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SGS AXYS Client No.: 4066

Client Address: Tetra Tech, Inc. - Pacific Guardian Ctr.
737 Bishop St., Suite 2340, Mauka Tower
Honolulu, HI, US, 96813-3201

The SGS AXYS contact for these data is Dale Robinson.

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BATCH SUMMARY

Batch ID: WG89092	Date: 13-May-2024
Analysis Type: Per- and Polyfluoroalkyl Substances (PFAS)	Matrix Type: Aqueous
BATCH MAKEUP	
Contract: 4066 Samples: L40552-1 SIWWTP-BIOS_SPLP (FC10214-1L) L40552-2 HUWWTP-BIOS_SPLP (FC10214-2L) L40552-3 LAWWTP-BIOS_SPLP (FC10214-3L) L40552-4 LAWWTP-COMP_SPLP (FC10214-4L)	Blank: WG89092-101 Reference or Spike: WG89092-102 WG89092-103 Duplicate:
Comments: <ol style="list-style-type: none"> 1. Data are considered final. 2. Data are not blank corrected. Blank data should be taken into consideration when evaluating sample data. 3. Blank data should be evaluated against specifications using the same blank sample size as the size of the client samples. 4. Percent recovery of labeled compounds D3-MEFOSAA and D5-ETFOSAA in the continuing calibration verifications (data filename: FC4L_063 S: 35 and S: 47) were above the method limits. Given that the corresponding analytes met method criteria, data are not considered affected. 5. In the continuing calibration verifications (FC4L_063 S:35 and S:47), ADONA was observed above the method control limit. As the analyte was not detected in the client samples, data are not considered to be affected. 6. Percent recoveries of several surrogates in the client samples were observed to be outside the method limits and these surrogates have been flagged with a 'V' on the report forms. As the isotope dilution method of quantification produces data that are recovery corrected, the slight variance from the method acceptance criteria is deemed not to affect the quantification of these analytes. Percent surrogate recoveries are used as a general method performance indicator only. 7. PFBS and PFHXS concentrations were quantified by alternate ion transition to minimize the impact from the interference observed in the primary ion transition for the sample 'SIWWTP-BIOS_SPLP (FC10214-1L) (SGS AXYS ID: L40552-1). 8. During the SPE cleanup of sample 'HUWWTP-BIOS_SPLP (FC10214-2L)' and 'LAWWTP-BIOS_SPLP (FC10214-3L)' (SGS-AXYS ID: L40552-2 and -3) the analyst noted that a portion of the sample did not pass through the SPE cartridge during the extraction procedure. This was taken into consideration when calculating the reporting limits and surrogate recoveries– the data have been factored to account for the incomplete elution. As the isotope dilution method of quantification automatically corrects for any losses of analytes, the data are not affected. 9. The reported concentration values represent the acid forms of the compounds. 10. All contract samples were filtered prior to extraction – data represents dissolved phase results. 11. Contract samples were extracted outside the method-defined sample hold time of 90 days. 	

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February 2017

SGS AXYS METHOD MLA-110 Rev 02

Form 1A

PERFLUORINATED ORGANICS ANALYSIS REPORT

CLIENT SAMPLE NO.
SIWWTP-BIOS_SPLP (FC10214-1L)Sample Collection:
27-Sep-2023 08:00

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4066

Project No.

WWTP BIOS AND COMP

Lab Sample I.D.:

L40552-1

Matrix: AQUEOUS

Sample Size:

0.516 L

Sample Receipt Date: 15-Nov-2023

Initial Calibration Date:

01-Mar-2023

Extraction Date: 06-Mar-2024

Instrument ID:

LCMS/MS

Analysis Date: 07-Mar-2024 Time: 00:22:01

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC4L_063 S: 49

Injection Volume (uL): 2

Blank Data Filename:

FC4L_063 S: 40

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC4L_063 S: 47

Concentration Units: ng/L

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with NELAP accreditation described in the total report. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	RATIO	RRT
PFBA		12.8	3.72 (S)		1.004
PFPeA		35.7	3.71 (S)		1.003
PFHxA		26.9	2.13 (S)	4.33	1.000
PFHpA		3.89	0.421 (S)	2.48	1.000
PFOA		6.67	0.387 (Q)	2.03	
PFNA		4.07	0.387 (Q)	2.61	
PFDA	J	0.910	0.387 (Q)	3.48	1.001
PFUnA	U		0.387 (Q)		
PFDoA	U		0.310 (Q)		
PFTTrDA	U		0.387 (Q)		
PFTTeDA	U		0.387 (Q)		
PFBS		4.13	1.31 (S)	13.7	0.999
PFPeS	U		1.14 (S)		
PFHxS		4.67	0.764 (S)	5.11	
PFHpS	U		0.656 (S)		
PFOS		16.1	0.387 (Q)	3.05	
PFNS	U		0.387 (Q)		
PFDS	U		0.387 (Q)		
PFDoS	U		0.387 (Q)		
4:2 FTS	U		1.55 (Q)		
6:2 FTS	R J	7.38	1.40 (Q)	0.19	1.002
8:2 FTS	U		1.32 (Q)		
PFOSA	U		0.387 (Q)		
N-MeFOSA	U		0.387 (Q)		
N-EtFOSA	U		1.08 (Q)		
MeFOSAA	U		0.387 (Q)		
EtFOSAA	U		0.387 (Q)		
N-MeFOSE	U		3.87 (Q)		
N-EtFOSE	U		3.87 (Q)		
HFPO-DA	U		1.55 (Q)		
ADONA	U		1.55 (Q)		
9CI-PF3ONS	U		1.55 (Q)		
11CI-PF3OUdS	U		1.55 (Q)		
3:3 FTCA	U		14.8 (S)		
5:3 FTCA		225	9.69 (Q)	1.29	1.060
7:3 FTCA	U		9.69 (Q)		
PFEESA	U		0.387 (Q)		
PFMPA	U		0.775 (Q)		

PFMBA	U	0.387 (Q)
NFDHA	U	2.19 (S)

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; R = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than limit of quantification.
(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Joannas Balauag_____

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SGS AXYS METHOD MLA-110 Rev 02

Form 2

CLIENT SAMPLE NO.
SIWWTP-BIOS_SPLP (FC10214-1L)Sample Collection:
27-Sep-2023 08:00

PERFLUORINATED ORGANICS ANALYSIS REPORT

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4066

Project No.

WWTP BIOS AND COMP

Lab Sample I.D.:

L40552-1

Matrix: AQUEOUS

Sample Size:

0.516 L

Sample Receipt Date: 15-Nov-2023

Initial Calibration Date:

01-Mar-2023

Extraction Date: 06-Mar-2024

Instrument ID:

LCMS/MS

Analysis Date: 07-Mar-2024 Time: 00:22:01

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC4L_063 S: 49

Injection Volume (uL): 2

Blank Data Filename:

FC4L_063 S: 40

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC4L_063 S: 47

Concentration Units: ng absolute

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Results are compliant with NELAP accreditation described in the total report. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG ¹	SPIKE CONC.	CONC. FOUND	R(%) ²	RATIO	RRT
13C4-PFBA	V	40.0	1.14	2.84		0.996
13C5-PFPeA	V	20.0	2.48	12.4		0.847
13C5-PFHxA	V	10.0	3.07	30.7	11.0	1.000
13C4-PFHpA	V	10.0	5.09	50.9		0.881
13C8-PFOA		10.0	7.86	78.6		0.999
13C9-PFNA		5.00	4.56	91.2		1.000
13C6-PFDA		5.00	3.96	79.1		1.000
13C7-PFUnA		5.00	3.54	70.9		1.044
13C2-PFDoA		5.00	2.58	51.7		1.083
13C2-PFTeDA		5.00	1.08	21.6		1.176
13C3-PFBS	V	10.0	4.67	46.6	2.67	0.774
13C3-PFHxS		10.0	8.50	84.9	2.36	0.999
13C8-PFOS		10.1	8.98	89.2	2.31	1.000
13C2-4:2 FTS	V	20.2	3.90	19.3	7.31	0.814
13C2-6:2 FTS		20.0	14.7	73.5	2.69	1.001
13C2-8:2 FTS		20.0	12.2	61.1	3.69	1.269
13C8-PFOA		10.0	9.67	96.7		1.158
D3-N-MeFOSA		10.0	4.03	40.3		1.348
D5-N-EtFOSA		10.0	3.11	31.1		1.380
D3-MeFOSAA		20.0	10.3	51.3		1.306
D5-EtFOSAA		20.0	13.4	66.8		1.329
d7-NMe-FOSE		100	36.5	36.3		1.333
d9-NEt-FOSE		100	29.5	29.5		1.367
13C3-HFPO-DA	V	40.0	8.86	22.1	2.91	1.036

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.

(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Joannas Balauag _____

SGS AXYS METHOD MLA-110 Rev 02

Form 1A

PERFLUORINATED ORGANICS ANALYSIS REPORT

CLIENT SAMPLE NO.
 HUWWTP-BIOS_SPLP
 (FC10214-2L)
 Sample Collection:
 28-Sep-2023 11:00

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
 V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4066

Project No.

