

SGS

AXYS

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SGS AXYS Client No.: 4972

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The SGS AXYS contact for these data is Sean Campbell.

Page 2 of 103

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.
PDI-RB-XD-180820
Sample Collection:
20-Aug-2018 15:43

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29924-1
Sample Receipt Date:	22-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 00:36:06	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 17
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg/sample	Cal. Ver. Data Filename:	DX8M_125A S: 11

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 ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDD	U		0.928 (S)		
1,2,3,7,8-PECDD ⁴	U		1.18 (S)		
1,2,3,4,7,8-HXCDD	U		1.42 (S)		
1,2,3,6,7,8-HXCDD	U		1.44 (S)		
1,2,3,7,8,9-HXCDD	U		1.42 (S)		
1,2,3,4,6,7,8-HPCDD	U		1.63 (S)		
OCDD	J	3.68	0.878 (Q)	0.85	1.000
2,3,7,8-TCDF	U		0.878 (Q)		
1,2,3,7,8-PECDF	K J	1.49	0.878 (Q)	2.40	1.002
2,3,4,7,8-PECDF	U		0.878 (Q)		
1,2,3,4,7,8-HXCDF	U		0.878 (Q)		
1,2,3,6,7,8-HXCDF	K J	1.06	0.878 (Q)	0.32	1.001
1,2,3,7,8,9-HXCDF	U		0.878 (Q)		
2,3,4,6,7,8-HXCDF	U		0.878 (Q)		
1,2,3,4,6,7,8-HPCDF	U		0.878 (Q)		
1,2,3,4,7,8,9-HPCDF	U		0.878 (Q)		
OCDF	U		0.878 (Q)		

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Matthew Ou _____

For Axy Internal Use Only [XSL Template: Form1A.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29924-1_Form1A_DX8M_125AS17_SJ2453688.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 2
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-RB-XD-180820
Sample Collection:
20-Aug-2018 15:43

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29924-1
Sample Receipt Date:	22-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 00:36:06	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 17
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg absolute	Cal. Ver. Data Filename:	DX8M_125A S: 11

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 ¹	SPIKE CONC.	CONC. FOUND	R(%) ²	ION ABUND. RATIO ³	RRT ³
13C-2,3,7,8-TCDD		4000	2690	67.2	0.79	1.013
13C-1,2,3,7,8-PECDD ⁴		4000	3100	77.6	0.61	1.381
13C-1,2,3,4,7,8-HXCDD		4000	2640	65.9	1.24	0.987
13C-1,2,3,6,7,8-HXCDD		4000	3140	78.6	1.28	0.990
13C-1,2,3,4,6,7,8-HPCDD		4000	2410	60.2	1.10	1.094
13C-OCDD		8000	3600	45.0	0.94	1.178
13C-2,3,7,8-TCDF		4000	2450	61.2	0.80	0.966
13C-1,2,3,7,8-PECDF		4000	2780	69.5	1.57	1.283
13C-2,3,4,7,8-PECDF		4000	2780	69.6	1.55	1.350
13C-1,2,3,4,7,8-HXCDF		4000	2480	62.0	0.51	0.954
13C-1,2,3,6,7,8-HXCDF		4000	2740	68.4	0.54	0.958
13C-1,2,3,7,8,9-HXCDF		4000	2490	62.3	0.51	1.005
13C-2,3,4,6,7,8-HXCDF		4000	2680	67.0	0.50	0.981
13C-1,2,3,4,6,7,8-HPCDF		4000	2400	60.0	0.46	1.062
13C-1,2,3,4,7,8,9-HPCDF		4000	2210	55.3	0.46	1.104

CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	141	70.4		1.002
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(1) Where applicable, custom lab flags have been used on this report.

(2) Contract-required limits for percent recovery (R) are specified in Section 9.3.3, Method 1613.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613. NOTE: There is no ion abundance ratio for 37Cl4-2,3,7,8-TCDD

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form2.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29924-1_Form2_DX8M_125AS17_SJ2453688.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1B

PCDD/PCDF CLIENT STANDARD ANALYSIS REPORT

CLIENT SAMPLE NO.

PDI-RB-XD-180820

Sample Collection:

20-Aug-2018 15:43

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4972

Matrix: XAD

Sample Receipt Date: 22-Aug-2018

Extraction Date: 09-Oct-2018

Analysis Date: 23-Oct-2018 Time: 00:36:06

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/sample

Project No.

Lab Sample I.D.:

Sample Size:

Initial Calibration Date:

Instrument ID:

GC Column ID:

Sample Data Filename:

Blank Data Filename:

Cal. Ver. Data Filename:

PORTLAND HARBOR PDI AND
BASELINE WATER

L29924-1

1 sample

22-Oct-2018

HR GC/MS

DB5

DX8M_125A S: 17

DX8M_125A S: 15

N/A

CLIENT STANDARD	SPIKE CONC.	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	R(%)	ION ABUND. RATIO ³	RRT ³
13C6-1,2,3,4-TCDD	500		466	1.33 (S)	93.3	0.80	0.988

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

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form1B.xsl; Created: 29-Oct-2018 16:29:42; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DXCS_L29924-1_Form1B_SJ2453712.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T04-1808
Sample Collection:
23-Aug-2018 10:08

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-1
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 01:31:20	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 18
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg/sample	Cal. Ver. Data Filename:	DX8M_125A S: 11

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDD	U		0.852 (Q)		
1,2,3,7,8-PECDD ⁴	U		0.852 (Q)		
1,2,3,4,7,8-HXCDD	U		0.874 (S)		
1,2,3,6,7,8-HXCDD	K J	1.33	0.903 (S)	0.84	1.000
1,2,3,7,8,9-HXCDD	U		0.884 (S)		
1,2,3,4,6,7,8-HPCDD	J	13.6	0.978 (S)	1.11	1.000
OCDD		182	3.99 (S)	0.85	1.000
2,3,7,8-TCDF		8.93	1.22 (S)	0.79	1.001
1,2,3,7,8-PECDF	K J	2.12	0.852 (Q)	2.08	1.001
2,3,4,7,8-PECDF	J	1.51	0.852 (Q)	1.70	1.001
1,2,3,4,7,8-HXCDF	J	3.27	0.852 (Q)	1.15	1.000
1,2,3,6,7,8-HXCDF	U		0.852 (Q)		
1,2,3,7,8,9-HXCDF	U		0.852 (Q)		
2,3,4,6,7,8-HXCDF	U		0.852 (Q)		
1,2,3,4,6,7,8-HPCDF	K J	2.96	0.852 (Q)	1.57	1.000
1,2,3,4,7,8,9-HPCDF	U		0.852 (Q)		
OCDF	J	5.92	0.852 (Q)	0.78	1.002

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Matthew Ou _____

For Axys Internal Use Only [XSL Template: Form1A.xsl; Created: 16-Nov-2018 13:52:23; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29988-1_Form1A_DX8M_125AS18_SJ2453689.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 2
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T04-1808
Sample Collection:
23-Aug-2018 10:08

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-1
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 01:31:20	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 18
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg absolute	Cal. Ver. Data Filename:	DX8M_125A S: 11

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 ¹	SPIKE CONC.	CONC. FOUND	R(%) ²	ION ABUND. RATIO ³	RRT ³
13C-2,3,7,8-TCDD		4000	3020	75.4	0.78	1.013
13C-1,2,3,7,8-PECDD ⁴		4000	3560	89.0	0.64	1.382
13C-1,2,3,4,7,8-HXCDD		4000	3150	78.8	1.26	0.987
13C-1,2,3,6,7,8-HXCDD		4000	3630	90.8	1.30	0.990
13C-1,2,3,4,6,7,8-HPCDD		4000	2940	73.5	1.07	1.094
13C-OCDD		8000	4290	53.6	0.87	1.178
13C-2,3,7,8-TCDF		4000	2600	65.1	0.78	0.966
13C-1,2,3,7,8-PECDF		4000	3110	77.6	1.55	1.283
13C-2,3,4,7,8-PECDF		4000	3130	78.1	1.56	1.350
13C-1,2,3,4,7,8-HXCDF		4000	2930	73.3	0.52	0.954
13C-1,2,3,6,7,8-HXCDF		4000	3350	83.7	0.52	0.958
13C-1,2,3,7,8,9-HXCDF		4000	2720	68.1	0.51	1.004
13C-2,3,4,6,7,8-HXCDF		4000	3090	77.4	0.53	0.980
13C-1,2,3,4,6,7,8-HPCDF		4000	2840	71.1	0.44	1.062
13C-1,2,3,4,7,8,9-HPCDF		4000	2560	64.1	0.47	1.104

CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	148	74.0		1.001
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(1) Where applicable, custom lab flags have been used on this report.

(2) Contract-required limits for percent recovery (R) are specified in Section 9.3.3, Method 1613.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613. NOTE: There is no ion abundance ratio for 37Cl4-2,3,7,8-TCDD

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form2.xsl; Created: 16-Nov-2018 13:52:23; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29988-1_Form2_DX8M_125AS18_SJ2453689.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T04-1808
Sample Collection:
23-Aug-2018 10:08

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4972

Matrix: XAD

Sample Receipt Date: 29-Aug-2018

Extraction Date: 09-Oct-2018

Analysis Date: 23-Oct-2018 Time: 12:26:26

Extract Volume (uL): 20

Injection Volume (uL): 2.0

Dilution Factor: N/A

Concentration Units: pg/sample

Project No.

Lab Sample I.D.:

Sample Size:

Initial Calibration Date:

Instrument ID:

GC Column ID:

Sample Data Filename:

Blank Data Filename:

Cal. Ver. Data Filename:

PORTLAND HARBOR PDI AND
BASELINE WATER
L29988-1

1 sample

10-Jul-2018

HR GC/MS

DB225

DB83_182 S: 8

DX8M_125A S: 15

DB83_182 S: 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 ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDF		5.79	0.852 (Q)	0.67	1.002

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

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____ Matthew Ou _____

For Axy Internal Use Only [XSL Template: Form1A.xsl; Created: 16-Nov-2018 13:53:56; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB225_L29988-1_Form1A_DB83_182S8_SJ2453743.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1B

PCDD/PCDF CLIENT STANDARD ANALYSIS REPORT

CLIENT SAMPLE NO.

PDI-WS-T04-1808

Sample Collection:

23-Aug-2018 10:08

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4972

Matrix: XAD

Sample Receipt Date: 29-Aug-2018

Extraction Date: 09-Oct-2018

Analysis Date: 23-Oct-2018 Time: 01:31:20

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/sample

Project No.

Lab Sample I.D.:

Sample Size:

Initial Calibration Date:

Instrument ID:

GC Column ID:

Sample Data Filename:

Blank Data Filename:

Cal. Ver. Data Filename:

PORTLAND HARBOR PDI AND
BASELINE WATER

L29988-1

1 sample

22-Oct-2018

HR GC/MS

DB5

DX8M_125A S: 18

DX8M_125A S: 15

N/A

CLIENT STANDARD	SPIKE CONC.	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	R(%)	ION ABUND. RATIO ³	RRT ³
13C6-1,2,3,4-TCDD	500		518	1.14 (S)	104	0.81	0.988

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

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form1B.xsl; Created: 16-Nov-2018 13:54:50; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DXCS_L29988-1_Form1B_SJ2453713.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T02-1808
Sample Collection:
24-Aug-2018 12:22

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-2
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 02:26:33	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 19
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg/sample	Cal. Ver. Data Filename:	DX8M_125A S: 11

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 ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDD	U		1.00 (S)		
1,2,3,7,8-PECDD ⁴	U		0.854 (Q)		
1,2,3,4,7,8-HXCDD	U		1.62 (S)		
1,2,3,6,7,8-HXCDD	U		1.58 (S)		
1,2,3,7,8,9-HXCDD	U		1.59 (S)		
1,2,3,4,6,7,8-HPCDD	K J	12.7	2.07 (S)	1.42	1.001
OCDD		265	4.50 (S)	0.83	1.000
2,3,7,8-TCDF	K J	2.14	0.854 (Q)	0.42	1.001
1,2,3,7,8-PECDF	U		0.854 (Q)		
2,3,4,7,8-PECDF	U		0.854 (Q)		
1,2,3,4,7,8-HXCDF	U		0.854 (Q)		
1,2,3,6,7,8-HXCDF	U		0.854 (Q)		
1,2,3,7,8,9-HXCDF	U		0.854 (Q)		
2,3,4,6,7,8-HXCDF	U		0.854 (Q)		
1,2,3,4,6,7,8-HPCDF	K J	1.47	0.854 (Q)	0.77	1.000
1,2,3,4,7,8,9-HPCDF	U		0.854 (Q)		
OCDF	J	2.92	0.854 (Q)	1.01	1.002

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Matthew Ou _____

For Axy Internal Use Only [XSL Template: Form1A.xsl; Created: 16-Nov-2018 13:52:23; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29988-2_Form1A_DX8M_125AS19_SJ2453690.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 2
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.
PDI-WS-T02-1808
Sample Collection:
24-Aug-2018 12:22

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-2
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 02:26:33	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 19
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg absolute	Cal. Ver. Data Filename:	DX8M_125A S: 11

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 ¹	SPIKE CONC.	CONC. FOUND	R(%) ²	ION ABUND. RATIO ³	RRT ³
13C-2,3,7,8-TCDD		4000	2550	63.7	0.76	1.013
13C-1,2,3,7,8-PECDD ⁴		4000	1780	44.5	0.65	1.382
13C-1,2,3,4,7,8-HXCDD		4000	1620	40.4	1.26	0.987
13C-1,2,3,6,7,8-HXCDD		4000	1960	48.9	1.23	0.990
13C-1,2,3,4,6,7,8-HPCDD		4000	1860	46.5	1.07	1.094
13C-OCDD		8000	2480	31.1	0.97	1.178
13C-2,3,7,8-TCDF		4000	1710	42.7	0.79	0.966
13C-1,2,3,7,8-PECDF		4000	1760	44.0	1.58	1.283
13C-2,3,4,7,8-PECDF		4000	1590	39.7	1.53	1.350
13C-1,2,3,4,7,8-HXCDF		4000	1440	35.9	0.51	0.954
13C-1,2,3,6,7,8-HXCDF		4000	1620	40.5	0.51	0.958
13C-1,2,3,7,8,9-HXCDF		4000	1940	48.5	0.55	1.004
13C-2,3,4,6,7,8-HXCDF		4000	1700	42.4	0.53	0.981
13C-1,2,3,4,6,7,8-HPCDF		4000	1320	33.1	0.44	1.062
13C-1,2,3,4,7,8,9-HPCDF		4000	1580	39.4	0.42	1.104

CLEANUP STANDARD

37CL-2,3,7,8-TCDD	200	127	63.3	1.001
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(1) Where applicable, custom lab flags have been used on this report.

