

Lab Sample ID: MB 810-7368/1-A

Matrix: Drinking Water

Analysis Batch: 7443

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7368

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		11/16/21 06:09	11/16/21 21:28	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		11/16/21 06:09	11/16/21 21:28	1

Eurofins Eaton Analytical - South Bend

# QC Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

**Lab Sample ID: MB 810-7368/1-A**

**Matrix: Drinking Water**

**Analysis Batch: 7443**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 7368**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Perfluoroctanoic acid (PFOA)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Perfluoroheptanesulfonic Acid (PFHpS)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
11-Chloroeicosafauro-3-oxaundecan e-1-sulfonic acid	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L	11/16/21 06:09	11/16/21 21:28		1

Isotope Dilution	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	81		50 - 200	11/16/21 06:09	11/16/21 21:28	1
13C5 PFPeA	79		50 - 200	11/16/21 06:09	11/16/21 21:28	1
13C5 PFHxA	80		50 - 200	11/16/21 06:09	11/16/21 21:28	1
13C4 PFHpA	81		50 - 200	11/16/21 06:09	11/16/21 21:28	1
13C8 PFOA	82		50 - 200	11/16/21 06:09	11/16/21 21:28	1
13C9 PFNA	84		50 - 200	11/16/21 06:09	11/16/21 21:28	1
13C6 PFDA	84		50 - 200	11/16/21 06:09	11/16/21 21:28	1
13C7 PFUnA	84		50 - 200	11/16/21 06:09	11/16/21 21:28	1
13C2 PFDoA	83		50 - 200	11/16/21 06:09	11/16/21 21:28	1
13C3 HFPO-DA	73		50 - 200	11/16/21 06:09	11/16/21 21:28	1
13C3 PFBS	94		50 - 200	11/16/21 06:09	11/16/21 21:28	1
13C8 PFOS	92		50 - 200	11/16/21 06:09	11/16/21 21:28	1
13C2-4:2-FTS	86		50 - 200	11/16/21 06:09	11/16/21 21:28	1
13C2-6:2-FTS	87		50 - 200	11/16/21 06:09	11/16/21 21:28	1

Eurofins Eaton Analytical - South Bend

# QC Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

**Lab Sample ID: MB 810-7368/1-A**

**Matrix: Drinking Water**

**Analysis Batch: 7443**

<i>Isotope Dilution</i>	<i>MB</i>	<i>MB</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C2-8:2-FTS		92			50 - 200
13C3 PFHxS		92			50 - 200

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 7368**

<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
11/16/21 06:09	11/16/21 21:28	1
11/16/21 06:09	11/16/21 21:28	1

**Lab Sample ID: LCS 810-7368/3-A**

**Matrix: Drinking Water**

**Analysis Batch: 7443**

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i>	<i>Limits</i>
Perfluorobutanoic acid (PFBA)	193	192		ng/L		99	70 - 130	
Perfluoropentanoic acid (PFPeA)	193	191		ng/L		99	70 - 130	
Perfluorohexanoic acid (PFHxA)	193	191		ng/L		99	70 - 130	
Perfluoroheptanoic acid (PFHpA)	193	190		ng/L		98	70 - 130	
Perfluorooctanoic acid (PFOA)	193	190		ng/L		98	70 - 130	
Perfluorononanoic acid (PFNA)	193	192		ng/L		99	70 - 130	
Perfluorodecanoic acid (PFDA)	193	191		ng/L		99	70 - 130	
Perfluoroundecanoic acid (PFUnA)	193	191		ng/L		99	70 - 130	
Perfluorododecanoic acid (PFDoA)	193	194		ng/L		100	70 - 130	
Perfluorobutanesulfonic acid (PFBS)	172	171		ng/L		100	70 - 130	
Perfluoropentanesulfonic acid (PFPeS)	182	184		ng/L		101	70 - 130	
Perfluorohexanesulfonic acid (PFHxS)	176	177		ng/L		101	70 - 130	
Perfluoroheptanesulfonic Acid (PFHpS)	184	183		ng/L		99	70 - 130	
Perfluoroctanesulfonic acid (PFOS)	179	176		ng/L		98	70 - 130	
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	172	172		ng/L		100	70 - 130	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	181	183		ng/L		101	70 - 130	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	184	181		ng/L		98	70 - 130	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	186	187		ng/L		101	70 - 130	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	193	170		ng/L		88	70 - 130	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	183	181		ng/L		99	70 - 130	
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	181	173		ng/L		96	70 - 130	
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid	183	159		ng/L		87	70 - 130	
Perfluoro-4-methoxybutanoic acid (PFMBA)	193	187		ng/L		97	70 - 130	
Perfluoro-3-methoxypropanoic acid (PFMPA)	193	188		ng/L		97	70 - 130	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	193	209		ng/L		108	70 - 130	