WWTP BIOS AND COMP

Lab Sample I.D.:

L40552-2

Matrix: AQUEOUS

Sample Size:

0.376 L

Sample Receipt Date: 15-Nov-2023

Initial Calibration Date:

01-Mar-2023

Extraction Date: 06-Mar-2024

Instrument ID:

LCMS/MS

Analysis Date: 07-Mar-2024 Time: 00:35:47

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC4L_063 S: 50

Injection Volume (uL): 2

Blank Data Filename:

FC4L_063 S: 40

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC4L_063 S: 47

Concentration Units: ng/L

This page is part of a total report that contains information necessary for accreditation compliance.
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COMPOUND	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	RATIO	RRT
PFBA	J	5.34	3.51 (Q)		1.011
PFPeA	J	4.01	1.76 (Q)		1.001
PFHxA		13.5	0.879 (Q)	4.38	1.001
PFHpA	U		0.879 (Q)		
PFOA	J	2.94	0.879 (Q)	2.14	
PFNA	U		0.879 (Q)		
PFDA	J	1.73	0.879 (Q)	4.16	1.000
PFUnA	U		0.879 (Q)		
PFDoA	U		0.703 (Q)		
PFTTrDA	U		0.879 (Q)		
PFTTeDA	U		1.89 (S)		
PFBS	J	1.11	0.879 (Q)	1.89	1.001
PFPeS	U		0.883 (Q)		
PFHxS	U		0.879 (Q)		
PFHpS	U		0.879 (Q)		
PFOS		5.32	0.879 (Q)	2.90	
PFNS	U		0.879 (Q)		
PFDS	U		0.879 (Q)		
PFDoS	U		0.879 (Q)		
4:2 FTS	U		3.51 (Q)		
6:2 FTS	U		3.17 (Q)		
8:2 FTS	U		2.99 (Q)		
PFOSA	U		0.879 (Q)		
N-MeFOSA	U		0.879 (Q)		
N-EtFOSA	U		2.46 (Q)		
MeFOSAA	J	0.941	0.879 (Q)	1.38	
EtFOSAA	U		0.879 (Q)		
N-MeFOSE	U		8.79 (Q)		
N-EtFOSE	U		8.79 (Q)		
HFPO-DA	U		3.51 (Q)		
ADONA	U		3.51 (Q)		
9CI-PF3ONS	U		3.52 (Q)		
11CI-PF3OUdS	U		3.52 (Q)		
3:3 FTCA	U		3.51 (Q)		
5:3 FTCA		131	22.0 (Q)	1.29	1.060
7:3 FTCA	U		22.0 (Q)		
PFEESA	U		0.879 (Q)		
PFMPA	U		1.76 (Q)		

PFMBA	U	0.879 (Q)
NFDHA	U	1.76 (Q)

- (1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; J = concentration less than limit of quantification.
- (2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Joannas Balauag_____

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SGS AXYS METHOD MLA-110 Rev 02

Form 2

CLIENT SAMPLE NO.
 HUWWTP-BIOS_SPLP
 (FC10214-2L)
 Sample Collection:
 28-Sep-2023 11:00

PERFLUORINATED ORGANICS ANALYSIS REPORT

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
 V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.

WWTP BIOS AND COMP

Contract No.: 4066

Lab Sample I.D.:

L40552-2

Matrix: AQUEOUS

Sample Size:

0.376 L

Sample Receipt Date: 15-Nov-2023

Initial Calibration Date:

01-Mar-2023

Extraction Date: 06-Mar-2024

Instrument ID:

LCMS/MS

Analysis Date: 07-Mar-2024 Time: 00:35:47

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC4L_063 S: 50

Injection Volume (uL): 2

Blank Data Filename:

FC4L_063 S: 40

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC4L_063 S: 47

Concentration Units: ng absolute

This page is part of a total report that contains information necessary for accreditation compliance.
 Results are compliant with NELAP accreditation described in the total report. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG ¹	SPIKE CONC.	CONC. FOUND	R(%) ²	RATIO	RRT
13C4-PFBA		40.0	34.3	85.8		1.000
13C5-PFPeA		20.0	17.8	89.2		0.848
13C5-PFHxA		10.0	8.04	80.4	13.0	1.000
13C4-PFHpA		10.0	7.78	77.8		0.880
13C8-PFOA		10.0	7.49	74.9		1.001
13C9-PFNA		5.00	4.27	85.3		1.000
13C6-PFDA		5.00	3.57	71.3		1.000
13C7-PFUnA		5.00	2.60	51.9		1.043
13C2-PFDoA		5.00	1.18	23.6		1.082
13C2-PFTeDA	V	5.00	0.212	4.23		1.174
13C3-PFBS		10.0	7.89	78.7	2.73	0.772
13C3-PFHxS		10.0	7.89	78.8	2.41	1.000
13C8-PFOS		10.1	7.37	73.2	2.21	1.000
13C2-4:2 FTS		20.2	31.8	158	1.96	0.813
13C2-6:2 FTS		20.0	15.7	78.7	2.18	1.002
13C2-8:2 FTS		20.0	14.2	70.9	3.32	1.265
13C8-PFOSA		10.0	9.80	98.0		1.157
D3-N-MeFOSA		10.0	4.61	46.1		1.346
D5-N-EtFOSA		10.0	3.53	35.3		1.378
D3-MeFOSAA		20.0	17.5	87.3		1.303
D5-EtFOSAA		20.0	16.0	79.9		1.326
d7-NMe-FOSE		100	50.9	50.7		1.331
d9-NEt-FOSE		100	40.5	40.5		1.365
13C3-HFPO-DA		40.0	25.3	63.1	2.99	1.037

(1) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits.

(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Joannas Balauag _____

SGS AXYS METHOD MLA-110 Rev 02

Form 1A

PERFLUORINATED ORGANICS ANALYSIS REPORT

CLIENT SAMPLE NO.
LAWWTP-BIOS_SPLP
(FC10214-3L)
Sample Collection:
20-Sep-2023 12:00

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4066

Project No.

WWTP BIOS AND COMP

Lab Sample I.D.:

L40552-3

Matrix: AQUEOUS

Sample Size:

0.248 L

Sample Receipt Date: 15-Nov-2023

Initial Calibration Date:

01-Mar-2023

Extraction Date: 06-Mar-2024

Instrument ID:

LCMS/MS

Analysis Date: 07-Mar-2024 Time: 00:49:16

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC4L_063 S: 51

Injection Volume (uL): 2

Blank Data Filename:

FC4L_063 S: 40

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC4L_063 S: 47

Concentration Units: ng/L

This page is part of a total report that contains information necessary for accreditation compliance.
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COMPOUND	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	RATIO	RRT
PFBA	J	13.3	5.99 (Q)		1.004
PFPeA		29.9	2.99 (Q)		1.001
PFHxA		38.4	1.50 (Q)	4.58	1.000
PFHpA	J	1.89	1.50 (Q)	2.22	0.999
PFOA		6.66	1.50 (Q)	1.85	
PFNA	U		1.50 (Q)		
PFDA	J	3.87	1.50 (Q)	4.20	1.001
PFUnA	U		1.50 (Q)		
PFDoA	U		1.20 (Q)		
PFTTrDA	U		1.50 (Q)		
PFTTeDA	U		2.33 (S)		
PFBS		8.32	1.50 (Q)	2.77	1.000
PFPeS	U		1.50 (Q)		
PFHxS	U		1.50 (Q)		
PFHpS	U		1.50 (Q)		
PFOS	J	3.89	1.50 (Q)	2.15	
PFNS	U		1.50 (Q)		
PFDS	U		1.50 (Q)		
PFDoS	U		1.50 (Q)		
4:2 FTS	U		5.99 (Q)		
6:2 FTS	J	7.37	5.39 (Q)	0.47	1.004
8:2 FTS	U		5.09 (Q)		
PFOSA	U		1.50 (Q)		
N-MeFOSA	U		1.50 (Q)		
N-EtFOSA	U		4.19 (Q)		
MeFOSAA	U		1.50 (Q)		
EtFOSAA	U		1.50 (Q)		
N-MeFOSE	U		15.0 (Q)		
N-EtFOSE	U		15.0 (Q)		
HFPO-DA	U		5.99 (Q)		
ADONA	U		5.99 (Q)		
9CI-PF3ONS	U		6.00 (Q)		
11CI-PF3OUdS	U		5.99 (Q)		
3:3 FTCA	U		5.99 (Q)		
5:3 FTCA		633	37.4 (Q)	1.29	1.059
7:3 FTCA	U		37.4 (Q)		
PFEESA	U		1.50 (Q)		
PFMPA	U		2.99 (Q)		

PFMBA	U	1.50 (Q)
NFDHA	U	2.99 (Q)

- (1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; J = concentration less than limit of quantification.
- (2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Joannas Balauag_____

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SGS AXYS METHOD MLA-110 Rev 02

Form 2

CLIENT SAMPLE NO.
LAWWTP-BIOS_SPLP
(FC10214-3L)
Sample Collection:
20-Sep-2023 12:00

PERFLUORINATED ORGANICS ANALYSIS REPORT

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4066

Project No.

WWTP BIOS AND COMP

Lab Sample I.D.:

L40552-3

Matrix: AQUEOUS

Sample Size:

0.248 L

Sample Receipt Date: 15-Nov-2023

Initial Calibration Date:

01-Mar-2023

Extraction Date: 06-Mar-2024

Instrument ID:

LCMS/MS

Analysis Date: 07-Mar-2024 Time: 00:49:16

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC4L_063 S: 51

Injection Volume (uL): 2

Blank Data Filename:

FC4L_063 S: 40

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC4L_063 S: 47

Concentration Units: ng absolute

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with NELAP accreditation described in the total report. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG ¹	SPIKE CONC.	CONC. FOUND	R(%) ²	RATIO	RRT
13C4-PFBA		40.0	30.1	75.3		0.997
13C5-PFPeA		20.0	15.8	78.8		0.848
13C5-PFHxA		10.0	7.29	72.9	14.1	1.000
13C4-PFHpA		10.0	7.32	73.2		0.880
13C8-PFOA		10.0	7.02	70.2		1.000
13C9-PFNA		5.00	3.77	75.4		0.999
13C6-PFDA		5.00	3.34	66.7		1.000
13C7-PFUnA		5.00	2.48	49.6		1.043
13C2-PFDoA		5.00	1.61	32.1		1.082
13C2-PFTeDA		5.00	0.611	12.2		1.174
13C3-PFBS		10.0	8.06	80.4	2.57	0.772
13C3-PFHxS		10.0	7.51	75.0	2.24	1.000
13C8-PFOS		10.1	6.40	63.6	2.22	1.000
13C2-4:2 FTS		20.2	34.8	173	1.91	0.814
13C2-6:2 FTS		20.0	15.3	76.6	2.27	1.002
13C2-8:2 FTS		20.0	13.4	66.7	3.70	1.266
13C8-PFOA		10.0	7.97	79.7		1.156
D3-N-MeFOSA		10.0	4.29	42.9		1.346
D5-N-EtFOSA		10.0	3.26	32.6		1.378
D3-MeFOSAA		20.0	16.6	83.1		1.304
D5-EtFOSAA		20.0	16.4	81.9		1.327
d7-NMe-FOSE		100	42.5	42.3		1.330
d9-NEt-FOSE		100	35.5	35.4		1.364
13C3-HFPO-DA		40.0	23.4	58.4	2.87	1.037

(1) Where applicable, custom lab flags have been used on this report.

