

# Understanding Your Sample Results

The enclosed data report uses laboratory descriptions you may not be familiar with. The following definitions of those descriptions may assist you in understanding your sample results:

**DL** *Detection Limit*

The lowest level at which the laboratory can reliably say the analyte is present.

**LOD** *Limit of Detection*

The lowest level at which the laboratory can measure the analyte (with a certain degree of confidence).

**LOQ** *Limit of Quantitation*

The lowest level at which the laboratory can reliably measure an analyte with a known degree of confidence and accuracy.

Note: Levels detected below the LOQ are qualified as estimated (J).

**ND** *Not Detected*

Indicates the analyte was not detected.

**Analyte** The chemical of interest.

**CAS No.** *Chemical Abstracts Service Number*

A universal system to provide a unique, unmistakable identifier for chemical substances.

**Result (ng/L)** *Result in nanogram(s) per liter*

The amount of an analyte determined to be present in the sample.

1 nanogram per liter (ng/L) = 1 part per trillion (ppt)

**Surrogate** A substance similar to the analytes. It is intentionally added to the sample at a known amount to check the management of the sample through the analytical process.

**Method 533** EPA drinking water analytical methods for PFAS. To be consistent with EPA's UCMR 5 analytical requirements, drinking water samples are analyzed for 29 PFAS, 25 PFAS under Method 533 and 4 PFAS under Method 537.1.  
**Method 537.1**

**Qualifier** A shorthand way to give more information about sample results in the limited space of a data sheet. The qualifier assigned by the lab is preliminary. Red annotations are edits from the third-party data validator, or shorthand codes to explain why reported results have been changed. The validator's mark, when present, is considered the final result.

**B** *Blank*

This analyte was also detected in the laboratory blank. Laboratory blank samples, which are water free from PFAS, are analyzed to ensure there is no contamination in the analytical process.

**J** *Estimated Value*

Indicates the analyte was detected and the level reported is estimated either through validation or because the level is below the LOQ. "J+" indicates the level is estimated high. "J-" indicates the level is estimated low.

**OT** *Out of Temperature*

Sample arrived at the laboratory with a temperature greater than the acceptable limit. Therefore, results for the analytes are qualified as estimated (J, UJ).

**RE** *Re-extracted*

Indicates that the initial results were not recommended for use due to data quality issues. Sample was re-extracted and re-analyzed. Data marked with RE are excluded from results.

**UJ** *Estimated Value*

The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

**PFAS** *Per- and polyfluoroalkyl substances*

**UCMR 5** *Fifth Unregulated Contaminant Monitoring Rule*

<https://www.epa.gov/dwucmr/fifth-unregulated-contaminant-monitoring-rule>

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# Understanding Your Sample Results

This example provides an overview of what is included in the laboratory report. The third-party data validator may make edits to the laboratory report in red pen. To be consistent with EPA's UCMR 5 analytical requirements, drinking water samples are analyzed for 25 PFAS under Method 533 and 4 PFAS under Method 537.1.

## Method 533

**BATTELLE**  
It can be done

Project Client:  
Project Name:  
Project No.:

Client ID

Battelle ID: D9436-FS  
Sample Type: SA  
Collection Date: 09/25/2023  
Extraction Date: 10/02/2023  
Analysis Date: 10/04/2023  
Analytical Instrument: Sciex 5500 LC/MS/MS  
% Moisture: NA  
Matrix: DW  
Sample Size: 0.271  
Size Unit Basis: L

1 ng/L = 1 ppt  
nanogram per liter      part per trillion

This section contains sample processing information used by the laboratory.

Analyte	CAS No.	Result (ng/L)	DL	LOD	LOQ
11CI-PF3OUds	763051-92-9	ND	0.31	0.92	2.31
9CI-PF3ONS	756426-58-1	ND	0.31	0.92	2.31
Adona	919005-14-4	ND	0.30	0.92	2.31
HFPO-DA	13252-13-6	ND	0.38	0.92	2.31
NFDHA	151772-58-6	ND	0.24	0.92	2.31
PFBA	375-22-4	ND	0.96	1.94	2.31
PFBS	375-73-5	0.83 J	0.34	0.92	2.31
8:2FTS	39108-34-4	ND	0.29	0.92	2.31
PFDA	335-76-2	ND	0.30	0.92	2.31
PFDoA	307-55-1	ND	0.41	0.92	2.31
PFEESA	113507-82-7	ND	0.30	0.92	2.31
PFHpS	375-92-8	ND	0.35	0.92	2.31
PFHpA	375-85-9	14.3 B	0.29	0.92	2.31
4:2FTS	757124-72-4	ND	0.30	0.92	2.31
PFHxS	355-46-4	21.0	0.27	0.92	2.31
PFHxA	307-24-4	ND	0.31	0.92	2.31
PFMPA	377-73-1	ND	0.36	0.92	2.31
PFMBA	863090-89-5	ND	0.40	0.92	2.31
PFNA	375-95-1	0.31 J	0.30	0.92	2.31
6:2FTS	27619-97-2	ND	0.30	0.92	2.31
PFOS	1763-23-1	1.54 J	0.21	0.74	2.31
PFOA	335-67-1	29.5	0.30	0.92	2.31
PFPeA	2706-90-3	ND	0.30	0.92	2.31
PFPeS	2706-91-4	ND 0.25 J	0.20	0.74	2.31
PFUnA	2058-94-8	ND UJ	0.36	0.92	2.31

