

ANALYTICAL REPORT

PREPARED FOR

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Generated 5/8/2024 11:28:43 AM

JOB DESCRIPTION

CDPHE_4.052_Town of Fraser

JOB NUMBER

320-111659-1

Eurofins Sacramento

Job Notes

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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 Environment Testing Northern California, LLC Project Manager.

Authorization



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Definitions/Glossary

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Qualifiers

LCMS

Qualifier	Qualifier Description
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
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: HDR Inc
Project: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Job ID: 320-111659-1

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Job Narrative 320-111659-1

Receipt

The samples were received on 4/23/2024 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 was 0.8° C.

LCMS

Method 537.1 DW: The parent sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with preparation batch 320-759574 and analytical batch 320-760624 were analyzed at the same dilution (1X). Due to the additional level of analyte present in the spiked samples, the concentration of Perfluorobutanesulfonic acid (PFBS) in the MS/MSD was above the instrument calibration range. Recoveries were within limits. The data have been reported and qualified (E).

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

Organic Prep

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

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Detection Summary

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Client Sample ID: BZ1378-DW

Lab Sample ID: 320-111659-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.88	J	1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.58	J	1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	1.8	J	1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorononanoic acid (PFNA)	0.50	J	1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.7		1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.96	J	1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.9		1.9	0.49	ng/L	1		537.1 DW	Total/NA

Client Sample ID: YZ157-DW

Lab Sample ID: 320-111659-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.58	J	1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.52	J	1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	1.6	J	1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	6.2		1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.5	J	1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.2		1.9	0.49	ng/L	1		537.1 DW	Total/NA

Client Sample ID: YZ-157-DW-DUP

Lab Sample ID: 320-111659-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.69	J	1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.52	J	1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	1.4	J	1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	7.7		1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.3		1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.6		1.9	0.49	ng/L	1		537.1 DW	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Client Sample ID: BZ1378-DW

Lab Sample ID: 320-111659-1

Date Collected: 04/19/24 08:00

Matrix: Water

Date Received: 04/23/24 09:30

Method: EPA 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.88	J	1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
Perfluoroheptanoic acid (PFHpA)	0.58	J	1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
Perfluorooctanoic acid (PFOA)	1.8	J	1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
Perfluorononanoic acid (PFNA)	0.50	J	1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
Perfluorobutanesulfonic acid (PFBS)	4.7		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
Perfluorohexanesulfonic acid (PFHxS)	0.96	J	1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
Perfluorooctanesulfonic acid (PFOS)	2.9		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
9Cl-PF3ONS	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
11Cl-PF3OUdS	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
HFPO-DA (GenX)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	110		70 - 130	05/03/24 07:56	05/06/24 16:01	1
13C2 PFDA	93		70 - 130	05/03/24 07:56	05/06/24 16:01	1
d5-NEtFOSAA	84		70 - 130	05/03/24 07:56	05/06/24 16:01	1
13C3 HFPO-DA	96		70 - 130	05/03/24 07:56	05/06/24 16:01	1

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Client Sample Results

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Client Sample ID: YZ157-DW

Lab Sample ID: 320-111659-3

Date Collected: 04/19/24 08:52

Matrix: Water

Date Received: 04/23/24 09:30

Method: EPA 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.58	J	1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
Perfluoroheptanoic acid (PFHpA)	0.52	J	1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
Perfluorooctanoic acid (PFOA)	1.6	J	1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
Perfluorobutanesulfonic acid (PFBS)	6.2		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
Perfluorohexanesulfonic acid (PFHxS)	1.5	J	1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
Perfluorooctanesulfonic acid (PFOS)	2.2		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
9Cl-PF3ONS	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
11Cl-PF3OUdS	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
HFPO-DA (GenX)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130	05/03/24 07:56	05/06/24 16:31	1
13C2 PFDA	92		70 - 130	05/03/24 07:56	05/06/24 16:31	1
d5-NEtFOSAA	77		70 - 130	05/03/24 07:56	05/06/24 16:31	1
13C3 HFPO-DA	94		70 - 130	05/03/24 07:56	05/06/24 16:31	1

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Client Sample Results

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Client Sample ID: YZ-157-DW-DUP