(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Joannas Balauag _____

SGS AXYS METHOD MLA-110 Rev 02

Form 1A

PERFLUORINATED ORGANICS ANALYSIS REPORT

CLIENT SAMPLE NO.
LAWWTP-COMP_SPLP
(FC10214-4L)
Sample Collection:
20-Sep-2023 12:00

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4066

Project No.

WWTP BIOS AND COMP

Lab Sample I.D.:

L40552-4

Matrix: AQUEOUS

Sample Size:

0.545 L

Sample Receipt Date: 15-Nov-2023

Initial Calibration Date:

01-Mar-2023

Extraction Date: 06-Mar-2024

Instrument ID:

LCMS/MS

Analysis Date: 07-Mar-2024 Time: 01:02:45

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC4L_063 S: 52

Injection Volume (uL): 2

Blank Data Filename:

FC4L_063 S: 40

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC4L_063 S: 47

Concentration Units: ng/L

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with NELAP accreditation described in the total report. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	RATIO	RRT
PFBA		105	1.47 (Q)		1.000
PFPeA		197	0.734 (Q)		1.001
PFHxA		287	0.405 (S)	4.31	1.000
PFHpA		25.0	0.367 (Q)	2.13	1.000
PFOA		64.0	0.367 (Q)	1.96	
PFNA		3.66	0.367 (Q)	2.29	
PFDA		3.91	0.367 (Q)	3.07	1.000
PFUnA	U		0.367 (Q)		
PFDoA	U		0.294 (Q)		
PFTTrDA	U		0.367 (Q)		
PFTTeDA	U		0.367 (Q)		
PFBS		148	0.367 (Q)	2.63	1.000
PFPeS	J	0.785	0.369 (Q)	2.24	0.868
PFHxS		2.19	0.367 (Q)	2.26	
PFHpS	U		0.367 (Q)		
PFOS		6.29	0.367 (Q)	2.71	
PFNS	U		0.367 (Q)		
PFDS	U		0.367 (Q)		
PFDoS	U		0.367 (Q)		
4:2 FTS	U		1.47 (Q)		
6:2 FTS	U		1.32 (Q)		
8:2 FTS	U		1.25 (Q)		
PFOSA	U		0.367 (Q)		
N-MeFOSA	U		0.367 (Q)		
N-EtFOSA	U		1.03 (Q)		
MeFOSAA	U		0.367 (Q)		
EtFOSAA	U		0.367 (Q)		
N-MeFOSE	U		3.67 (Q)		
N-EtFOSE	U		3.67 (Q)		
HFPO-DA	U		1.47 (Q)		
ADONA	U		1.47 (Q)		
9CI-PF3ONS	U		1.47 (Q)		
11CI-PF3OUdS	U		1.47 (Q)		
3:3 FTCA	U		1.47 (Q)		
5:3 FTCA		49.6	9.18 (Q)	1.47	1.059
7:3 FTCA	U		9.18 (Q)		
PFEESA	U		0.367 (Q)		
PFMPA	U		0.734 (Q)		

PFMBA	U	0.367 (Q)
NFDHA	U	0.734 (Q)

- (1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; J = concentration less than limit of quantification.
- (2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Joannas Balauag_____

For Axy's Internal Use Only [XSL Template: FC2-Form1A.xsl; Created: 13-May-2024 17:41:19; Application: XMLTransformer-1.18.49; Report Filename: PFC_FC_LC_PFAS_L40552-4_Form1A_FC4L_063S52_SJ3399566.html; Workgroup: WG89092; Design ID: 3989]

SGS AXYS METHOD MLA-110 Rev 02

Form 2

PERFLUORINATED ORGANICS ANALYSIS REPORT

CLIENT SAMPLE NO.
LAWWTP-COMP_SPLP
(FC10214-4L)
Sample Collection:
20-Sep-2023 12:00

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4066

Project No.

WWTP BIOS AND COMP

Lab Sample I.D.:

L40552-4

Matrix: AQUEOUS

Sample Size:

0.545 L

Sample Receipt Date: 15-Nov-2023

Initial Calibration Date:

01-Mar-2023

Extraction Date: 06-Mar-2024

Instrument ID:

LCMS/MS

Analysis Date: 07-Mar-2024 Time: 01:02:45

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC4L_063 S: 52

Injection Volume (uL): 2

Blank Data Filename:

FC4L_063 S: 40

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC4L_063 S: 47

Concentration Units: ng absolute

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with NELAP accreditation described in the total report. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG ¹	SPIKE CONC.	CONC. FOUND	R(%) ²	RATIO	RRT
13C4-PFBA		40.0	5.90	14.8		1.000
13C5-PFPeA		20.0	13.9	69.5		0.847
13C5-PFHxA		10.0	8.20	82.0	13.6	1.000
13C4-PFHpA		10.0	8.09	80.9		0.880
13C8-PFOA		10.0	8.03	80.3		1.001
13C9-PFNA		5.00	4.38	87.6		0.999
13C6-PFDA		5.00	3.79	75.8		1.000
13C7-PFUnA		5.00	3.62	72.3		1.043
13C2-PFDoA		5.00	3.04	60.7		1.082
13C2-PFTeDA		5.00	1.53	30.5		1.174
13C3-PFBS		10.0	8.28	82.6	2.75	0.772
13C3-PFHxS		10.0	9.09	90.7	2.34	1.000
13C8-PFOS		10.1	8.42	83.7	2.19	1.000
13C2-4:2 FTS		20.2	27.1	134	1.98	0.813
13C2-6:2 FTS		20.0	16.9	84.4	2.34	1.002
13C2-8:2 FTS		20.0	12.1	60.1	3.53	1.266
13C8-PFOA		10.0	10.1	101		1.157
D3-N-MeFOSA		10.0	7.15	71.5		1.345
D5-N-EtFOSA		10.0	6.05	60.5		1.378
D3-MeFOSAA		20.0	18.1	90.7		1.304
D5-EtFOSAA		20.0	19.1	95.6		1.327
d7-NMe-FOSE		100	78.2	77.9		1.331
d9-NEt-FOSE		100	76.5	76.4		1.365
13C3-HFPO-DA		40.0	27.6	69.0	2.90	1.035

(1) Where applicable, custom lab flags have been used on this report.

(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Joannas Balauag _____

SGS AXYS METHOD MLA-110 Rev 02

Form 1A

CLIENT SAMPLE NO.

Lab Blank

Sample Collection:

N/A

PERFLUORINATED ORGANICS ANALYSIS REPORT

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.

N/A

Contract No.: 4066

Lab Sample I.D.:

WG89092-101

Matrix: AQUEOUS

Sample Size:

0.500 L

Sample Receipt Date: N/A

Initial Calibration Date:

01-Mar-2023

Extraction Date: 06-Mar-2024

Instrument ID:

LCMS/MS

Analysis Date: 06-Mar-2024 Time: 22:20:29

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC4L_063 S: 40

Injection Volume (uL): 2

Blank Data Filename:

FC4L_063 S: 40

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC4L_063 S: 35

Concentration Units: ng/L

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with NELAP accreditation described in the total report. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	RATIO	RRT
PFBA	U		1.60 (Q)		
PFPeA	U		0.800 (Q)		
PFHxA	U		0.400 (Q)		
PFHpA	U		0.400 (Q)		
PFOA	U		0.400 (Q)		
PFNA	U		0.400 (Q)		
PFDA	U		0.400 (Q)		
PFUnA	U		0.400 (Q)		
PFDaA	U		0.320 (Q)		
PFTTrDA	U		0.400 (Q)		
PFTeDA	U		0.400 (Q)		
PFBS	U		0.400 (Q)		
PFPeS	U		0.402 (Q)		
PFHxS	U		0.400 (Q)		
PFHpS	U		0.400 (Q)		
PFOS	U		0.400 (Q)		
PFNS	U		0.400 (Q)		
PFDS	U		0.400 (Q)		
PFDoS	U		0.400 (Q)		
4:2 FTS	U		1.60 (Q)		
6:2 FTS	U		1.44 (Q)		
8:2 FTS	U		1.36 (Q)		
PFOSA	U		0.400 (Q)		
N-MeFOSA	U		0.400 (Q)		
N-EtFOSA	U		1.12 (Q)		
MeFOSAA	U		0.400 (Q)		
EtFOSAA	U		0.400 (Q)		
N-MeFOSE	U		4.00 (Q)		
N-EtFOSE	U		4.00 (Q)		
HFPO-DA	U		1.60 (Q)		
ADONA	U		1.60 (Q)		
9Cl-PF3ONS	U		1.60 (Q)		
11Cl-PF3OUdS	U		1.60 (Q)		
3:3 FTCA	U		1.60 (Q)		
5:3 FTCA	U		10.0 (Q)		
7:3 FTCA	U		10.0 (Q)		
PFEESA	U		0.400 (Q)		
PFMPA	U		0.800 (Q)		
PFMBA	U		0.400 (Q)		

NFDHA

U

0.800 (Q)

- (1) Where applicable, custom lab flags have been used on this report; U = not detected at RL.
- (2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Joannas Balauag_____

For Axy's Internal Use Only [XSL Template: FC2-Form1A.xsl; Created: 13-May-2024 17:41:19; Application: XMLTransformer-1.18.49; Report Filename: PFC_FC_LC_PFAS_WG89092-101_Form1A_FC4L_063S40_SJ3399551.html; Workgroup: WG89092; Design ID: 3989]

SGS AXYS METHOD MLA-110 Rev 02

Form 2

CLIENT SAMPLE NO.

