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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Justin Huntley
Union County Water
500 N Main St.
Monroe, North Carolina 28112

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## JOB DESCRIPTION

PFAS - 533

## JOB NUMBER

810-91589-1

Eurofins Eaton Analytical South Bend
110 S Hill Street
South Bend IN 46617

See page two for job notes and contact information.

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Eaton Analytical, LLC Project Manager.

## Authorization

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# Definitions/Glossary

Client: Union County Water
Project/Site: PFAS - 533

Job ID: 810-91589-1

## 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 |

## Job ID: 810-91589-1 — Eurofins Eaton Analytical South Bend

**Job Narrative**
**810-91589-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- 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 may be 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.

**Receipt**
The samples were received on 1/25/2024 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 11.2°C

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

# Detection Summary

Client: Union County Water
Project/Site: PFAS - 533

Job ID: 810-91589-1

## Client Sample ID: J18 - Rehobeth ARV — Lab Sample ID: 810-91589-1

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid (PFBA) | 2.5 | | 2.0 | | ng/L | 1 | | 533 | Total/NA |
| Perfluoropentanoic acid (PFPeA) | 5.9 | | 2.0 | | ng/L | 1 | | 533 | Total/NA |
| Perfluorohexanoic acid (PFHxA) | 5.5 | | 2.0 | | ng/L | 1 | | 533 | Total/NA |
| Perfluorooctanoic acid (PFOA) | 3.0 | | 2.0 | | ng/L | 1 | | 533 | Total/NA |
| Perfluorooctanesulfonic acid (PFOS) | 2.6 | | 2.0 | | ng/L | 1 | | 533 | Total/NA |

## Client Sample ID: T07 - HWY 74 E BPS — Lab Sample ID: 810-91589-2

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Perfluorooctanesulfonic acid (PFOS) | 2.7 | | 2.0 | | ng/L | 1 | | 533 | Total/NA |

## Client Sample ID: NOR - Norwood WTP — Lab Sample ID: 810-91589-3

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Perfluoropentanoic acid (PFPeA) | 2.3 | | 2.0 | | ng/L | 1 | | 533 | Total/NA |
| Perfluorohexanoic acid (PFHxA) | 2.3 | | 2.0 | | ng/L | 1 | | 533 | Total/NA |
| Perfluorooctanoic acid (PFOA) | 2.6 | | 2.0 | | ng/L | 1 | | 533 | Total/NA |
| Perfluorooctanesulfonic acid (PFOS) | 4.4 | | 2.0 | | ng/L | 1 | | 533 | Total/NA |

This Detection Summary does not include radiochemical test results.

Client: Union County Water
Project/Site: PFAS - 533

Job ID: 810-91589-1

**Client Sample ID: J18 - Rehobeth ARV**
**Date Collected: 01/23/24 09:12**
**Date Received: 01/25/24 09:30**

**Lab Sample ID: 810-91589-1**
**Matrix: Drinking Water**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Perfluorobutanoic acid (PFBA)** | **2.5** | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| **Perfluoropentanoic acid (PFPeA)** | **5.9** | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| **Perfluorohexanoic acid (PFHxA)** | **5.5** | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| Perfluoroheptanoic acid (PFHpA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| **Perfluorooctanoic acid (PFOA)** | **3.0** | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| Perfluorononanoic acid (PFNA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| Perfluorodecanoic acid (PFDA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| Perfluoroundecanoic acid (PFUnA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| Perfluorododecanoic acid (PFDoA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| Perfluoropentanesulfonic acid (PFPeS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| Perfluorohexanesulfonic acid (PFHxS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| Perfluoroheptanesulfonic acid (PFHpS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| **Perfluorooctanesulfonic acid (PFOS)** | **2.6** | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| Perfluoro(4-methoxybutanoic acid) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| Perfluoro-3-methoxypropanoic acid (PFMPA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |
| Perfluoro-3,6-dioxaheptanoic acid | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:26 | 1 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *13C4 PFBA* | *84* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |
| *13C5 PFPeA* | *84* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |
| *13C5 PFHxA* | *83* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |
| *13C4 PFHpA* | *81* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |
| *13C8 PFOA* | *78* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |
| *13C9 PFNA* | *76* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |
| *13C6 PFDA* | *73* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |
| *13C7 PFUnA* | *73* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |
| *13C2 PFDoA* | *71* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |
| *13C3 HFPO-DA* | *87* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |
| *13C3 PFBS* | *91* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |
| *13C8 PFOS* | *83* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |
| *13C2-4:2-FTS* | *107* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |
| *13C2-6:2-FTS* | *97* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |

## Client Sample ID: J18 - Rehobeth ARV

**Lab Sample ID: 810-91589-1**

**Date Collected: 01/23/24 09:12**

**Matrix: Drinking Water**

**Date Received: 01/25/24 09:30**

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

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *13C2-8:2-FTS* | *92* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |
| *13C3 PFHxS* | *82* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:26* | *1* |

## Client Sample ID: T07 - HWY 74 E BPS

**Lab Sample ID: 810-91589-2**

**Date Collected: 01/23/24 10:00**

**Matrix: Drinking Water**

**Date Received: 01/25/24 09:30**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid (PFBA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluoropentanoic acid (PFPeA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluorohexanoic acid (PFHxA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluoroheptanoic acid (PFHpA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluorooctanoic acid (PFOA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluorononanoic acid (PFNA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluorodecanoic acid (PFDA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluoroundecanoic acid (PFUnA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluorododecanoic acid (PFDoA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluoropentanesulfonic acid (PFPeS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluorohexanesulfonic acid (PFHxS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluoroheptanesulfonic acid (PFHpS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| **Perfluorooctanesulfonic acid (PFOS)** | **2.7** | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluoro(4-methoxybutanoic acid) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluoro-3-methoxypropanoic acid (PFMPA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| Perfluoro-3,6-dioxaheptanoic acid | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:40 | 1 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *13C4 PFBA* | *83* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:40* | *1* |
| *13C5 PFPeA* | *77* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:40* | *1* |
| *13C5 PFHxA* | *81* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:40* | *1* |
| *13C4 PFHpA* | *81* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:40* | *1* |
| *13C8 PFOA* | *79* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:40* | *1* |
| *13C9 PFNA* | *79* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:40* | *1* |

## Client Sample ID: T07 - HWY 74 E BPS

**Lab Sample ID: 810-91589-2**

**Date Collected: 01/23/24 10:00**

**Matrix: Drinking Water**

**Date Received: 01/25/24 09:30**

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

| Isotope Dilution | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| 13C6 PFDA | 76 | | 50 - 200 | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 13C7 PFUnA | 74 | | 50 - 200 | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 13C2 PFDoA | 71 | | 50 - 200 | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 13C3 HFPO-DA | 88 | | 50 - 200 | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 13C3 PFBS | 84 | | 50 - 200 | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 13C8 PFOS | 81 | | 50 - 200 | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 13C2-4:2-FTS | 108 | | 50 - 200 | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 13C2-6:2-FTS | 99 | | 50 - 200 | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 13C2-8:2-FTS | 90 | | 50 - 200 | 01/29/24 08:13 | 01/31/24 19:40 | 1 |
| 13C3 PFHxS | 84 | | 50 - 200 | 01/29/24 08:13 | 01/31/24 19:40 | 1 |

## Client Sample ID: NOR - Norwood WTP

**Lab Sample ID: 810-91589-3**

**Date Collected: 01/23/24 10:51**

**Matrix: Drinking Water**

**Date Received: 01/25/24 09:30**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid (PFBA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| **Perfluoropentanoic acid (PFPeA)** | **2.3** | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| **Perfluorohexanoic acid (PFHxA)** | **2.3** | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| Perfluoroheptanoic acid (PFHpA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| **Perfluorooctanoic acid (PFOA)** | **2.6** | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| Perfluorononanoic acid (PFNA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| Perfluorodecanoic acid (PFDA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| Perfluoroundecanoic acid (PFUnA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| Perfluorododecanoic acid (PFDoA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| Perfluoropentanesulfonic acid (PFPeS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| Perfluorohexanesulfonic acid (PFHxS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| Perfluoroheptanesulfonic acid (PFHpS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| **Perfluorooctanesulfonic acid (PFOS)** | **4.4** | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| Perfluoro(4-methoxybutanoic acid) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |
| Perfluoro-3-methoxypropanoic acid (PFMPA) | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |

Client: Union County Water
Project/Site: PFAS - 533

Job ID: 810-91589-1

**Client Sample ID: NOR - Norwood WTP**
**Date Collected: 01/23/24 10:51**
**Date Received: 01/25/24 09:30**

**Lab Sample ID: 810-91589-3**
**Matrix: Drinking Water**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Perfluoro-3,6-dioxaheptanoic acid | <2.0 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 19:54 | 1 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *13C4 PFBA* | *80* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C5 PFPeA* | *76* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C5 PFHxA* | *79* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C4 PFHpA* | *78* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C8 PFOA* | *75* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C9 PFNA* | *73* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C6 PFDA* | *68* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C7 PFUnA* | *66* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C2 PFDoA* | *66* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C3 HFPO-DA* | *81* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C3 PFBS* | *79* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C8 PFOS* | *79* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C2-4:2-FTS* | *107* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C2-6:2-FTS* | *95* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C2-8:2-FTS* | *91* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |
| *13C3 PFHxS* | *80* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 19:54* | *1* |

# Isotope Dilution Summary

Client: Union County Water
Project/Site: PFAS - 533

Job ID: 810-91589-1

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

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

| | | Percent Isotope Dilution Recovery (Acceptance Limits) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | PFBA | PFPeA | 13C5PHA | C4PFHA | C8PFOA | C9PFNA | C6PFDA | 13C7PUA |
| Lab Sample ID | Client Sample ID | (50-200) | (50-200) | (50-200) | (50-200) | (50-200) | (50-200) | (50-200) | (50-200) |
| 810-91589-1 | J18 - Rehobeth ARV | 84 | 84 | 83 | 81 | 78 | 76 | 73 | 73 |
| 810-91589-2 | T07 - HWY 74 E BPS | 83 | 77 | 81 | 81 | 79 | 79 | 76 | 74 |
| 810-91589-3 | NOR - Norwood WTP | 80 | 76 | 79 | 78 | 75 | 73 | 68 | 66 |
| LCS 810-86985/3-A | Lab Control Sample | 82 | 83 | 81 | 82 | 81 | 81 | 81 | 79 |
| LLCS 810-86985/2-A | Lab Control Sample | 76 | 79 | 77 | 76 | 76 | 72 | 71 | 71 |
| MBL 810-86985/1-A | Method Blank | 75 | 78 | 77 | 76 | 75 | 75 | 73 | 72 |

| | | Percent Isotope Dilution Recovery (Acceptance Limits) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | PFDoA | HFPODA | C3PFBS | C8PFOS | 42FTS | 62FTS | 82FTS | C3PFHS |
| Lab Sample ID | Client Sample ID | (50-200) | (50-200) | (50-200) | (50-200) | (50-200) | (50-200) | (50-200) | (50-200) |
| 810-91589-1 | J18 - Rehobeth ARV | 71 | 87 | 91 | 83 | 107 | 97 | 92 | 82 |
| 810-91589-2 | T07 - HWY 74 E BPS | 71 | 88 | 84 | 81 | 108 | 99 | 90 | 84 |
| 810-91589-3 | NOR - Norwood WTP | 66 | 81 | 79 | 79 | 107 | 95 | 91 | 80 |
| LCS 810-86985/3-A | Lab Control Sample | 79 | 86 | 81 | 81 | 86 | 85 | 85 | 80 |
| LLCS 810-86985/2-A | Lab Control Sample | 70 | 76 | 84 | 75 | 86 | 80 | 78 | 80 |
| MBL 810-86985/1-A | Method Blank | 70 | 77 | 69 | 74 | 74 | 77 | 74 | 75 |