Surrogate Recoveries (%)	Recovery
13C4-PFBA	101
13C5-PFPeA	
13C3-PFBS	
13C2-4:2FTS	
13C5-PFHxA	
13C3-HFPO-DA	
13C4-PFHxA	

**Detection limit (DL)** – the lowest level at which the laboratory can reliably say the analyte is present.  
**Limit of detection (LOD)** – the lowest level at which the laboratory can measure the analyte (with a certain degree of confidence).  
**Limit of quantitation (LOQ)** – the lowest level at which the laboratory can reliably measure an analyte with a known degree of confidence and accuracy.

Data **qualifiers** are a shorthand way to give more information about sample results in the limited space of a data sheet. Possible laboratory qualifiers are:  
**B (Blank)** – this analyte was also detected in the laboratory blank. Laboratory blank samples, which are water free from PFAS, are analyzed to ensure there is no contamination in the analytical process.  
**J (Estimated Value)** – indicates the analyte was detected and the level reported is estimated either through validation or because the level is below the LOQ. "J+" indicates the level is estimated high. "J-" indicates the level is estimated low.

Red annotations are edits from the third-party data validator, or shorthand codes to explain why reported results have been changed. 'FBL' and 'MSL' mean that the analyte was also detected in a quality control sample.  
The data validator has also added a data qualifier:  
**UJ (Estimated Value)** – the analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.  
Other annotations include:  
**OT (Out of Temperature)** – the sample arrived at the laboratory with a temperature greater than the acceptable limit. Therefore, results for the analytes are qualified as estimated (J, UJ).  
**RE (Re-extracted)** – indicates that the initial results were not recommended for use due to data quality issues. Sample was re-extracted and re-analyzed. Data marked with RE are excluded from results.

A **surrogate** is a substance similar to the analytes. It is intentionally added to the sample at a known amount to check the management of the sample through the analytical process.

The result for PFBA:  
**PFBA was not detected in the sample.**  
This is reported as "ND" (not detected).

The result for PFOS:  
**PFOS was detected in the sample at 1.54 ng/L (1.54 ppt).**  
The "J" qualifier means that the PFOS was detected but the amount detected is estimated.

The result for PFOA:  
**PFOA was detected in the sample at 29.5 ng/L (29.5 ppt).**

# Understanding Your Sample Results

## Method 537.1

**BATTELLE**  
It can be done

Project Client:  
Project Name:  
Project No.:

Client ID

Battelle ID  
Sample Type  
Collection Date  
Extraction Date  
Analysis Date  
Analytical Instrument  
% Moisture  
Matrix  
Sample Size  
Size Unit

D9423-FS  
SA  
09/25/2023  
09/29/2023  
10/03/2023  
Sciex 5500 (AC) LC/MS/MS  
NA  
DW  
0.284  
L

1 ng/L = 1 ppt  
nanogram per liter = part per trillion

Analyte	CAS No.	Result (ng/L)	DL	LOD	LOQ
PFTTrDA	72629-94-8	ND	0.376	1.10	2.20
PFTeDA	376-06-7	ND	0.386	1.10	2.20
NMeFOSAA	2355-31-9	ND	0.477	1.10	2.20
NEtFOSAA	2991-50-6	ND	0.594	1.32	2.20

Surrogate Recoveries (%)	Recovery
13C2-PFHxA	70
13C2-PFDA	74
d5-EtFOSAA	83
13C3-HFPO-DA	74

This section contains sample processing information used by the laboratory.

A **surrogate** is a substance similar to the analytes. It is intentionally added to the sample at a known amount to check the management of the sample through the analytical process.

**Detection limit (DL)** – the lowest level at which the laboratory can reliably say the analyte is present.

**Limit of detection (LOD)** – the lowest level at which the laboratory can measure the analyte (with a certain degree of confidence).

**Limit of quantitation (LOQ)** – the lowest level at which the laboratory can reliably measure an analyte with a known degree of confidence and accuracy.

The results for these analytes:  
**These analytes were *not* detected in the sample.**  
These results are reported as “ND” (*not detected*).