Lab Blank

Sample Collection:

N/A

PERFLUORINATED ORGANICS ANALYSIS REPORT

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4066

Project No. N/A

Lab Sample I.D.: WG89092-101

Matrix: AQUEOUS

Sample Size: 0.500 L

Sample Receipt Date: N/A

Initial Calibration Date: 01-Mar-2023

Extraction Date: 06-Mar-2024

Instrument ID: LCMS/MS

Analysis Date: 06-Mar-2024 Time: 22:20:29

Column ID: C18

Extract Volume (uL): 4000

Sample Data Filename: FC4L_063 S: 40

Injection Volume (uL): 2

Blank Data Filename: FC4L_063 S: 40

Dilution Factor: N/A

Cal. Ver. Data Filename: FC4L_063 S: 35

Concentration Units: ng absolute

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with NELAP accreditation described in the total report. Sample results relate only to the sample tested.

LABELED COMPOUND	LAB FLAG ¹	SPIKE CONC.	CONC. FOUND	R(%) ²	RATIO	RRT
13C4-PFBA		40.0	38.0	95.0		0.997
13C5-PFPeA		20.0	20.1	100		0.848
13C5-PFHxA		10.0	9.28	92.8	13.4	1.000
13C4-PFHpA		10.0	9.11	91.1		0.879
13C8-PFOA		10.0	8.66	86.6		1.000
13C9-PFNA		5.00	4.73	94.6		0.999
13C6-PFDA		5.00	4.61	92.2		1.000
13C7-PFUnA		5.00	4.54	90.9		1.043
13C2-PFDoA		5.00	4.06	81.1		1.082
13C2-PFTeDA		5.00	3.05	60.9		1.174
13C3-PFBS		10.0	9.43	94.1	2.65	0.772
13C3-PFHxS		10.0	9.56	95.5	2.26	1.001
13C8-PFOS		10.1	9.78	97.2	2.18	1.000
13C2-4:2 FTS		20.2	18.9	93.5	2.07	0.812
13C2-6:2 FTS		20.0	17.2	86.0	2.29	1.002
13C2-8:2 FTS		20.0	19.0	95.0	3.81	1.264
13C8-PFOA		10.0	11.9	119		1.157
D3-N-MeFOSA		10.0	7.98	79.8		1.346
D5-N-EtFOSA		10.0	7.20	72.0		1.378
D3-MeFOSAA		20.0	23.7	119		1.302
D5-EtFOSAA		20.0	23.7	118		1.324
d7-NMe-FOSE		100	107	106		1.331
d9-NEt-FOSE		100	109	109		1.364
13C3-HFPO-DA		40.0	30.4	76.1	2.91	1.036

(1) Where applicable, custom lab flags have been used on this report.

(2) R(%) = percent recovery.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Joannas Balauag_____

SGS AXYS METHOD MLA-110 Rev 02

Form 8A

PERFLUORINATED ORGANICS ONGOING PRECISION AND RECOVERY (OPR)

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4066	Lab Sample I.D.:	WG89092-102
Matrix:	AQUEOUS	Initial Calibration Date:	01-Mar-2023
Extraction Date:	06-Mar-2024	Instrument ID:	LCMS/MS
Analysis Date:	06-Mar-2024 Time: 21:53:15	Column ID:	C18
Extract Volume (uL):	4000	OPR Data Filename:	FC4L_063 S: 38
Injection Volume (uL):	2	Blank Data Filename:	FC4L_063 S: 40
Dilution Factor:	N/A	Cal. Ver. Data Filename:	FC4L_063 S: 35

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

COMPOUND	LAB FLAG ¹	RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RRT
PFBA			20.0	20.2	101	1.004
PFPeA			10.0	10.0	100	1.000
PFHxA		4.12	5.00	4.76	95.1	1.001
PFHpA		2.03	5.00	5.42	108	1.001
PFOA		2.02	5.00	5.43	109	
PFNA		2.55	5.00	5.37	107	
PFDA		2.67	5.00	4.75	95.1	1.000
PFUnA		4.19	5.00	5.03	101	1.000
PFDoA		7.25	4.06	4.34	107	0.999
PFTTrDA		2.97	5.00	5.25	105	0.957
PFTTeDA		2.41	5.00	4.96	99.1	1.000
PFBS		2.61	5.00	4.80	96.0	1.000
PFPeS		2.23	5.00	5.19	104	0.869
PFHxS		2.44	5.00	4.91	98.1	
PFHpS		2.01	5.00	5.65	113	0.936
PFOS		2.49	5.00	4.97	99.4	
PFNS		2.25	5.00	4.56	91.2	1.043
PFDS		2.15	5.00	4.85	96.9	1.083
PFDoS		2.16	5.00	3.87	77.4	1.182
4:2 FTS		0.41	20.0	18.8	94.2	0.999
6:2 FTS		0.38	18.0	18.7	104	1.000
8:2 FTS		0.45	16.9	15.0	88.5	1.000
PFOSA			5.00	5.23	105	
N-MeFOSA		0.50	5.00	5.20	104	
N-EtFOSA		0.53	14.0	14.6	104	
MeFOSAA		2.06	5.00	4.92	98.4	
EtFOSAA		1.10	5.00	4.65	93.0	
N-MeFOSE			50.0	45.3	90.6	
N-EtFOSE			50.0	42.6	85.2	
HFPO-DA		2.72	20.0	20.0	100	1.000
ADONA		1.19	20.0	27.1	135	1.114
9CI-PF3ONS		3.07	20.0	19.8	99.0	0.964
11CI-PF3OUdS		3.25	20.0	19.3	96.7	1.042
3:3 FTCA		1.56	20.0	21.6	108	
5:3 FTCA		1.37	125	135	108	1.059

COMPOUND	LAB FLAG ¹	RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RRT
7:3 FTCA		0.65	125	109	87.4	1.387
PFEESA		8.66	5.00	5.59	112	1.041
PFMPA			10.0	10.9	109	
PFMBA			5.00	5.30	106	1.074
NFDHA			10.0	6.61	66.1	

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Joannas Balauag _____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: FC2-Form8A.xsl; Created: 13-May-2024 17:41:19; Application: XMLTransformer-1.18.49; Report Filename: PFC_FC_LC_PFAS_WG89092-102_Form8A_SJ3399548.html; Workgroup: WG89092; Design ID: 3989]

SGS AXYS METHOD MLA-110 Rev 02

Form 8B

PERFLUORINATED ORGANICS ONGOING PRECISION AND RECOVERY (OPR)

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4066	Lab Sample I.D.:	WG89092-102
Matrix:	AQUEOUS	Initial Calibration Date:	01-Mar-2023
Extraction Date:	06-Mar-2024	Instrument ID:	LCMS/MS
Analysis Date:	06-Mar-2024 Time: 21:53:15	Column ID:	C18
Extract Volume (uL):	4000	OPR Data Filename:	FC4L_063 S: 38
Injection Volume (uL):	2	Blank Data Filename:	FC4L_063 S: 40
Dilution Factor:	N/A	Cal. Ver. Data Filename:	FC4L_063 S: 35

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

LABELLED COMPOUND	LAB FLAG ¹	RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RRT
13C4-PFBA			40.0	35.7	89.3	1.000
13C5-PFPeA			20.0	18.6	92.9	0.848
13C5-PFHxA		12.8	10.0	8.48	84.8	0.999
13C4-PFHpA			10.0	8.16	81.6	0.879
13C8-PFOA			10.0	7.99	79.9	1.000
13C9-PFNA			5.00	4.37	87.4	1.000
13C6-PFDA			5.00	4.28	85.6	0.999
13C7-PFUnA			5.00	4.35	87.0	1.043
13C2-PFDoA			5.00	3.88	77.5	1.082
13C2-PFTeDA			5.00	2.74	54.9	1.174
13C3-PFBS		2.72	10.0	8.57	85.5	0.772
13C3-PFHxS		2.38	10.0	8.72	87.1	1.000
13C8-PFOS		2.19	10.1	9.00	89.4	1.000
13C2-4:2 FTS		1.81	20.2	17.3	85.7	0.812
13C2-6:2 FTS		2.42	20.0	17.0	84.8	1.002
13C2-8:2 FTS		3.68	20.0	18.7	93.5	1.263
13C8-PFOA			10.0	10.9	109	1.156
D3-N-MeFOSA			10.0	7.34	73.4	1.346
D5-N-EtFOSA			10.0	6.95	69.5	1.378
D3-MeFOSAA			20.0	24.3	121	1.301
D5-EtFOSAA			20.0	22.7	114	1.324
d7-NMe-FOSE			100	102	102	1.331
d9-NEt-FOSE			100	104	103	1.364
13C3-HFPO-DA		3.04	40.0	28.7	71.7	1.036

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Joannas Balauag _____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

SGS AXYS METHOD MLA-110 Rev 02

Form 8A

PERFLUORINATED ORGANICS ONGOING PRECISION AND RECOVERY (OPR)

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4066	Lab Sample I.D.:	WG89092-103
Matrix:	AQUEOUS	Initial Calibration Date:	01-Mar-2023
Extraction Date:	06-Mar-2024	Instrument ID:	LCMS/MS
Analysis Date:	06-Mar-2024 Time: 21:39:54	Column ID:	C18
Extract Volume (uL):	4000	OPR Data Filename:	FC4L_063 S: 37
Injection Volume (uL):	2	Blank Data Filename:	FC4L_063 S: 40
Dilution Factor:	N/A	Cal. Ver. Data Filename:	FC4L_063 S: 35

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

COMPOUND	LAB FLAG ¹	RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RRT
PFBA			6.40	6.09	95.2	1.004
PFPeA			3.20	3.05	95.2	1.000
PFHxA		4.44	1.60	1.58	99.0	1.000
PFHpA		2.08	1.60	1.74	109	1.000
PFOA		2.13	1.60	1.73	108	
PFNA		2.76	1.60	1.71	107	
PFDA		2.78	1.60	1.39	87.2	1.001
PFUnA		4.14	1.60	1.63	102	1.000
PFDoA		7.20	1.30	1.37	105	0.999
PFTTrDA		2.76	1.60	1.56	97.8	0.957
PFTTeDA		2.66	1.60	1.64	102	1.001
PFBS		2.47	1.60	1.46	91.0	1.001
PFPeS		2.44	1.60	1.62	102	0.869
PFHxS		2.61	1.60	1.57	97.9	
PFHpS		2.17	1.60	1.62	101	0.938
PFOS		2.56	1.60	1.56	97.8	
PFNS		2.11	1.60	1.28	80.2	1.043
PFDS		2.32	1.60	1.48	92.6	1.084
PFDoS		2.14	1.60	1.36	84.9	1.183
4:2 FTS		0.38	6.40	5.62	87.8	0.999
6:2 FTS		0.36	5.75	6.35	111	0.999
8:2 FTS		0.46	5.42	4.64	85.6	1.000
PFOSA			1.60	1.58	98.6	
N-MeFOSA		0.57	1.60	1.67	105	
N-EtFOSA		0.55	4.48	4.61	103	
MeFOSAA		2.40	1.60	1.46	91.4	
EtFOSAA		1.49	1.60	1.52	94.7	
N-MeFOSE			16.0	14.0	87.6	
N-EtFOSE			16.0	12.9	80.7	
HFPO-DA		2.79	6.40	6.32	98.7	1.000
ADONA		1.17	6.40	8.60	134	1.113
9CI-PF3ONS		2.91	6.40	6.46	101	0.964
11CI-PF3OUdS		3.23	6.40	6.38	99.7	1.042
3:3 FTCA		1.20	6.40	6.11	95.5	
5:3 FTCA		1.33	40.0	41.4	103	1.059