(2) Contract-required limits for percent recovery (R) are specified in Section 9.3.3, Method 1613.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613. NOTE: There is no ion abundance ratio for 37Cl4-2,3,7,8-TCDD

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ **Matthew Ou** _____

For Axys Internal Use Only [XSL Template: Form2.xsl; Created: 16-Nov-2018 13:52:23; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29988-2_Form2_DX8M_125AS19_SJ2453690.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T02-1808
Sample Collection:
24-Aug-2018 12:22

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-2
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	10-Jul-2018
Analysis Date:	23-Oct-2018 Time: 13:07:42	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB225
Injection Volume (uL):	2.0	Sample Data Filename:	DB83_182 S: 9
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg/sample	Cal. Ver. Data Filename:	DB83_182 S: 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 ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDF	J	2.45	0.854 (Q)	0.67	1.001

- (1) Where applicable, custom lab flags have been used on this report; J = concentration less than lowest calibration equivalent.
 (2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.
 (3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____ Matthew Ou _____

For Axy Internal Use Only [XSL Template: Form1A.xsl; Created: 16-Nov-2018 13:53:56; Application: XMLTransformer-1.16.51;
 Report Filename: 1613_DIOXINS_1613DB225_L29988-2_Form1A_DB83_182S9_SJ2453744.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1B

PCDD/PCDF CLIENT STANDARD ANALYSIS REPORT

CLIENT SAMPLE NO.

PDI-WS-T02-1808

Sample Collection:

24-Aug-2018 12:22

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4972

Matrix: XAD

Sample Receipt Date: 29-Aug-2018

Extraction Date: 09-Oct-2018

Analysis Date: 23-Oct-2018 Time: 02:26:33

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/sample

Project No.

Lab Sample I.D.:

Sample Size:

Initial Calibration Date:

Instrument ID:

GC Column ID:

Sample Data Filename:

Blank Data Filename:

Cal. Ver. Data Filename:

PORTLAND HARBOR PDI AND
BASELINE WATER

L29988-2

1 sample

22-Oct-2018

HR GC/MS

DB5

DX8M_125A S: 19

DX8M_125A S: 15

N/A

CLIENT STANDARD	SPIKE CONC.	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	R(%)	ION ABUND. RATIO ³	RRT ³
13C6-1,2,3,4-TCDD	500		239	2.04 (S)	47.8	0.83	0.988

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

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form1B.xsl; Created: 16-Nov-2018 13:54:50; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DXCS_L29988-2_Form1B_SJ2453714.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T05-1808
Sample Collection:
21-Aug-2018 20:28

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-3
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 03:21:52	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 20
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg/sample	Cal. Ver. Data Filename:	DX8M_125A S: 11

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 ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDD	J	0.902	0.855 (Q)	0.85	1.001
1,2,3,7,8-PECDD ⁴	U		0.855 (Q)		
1,2,3,4,7,8-HXCDD	U		0.855 (Q)		
1,2,3,6,7,8-HXCDD	U		0.855 (Q)		
1,2,3,7,8,9-HXCDD	U		0.855 (Q)		
1,2,3,4,6,7,8-HPCDD	J	3.47	1.50 (S)	1.14	1.000
OCDD		45.1	2.42 (S)	0.93	1.000
2,3,7,8-TCDF	K J	2.24	1.04 (S)	1.33	1.000
1,2,3,7,8-PECDF	U		0.855 (Q)		
2,3,4,7,8-PECDF	U		0.855 (Q)		
1,2,3,4,7,8-HXCDF	U		0.855 (Q)		
1,2,3,6,7,8-HXCDF	U		0.855 (Q)		
1,2,3,7,8,9-HXCDF	U		0.855 (Q)		
2,3,4,6,7,8-HXCDF	U		0.855 (Q)		
1,2,3,4,6,7,8-HPCDF	J	0.965	0.855 (Q)	0.90	1.001
1,2,3,4,7,8,9-HPCDF	U		0.855 (Q)		
OCDF	K J	1.41	0.927 (S)	1.56	1.002

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Matthew Ou _____

For Axy Internal Use Only [XSL Template: Form1A.xsl; Created: 16-Nov-2018 13:52:23; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29988-3_Form1A_DX8M_125AS20_SJ2453691.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 2
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T05-1808
Sample Collection:
21-Aug-2018 20:28

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-3
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 03:21:52	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 20
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg absolute	Cal. Ver. Data Filename:	DX8M_125A S: 11

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 ¹	SPIKE CONC.	CONC. FOUND	R(%) ²	ION ABUND. RATIO ³	RRT ³
13C-2,3,7,8-TCDD		4000	2930	73.2	0.83	1.013
13C-1,2,3,7,8-PECDD ⁴		4000	3590	89.9	0.64	1.382
13C-1,2,3,4,7,8-HXCDD		4000	3190	79.9	1.29	0.987
13C-1,2,3,6,7,8-HXCDD		4000	3900	97.5	1.23	0.990
13C-1,2,3,4,6,7,8-HPCDD		4000	2860	71.4	1.08	1.094
13C-OCDD		8000	4430	55.4	0.87	1.178
13C-2,3,7,8-TCDF		4000	2630	65.9	0.78	0.966
13C-1,2,3,7,8-PECDF		4000	3190	79.7	1.54	1.283
13C-2,3,4,7,8-PECDF		4000	3140	78.5	1.54	1.350
13C-1,2,3,4,7,8-HXCDF		4000	2930	73.3	0.53	0.954
13C-1,2,3,6,7,8-HXCDF		4000	3180	79.5	0.55	0.958
13C-1,2,3,7,8,9-HXCDF		4000	2760	69.0	0.49	1.004
13C-2,3,4,6,7,8-HXCDF		4000	3120	77.9	0.51	0.981
13C-1,2,3,4,6,7,8-HPCDF		4000	2700	67.5	0.46	1.062
13C-1,2,3,4,7,8,9-HPCDF		4000	2580	64.6	0.41	1.104

CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	152	75.9		1.001
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(1) Where applicable, custom lab flags have been used on this report.

(2) Contract-required limits for percent recovery (R) are specified in Section 9.3.3, Method 1613.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613. NOTE: There is no ion abundance ratio for 37Cl4-2,3,7,8-TCDD

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form2.xsl; Created: 16-Nov-2018 13:52:23; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29988-3_Form2_DX8M_125AS20_SJ2453691.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T05-1808
Sample Collection:
21-Aug-2018 20:28

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-3
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	10-Jul-2018
Analysis Date:	23-Oct-2018 Time: 13:48:58	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB225
Injection Volume (uL):	2.0	Sample Data Filename:	DB83_182 S: 10
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg/sample	Cal. Ver. Data Filename:	DB83_182 S: 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 ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDF	K J	0.873	0.855 (Q)	0.47	1.002

(1) Where applicable, custom lab flags have been used on this report; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____ Matthew Ou _____

For Axs Internal Use Only [XSL Template: Form1A.xsl; Created: 16-Nov-2018 13:53:56; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB225_L29988-3_Form1A_DB83_182S10_SJ2453745.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1B

PCDD/PCDF CLIENT STANDARD ANALYSIS REPORT

CLIENT SAMPLE NO.

PDI-WS-T05-1808

Sample Collection:

21-Aug-2018 20:28

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4972

Matrix: XAD

Sample Receipt Date: 29-Aug-2018

Extraction Date: 09-Oct-2018

Analysis Date: 23-Oct-2018 Time: 03:21:52

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/sample

Project No.

Lab Sample I.D.:

Sample Size:

Initial Calibration Date:

Instrument ID:

GC Column ID:

Sample Data Filename:

Blank Data Filename:

Cal. Ver. Data Filename:

PORTLAND HARBOR PDI AND
BASELINE WATER

L29988-3

1 sample

22-Oct-2018

HR GC/MS

DB5

DX8M_125A S: 20

DX8M_125A S: 15

N/A

CLIENT STANDARD	SPIKE CONC.	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	R(%)	ION ABUND. RATIO ³	RRT ³
13C6-1,2,3,4-TCDD	500		512	1.58 (S)	102	0.80	0.988

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

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form1B.xsl; Created: 16-Nov-2018 13:54:50; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DXCS_L29988-3_Form1B_SJ2453715.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T07-1808
Sample Collection:
23-Aug-2018 18:20

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-4
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 04:17:05	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 21
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg/sample	Cal. Ver. Data Filename:	DX8M_125A S: 11

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 ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDD	U		0.860 (Q)		
1,2,3,7,8-PECDD ⁴	U		0.872 (S)		
1,2,3,4,7,8-HXCDD	U		0.860 (Q)		
1,2,3,6,7,8-HXCDD	U		0.860 (Q)		
1,2,3,7,8,9-HXCDD	U		0.860 (Q)		
1,2,3,4,6,7,8-HPCDD	K J	3.54	0.860 (Q)	1.42	1.000
OCDD	J	26.8	1.97 (S)	0.84	1.000
2,3,7,8-TCDF	K J	1.47	0.941 (S)	1.38	1.002
1,2,3,7,8-PECDF	U		0.860 (Q)		
2,3,4,7,8-PECDF	U		0.860 (Q)		
1,2,3,4,7,8-HXCDF	U		0.860 (Q)		
1,2,3,6,7,8-HXCDF	U		0.860 (Q)		
1,2,3,7,8,9-HXCDF	U		0.860 (Q)		
2,3,4,6,7,8-HXCDF	U		0.860 (Q)		
1,2,3,4,6,7,8-HPCDF	U		0.860 (Q)		
1,2,3,4,7,8,9-HPCDF	U		0.860 (Q)		
OCDF	K J	1.29	0.860 (Q)	1.09	1.002

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Matthew Ou _____

For Axys Internal Use Only [XSL Template: Form1A.xsl; Created: 16-Nov-2018 13:52:23; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29988-4_Form1A_DX8M_125AS21_SJ2453692.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 2
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T07-1808
Sample Collection:
23-Aug-2018 18:20

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-4
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 04:17:05	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 21
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg absolute	Cal. Ver. Data Filename:	DX8M_125A S: 11

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 ¹	SPIKE CONC.	CONC. FOUND	R(%) ²	ION ABUND. RATIO ³	RRT ³
13C-2,3,7,8-TCDD		4000	3220	80.6	0.76	1.013
13C-1,2,3,7,8-PECDD ⁴		4000	3790	94.6	0.63	1.382
13C-1,2,3,4,7,8-HXCDD		4000	3410	85.3	1.28	0.987
13C-1,2,3,6,7,8-HXCDD		4000	4030	101	1.26	0.990
13C-1,2,3,4,6,7,8-HPCDD		4000	3200	80.0	1.00	1.095
13C-OCDD		8000	4910	61.4	0.89	1.179
13C-2,3,7,8-TCDF		4000	2840	71.1	0.76	0.966
13C-1,2,3,7,8-PECDF		4000	3580	89.4	1.53	1.283
13C-2,3,4,7,8-PECDF		4000	3460	86.6	1.58	1.351
13C-1,2,3,4,7,8-HXCDF		4000	3080	76.9	0.52	0.954
13C-1,2,3,6,7,8-HXCDF		4000	3520	88.0	0.51	0.958
13C-1,2,3,7,8,9-HXCDF		4000	3080	77.1	0.52	1.005
13C-2,3,4,6,7,8-HXCDF		4000	3300	82.6	0.52	0.981
13C-1,2,3,4,6,7,8-HPCDF		4000	3070	76.8	0.43	1.062
13C-1,2,3,4,7,8,9-HPCDF		4000	2920	73.1	0.45	1.104

CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	154	77.2		1.001
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(1) Where applicable, custom lab flags have been used on this report.

