



2045 Mills Road West

TEL: (250) 655-5800

Sidney, BC, Canada V8L5X2

TOLL-FREE: 1-888-373-0881

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.

*"This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.*

*Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law."*

*"The sample(s) to which the findings recorded herein (the "Findings") relate was[were] drawn and [or] provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is[are] said to be extracted."*

# BATCH SUMMARY

|   |  |
|---|--|
| <b>Batch ID:</b> WG79484  | <b>Date:</b> 26-Jan-2022   |
| <b>Analysis Type:</b> Perfluorinated Organic (Post)   | <b>Matrix Type:</b><br>Biosolids human   |
| <b>BATCH MAKEUP</b>   |  |
| <b>Contract:</b> 4066<br><b>Samples:</b><br><br>L35977-1 SIWWTP-BIOS-1A<br>L35977-2 LIWWTP-BIOS-1A<br>L35977-5 HIWWTP-BIOS-1<br>L35977-6 KIWWTP-BIOS-1A   | <b>Blank:</b><br>WG79484-101<br><br><b>Reference or Spike:</b><br>WG79484-102<br><br><b>Duplicate:</b> |
| <b>Comments:</b> <ol style="list-style-type: none"> <li>1. Data are considered final.</li> <li>2. Data are not blank corrected. Blank data should be taken into consideration when evaluating sample data.</li> <li>3. Blank data should be evaluated against specifications using the same blank sample size as the size of the client samples.</li> <li>4. In the continuing calibration verification (FC1L_012 S:43), the surrogate compounds D3-MeFOSAA, D5-EtFOSAA, and D9-EtFOSE were observed outside the method control limits. As all target analytes were observed within method specifications, this is deemed not to have any effect on the data.</li> <li>5. The recoveries of 13C2-PFDoA and 13C2-PFTeDA in the sample 'SIWWTP-BIOS-1A' (SGS AXYS ID: L35977-1) did not meet the method criteria; these compounds are flagged with a 'V'. 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 general method performance indicator only.</li> <li>6. The reported concentration values represent the acid forms of the compounds.</li> </ol> |  |

Copyright SGS AXYS Analytical Services Ltd  
February 2017

FQA-006 Rev. 4. 20-Sep-2013

L35977

| Client ID                             | Axys ID  |                |
|---------------------------------------|----------|----------------|
| <del>SIWWTP-BIOS-1A (FA89217-1)</del> | L35977-1 | SIWWTP-BIOS-1A |
| <del>SIWWTP-BIOS-1A (FA89217-2)</del> | L35977-2 | LIWWTP-BIOS-1A |
| <del>SIWWTP-BIOS-1A (FA89217-3)</del> | L35977-3 | LIWWTP-BIOS-1B |
| <del>SIWWTP-BIOS-1A (FA89217-4)</del> | L35977-4 | LIWWTP-BIOS-1C |
| <del>SIWWTP-BIOS-1A (FA89217-5)</del> | L35977-5 | HIWWTP-BIOS-1  |
| <del>SIWWTP-BIOS-1A (FA89217-6)</del> | L35977-6 | KIWWTP-BIOS-1A |
| <del>SIWWTP-BIOS-1A (FA89217-7)</del> | L35977-7 | KIWWTP-BIOS-1B |
| <del>SIWWTP-BIOS-1A (FA89217-8)</del> | L35977-8 | KIWWTP-BIOS-1C |

(IDs corrected by DPR 23-Dec-21)

12:00

14-OCT-2021

Received by: 

SGS AXYS METHOD MLA-111 Rev 03

Form 1A

## TOTAL OXIDIZABLE PRECURSOR - POSTOXIDATION ANALYSIS REPORT

CLIENT SAMPLE NO.

SIWWTP-BIOS-1A

Sample Collection:

31-Aug-2021 09:00

## SGS AXYS ANALYTICAL SERVICES

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

Project No.

HDOH - PFAS IN MULTIMEDIA  
(TO-17403)

Contract No.: 4066

Lab Sample I.D.:

L35977-1

Matrix: BIOSOLIDS HUMAN

Sample Size:

4.76 g (dry)

Sample Receipt Date: 14-Oct-2021

Initial Calibration Date:

22-Feb-2021

Extraction Date: 10-Jan-2022

Instrument ID:

LCMS/MS

Analysis Date: 12-Jan-2022 Time: 23:38:31

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC2L\_012 S: 48

Injection Volume (uL): 2

Blank Data Filename:

FC2L\_012 S: 47

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC2L\_012 S: 43

Concentration Units: ng/g (dry weight basis)

% Moisture:

4.77

This page is part of a total report that contains information necessary for accreditation compliance.  
This test is not NELAP accredited. Sample results relate only to the sample tested.

| COMPOUND | LAB FLAG <sup>1</sup> | CONC. FOUND | REPORTING LIMIT (RL) <sup>2</sup> | RATIO | RRT   |
|----------|-----------------------|-------------|-----------------------------------|-------|-------|
| PFBA     |                       | 54.1        | 0.841 (Q)                         |       | 1.006 |
| PFPeA    |                       | 62.1        | 0.420 (Q)                         |       | 1.002 |
| PFHxA    |                       | 41.1        | 0.210 (Q)                         | 3.92  | 1.000 |
| PFHpA    |                       | 17.0        | 0.210 (Q)                         | 2.18  | 1.001 |
| PFOA     |                       | 13.1        | 0.210 (Q)                         | 1.83  |       |
| PFNA     |                       | 5.22        | 0.210 (Q)                         | 2.81  |       |
| PFDA     |                       | 6.28        | 0.210 (Q)                         | 3.25  | 0.999 |
| PFUnA    |                       | 2.44        | 0.210 (Q)                         | 4.46  | 0.999 |
| PFDoA    |                       | 3.15        | 0.210 (Q)                         | 7.31  | 0.999 |
| PFTTrDA  |                       | 1.09        | 0.217 (S)                         | 3.74  | 0.961 |
| PFTeDA   |                       | 1.99        | 0.210 (Q)                         | 3.28  | 0.999 |
| PFBS     |                       | 5.71        | 0.210 (Q)                         | 2.38  | 1.001 |
| PFPeS    | U                     |             | 0.211 (Q)                         |       |       |
| PFHxS    | J                     | 0.526       | 0.210 (Q)                         | 2.45  |       |
| PFHpS    | U                     |             | 0.210 (Q)                         |       |       |
| PFOS     |                       | 10.3        | 0.210 (Q)                         | 2.83  |       |
| PFNS     | U                     |             | 0.210 (Q)                         |       |       |
| PFDS     | R                     | 1.54        | 0.210 (Q)                         | 8.42  | 1.079 |
| PFDoS    | R J                   | 0.369       | 0.210 (Q)                         | 139   | 1.170 |
| 4:2 FTS  | U                     |             | 0.841 (Q)                         |       |       |
| 6:2 FTS  | J                     | 1.11        | 0.758 (Q)                         | 0.43  | 1.000 |
| 8:2 FTS  | U                     |             | 0.841 (Q)                         |       |       |
| PFOSA    | J                     | 0.519       | 0.210 (Q)                         |       |       |
| N-MeFOSA | U                     |             | 0.242 (Q)                         |       |       |
| N-EtFOSA | U                     |             | 0.525 (Q)                         |       |       |
| MeFOSAA  | J                     | 0.274       | 0.210 (Q)                         | 2.14  |       |
| EtFOSAA  | J                     | 0.290       | 0.210 (Q)                         | 1.01  |       |
| N-MeFOSE | U                     |             | 2.10 (Q)                          |       |       |
| N-EtFOSE | U                     |             | 1.57 (Q)                          |       |       |
| 3:3 FTCA | U                     |             | 0.841 (Q)                         |       |       |
| 5:3 FTCA | U                     |             | 5.25 (Q)                          |       |       |
| 7:3 FTCA | U                     |             | 5.25 (Q)                          |       |       |

(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: \_\_\_\_\_ Jordan Berends \_\_\_\_\_

SGS AXYS METHOD MLA-111 Rev 03

Form 2

TOTAL OXIDIZABLE PRECURSOR - POSTOXIDATION ANALYSIS  
REPORTCLIENT SAMPLE NO.  
SIWWTP-BIOS-1A  
Sample Collection:  
31-Aug-2021 09:00

## 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.

HDOH - PFAS IN MULTIMEDIA  
(TO-17403)

Lab Sample I.D.:

L35977-1

Matrix: BIOSOLIDS HUMAN

Sample Size:

4.76 g (dry)

Sample Receipt Date: 14-Oct-2021

Initial Calibration Date:

22-Feb-2021

Extraction Date: 10-Jan-2022

Instrument ID:

LCMS/MS

Analysis Date: 12-Jan-2022 Time: 23:38:31

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC2L\_012 S: 48

Injection Volume (uL): 2

Blank Data Filename:

FC2L\_012 S: 47

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC2L\_012 S: 43

Concentration Units: ng absolute

% Moisture:

4.77

This page is part of a total report that contains information necessary for accreditation compliance.  
This test is not NELAP accredited. Sample results relate only to the sample tested.