Lab Sample ID: 320-111659-4

Date Collected: 04/19/24 08:53

Matrix: Water

Date Received: 04/23/24 09:30

Method: EPA 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.69	J	1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
Perfluoroheptanoic acid (PFHpA)	0.52	J	1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
Perfluorooctanoic acid (PFOA)	1.4	J	1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
Perfluorobutanesulfonic acid (PFBS)	7.7		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
Perfluorohexanesulfonic acid (PFHxS)	3.3		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
Perfluorooctanesulfonic acid (PFOS)	6.6		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
9Cl-PF3ONS	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
11Cl-PF3OUdS	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
HFPO-DA (GenX)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.49	ng/L		05/03/24 07:56	05/06/24 16:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130	05/03/24 07:56	05/06/24 16:38	1
13C2 PFDA	86		70 - 130	05/03/24 07:56	05/06/24 16:38	1
d5-NEtFOSAA	76		70 - 130	05/03/24 07:56	05/06/24 16:38	1
13C3 HFPO-DA	82		70 - 130	05/03/24 07:56	05/06/24 16:38	1

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Surrogate Summary

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	PFHxA (70-130)	PFDA (70-130)	d5NEFOS (70-130)	HFPODA (70-130)
320-111659-1	BZ1378-DW	110	93	84	96
320-111659-1 MS	BZ1378-DW-MS	94	90	80	89
320-111659-1 MSD	BZ1378-DW-MSD	92	90	81	84
320-111659-3	YZ157-DW	94	92	77	94
320-111659-4	YZ-157-DW-DUP	94	86	76	82
LCS 320-759574/3-A	Lab Control Sample	79	78	70	76
LCSD 320-759574/4-A	Lab Control Sample Dup	90	88	79	84
LLCS 320-759574/2-A	Lab Control Sample	89	85	74	81
MB 320-759574/1-A	Method Blank	86	81	77	79

Surrogate Legend

PFHxA = 13C2 PFHxA

PFDA = 13C2 PFDA

d5NEFOS = d5-NEtFOSAA

HFPODA = 13C3 HFPO-DA

QC Sample Results

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MB 320-759574/1-A

Matrix: Water

Analysis Batch: 759961

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 759574

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
9CI-PF3ONS	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
11CI-PF3OUdS	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
HFPO-DA (GenX)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.50	ng/L		05/03/24 07:56	05/04/24 11:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	86		70 - 130	05/03/24 07:56	05/04/24 11:40	1
13C2 PFDA	81		70 - 130	05/03/24 07:56	05/04/24 11:40	1
d5-NEtFOSAA	77		70 - 130	05/03/24 07:56	05/04/24 11:40	1
13C3 HFPO-DA	79		70 - 130	05/03/24 07:56	05/04/24 11:40	1

Lab Sample ID: LCS 320-759574/3-A

Matrix: Water

Analysis Batch: 759961

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 759574

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorohexanoic acid (PFHxA)	160	128		ng/L		80	70 - 130
Perfluoroheptanoic acid (PFHpA)	160	138		ng/L		86	70 - 130
Perfluorooctanoic acid (PFOA)	160	138		ng/L		86	70 - 130
Perfluorononanoic acid (PFNA)	160	129		ng/L		81	70 - 130
Perfluorodecanoic acid (PFDA)	160	134		ng/L		84	70 - 130
Perfluoroundecanoic acid (PFUnA)	160	128		ng/L		80	70 - 130
Perfluorododecanoic acid (PFDoA)	160	124		ng/L		78	70 - 130
Perfluorotridecanoic acid (PFTriA)	160	121		ng/L		76	70 - 130
Perfluorotetradecanoic acid (PFTeA)	160	120		ng/L		75	70 - 130
Perfluorobutanesulfonic acid (PFBS)	142	115		ng/L		81	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	146	142		ng/L		97	70 - 130

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QC Sample Results

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LCS 320-759574/3-A

Matrix: Water

Analysis Batch: 759961

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 759574

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonic acid (PFOS)	149	133		ng/L		89	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	160	127		ng/L		79	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	160	126		ng/L		78	70 - 130
9CI-PF3ONS	149	128		ng/L		86	70 - 130
11CI-PF3OUdS	151	128		ng/L		85	70 - 130
HFPO-DA (GenX)	160	127		ng/L		80	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	151	118		ng/L		78	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	79		70 - 130
13C2 PFDA	78		70 - 130
d5-NEtFOSAA	70		70 - 130
13C3 HFPO-DA	76		70 - 130