**Surrogate Legend**

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
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

**Lab Sample ID: MBL 810-86985/1-A**
**Matrix: Drinking Water**
**Analysis Batch: 87205**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 86985**

| Analyte | MBL Result | MBL Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid (PFBA) | <0.52 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluoropentanoic acid (PFPeA) | <0.38 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluorohexanoic acid (PFHxA) | <0.42 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluoroheptanoic acid (PFHpA) | <0.40 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluorooctanoic acid (PFOA) | <0.38 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluorononanoic acid (PFNA) | <0.38 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluorodecanoic acid (PFDA) | <0.36 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluoroundecanoic acid (PFUnA) | <0.38 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluorododecanoic acid (PFDoA) | <0.35 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | <0.42 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluoropentanesulfonic acid (PFPeS) | <0.37 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluorohexanesulfonic acid (PFHxS) | <0.39 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluoroheptanesulfonic acid (PFHpS) | <0.44 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluorooctanesulfonic acid (PFOS) | <0.39 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA) | <0.45 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) | <0.56 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) | <0.68 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) | <0.57 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) | <0.53 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | <0.40 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | <0.45 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | <0.51 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluoro(4-methoxybutanoic acid) | <0.35 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluoro-3-methoxypropanoic acid (PFMPA) | <0.32 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| Perfluoro-3,6-dioxaheptanoic acid | <0.93 | | 2.0 | | ng/L | | 01/29/24 08:13 | 01/31/24 17:48 | 1 |

| *Isotope Dilution* | *MBL %Recovery* | *MBL Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *13C4 PFBA* | *75* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 17:48* | *1* |
| *13C5 PFPeA* | *78* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 17:48* | *1* |
| *13C5 PFHxA* | *77* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 17:48* | *1* |
| *13C4 PFHpA* | *76* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 17:48* | *1* |
| *13C8 PFOA* | *75* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 17:48* | *1* |
| *13C9 PFNA* | *75* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 17:48* | *1* |
| *13C6 PFDA* | *73* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 17:48* | *1* |
| *13C7 PFUnA* | *72* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 17:48* | *1* |
| *13C2 PFDoA* | *70* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 17:48* | *1* |
| *13C3 HFPO-DA* | *77* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 17:48* | *1* |
| *13C3 PFBS* | *69* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 17:48* | *1* |
| *13C8 PFOS* | *74* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 17:48* | *1* |
| *13C2-4:2-FTS* | *74* | | *50 - 200* | *01/29/24 08:13* | *01/31/24 17:48* | *1* |

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

**Lab Sample ID: MBL 810-86985/1-A**
**Matrix: Drinking Water**
**Analysis Batch: 87205**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 86985**

| Isotope Dilution | MBL %Recovery | MBL Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| 13C2-6:2-FTS | 77 | | 50 - 200 | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| 13C2-8:2-FTS | 74 | | 50 - 200 | 01/29/24 08:13 | 01/31/24 17:48 | 1 |
| 13C3 PFHxS | 75 | | 50 - 200 | 01/29/24 08:13 | 01/31/24 17:48 | 1 |