| LABELLED COMPOUND | LAB FLAG 1 | SPIKE CONC. | CONC. FOUND | R(%) <sup>2</sup> | RATIO | RRT   |
|-------------------|------------|-------------|-------------|-------------------|-------|-------|
| 13C4-PFBA         |            | 200         | 168         | 84.0              |       | 0.995 |
| 13C5-PFPeA        |            | 100         | 63.9        | 63.9              |       | 0.862 |
| 13C5-PFHxA        |            | 50.0        | 40.0        | 80.0              | 27.6  | 1.000 |
| 13C4-PFHpA        |            | 50.0        | 44.1        | 88.2              |       | 0.897 |
| 13C8-PFOA         |            | 50.0        | 42.0        | 84.0              |       | 1.000 |
| 13C9-PFNA         |            | 25.0        | 21.8        | 87.3              |       | 1.000 |
| 13C6-PFDA         |            | 25.0        | 17.3        | 69.1              |       | 1.001 |
| 13C7-PFUnA        |            | 25.0        | 16.9        | 67.5              |       | 1.048 |
| 13C2-PFDoA        | V          | 25.0        | 7.15        | 28.6              |       | 1.081 |
| 13C2-PFTeDA       | V          | 25.0        | 8.93        | 35.7              |       | 1.162 |
| 13C3-PFBS         |            | 50.2        | 41.7        | 83.2              | 2.62  | 0.805 |
| 13C3-PFHxS        |            | 50.1        | 43.8        | 87.6              | 2.38  | 1.000 |
| 13C8-PFOS         |            | 50.3        | 41.0        | 81.5              | 2.25  | 1.000 |
| 13C2-4:2 FTS      |            | 20.2        | 24.6        | 122               | 2.05  | 0.841 |
| 13C2-6:2 FTS      |            | 20.0        | 21.6        | 108               | 2.30  | 1.001 |
| 13C2-8:2 FTS      |            | 20.0        | 16.0        | 79.8              | 3.15  | 1.269 |
| 13C8-PFOA         |            | 10.0        | 9.99        | 99.9              |       | 1.158 |
| D3-N-MeFOSA       |            | 10.0        | 7.29        | 72.9              |       | 1.345 |
| D5-N-EtFOSA       |            | 10.0        | 5.92        | 59.2              |       | 1.382 |
| D3-MeFOSAA        |            | 20.0        | 12.4        | 61.8              |       | 1.316 |
| D5-EtFOSAA        |            | 20.0        | 13.9        | 69.7              |       | 1.342 |
| d7-NMe-FOSE       |            | 100         | 74.8        | 74.8              |       | 1.327 |
| d9-NEt-FOSE       |            | 100         | 63.3        | 63.3              |       | 1.366 |

(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: \_\_\_\_\_ Jordan Berends \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: FC2-Form2.xsl; Created: 26-Jan-2022 15:49:56; Application: XMLTransformer-1.18.31;  
Report Filename: PFC\_FC\_LC\_PFAS\_POSTTOP\_L35977-1\_Form2\_FC2L\_012S48\_SJ3014430.html; Workgroup: WG79484; Design ID: 4411 ]

SGS AXYS METHOD MLA-111 Rev 03

Form 1A

TOTAL OXIDIZABLE PRECURSOR - POSTOXIDATION ANALYSIS  
REPORTCLIENT SAMPLE NO.  
LIWWTP-BIOS-1A  
Sample Collection:  
02-Sep-2021 14:00

## 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.

HDOH - PFAS IN MULTIMEDIA  
(TO-17403)

Lab Sample I.D.:

L35977-2

Matrix: BIOSOLIDS HUMAN

Sample Size:

2.26 g (dry)

Sample Receipt Date: 14-Oct-2021

Initial Calibration Date:

22-Feb-2021

Extraction Date: 10-Jan-2022

Instrument ID:

LCMS/MS

Analysis Date: 12-Jan-2022 Time: 23:51:52

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC2L\_012 S: 49

Injection Volume (uL): 2

Blank Data Filename:

FC2L\_012 S: 47

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC2L\_012 S: 43

Concentration Units: ng/g (dry weight basis)

% Moisture:

54.7

This page is part of a total report that contains information necessary for accreditation compliance.  
This test is not NELAP accredited. Sample results relate only to the sample tested.

| COMPOUND | LAB FLAG <sup>1</sup> | CONC.<br>FOUND | REPORTING<br>LIMIT (RL) <sup>2</sup> | RATIO | RRT   |
|----------|-----------------------|----------------|--------------------------------------|-------|-------|
| PFBA     |                       | 183            | 1.77 (Q)                             |       | 1.006 |
| PFPeA    |                       | 122            | 16.6 (S)                             |       | 1.001 |
| PFHxA    |                       | 91.9           | 0.461 (S)                            | 4.66  | 1.000 |
| PFHpA    |                       | 55.2           | 0.443 (Q)                            | 2.11  | 1.000 |
| PFOA     |                       | 56.2           | 0.443 (Q)                            | 1.80  |       |
| PFNA     |                       | 27.3           | 0.443 (Q)                            | 2.79  |       |
| PFDA     |                       | 30.3           | 0.443 (Q)                            | 2.99  | 1.000 |
| PFUnA    |                       | 13.9           | 0.443 (Q)                            | 4.42  | 1.000 |
| PFDoA    |                       | 19.1           | 0.443 (Q)                            | 7.18  | 1.000 |
| PFTTrDA  |                       | 6.27           | 0.443 (Q)                            | 2.87  | 0.962 |
| PFTeDA   |                       | 8.44           | 0.443 (Q)                            | 2.75  | 1.000 |
| PFBS     |                       | 32.2           | 0.443 (Q)                            | 2.89  | 1.000 |
| PFPeS    | U                     |                | 0.445 (Q)                            |       |       |
| PFHxS    |                       | 1.78           | 0.443 (Q)                            | 2.65  |       |
| PFHpS    | U                     |                | 0.443 (Q)                            |       |       |
| PFOS     |                       | 26.0           | 0.443 (Q)                            | 2.49  |       |
| PFNS     | U                     |                | 0.443 (Q)                            |       |       |
| PFDS     |                       | 2.62           | 0.443 (Q)                            | 2.66  | 1.080 |
| PFDoS    | U                     |                | 0.443 (Q)                            |       |       |
| 4:2 FTS  | U                     |                | 1.77 (Q)                             |       |       |
| 6:2 FTS  | U                     |                | 1.60 (Q)                             |       |       |
| 8:2 FTS  | U                     |                | 1.77 (Q)                             |       |       |
| PFOSA    | J                     | 1.25           | 0.443 (Q)                            |       |       |
| N-MeFOSA | U                     |                | 0.510 (Q)                            |       |       |
| N-EtFOSA | U                     |                | 1.11 (Q)                             |       |       |
| MeFOSAA  | J                     | 1.38           | 0.443 (Q)                            | 2.05  |       |
| EtFOSAA  | R J                   | 1.34           | 0.443 (Q)                            | 1.88  |       |
| N-MeFOSE | U                     |                | 4.43 (Q)                             |       |       |
| N-EtFOSE | U                     |                | 3.31 (Q)                             |       |       |
| 3:3 FTCA | U                     |                | 1.77 (Q)                             |       |       |
| 5:3 FTCA | U                     |                | 11.1 (Q)                             |       |       |
| 7:3 FTCA | U                     |                | 11.1 (Q)                             |       |       |

(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: \_\_\_\_\_ Jordan Berends \_\_\_\_\_

SGS AXYS METHOD MLA-111 Rev 03

Form 2

TOTAL OXIDIZABLE PRECURSOR - POSTOXIDATION ANALYSIS  
REPORTCLIENT SAMPLE NO.  
LIWWTP-BIOS-1A  
Sample Collection:  
02-Sep-2021 14:00

## 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.

HDOH - PFAS IN MULTIMEDIA  
(TO-17403)

Lab Sample I.D.:

L35977-2

Matrix: BIOSOLIDS HUMAN

Sample Size:

2.26 g (dry)

Sample Receipt Date: 14-Oct-2021

Initial Calibration Date:

22-Feb-2021

Extraction Date: 10-Jan-2022

Instrument ID:

LCMS/MS

Analysis Date: 12-Jan-2022 Time: 23:51:52

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC2L\_012 S: 49

Injection Volume (uL): 2

Blank Data Filename:

FC2L\_012 S: 47

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC2L\_012 S: 43

Concentration Units: ng absolute

% Moisture:

54.7

This page is part of a total report that contains information necessary for accreditation compliance.  
This test is not NELAP accredited. Sample results relate only to the sample tested.

| LABELLED COMPOUND | LAB<br>FLAG <sup>1</sup> | SPIKE<br>CONC. | CONC.<br>FOUND | R(%) <sup>2</sup> | RATIO | RRT   |
|-------------------|--------------------------|----------------|----------------|-------------------|-------|-------|
| 13C4-PFBA         |                          | 200            | 164            | 82.0              |       | 0.995 |
| 13C5-PFPeA        |                          | 100            | 66.1           | 66.1              |       | 0.862 |
| 13C5-PFHxA        |                          | 50.0           | 41.8           | 83.7              | 23.9  | 1.000 |
| 13C4-PFHpA        |                          | 50.0           | 38.4           | 76.7              |       | 0.897 |
| 13C8-PFOA         |                          | 50.0           | 35.6           | 71.1              |       | 0.999 |
| 13C9-PFNA         |                          | 25.0           | 21.1           | 84.3              |       | 0.999 |
| 13C6-PFDA         |                          | 25.0           | 22.5           | 89.9              |       | 1.000 |
| 13C7-PFUnA        |                          | 25.0           | 22.7           | 90.8              |       | 1.049 |
| 13C2-PFDoA        |                          | 25.0           | 19.3           | 77.4              |       | 1.082 |
| 13C2-PFTeDA       |                          | 25.0           | 14.2           | 56.9              |       | 1.160 |
| 13C3-PFBS         |                          | 50.2           | 37.1           | 73.9              | 2.52  | 0.805 |
| 13C3-PFHxS        |                          | 50.1           | 40.4           | 80.6              | 2.24  | 1.000 |
| 13C8-PFOS         |                          | 50.3           | 45.2           | 89.9              | 2.24  | 1.000 |
| 13C2-4:2 FTS      |                          | 20.2           | 25.3           | 126               | 2.91  | 0.841 |
| 13C2-6:2 FTS      |                          | 20.0           | 22.0           | 110               | 2.14  | 1.001 |
| 13C2-8:2 FTS      |                          | 20.0           | 18.9           | 94.2              | 3.39  | 1.269 |
| 13C8-PFOA         |                          | 10.0           | 10.9           | 109               |       | 1.157 |
| D3-N-MeFOSA       |                          | 10.0           | 8.83           | 88.3              |       | 1.344 |
| D5-N-EtFOSA       |                          | 10.0           | 8.11           | 81.1              |       | 1.381 |
| D3-MeFOSAA        |                          | 20.0           | 13.2           | 66.0              |       | 1.317 |
| D5-EtFOSAA        |                          | 20.0           | 16.1           | 80.4              |       | 1.343 |
| d7-NMe-FOSE       |                          | 100            | 89.5           | 89.5              |       | 1.326 |
| d9-NEt-FOSE       |                          | 100            | 76.8           | 76.8              |       | 1.364 |

(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: \_\_\_\_\_ Jordan Berends \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: FC2-Form2.xsl; Created: 26-Jan-2022 15:49:56; Application: XMLTransformer-1.18.31;  
Report Filename: PFC\_FC\_LC\_PFAS\_POSTTOP\_L35977-2\_Form2\_FC2L\_012S49\_SJ3014431.html; Workgroup: WG79484; Design ID: 4411 ]

SGS AXYS METHOD MLA-111 Rev 03

Form 1A

TOTAL OXIDIZABLE PRECURSOR - POSTOXIDATION ANALYSIS  
REPORT

CLIENT SAMPLE NO.