Lab Sample ID: LCSD 320-759574/4-A

Matrix: Water

Analysis Batch: 759961

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 759574

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	160	139		ng/L		87	70 - 130	8	30
Perfluoroheptanoic acid (PFHpA)	160	156		ng/L		98	70 - 130	13	30
Perfluorooctanoic acid (PFOA)	160	143		ng/L		89	70 - 130	4	30
Perfluorononanoic acid (PFNA)	160	136		ng/L		85	70 - 130	5	30
Perfluorodecanoic acid (PFDA)	160	141		ng/L		88	70 - 130	6	30
Perfluoroundecanoic acid (PFUnA)	160	144		ng/L		90	70 - 130	12	30
Perfluorododecanoic acid (PFDoA)	160	141		ng/L		88	70 - 130	13	30
Perfluorotridecanoic acid (PFTriA)	160	140		ng/L		88	70 - 130	14	30
Perfluorotetradecanoic acid (PFTeA)	160	140		ng/L		88	70 - 130	16	30
Perfluorobutanesulfonic acid (PFBS)	142	117		ng/L		82	70 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)	146	145		ng/L		100	70 - 130	2	30
Perfluorooctanesulfonic acid (PFOS)	149	137		ng/L		92	70 - 130	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	160	145		ng/L		91	70 - 130	13	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	160	149		ng/L		93	70 - 130	17	30
9CI-PF3ONS	149	136		ng/L		91	70 - 130	6	30
11CI-PF3OUdS	151	142		ng/L		94	70 - 130	11	30
HFPO-DA (GenX)	160	141		ng/L		88	70 - 130	10	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	151	130		ng/L		86	70 - 130	9	30

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QC Sample Results

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LCSD 320-759574/4-A

Matrix: Water

Analysis Batch: 759961

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 759574

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
13C2 PFHxA	90		70 - 130
13C2 PFDA	88		70 - 130
d5-NEtFOSAA	79		70 - 130
13C3 HFPO-DA	84		70 - 130

Lab Sample ID: LLCS 320-759574/2-A

Matrix: Water

Analysis Batch: 759961

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 759574

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanoic acid (PFHxA)	4.00	3.35		ng/L		84	50 - 150
Perfluoroheptanoic acid (PFHpA)	4.00	3.69		ng/L		92	50 - 150
Perfluorooctanoic acid (PFOA)	4.00	3.55		ng/L		89	50 - 150
Perfluorononanoic acid (PFNA)	4.00	3.24		ng/L		81	50 - 150
Perfluorodecanoic acid (PFDA)	4.00	3.25		ng/L		81	50 - 150
Perfluoroundecanoic acid (PFUnA)	4.00	3.51		ng/L		88	50 - 150
Perfluorododecanoic acid (PFDoA)	4.00	3.29		ng/L		82	50 - 150
Perfluorotridecanoic acid (PFTriA)	4.00	3.11		ng/L		78	50 - 150
Perfluorotetradecanoic acid (PFTeA)	4.00	3.32		ng/L		83	50 - 150
Perfluorobutanesulfonic acid (PFBS)	3.55	2.84		ng/L		80	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	3.65	3.44		ng/L		94	50 - 150
Perfluorooctanesulfonic acid (PFOS)	3.72	3.33		ng/L		89	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	4.00	3.19		ng/L		80	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4.00	3.29		ng/L		82	50 - 150
9CI-PF3ONS	3.74	3.37		ng/L		90	50 - 150
11CI-PF3OUdS	3.78	3.29		ng/L		87	50 - 150
HFPO-DA (GenX)	4.00	3.18		ng/L		80	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.78	3.55		ng/L		94	50 - 150

Surrogate	LLCS %Recovery	LLCS Qualifier	Limits
13C2 PFHxA	89		70 - 130
13C2 PFDA	85		70 - 130
d5-NEtFOSAA	74		70 - 130
13C3 HFPO-DA	81		70 - 130

Lab Sample ID: 320-111659-1 MS

Matrix: Water

Analysis Batch: 760624

Client Sample ID: BZ1378-DW-MS

Prep Type: Total/NA

Prep Batch: 759574

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanoic acid (PFHxA)	0.88	J	156	142		ng/L		91	70 - 130

