

Understanding Your Sample Results

Explanation of Terms

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 within the sample.

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

ND *Not Detected*

Indicates the analyte was not detected.

Analyte The chemical of interest.

CAS Number *Chemical Abstracts Service Number*

A unique identifier for analytes issued by the Chemical Abstracts Service.

Conc. (ng/L) *Concentration in nanogram(s) per liter*

The amount of an analyte determined to be present in the sample analyzed by the laboratory.
1 nanogram per liter (ng/L) = 1 part per trillion (ppt)

IS *Internal Standard*

also known as

SURR *Surrogate*

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

Method 533 and Method 537.1 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.

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 text edits are added by the data validator, and the validator's mark, when present, is considered the final result.

B *Blank*

This analyte was also detected in the method blank.

D *Diluted Sample*

This analyte was detected at a high concentration, so dilution was required for accurate measurement.

H *Quality Control Criteria*

The surrogate recovered outside quality control criteria.

J *Estimated Value*

The analyte was detected; the amount detected is estimated because the analyte is detected below the LOQ.

PFAS *Per- and polyfluoroalkyl substances*

UCMR 5 *Fifth Unregulated Contaminant Monitoring Rule*

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

Understanding Your Sample Results

This enclosure describes the Form I PFAS Analysis Data Sheets provided by the laboratory. 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 results are presented on two pages, and Method 537.1 results are presented on one page.

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 within the sample.

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

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

This section contains sample processing information used by the laboratory.

Method 533, Page 1

Sample ID: [REDACTED]		EPA Method 533									
Client Data			Matrix: Drinking Water			Laboratory Data				Column: BEH C18	
Name: [REDACTED]		Date Collected: 28-Jun-23 15:40		Lab Sample: 2306230-01		Date Received: 30-Jun-23 11:39					
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFMPA	377-73-1	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFPeA	2706-90-3	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFBS	375-73-5	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFMBA	863090-89-5	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFEESA	113507-82-7	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
NFDHA	151772-58-6	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
4:2 FTS	757124-72-4	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFHxA	307-24-4	53.8	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFPeS	2706-91-4	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
HFPO-DA	13252-13-6	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFHpA	375-85-9	16.9	0.739	1.48	1.97	B	B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFHxS	355-46-4	173	0.739	1.48	1.97	D	B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
ADONA	919005-14-4	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
6:2 FTS	27619-97-2	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFOA	335-67-1	162	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFHpS	375-92-8	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFNA	375-95-1	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFOS	1763-23-1	1.54	0.739	1.48	1.97	J	B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
9Cl-PF3ONS	756426-58-1	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
8:2 FTS	39108-34-4	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFDA	335-76-2	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFUnA	2058-94-8	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
11Cl-PF3OUdS	763051-92-9	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1
PFDeA	307-55-1	ND	0.739	1.48	1.97		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1

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Type	% Recovery	Limits
13C4-PFBA	110	50 - 200
13C5-PFPeA	104	50 - 200
13C3-PFBS		
13C2-4:2 FTS		
13C5-PFHxA		
13C3-HFPO-DA		
13C4-PFHpA		
13C3-PFHxS		
13C2-6:2 FTS		
13C8-PFOA	102	50 - 200

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

The result for PFOA:
PFOA was detected in the sample at 162 ng/L (162 ppt).

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.

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 method blank.

D (Diluted Sample) – this analyte was detected at a high concentration, so dilution was required for accurate measurement.

H (Quality Control Criteria) – the surrogate recovered outside quality control criteria.

J (Estimated Value) – this analyte was detected; the amount detected is estimated because the analyte is detected below the LOQ.

Understanding Your Sample Results

Method 533, Page 2

This section contains sample processing information used by the laboratory.

Sample ID: [REDACTED]				EPA Method 533						
Client Data				Laboratory Data						
Name: [REDACTED]		Matrix: Drinking Water		Lab Sample: 2306230-01			Column: BEH C18			
Project: [REDACTED]		Date Collected: 28-Jun-23 15:40		Date Received: 30-Jun-23 11:39						
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C8-PFOS	IS	120	50 - 200		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1	
13C2-8:2 FTS	IS	128	50 - 200		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1	
13C6-PFDA	IS	88.8	50 - 200		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1	
13C7-PFUnA	IS	98.9	50 - 200		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1	
13C2-PFDoA	IS	97.4	50 - 200		B23F259	05-Jul-23	0.254 L	07-Jul-23 12:45	1	
DL - Detection Limit		LOD - Limit of Detection		Results reported to the DL.		When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.				
		LOQ - Limit of Quantitation								

This section contains quality control information recorded by the laboratory to monitor the performance of the sample's preparation and analysis.

A **internal standard (IS)** is a substance similar to the analytes of interest. It is intentionally added to the sample at a known amount to check the management of the sample through the analytical process.

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:

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nanogram per liter **part per trillion**

This section contains sample processing information used by the laboratory.

Method 537.1

Sample ID: [REDACTED]		EPA Method 537.1									
Client Data			Matrix: Drinking Water			Laboratory Data				Column: BEH C18	
Name: [REDACTED]	Project: [REDACTED]		Date Collected: 28-Jun-23 15:40			Lab Sample: 2306230-01	Date Received: 30-Jun-23 11:39				
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
MeFOSAA	2355-31-9	ND	0.764	1.53	2.04		B23F300	05-Jul-23	0.245 L	07-Jul-23 22:42	1
EtFOSAA	2991-50-6	ND	0.764	1.53	2.04		B23F300	05-Jul-23	0.245 L	07-Jul-23 22:42	1
PFTrDA	72629-94-8	ND	0.764	1.53	2.04		B23F300	05-Jul-23	0.245 L	07-Jul-23 22:42	1
PFTeDA	376-06-7	ND	0.764	1.53	2.04		B23F300	05-Jul-23	0.245 L	07-Jul-23 22:42	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	108	70 - 130			B23F300	05-Jul-23	0.245 L	07-Jul-23 22:42	1	
13C2-PFDA	SURR	90.1	70 - 130			B23F300	05-Jul-23	0.245 L	07-Jul-23 22:42	1	
d5-EtFOSAA	SURR	69.6	70 - 130			B23F300	05-Jul-23	0.245 L	07-Jul-23 22:42	1	
13C3-HFPO-DA	SURR	110	70 - 130			B23F300	05-Jul-23	0.245 L	07-Jul-23 22:42	1	

DL - Detection Limit LOD - Limit of Detection Results reported to the DL.
 LOQ - Limit of Quantitation

When reported, PFHs, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

This section contains quality control information recorded by the laboratory to monitor the performance of the sample's preparation and analysis.

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

Handwriting in red pen is an edit made by the third-party data validator.

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