HIWWTP-BIOS-1

Sample Collection:

07-Sep-2021 13:30

## SGS AXYS ANALYTICAL SERVICES

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

Project No.

HDOH - PFAS IN MULTIMEDIA  
(TO-17403)

Contract No.: 4066

Lab Sample I.D.:

L35977-5

Matrix: BIOSOLIDS HUMAN

Sample Size:

0.815 g (dry)

Sample Receipt Date: 14-Oct-2021

Initial Calibration Date:

22-Feb-2021

Extraction Date: 10-Jan-2022

Instrument ID:

LCMS/MS

Analysis Date: 13-Jan-2022 Time: 00:05:14

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC2L\_012 S: 50

Injection Volume (uL): 2

Blank Data Filename:

FC2L\_012 S: 47

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC2L\_012 S: 43

Concentration Units: ng/g (dry weight basis)

% Moisture:

83.7

This page is part of a total report that contains information necessary for accreditation compliance.  
This test is not NELAP accredited. Sample results relate only to the sample tested.

| COMPOUND | LAB FLAG <sup>1</sup> | CONC.<br>FOUND | REPORTING<br>LIMIT (RL) <sup>2</sup> | RATIO | RRT   |
|----------|-----------------------|----------------|--------------------------------------|-------|-------|
| PFBA     |                       | 282            | 4.91 (Q)                             |       | 1.006 |
| PFPeA    |                       | 232            | 2.87 (S)                             |       | 1.001 |
| PFHxA    |                       | 144            | 1.23 (Q)                             | 4.73  | 1.000 |
| PFHpA    |                       | 71.3           | 1.23 (Q)                             | 2.15  | 1.000 |
| PFOA     |                       | 67.8           | 1.23 (Q)                             | 1.75  |       |
| PFNA     |                       | 34.2           | 1.23 (Q)                             | 2.89  |       |
| PFDA     |                       | 26.4           | 1.23 (Q)                             | 2.82  | 1.000 |
| PFUnA    |                       | 16.6           | 1.23 (Q)                             | 4.51  | 1.000 |
| PFDoA    |                       | 17.4           | 1.23 (Q)                             | 8.04  | 1.000 |
| PFTTrDA  |                       | 7.56           | 1.23 (Q)                             | 2.76  | 0.963 |
| PFTeDA   |                       | 9.46           | 1.23 (Q)                             | 2.72  | 1.000 |
| PFBS     |                       | 22.7           | 1.23 (Q)                             | 2.74  | 1.000 |
| PFPeS    | U                     |                | 1.23 (Q)                             |       |       |
| PFHxS    | U                     |                | 1.23 (Q)                             |       |       |
| PFHpS    | U                     |                | 1.23 (Q)                             |       |       |
| PFOS     |                       | 9.03           | 1.23 (Q)                             | 2.73  |       |
| PFNS     | U                     |                | 1.23 (Q)                             |       |       |
| PFDS     | J                     | 1.66           | 1.23 (Q)                             | 2.43  | 1.081 |
| PFDoS    | U                     |                | 1.23 (Q)                             |       |       |
| 4:2 FTS  | U                     |                | 4.91 (Q)                             |       |       |
| 6:2 FTS  | U                     |                | 4.43 (Q)                             |       |       |
| 8:2 FTS  | U                     |                | 4.91 (Q)                             |       |       |
| PFOSA    | U                     |                | 1.23 (Q)                             |       |       |
| N-MeFOSA | U                     |                | 1.41 (Q)                             |       |       |
| N-EtFOSA | U                     |                | 3.07 (Q)                             |       |       |
| MeFOSAA  | U                     |                | 1.23 (Q)                             |       |       |
| EtFOSAA  | U                     |                | 1.23 (Q)                             |       |       |
| N-MeFOSE | U                     |                | 12.3 (Q)                             |       |       |
| N-EtFOSE | U                     |                | 9.19 (Q)                             |       |       |
| 3:3 FTCA | U                     |                | 4.91 (Q)                             |       |       |
| 5:3 FTCA | U                     |                | 30.7 (Q)                             |       |       |
| 7:3 FTCA | U                     |                | 30.7 (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: \_\_\_\_\_ Jordan Berends \_\_\_\_\_

SGS AXYS METHOD MLA-111 Rev 03

Form 2

TOTAL OXIDIZABLE PRECURSOR - POSTOXIDATION ANALYSIS  
REPORTCLIENT SAMPLE NO.  
HIWWTP-BIOS-1  
Sample Collection:  
07-Sep-2021 13:30

## 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.

HDOH - PFAS IN MULTIMEDIA  
(TO-17403)

Lab Sample I.D.:

L35977-5

Matrix: BIOSOLIDS HUMAN

Sample Size:

0.815 g (dry)

Sample Receipt Date: 14-Oct-2021

Initial Calibration Date:

22-Feb-2021

Extraction Date: 10-Jan-2022

Instrument ID:

LCMS/MS

Analysis Date: 13-Jan-2022 Time: 00:05:14

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC2L\_012 S: 50

Injection Volume (uL): 2

Blank Data Filename:

FC2L\_012 S: 47

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC2L\_012 S: 43

Concentration Units: ng absolute

% Moisture:

83.7

This page is part of a total report that contains information necessary for accreditation compliance.  
This test is not NELAP accredited. Sample results relate only to the sample tested.

| LABELLED COMPOUND | LAB<br>FLAG 1 | SPIKE<br>CONC. | CONC.<br>FOUND | R(%) <sup>2</sup> | RATIO | RRT   |
|-------------------|---------------|----------------|----------------|-------------------|-------|-------|
| 13C4-PFBA         |               | 200            | 171            | 85.5              |       | 1.000 |
| 13C5-PFPeA        |               | 100            | 65.3           | 65.3              |       | 0.861 |
| 13C5-PFHxA        |               | 50.0           | 30.6           | 61.2              | 19.0  | 1.000 |
| 13C4-PFHpA        |               | 50.0           | 43.2           | 86.4              |       | 0.897 |
| 13C8-PFOA         |               | 50.0           | 33.6           | 67.2              |       | 1.001 |
| 13C9-PFNA         |               | 25.0           | 21.4           | 85.5              |       | 1.000 |
| 13C6-PFDA         |               | 25.0           | 21.6           | 86.5              |       | 1.000 |
| 13C7-PFUnA        |               | 25.0           | 20.6           | 82.6              |       | 1.049 |
| 13C2-PFDoA        |               | 25.0           | 19.6           | 78.4              |       | 1.083 |
| 13C2-PFTeDA       |               | 25.0           | 16.2           | 64.6              |       | 1.160 |
| 13C3-PFBS         |               | 50.2           | 42.3           | 84.4              | 2.55  | 0.805 |
| 13C3-PFHxS        |               | 50.1           | 42.8           | 85.5              | 2.38  | 1.000 |
| 13C8-PFOS         |               | 50.3           | 44.7           | 88.8              | 2.25  | 1.000 |
| 13C2-4:2 FTS      |               | 20.2           | 28.2           | 140               | 1.96  | 0.840 |
| 13C2-6:2 FTS      |               | 20.0           | 22.3           | 112               | 2.26  | 1.001 |
| 13C2-8:2 FTS      |               | 20.0           | 19.5           | 97.1              | 3.26  | 1.268 |
| 13C8-PFOA         |               | 10.0           | 10.8           | 108               |       | 1.157 |
| D3-N-MeFOSA       |               | 10.0           | 8.71           | 87.1              |       | 1.344 |
| D5-N-EtFOSA       |               | 10.0           | 8.46           | 84.6              |       | 1.381 |
| D3-MeFOSAA        |               | 20.0           | 13.9           | 69.7              |       | 1.315 |
| D5-EtFOSAA        |               | 20.0           | 16.0           | 79.8              |       | 1.341 |
| d7-NMe-FOSE       |               | 100            | 89.2           | 89.2              |       | 1.326 |
| d9-NEt-FOSE       |               | 100            | 75.3           | 75.3              |       | 1.365 |

(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: \_\_\_\_\_ Jordan Berends \_\_\_\_\_

SGS AXYS METHOD MLA-111 Rev 03

Form 1A

TOTAL OXIDIZABLE PRECURSOR - POSTOXIDATION ANALYSIS  
REPORT

CLIENT SAMPLE NO.

KIWWTP-BIOS-1A

Sample Collection:

14-Sep-2021 13:30

## SGS AXYS ANALYTICAL SERVICES

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

Project No.