Eurofins Sacramento

QC Sample Results

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: 320-111659-1 MS

Matrix: Water

Analysis Batch: 760624

Client Sample ID: BZ1378-DW-MS

Prep Type: Total/NA

Prep Batch: 759574

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroheptanoic acid (PFHpA)	0.58	J	156	155		ng/L		99	70 - 130
Perfluorooctanoic acid (PFOA)	1.8	J	156	143		ng/L		91	70 - 130
Perfluorononanoic acid (PFNA)	0.50	J	156	140		ng/L		89	70 - 130
Perfluorodecanoic acid (PFDA)	ND		156	141		ng/L		90	70 - 130
Perfluoroundecanoic acid (PFUnA)	ND		156	143		ng/L		92	70 - 130
Perfluorododecanoic acid (PFDoA)	ND		156	143		ng/L		91	70 - 130
Perfluorotridecanoic acid (PFTriA)	ND		156	138		ng/L		89	70 - 130
Perfluorotetradecanoic acid (PFTeA)	ND		156	140		ng/L		90	70 - 130
Perfluorobutanesulfonic acid (PFBS)	4.7		138	181	E	ng/L		128	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	0.96	J	142	151		ng/L		106	70 - 130
Perfluorooctanesulfonic acid (PFOS)	2.9		145	143		ng/L		97	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		156	138		ng/L		88	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		156	139		ng/L		89	70 - 130
9CI-PF3ONS	ND		146	135		ng/L		93	70 - 130
11CI-PF3OUdS	ND		147	135		ng/L		92	70 - 130
HFPO-DA (GenX)	ND		156	138		ng/L		88	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		147	139		ng/L		94	70 - 130

Surrogate	MS %Recovery	MS Qualifier	MS Limits
13C2 PFHxA	94		70 - 130
13C2 PFDA	90		70 - 130
d5-NEtFOSAA	80		70 - 130
13C3 HFPO-DA	89		70 - 130

Lab Sample ID: 320-111659-1 MSD

Matrix: Water

Analysis Batch: 760624

Client Sample ID: BZ1378-DW-MSD

Prep Type: Total/NA

Prep Batch: 759574

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Perfluorohexanoic acid (PFHxA)	0.88	J	152	146		ng/L		96	70 - 130	3	30
Perfluoroheptanoic acid (PFHpA)	0.58	J	152	149		ng/L		97	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	1.8	J	152	144		ng/L		94	70 - 130	1	30
Perfluorononanoic acid (PFNA)	0.50	J	152	138		ng/L		91	70 - 130	1	30
Perfluorodecanoic acid (PFDA)	ND		152	131		ng/L		86	70 - 130	7	30
Perfluoroundecanoic acid (PFUnA)	ND		152	144		ng/L		95	70 - 130	0	30
Perfluorododecanoic acid (PFDoA)	ND		152	145		ng/L		95	70 - 130	2	30
Perfluorotridecanoic acid (PFTriA)	ND		152	141		ng/L		93	70 - 130	2	30
Perfluorotetradecanoic acid (PFTeA)	ND		152	137		ng/L		90	70 - 130	2	30

Eurofins Sacramento

QC Sample Results

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: 320-111659-1 MSD

Matrix: Water

Analysis Batch: 760624

Client Sample ID: BZ1378-DW-MSD

Prep Type: Total/NA

Prep Batch: 759574

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)	4.7		135	179	E	ng/L		129	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	0.96	J	139	144		ng/L		104	70 - 130	5	30
Perfluorooctanesulfonic acid (PFOS)	2.9		141	142		ng/L		98	70 - 130	1	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		152	137		ng/L		90	70 - 130	1	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		152	138		ng/L		91	70 - 130	1	30
9Cl-PF3ONS	ND		142	137		ng/L		96	70 - 130	2	30
11Cl-PF3OUdS	ND		144	138		ng/L		96	70 - 130	2	30
HFPO-DA (GenX)	ND		152	135		ng/L		89	70 - 130	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		144	134		ng/L		93	70 - 130	4	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
13C2 PFHxA	92		70 - 130
13C2 PFDA	90		70 - 130
d5-NEtFOSAA	81		70 - 130
13C3 HFPO-DA	84		70 - 130

QC Association Summary

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

LCMS

Prep Batch: 759574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-111659-1	BZ1378-DW	Total/NA	Water	537.1 DW	
320-111659-3	YZ157-DW	Total/NA	Water	537.1 DW	
320-111659-4	YZ-157-DW-DUP	Total/NA	Water	537.1 DW	
MB 320-759574/1-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 320-759574/3-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LCSD 320-759574/4-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	
LLCS 320-759574/2-A	Lab Control Sample	Total/NA	Water	537.1 DW	
320-111659-1 MS	BZ1378-DW-MS	Total/NA	Water	537.1 DW	
320-111659-1 MSD	BZ1378-DW-MSD	Total/NA	Water	537.1 DW	

Analysis Batch: 759961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-759574/1-A	Method Blank	Total/NA	Water	537.1 DW	759574
LCS 320-759574/3-A	Lab Control Sample	Total/NA	Water	537.1 DW	759574
LCSD 320-759574/4-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	759574
LLCS 320-759574/2-A	Lab Control Sample	Total/NA	Water	537.1 DW	759574