(2) Contract-required limits for percent recovery (R) are specified in Section 9.3.3, Method 1613.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613. NOTE: There is no ion abundance ratio for 37Cl4-2,3,7,8-TCDD

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form2.xsl; Created: 16-Nov-2018 13:52:23; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29988-4_Form2_DX8M_125AS21_SJ2453692.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T07-1808
Sample Collection:
23-Aug-2018 18:20

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-4
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	10-Jul-2018
Analysis Date:	23-Oct-2018 Time: 14:30:09	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB225
Injection Volume (uL):	2.0	Sample Data Filename:	DB83_182 S: 11
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg/sample	Cal. Ver. Data Filename:	DB83_182 S: 3

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDF	U		0.860 (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.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____Matthew Ou_____

For Axy Internal Use Only [XSL Template: Form1A.xsl; Created: 16-Nov-2018 13:53:56; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB225_L29988-4_Form1A_DB83_182S11_SJ2453746.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1B

PCDD/PCDF CLIENT STANDARD ANALYSIS REPORT

CLIENT SAMPLE NO.

PDI-WS-T07-1808

Sample Collection:

23-Aug-2018 18:20

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4972

Matrix: XAD

Sample Receipt Date: 29-Aug-2018

Extraction Date: 09-Oct-2018

Analysis Date: 23-Oct-2018 Time: 04:17:05

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/sample

Project No.

Lab Sample I.D.:

Sample Size:

Initial Calibration Date:

Instrument ID:

GC Column ID:

Sample Data Filename:

Blank Data Filename:

Cal. Ver. Data Filename:

PORTLAND HARBOR PDI AND
BASELINE WATER

L29988-4

1 sample

22-Oct-2018

HR GC/MS

DB5

DX8M_125A S: 21

DX8M_125A S: 15

N/A

CLIENT STANDARD	SPIKE CONC.	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	R(%)	ION ABUND. RATIO ³	RRT ³
13C6-1,2,3,4-TCDD	500		513	1.63 (S)	103	0.75	0.988

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

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form1B.xsl; Created: 16-Nov-2018 13:54:50; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DXCS_L29988-4_Form1B_SJ2453716.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T03-1808
Sample Collection:
22-Aug-2018 17:55

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-5
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 05:12:20	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 22
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg/sample	Cal. Ver. Data Filename:	DX8M_125A S: 11

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 ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDD	K J	1.05	0.862 (Q)	0.24	1.001
1,2,3,7,8-PECDD ⁴	U		0.862 (Q)		
1,2,3,4,7,8-HXCDD	U		1.05 (S)		
1,2,3,6,7,8-HXCDD	U		1.06 (S)		
1,2,3,7,8,9-HXCDD	U		1.05 (S)		
1,2,3,4,6,7,8-HPCDD	J	12.8	0.862 (Q)	1.19	1.000
OCDD		189	3.10 (S)	0.93	1.000
2,3,7,8-TCDF		4.03	1.02 (S)	0.67	1.001
1,2,3,7,8-PECDF	U		0.862 (Q)		
2,3,4,7,8-PECDF	U		0.862 (Q)		
1,2,3,4,7,8-HXCDF	U		0.862 (Q)		
1,2,3,6,7,8-HXCDF	U		0.862 (Q)		
1,2,3,7,8,9-HXCDF	U		0.862 (Q)		
2,3,4,6,7,8-HXCDF	U		0.862 (Q)		
1,2,3,4,6,7,8-HPCDF	K J	1.38	0.862 (Q)	1.38	1.000
1,2,3,4,7,8,9-HPCDF	U		0.862 (Q)		
OCDF	J	2.53	0.862 (Q)	0.79	1.002

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Matthew Ou _____

For Axys Internal Use Only [XSL Template: Form1A.xsl; Created: 16-Nov-2018 13:52:23; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29988-5_Form1A_DX8M_125AS22_SJ2453693.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 2
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T03-1808
Sample Collection:
22-Aug-2018 17:55

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-5
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 05:12:20	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 22
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg absolute	Cal. Ver. Data Filename:	DX8M_125A S: 11

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 ¹	SPIKE CONC.	CONC. FOUND	R(%) ²	ION ABUND. RATIO ³	RRT ³
13C-2,3,7,8-TCDD		4000	3090	77.3	0.79	1.013
13C-1,2,3,7,8-PECDD ⁴		4000	3650	91.1	0.63	1.382
13C-1,2,3,4,7,8-HXCDD		4000	3480	87.0	1.28	0.987
13C-1,2,3,6,7,8-HXCDD		4000	4010	100	1.31	0.990
13C-1,2,3,4,6,7,8-HPCDD		4000	3180	79.5	1.05	1.094
13C-OCDD		8000	4770	59.7	0.90	1.178
13C-2,3,7,8-TCDF		4000	2890	72.2	0.77	0.966
13C-1,2,3,7,8-PECDF		4000	3290	82.2	1.52	1.283
13C-2,3,4,7,8-PECDF		4000	3250	81.2	1.57	1.350
13C-1,2,3,4,7,8-HXCDF		4000	3230	80.8	0.51	0.954
13C-1,2,3,6,7,8-HXCDF		4000	3500	87.4	0.55	0.958
13C-1,2,3,7,8,9-HXCDF		4000	3040	76.1	0.51	1.004
13C-2,3,4,6,7,8-HXCDF		4000	3350	83.7	0.52	0.980
13C-1,2,3,4,6,7,8-HPCDF		4000	3040	75.9	0.46	1.062
13C-1,2,3,4,7,8,9-HPCDF		4000	2850	71.4	0.45	1.104

CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	144	72.0		1.001
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(1) Where applicable, custom lab flags have been used on this report.

(2) Contract-required limits for percent recovery (R) are specified in Section 9.3.3, Method 1613.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613. NOTE: There is no ion abundance ratio for 37Cl4-2,3,7,8-TCDD

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form2.xsl; Created: 16-Nov-2018 13:52:23; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29988-5_Form2_DX8M_125AS22_SJ2453693.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T03-1808
Sample Collection:
22-Aug-2018 17:55

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4972

Matrix: XAD

Sample Receipt Date: 29-Aug-2018

Extraction Date: 09-Oct-2018

Analysis Date: 23-Oct-2018 Time: 15:11:26

Extract Volume (uL): 20

Injection Volume (uL): 2.0

Dilution Factor: N/A

Concentration Units: pg/sample

Project No.

Lab Sample I.D.:

Sample Size:

Initial Calibration Date:

Instrument ID:

GC Column ID:

Sample Data Filename:

Blank Data Filename:

Cal. Ver. Data Filename:

PORTLAND HARBOR PDI AND
BASELINE WATER
L29988-5

1 sample

10-Jul-2018

HR GC/MS

DB225

DB83_182 S: 12

DX8M_125A S: 15

DB83_182 S: 3

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	LAB FLAG ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDF	J	3.24	0.862 (Q)	0.88	1.001

(1) Where applicable, custom lab flags have been used on this report; J = concentration less than lowest calibration equivalent.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____ Matthew Ou _____

For Axy Internal Use Only [XSL Template: Form1A.xsl; Created: 16-Nov-2018 13:53:56; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB225_L29988-5_Form1A_DB83_182S12_SJ2453747.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1B

PCDD/PCDF CLIENT STANDARD ANALYSIS REPORT

CLIENT SAMPLE NO.

PDI-WS-T03-1808

Sample Collection:

22-Aug-2018 17:55

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4972

Matrix: XAD

Sample Receipt Date: 29-Aug-2018

Extraction Date: 09-Oct-2018

Analysis Date: 23-Oct-2018 Time: 05:12:20

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/sample

Project No.

Lab Sample I.D.:

Sample Size:

Initial Calibration Date:

Instrument ID:

GC Column ID:

Sample Data Filename:

Blank Data Filename:

Cal. Ver. Data Filename:

PORTLAND HARBOR PDI AND
BASELINE WATER

L29988-5

1 sample

22-Oct-2018

HR GC/MS

DB5

DX8M_125A S: 22

DX8M_125A S: 15

N/A

CLIENT STANDARD	SPIKE CONC.	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	R(%)	ION ABUND. RATIO ³	RRT ³
13C6-1,2,3,4-TCDD	500		500	0.460 (S)	100	0.74	0.988

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

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form1B.xsl; Created: 16-Nov-2018 13:54:50; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DXCS_L29988-5_Form1B_SJ2453717.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.
PDI-WS-T01-1808
Sample Collection:
25-Aug-2018 12:02

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-6
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 09:38:44	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 27
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg/sample	Cal. Ver. Data Filename:	DX8M_125A S: 23

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 ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDD	U		0.866 (Q)		
1,2,3,7,8-PECDD ⁴	U		0.866 (Q)		
1,2,3,4,7,8-HXCDD	U		0.866 (Q)		
1,2,3,6,7,8-HXCDD	K J	1.22	0.866 (Q)	0.93	1.000
1,2,3,7,8,9-HXCDD	U		0.866 (Q)		
1,2,3,4,6,7,8-HPCDD	J	15.1	0.999 (S)	1.13	1.000
OCDD		135	3.65 (S)	0.89	1.000
2,3,7,8-TCDF	K	7.32	0.866 (Q)	0.60	1.001
1,2,3,7,8-PECDF	K J	3.02	0.866 (Q)	1.16	1.000
2,3,4,7,8-PECDF	K J	1.00	0.866 (Q)	2.30	1.001
1,2,3,4,7,8-HXCDF	J	1.57	0.866 (Q)	1.37	1.001
1,2,3,6,7,8-HXCDF	U		0.866 (Q)		
1,2,3,7,8,9-HXCDF	U		0.866 (Q)		
2,3,4,6,7,8-HXCDF	U		0.866 (Q)		
1,2,3,4,6,7,8-HPCDF	K J	2.05	0.866 (Q)	0.64	1.000
1,2,3,4,7,8,9-HPCDF	U		1.06 (S)		
OCDF	J	4.30	4.13 (S)	0.79	1.002

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ **Matthew Ou** _____

For Axys Internal Use Only [XSL Template: Form1A.xsl; Created: 16-Nov-2018 13:52:23; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29988-6_Form1A_DX8M_125AS27_SJ2453698.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 2
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T01-1808
Sample Collection:
25-Aug-2018 12:02

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-6
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 09:38:44	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 27
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg absolute	Cal. Ver. Data Filename:	DX8M_125A S: 23

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 ¹	SPIKE CONC.	CONC. FOUND	R(%) ²	ION ABUND. RATIO ³	RRT ³
13C-2,3,7,8-TCDD		4000	3110	77.7	0.75	1.013
13C-1,2,3,7,8-PECDD ⁴		4000	3550	88.8	0.64	1.382
13C-1,2,3,4,7,8-HXCDD		4000	3180	79.4	1.26	0.987
13C-1,2,3,6,7,8-HXCDD		4000	3990	99.8	1.22	0.990
13C-1,2,3,4,6,7,8-HPCDD		4000	2750	68.6	1.02	1.094
13C-OCDD		8000	4330	54.2	0.86	1.178
13C-2,3,7,8-TCDF		4000	2670	66.8	0.77	0.966
13C-1,2,3,7,8-PECDF		4000	3160	79.1	1.54	1.283
13C-2,3,4,7,8-PECDF		4000	3150	78.8	1.59	1.350
13C-1,2,3,4,7,8-HXCDF		4000	3030	75.8	0.51	0.954
13C-1,2,3,6,7,8-HXCDF		4000	3390	84.8	0.51	0.958
13C-1,2,3,7,8,9-HXCDF		4000	2920	73.0	0.52	1.004
13C-2,3,4,6,7,8-HXCDF		4000	3150	78.7	0.52	0.981
13C-1,2,3,4,6,7,8-HPCDF		4000	2750	68.7	0.44	1.062
13C-1,2,3,4,7,8,9-HPCDF		4000	2570	64.2	0.43	1.104

CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	157	78.3		1.001
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(1) Where applicable, custom lab flags have been used on this report.

(2) Contract-required limits for percent recovery (R) are specified in Section 9.3.3, Method 1613.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613. NOTE: There is no ion abundance ratio for 37Cl4-2,3,7,8-TCDD

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form2.xsl; Created: 16-Nov-2018 13:52:23; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29988-6_Form2_DX8M_125AS27_SJ2453698.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T01-1808
Sample Collection:
25-Aug-2018 12:02

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4972

Matrix: XAD

Sample Receipt Date: 29-Aug-2018

Extraction Date: 09-Oct-2018

Analysis Date: 23-Oct-2018 Time: 15:52:42

Extract Volume (uL): 20

Injection Volume (uL): 2.0

Dilution Factor: N/A

Concentration Units: pg/sample

Project No.

Lab Sample I.D.:

Sample Size:

Initial Calibration Date:

Instrument ID:

GC Column ID:

Sample Data Filename:

Blank Data Filename:

Cal. Ver. Data Filename:

PORTLAND HARBOR PDI AND
BASELINE WATER
L29988-6

1 sample

10-Jul-2018

HR GC/MS

DB225

DB83_182 S: 13

DX8M_125A S: 15

DB83_182 S: 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 ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDF		4.35	0.866 (Q)	0.83	1.001

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

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____Matthew Ou_____

For Axy Internal Use Only [XSL Template: Form1A.xsl; Created: 16-Nov-2018 13:53:56; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB225_L29988-6_Form1A_DB83_182S13_SJ2453748.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1B

PCDD/PCDF CLIENT STANDARD ANALYSIS REPORT

CLIENT SAMPLE NO.