HDOH - PFAS IN MULTIMEDIA  
(TO-17403)

Contract No.: 4066

Lab Sample I.D.:

L35977-6

Matrix: BIOSOLIDS HUMAN

Sample Size:

0.683 g (dry)

Sample Receipt Date: 14-Oct-2021

Initial Calibration Date:

22-Feb-2021

Extraction Date: 10-Jan-2022

Instrument ID:

LCMS/MS

Analysis Date: 13-Jan-2022 Time: 00:18:37

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC2L\_012 S: 51

Injection Volume (uL): 2

Blank Data Filename:

FC2L\_012 S: 47

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC2L\_012 S: 43

Concentration Units: ng/g (dry weight basis)

% Moisture:

86.3

This page is part of a total report that contains information necessary for accreditation compliance.  
This test is not NELAP accredited. Sample results relate only to the sample tested.

| COMPOUND | LAB FLAG <sup>1</sup> | CONC.<br>FOUND | REPORTING<br>LIMIT (RL) <sup>2</sup> | RATIO | RRT   |
|----------|-----------------------|----------------|--------------------------------------|-------|-------|
| PFBA     |                       | 283            | 5.85 (Q)                             |       | 1.006 |
| PFPeA    |                       | 179            | 2.93 (Q)                             |       | 1.000 |
| PFHxA    |                       | 64.0           | 1.46 (Q)                             | 4.83  | 1.000 |
| PFHpA    |                       | 58.4           | 1.46 (Q)                             | 1.98  | 0.999 |
| PFOA     |                       | 44.6           | 1.46 (Q)                             | 1.94  |       |
| PFNA     |                       | 33.0           | 1.46 (Q)                             | 2.90  |       |
| PFDA     |                       | 44.0           | 1.46 (Q)                             | 3.02  | 1.000 |
| PFUnA    |                       | 17.3           | 1.46 (Q)                             | 4.76  | 1.000 |
| PFDoA    |                       | 24.9           | 1.46 (Q)                             | 6.86  | 1.000 |
| PFTTrDA  |                       | 8.07           | 1.46 (Q)                             | 2.77  | 0.963 |
| PFTeDA   |                       | 9.66           | 1.46 (Q)                             | 2.53  | 1.000 |
| PFBS     |                       | 6.98           | 1.46 (Q)                             | 2.21  | 1.000 |
| PFPeS    | U                     |                | 1.47 (Q)                             |       |       |
| PFHxS    | U                     |                | 1.46 (Q)                             |       |       |
| PFHpS    | U                     |                | 1.46 (Q)                             |       |       |
| PFOS     |                       | 12.3           | 1.46 (Q)                             | 2.58  |       |
| PFNS     | U                     |                | 1.46 (Q)                             |       |       |
| PFDS     | U                     |                | 1.46 (Q)                             |       |       |
| PFDoS    | U                     |                | 1.46 (Q)                             |       |       |
| 4:2 FTS  | U                     |                | 5.85 (Q)                             |       |       |
| 6:2 FTS  | U                     |                | 5.28 (Q)                             |       |       |
| 8:2 FTS  | U                     |                | 5.85 (Q)                             |       |       |
| PFOSA    | U                     |                | 1.46 (Q)                             |       |       |
| N-MeFOSA | U                     |                | 1.68 (Q)                             |       |       |
| N-EtFOSA | U                     |                | 3.66 (Q)                             |       |       |
| MeFOSAA  | U                     |                | 1.46 (Q)                             |       |       |
| EtFOSAA  | U                     |                | 1.46 (Q)                             |       |       |
| N-MeFOSE | U                     |                | 14.6 (Q)                             |       |       |
| N-EtFOSE | U                     |                | 10.9 (Q)                             |       |       |
| 3:3 FTCA | U                     |                | 5.85 (Q)                             |       |       |
| 5:3 FTCA | U                     |                | 36.6 (Q)                             |       |       |
| 7:3 FTCA | U                     |                | 36.6 (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: \_\_\_\_\_ Jordan Berends \_\_\_\_\_

SGS AXYS METHOD MLA-111 Rev 03

**Form 2**  
**TOTAL OXIDIZABLE PRECURSOR - POSTOXIDATION ANALYSIS**  
**REPORT**

**CLIENT SAMPLE NO.**  
**KIWWTP-BIOS-1A**  
**Sample Collection:**  
**14-Sep-2021 13:30**

**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.**

HDOH - PFAS IN MULTIMEDIA  
 (TO-17403)

**Lab Sample I.D.:**

L35977-6

**Matrix:** BIOSOLIDS HUMAN**Sample Size:**

0.683 g (dry)

**Sample Receipt Date:** 14-Oct-2021**Initial Calibration Date:**

22-Feb-2021

**Extraction Date:** 10-Jan-2022**Instrument ID:**

LCMS/MS

**Analysis Date:** 13-Jan-2022 **Time:** 00:18:37**Column ID:**

C18

**Extract Volume (uL):** 4000**Sample Data Filename:**

FC2L\_012 S: 51

**Injection Volume (uL):** 2**Blank Data Filename:**

FC2L\_012 S: 47

**Dilution Factor:** N/A**Cal. Ver. Data Filename:**

FC2L\_012 S: 43

**Concentration Units:** ng absolute**% Moisture:**

86.3

This page is part of a total report that contains information necessary for accreditation compliance.  
 This test is not NELAP accredited. Sample results relate only to the sample tested.

| LABELLED COMPOUND | LAB FLAG <sup>1</sup> | SPIKE CONC. | CONC. FOUND | R(%) <sup>2</sup> | RATIO | RRT   |
|-------------------|-----------------------|-------------|-------------|-------------------|-------|-------|
| 13C4-PFBA         |                       | 200         | 174         | 86.8              |       | 1.000 |
| 13C5-PFPeA        |                       | 100         | 78.2        | 78.2              |       | 0.863 |
| 13C5-PFHxA        |                       | 50.0        | 55.2        | 110               | 24.8  | 0.999 |
| 13C4-PFHpA        |                       | 50.0        | 41.7        | 83.3              |       | 0.898 |
| 13C8-PFOA         |                       | 50.0        | 39.0        | 78.0              |       | 1.000 |
| 13C9-PFNA         |                       | 25.0        | 21.7        | 86.9              |       | 0.999 |
| 13C6-PFDA         |                       | 25.0        | 21.9        | 87.7              |       | 1.000 |
| 13C7-PFUnA        |                       | 25.0        | 21.2        | 84.8              |       | 1.049 |
| 13C2-PFDoA        |                       | 25.0        | 16.0        | 64.1              |       | 1.083 |
| 13C2-PFTeDA       |                       | 25.0        | 15.0        | 59.8              |       | 1.160 |
| 13C3-PFBS         |                       | 50.2        | 46.2        | 92.2              | 2.76  | 0.805 |
| 13C3-PFHxS        |                       | 50.1        | 44.4        | 88.6              | 2.44  | 0.999 |
| 13C8-PFOS         |                       | 50.3        | 46.0        | 91.4              | 2.09  | 1.000 |
| 13C2-4:2 FTS      |                       | 20.2        | 26.2        | 130               | 1.83  | 0.840 |
| 13C2-6:2 FTS      |                       | 20.0        | 22.9        | 114               | 2.19  | 1.001 |
| 13C2-8:2 FTS      |                       | 20.0        | 19.8        | 98.9              | 3.33  | 1.267 |
| 13C8-PFOA         |                       | 10.0        | 10.6        | 106               |       | 1.156 |
| D3-N-MeFOSA       |                       | 10.0        | 9.30        | 93.0              |       | 1.344 |
| D5-N-EtFOSA       |                       | 10.0        | 8.44        | 84.4              |       | 1.381 |
| D3-MeFOSAA        |                       | 20.0        | 14.5        | 72.5              |       | 1.315 |
| D5-EtFOSAA        |                       | 20.0        | 16.1        | 80.5              |       | 1.341 |
| d7-NMe-FOSE       |                       | 100         | 85.5        | 85.5              |       | 1.326 |
| d9-NEt-FOSE       |                       | 100         | 72.9        | 72.9              |       | 1.364 |

(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: \_\_\_\_\_ Jordan Berends \_\_\_\_\_



SGS AXYS METHOD MLA-111 Rev 03

Form 2

TOTAL OXIDIZABLE PRECURSOR - POSTOXIDATION ANALYSIS  
REPORTCLIENT SAMPLE NO.  
Lab Blank  
Sample Collection:  
N/A

## 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.:

WG79484-101

Matrix: SOLID

Sample Size:

1.00 g

Sample Receipt Date: N/A

Initial Calibration Date:

22-Feb-2021

Extraction Date: 10-Jan-2022

Instrument ID:

LCMS/MS

Analysis Date: 12-Jan-2022 Time: 23:25:09

Column ID:

C18

Extract Volume (uL): 4000

Sample Data Filename:

FC2L\_012 S: 47

Injection Volume (uL): 2

Blank Data Filename:

FC2L\_012 S: 47

Dilution Factor: N/A

Cal. Ver. Data Filename:

FC2L\_012 S: 43

Concentration Units: ng absolute

This page is part of a total report that contains information necessary for accreditation compliance.  
This test is not NELAP accredited. Sample results relate only to the sample tested.

| LABELED COMPOUND | LAB FLAG <sup>1</sup> | SPIKE CONC. | CONC. FOUND | R(%) <sup>2</sup> | RATIO | RRT   |
|------------------|-----------------------|-------------|-------------|-------------------|-------|-------|
| 13C4-PFBA        |                       | 200         | 153         | 76.5              |       | 1.000 |
| 13C5-PFPeA       |                       | 100         | 68.8        | 68.8              |       | 0.863 |
| 13C5-PFHxA       |                       | 50.0        | 51.5        | 103               | 31.9  | 1.000 |
| 13C4-PFHpA       |                       | 50.0        | 46.9        | 93.9              |       | 0.898 |
| 13C8-PFOA        |                       | 50.0        | 42.8        | 85.6              |       | 1.000 |
| 13C9-PFNA        |                       | 25.0        | 22.4        | 89.5              |       | 1.000 |
| 13C6-PFDA        |                       | 25.0        | 22.2        | 88.7              |       | 1.000 |
| 13C7-PFUnA       |                       | 25.0        | 22.3        | 89.1              |       | 1.049 |
| 13C2-PFDoA       |                       | 25.0        | 19.5        | 77.9              |       | 1.083 |
| 13C2-PFTeDA      |                       | 25.0        | 15.1        | 60.6              |       | 1.160 |
| 13C3-PFBS        |                       | 50.2        | 48.5        | 96.8              | 2.88  | 0.806 |
| 13C3-PFHxS       |                       | 50.1        | 45.8        | 91.4              | 2.29  | 1.000 |
| 13C8-PFOS        |                       | 50.3        | 48.6        | 96.6              | 2.11  | 1.000 |
| 13C2-4:2 FTS     |                       | 20.2        | 29.0        | 144               | 2.09  | 0.841 |
| 13C2-6:2 FTS     |                       | 20.0        | 24.0        | 120               | 2.46  | 1.001 |
| 13C2-8:2 FTS     |                       | 20.0        | 19.6        | 97.6              | 3.52  | 1.268 |
| 13C8-PFOA        |                       | 10.0        | 10.0        | 100               |       | 1.157 |
| D3-N-MeFOSA      |                       | 10.0        | 8.85        | 88.5              |       | 1.344 |
| D5-N-EtFOSA      |                       | 10.0        | 7.91        | 79.1              |       | 1.381 |
| D3-MeFOSAA       |                       | 20.0        | 13.3        | 66.5              |       | 1.317 |
| D5-EtFOSAA       |                       | 20.0        | 15.0        | 75.0              |       | 1.343 |
| d7-NMe-FOSE      |                       | 100         | 77.7        | 77.7              |       | 1.326 |
| d9-NEt-FOSE      |                       | 100         | 64.0        | 64.0              |       | 1.365 |