COMPOUND	LAB FLAG ¹	RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RRT
7:3 FTCA		0.68	40.0	34.6	86.4	1.387
PFEESA		8.09	1.60	1.73	108	1.041
PFMPA			3.20	3.20	99.9	
PFMBA			1.60	1.55	97.0	1.074
NFDHA			3.20	2.36	73.7	

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Joannas Balauag _____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: FC2-Form8A.xsl; Created: 13-May-2024 17:41:19; Application: XMLTransformer-1.18.49; Report Filename: PFC_FC_LC_PFAS_WG89092-103_Form8A_SJ3399547.html; Workgroup: WG89092; Design ID: 3989]

SGS AXYS METHOD MLA-110 Rev 02

Form 8B

PERFLUORINATED ORGANICS ONGOING PRECISION AND RECOVERY (OPR)

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4066	Lab Sample I.D.:	WG89092-103
Matrix:	AQUEOUS	Initial Calibration Date:	01-Mar-2023
Extraction Date:	06-Mar-2024	Instrument ID:	LCMS/MS
Analysis Date:	06-Mar-2024 Time: 21:39:54	Column ID:	C18
Extract Volume (uL):	4000	OPR Data Filename:	FC4L_063 S: 37
Injection Volume (uL):	2	Blank Data Filename:	FC4L_063 S: 40
Dilution Factor:	N/A	Cal. Ver. Data Filename:	FC4L_063 S: 35

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 1 mL EXTRACT VOLUME.

LABELED COMPOUND	LAB FLAG ¹	RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	% RECOVERY	RRT
13C4-PFBA			40.0	37.6	94.0	0.996
13C5-PFPeA			20.0	19.7	98.4	0.848
13C5-PFHxA		12.2	10.0	8.50	85.0	1.000
13C4-PFHpA			10.0	8.55	85.5	0.880
13C8-PFOA			10.0	8.38	83.8	1.000
13C9-PFNA			5.00	4.65	93.1	1.000
13C6-PFDA			5.00	4.53	90.6	1.000
13C7-PFUnA			5.00	4.35	86.9	1.044
13C2-PFDoA			5.00	4.30	86.0	1.082
13C2-PFTeDA			5.00	3.38	67.6	1.174
13C3-PFBS		2.70	10.0	8.90	88.8	0.772
13C3-PFHxS		2.37	10.0	8.92	89.1	1.000
13C8-PFOS		2.17	10.1	9.67	96.1	1.000
13C2-4:2 FTS		1.95	20.2	18.6	92.1	0.812
13C2-6:2 FTS		2.23	20.0	17.1	85.7	1.002
13C2-8:2 FTS		3.74	20.0	20.1	100	1.265
13C8-PFOSA			10.0	11.5	115	1.157
D3-N-MeFOSA			10.0	8.16	81.6	1.346
D5-N-EtFOSA			10.0	7.59	75.9	1.378
D3-MeFOSAA			20.0	25.6	128	1.302
D5-EtFOSAA			20.0	25.8	129	1.325
d7-NMe-FOSE			100	125	125	1.331
d9-NEt-FOSE			100	131	131	1.365
13C3-HFPO-DA		2.87	40.0	28.6	71.5	1.037

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Joannas Balauag _____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

SGS AXYS METHOD MLA-110 Rev 02

Form 3A

INITIAL CALIBRATION RELATIVE RESPONSES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 01-Mar-2023

Instrument ID: LC MS/MS

LC Column ID: C18

CS0 Data Filename: N/A
CS1 Data Filename: FC3L_107 S: 16
CS2 Data Filename: FC3L_107 S: 17
CS3 Data Filename: FC3L_107 S: 18
CS4 Data Filename: FC3L_107 S: 19
CS5 Data Filename: FC3L_107 S: 20
CS6 Data Filename: FC3L_107 S: 21
CS7 Data Filename: FC3L_107 S: 22
CS8 Data Filename: FC3L_107 S: 23

COMPOUND	LAB FLAG ¹	RELATIVE RESPONSE (RR)								MEAN RR	CV (%RSD) ²
		CS0	CS1	CS2	CS3	CS4	CS5	CS6	CS7		
PFBA		0.86	0.83	0.85	0.81	0.85	0.82	0.82	0.82	0.83	2.14
PFPeA		1.14	1.11	1.07	0.98	1.07	1.04	1.00	1.00	1.05	5.39
PFHxA		1.33	1.23	1.13	1.03	1.04	1.00	1.01	1.05	1.10	11.0
PFHpA		1.15	1.24	1.20	1.13	1.16	1.11	1.13	1.13	1.16	3.70
PFOA		1.47	1.32	1.34	1.34	1.26	1.29	1.28	1.27	1.32	5.22
PFNA		1.08	1.00	0.99	1.04	0.99	0.99	0.98	0.97	1.01	3.77
PFDA		0.83	0.74	0.70	0.66	0.74	0.67	0.70	0.68	0.71	7.38
PFUnA		0.78	0.76	0.77	0.70	0.75	0.71	0.70	0.70	0.73	4.69
PFDoA		1.18	1.14	1.11	1.12	1.17	1.09	1.07	1.02	1.11	4.78
PFTrDA		0.98	0.92	0.84	0.81	0.83	0.80	0.80	0.75	0.84	8.87
PFTeDA		0.87	0.83	0.77	0.75	0.78	0.76	0.74	0.68	0.77	7.62
PFBS		1.14	1.01	1.05	1.05	1.08	1.04	1.06	1.04	1.06	3.67
PFPeS		1.00	0.92	0.99	0.95	1.01	0.94	0.96	0.91	0.96	3.99
PFHxS		1.37	1.28	1.26	1.14	1.26	1.16	1.19	1.20	1.23	6.14
PFHpS		1.11	1.09	1.00	0.97	1.02	0.99	1.00	0.93	1.01	5.99
PFOS		1.25	1.14	1.12	1.02	1.11	1.17	1.10	1.06	1.12	6.16
PFNS		1.05	1.00	1.02	0.97	1.01	0.96	0.99	0.97	0.99	2.96
PFDS		0.93	0.97	0.92	0.89	0.94	0.93	0.95	0.94	0.94	2.43
PFDoS		0.84	0.82	0.86	0.79	0.86	0.84	0.87	0.87	0.85	3.31
4:2 FTS		0.53	0.50	0.49	0.45	0.49	0.47	0.45	0.42	0.47	7.27
6:2 FTS		0.51	0.46	0.48	0.43	0.46	0.44	0.43	0.40	0.45	7.25
8:2 FTS		0.35	0.30	0.32	0.30	0.32	0.30	0.30	0.25	0.31	9.70
PFOSA		0.97	0.96	0.93	0.89	0.92	0.90	0.90	0.91	0.92	3.33
N-MeFOSA		0.90	1.05	0.93	0.93	0.92	0.96	0.95	0.90	0.94	4.82
N-EtFOSA		1.15	1.14	1.08	1.10	1.18	1.10	1.18	1.13	1.13	3.25
MeFOSAA		0.87	0.93	1.00	0.91	0.94	0.88	0.86		0.91	5.56
EtFOSAA		0.77	0.75	0.68	0.75	0.78	0.73	0.74		0.74	4.16
N-MeFOSE		0.81	0.78	0.77	0.74	0.77	0.76	0.74	0.73	0.76	3.65
N-EtFOSE		1.08	1.03	1.03	0.99	1.04	1.02	1.01	0.98	1.02	3.19
HFPO-DA		1.02	0.96	0.96	0.89	0.97	0.92	0.91	0.87	0.94	5.20
ADONA		4.87	4.87	4.83	4.56	4.86	4.80	4.80	4.74	4.79	2.17
9CI-PF3ONS		1.38	1.26	1.35	1.28	1.34	1.29	1.31	1.19	1.30	4.43
11CI-PF3OUds		0.76	0.73	0.75	0.71	0.78	0.74	0.77	0.71	0.74	3.36
3:3 FTCA		0.07	0.06	0.06	0.06	0.06	0.07	0.07	0.08	0.07	8.61
5:3 FTCA		0.18	0.16	0.17	0.17	0.17	0.17	0.18	0.21	0.18	7.83
7:3 FTCA		0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.12	0.10	7.99
PFEESA		2.86	2.57	2.60	2.50	2.56	2.51	2.57	2.87	2.63	5.64
PFMPA		1.62	1.60	1.57	1.47	1.56	1.54	1.51	1.59	1.56	3.24

RELATIVE RESPONSE (RR)

COMPOUND	LAB FLAG ¹	RELATIVE RESPONSE (RR)								MEAN RR	CV (%RSD) ²	
		CS0	CS1	CS2	CS3	CS4	CS5	CS6	CS7			CS8
PFMBA			2.14	2.14	2.16	2.06	2.17	2.09	2.14	2.30	2.15	3.37
NFDHA			0.09	0.09	0.09	0.08	0.09	0.09	0.08	0.08	0.09	5.65

- (1) Where applicable, custom lab flags have been used on this report.
- (2) For contract CV specifications, see SGS AXYS METHOD MLA-110 Rev 02