# QC Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

<b>Isotope Dilution</b>	<b>LCS</b>	<b>LCS</b>	<b>Recovery</b>	<b>Qualifier</b>	<b>Limits</b>
13C4 PFBA			91		50 - 200
13C5 PFPeA			89		50 - 200
13C5 PFHxA			90		50 - 200
13C4 PFHpA			91		50 - 200
13C8 PFOA			91		50 - 200
13C9 PFNA			92		50 - 200
13C6 PFDA			89		50 - 200
13C7 PFUnA			83		50 - 200
13C2 PFDoA			79		50 - 200
13C3 HFPO-DA			106		50 - 200
13C3 PFBS			92		50 - 200
13C8 PFOS			90		50 - 200
13C2-4:2-FTS			86		50 - 200
13C2-6:2-FTS			89		50 - 200
13C2-8:2-FTS			87		50 - 200
13C3 PFHxS			90		50 - 200

**Lab Sample ID: LLCS 810-7368/2-A**

**Matrix: Drinking Water**

**Analysis Batch: 7443**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 7368**

<b>Analyte</b>	<b>Spike Added</b>	<b>LLCS</b>	<b>LLCS</b>	<b>Unit</b>	<b>D</b>	<b>%Rec</b>	<b>Limits</b>
		<b>Result</b>	<b>Qualifier</b>				
Perfluorobutanoic acid (PFBA)	1.86	1.64	J	ng/L		88	50 - 150
Perfluoropentanoic acid (PFPeA)	1.86	1.74	J	ng/L		94	50 - 150
Perfluorohexanoic acid (PFHxA)	1.86	1.59	J	ng/L		85	50 - 150
Perfluoroheptanoic acid (PFHpA)	1.86	1.58	J	ng/L		85	50 - 150
Perfluorooctanoic acid (PFOA)	1.86	1.57	J	ng/L		85	50 - 150
Perfluorononanoic acid (PFNA)	1.86	1.58	J	ng/L		85	50 - 150
Perfluorodecanoic acid (PFDA)	1.86	1.63	J	ng/L		87	50 - 150
Perfluoroundecanoic acid (PFUnA)	1.86	1.57	J	ng/L		85	50 - 150
Perfluorododecanoic acid (PFDoA)	1.86	1.65	J	ng/L		89	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.65	1.37	J	ng/L		83	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	1.75	1.42	J	ng/L		81	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.70	1.41	J	ng/L		83	50 - 150
Perfluoroheptanesulfonic Acid (PFHpS)	1.78	1.49	J	ng/L		84	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.73	1.54	J	ng/L		89	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	1.66	1.37	J	ng/L		83	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.75	1.56	J	ng/L		90	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	1.77	1.51	J	ng/L		85	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.79	1.56	J	ng/L		87	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1.86	1.62	J	ng/L		87	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.76	1.47	J	ng/L		84	50 - 150

Eurofins Eaton Analytical - South Bend

# QC Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

**Lab Sample ID: LLCS 810-7368/2-A**

**Matrix: Drinking Water**

**Analysis Batch: 7443**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 7368**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	Limits
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	1.74	1.46	J	ng/L	84	50 - 150	
11-Chloroeicosafauro-3-oxaundecane-1-sulfonic acid	1.76	1.35	J	ng/L	77	50 - 150	
Perfluoro-4-methoxybutanoic acid (PFMBA)	1.86	1.55	J	ng/L	83	50 - 150	
Perfluoro-3-methoxypropanoic acid (PFMPA)	1.86	1.51	J	ng/L	81	50 - 150	
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	1.86	1.65	J	ng/L	89	50 - 150	