(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: \_\_\_\_\_ Jordan Berends \_\_\_\_\_

## SGS AXYS METHOD MLA-111 Rev 03

## 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.:          | WG79484-102    |
| Matrix:                | SOLID                      | Initial Calibration Date: | 22-Feb-2021    |
| Extraction Date:       | 10-Jan-2022                | Instrument ID:            | LCMS/MS        |
| Analysis Date:         | 12-Jan-2022 Time: 22:58:26 | Column ID:                | C18            |
| Extract Volume (uL):   | 4000                       | OPR Data Filename:        | FC2L_012 S: 45 |
| Injection Volume (uL): | 2                          | Blank Data Filename:      | FC2L_012 S: 47 |
| Dilution Factor:       | N/A                        | Cal. Ver. Data Filename:  | FC2L_012 S: 43 |

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

| COMPOUND | LAB FLAG <sup>1</sup> | RATIO | SPIKE CONC.<br>(ng/mL) | CONC.<br>FOUND<br>(ng/mL) | % RECOVERY | RRT   |
|----------|-----------------------|-------|------------------------|---------------------------|------------|-------|
| PFBA     |                       |       | 226                    | 227                       | 100        | 1.006 |
| PFPeA    |                       |       | 167                    | 162                       | 97.0       | 1.001 |
| PFHxA    |                       | 6.73  | 160                    | 154                       | 95.9       | 1.001 |
| PFHpA    |                       | 2.42  | 142                    | 135                       | 94.8       | 1.000 |
| PFOA     |                       | 1.94  | 502                    | 459                       | 91.5       |       |
| PFNA     |                       | 2.99  | 38.6                   | 40.3                      | 104        |       |
| PFDA     |                       | 3.07  | 25.0                   | 25.9                      | 104        | 1.000 |
| PFUnA    |                       | 4.45  | 25.0                   | 25.0                      | 99.9       | 1.000 |
| PFDoA    |                       | 8.17  | 25.0                   | 25.5                      | 102        | 1.000 |
| PFTTrDA  |                       | 3.03  | 25.0                   | 25.7                      | 103        | 0.963 |
| PFTeDA   |                       | 2.49  | 25.0                   | 24.0                      | 95.9       | 1.000 |
| PFBS     |                       | 3.09  | 25.0                   | 32.3                      | 129        | 0.999 |
| PFPeS    |                       | 2.31  | 24.9                   | 27.7                      | 111        | 0.889 |
| PFHxS    |                       | 2.46  | 25.0                   | 24.6                      | 98.4       |       |
| PFHpS    |                       | 2.14  | 25.0                   | 24.2                      | 96.6       | 0.919 |
| PFOS     |                       | 2.73  | 27.1                   | 25.2                      | 93.2       |       |
| PFNS     |                       | 2.27  | 25.0                   | 21.1                      | 84.5       | 1.047 |
| PFDS     |                       | 2.17  | 25.0                   | 19.5                      | 77.9       | 1.081 |
| PFDoS    |                       | 2.15  | 25.0                   | 16.9                      | 67.7       | 1.166 |
| 4:2 FTS  | U                     |       | 500                    |                           | 0          |       |
| 6:2 FTS  | U                     |       | 450                    |                           | 0          |       |
| 8:2 FTS  | U                     |       | 500                    |                           | 0          |       |
| MeFOSAA  | U                     |       | 350                    |                           | 0          |       |
| EtFOSAA  | U                     |       | 350                    |                           | 0          |       |

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL.

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 \_\_\_\_\_

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-111 Rev 03

## 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

|                               |                            |                                  |                |
|-------------------------------|----------------------------|----------------------------------|----------------|
| <b>Contract No.:</b>          | 4066                       | <b>Lab Sample I.D.:</b>          | WG79484-102    |
| <b>Matrix:</b>                | SOLID                      | <b>Initial Calibration Date:</b> | 22-Feb-2021    |
| <b>Extraction Date:</b>       | 10-Jan-2022                | <b>Instrument ID:</b>            | LCMS/MS        |
| <b>Analysis Date:</b>         | 12-Jan-2022 Time: 22:58:26 | <b>Column ID:</b>                | C18            |
| <b>Extract Volume (uL):</b>   | 4000                       | <b>OPR Data Filename:</b>        | FC2L_012 S: 45 |
| <b>Injection Volume (uL):</b> | 2                          | <b>Blank Data Filename:</b>      | FC2L_012 S: 47 |
| <b>Dilution Factor:</b>       | N/A                        | <b>Cal. Ver. Data Filename:</b>  | FC2L_012 S: 43 |

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

| LABELLED COMPOUND | LAB FLAG <sup>1</sup> | RATIO | SPIKE CONC. (ng/mL) | CONC. FOUND (ng/mL) | % RECOVERY | RRT   |
|-------------------|-----------------------|-------|---------------------|---------------------|------------|-------|
| 13C4-PFBA         |                       |       | 200                 | 176                 | 88.2       | 1.000 |
| 13C5-PFPeA        |                       |       | 100                 | 71.0                | 71.0       | 0.863 |
| 13C5-PFHxA        |                       | 22.7  | 50.0                | 43.8                | 87.6       | 1.000 |
| 13C4-PFHpA        |                       |       | 50.0                | 44.4                | 88.7       | 0.898 |
| 13C8-PFOA         |                       |       | 50.0                | 40.6                | 81.1       | 1.000 |
| 13C9-PFNA         |                       |       | 25.0                | 21.3                | 85.1       | 1.000 |
| 13C6-PFDA         |                       |       | 25.0                | 21.0                | 84.0       | 1.000 |
| 13C7-PFUnA        |                       |       | 25.0                | 20.0                | 80.0       | 1.049 |
| 13C2-PFDoA        |                       |       | 25.0                | 16.5                | 65.8       | 1.083 |
| 13C2-PFTeDA       |                       |       | 25.0                | 14.5                | 58.2       | 1.160 |
| 13C3-PFBS         |                       | 2.29  | 50.2                | 36.3                | 72.3       | 0.806 |
| 13C3-PFHxS        |                       | 2.40  | 50.1                | 43.8                | 87.5       | 1.000 |
| 13C8-PFOS         |                       | 2.11  | 50.3                | 46.0                | 91.4       | 1.000 |
| 13C2-4:2 FTS      |                       | 1.94  | 20.2                | 25.0                | 124        | 0.841 |
| 13C2-6:2 FTS      |                       | 2.10  | 20.0                | 22.5                | 112        | 1.001 |
| 13C2-8:2 FTS      |                       | 3.25  | 20.0                | 18.9                | 94.2       | 1.268 |
| D3-MeFOSAA        |                       |       | 20.0                | 12.8                | 64.2       | 1.317 |
| D5-EtFOSAA        |                       |       | 20.0                | 14.6                | 73.2       | 1.343 |

(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 \_\_\_\_\_

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.

## 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: 22-Feb-2021

Instrument ID: LC MS/MS

LC Column ID: C18

CS0 Data Filename: FC1L\_080 S: 16  
 CS1 Data Filename: FC1L\_080 S: 17  
 CS2 Data Filename: FC1L\_080 S: 18  
 CS3 Data Filename: FC1L\_080 S: 19  
 CS4 Data Filename: FC1L\_080 S: 20  
 CS5 Data Filename: FC1L\_080 S: 21  
 CS6 Data Filename: FC1L\_080 S: 22  
 CS7 Data Filename: FC1L\_080 S: 23  
 CS8 Data Filename: FC1L\_080 S: 24