**Lab Sample ID: LCS 810-86985/3-A**
**Matrix: Drinking Water**
**Analysis Batch: 87205**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 86985**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid (PFBA) | 200 | 195 | | ng/L | | 98 | 70 - 130 |
| Perfluoropentanoic acid (PFPeA) | 200 | 194 | | ng/L | | 97 | 70 - 130 |
| Perfluorohexanoic acid (PFHxA) | 200 | 195 | | ng/L | | 97 | 70 - 130 |
| Perfluoroheptanoic acid (PFHpA) | 200 | 194 | | ng/L | | 97 | 70 - 130 |
| Perfluorooctanoic acid (PFOA) | 200 | 195 | | ng/L | | 97 | 70 - 130 |
| Perfluorononanoic acid (PFNA) | 200 | 195 | | ng/L | | 97 | 70 - 130 |
| Perfluorodecanoic acid (PFDA) | 200 | 194 | | ng/L | | 97 | 70 - 130 |
| Perfluoroundecanoic acid (PFUnA) | 200 | 194 | | ng/L | | 97 | 70 - 130 |
| Perfluorododecanoic acid (PFDoA) | 200 | 196 | | ng/L | | 98 | 70 - 130 |
| Perfluorobutanesulfonic acid (PFBS) | 178 | 180 | | ng/L | | 101 | 70 - 130 |
| Perfluoropentanesulfonic acid (PFPeS) | 188 | 183 | | ng/L | | 97 | 70 - 130 |
| Perfluorohexanesulfonic acid (PFHxS) | 183 | 178 | | ng/L | | 97 | 70 - 130 |
| Perfluoroheptanesulfonic acid (PFHpS) | 191 | 182 | | ng/L | | 95 | 70 - 130 |
| Perfluorooctanesulfonic acid (PFOS) | 186 | 178 | | ng/L | | 96 | 70 - 130 |
| Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA) | 178 | 174 | | ng/L | | 97 | 70 - 130 |
| 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) | 188 | 181 | | ng/L | | 96 | 70 - 130 |
| 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) | 190 | 199 | | ng/L | | 105 | 70 - 130 |
| 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) | 192 | 193 | | ng/L | | 101 | 70 - 130 |
| Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) | 200 | 199 | | ng/L | | 100 | 70 - 130 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | 189 | 183 | | ng/L | | 97 | 70 - 130 |
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 187 | 175 | | ng/L | | 94 | 70 - 130 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 189 | 177 | | ng/L | | 94 | 70 - 130 |
| Perfluoro(4-methoxybutanoic acid) | 200 | 197 | | ng/L | | 99 | 70 - 130 |
| Perfluoro-3-methoxypropanoic acid (PFMPA) | 200 | 207 | | ng/L | | 103 | 70 - 130 |
| Perfluoro-3,6-dioxaheptanoic acid | 200 | 197 | | ng/L | | 99 | 70 - 130 |

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

| Isotope Dilution | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| 13C4 PFBA | 82 | | 50 - 200 |
| 13C5 PFPeA | 83 | | 50 - 200 |
| 13C5 PFHxA | 81 | | 50 - 200 |
| 13C4 PFHpA | 82 | | 50 - 200 |
| 13C8 PFOA | 81 | | 50 - 200 |
| 13C9 PFNA | 81 | | 50 - 200 |
| 13C6 PFDA | 81 | | 50 - 200 |
| 13C7 PFUnA | 79 | | 50 - 200 |
| 13C2 PFDoA | 79 | | 50 - 200 |
| 13C3 HFPO-DA | 86 | | 50 - 200 |
| 13C3 PFBS | 81 | | 50 - 200 |
| 13C8 PFOS | 81 | | 50 - 200 |
| 13C2-4:2-FTS | 86 | | 50 - 200 |
| 13C2-6:2-FTS | 85 | | 50 - 200 |
| 13C2-8:2-FTS | 85 | | 50 - 200 |
| 13C3 PFHxS | 80 | | 50 - 200 |

**Lab Sample ID: LLCS 810-86985/2-A**
**Matrix: Drinking Water**
**Analysis Batch: 87205**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 86985**