PDI-WS-T01-1808

Sample Collection:

25-Aug-2018 12:02

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4972

Matrix: XAD

Sample Receipt Date: 29-Aug-2018

Extraction Date: 09-Oct-2018

Analysis Date: 23-Oct-2018 Time: 09:38:44

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/sample

Project No.

Lab Sample I.D.:

Sample Size:

Initial Calibration Date:

Instrument ID:

GC Column ID:

Sample Data Filename:

Blank Data Filename:

Cal. Ver. Data Filename:

PORTLAND HARBOR PDI AND
BASELINE WATER

L29988-6

1 sample

23-Oct-2018

HR GC/MS

DB5

DX8M_125A S: 27

DX8M_125A S: 15

N/A

CLIENT STANDARD	SPIKE CONC.	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	R(%)	ION ABUND. RATIO ³	RRT ³
13C6-1,2,3,4-TCDD	500		498	1.05 (S)	99.6	0.77	0.988

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

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form1B.xsl; Created: 16-Nov-2018 13:54:50; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DXCS_L29988-6_Form1B_SJ2453719.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T06-1808
Sample Collection:
24-Aug-2018 16:32

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-7
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 10:33:57	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 28
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg/sample	Cal. Ver. Data Filename:	DX8M_125A S: 23

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 ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDD	U		0.856 (Q)		
1,2,3,7,8-PECDD ⁴	U		0.908 (S)		
1,2,3,4,7,8-HXCDD	U		0.856 (Q)		
1,2,3,6,7,8-HXCDD	K J	0.872	0.856 (Q)	1.75	1.001
1,2,3,7,8,9-HXCDD	U		0.856 (Q)		
1,2,3,4,6,7,8-HPCDD	K J	7.89	1.19 (S)	0.86	1.001
OCDD		127	4.61 (S)	0.99	1.000
2,3,7,8-TCDF	J	1.73	0.856 (Q)	0.70	1.001
1,2,3,7,8-PECDF	U		0.856 (Q)		
2,3,4,7,8-PECDF	U		0.856 (Q)		
1,2,3,4,7,8-HXCDF	U		0.856 (Q)		
1,2,3,6,7,8-HXCDF	U		0.856 (Q)		
1,2,3,7,8,9-HXCDF	U		0.856 (Q)		
2,3,4,6,7,8-HXCDF	U		0.856 (Q)		
1,2,3,4,6,7,8-HPCDF	J	1.06	0.856 (Q)	1.05	1.001
1,2,3,4,7,8,9-HPCDF	U		0.856 (Q)		
OCDF	U		1.21 (S)		

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Matthew Ou _____

For Axy Internal Use Only [XSL Template: Form1A.xsl; Created: 16-Nov-2018 13:52:23; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29988-7_Form1A_DX8M_125AS28_SJ2453699.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 2
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.
PDI-WS-T06-1808
Sample Collection:
24-Aug-2018 16:32

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE WATER
Matrix:	XAD	Lab Sample I.D.:	L29988-7
Sample Receipt Date:	29-Aug-2018	Sample Size:	1 sample
Extraction Date:	09-Oct-2018	Initial Calibration Date:	04-Jun-2018
Analysis Date:	23-Oct-2018 Time: 10:33:57	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	DB5
Injection Volume (uL):	1.0	Sample Data Filename:	DX8M_125A S: 28
Dilution Factor:	N/A	Blank Data Filename:	DX8M_125A S: 15
Concentration Units:	pg absolute	Cal. Ver. Data Filename:	DX8M_125A S: 23

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(%) ²	ION ABUND. RATIO ³	RRT ³
13C-2,3,7,8-TCDD		4000	3040	76.0	0.79	1.013
13C-1,2,3,7,8-PECDD ⁴		4000	3660	91.5	0.63	1.382
13C-1,2,3,4,7,8-HXCDD		4000	3210	80.2	1.29	0.987
13C-1,2,3,6,7,8-HXCDD		4000	3830	95.7	1.22	0.990
13C-1,2,3,4,6,7,8-HPCDD		4000	2860	71.5	1.01	1.094
13C-OCDD		8000	4430	55.4	0.88	1.178
13C-2,3,7,8-TCDF		4000	2770	69.3	0.77	0.966
13C-1,2,3,7,8-PECDF		4000	3220	80.5	1.54	1.283
13C-2,3,4,7,8-PECDF		4000	3260	81.5	1.56	1.350
13C-1,2,3,4,7,8-HXCDF		4000	2990	74.8	0.51	0.954
13C-1,2,3,6,7,8-HXCDF		4000	3340	83.4	0.51	0.958
13C-1,2,3,7,8,9-HXCDF		4000	2740	68.5	0.49	1.004
13C-2,3,4,6,7,8-HXCDF		4000	3190	79.7	0.52	0.981
13C-1,2,3,4,6,7,8-HPCDF		4000	2780	69.5	0.45	1.062
13C-1,2,3,4,7,8,9-HPCDF		4000	2670	66.8	0.44	1.104

CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	143	71.5		1.001
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(1) Where applicable, custom lab flags have been used on this report.

(2) Contract-required limits for percent recovery (R) are specified in Section 9.3.3, Method 1613.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613. NOTE: There is no ion abundance ratio for 37Cl4-2,3,7,8-TCDD

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ **Matthew Ou** _____

For Axys Internal Use Only [XSL Template: Form2.xsl; Created: 16-Nov-2018 13:52:23; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_L29988-7_Form2_DX8M_125AS28_SJ2453699.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-WS-T06-1808
Sample Collection:
24-Aug-2018 16:32

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4972

Matrix: XAD

Sample Receipt Date: 29-Aug-2018

Extraction Date: 09-Oct-2018

Analysis Date: 23-Oct-2018 Time: 16:33:58

Extract Volume (uL): 20

Injection Volume (uL): 2.0

Dilution Factor: N/A

Concentration Units: pg/sample

Project No.

Lab Sample I.D.:

Sample Size:

Initial Calibration Date:

Instrument ID:

GC Column ID:

Sample Data Filename:

Blank Data Filename:

Cal. Ver. Data Filename:

PORTLAND HARBOR PDI AND
BASELINE WATER
L29988-7

1 sample

10-Jul-2018

HR GC/MS

DB225

DB83_182 S: 14

DX8M_125A S: 15

DB83_182 S: 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 ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDF	K J	1.04	0.856 (Q)	1.22	1.001

(1) Where applicable, custom lab flags have been used on this report; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____ Matthew Ou _____

For Axs Internal Use Only [XSL Template: Form1A.xsl; Created: 16-Nov-2018 13:53:56; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB225_L29988-7_Form1A_DB83_182S14_SJ2453749.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1B

PCDD/PCDF CLIENT STANDARD ANALYSIS REPORT

CLIENT SAMPLE NO.

PDI-WS-T06-1808

Sample Collection:

24-Aug-2018 16:32

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4972

Matrix: XAD

Sample Receipt Date: 29-Aug-2018

Extraction Date: 09-Oct-2018

Analysis Date: 23-Oct-2018 Time: 10:33:57

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/sample

Project No.

Lab Sample I.D.:

Sample Size:

Initial Calibration Date:

Instrument ID:

GC Column ID:

Sample Data Filename:

Blank Data Filename:

Cal. Ver. Data Filename:

PORTLAND HARBOR PDI AND
BASELINE WATER

L29988-7

1 sample

23-Oct-2018

HR GC/MS

DB5

DX8M_125A S: 28

DX8M_125A S: 15

N/A

CLIENT STANDARD	SPIKE CONC.	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	R(%)	ION ABUND. RATIO ³	RRT ³
13C6-1,2,3,4-TCDD	500		521	0.920 (S)	104	0.84	0.988

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

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form1B.xsl; Created: 16-Nov-2018 13:54:50; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DXCS_L29988-7_Form1B_SJ2453720.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A
PCDD/PCDF 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.: 4972

Matrix: XAD

Sample Receipt Date: N/A

Extraction Date: 09-Oct-2018

Analysis Date: 22-Oct-2018 Time: 22:45:40

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/sample

Project No.

N/A

Lab Sample I.D.:

WG65521-101

Sample Size:

1 sample

Initial Calibration Date:

04-Jun-2018

Instrument ID:

HR GC/MS

GC Column ID:

DB5

Sample Data Filename:

DX8M_125A S: 15

Blank Data Filename:

DX8M_125A S: 15

Cal. Ver. Data Filename:

DX8M_125A S: 11

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 ¹	CONCENTRATION FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO ³	RRT ³
2,3,7,8-TCDD	U		0.860 (Q)		
1,2,3,7,8-PECDD ⁴	U		0.860 (Q)		
1,2,3,4,7,8-HXCDD	U		0.860 (Q)		
1,2,3,6,7,8-HXCDD	U		0.860 (Q)		
1,2,3,7,8,9-HXCDD	U		0.860 (Q)		
1,2,3,4,6,7,8-HPCDD	U		0.860 (Q)		
OCDD	U		1.60 (S)		
2,3,7,8-TCDF	U		0.860 (Q)		
1,2,3,7,8-PECDF	U		0.860 (Q)		
2,3,4,7,8-PECDF	U		0.860 (Q)		
1,2,3,4,7,8-HXCDF	U		0.860 (Q)		
1,2,3,6,7,8-HXCDF	U		0.860 (Q)		
1,2,3,7,8,9-HXCDF	U		0.860 (Q)		
2,3,4,6,7,8-HXCDF	U		0.860 (Q)		
1,2,3,4,6,7,8-HPCDF	U		0.860 (Q)		
1,2,3,4,7,8,9-HPCDF	U		0.860 (Q)		
OCDF	U		1.17 (S)		

(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.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____Matthew Ou_____

For Axs Internal Use Only [XSL Template: Form1A.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;

Report Filename: 1613_DIOXINS_1613DB5_WG65521-101_Form1A_DX8M_125AS15_SJ2453687.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 2
PCDD/PCDF 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.: 4972

Project No.

N/A

Lab Sample I.D.:

WG65521-101

Matrix: XAD

Sample Size:

1 sample

Sample Receipt Date: N/A

Initial Calibration Date:

04-Jun-2018

Extraction Date: 09-Oct-2018

Instrument ID:

HR GC/MS

Analysis Date: 22-Oct-2018 Time: 22:45:40

GC Column ID:

DB5

Extract Volume (uL): 20

Sample Data Filename:

DX8M_125A S: 15

Injection Volume (uL): 1.0

Blank Data Filename:

DX8M_125A S: 15

Dilution Factor: N/A

Cal. Ver. Data Filename:

DX8M_125A S: 11

Concentration Units: pg 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.

LABELLED COMPOUND	LAB FLAG ¹	SPIKE CONC.	CONC. FOUND	R(%) ²	ION ABUND. RATIO ³	RRT ³
13C-2,3,7,8-TCDD		4000	2650	66.1	0.78	1.013
13C-1,2,3,7,8-PECDD ⁴		4000	3130	78.1	0.65	1.382
13C-1,2,3,4,7,8-HXCDD		4000	2920	73.0	1.27	0.987
13C-1,2,3,6,7,8-HXCDD		4000	3540	88.4	1.26	0.990
13C-1,2,3,4,6,7,8-HPCDD		4000	2590	64.7	1.07	1.095
13C-OCDD		8000	3510	43.9	0.92	1.178
13C-2,3,7,8-TCDF		4000	2400	59.9	0.78	0.966
13C-1,2,3,7,8-PECDF		4000	2800	69.9	1.54	1.283
13C-2,3,4,7,8-PECDF		4000	2790	69.8	1.56	1.351
13C-1,2,3,4,7,8-HXCDF		4000	2710	67.9	0.51	0.954
13C-1,2,3,6,7,8-HXCDF		4000	3170	79.3	0.50	0.958
13C-1,2,3,7,8,9-HXCDF		4000	2580	64.5	0.52	1.005
13C-2,3,4,6,7,8-HXCDF		4000	2860	71.4	0.53	0.980
13C-1,2,3,4,6,7,8-HPCDF		4000	2610	65.2	0.45	1.062
13C-1,2,3,4,7,8,9-HPCDF		4000	2440	60.9	0.45	1.104

CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	132	66.0		1.001
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(1) Where applicable, custom lab flags have been used on this report.

(2) Contract-required limits for percent recovery (R) are specified in Section 9.3.3, Method 1613.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613. NOTE: There is no ion abundance ratio for 37Cl4-2,3,7,8-TCDD

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Matthew Ou _____

For Axs Internal Use Only [XSL Template: Form2.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_WG65521-101_Form2_DX8M_125AS15_SJ2453687.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 1B

PCDD/PCDF CLIENT STANDARD ANALYSIS REPORT

CLIENT 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.: 4972

Project No.