Isotope Dilution	LLCS %Recovery	LLCS Qualifier	LLCS Limits
13C4 PFBA	95		50 - 200
13C5 PFPeA	93		50 - 200
13C5 PFHxA	94		50 - 200
13C4 PFHpA	95		50 - 200
13C8 PFOA	96		50 - 200
13C9 PFNA	96		50 - 200
13C6 PFDA	94		50 - 200
13C7 PFUnA	88		50 - 200
13C2 PFDoA	83		50 - 200
13C3 HFPO-DA	97		50 - 200
13C3 PFBS	97		50 - 200
13C8 PFOS	94		50 - 200
13C2-4:2-FTS	89		50 - 200
13C2-6:2-FTS	90		50 - 200
13C2-8:2-FTS	91		50 - 200
13C3 PFHxS	97		50 - 200

**Lab Sample ID: 810-7259-4 LMS**

**Matrix: Drinking Water**

**Analysis Batch: 7443**

**Client Sample ID: 239-Finished Water Leaving Treatment**

**Prep Type: Total/NA**

**Prep Batch: 7368**

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	3.5		1.86	5.06		ng/L	86	50 - 150	
Perfluoropentanoic acid (PFPeA)	4.4		1.86	5.99		ng/L	85	50 - 150	
Perfluorohexanoic acid (PFHxA)	3.6		1.86	5.30		ng/L	92	50 - 150	
Perfluoroheptanoic acid (PFHpA)	<1.9		1.86	2.91		ng/L	89	50 - 150	
Perfluorooctanoic acid (PFOA)	2.9		1.86	4.59		ng/L	89	50 - 150	
Perfluorononanoic acid (PFNA)	<1.9		1.86	2.04		ng/L	94	50 - 150	
Perfluorodecanoic acid (PFDA)	<1.9		1.86	1.79	J	ng/L	96	50 - 150	
Perfluoroundecanoic acid (PFUnA)	<1.9		1.86	1.80	J	ng/L	97	50 - 150	
Perfluorododecanoic acid (PFDoA)	<1.9		1.86	2.02		ng/L	109	50 - 150	
Perfluorobutanesulfonic acid (PFBS)	2.6		1.65	4.02		ng/L	86	50 - 150	
Perfluoropentanesulfonic acid (PFPeS)	<1.9		1.74	1.69	J	ng/L	97	50 - 150	
Perfluorohexanesulfonic acid (PFHxS)	<1.9		1.69	3.01		ng/L	83	50 - 150	

Eurofins Eaton Analytical - South Bend

# QC Sample Results

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: 810-7259-4 LMS			Client Sample ID: 239-Finished Water Leaving Treatment						
			Prep Type: Total/NA Prep Batch: 7368						
Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec.	Limits
Perfluoroheptanesulfonic Acid (PFHpS)	<1.9		1.77	1.58	J	ng/L	89	50 - 150	
Perfluorooctanesulfonic acid (PFOS)	2.4		1.72	3.96		ng/L	92	50 - 150	
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.9		1.66	1.36	J	ng/L	82	50 - 150	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<1.9		1.74	1.55	J	ng/L	89	50 - 150	
1H,1H,2H,2H-Perfluoroctane sulfonic acid (6:2 FTS)	<1.9		1.77	1.63	J	ng/L	92	50 - 150	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<1.9		1.78	1.62	J	ng/L	91	50 - 150	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.9		1.86	1.47	J	ng/L	79	50 - 150	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.9		1.76	1.50	J	ng/L	85	50 - 150	
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	<1.9		1.73	1.66	J	ng/L	96	50 - 150	
11-Chloroeicosafauro-3-oxaundecane-1-sulfonic acid	<1.9		1.75	1.80	J	ng/L	103	50 - 150	
Perfluoro-4-methoxybutanoic acid (PFMBA)	<1.9		1.86	1.54	J	ng/L	83	50 - 150	
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.9		1.86	1.61	J	ng/L	87	50 - 150	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<1.9		1.86	1.71	J	ng/L	92	50 - 150	
<i>LMS LMS</i>									
Isotope Dilution	%Recovery	Qualifier	<i>Limits</i>						
13C4 PFBA	90		50 - 200						
13C5 PFPeA	88		50 - 200						
13C5 PFHxA	88		50 - 200						
13C4 PFHpA	86		50 - 200						
13C8 PFOA	81		50 - 200						
13C9 PFNA	80		50 - 200						
13C6 PFDA	82		50 - 200						
13C7 PFUnA	82		50 - 200						
13C2 PFDoA	80		50 - 200						
13C3 HFPO-DA	87		50 - 200						
13C3 PFBS	95		50 - 200						
13C8 PFOS	92		50 - 200						
13C2-4:2-FTS	88		50 - 200						
13C2-6:2-FTS	84		50 - 200						
13C2-8:2-FTS	94		50 - 200						
13C3 PFHxS	94		50 - 200						