| Analyte | Spike Added | LLCS Result | LLCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| Perfluorobutanoic acid (PFBA) | 2.00 | 1.95 | J | ng/L | | 97 | 50 - 150 |
| Perfluoropentanoic acid (PFPeA) | 2.00 | 2.02 | | ng/L | | 101 | 50 - 150 |
| Perfluorohexanoic acid (PFHxA) | 2.00 | 1.96 | J | ng/L | | 98 | 50 - 150 |
| Perfluoroheptanoic acid (PFHpA) | 2.00 | 1.98 | J | ng/L | | 99 | 50 - 150 |
| Perfluorooctanoic acid (PFOA) | 2.00 | 1.99 | J | ng/L | | 100 | 50 - 150 |
| Perfluorononanoic acid (PFNA) | 2.00 | 2.03 | | ng/L | | 101 | 50 - 150 |
| Perfluorodecanoic acid (PFDA) | 2.00 | 1.98 | J | ng/L | | 99 | 50 - 150 |
| Perfluoroundecanoic acid (PFUnA) | 2.00 | 1.96 | J | ng/L | | 98 | 50 - 150 |
| Perfluorododecanoic acid (PFDoA) | 2.00 | 2.00 | | ng/L | | 100 | 50 - 150 |
| Perfluorobutanesulfonic acid (PFBS) | 1.78 | 1.72 | J | ng/L | | 97 | 50 - 150 |
| Perfluoropentanesulfonic acid (PFPeS) | 1.88 | 1.87 | J | ng/L | | 100 | 50 - 150 |
| Perfluorohexanesulfonic acid (PFHxS) | 1.83 | 1.76 | J | ng/L | | 96 | 50 - 150 |
| Perfluoroheptanesulfonic acid (PFHpS) | 1.91 | 1.90 | J | ng/L | | 100 | 50 - 150 |
| Perfluorooctanesulfonic acid (PFOS) | 1.86 | 1.85 | J | ng/L | | 100 | 50 - 150 |
| Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA) | 1.78 | 1.52 | J | ng/L | | 85 | 50 - 150 |
| 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) | 1.88 | 1.93 | J | ng/L | | 103 | 50 - 150 |
| 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) | 1.90 | 2.14 | | ng/L | | 113 | 50 - 150 |
| 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) | 1.92 | 1.99 | J | ng/L | | 104 | 50 - 150 |
| Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) | 2.00 | 1.95 | J | ng/L | | 97 | 50 - 150 |
| 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | 1.89 | 1.82 | J | ng/L | | 96 | 50 - 150 |

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

**Lab Sample ID: LLCS 810-86985/2-A**
**Matrix: Drinking Water**
**Analysis Batch: 87205**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 86985**

| Analyte | Spike Added | LLCS Result | LLCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---|---|---|---|---|---|---|---|
| 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid | 1.87 | 1.75 | J | ng/L | | 94 | 50 - 150 |
| 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid | 1.89 | 1.74 | J | ng/L | | 92 | 50 - 150 |
| Perfluoro(4-methoxybutanoic acid) | 2.00 | 1.92 | J | ng/L | | 96 | 50 - 150 |
| Perfluoro-3-methoxypropanoic acid (PFMPA) | 2.00 | 2.04 | | ng/L | | 102 | 50 - 150 |
| Perfluoro-3,6-dioxaheptanoic acid | 2.00 | 2.18 | | ng/L | | 109 | 50 - 150 |

| *Isotope Dilution* | *LLCS %Recovery* | *LLCS Qualifier* | *Limits* |
|---|---|---|---|
| *13C4 PFBA* | *76* | | *50 - 200* |
| *13C5 PFPeA* | *79* | | *50 - 200* |
| *13C5 PFHxA* | *77* | | *50 - 200* |
| *13C4 PFHpA* | *76* | | *50 - 200* |
| *13C8 PFOA* | *76* | | *50 - 200* |
| *13C9 PFNA* | *72* | | *50 - 200* |
| *13C6 PFDA* | *71* | | *50 - 200* |
| *13C7 PFUnA* | *71* | | *50 - 200* |
| *13C2 PFDoA* | *70* | | *50 - 200* |
| *13C3 HFPO-DA* | *76* | | *50 - 200* |
| *13C3 PFBS* | *84* | | *50 - 200* |
| *13C8 PFOS* | *75* | | *50 - 200* |
| *13C2-4:2-FTS* | *86* | | *50 - 200* |
| *13C2-6:2-FTS* | *80* | | *50 - 200* |
| *13C2-8:2-FTS* | *78* | | *50 - 200* |
| *13C3 PFHxS* | *80* | | *50 - 200* |