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Jordan Berends _____

For Axys Internal Use Only [XSL Template: FC2-Form3A.xsl; Created: 13-May-2024 17:41:19; Application: XMLTransformer-1.18.49; Report Filename: PFOA_FC_LC_01-Mar-2023_FC3L_Form3A_GS108013.html; Workgroup: WG89092; Design ID: 3989]

SGS AXYS METHOD MLA-110 Rev 02

Form 3B

INITIAL CALIBRATION RELATIVE RESPONSES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 01-Mar-2023

Instrument ID: LC MS/MS

LC Column ID: C18

CS0 Data Filename: N/A
CS1 Data Filename: FC3L_107 S: 16
CS2 Data Filename: FC3L_107 S: 17
CS3 Data Filename: FC3L_107 S: 18
CS4 Data Filename: FC3L_107 S: 19
CS5 Data Filename: FC3L_107 S: 20
CS6 Data Filename: FC3L_107 S: 21
CS7 Data Filename: FC3L_107 S: 22
CS8 Data Filename: FC3L_107 S: 23

Labeled Compound	LAB FLAG ¹	RELATIVE RESPONSE (RR)								MEAN RR	CV (%RSD) ²	
		CS0	CS1	CS2	CS3	CS4	CS5	CS6	CS7			CS8
13C4-PFBA			1.07	1.11	1.08	1.05	1.08	1.09	1.09	1.07	1.08	1.60
13C5-PFPeA			0.93	0.95	0.93	0.92	0.94	0.93	0.95	0.90	0.93	1.71
13C5-PFHxA			0.65	0.70	0.66	0.64	0.69	0.66	0.66	0.63	0.66	3.33
13C4-PFHpA			3.41	3.65	3.45	3.36	3.21	3.53	3.36	3.31	3.41	3.96
13C8-PFOA			3.71	3.92	3.85	3.61	3.62	3.81	3.68	3.81	3.75	3.04
13C9-PFNA			1.02	1.04	1.03	1.05	1.06	1.05	1.04	1.02	1.04	1.56
13C6-PFDA			0.99	1.10	1.05	1.02	1.02	1.04	1.00	1.01	1.03	3.30
13C7-PFUnA			1.07	1.14	1.11	1.07	1.10	1.09	1.06	1.04	1.08	3.02
13C2-PFDoA			0.88	0.94	0.91	0.85	0.87	0.90	0.88	0.95	0.90	3.90
13C2-PFTeDA			0.92	0.98	0.98	0.94	0.98	0.96	0.96	1.06	0.97	4.24
13C3-PFBS			1.31	1.40	1.31	1.24	1.37	1.30	1.25	1.08	1.28	7.48
13C3-PFHxS			1.10	1.15	1.12	1.07	1.12	1.11	1.12	1.10	1.11	2.19
13C8-PFOS			1.04	1.03	1.05	1.06	1.05	1.04	0.99	1.05	1.04	1.93
13C2-4:2 FTS			1.22	1.17	1.10	1.15	1.11	1.01	0.95	0.92	1.08	9.94
13C2-6:2 FTS			1.00	1.00	0.94	0.97	0.98	0.93	0.97	1.01	0.98	2.97
13C2-8:2 FTS			1.49	1.45	1.42	1.44	1.43	1.34	1.33	1.40	1.41	3.76
13C8-PFOA			1.72	1.76	1.77	1.72	1.77	1.75	1.73	1.93	1.77	3.87
D3-N-MeFOSA			0.24	0.26	0.27	0.26	0.27	0.25	0.25	0.28	0.26	5.17
D5-N-EtFOSA			0.25	0.26	0.26	0.25	0.25	0.26	0.24	0.26	0.25	3.36
D3-MeFOSAA			0.45	0.45	0.46	0.42	0.47	0.50	0.62		0.48	13.6
D5-EtFOSAA			0.40	0.40	0.39	0.39	0.42	0.43	0.52		0.42	10.7
d7-NMe-FOSE			2.21	2.19	2.26	2.22	2.24	2.17	2.19	2.37	2.23	2.77
d9-NEt-FOSE			1.85	1.84	1.90	1.88	1.88	1.83	1.80	1.95	1.87	2.49
13C3-HFPO-DA			0.44	0.46	0.45	0.44	0.45	0.44	0.43	0.41	0.44	3.38

(1) Where applicable, custom lab flags have been used on this report.

(2) For contract CV specifications, see SGS AXYS METHOD MLA-110 Rev 02.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Jordan Berends _____

SGS AXYS METHOD MLA-110 Rev 02

Form 3C
LC MS/MS INITIAL CALIBRATION RATIOS

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 01-Mar-2023

Instrument ID: LC MS/MS

LC Column ID: C18

CS0 Data Filename: N/A
 CS1 Data Filename: FC3L_107 S: 16
 CS2 Data Filename: FC3L_107 S: 17
 CS3 Data Filename: FC3L_107 S: 18
 CS4 Data Filename: FC3L_107 S: 19
 CS5 Data Filename: FC3L_107 S: 20
 CS6 Data Filename: FC3L_107 S: 21
 CS7 Data Filename: FC3L_107 S: 22
 CS8 Data Filename: FC3L_107 S: 23

COMPOUND	LAB FLAG ¹	RATIOS								
		CS0	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8
PFBA										
PFPeA										
PFHxA			5.24	5.95	5.71	5.10	5.29	5.21	5.37	5.23
PFHpA			2.11	2.24	2.38	2.36	2.23	2.23	2.23	2.21
PFOA			2.14	1.90	2.05	2.03	1.95	1.99	2.00	1.99
PFNA			2.97	2.71	2.79	2.82	2.69	2.84	2.83	2.78
PFDA			3.28	3.99	2.90	3.07	3.10	2.98	3.12	3.01
PFUnA			5.66	5.27	4.47	4.61	4.63	4.60	4.49	4.49
PFDoA			7.35	7.43	7.38	7.72	7.38	7.27	7.30	7.39
PFTTrDA			3.39	3.56	3.13	3.19	3.16	3.16	3.17	3.20
PFTeDA			2.56	2.87	2.55	2.81	2.83	2.83	2.78	2.79
PFBS			2.64	2.75	2.72	2.70	2.75	2.74	2.76	2.72
PFPeS			2.35	2.06	2.47	2.30	2.27	2.33	2.37	2.34
PFHxS			2.33	2.29	2.49	2.42	2.61	2.44	2.50	2.45
PFHpS			2.38	2.02	2.09	2.03	2.15	2.08	2.09	2.07
PFOS			2.07	2.49	2.62	2.63	2.60	2.67	2.61	2.60
PFNS			2.39	2.19	2.34	2.41	2.27	2.28	2.24	2.30
PFDS			2.05	2.40	2.30	2.33	2.30	2.30	2.31	2.30
PFDoS			1.86	2.05	2.15	2.13	2.14	2.23	2.18	2.21
4:2 FTS			0.45	0.45	0.45	0.43	0.45	0.45	0.44	0.45
6:2 FTS			0.44	0.42	0.43	0.40	0.41	0.41	0.41	0.42
8:2 FTS			0.55	0.48	0.51	0.53	0.52	0.53	0.53	0.54
PFOSA										
N-MeFOSA			0.48	0.60	0.52	0.53	0.53	0.53	0.54	0.53
N-EtFOSA			0.49	0.53	0.49	0.51	0.52	0.53	0.54	0.53
MeFOSAA			1.36	2.00	2.51	2.02	1.92	1.89	1.91	
EtFOSAA			1.43	1.05	1.05	1.25	1.14	1.12	1.15	
N-MeFOSE										
N-EtFOSE										
HFPO-DA			2.92	2.68	2.91	2.82	2.91	2.81	2.89	2.83
ADONA			1.15	1.21	1.19	1.19	1.20	1.18	1.18	1.19
9CI-PF3ONS			3.15	2.99	3.20	3.26	3.20	3.15	3.15	3.18
11CI-PF3OUds			3.16	3.03	3.18	3.12	3.25	3.11	3.16	3.14
3:3 FTCA			1.60	1.42	1.60	1.50	1.59	1.60	1.57	1.60
5:3 FTCA			1.37	1.31	1.40	1.40	1.39	1.40	1.41	1.41

COMPOUND	LAB FLAG ¹	RATIOS								
		CS0	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8
7:3 FTCA			0.62	0.67	0.65	0.68	0.66	0.64	0.66	0.66
PFEESA			7.86	9.04	8.42	8.79	8.42	8.33	8.40	8.78
PFMPA										
PFMBA										
NFDHA										

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Jordan Berends _____

For Axys Internal Use Only [XSL Template: FC2-Form3C.xsl; Created: 13-May-2024 17:41:19; Application: XMLTransformer-1.18.49; Report Filename: PFOA_FC_LC_01-Mar-2023_FC3L_Form3C_GS108013.html; Workgroup: WG89092; Design ID: 3989]

Form 3D
LC MS/MS INITIAL CALIBRATION RATIOS

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 01-Mar-2023

Instrument ID: LC MS/MS

LC Column ID: C18

CS0 Data Filename: N/A
CS1 Data Filename: FC3L_107 S: 16
CS2 Data Filename: FC3L_107 S: 17
CS3 Data Filename: FC3L_107 S: 18
CS4 Data Filename: FC3L_107 S: 19
CS5 Data Filename: FC3L_107 S: 20
CS6 Data Filename: FC3L_107 S: 21
CS7 Data Filename: FC3L_107 S: 22
CS8 Data Filename: FC3L_107 S: 23

LABELED COMPOUND	LAB FLAG ¹	RATIOS								
		CS0	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8
13C4-PFBA										
13C5-PFPeA										
13C5-PFHxA			14.8	14.6	14.9	13.9	14.9	15.4	16.1	14.7
13C4-PFHpA										
13C8-PFOA										
13C9-PFNA										
13C6-PFDA										
13C7-PFUnA										
13C2-PFDoA										
13C2-PFTeDA										
13C3-PFBS			2.83	2.71	2.68	2.63	2.82	2.82	2.70	2.77
13C3-PFHxS			2.45	2.41	2.44	2.36	2.39	2.49	2.50	2.50
13C8-PFOS			2.24	2.18	2.09	2.25	2.16	2.28	2.19	2.17
13C2-4:2 FTS			1.85	1.81	1.78	1.77	1.74	1.51	1.22	0.55
13C2-6:2 FTS			2.22	2.19	2.07	2.13	2.03	1.83	1.52	0.74
13C2-8:2 FTS			3.37	3.31	3.31	3.25	3.06	2.99	2.34	1.27
13C8-PFOA										
D3-N-MeFOSA										
D5-N-EtFOSA										
D3-MeFOSAA										
D5-EtFOSAA										
d7-NMe-FOSE										
d9-NEt-FOSE										
13C3-HFPO-DA			2.93	2.85	2.85	2.92	2.92	2.87	2.94	3.04