## RELATIVE RESPONSE (RR)

| COMPOUND | LAB<br>FLAG <sup>1</sup> | RELATIVE RESPONSE (RR) |      |      |      |      |      |      |      | MEAN<br>RR | CV<br>(%RSD) <sup>2</sup> |      |
|----------|--------------------------|------------------------|------|------|------|------|------|------|------|------------|---------------------------|------|
|          |                          | CS0                    | CS1  | CS2  | CS3  | CS4  | CS5  | CS6  | CS7  |            |                           | CS8  |
| PFBA     |                          | 1.06                   | 1.05 | 1.05 | 1.00 | 1.01 | 0.98 | 0.99 | 0.96 | 0.94       | 1.00                      | 4.20 |
| PFPeA    |                          | 1.37                   | 1.29 | 1.24 | 1.19 | 1.21 | 1.17 | 1.20 | 1.15 | 1.12       | 1.21                      | 6.24 |
| PFHxA    |                          | 1.16                   | 1.28 | 1.12 | 1.05 | 1.03 | 0.97 | 1.04 | 0.97 | 0.94       | 1.06                      | 10.2 |
| PFHpA    |                          | 1.19                   | 1.14 | 1.09 | 1.14 | 1.10 | 1.11 | 1.08 | 1.05 | 0.96       | 1.10                      | 5.97 |
| PFOA     |                          | 1.57                   | 1.71 | 1.56 | 1.40 | 1.43 | 1.41 | 1.37 | 1.39 | 1.32       | 1.46                      | 8.45 |
| PFNA     |                          | 0.99                   | 1.13 | 1.10 | 1.01 | 0.99 | 1.02 | 1.06 | 0.97 | 0.99       | 1.03                      | 5.34 |
| PFDA     |                          | 0.89                   | 0.87 | 0.91 | 0.82 | 0.83 | 0.83 | 0.84 | 0.83 | 0.72       | 0.84                      | 6.35 |
| PFUnA    |                          | 0.76                   | 0.78 | 0.88 | 0.69 | 0.76 | 0.74 | 0.75 | 0.75 |            | 0.76                      | 7.31 |
| PFDoA    |                          | 1.02                   | 1.34 | 1.15 | 1.05 | 1.09 | 1.04 | 1.08 | 0.99 | 0.86       | 1.07                      | 12.1 |
| PFTTrDA  |                          | 0.97                   | 0.93 | 0.92 | 0.86 | 0.83 | 0.81 | 0.82 | 0.61 |            | 0.84                      | 13.1 |
| PFTeDA   |                          | 0.86                   | 0.77 | 0.79 | 0.73 | 0.76 | 0.72 | 0.72 | 0.62 |            | 0.74                      | 9.15 |
| PFBS     |                          | 1.24                   | 1.18 | 1.13 | 1.14 | 1.21 | 1.14 | 1.16 | 1.11 | 1.10       | 1.16                      | 4.01 |
| PFPeS    |                          | 0.96                   | 1.07 | 1.12 | 1.04 | 1.03 | 1.02 | 1.01 | 0.88 | 0.77       | 0.99                      | 10.8 |
| PFHxS    |                          | 1.26                   | 1.23 | 1.21 | 1.20 | 1.14 | 1.15 | 1.15 | 1.08 | 1.14       | 1.17                      | 4.74 |
| PFHpS    |                          | 1.11                   | 1.07 | 1.14 | 1.10 | 1.09 | 1.12 | 1.05 | 1.05 | 1.10       | 1.09                      | 2.81 |
| PFOS     |                          | 1.25                   | 1.39 | 1.30 | 1.17 | 1.28 | 1.24 | 1.20 | 1.16 | 1.26       | 1.25                      | 5.50 |
| PFNS     |                          | 1.31                   | 1.22 | 1.18 | 1.17 | 1.25 | 1.18 | 1.18 | 1.10 | 1.10       | 1.19                      | 5.56 |
| PFDS     |                          | 1.10                   | 1.23 | 1.17 | 1.14 | 1.16 | 1.16 | 1.12 | 1.04 | 1.08       | 1.13                      | 5.03 |
| PFDoS    |                          | 0.95                   | 0.93 | 0.96 | 0.88 | 0.93 | 0.93 | 0.90 | 0.91 | 1.00       | 0.93                      | 3.65 |
| 4:2 FTS  |                          | 0.43                   | 0.50 | 0.50 | 0.51 | 0.52 | 0.47 | 0.45 | 0.42 |            | 0.48                      | 8.19 |
| 6:2 FTS  |                          | 0.63                   | 0.54 | 0.58 | 0.50 | 0.52 | 0.49 | 0.47 | 0.40 |            | 0.52                      | 13.6 |
| 8:2 FTS  |                          | 0.30                   | 0.27 | 0.26 | 0.27 | 0.25 | 0.28 | 0.27 | 0.23 |            | 0.27                      | 7.98 |
| PFOSA    |                          | 1.04                   | 1.05 | 1.02 | 0.99 | 0.98 | 0.99 | 0.97 | 0.94 |            | 1.00                      | 3.72 |
| N-MeFOSA |                          | 1.09                   | 1.26 | 1.14 | 1.11 | 1.12 | 1.09 | 1.10 | 0.98 |            | 1.11                      | 6.86 |
| N-EtFOSA |                          | 1.20                   | 1.27 | 1.24 | 1.19 | 1.18 | 1.19 | 1.23 | 1.15 | 1.16       | 1.20                      | 3.34 |
| MeFOSAA  |                          | 0.86                   | 0.81 | 0.86 | 0.84 | 0.91 | 0.89 | 0.86 | 0.81 | 0.81       | 0.85                      | 4.20 |
| EtFOSAA  |                          | 0.78                   | 0.63 | 0.92 | 0.72 | 0.73 | 0.74 | 0.78 | 0.68 |            | 0.75                      | 11.3 |
| N-MeFOSE |                          | 1.14                   | 1.16 | 1.16 | 1.11 | 1.12 | 1.10 | 1.09 | 1.03 | 0.98       | 1.10                      | 5.47 |
| N-EtFOSE |                          | 1.25                   | 1.25 | 1.27 | 1.21 | 1.21 | 1.18 | 1.20 | 1.10 | 1.04       | 1.19                      | 6.47 |
| 3:3 FTCA |                          | 0.07                   | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.10 |            | 0.08                      | 9.63 |
| 5:3 FTCA |                          | 0.19                   | 0.18 | 0.17 | 0.17 | 0.16 | 0.16 | 0.17 | 0.17 |            | 0.17                      | 6.49 |
| 7:3 FTCA |                          | 0.10                   | 0.10 | 0.10 | 0.10 | 0.10 | 0.09 | 0.10 | 0.11 |            | 0.10                      | 4.46 |

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

(2) For contract CV specifications, see SGS AXYS METHOD MLA-111 Rev 03

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

Signed: \_\_\_\_\_ Henry Huang \_\_\_\_\_

## SGS AXYS METHOD MLA-111 Rev 03

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: 22-Feb-2021

Instrument ID: LC MS/MS

LC Column ID: C18

CS0 Data Filename: FC1L\_080 S: 16

CS1 Data Filename: FC1L\_080 S: 17

CS2 Data Filename: FC1L\_080 S: 18

CS3 Data Filename: FC1L\_080 S: 19

CS4 Data Filename: FC1L\_080 S: 20

CS5 Data Filename: FC1L\_080 S: 21

CS6 Data Filename: FC1L\_080 S: 22

CS7 Data Filename: FC1L\_080 S: 23

CS8 Data Filename: FC1L\_080 S: 24

| LABELED COMPOUND | LAB<br>FLAG <sup>1</sup> | RELATIVE RESPONSE (RR) |      |      |      |      |      |      |      | MEAN<br>RR | CV<br>(%RSD) <sup>2</sup> |      |
|------------------|--------------------------|------------------------|------|------|------|------|------|------|------|------------|---------------------------|------|
|                  |                          | CS0                    | CS1  | CS2  | CS3  | CS4  | CS5  | CS6  | CS7  |            |                           | CS8  |
| 13C4-PFBA        |                          | 1.17                   | 1.16 | 1.14 | 1.16 | 1.13 | 1.13 | 1.13 | 1.13 | 1.11       | 1.14                      | 1.73 |
| 13C5-PFPeA       |                          | 0.83                   | 0.85 | 0.85 | 0.88 | 0.87 | 0.84 | 0.81 | 0.79 | 0.69       | 0.82                      | 7.00 |
| 13C5-PFHxA       |                          | 0.67                   | 0.69 | 0.72 | 0.70 | 0.74 | 0.73 | 0.68 | 0.70 | 0.66       | 0.70                      | 3.78 |
| 13C4-PFHpA       |                          | 3.63                   | 3.49 | 3.60 | 3.42 | 3.44 | 3.25 | 3.33 | 2.97 | 2.73       | 3.32                      | 8.93 |
| 13C8-PFOA        |                          | 3.82                   | 3.60 | 3.79 | 3.80 | 3.79 | 3.66 | 3.71 | 3.61 | 3.76       | 3.73                      | 2.31 |
| 13C9-PFNA        |                          | 1.16                   | 1.15 | 1.14 | 1.17 | 1.16 | 1.13 | 1.10 | 1.17 | 1.15       | 1.15                      | 2.03 |
| 13C6-PFDA        |                          | 1.13                   | 1.06 | 0.97 | 1.06 | 0.99 | 0.99 | 0.92 | 1.02 | 0.90       | 1.01                      | 7.22 |
| 13C7-PFUnA       |                          | 1.23                   | 1.22 | 1.07 | 1.22 | 1.08 | 1.08 | 0.99 | 0.84 |            | 1.09                      | 12.2 |
| 13C2-PFDoA       |                          | 1.04                   | 0.95 | 0.90 | 0.92 | 0.94 | 0.93 | 0.89 | 0.98 | 0.91       | 0.94                      | 5.00 |
| 13C2-PFTeDA      |                          | 0.86                   | 0.85 | 0.81 | 0.83 | 0.80 | 0.77 | 0.74 | 0.94 | 1.11       | 0.86                      | 13.0 |
| 13C3-PFBS        |                          | 1.33                   | 1.36 | 1.31 | 1.41 | 1.25 | 1.29 | 1.31 | 1.00 | 0.99       | 1.25                      | 12.1 |
| 13C3-PFHxS       |                          | 1.20                   | 1.16 | 1.10 | 1.15 | 1.12 | 1.15 | 1.17 | 1.16 | 1.05       | 1.14                      | 3.86 |
| 13C8-PFOS        |                          | 0.96                   | 0.91 | 0.93 | 0.94 | 0.92 | 0.87 | 0.93 | 0.94 | 0.90       | 0.92                      | 3.08 |
| 13C2-4:2 FTS     |                          | 1.25                   | 1.08 | 1.11 | 1.04 | 1.05 | 1.03 | 1.06 | 1.14 | 1.47       | 1.14                      | 12.5 |
| 13C2-6:2 FTS     |                          | 0.98                   | 0.88 | 0.86 | 0.84 | 0.90 | 0.84 | 0.91 | 1.06 |            | 0.91                      | 8.52 |
| 13C2-8:2 FTS     |                          | 1.50                   | 1.37 | 1.48 | 1.38 | 1.53 | 1.32 | 1.40 | 1.52 |            | 1.44                      | 5.42 |
| 13C8-PFOA        |                          | 1.84                   | 1.83 | 1.86 | 1.78 | 1.80 | 1.74 | 1.82 | 2.08 |            | 1.84                      | 5.54 |
| D3-N-MeFOSA      |                          | 0.29                   | 0.28 | 0.28 | 0.27 | 0.28 | 0.27 | 0.27 | 0.32 |            | 0.28                      | 6.63 |
| D5-N-EtFOSA      |                          | 0.28                   | 0.28 | 0.28 | 0.27 | 0.28 | 0.26 | 0.27 | 0.30 | 0.33       | 0.28                      | 6.96 |
| D3-MeFOSAA       |                          | 0.96                   | 0.84 | 0.87 | 0.86 | 0.91 | 0.83 | 0.97 | 1.12 | 1.21       | 0.95                      | 13.9 |
| D5-EtFOSAA       |                          | 0.82                   | 0.76 | 0.72 | 0.74 | 0.77 | 0.70 | 0.77 | 1.00 |            | 0.78                      | 12.0 |
| d7-NMe-FOSE      |                          | 1.93                   | 1.87 | 1.80 | 1.81 | 1.86 | 1.76 | 1.81 | 1.95 | 2.09       | 1.88                      | 5.39 |
| d9-NEt-FOSE      |                          | 2.46                   | 2.39 | 2.35 | 2.36 | 2.44 | 2.27 | 2.30 | 2.52 | 2.79       | 2.43                      | 6.37 |

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

(2) For contract CV specifications, see SGS AXYS METHOD MLA-111 Rev 03.