N/A

Lab Sample I.D.:

WG65521-101

Matrix: XAD

Sample Size:

1 sample

Sample Receipt Date: N/A

Initial Calibration Date:

22-Oct-2018

Extraction Date: 09-Oct-2018

Instrument ID:

HR GC/MS

Analysis Date: 22-Oct-2018 Time: 22:45:40

GC Column ID:

DB5

Extract Volume (uL): 20

Sample Data Filename:

DX8M_125A S: 15

Injection Volume (uL): 1.0

Blank Data Filename:

DX8M_125A S: 15

Dilution Factor: N/A

Cal. Ver. Data Filename:

N/A

Concentration Units: pg/sample

CLIENT STANDARD	SPIKE CONC.	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	R(%)	ION ABUND. RATIO ³	RRT ³
13C6-1,2,3,4-TCDD	500		494	0.634 (S)	98.8	0.78	0.988

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

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

(3) Contract-required limits for RRTs and ion abundance ratios are specified in Tables 2 and 9, respectively, Method 1613.

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

Signed: _____Matthew Ou_____

For Axys Internal Use Only [XSL Template: Form1B.xsl; Created: 29-Oct-2018 16:29:42; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DXCS_WG65521-101_Form1B_SJ2453711.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 8A

PCDD/PCDF 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.: 4972

OPR Data Filename:

DX8M_125A S: 12

Matrix: XAD

Lab Sample I.D.:

WG65521-102

Extraction Date: 09-Oct-2018

Analysis Date:

22-Oct-2018 Time: 20:02:40

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 20 µL EXTRACT VOLUME.

COMPOUND	LAB FLAG ¹	ION ABUND. RATIO ²	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS ³ (ng/mL)	% RECOVERY
2,3,7,8-TCDD		0.78	20.0	18.3	13.4 - 31.6	91.3
1,2,3,7,8-PECDD ⁴		0.62	100	96.2	70.0 - 142	96.2
1,2,3,4,7,8-HXCDD		1.24	100	98.0	70.0 - 164	98.0
1,2,3,6,7,8-HXCDD		1.26	100	99.7	76.0 - 134	99.7
1,2,3,7,8,9-HXCDD		1.14	100	92.2	64.0 - 162	92.2
1,2,3,4,6,7,8-HPCDD		1.05	100	90.3	70.0 - 140	90.3
OCDD		0.88	200	187	156 - 288	93.3
2,3,7,8-TCDF		0.74	20.0	20.1	15.0 - 31.6	101
1,2,3,7,8-PECDF		1.57	100	97.2	80.0 - 134	97.2
2,3,4,7,8-PECDF		1.52	100	98.0	68.0 - 160	98.0
1,2,3,4,7,8-HXCDF		1.24	100	97.9	72.0 - 134	97.9
1,2,3,6,7,8-HXCDF		1.21	100	103	84.0 - 130	103
1,2,3,7,8,9-HXCDF		1.23	100	104	78.0 - 130	104
2,3,4,6,7,8-HXCDF		1.25	100	98.6	70.0 - 156	98.6
1,2,3,4,6,7,8-HPCDF		1.03	100	106	82.0 - 122	106
1,2,3,4,7,8,9-HPCDF		1.01	100	103	78.0 - 138	103
OCDF		0.91	200	192	126 - 340	96.0

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

(2) Contract-required Ion Abundance Ratios are specified in Table 9, Method 1613.

(3) Contract-required concentration range as determined from the percent of the test concentration in Table 6, Method 1613, under OPR.

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Matthew Ou _____

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: Form8A.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_WG65521-102_Form8A_SJ2453683.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 8B

PCDD/PCDF 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.: 4972

OPR Data Filename: DX8M_125A S: 12

Matrix: XAD

Lab Sample I.D.: WG65521-102

Extraction Date: 09-Oct-2018

Analysis Date: 22-Oct-2018 Time: 20:02:40

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT, BASED ON A 20 µL EXTRACT VOLUME.

LABELLED COMPOUND	LAB FLAG ¹	ION ABUND. RATIO ²	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS ³ (ng/mL)	% RECOVERY
13C-2,3,7,8-TCDD		0.80	200	166	40.0-350	83.2
13C-1,2,3,7,8-PECDD ⁴		0.62	200	189	42.0-454	94.7
13C-1,2,3,4,7,8-HXCDD		1.26	200	171	42.0-386	85.3
13C-1,2,3,6,7,8-HXCDD		1.25	200	218	50.0-326	109
13C-1,2,3,4,6,7,8-HPCDD		1.05	200	156	52.0-332	77.8
13C-OCDD		0.92	400	217	52.0-794	54.4
13C-2,3,7,8-TCDF		0.78	200	151	44.0-304	75.5
13C-1,2,3,7,8-PECDF		1.56	200	173	42.0-384	86.7
13C-2,3,4,7,8-PECDF		1.56	200	169	26.0-656	84.6
13C-1,2,3,4,7,8-HXCDF		0.52	200	166	38.0-404	82.9
13C-1,2,3,6,7,8-HXCDF		0.53	200	185	42.0-318	92.3
13C-1,2,3,7,8,9-HXCDF		0.49	200	153	34.0-410	76.7
13C-2,3,4,6,7,8-HXCDF		0.51	200	171	44.0-352	85.4
13C-1,2,3,4,6,7,8-HPCDF		0.45	200	148	42.0-316	74.0
13C-1,2,3,4,7,8,9-HPCDF		0.45	200	138	40.0-372	69.0

CLEANUP STANDARD

37CL-2,3,7,8-TCDD			10.0	8.04	3.10-19.1	80.4
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(1) Where applicable, custom lab flags have been used on this report.

(2) Contract-required Ion Abundance Ratios are specified in Table 9, Method 1613.

(3) Contract-required concentration limits for OPR as specified in Table 6, Method 1613. Labeled compound concentrations limits are based on required percent recovery (Section 15.5, Method 1613).

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____Matthew Ou_____

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: Form8B.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_1613DB5_WG65521-102_Form8B_SJ2453683.html; Workgroup: WG65521; Design ID: 3359]

PCDD/PCDF 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: 04-Jun-2018

Instrument ID: HR GC/MS

GC Column ID: DB5

CS0 Data Filename: DX8M_065C S: 1

CS1 Data Filename: DX8M_065C S: 3

CS2 Data Filename: DX8M_065C S: 4

CS3 Data Filename: DX8M_065C S: 7

CS4 Data Filename: DX8M_065C S: 6

CS5 Data Filename: DX8M_065C S: 5

CS6 Data Filename: N/A

COMPOUND	LAB FLAG ¹	RELATIVE RESPONSE (RR)						MEAN RR	CV (%RSD) ²
		CS0	CS1	CS2	CS3	CS4	CS5		
2,3,7,8-TCDD		1.26	1.15	1.05	1.09	1.07	1.07	1.11	7.15
1,2,3,7,8-PECDD ³		0.92	1.09	1.04	1.04	1.04	1.03	1.03	5.33
1,2,3,4,7,8-HXCDD		0.94	1.02	0.98	1.04	1.02	1.02	1.00	3.60
1,2,3,6,7,8-HXCDD		0.89	0.95	0.91	0.97	0.94	0.94	0.93	3.09
1,2,3,7,8,9-HXCDD ⁴		1.02	0.96	0.93	0.99	0.97	0.95	0.97	3.34
1,2,3,4,6,7,8-HPCDD		1.02	0.97	0.98	0.99	1.01	1.00	1.00	2.04
OCDD		1.02	1.04	0.97	1.04	1.04	1.00	1.02	2.76
2,3,7,8-TCDF		0.93	0.88	0.90	0.94	0.93	0.91	0.91	2.43
1,2,3,7,8-PECDF		0.93	0.90	0.86	0.97	0.93	0.95	0.92	4.19
2,3,4,7,8-PECDF		0.95	0.93	0.92	0.94	0.95	0.95	0.94	1.39
1,2,3,4,7,8-HXCDF		1.09	1.14	1.05	1.13	1.14	1.13	1.12	3.26
1,2,3,6,7,8-HXCDF		1.08	1.06	1.01	1.06	1.07	1.10	1.06	2.74
1,2,3,7,8,9-HXCDF		0.95	1.02	0.98	1.02	1.01	1.02	1.00	2.99
2,3,4,6,7,8-HXCDF		1.10	1.12	1.11	1.19	1.16	1.16	1.14	3.17
1,2,3,4,6,7,8-HPCDF		1.16	1.28	1.21	1.24	1.23	1.22	1.22	3.38
1,2,3,4,7,8,9-HPCDF		1.24	1.27	1.23	1.28	1.25	1.24	1.25	1.37
OCDF ⁵		1.12	1.23	1.14	1.25	1.31	1.32	1.23	6.84

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

(2) For contract CV specifications, see Section 10.5.4, Method 1613.

(3) Alternate confirmation and quantitation ions used for native and labeled PECDD.

(4) Response ratios are calculated relative to the labeled analogs of the other two HXCDDs (Section 17.1.2, Method 1613).

(5) Response ratios are calculated relative to the labeled analog of OCDD (Section 17.1.1, Method 1613).

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

Signed: Kristen Bowes

SGS AXYS METHOD MLA-017 Rev 20

Form 3B
PCDD/PCDF 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: 04-Jun-2018

Instrument ID: HR GC/MS

GC Column ID: DB5

CS0 Data Filename: DX8M_065C S: 1

CS1 Data Filename: DX8M_065C S: 3

CS2 Data Filename: DX8M_065C S: 4

CS3 Data Filename: DX8M_065C S: 7

CS4 Data Filename: DX8M_065C S: 6

CS5 Data Filename: DX8M_065C S: 5

CS6 Data Filename: N/A

LABELED COMPOUND	LAB FLAG ¹	RELATIVE RESPONSE (RR)						MEAN RR	CV (%RSD) ²
		CS0	CS1	CS2	CS3	CS4	CS5		
13C-2,3,7,8-TCDD		1.04	0.95	0.99	1.00	1.00	1.05	1.00	3.74
13C-1,2,3,7,8-PECDD ³		0.68	0.61	0.64	0.62	0.64	0.75	0.66	8.04
13C-1,2,3,4,7,8-HXCDD		1.05	0.96	0.96	0.95	0.98	1.00	0.98	3.74
13C-1,2,3,6,7,8-HXCDD		1.07	1.02	1.01	1.03	1.04	1.07	1.04	2.53
13C-1,2,3,4,6,7,8-HPCDD		0.88	0.78	0.80	0.79	0.80	0.83	0.81	4.34
13C-OCDD		0.78	0.64	0.67	0.67	0.69	0.84	0.72	10.4
13C-2,3,7,8-TCDF		1.68	1.56	1.60	1.60	1.59	1.66	1.61	2.83
13C-1,2,3,7,8-PECDF		1.20	1.07	1.13	1.11	1.15	1.33	1.16	7.84
13C-2,3,4,7,8-PECDF		1.15	1.03	1.08	1.07	1.10	1.31	1.12	8.87
13C-1,2,3,4,7,8-HXCDF		1.35	1.25	1.26	1.25	1.27	1.29	1.28	2.93
13C-1,2,3,6,7,8-HXCDF		1.42	1.33	1.34	1.35	1.35	1.39	1.36	2.30
13C-1,2,3,7,8,9-HXCDF		1.28	1.17	1.19	1.16	1.19	1.23	1.20	3.61
13C-2,3,4,6,7,8-HXCDF		1.28	1.20	1.21	1.18	1.21	1.24	1.22	2.95
13C-1,2,3,4,6,7,8-HPCDF		1.09	0.99	0.98	0.99	1.01	1.05	1.02	3.89
13C-1,2,3,4,7,8,9-HPCDF		0.86	0.77	0.77	0.75	0.78	0.84	0.79	5.44
CLEANUP STANDARD									
37CL-2,3,7,8-TCDD		1.06	1.27	1.07	1.07	1.07	1.13	1.11	7.11

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

(2) For contract CV specifications, see Section 10.5.4, Method 1613.