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Jordan Berends _____

SGS AXYS METHOD MLA-110 Rev 02

Form 4A

LC MS/MS CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 01-Mar-2023

VER Data Filename: FC4L_063 S: 35

Instrument ID: LCMS/MS

Analysis Date: 06-Mar-2024

LC Column ID: C18

Analysis Time: 21:12:31

COMPOUND	LAB FLAG ¹	RRT	QUANT TRANSITION	RATIO	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
PFBA		1.004	213 > 169		20.0	21.5	107
PFPeA		1.000	263 > 219		10.0	10.3	103
PFHxA		1.000	313 > 269	4.42	5.00	5.19	104
PFHpA		1.000	363 > 319	2.11	5.00	5.51	110
PFOA		1.001	413 > 369	1.97	5.00	5.62	112
PFNA		1.000	463 > 419	2.50	5.00	5.19	104
PFDA		1.000	513 > 469	2.56	5.00	4.56	91.1
PFUnA		1.000	563 > 519	3.98	5.00	5.05	101
PFDoA		0.999	613 > 569	7.41	4.06	4.24	104
PFTTrDA		0.957	663 > 619	2.84	5.00	5.24	105
PFTTeDA		1.000	713 > 669	2.55	5.00	5.27	105
PFBS		0.999	299 > 80	2.66	5.00	4.89	97.9
PFPeS		0.869	349 > 80	2.32	5.00	5.78	116
PFHxS		1.001	399 > 80	2.35	5.00	5.09	102
PFHpS		0.938	449 > 80	2.14	5.00	5.51	110
PFOS		1.001	499 > 80	2.53	5.00	4.93	98.7
PFNS		1.043	549 > 80	2.08	5.00	4.51	90.2
PFDS		1.084	599 > 80	2.46	5.00	5.21	104
PFDoS		1.183	699 > 80	2.12	5.00	4.77	95.3
4:2 FTS		1.000	327 > 307	0.42	20.0	19.7	98.7
6:2 FTS		0.999	427 > 407	0.37	18.0	18.7	104
8:2 FTS		1.000	527 > 507	0.47	17.0	15.6	92.1
PFOSA		1.000	498 > 78		5.00	5.61	112
N-MeFOSA		1.000	512 > 219	0.52	5.00	5.81	116
N-EtFOSA		1.001	526 > 219	0.55	14.0	16.2	116
MeFOSAA		1.001	570 > 419	1.84	5.00	4.87	97.3
EtFOSAA		1.000	584 > 419	1.13	5.00	4.99	99.7
N-MeFOSE		1.002	616 > 59		50.0	53.2	106
N-EtFOSE		1.002	630 > 59		50.0	51.7	103
HFPO-DA		1.000	285 > 169	2.87	20.0	21.8	109
ADONA		1.113	377 > 251	1.19	20.0	30.1	150
9CI-PF3ONS		0.964	531 > 351	3.19	20.0	22.1	110
11CI-PF3OUdS		1.042	631 > 451	3.13	20.0	23.7	118
3:3 FTCA			241 > 177	1.61	20.0	21.2	106
5:3 FTCA		1.059	341 > 237	1.34	125	135	108
7:3 FTCA		1.387	441 > 317	0.66	125	118	94.2
PFEESA		1.041	315 > 135	9.14	5.00	5.49	110
PFMPA			229 > 85		10.0	10.9	109
PFMBA		1.074	279 > 85		5.00	5.33	107
NFDHA			295 > 201		10.0	7.36	73.6

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Joannas Balauag _____

SGS AXYS METHOD MLA-110 Rev 02

Form 4B

LC MS/MS CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 01-Mar-2023

VER Data Filename: FC4L_063 S: 35

Instrument ID: LCMS/MS

Analysis Date: 06-Mar-2024

LC Column ID: C18

Analysis Time: 21:12:31

LABELLED COMPOUND	LAB FLAG ¹	RRT	QUANT TRANSITION	RATIO	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
13C4-PFBA		1.000	217 > 172		40.0	39.0	97.5
13C5-PFPeA		0.848	268 > 223		20.0	20.9	104
13C5-PFHxA		1.000	318 > 273	12.4	10.0	9.24	92.4
13C4-PFHpA		0.880	367 > 322		10.0	9.79	97.9
13C8-PFOA		1.000	421 > 376		10.0	9.46	94.6
13C9-PFNA		1.000	472 > 427		5.00	5.45	109
13C6-PFDA		1.000	519 > 474		5.00	4.95	99.0
13C7-PFUnA		1.044	570 > 525		5.00	5.00	99.9
13C2-PFDoA		1.082	615 > 570		5.00	4.98	99.7
13C2-PFTeDA		1.174	715 > 670		5.00	4.16	83.1
13C3-PFBS		0.772	302 > 80	2.73	10.0	9.79	97.7
13C3-PFHxS		0.999	402 > 80	2.34	10.0	9.76	97.4
13C8-PFOS		0.999	507 > 80	2.21	10.1	10.6	105
13C2-4:2 FTS		0.812	329 > 81	1.77	20.2	19.5	96.8
13C2-6:2 FTS		1.002	429 > 81	2.24	20.0	20.3	102
13C2-8:2 FTS		1.265	529 > 81	3.97	20.0	22.3	111
13C8-PFOSA		1.156	506 > 78		10.0	11.8	118
D3-N-MeFOSA		1.346	515 > 219		10.0	9.93	99.3
D5-N-EtFOSA		1.378	531 > 219		10.0	9.52	95.2
D3-MeFOSAA		1.302	573 > 419		20.0	29.4	147
D5-EtFOSAA		1.325	589 > 419		20.0	28.3	142
d7-NMe-FOSE		1.330	623 > 59		100	123	122
d9-NEt-FOSE		1.364	639 > 59		100	121	121
13C3-HFPO-DA		1.037	287 > 169	2.89	40.0	30.5	76.2

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Joannas Balauag_____

SGS AXYS METHOD MLA-110 Rev 02

Form 4A

LC MS/MS CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 01-Mar-2023

VER Data Filename: FC4L_063 S: 47

Instrument ID: LCMS/MS

Analysis Date: 06-Mar-2024

LC Column ID: C18

Analysis Time: 23:54:54

COMPOUND	LAB FLAG ¹	RRT	QUANT TRANSITION	RATIO	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
PFBA		1.004	213 > 169		20.0	21.5	107
PFPeA		1.000	263 > 219		10.0	9.72	97.2
PFHxA		1.000	313 > 269	4.14	5.00	4.98	99.6
PFHpA		1.000	363 > 319	2.11	5.00	5.49	110
PFOA		1.001	413 > 369	1.97	5.00	5.53	111
PFNA		1.001	463 > 419	2.70	5.00	5.36	107
PFDA		1.000	513 > 469	2.83	5.00	5.13	103
PFUnA		1.000	563 > 519	4.03	5.00	4.95	99.1
PFDoA		1.000	613 > 569	7.36	4.06	4.46	110
PFTTrDA		0.957	663 > 619	2.69	5.00	5.30	106
PFTTeDA		1.000	713 > 669	2.41	5.00	5.25	105
PFBS		1.001	299 > 80	2.58	5.00	4.78	95.7
PFPeS		0.869	349 > 80	2.40	5.00	5.70	114
PFHxS		1.001	399 > 80	2.46	5.00	5.10	102
PFHpS		0.937	449 > 80	2.27	5.00	5.75	115
PFOS		1.001	499 > 80	2.46	5.00	4.92	98.4
PFNS		1.043	549 > 80	2.24	5.00	4.82	96.4
PFDS		1.084	599 > 80	2.29	5.00	5.32	106
PFDoS		1.183	699 > 80	2.12	5.00	4.98	99.7
4:2 FTS		1.000	327 > 307	0.41	20.0	20.3	101
6:2 FTS		1.000	427 > 407	0.40	18.0	19.5	109
8:2 FTS		1.000	527 > 507	0.46	17.0	14.5	85.5
PFOSA		1.000	498 > 78		5.00	5.53	111
N-MeFOSA		1.000	512 > 219	0.53	5.00	5.76	115
N-EtFOSA		1.001	526 > 219	0.54	14.0	16.3	116
MeFOSAA		1.001	570 > 419	1.73	5.00	4.75	95.0
EtFOSAA		1.001	584 > 419	1.26	5.00	5.04	101
N-MeFOSE		1.002	616 > 59		50.0	53.4	107
N-EtFOSE		1.002	630 > 59		50.0	52.1	104
HFPO-DA		1.000	285 > 169	2.84	20.0	21.5	107
ADONA		1.113	377 > 251	1.19	20.0	29.8	149
9CI-PF3ONS		0.964	531 > 351	3.15	20.0	21.7	109
11CI-PF3OUdS		1.042	631 > 451	3.09	20.0	23.2	116
3:3 FTCA			241 > 177	1.51	20.0	19.6	97.8
5:3 FTCA		1.059	341 > 237	1.34	125	137	110
7:3 FTCA		1.387	441 > 317	0.65	125	117	93.3
PFEESA		1.041	315 > 135	9.50	5.00	5.52	110
PFMPA			229 > 85		10.0	10.7	107
PFMBA		1.072	279 > 85		5.00	5.24	105
NFDHA			295 > 201		10.0	6.93	69.3