# QC Association Summary

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## LCMS

### Prep Batch: 7275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-7259-1	236-Raw West Des Moines #6	Total/NA	Water	533	
810-7259-2	237-Raw West Des Moines #7	Total/NA	Water	533	
810-7259-3	238-Raw West Des Moines #9	Total/NA	Water	533	
MB 810-7275/1-A	Method Blank	Total/NA	Water	533	
LLCS 810-7275/2-A	Lab Control Sample	Total/NA	Water	533	
810-7259-1 MS	236-Raw West Des Moines #6	Total/NA	Water	533	
810-7259-2 DU	237-Raw West Des Moines #7	Total/NA	Water	533	

### Analysis Batch: 7354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-7259-1	236-Raw West Des Moines #6	Total/NA	Water	533	7275
810-7259-2	237-Raw West Des Moines #7	Total/NA	Water	533	7275
810-7259-3	238-Raw West Des Moines #9	Total/NA	Water	533	7275
MB 810-7275/1-A	Method Blank	Total/NA	Water	533	7275
LLCS 810-7275/2-A	Lab Control Sample	Total/NA	Water	533	7275
810-7259-1 MS	236-Raw West Des Moines #6	Total/NA	Water	533	7275
810-7259-2 DU	237-Raw West Des Moines #7	Total/NA	Water	533	7275

### Prep Batch: 7368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-7259-4	239-Finished Water Leaving Treatment	Total/NA	Drinking Water	533	
810-7259-5	240-QC Site 57 Trip Blank	Total/NA	Drinking Water	533	
810-7259-6	241-QC Site 57 Finish Duplicate	Total/NA	Drinking Water	533	
MB 810-7368/1-A	Method Blank	Total/NA	Drinking Water	533	
LCS 810-7368/3-A	Lab Control Sample	Total/NA	Drinking Water	533	
LLCS 810-7368/2-A	Lab Control Sample	Total/NA	Drinking Water	533	
810-7259-4 LMS	239-Finished Water Leaving Treatment	Total/NA	Drinking Water	533	

### Analysis Batch: 7443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-7259-4	239-Finished Water Leaving Treatment	Total/NA	Drinking Water	533	7368
810-7259-5	240-QC Site 57 Trip Blank	Total/NA	Drinking Water	533	7368
810-7259-6	241-QC Site 57 Finish Duplicate	Total/NA	Drinking Water	533	7368
MB 810-7368/1-A	Method Blank	Total/NA	Drinking Water	533	7368
LCS 810-7368/3-A	Lab Control Sample	Total/NA	Drinking Water	533	7368
LLCS 810-7368/2-A	Lab Control Sample	Total/NA	Drinking Water	533	7368
810-7259-4 LMS	239-Finished Water Leaving Treatment	Total/NA	Drinking Water	533	7368

# Lab Chronicle

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

## **Client Sample ID: 236-Raw West Des Moines #6**

Date Collected: 11/09/21 13:15  
Date Received: 11/10/21 09:15

**Lab Sample ID: 810-7259-1**

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	533			7275	11/15/21 06:30	MP	EA SB
Total/NA	Analysis	533		1	7354	11/16/21 01:48	CM	EA SB