(3) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____Kristen Bowes_____

For Axs Internal Use Only [XSL Template: Form3B.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_04-Jun-2018_DX8M_Form3B_GS78349.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 3C

PCDD/PCDF INITIAL CALIBRATION ION ABUNDANCE 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: 04-Jun-2018

Instrument ID: HR GC/MS

GC Column ID: DB5

CS0 Data Filename: DX8M_065C S: 1

CS1 Data Filename: DX8M_065C S: 3

CS2 Data Filename: DX8M_065C S: 4

CS3 Data Filename: DX8M_065C S: 7

CS4 Data Filename: DX8M_065C S: 6

CS5 Data Filename: DX8M_065C S: 5

CS6 Data Filename: N/A

COMPOUND	LAB FLAG ¹	M/Z's FORMING RATIO ²	ION ABUNDANCE RATIO						QC LIMITS ³
			CS0	CS1	CS2	CS3	CS4	CS5	
2,3,7,8-TCDD		M/M+2	0.77	0.82	0.70	0.79	0.79	0.78	0.65-0.89
1,2,3,7,8-PECDD ⁴		M/M+2	0.53	0.64	0.59	0.64	0.62	0.62	0.52-0.70
1,2,3,4,7,8-HXCDD		M+2/M+4	1.19	1.27	1.28	1.22	1.24	1.25	1.05-1.43
1,2,3,6,7,8-HXCDD		M+2/M+4	1.41	1.20	1.19	1.27	1.22	1.22	1.05-1.43
1,2,3,7,8,9-HXCDD		M+2/M+4	1.24	1.35	1.25	1.24	1.23	1.23	1.05-1.43
1,2,3,4,6,7,8-HPCDD		M+2/M+4	1.02	1.00	1.01	1.03	1.06	1.04	0.88-1.20
OCDD		M+2/M+4	0.84	0.95	0.89	0.87	0.87	0.87	0.76-1.02
2,3,7,8-TCDF		M/M+2	0.82	0.67	0.76	0.71	0.77	0.77	0.65-0.89
1,2,3,7,8-PECDF		M+2/M+4	1.49	1.49	1.42	1.44	1.48	1.47	1.32-1.78
2,3,4,7,8-PECDF		M+2/M+4	1.53	1.41	1.45	1.45	1.50	1.47	1.32-1.78
1,2,3,4,7,8-HXCDF		M+2/M+4	1.36	1.15	1.10	1.17	1.18	1.18	1.05-1.43
1,2,3,6,7,8-HXCDF		M+2/M+4	1.27	1.07	1.21	1.17	1.18	1.19	1.05-1.43
1,2,3,7,8,9-HXCDF		M+2/M+4	1.20	1.13	1.21	1.18	1.19	1.20	1.05-1.43
2,3,4,6,7,8-HXCDF		M+2/M+4	1.26	1.16	1.16	1.19	1.17	1.19	1.05-1.43
1,2,3,4,6,7,8-HPCDF		M+2/M+4	1.01	0.98	0.98	1.00	0.96	1.01	0.88-1.20
1,2,3,4,7,8,9-HPCDF		M+2/M+4	1.02	0.92	0.99	1.01	0.97	1.02	0.88-1.20
OCDF		M+2/M+4	0.91	0.79	0.84	0.86	0.89	0.89	0.76-1.02

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

(2) See Table 8, Method 1613, for m/z specifications.

(3) Ion Abundance Ratio Control Limits from Table 9, Method 1613.

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: Kristen Bowes

For Axy Internal Use Only [XSL Template: Form3C.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_04-Jun-2018_DX8M_Form3C_GS78349.html; Workgroup: WG65521; Design ID: 3359]

Form 3D
PCDD/PCDF INITIAL CALIBRATION ION ABUNDANCE 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: 04-Jun-2018

Instrument ID: HR GC/MS

GC Column ID: DB5

CS0 Data Filename: DX8M_065C S: 1

CS1 Data Filename: DX8M_065C S: 3

CS2 Data Filename: DX8M_065C S: 4

CS3 Data Filename: DX8M_065C S: 7

CS4 Data Filename: DX8M_065C S: 6

CS5 Data Filename: DX8M_065C S: 5

CS6 Data Filename: N/A

LABELED COMPOUND	LAB FLAG ¹	M/Z's FORMING RATIO ²	ION ABUNDANCE RATIO						QC LIMITS ³
			CS0	CS1	CS2	CS3	CS4	CS5	
13C-2,3,7,8-TCDD		M/M+2	0.79	0.78	0.79	0.77	0.76	0.82	0.65-0.89
13C-1,2,3,7,8-PECDD ⁴		M/M+2	0.66	0.66	0.67	0.65	0.66	0.67	0.52-0.70
13C-1,2,3,4,7,8-HXCDD		M+2/M+4	1.27	1.25	1.27	1.24	1.26	1.26	1.05-1.43
13C-1,2,3,6,7,8-HXCDD		M+2/M+4	1.23	1.22	1.22	1.22	1.21	1.26	1.05-1.43
13C-1,2,3,4,6,7,8-HPCDD		M+2/M+4	1.01	1.03	0.99	1.01	1.03	1.05	0.88-1.20
13C-OCDD		M+2/M+4	0.88	0.92	0.87	0.90	0.86	0.89	0.76-1.02
13C-2,3,7,8-TCDF		M/M+2	0.77	0.78	0.77	0.77	0.78	0.74	0.65-0.89
13C-1,2,3,7,8-PECDF		M+2/M+4	1.56	1.55	1.57	1.51	1.57	1.54	1.32-1.78
13C-2,3,4,7,8-PECDF		M+2/M+4	1.54	1.56	1.54	1.56	1.56	1.54	1.32-1.78
13C-1,2,3,4,7,8-HXCDF		M/M+2	0.50	0.53	0.52	0.52	0.52	0.52	0.43-0.59
13C-1,2,3,6,7,8-HXCDF		M/M+2	0.52	0.53	0.52	0.52	0.53	0.51	0.43-0.59
13C-1,2,3,7,8,9-HXCDF		M/M+2	0.52	0.52	0.52	0.53	0.53	0.52	0.43-0.59
13C-2,3,4,6,7,8-HXCDF		M/M+2	0.51	0.52	0.54	0.53	0.54	0.53	0.43-0.59
13C-1,2,3,4,6,7,8-HPCDF		M/M+2	0.46	0.46	0.45	0.45	0.45	0.45	0.37-0.51
13C-1,2,3,4,7,8,9-HPCDF		M/M+2	0.47	0.45	0.47	0.46	0.46	0.44	0.37-0.51

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

(2) See Table 8, Method 1613, for m/z specifications.

(3) Ion Abundance Ratio Control Limits from Table 9, Method 1613.

(4) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: Kristen Bowes

For Axy Internal Use Only [XSL Template: Form3D.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
 Report Filename: 1613_DIOXINS_04-Jun-2018_DX8M_Form3D_GS78349.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 5

PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

SGS AXYS ANALYTICAL SERVICES

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

Instrument ID:	HR GC/MS	Initial Calibration Date:	04-Jun-2018
RT Window Data Filename:	DX8M_065C S: 7	Analysis Date:	05-Jun-2018
DB-5 IS Data Filename:	DX8M_065C S: 7	Analysis Date:	05-Jun-2018
DB-225 IS Data Filename:		Analysis Date:	
		Time:	00:06:54
		Time:	00:06:54
		Time:	

DB5 RT WINDOW DEFINING STANDARDS RESULT

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	22:57	1,3,6,8-TCDF (F)	21:25
1,2,8,9-TCDD (L)	28:19	1,2,8,9-TCDF (L)	28:09
1,2,4,7,9-PECDD (F)	32:04	1,3,4,6,8-PECDF (F)	28:52
1,2,3,8,9-PECDD (L)	37:04	1,2,3,8,9-PECDF (L)	37:07
1,2,4,6,7,9-HXCDD (F)	40:03	1,2,3,4,6,8-HXCDF (F)	39:00
1,2,3,4,6,7-HXCDD (L)	42:40	1,2,3,4,8,9-HXCDF (L)	43:00
1,2,3,4,6,7,9-HPCDD (F)	45:47	1,2,3,4,6,7,8-HPCDF (F)	45:18
1,2,3,4,6,7,8-HPCDD (L)	46:42	1,2,3,4,7,8,9-HPCDF (L)	47:06

(F) = First eluting isomer (DB-5); (L) = Last eluting isomer (DB-5)

ISOMER SPECIFICITY (IS) TEST STANDARDS RESULT

Isomers	% Valley Height Between Compared Peaks	Isomers	% Valley Height Between Compared Peaks
1,2,3,4-TCDD 1,2,7,8-TCDD	0	1,2,3,8-TCDD 2,3,7,8-TCDD	6
1,2,7,8-TCDD 1,4,7,8-TCDD	0	2,3,4,7-TCDF 2,3,7,8-TCDF	N/A
1,4,7,8-TCDD 1,2,3,7-TCDD	0	2,3,7,8-TCDF 1,2,3,9-TCDF	N/A
1,2,3,7-TCDD 1,2,3,8-TCDD	DB-5 column; co-elute as per Figure 6 in Method		

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

Signed: _____ Leanne Henley _____

SGS AXYS METHOD MLA-017 Rev 20

Form 3A

PCDD/PCDF 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: 10-Jul-2018

Instrument ID: HR GC/MS

GC Column ID: DB225

CS0 Data Filename: DB83_121 S: 4

CS1 Data Filename: DB83_121 S: 3

CS2 Data Filename: DB83_121 S: 2

CS3 Data Filename: DB83_121 S: 7

CS4 Data Filename: DB83_121 S: 6

CS5 Data Filename: DB83_121 S: 5

CS6 Data Filename: N/A

COMPOUND	LAB FLAG ¹	RELATIVE RESPONSE (RR)						MEAN RR	CV (%RSD) ²
		CS0	CS1	CS2	CS3	CS4	CS5		
1,2,3,7,8,9-HxCDD		0.82	0.89	0.85	0.97	0.99	1.00	0.92	8.53
2,3,7,8-TCDF		0.93	0.91	0.89	1.04	1.03	1.01	0.97	7.11

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

(2) For contract CV specifications, see Section 10.5.4, Method 1613.

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

Signed: _____ Bjorn Arvi _____

For Axs Internal Use Only [XSL Template: Form3A.xsl; Created: 29-Oct-2018 16:28:53; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_10-Jul-2018_DB83__Form3A_GS78351.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 3C

PCDD/PCDF INITIAL CALIBRATION ION ABUNDANCE 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: 10-Jul-2018

Instrument ID: HR GC/MS

GC Column ID: DB225

CS0 Data Filename: DB83_121 S: 4

CS1 Data Filename: DB83_121 S: 3

CS2 Data Filename: DB83_121 S: 2

CS3 Data Filename: DB83_121 S: 7

CS4 Data Filename: DB83_121 S: 6

CS5 Data Filename: DB83_121 S: 5

CS6 Data Filename: N/A

COMPOUND	LAB FLAG ¹	M/Z's FORMING RATIO ²	ION ABUNDANCE RATIO						QC LIMITS ³
			CS0	CS1	CS2	CS3	CS4	CS5	
1,2,3,7,8,9-HXCDD		M+2/M+4	1.25	1.29	1.26	1.26	1.25	1.25	1.05-1.43
2,3,7,8-TCDF		M/M+2	0.88	0.81	0.78	0.78	0.78	0.78	0.65-0.89

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

(2) See Table 8, Method 1613, for m/z specifications.

(3) Ion Abundance Ratio Control Limits from Table 9, Method 1613.

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

Signed: _____ Bjorn Arvi _____

For Axy Internal Use Only [XSL Template: Form3C.xsl; Created: 29-Oct-2018 16:28:53; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_10-Jul-2018_DB83__Form3C_GS78351.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 5

PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

SGS AXYS ANALYTICAL SERVICES

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

Instrument ID:	HR GC/MS	Initial Calibration Date:	10-Jul-2018
RT Window Data Filename:		Analysis Date:	Time:
DB-5 IS Data Filename:		Analysis Date:	Time:
DB-225 IS Data Filename:	DB83_121 S: 1	Analysis Date:	10-Jul-2018
		Time:	15:40:53

DB225 RT WINDOW DEFINING STANDARDS RESULT

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	N/A	1,3,6,8-TCDF (F)	N/A
1,2,8,9-TCDD (L)	N/A	1,2,8,9-TCDF (L)	N/A
1,2,4,7,9-PECDD (F)	N/A	1,3,4,6,8-PECDF (F)	N/A
1,2,3,8,9-PECDD (L)	N/A	1,2,3,8,9-PECDF (L)	N/A
1,2,4,6,7,9-HXCDD (F)	N/A	1,2,3,4,6,8-HXCDF (F)	N/A
1,2,3,4,6,7-HXCDD (L)	N/A	1,2,3,4,8,9-HXCDF (L)	N/A
1,2,3,4,6,7,9-HPCDD (F)	N/A	1,2,3,4,6,7,8-HPCDF (F)	N/A
1,2,3,4,6,7,8-HPCDD (L)	N/A	1,2,3,4,7,8,9-HPCDF (L)	N/A

(F) = First eluting isomer (DB-5); (L) = Last eluting isomer (DB-5)

ISOMER SPECIFICITY (IS) TEST STANDARDS RESULT

Isomers	% Valley Height Between Compared Peaks	Isomers	% Valley Height Between Compared Peaks
1,2,3,4-TCDD 1,2,7,8-TCDD	N/A	1,2,3,8-TCDD 2,3,7,8-TCDD	N/A
1,2,7,8-TCDD 1,4,7,8-TCDD	N/A	2,3,4,7-TCDF 2,3,7,8-TCDF	3
1,4,7,8-TCDD 1,2,3,7-TCDD	N/A	2,3,7,8-TCDF 1,2,3,9-TCDF	5
1,2,3,7-TCDD 1,2,3,8-TCDD	N/A		

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

Signed: _____ **Brian Watson** _____

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Report Filename: 1613_DIOXINS__DB83_121S1_Form5_SJ2403414.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 4A
PCDD/PCDF 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:	10-Jul-2018	VER Data Filename:	DB83_182 S: 3
Instrument ID:	HR GC/MS	Analysis Date:	23-Oct-2018
GC Column ID:	DB225	Analysis Time:	09:00:14

COMPOUND	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) ⁴
1,2,3,7,8,9-HXCDD		M+2/M+4	1.24	1.05-1.43	48.0	41 - 61
2,3,7,8-TCDF		M/M+2	0.77	0.65-0.89	9.34	8.4 - 12

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

(2) See Table 8, Method 1613, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(4) Contract-required concentration range as determined from the percent of the test concentration in Table 6, Method 1613, under VER.