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

Signed: \_\_\_\_\_ Henry Huang \_\_\_\_\_

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: 22-Feb-2021

Instrument ID: LC MS/MS

LC Column ID: C18

CS0 Data Filename: FC1L\_080 S: 16

CS1 Data Filename: FC1L\_080 S: 17

CS2 Data Filename: FC1L\_080 S: 18

CS3 Data Filename: FC1L\_080 S: 19

CS4 Data Filename: FC1L\_080 S: 20

CS5 Data Filename: FC1L\_080 S: 21

CS6 Data Filename: FC1L\_080 S: 22

CS7 Data Filename: FC1L\_080 S: 23

CS8 Data Filename: FC1L\_080 S: 24

| COMPOUND | LAB<br>FLAG <sup>1</sup> | RATIOS |      |      |      |      |      |      |      |      |
|----------|--------------------------|--------|------|------|------|------|------|------|------|------|
|          |                          | CS0    | CS1  | CS2  | CS3  | CS4  | CS5  | CS6  | CS7  | CS8  |
| PFBA     |                          |        |      |      |      |      |      |      |      |      |
| PFPeA    |                          |        |      |      |      |      |      |      |      |      |
| PFHxA    |                          | 4.58   | 5.38 | 6.09 | 4.84 | 4.81 | 4.94 | 4.81 | 4.64 | 4.80 |
| PFHpA    |                          | 2.19   | 2.08 | 2.00 | 2.16 | 2.04 | 1.97 | 2.06 | 2.06 | 2.02 |
| PFOA     |                          | 1.85   | 2.15 | 2.04 | 1.95 | 2.03 | 2.00 | 1.96 | 2.06 | 2.02 |
| PFNA     |                          | 2.97   | 2.96 | 2.87 | 2.85 | 2.95 | 2.94 | 2.87 | 2.87 | 2.86 |
| PFDA     |                          | 3.23   | 3.02 | 3.02 | 3.06 | 3.07 | 3.16 | 2.96 | 3.21 | 3.03 |
| PFUnA    |                          | 4.29   | 4.50 | 4.89 | 4.31 | 4.74 | 4.28 | 4.73 | 4.49 |      |
| PFDaA    |                          | 5.72   | 8.83 | 6.70 | 7.41 | 7.85 | 7.83 | 7.95 | 7.48 | 7.67 |
| PFTrDA   |                          | 3.32   | 3.58 | 2.95 | 3.08 | 3.04 | 3.14 | 3.22 | 3.02 |      |
| PFTeDA   |                          | 2.75   | 2.65 | 2.75 | 2.82 | 2.80 | 2.68 | 2.71 | 2.70 |      |
| PFBS     |                          | 2.27   | 2.65 | 2.32 | 2.59 | 2.71 | 2.59 | 2.67 | 2.60 | 2.59 |
| PFPeS    |                          | 1.83   | 2.06 | 2.39 | 2.25 | 2.35 | 2.31 | 2.27 | 2.26 | 2.33 |
| PFHxS    |                          | 2.64   | 2.36 | 2.44 | 2.39 | 2.28 | 2.34 | 2.44 | 2.32 | 2.38 |
| PFHpS    |                          | 2.08   | 1.90 | 2.00 | 2.12 | 2.08 | 2.20 | 2.08 | 2.10 | 2.08 |
| PFOS     |                          | 2.29   | 2.51 | 2.55 | 2.58 | 2.67 | 2.70 | 2.60 | 2.59 | 2.66 |
| PFNS     |                          | 2.07   | 2.08 | 2.27 | 2.36 | 2.41 | 2.26 | 2.32 | 2.18 | 2.30 |
| PFDS     |                          | 2.08   | 2.80 | 2.21 | 2.35 | 2.38 | 2.17 | 2.36 | 2.18 | 2.30 |
| PFDoS    |                          | 2.31   | 2.11 | 2.33 | 2.23 | 2.18 | 2.26 | 2.25 | 2.27 | 2.28 |
| 4:2 FTS  |                          | 0.38   | 0.41 | 0.44 | 0.43 | 0.45 | 0.46 | 0.43 | 0.45 |      |
| 6:2 FTS  |                          | 0.51   | 0.43 | 0.47 | 0.44 | 0.43 | 0.47 | 0.45 | 0.44 |      |
| 8:2 FTS  |                          | 0.58   | 0.48 | 0.55 | 0.57 | 0.53 | 0.57 | 0.54 | 0.54 |      |
| PFOSA    |                          |        |      |      |      |      |      |      |      |      |
| N-MeFOSA |                          | 0.52   | 0.55 | 0.50 | 0.54 | 0.53 | 0.53 | 0.53 | 0.53 |      |
| N-EtFOSA |                          | 0.52   | 0.56 | 0.54 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 |
| MeFOSAA  |                          | 1.88   | 2.07 | 2.11 | 1.85 | 1.98 | 2.02 | 1.98 | 1.94 | 1.94 |
| EtFOSAA  |                          | 1.85   | 1.56 | 1.58 | 1.09 | 1.16 | 1.10 | 1.15 | 1.10 |      |
| N-MeFOSE |                          |        |      |      |      |      |      |      |      |      |
| N-EtFOSE |                          |        |      |      |      |      |      |      |      |      |
| 3:3 FTCA |                          | 1.69   | 1.51 | 1.64 | 1.78 | 1.89 | 1.91 | 1.92 | 1.96 |      |
| 5:3 FTCA |                          | 0.85   | 1.08 | 1.14 | 1.21 | 1.22 | 1.24 | 1.26 | 1.31 |      |
| 7:3 FTCA |                          | 0.69   | 0.69 | 0.70 | 0.71 | 0.69 | 0.68 | 0.71 | 0.68 |      |

(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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

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: 22-Feb-2021

Instrument ID: LC MS/MS

LC Column ID: C18

CS0 Data Filename: FC1L\_080 S: 16

CS1 Data Filename: FC1L\_080 S: 17

CS2 Data Filename: FC1L\_080 S: 18

CS3 Data Filename: FC1L\_080 S: 19

CS4 Data Filename: FC1L\_080 S: 20

CS5 Data Filename: FC1L\_080 S: 21

CS6 Data Filename: FC1L\_080 S: 22

CS7 Data Filename: FC1L\_080 S: 23

CS8 Data Filename: FC1L\_080 S: 24

| LABELED COMPOUND | LAB FLAG <sup>1</sup> | RATIOS |      |      |      |      |      |      |      |      |
|------------------|-----------------------|--------|------|------|------|------|------|------|------|------|
|                  |                       | CS0    | CS1  | CS2  | CS3  | CS4  | CS5  | CS6  | CS7  | CS8  |
| 13C4-PFBA        |                       |        |      |      |      |      |      |      |      |      |
| 13C5-PFPeA       |                       |        |      |      |      |      |      |      |      |      |
| 13C5-PFHxA       |                       | 24.2   | 23.3 | 27.8 | 23.3 | 25.6 | 26.9 | 25.6 | 24.5 | 26.7 |
| 13C4-PFHpA       |                       |        |      |      |      |      |      |      |      |      |
| 13C8-PFOA        |                       |        |      |      |      |      |      |      |      |      |
| 13C9-PFNA        |                       |        |      |      |      |      |      |      |      |      |
| 13C6-PFDA        |                       |        |      |      |      |      |      |      |      |      |
| 13C7-PFUnA       |                       |        |      |      |      |      |      |      |      |      |
| 13C2-PFDoA       |                       |        |      |      |      |      |      |      |      |      |
| 13C2-PFTeDA      |                       |        |      |      |      |      |      |      |      |      |
| 13C3-PFBS        |                       | 2.57   | 2.71 | 2.73 | 2.73 | 2.72 | 2.72 | 2.79 | 2.69 | 2.85 |
| 13C3-PFHxS       |                       | 2.40   | 2.29 | 2.34 | 2.38 | 2.29 | 2.40 | 2.49 | 2.36 | 2.28 |
| 13C8-PFOS        |                       | 2.08   | 2.05 | 2.09 | 2.33 | 2.09 | 2.15 | 2.22 | 2.37 | 2.14 |
| 13C2-4:2 FTS     |                       | 1.84   | 1.90 | 1.74 | 1.62 | 1.51 | 1.55 | 1.25 | 0.54 | 0.24 |
| 13C2-6:2 FTS     |                       | 1.93   | 2.03 | 1.87 | 1.87 | 1.80 | 1.74 | 1.44 | 0.71 |      |
| 13C2-8:2 FTS     |                       | 3.89   | 3.55 | 3.84 | 3.75 | 3.20 | 3.03 | 2.50 | 1.10 |      |
| 13C8-PFOA        |                       |        |      |      |      |      |      |      |      |      |
| D3-N-MeFOA       |                       |        |      |      |      |      |      |      |      |      |
| D5-N-EtFOA       |                       |        |      |      |      |      |      |      |      |      |
| D3-MeFOA         |                       |        |      |      |      |      |      |      |      |      |
| D5-EtFOA         |                       |        |      |      |      |      |      |      |      |      |
| d7-NMe-FOE       |                       |        |      |      |      |      |      |      |      |      |
| d9-NEt-FOE       |                       |        |      |      |      |      |      |      |      |      |

(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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