Analysis Batch: 760624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-111659-1	BZ1378-DW	Total/NA	Water	537.1 DW	759574
320-111659-3	YZ157-DW	Total/NA	Water	537.1 DW	759574
320-111659-4	YZ-157-DW-DUP	Total/NA	Water	537.1 DW	759574
320-111659-1 MS	BZ1378-DW-MS	Total/NA	Water	537.1 DW	759574
320-111659-1 MSD	BZ1378-DW-MSD	Total/NA	Water	537.1 DW	759574

Lab Chronicle

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Client Sample ID: BZ1378-DW

Date Collected: 04/19/24 08:00

Date Received: 04/23/24 09:30

Lab Sample ID: 320-111659-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			257.3 mL	1.0 mL	759574	05/03/24 07:56	C1A	EET SAC
Total/NA	Analysis	537.1 DW		1	1 mL	1 mL	760624	05/06/24 16:01	SS	EET SAC

Client Sample ID: YZ157-DW

Date Collected: 04/19/24 08:52

Date Received: 04/23/24 09:30

Lab Sample ID: 320-111659-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			256.6 mL	1.0 mL	759574	05/03/24 07:56	C1A	EET SAC
Total/NA	Analysis	537.1 DW		1	1 mL	1 mL	760624	05/06/24 16:31	SS	EET SAC

Client Sample ID: YZ-157-DW-DUP

Date Collected: 04/19/24 08:53

Date Received: 04/23/24 09:30

Lab Sample ID: 320-111659-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			256.7 mL	1.0 mL	759574	05/03/24 07:56	C1A	EET SAC
Total/NA	Analysis	537.1 DW		1	1 mL	1 mL	760624	05/06/24 16:38	SS	EET SAC

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4040	01-29-25

- 1
- 2
- 3
- 4
- 5
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- 13
- 14

Method Summary

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Method	Method Description	Protocol	Laboratory
537.1 DW	Perfluorinated Alkyl Acids (LC/MS)	EPA	EET SAC
537.1 DW	Extraction of Perfluorinated Alkyl Acids	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Sample Summary

Client: HDR Inc
Project/Site: CDPHE_4.052_Town of Fraser

Job ID: 320-111659-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-111659-1	BZ1378-DW	Water	04/19/24 08:00	04/23/24 09:30
320-111659-3	YZ157-DW	Water	04/19/24 08:52	04/23/24 09:30
320-111659-4	YZ-157-DW-DUP	Water	04/19/24 08:53	04/23/24 09:30

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

[illegible]



Environment Testing

Sacramento Sample Receiving Notes (SSRN)

Loc 320

111659

Tracking # 10570 10548 0398

Job _____

SO PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSL / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations.
File in the job folder with the COC.

Therm. ID: L06 Corr. Factor (+/-) NA °CIce / Wet _____ Gel _____ Other _____Cooler Custody Seal: 2479648

Cooler ID: _____

Temp Observed: 0.8 °C Corrected: 0.8 °C
From Temp Blank ☐ Sample ☒**Opening/Processing The Shipment** Yes No NACooler compromised/tampered with? ☐ ☒ ☐Cooler Temperature is acceptable? ☒ ☐ ☐Frozen samples show signs of thaw? ☐ ☐ ☒Initials: DM Date: 04/23/24**Unpacking/Labeling The Samples** Yes No NAContainers are not broken or leaking? ☒ ☐ ☐Samples compromised/tampered with? ☐ ☒ ☐COC is complete w/o discrepancies ☒ ☐ ☐Sample custody seal? ☐ ☐ ☒Sample containers have legible labels? ☒ ☐ ☐Sample date/times are provided? ☒ ☐ ☐Appropriate containers are used? ☒ ☐ ☐Sample bottles are completely filled? ☒ ☐ ☐Sample preservatives verified? ☐ ☐ ☒Is the Field Sampler's name on COC? ☐ ☐ ☒Samples w/o discrepancies? ☒ ☐ ☐Zero headspace?* ☐ ☐ ☒Alkalinity has no headspace? ☐ ☐ ☒Perchlorate has headspace?
(Methods 314, 331, 6850) ☐ ☐ ☒Multiphasic samples are not present? ☒ ☐ ☐

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

Initials: DM Date: 04/23/24

Notes: _____

Trizma Lot #(s): SLCP5873
SLC03831
22380025

Ammonium

Acetate Lot #(s): _____

Login Completion

	Yes	No	NA
Receipt Temperature on COC?	☒	☐	☐
NCM Filed?	☐	☐	☒
Samples received within hold time?	☒	☐	☐
Log Release checked in TALS?	☒	☐	☐

Initials DM Date 04/23/24