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

Signed: _____ **Leanne Henley** _____

For Axys Internal Use Only [XSL Template: Form4A.xsl; Created: 29-Oct-2018 16:28:53; Application: XMLTransformer-1.16.51;
 Report Filename: 1613_DIOXINS_DB83_182S3__Form4A_SJ2453738.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 6A
PCDD/PCDF RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

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

Initial Calibration Date:	10-Jul-2018	VER Data Filename:	DB83_182 S: 3
Instrument ID:	HR GC/MS	Analysis Date:	23-Oct-2018
GC Column ID:	DB225	Analysis Time:	09:00:14

COMPOUND	LAB FLAG ¹	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS ²
1,2,3,7,8,9-HXCDD		13C-1,2,3,6,7,8-HXCDD	1.064	1.052-1.075
2,3,7,8-TCDF		13C-2,3,7,8-TCDF	1.001	0.999-1.003

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

(2) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1613.

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

Signed: _____ **Leanne Henley** _____

For Axs Internal Use Only [XSL Template: Form6A.xsl; Created: 29-Oct-2018 16:28:53; Application: XMLTransformer-1.16.51;
 Report Filename: 1613_DIOXINS_DB83_182S3__Form6A_SJ2453738.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 4A
PCDD/PCDF 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:	10-Jul-2018	VER Data Filename:	DB83_182 S: 15
Instrument ID:	HR GC/MS	Analysis Date:	23-Oct-2018
GC Column ID:	DB225	Analysis Time:	17:21:13

COMPOUND	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) ⁴
1,2,3,7,8,9-HXCDD		M+2/M+4	1.29	1.05-1.43	45.3	41 - 61
2,3,7,8-TCDF		M/M+2	0.77	0.65-0.89	9.24	8.4 - 12

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

(2) See Table 8, Method 1613, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(4) Contract-required concentration range as determined from the percent of the test concentration in Table 6, Method 1613, under VER.

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

Signed: _____ **Leanne Henley** _____

For Axys Internal Use Only [XSL Template: Form4A.xsl; Created: 29-Oct-2018 16:28:53; Application: XMLTransformer-1.16.51;
 Report Filename: 1613_DIOXINS_DB83_182S15__Form4A_SJ2453750.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 6A
PCDD/PCDF RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

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

Initial Calibration Date: 10-Jul-2018

VER Data Filename: DB83_182 S: 15

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: DB225

Analysis Time: 17:21:13

COMPOUND	LAB FLAG ¹	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS ²
1,2,3,7,8,9-HXCDD		13C-1,2,3,6,7,8-HXCDD	1.065	1.052-1.075
2,3,7,8-TCDF		13C-2,3,7,8-TCDF	1.002	0.999-1.003

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

(2) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1613.

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

Signed: _____ **Leanne Henley** _____

For Axs Internal Use Only [XSL Template: Form6A.xsl; Created: 29-Oct-2018 16:28:53; Application: XMLTransformer-1.16.51;
 Report Filename: 1613_DIOXINS_DB83_182S15__Form6A_SJ2453750.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 5

PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

SGS AXYS ANALYTICAL SERVICES

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

Instrument ID:	HR GC/MS	Initial Calibration Date:	10-Jul-2018
RT Window Data Filename:		Analysis Date:	Time:
DB-5 IS Data Filename:		Analysis Date:	Time:
DB-225 IS Data Filename:	DB83_182 S: 1	Analysis Date:	23-Oct-2018
		Time:	07:34:32

DB225 RT WINDOW DEFINING STANDARDS RESULT

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	N/A	1,3,6,8-TCDF (F)	N/A
1,2,8,9-TCDD (L)	N/A	1,2,8,9-TCDF (L)	N/A
1,2,4,7,9-PECDD (F)	N/A	1,3,4,6,8-PECDF (F)	N/A
1,2,3,8,9-PECDD (L)	N/A	1,2,3,8,9-PECDF (L)	N/A
1,2,4,6,7,9-HXCDD (F)	N/A	1,2,3,4,6,8-HXCDF (F)	N/A
1,2,3,4,6,7-HXCDD (L)	N/A	1,2,3,4,8,9-HXCDF (L)	N/A
1,2,3,4,6,7,9-HPCDD (F)	N/A	1,2,3,4,6,7,8-HPCDF (F)	N/A
1,2,3,4,6,7,8-HPCDD (L)	N/A	1,2,3,4,7,8,9-HPCDF (L)	N/A

(F) = First eluting isomer (DB-5); (L) = Last eluting isomer (DB-5)

ISOMER SPECIFICITY (IS) TEST STANDARDS RESULT

Isomers	% Valley Height Between Compared Peaks	Isomers	% Valley Height Between Compared Peaks
1,2,3,4-TCDD 1,2,7,8-TCDD	N/A	1,2,3,8-TCDD 2,3,7,8-TCDD	N/A
1,2,7,8-TCDD 1,4,7,8-TCDD	N/A	2,3,4,7-TCDF 2,3,7,8-TCDF	6
1,4,7,8-TCDD 1,2,3,7-TCDD	N/A	2,3,7,8-TCDF 1,2,3,9-TCDF	20
1,2,3,7-TCDD 1,2,3,8-TCDD	N/A		

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

Signed: _____ Leanne Henley _____

For Axy Internal Use Only [XSL Template: DXForm5.xsl; Created: 29-Oct-2018 16:28:53; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS__DB83_182S1_Form5_SJ2454323.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 4A
PCDD/PCDF 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: 04-Jun-2018

VER Data Filename: DX8M_125A S: 11

Instrument ID: HR GC/MS

Analysis Date: 22-Oct-2018

GC Column ID: DB5

Analysis Time: 18:56:33

COMPOUND	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) ⁴
2,3,7,8-TCDD		M/M+2	0.78	0.65-0.89	9.69	7.8 - 12.9
1,2,3,7,8-PECDD ⁵		M/M+2	0.62	0.52-0.70	49.9	39 - 65
1,2,3,4,7,8-HXCDD		M+2/M+4	1.25	1.05-1.43	50.3	39 - 64
1,2,3,6,7,8-HXCDD		M+2/M+4	1.23	1.05-1.43	53.3	39 - 64
1,2,3,7,8,9-HXCDD		M+2/M+4	1.24	1.05-1.43	49.5	41 - 61
1,2,3,4,6,7,8-HPCDD		M+2/M+4	1.03	0.88-1.20	48.1	43 - 58
OCDD		M+2/M+4	0.84	0.76-1.02	97.3	79 - 126
2,3,7,8-TCDF		M/M+2	0.77	0.65-0.89	10.3	8.4 - 12
1,2,3,7,8-PECDF		M+2/M+4	1.55	1.32-1.78	53.1	41 - 60
2,3,4,7,8-PECDF		M+2/M+4	1.52	1.32-1.78	51.2	41 - 61
1,2,3,4,7,8-HXCDF		M+2/M+4	1.22	1.05-1.43	52.1	45 - 56
1,2,3,6,7,8-HXCDF		M+2/M+4	1.25	1.05-1.43	51.6	44 - 57
1,2,3,7,8,9-HXCDF		M+2/M+4	1.24	1.05-1.43	46.9	45 - 56
2,3,4,6,7,8-HXCDF		M+2/M+4	1.23	1.05-1.43	52.8	44 - 57
1,2,3,4,6,7,8-HPCDF		M+2/M+4	0.99	0.88-1.20	49.6	45 - 55
1,2,3,4,7,8,9-HPCDF		M+2/M+4	1.00	0.88-1.20	51.1	43 - 58
OCDF		M+2/M+4	0.87	0.76-1.02	98.8	63 - 159

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

(2) See Table 8, Method 1613, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(4) Contract-required concentration range as determined from the percent of the test concentration in Table 6, Method 1613, under VER.

(5) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Leanne Henley _____

For Axy Internal Use Only [XSL Template: Form4A.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DX8M_125AS11_Form4A_SJ2453681.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 4B
PCDD/PCDF 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: 04-Jun-2018

VER Data Filename: DX8M_125A S: 11

Instrument ID: HR GC/MS

Analysis Date: 22-Oct-2018

GC Column ID: DB5

Analysis Time: 18:56:33

LABELLED COMPOUND	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) ⁴
13C-2,3,7,8-TCDD		M/M+2	0.77	0.65-0.89	95.5	82 - 121
13C-1,2,3,7,8-PECDD ⁵		M/M+2	0.62	0.52-0.70	101	62 - 160
13C-1,2,3,4,7,8-HXCDD		M+2/M+4	1.30	1.05-1.43	94.6	85 - 117
13C-1,2,3,6,7,8-HXCDD		M+2/M+4	1.25	1.05-1.43	107	85 - 118
13C-1,2,3,4,6,7,8-HPCDD		M+2/M+4	1.02	0.88-1.20	94.1	72 - 138
13C-OCDD		M+2/M+4	0.88	0.76-1.02	162	96 - 415
13C-2,3,7,8-TCDF		M/M+2	0.77	0.65-0.89	86.4	71 - 140
13C-1,2,3,7,8-PECDF		M+2/M+4	1.57	1.32-1.78	93.5	76 - 130
13C-2,3,4,7,8-PECDF		M+2/M+4	1.56	1.32-1.78	94.4	77 - 130
13C-1,2,3,4,7,8-HXCDF		M/M+2	0.51	0.43-0.59	91.1	76 - 131
13C-1,2,3,6,7,8-HXCDF		M/M+2	0.49	0.43-0.59	101	70 - 143
13C-1,2,3,7,8,9-HXCDF		M/M+2	0.52	0.43-0.59	84.4	74 - 135
13C-2,3,4,6,7,8-HXCDF		M/M+2	0.52	0.43-0.59	95.7	73 - 137
13C-1,2,3,4,6,7,8-HPCDF		M/M+2	0.46	0.37-0.51	92.5	78 - 129
13C-1,2,3,4,7,8,9-HPCDF		M/M+2	0.44	0.37-0.51	86.9	77 - 129
CLEANUP STANDARD						
37CL-2,3,7,8-TCDD ⁶					9.24	7.9 - 12.7

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

(2) See Table 8, Method 1613, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(4) Contract-required concentration range as determined from the percent of the test concentration in Table 6, Method 1613, under VER.

(5) Alternate confirmation and quantitation ions used for native and labeled PECDD.

(6) No ion abundance ratio for 37Cl4-2,3,7,8-TCDD; concentration reported.

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

Signed: _____ Leanne Henley_____

For Axys Internal Use Only [XSL Template: Form4B.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DX8M_125AS11__Form4B_SJ2453681.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 6A
PCDD/PCDF RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

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

Initial Calibration Date: 04-Jun-2018

VER Data Filename: DX8M_125A S: 11

Instrument ID: HR GC/MS

Analysis Date: 22-Oct-2018

GC Column ID: DB5

Analysis Time: 18:56:33

COMPOUND	LAB FLAG ¹	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS ²
2,3,7,8-TCDD		13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PECDD ³		13C-1,2,3,7,8-PECDD	1.001	0.999-1.002
1,2,3,4,7,8-HXCDD		13C-1,2,3,4,7,8-HXCDD	1.000	0.999-1.001
1,2,3,6,7,8-HXCDD		13C-1,2,3,6,7,8-HXCDD	1.000	0.998-1.004
1,2,3,7,8,9-HXCDD		13C-1,2,3,6,7,8-HXCDD	1.010	1.000-1.019
1,2,3,4,6,7,8-HPCDD		13C-1,2,3,4,6,7,8-HPCDD	1.000	0.999-1.001
OCDD		13C-OCDD	1.000	0.999-1.001
2,3,7,8-TCDF		13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PECDF		13C-1,2,3,7,8-PECDF	1.001	0.999-1.002
2,3,4,7,8-PECDF		13C-2,3,4,7,8-PECDF	1.001	0.999-1.002
1,2,3,4,7,8-HXCDF		13C-1,2,3,4,7,8-HXCDF	1.001	0.999-1.001
1,2,3,6,7,8-HXCDF		13C-1,2,3,6,7,8-HXCDF	1.001	0.997-1.005
1,2,3,7,8,9-HXCDF		13C-1,2,3,7,8,9-HXCDF	1.000	0.999-1.001
2,3,4,6,7,8-HXCDF		13C-2,3,4,6,7,8-HXCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HPCDF		13C-1,2,3,4,6,7,8-HPCDF	1.001	0.999-1.001
1,2,3,4,7,8,9-HPCDF		13C-1,2,3,4,7,8,9-HPCDF	1.000	0.999-1.001
OCDF		13C-OCDD	1.002	0.999-1.008

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

(2) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1613.