# QC Association Summary

Client: Union County Water
Project/Site: PFAS - 533

Job ID: 810-91589-1

## LCMS

### Prep Batch: 86985

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 810-91589-1 | J18 - Rehobeth ARV | Total/NA | Drinking Water | 533 | |
| 810-91589-2 | T07 - HWY 74 E BPS | Total/NA | Drinking Water | 533 | |
| 810-91589-3 | NOR - Norwood WTP | Total/NA | Drinking Water | 533 | |
| MBL 810-86985/1-A | Method Blank | Total/NA | Drinking Water | 533 | |
| LCS 810-86985/3-A | Lab Control Sample | Total/NA | Drinking Water | 533 | |
| LLCS 810-86985/2-A | Lab Control Sample | Total/NA | Drinking Water | 533 | |

### Analysis Batch: 87205

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 810-91589-1 | J18 - Rehobeth ARV | Total/NA | Drinking Water | 533 | 86985 |
| 810-91589-2 | T07 - HWY 74 E BPS | Total/NA | Drinking Water | 533 | 86985 |
| 810-91589-3 | NOR - Norwood WTP | Total/NA | Drinking Water | 533 | 86985 |
| MBL 810-86985/1-A | Method Blank | Total/NA | Drinking Water | 533 | 86985 |
| LCS 810-86985/3-A | Lab Control Sample | Total/NA | Drinking Water | 533 | 86985 |
| LLCS 810-86985/2-A | Lab Control Sample | Total/NA | Drinking Water | 533 | 86985 |

# Lab Chronicle

Client: Union County Water
Project/Site: PFAS - 533

Job ID: 810-91589-1

## Client Sample ID: J18 - Rehobeth ARV

**Lab Sample ID: 810-91589-1**

**Date Collected: 01/23/24 09:12**

**Matrix: Drinking Water**

**Date Received: 01/25/24 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab | Prepared or Analyzed |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 533 | | | 86985 | RR | EA SB | 01/29/24 08:13 |
| Total/NA | Analysis | 533 | | 1 | 87205 | KB | EA SB | 01/31/24 19:26 |

## Client Sample ID: T07 - HWY 74 E BPS

**Lab Sample ID: 810-91589-2**

**Date Collected: 01/23/24 10:00**

**Matrix: Drinking Water**

**Date Received: 01/25/24 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab | Prepared or Analyzed |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 533 | | | 86985 | RR | EA SB | 01/29/24 08:13 |
| Total/NA | Analysis | 533 | | 1 | 87205 | KB | EA SB | 01/31/24 19:40 |

## Client Sample ID: NOR - Norwood WTP

**Lab Sample ID: 810-91589-3**

**Date Collected: 01/23/24 10:51**

**Matrix: Drinking Water**

**Date Received: 01/25/24 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab | Prepared or Analyzed |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 533 | | | 86985 | RR | EA SB | 01/29/24 08:13 |
| Total/NA | Analysis | 533 | | 1 | 87205 | KB | EA SB | 01/31/24 19:54 |

**Laboratory References:**

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

# Accreditation/Certification Summary

Client: Union County Water
Project/Site: PFAS - 533

Job ID: 810-91589-1

## Laboratory: Eurofins Eaton Analytical South Bend

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

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| North Carolina (DW) | State | 18700 | 07-31-24 |