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Joannas Balauag _____

SGS AXYS METHOD MLA-110 Rev 02

Form 4B

LC MS/MS CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 01-Mar-2023

VER Data Filename: FC4L_063 S: 47

Instrument ID: LCMS/MS

Analysis Date: 06-Mar-2024

LC Column ID: C18

Analysis Time: 23:54:54

LABELED COMPOUND	LAB FLAG ¹	RRT	QUANT TRANSITION	RATIO	EXPECTED CONC. (ng)	CONC. FOUND (ng)	RECOVERY (%)
13C4-PFBA		1.000	217 > 172		40.0	39.2	98.0
13C5-PFPeA		0.849	268 > 223		20.0	21.9	109
13C5-PFHxA		1.000	318 > 273	13.6	10.0	9.45	94.5
13C4-PFHpA		0.879	367 > 322		10.0	9.28	92.8
13C8-PFOA		0.999	421 > 376		10.0	9.19	91.9
13C9-PFNA		1.000	472 > 427		5.00	5.26	105
13C6-PFDA		1.000	519 > 474		5.00	4.77	95.4
13C7-PFUnA		1.044	570 > 525		5.00	4.90	98.0
13C2-PFDoA		1.082	615 > 570		5.00	4.72	94.4
13C2-PFTeDA		1.174	715 > 670		5.00	3.89	77.9
13C3-PFBS		0.772	302 > 80	2.72	10.0	10.4	104
13C3-PFHxS		1.000	402 > 80	2.38	10.0	10.5	105
13C8-PFOS		1.000	507 > 80	2.13	10.1	10.4	104
13C2-4:2 FTS		0.813	329 > 81	1.85	20.2	20.1	99.6
13C2-6:2 FTS		1.002	429 > 81	2.18	20.0	20.6	103
13C2-8:2 FTS		1.265	529 > 81	4.04	20.0	22.6	113
13C8-PFOSA		1.157	506 > 78		10.0	12.1	121
D3-N-MeFOSA		1.346	515 > 219		10.0	10.3	103
D5-N-EtFOSA		1.378	531 > 219		10.0	9.42	94.2
D3-MeFOSAA		1.303	573 > 419		20.0	29.6	148
D5-EtFOSAA		1.326	589 > 419		20.0	29.3	147
d7-NMe-FOSE		1.331	623 > 59		100	122	121
d9-NEt-FOSE		1.365	639 > 59		100	117	117
13C3-HFPO-DA		1.036	287 > 169	2.95	40.0	32.0	79.9

(1) Where applicable, custom lab flags have been used on this report.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Joannas Balauag_____

Accreditation Scope

SGS AXYS Analytical Services Ltd.
file ref.: ACC-103 Rev. 70

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Serum													Tissue and Tissue Flora													Urine													Water													Water, Non-Potable												
				CAIA	Alaska DEC	ANAB bDd **	ANAB ISO 17025	CAIA	California WB	Florida DOH	Maine DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	ANAB bDd **	ANAB ISO 17025	CAIA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	CAIA	CAIA	CAIA	Alaska DEC	ANAB bDd **	ANAB ISO 17025	California WB	Florida DOH	Maine DOH	Minnesota DOH	New Jersey DEP	New York DOH	Pennsylvania DEP	Virginia DGS	Washington DE **	ANAB bDd **	ANAB ISO 17025																												
PFAS	N-Ethylperfluorooctanesulfonamide (N-EtFOSA)	EPA 1633 draft	MLA-110	Y	Y	Y	Y							Y	Y	Y	Y							Y		Y	Y											Y	Y	Y																												
		SGS AXYS MLA-110	MLA-110		Y	Y									Y	Y	Y								Y	Y	Y												Y	Y	Y																											
		DoD QSM Version 5.3	MLA-110		Y	Y									Y	Y	Y								Y	Y	Y													Y	Y	Y																										
PFAS	N-Ethylperfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	EPA 1633 draft	MLA-110	Y	Y	Y	Y		Y					Y	Y	Y	Y							Y	Y	Y	Y												Y	Y	Y																											
		SGS AXYS MLA-110	MLA-110		Y	Y	Y	Y		Y					Y	Y	Y	Y							Y	Y	Y	Y												Y	Y	Y																										
		DoD QSM Version 5.3	MLA-110		Y	Y			Y						Y	Y	Y								Y	Y	Y													Y	Y	Y																										
PFAS	N-Ethylperfluorooctanesulfonamidoethanol (N-EtFOSE)	EPA 1633 draft	MLA-110	Y	Y	Y	Y		Y	Y	Y			Y	Y	Y	Y							Y	Y	Y	Y													Y	Y	Y																										
		SGS AXYS MLA-110	MLA-110		Y	Y	Y	Y		Y					Y	Y	Y	Y							Y	Y	Y	Y													Y	Y	Y																									
		DoD QSM Version 5.3	MLA-110		Y	Y			Y						Y	Y	Y								Y	Y	Y														Y	Y	Y																									
PFAS	N-Methylperfluorooctanesulfonamide (N-MeFOSA)	EPA 1633 draft	MLA-110	Y	Y	Y	Y		Y	Y				Y	Y	Y	Y							Y	Y	Y	Y													Y	Y	Y																										
		SGS AXYS MLA-110	MLA-110		Y	Y	Y	Y		Y					Y	Y	Y	Y							Y	Y	Y	Y													Y	Y	Y																									
		DoD QSM Version 5.3	MLA-110		Y	Y			Y						Y	Y	Y								Y	Y	Y														Y	Y	Y																									
PFAS	N-Methylperfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	EPA 1633 draft	MLA-110	Y	Y	Y	Y		Y	Y				Y	Y	Y	Y							Y	Y	Y	Y													Y	Y	Y																										
		SGS AXYS MLA-110	MLA-110		Y	Y	Y	Y		Y					Y	Y	Y	Y							Y	Y	Y	Y													Y	Y	Y																									
		DoD QSM Version 5.3	MLA-110		Y	Y			Y						Y	Y	Y								Y	Y	Y														Y	Y	Y																									
PFAS	N-Methylperfluorooctanesulfonamidoethanol (N-MeFOSE)	EPA 1633 draft	MLA-110	Y	Y	Y	Y		Y	Y				Y	Y	Y	Y							Y	Y	Y	Y													Y	Y	Y																										
		SGS AXYS MLA-110	MLA-110		Y	Y	Y	Y		Y					Y	Y	Y	Y							Y	Y	Y	Y													Y	Y	Y																									
		DoD QSM Version 5.3	MLA-110		Y	Y			Y						Y	Y	Y								Y	Y	Y														Y	Y	Y																									
PFAS	Perfluorobutanesulfonate (PFBS)	EPA 1633 draft	MLA-110	Y	Y	Y	Y		Y	Y				Y	Y	Y	Y							Y	Y	Y	Y													Y	Y	Y																										
		SGS AXYS MLA-060	MLA-060		Y	Y	Y	Y		Y					Y	Y	Y	Y							Y	Y	Y	Y													Y	Y	Y																									
		DoD QSM Version 5.3	MLA-110		Y	Y	Y	Y		Y					Y	Y	Y								Y	Y	Y	Y													Y	Y	Y																									
PFAS	Perfluorobutanoate (PFBA)	EPA 1633 draft	MLA-110	Y	Y	Y	Y		Y	Y				Y	Y	Y	Y							Y	Y	Y	Y													Y	Y	Y																										
		SGS AXYS MLA-060	MLA-060		Y	Y	Y	Y		Y					Y	Y	Y	Y							Y	Y	Y	Y													Y	Y	Y																									
		DoD QSM Version 5.3	MLA-110		Y	Y	Y	Y		Y					Y	Y	Y								Y	Y	Y	Y													Y	Y	Y																									
PFAS	Perfluorodecanesulfonate (PFDS)	EPA 1633 draft	MLA-110	Y	Y	Y	Y		Y	Y				Y	Y	Y	Y							Y	Y	Y	Y													Y	Y	Y																										
		SGS AXYS MLA-110	MLA-110		Y	Y	Y	Y		Y					Y	Y	Y	Y							Y	Y	Y	Y													Y	Y	Y																									
		DoD QSM Version 5.3	MLA-110		Y	Y	Y	Y		Y					Y	Y	Y								Y	Y	Y	Y													Y	Y	Y																									
PFAS	Perfluorodecanoate (PFDA)	EPA 1633 draft	MLA-110	Y	Y	Y	Y		Y	Y				Y	Y	Y	Y							Y	Y	Y	Y														Y	Y	Y																									
		SGS AXYS MLA-060	MLA-060		Y	Y	Y	Y		Y					Y	Y	Y	Y							Y	Y	Y	Y														Y	Y	Y																								
		DoD QSM Version 5.3	MLA-110		Y	Y	Y	Y		Y					Y	Y	Y								Y	Y	Y	Y														Y	Y	Y																								
PFAS	Perfluorododecanesulfonate (PFDoS)	EPA 1633 draft	MLA-110	Y	Y	Y	Y		Y	Y				Y	Y	Y	Y							Y	Y	Y	Y														Y	Y	Y																									
		SGS AXYS MLA-110	MLA-110		Y	Y	Y	Y		Y					Y	Y	Y	Y							Y	Y	Y	Y														Y	Y	Y																								
		DoD QSM Version 5.3	MLA-110		Y	Y			Y						Y	Y	Y								Y	Y	Y															Y	Y	Y																								
PFAS	Perfluorododecanoate (PFDoA)	EPA 1633 draft	MLA-110	Y	Y	Y	Y		Y	Y				Y	Y	Y	Y							Y	Y	Y	Y														Y	Y	Y																									
		SGS AXYS MLA-060	MLA-060		Y	Y	Y	Y		Y					Y	Y	Y	Y							Y	Y	Y	Y														Y	Y	Y																								
		DoD QSM Version 5.3	MLA-110		Y	Y			Y						Y	Y	Y								Y	Y	Y	Y														Y	Y	Y																								
PFAS	Perfluoroheptanesulfonate (PFHpS)	EPA 1633 draft	MLA-110	Y	Y	Y	Y		Y	Y				Y	Y	Y	Y							Y	Y	Y	Y														Y	Y	Y																									
		SGS AXYS MLA-110	MLA-110		Y	Y	Y	Y		Y					Y	Y	Y	Y							Y	Y	Y	Y														Y	Y	Y																								
		DoD QSM Version 5.3	MLA-110		Y	Y			Y						Y	Y	Y								Y	Y	Y	Y														Y	Y	Y																								