## **Client Sample ID: 237-Raw West Des Moines #7**

Date Collected: 11/09/21 13:25  
Date Received: 11/10/21 09:15

**Lab Sample ID: 810-7259-2**

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	533			7275	11/15/21 06:30	MP	EA SB
Total/NA	Analysis	533		1	7354	11/16/21 02:15	CM	EA SB

## **Client Sample ID: 238-Raw West Des Moines #9**

Date Collected: 11/09/21 13:45  
Date Received: 11/10/21 09:15

**Lab Sample ID: 810-7259-3**

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	533			7275	11/15/21 06:30	MP	EA SB
Total/NA	Analysis	533		1	7354	11/16/21 02:42	CM	EA SB

## **Client Sample ID: 239-Finished Water Leaving Treatment**

Date Collected: 11/09/21 13:05  
Date Received: 11/10/21 09:15

**Lab Sample ID: 810-7259-4**

Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	533			7368	11/16/21 06:09	CM	EA SB
Total/NA	Analysis	533		1	7443	11/16/21 22:08	CM	EA SB

## **Client Sample ID: 240-QC Site 57 Trip Blank**

Date Collected: 11/09/21 13:00  
Date Received: 11/10/21 09:15

**Lab Sample ID: 810-7259-5**

Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	533			7368	11/16/21 06:09	CM	EA SB
Total/NA	Analysis	533		1	7443	11/16/21 22:35	CM	EA SB

## **Client Sample ID: 241-QC Site 57 Finish Duplicate**

Date Collected: 11/09/21 13:07  
Date Received: 11/10/21 09:15

**Lab Sample ID: 810-7259-6**

Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	533			7368	11/16/21 06:09	CM	EA SB
Total/NA	Analysis	533		1	7443	11/16/21 22:49	CM	EA SB

### Laboratory References:

EA SB = Eurofins Eaton Analytical - South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

Eurofins Eaton Analytical - South Bend

# Accreditation/Certification Summary

Client: Iowa Department of Natural Resources

Job ID: 810-7259-1

Project/Site: PFC18

## Laboratory: Eurofins Eaton Analytical - South Bend

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA Iowa	ISO/IEC 17025 State	5794.01 IA Lab #098	07-31-22 11-01-21 *

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Eaton Analytical - South Bend

## Method Summary

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

Method	Method Description	Protocol	Laboratory
533	Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water	EPA	EA SB
533	Extraction of Perfluorinated and Polyfluorinated Alkyl Acids	EPA	EA SB

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

EA SB = Eurofins Eaton Analytical - South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

# Sample Summary

Client: Iowa Department of Natural Resources  
Project/Site: PFC18

Job ID: 810-7259-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
810-7259-1	236-Raw West Des Moines #6	Water	11/09/21 13:15	11/10/21 09:15	IA7785007
810-7259-2	237-Raw West Des Moines #7	Water	11/09/21 13:25	11/10/21 09:15	IA7785007
810-7259-3	238-Raw West Des Moines #9	Water	11/09/21 13:45	11/10/21 09:15	IA7785007
810-7259-4	239-Finished Water Leaving Treatment	Drinking Water	11/09/21 13:05	11/10/21 09:15	IA7785007
810-7259-5	240-QC Site 57 Trip Blank	Drinking Water	11/09/21 13:00	11/10/21 09:15	IA7785007
810-7259-6	241-QC Site 57 Finish Duplicate	Drinking Water	11/09/21 13:07	11/10/21 09:15	IA7785007