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 |
|---|---|---|---|
| 533 | 533 | Drinking Water | 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid |
| 533 | 533 | Drinking Water | 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) |
| 533 | 533 | Drinking Water | 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) |
| 533 | 533 | Drinking Water | 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) |
| 533 | 533 | Drinking Water | 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) |
| 533 | 533 | Drinking Water | 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid |
| 533 | 533 | Drinking Water | Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) |
| 533 | 533 | Drinking Water | Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA) |
| 533 | 533 | Drinking Water | Perfluoro(4-methoxybutanoic acid) |
| 533 | 533 | Drinking Water | Perfluoro-3,6-dioxaheptanoic acid |
| 533 | 533 | Drinking Water | Perfluoro-3-methoxypropanoic acid (PFMPA) |
| 533 | 533 | Drinking Water | Perfluorobutanesulfonic acid (PFBS) |
| 533 | 533 | Drinking Water | Perfluorobutanoic acid (PFBA) |
| 533 | 533 | Drinking Water | Perfluorodecanoic acid (PFDA) |
| 533 | 533 | Drinking Water | Perfluorododecanoic acid (PFDoA) |
| 533 | 533 | Drinking Water | Perfluoroheptanesulfonic acid (PFHpS) |
| 533 | 533 | Drinking Water | Perfluoroheptanoic acid (PFHpA) |
| 533 | 533 | Drinking Water | Perfluorohexanesulfonic acid (PFHxS) |
| 533 | 533 | Drinking Water | Perfluorohexanoic acid (PFHxA) |
| 533 | 533 | Drinking Water | Perfluorononanoic acid (PFNA) |
| 533 | 533 | Drinking Water | Perfluorooctanesulfonic acid (PFOS) |
| 533 | 533 | Drinking Water | Perfluorooctanoic acid (PFOA) |
| 533 | 533 | Drinking Water | Perfluoropentanesulfonic acid (PFPeS) |
| 533 | 533 | Drinking Water | Perfluoropentanoic acid (PFPeA) |
| 533 | 533 | Drinking Water | Perfluoroundecanoic acid (PFUnA) |

# Method Summary

Client: Union County Water
Project/Site: PFAS - 533

Job ID: 810-91589-1

| 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

# Sample Summary

Client: Union County Water
Project/Site: PFAS - 533

Job ID: 810-91589-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 810-91589-1 | J18 - Rehobeth ARV | Drinking Water | 01/23/24 09:12 | 01/25/24 09:30 |
| 810-91589-2 | T07 - HWY 74 E BPS | Drinking Water | 01/23/24 10:00 | 01/25/24 09:30 |
| 810-91589-3 | NOR - Norwood WTP | Drinking Water | 01/23/24 10:51 | 01/25/24 09:30 |

South Bend, IN 46617
Phone: 574-233-4777 Fax: 574-233-8207

| Client Information | Sampler: Chris Tye | Lab PM: Mattheis, Joe | Carrier Tracking: | 810-34259-01 |
|---|---|---|---|---|
| Client Contact: Justin Huntley | Phone: 980-417-9078 | E-Mail: Joe.Mattheis@et.eurofinsus.com | State of Origin: | Page: Page 1 of 1 |
| Company: Union County Water | PWSID: | | | Job #: |
| Address: 500 N Main St. | Due Date Requested: | | | |
| City: Monroe | TAT Requested (days): | | | |
| State, Zip: NC, 28112 | Compliance Project: Δ Yes Δ No | | | |
| Phone: 704-289-3307(Tel) | PO #: Purchase Order not required | | | |
| Email: Justin.Huntley@UnionCountyNC.gov | WO #: | | | |
| Project Name: PFAS - 533 | Project #: 81004979 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

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

| Sample Identification | Sample Date | Sample Time | Sample Type (C=Comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 533 - (MOD) Local Method | # of containers |
|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | N | |
| J18-Rehoboth ARV | 1/23/24 | 9:12 AM | G | Drinking Wate | | | ✓ | |
| T07-Hwy 74 E BPS | 1/23/24 | 10:00 AM | G | Drinking Wate | | | ✓ | |
| NOR-Norwood WTP | 1/23/24 | 10:51 AM | G | Drinking Wate | | | ✓ | |

810-91589 Chain of Custody

Instructions/Note:

1.4
11.2
30 wet

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

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

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

Special Instructions/QC Requirements:

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|

| Relinquished by | Date/Time | Company | Received by | Date/Time | Company |
|---|---|---|---|---|---|
| Chris Tye | 1/23/24 12:16 PM | | | 1/25/24 930 am | EEA |
| Relinquished by | Date/Time | Company | Received by | Date/Time | Company |
| | Date/Time | Company | Received by | Date/Time | Company |

# Login Sample Receipt Checklist

Client: Union County Water

Job Number: 810-91589-1

**Login Number: 91589**

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

**List Number: 1**

**Creator: Moffitt, Tisha**

| 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 | |