## SGS AXYS METHOD MLA-111 Rev 03

## 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: 22-Feb-2021

VER Data Filename: FC2L\_012 S: 43

Instrument ID: LCMS/MS

Analysis Date: 12-Jan-2022

LC Column ID: C18

Analysis Time: 22:31:44

| COMPOUND | LAB FLAG <sup>1</sup> | RRT   | QUANT TRANSITION | RATIO | EXPECTED CONC. (ng) | CONC. FOUND (ng) | RECOVERY (%) |
|----------|-----------------------|-------|------------------|-------|---------------------|------------------|--------------|
| PFBA     |                       | 1.005 | 213 > 169        |       | 20.0                | 20.1             | 101          |
| PFPeA    |                       | 1.000 | 263 > 219        |       | 10.0                | 10.5             | 105          |
| PFHxA    |                       | 1.000 | 313 > 269        | 4.35  | 5.00                | 4.15             | 83.0         |
| PFHpA    |                       | 1.000 | 363 > 319        | 2.16  | 5.00                | 5.27             | 105          |
| PFOA     |                       | 1.001 | 413 > 369        | 1.99  | 5.00                | 4.76             | 95.1         |
| PFNA     |                       | 1.000 | 463 > 419        | 3.05  | 5.00                | 5.15             | 103          |
| PFDA     |                       | 1.000 | 513 > 469        | 2.99  | 5.00                | 4.93             | 98.6         |
| PFUnA    |                       | 1.000 | 563 > 519        | 4.75  | 5.00                | 5.50             | 110          |
| PFDoA    |                       | 1.000 | 613 > 569        | 6.96  | 5.00                | 4.92             | 98.4         |
| PFTTrDA  |                       | 0.963 | 663 > 619        | 2.93  | 5.00                | 5.17             | 103          |
| PFTeDA   |                       | 1.000 | 713 > 669        | 2.56  | 5.00                | 5.09             | 102          |
| PFBS     |                       | 1.000 | 299 > 80         | 2.93  | 5.00                | 5.19             | 104          |
| PFPeS    |                       | 0.890 | 349 > 80         | 2.36  | 5.01                | 5.57             | 111          |
| PFHxS    |                       | 1.000 | 399 > 80         | 2.43  | 5.00                | 5.26             | 105          |
| PFHpS    |                       | 0.919 | 449 > 80         | 2.03  | 5.01                | 4.84             | 96.6         |
| PFOS     |                       | 1.000 | 499 > 80         | 2.72  | 5.00                | 4.86             | 97.1         |
| PFNS     |                       | 1.047 | 549 > 80         | 2.24  | 5.01                | 4.85             | 96.8         |
| PFDS     |                       | 1.081 | 599 > 80         | 2.25  | 5.00                | 4.89             | 97.9         |
| PFDoS    |                       | 1.167 | 699 > 80         | 2.25  | 5.01                | 4.52             | 90.3         |
| 4:2 FTS  |                       | 1.000 | 327 > 307        | 0.42  | 20.0                | 18.8             | 93.9         |
| 6:2 FTS  |                       | 0.999 | 427 > 407        | 0.41  | 18.0                | 17.8             | 98.7         |
| 8:2 FTS  |                       | 0.999 | 527 > 507        | 0.55  | 20.0                | 21.3             | 107          |
| PFOSA    |                       | 1.001 | 498 > 78         |       | 5.00                | 4.97             | 99.3         |
| N-MeFOSA |                       | 1.000 | 512 > 219        | 0.51  | 5.75                | 5.84             | 102          |
| N-EtFOSA |                       | 1.001 | 526 > 219        | 0.54  | 12.5                | 12.4             | 99.4         |
| MeFOSAA  |                       | 1.000 | 570 > 419        | 1.87  | 5.00                | 4.85             | 97.0         |
| EtFOSAA  |                       | 1.001 | 584 > 419        | 1.09  | 5.00                | 4.40             | 87.9         |
| N-MeFOSE |                       | 1.002 | 616 > 59         |       | 50.0                | 52.9             | 106          |
| N-EtFOSE |                       | 1.002 | 630 > 59         |       | 37.5                | 44.6             | 119          |
| 3:3 FTCA |                       | 0.839 | 241 > 177        | 1.92  | 20.0                | 17.2             | 86.0         |
| 5:3 FTCA |                       | 1.051 | 341 > 237        | 1.36  | 125                 | 98.0             | 78.4         |
| 7:3 FTCA |                       | 1.338 | 441 > 317        | 0.68  | 125                 | 87.6             | 70.0         |

(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-111 Rev 03

## 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: 22-Feb-2021

VER Data Filename: FC2L\_012 S: 43

Instrument ID: LCMS/MS

Analysis Date: 12-Jan-2022

LC Column ID: C18

Analysis Time: 22:31:44

| LABELED COMPOUND | LAB FLAG <sup>1</sup> | RRT   | QUANT TRANSITION | RATIO | EXPECTED CONC. (ng) | CONC. FOUND (ng) | RECOVERY (%) |
|------------------|-----------------------|-------|------------------|-------|---------------------|------------------|--------------|
| 13C4-PFBA        |                       | 1.000 | 217 > 172        |       | 40.0                | 41.1             | 103          |
| 13C5-PFPeA       |                       | 0.865 | 268 > 223        |       | 20.0                | 15.3             | 76.7         |
| 13C5-PFHxA       |                       | 1.000 | 318 > 273        | 23.4  | 10.0                | 9.63             | 96.3         |
| 13C4-PFHpA       |                       | 0.897 | 367 > 322        |       | 10.0                | 10.3             | 103          |
| 13C8-PFOA        |                       | 0.999 | 421 > 376        |       | 10.0                | 9.13             | 91.3         |
| 13C9-PFNA        |                       | 1.000 | 472 > 427        |       | 5.00                | 4.75             | 95.0         |
| 13C6-PFDA        |                       | 1.000 | 519 > 474        |       | 5.00                | 5.14             | 103          |
| 13C7-PFUnA       |                       | 1.049 | 570 > 525        |       | 5.00                | 4.99             | 99.8         |
| 13C2-PFDoA       |                       | 1.083 | 615 > 570        |       | 5.00                | 4.84             | 96.8         |
| 13C2-PFTeDA      |                       | 1.160 | 715 > 670        |       | 5.00                | 4.26             | 85.2         |
| 13C3-PFBS        |                       | 0.806 | 302 > 80         | 3.03  | 10.0                | 10.6             | 106          |
| 13C3-PFHxS       |                       | 1.000 | 402 > 80         | 2.38  | 10.0                | 10.0             | 100          |
| 13C8-PFOS        |                       | 1.000 | 507 > 80         | 2.24  | 10.1                | 10.8             | 107          |
| 13C2-4:2 FTS     |                       | 0.841 | 329 > 81         | 2.54  | 20.2                | 21.4             | 106          |
| 13C2-6:2 FTS     |                       | 1.001 | 429 > 81         | 2.08  | 20.0                | 21.1             | 106          |
| 13C2-8:2 FTS     |                       | 1.268 | 529 > 81         | 3.37  | 20.0                | 17.5             | 87.6         |
| 13C8-PFOA        |                       | 1.157 | 506 > 78         |       | 10.0                | 9.84             | 98.4         |
| D3-N-MeFOSA      |                       | 1.343 | 515 > 219        |       | 10.0                | 7.85             | 78.5         |
| D5-N-EtFOSA      |                       | 1.381 | 531 > 219        |       | 10.0                | 7.72             | 77.2         |
| D3-MeFOSAA       |                       | 1.315 | 573 > 419        |       | 20.0                | 11.2             | 56.0         |
| D5-EtFOSAA       |                       | 1.341 | 589 > 419        |       | 20.0                | 12.2             | 60.9         |
| d7-NMe-FOSE      |                       | 1.326 | 623 > 59         |       | 100                 | 75.3             | 75.3         |
| d9-NEt-FOSE      |                       | 1.364 | 639 > 59         |       | 100                 | 63.1             | 63.1         |

(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: \_\_\_\_\_ Jordan Berends \_\_\_\_\_





































































### Accreditation Scope

SGS AXYS Analytical Services Ltd.  
file ref.: ACC-103 Rev. 60

| Compound Class | Compound   | Accredited Method ID | SGS AXYS Method ID | CALA | Alaska DEC | ANAB DoD ** | ANAB ISO 17025 | CALA | California WB | Florida DOH | Maine DOH | Minnesota DOH | New Jersey DEP | New York DOH | Virginia DGS | Washington DE | ANAB DoD ** | ANAB ISO 17025 | CALA | Florida DOH | Minnesota DOH | New Jersey DEP | Virginia DGS | CALA | CALA | Alaska DEC | ANAB DoD ** | ANAB ISO 17025 | California WB | Florida DOH | Maine DOH | Minnesota DOH | New Jersey DEP | New York DOH | Pennsylvania DEP | Virginia DGS | Washington DE * | ANAB DoD ** | AFFF | ANAB ISO 17025 |
|----------------|--|----------------------|--------------------|------|------------|-------------|----------------|------|---------------|-------------|-----------|---------------|----------------|--------------|--------------|---------------|-------------|----------------|------|-------------|---------------|----------------|--------------|------|------|------------|-------------|----------------|---------------|-------------|-----------|---------------|----------------|--------------|------------------|--------------|-----------------|-------------|------|----------------|
| Virginia DGS   | Virginia Department of General Services, Division of Consolidated Laboratory Services, Lab ID 460224, (NELAC Standard) |                      |                    |      |            |             |                |      |               |             |           |               |                |              |              |               |             |                |      |             |               |                |              |      |      |            |             |                |               |             |           |               |                |              |                  |              |                 |             |      |                |
| Alaska DEC     | Alaska Department of Environmental Conservation, Contaminated Sites Laboratory Approval 17-014                         |                      |                    |      |            |             |                |      |               |             |           |               |                |              |              |               |             |                |      |             |               |                |              |      |      |            |             |                |               |             |           |               |                |              |                  |              |                 |             |      |                |
| Maine DOH      | Maine Center for Disease Control and Prevention, Department of Health and Human Services, Lab ID CN00003               |                      |                    |      |            |             |                |      |               |             |           |               |                |              |              |               |             |                |      |             |               |                |              |      |      |            |             |                |               |             |           |               |                |              |                  |              |                 |             |      |                |

ANAB DoD ANSI National Accreditation Board, certificate ADE-1861, (US DoD QSM 5.3 Standard)



CALA Canadian Association for Laboratory Accreditation Inc., Lab ID A2637, (ISO/IEC 17025:2017 Standard)



**CALA**  
Testing  
Accreditation No. **A2637**