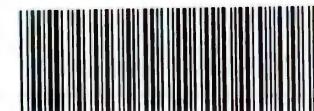
## South Bend, IN

110 S Hill Street  
South Bend, IN 46617  
Phone (574) 233-4777 Phone (574) 233-8207

## Chain of Custody Record

eurofins

Environment Testing  
America



810-7259 Chain of Custody

<b>Client Information</b>		Sampler: <i>Tug</i>	Lab PM: Chlebowksi, T			COC No: 810-2698-887.2						
Client Contact: Claire Hruby		Phone: 515-777-5161	E-Mail: traci.chlebowksi@dnr.iowa.gov			Page: Page 2 of 2						
Company: Iowa Department of Natural Resources		PWSID: IA7785007			Job #:							
Address: 502 East 9th		Due Date Requested:		Analysis Requested								
City: Des Moines		TAT Requested (days): STANDARD										
State, Zip: IA, 50319		Compliance Project: <input checked="" type="checkbox"/> Yes-SPECIAL <input type="checkbox"/> No										
Phone: 515-777-5161 (Tel)		PO #: 22 ESD-WQB-RBrun-0005										
Email: claire.hruby@dnr.iowa.gov		WO #:										
Project Name: 533		Project #: 81001225										
Site: WEST DES MOINES		SSOW#:										
Sample Identification		Sample Date <i>11/9/21</i>	Sample Time <i>1:15</i>	Sample Type (C=Comp, G=grab) <i>G</i>	Matrix (W=water, S=solid, O=ocean/wat/lol, T=tissue, A=air) <i>W</i>	Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>	Total Number of containers <i>3</i>	Special Instructions/Note: <i>WL04</i>				
RAW WEST DES MOINES #6		<i>236</i>	<i>11/9/21</i>	<i>1:15</i>	<i>G</i>	<i>W</i>	<i>X</i>	<i>3</i>	<i>WL04</i>			
RAW WEST DES MOINES #7		<i>237</i>	<i>11/9/21</i>	<i>1:25</i>	<i>G</i>	<i>W</i>	<i>X</i>	<i>3</i>	<i>WL05</i>			
RAW WEST DES MOINES #9		<i>238</i>	<i>11/9/21</i>	<i>1:45</i>	<i>G</i>	<i>W</i>	<i>X</i>	<i>3</i>	<i>WL07</i>			
FINISHED WATER LEAVING TREATMENT		<i>239</i>	<i>1:05</i>	<i>11/9/21</i>	<i>G</i>	<i>DW</i>	<i>X</i>	<i>3</i>	<i>1</i>			
QC SITE 57 TRIP BLANK		<i>240</i>	<i>1:00</i>	<i>11/9/21</i>	<i>G</i>	<i>RW</i>	<i>X</i>	<i>1</i>	<i>QC105</i>			
QC SITE 57 FINISH DUPLICATE		<i>241</i>	<i>1:07</i>	<i>11/9/21</i>	<i>G</i>	<i>DW</i>	<i>X</i>	<i>3</i>	<i>QC106</i>			
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify) LEVEL2						Special Instructions/QC Requirements:						
Empty Kit Relinquished by:		Date: <i>11/9/21</i>	Time: <i>2:30</i>	Method of Shipment: <i>fedEx</i>								
Relinquished by: <i>Tug</i>		Date/Time: <i>11/9/21 2:30</i>	Company: <i>IDNR</i>	Received by: <i>S. Ferguson</i>	Date/Time: <i>11-10-21 0915</i>	Company: <i>EEA</i>						
Relinquished by:		Date/Time:	Company:	Received by:	Date/Time:	Company:						
Relinquished by:		Date/Time:	Company:	Received by:	Date/Time:	Company:						
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks: <i>0.2°C</i>						

## Login Sample Receipt Checklist

Client: Iowa Department of Natural Resources

Job Number: 810-7259-1

**Login Number:** 7259

**List Source:** Eurofins Eaton Analytical - South Bend

**List Number:** 1

**Creator:** Spurgeon, Sheri

### Question

### Answer

### Comment

The cooler's custody seal, if present, is intact.

True

Sample custody seals, if present, are intact.

True

Samples were received on ice.

True

Cooler Temperature is acceptable.

True

Cooler Temperature is recorded.

True

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

Samples are received within Holding Time (excluding tests with immediate HTs)

True

Sample containers have legible labels.

True

Containers are not broken or leaking.

True

Sample collection date/times are provided.

True

There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs

True

Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").

True

Samples do not require splitting or compositing.

True

Container provided by EEA

True