(3) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Leanne Henley _____

For Axys Internal Use Only [XSL Template: Form6A.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DX8M_125AS11_Form6A_SJ2453681.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 6B
PCDD/PCDF RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

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

Initial Calibration Date: 04-Jun-2018

VER Data Filename: DX8M_125A S: 11

Instrument ID: HR GC/MS

Analysis Date: 22-Oct-2018

GC Column ID: DB5

Analysis Time: 18:56:33

LAB FLAG ¹	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS ²
LABELED COMPOUND			
13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.013	0.976-1.043
13C-1,2,3,7,8-PECDD	13C-1,2,3,4-TCDD	1.382	1.000-1.567
13C-1,2,3,4,7,8-HXCDD	13C-1,2,3,7,8,9-HXCDD	0.987	0.977-1.000
13C-1,2,3,6,7,8-HXCDD	13C-1,2,3,7,8,9-HXCDD	0.990	0.981-1.003
13C-1,2,3,4,6,7,8-HPCDD	13C-1,2,3,7,8,9-HXCDD	1.094	1.086-1.110
13C-OCDD	13C-1,2,3,7,8,9-HXCDD	1.178	1.032-1.311
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.966	0.923-1.103
13C-1,2,3,7,8-PECDF	13C-1,2,3,4-TCDD	1.283	1.000-1.425
13C-2,3,4,7,8-PECDF	13C-1,2,3,4-TCDD	1.350	1.011-1.526
13C-1,2,3,4,7,8-HXCDF	13C-1,2,3,7,8,9-HXCDD	0.954	0.944-0.970
13C-1,2,3,6,7,8-HXCDF	13C-1,2,3,7,8,9-HXCDD	0.958	0.949-0.975
13C-1,2,3,7,8,9-HXCDF	13C-1,2,3,7,8,9-HXCDD	1.005	0.977-1.047
13C-2,3,4,6,7,8-HXCDF	13C-1,2,3,7,8,9-HXCDD	0.980	0.959-1.021
13C-1,2,3,4,6,7,8-HPCDF	13C-1,2,3,7,8,9-HXCDD	1.062	1.043-1.085
13C-1,2,3,4,7,8,9-HPCDF	13C-1,2,3,7,8,9-HXCDD	1.104	1.057-1.151
CLEANUP STANDARD			
37CL-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.001	0.989-1.052

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

(2) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1613.

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

Signed: _____ Leanne Henley _____

For Axys Internal Use Only [XSL Template: Form6B.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DX8M_125AS11_Form6B_SJ2453681.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 3A

DIOXIN INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

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-Oct-2018	CAL Data Filename:	DX8M_125A S: 11
Instrument ID:	HR GC/MS	Analysis Date:	22-Oct-2018
GC Column ID:	DB5	Analysis Time:	18:56:33

COMPOUND	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
13C6-1,2,3,4-TCDD ⁴		1.07	M/M+2	0.77	0.65-0.89	0.987	0.975 - 1.000

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

(2) See Table 8, Method 1613, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(4) RRF's based on 13C12-1,2,3,4-TCDD and 1,2,3,4,6,7,8-HPCDF for 13C6-1,2,3,4-TCDD and 13C6-1,2,3,4,6,7,8-HPCDF, respectively.

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

Signed: _____ **Leanne Henley**_____

For Axy Internal Use Only [XSL Template: Form346A.xsl; Created: 29-Oct-2018 16:29:42; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DX8M_125AS11__Form346A_SJ2453707_GS78352.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 4A
PCDD/PCDF 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: 04-Jun-2018

VER Data Filename: DX8M_125A S: 23

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: DB5

Analysis Time: 06:07:37

COMPOUND	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) ⁴
2,3,7,8-TCDD		M/M+2	0.83	0.65-0.89	9.95	7.8 - 12.9
1,2,3,7,8-PECDD ⁵		M/M+2	0.59	0.52-0.70	49.1	39 - 65
1,2,3,4,7,8-HXCDD		M+2/M+4	1.23	1.05-1.43	51.7	39 - 64
1,2,3,6,7,8-HXCDD		M+2/M+4	1.28	1.05-1.43	51.3	39 - 64
1,2,3,7,8,9-HXCDD		M+2/M+4	1.20	1.05-1.43	49.4	41 - 61
1,2,3,4,6,7,8-HPCDD		M+2/M+4	1.04	0.88-1.20	48.9	43 - 58
OCDD		M+2/M+4	0.86	0.76-1.02	101	79 - 126
2,3,7,8-TCDF		M/M+2	0.79	0.65-0.89	10.2	8.4 - 12
1,2,3,7,8-PECDF		M+2/M+4	1.55	1.32-1.78	52.2	41 - 60
2,3,4,7,8-PECDF		M+2/M+4	1.56	1.32-1.78	50.6	41 - 61
1,2,3,4,7,8-HXCDF		M+2/M+4	1.22	1.05-1.43	52.8	45 - 56
1,2,3,6,7,8-HXCDF		M+2/M+4	1.25	1.05-1.43	51.6	44 - 57
1,2,3,7,8,9-HXCDF		M+2/M+4	1.25	1.05-1.43	46.2	45 - 56
2,3,4,6,7,8-HXCDF		M+2/M+4	1.24	1.05-1.43	52.6	44 - 57
1,2,3,4,6,7,8-HPCDF		M+2/M+4	1.03	0.88-1.20	51.0	45 - 55
1,2,3,4,7,8,9-HPCDF		M+2/M+4	0.99	0.88-1.20	53.1	43 - 58
OCDF		M+2/M+4	0.91	0.76-1.02	97.3	63 - 159

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

(2) See Table 8, Method 1613, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(4) Contract-required concentration range as determined from the percent of the test concentration in Table 6, Method 1613, under VER.

(5) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Leanne Henley _____

For Axy Internal Use Only [XSL Template: Form4A.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DX8M_125AS23__Form4A_SJ2453736.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 4B
PCDD/PCDF 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: 04-Jun-2018

VER Data Filename: DX8M_125A S: 23

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: DB5

Analysis Time: 06:07:37

LABELLED COMPOUND	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) ⁴
13C-2,3,7,8-TCDD		M/M+2	0.75	0.65-0.89	93.3	82 - 121
13C-1,2,3,7,8-PECDD ⁵		M/M+2	0.63	0.52-0.70	103	62 - 160
13C-1,2,3,4,7,8-HXCDD		M+2/M+4	1.27	1.05-1.43	96.3	85 - 117
13C-1,2,3,6,7,8-HXCDD		M+2/M+4	1.21	1.05-1.43	110	85 - 118
13C-1,2,3,4,6,7,8-HPCDD		M+2/M+4	1.05	0.88-1.20	93.9	72 - 138
13C-OCDD		M+2/M+4	0.91	0.76-1.02	169	96 - 415
13C-2,3,7,8-TCDF		M/M+2	0.79	0.65-0.89	82.6	71 - 140
13C-1,2,3,7,8-PECDF		M+2/M+4	1.54	1.32-1.78	95.7	76 - 130
13C-2,3,4,7,8-PECDF		M+2/M+4	1.53	1.32-1.78	97.3	77 - 130
13C-1,2,3,4,7,8-HXCDF		M/M+2	0.52	0.43-0.59	90.7	76 - 131
13C-1,2,3,6,7,8-HXCDF		M/M+2	0.51	0.43-0.59	104	70 - 143
13C-1,2,3,7,8,9-HXCDF		M/M+2	0.53	0.43-0.59	90.2	74 - 135
13C-2,3,4,6,7,8-HXCDF		M/M+2	0.53	0.43-0.59	96.4	73 - 137
13C-1,2,3,4,6,7,8-HPCDF		M/M+2	0.45	0.37-0.51	90.9	78 - 129
13C-1,2,3,4,7,8,9-HPCDF		M/M+2	0.47	0.37-0.51	85.7	77 - 129
CLEANUP STANDARD						
37CL-2,3,7,8-TCDD ⁶					9.29	7.9 - 12.7

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

(2) See Table 8, Method 1613, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(4) Contract-required concentration range as determined from the percent of the test concentration in Table 6, Method 1613, under VER.

(5) Alternate confirmation and quantitation ions used for native and labeled PECDD.

(6) No ion abundance ratio for 37Cl4-2,3,7,8-TCDD; concentration reported.

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

Signed: _____ Leanne Henley_____

For Axys Internal Use Only [XSL Template: Form4B.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DX8M_125AS23__Form4B_SJ2453736.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 6A
PCDD/PCDF RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

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

Initial Calibration Date: 04-Jun-2018

VER Data Filename: DX8M_125A S: 23

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: DB5

Analysis Time: 06:07:37

COMPOUND	LAB FLAG ¹	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS ²
2,3,7,8-TCDD		13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PECDD ³		13C-1,2,3,7,8-PECDD	1.000	0.999-1.002
1,2,3,4,7,8-HXCDD		13C-1,2,3,4,7,8-HXCDD	1.000	0.999-1.001
1,2,3,6,7,8-HXCDD		13C-1,2,3,6,7,8-HXCDD	1.001	0.998-1.004
1,2,3,7,8,9-HXCDD		13C-1,2,3,6,7,8-HXCDD	1.011	1.000-1.019
1,2,3,4,6,7,8-HPCDD		13C-1,2,3,4,6,7,8-HPCDD	1.000	0.999-1.001
OCDD		13C-OCDD	1.000	0.999-1.001
2,3,7,8-TCDF		13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PECDF		13C-1,2,3,7,8-PECDF	1.001	0.999-1.002
2,3,4,7,8-PECDF		13C-2,3,4,7,8-PECDF	1.001	0.999-1.002
1,2,3,4,7,8-HXCDF		13C-1,2,3,4,7,8-HXCDF	1.000	0.999-1.001
1,2,3,6,7,8-HXCDF		13C-1,2,3,6,7,8-HXCDF	1.001	0.997-1.005
1,2,3,7,8,9-HXCDF		13C-1,2,3,7,8,9-HXCDF	1.001	0.999-1.001
2,3,4,6,7,8-HXCDF		13C-2,3,4,6,7,8-HXCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HPCDF		13C-1,2,3,4,6,7,8-HPCDF	1.000	0.999-1.001
1,2,3,4,7,8,9-HPCDF		13C-1,2,3,4,7,8,9-HPCDF	1.000	0.999-1.001
OCDF		13C-OCDD	1.002	0.999-1.008

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

(2) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1613.

(3) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Leanne Henley _____

For Axys Internal Use Only [XSL Template: Form6A.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DX8M_125AS23_Form6A_SJ2453736.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 6B
PCDD/PCDF RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

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

Initial Calibration Date: 04-Jun-2018

VER Data Filename: DX8M_125A S: 23

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: DB5

Analysis Time: 06:07:37

LAB FLAG ¹	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS ²
LABELED COMPOUND			
13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.013	0.976-1.043
13C-1,2,3,7,8-PECDD	13C-1,2,3,4-TCDD	1.382	1.000-1.567
13C-1,2,3,4,7,8-HXCDD	13C-1,2,3,7,8,9-HXCDD	0.987	0.977-1.000
13C-1,2,3,6,7,8-HXCDD	13C-1,2,3,7,8,9-HXCDD	0.990	0.981-1.003
13C-1,2,3,4,6,7,8-HPCDD	13C-1,2,3,7,8,9-HXCDD	1.094	1.086-1.110
13C-OCDD	13C-1,2,3,7,8,9-HXCDD	1.178	1.032-1.311
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.966	0.923-1.103
13C-1,2,3,7,8-PECDF	13C-1,2,3,4-TCDD	1.283	1.000-1.425
13C-2,3,4,7,8-PECDF	13C-1,2,3,4-TCDD	1.350	1.011-1.526
13C-1,2,3,4,7,8-HXCDF	13C-1,2,3,7,8,9-HXCDD	0.954	0.944-0.970
13C-1,2,3,6,7,8-HXCDF	13C-1,2,3,7,8,9-HXCDD	0.958	0.949-0.975
13C-1,2,3,7,8,9-HXCDF	13C-1,2,3,7,8,9-HXCDD	1.004	0.977-1.047
13C-2,3,4,6,7,8-HXCDF	13C-1,2,3,7,8,9-HXCDD	0.980	0.959-1.021
13C-1,2,3,4,6,7,8-HPCDF	13C-1,2,3,7,8,9-HXCDD	1.062	1.043-1.085
13C-1,2,3,4,7,8,9-HPCDF	13C-1,2,3,7,8,9-HXCDD	1.104	1.057-1.151
CLEANUP STANDARD			
37CL-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.001	0.989-1.052

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

(2) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1613.

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

Signed: _____ Leanne Henley _____

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Report Filename: 1613_DIOXINS_DX8M_125AS23_Form6B_SJ2453736.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 3A

DIOXIN INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

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

Initial Calibration Date: 23-Oct-2018

CAL Data Filename: DX8M_125A S: 23

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: DB5

Analysis Time: 06:07:37

COMPOUND	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
13C6-1,2,3,4-TCDD ⁴		1.04	M/M+2	0.80	0.65-0.89	0.987	0.975 - 1.000

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

(2) See Table 8, Method 1613, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(4) RRF's based on 13C12-1,2,3,4-TCDD and 1,2,3,4,6,7,8-HPCDF for 13C6-1,2,3,4-TCDD and 13C6-1,2,3,4,6,7,8-HPCDF, respectively.

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

Signed: _____ Leanne Henley _____

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Report Filename: 1613_DIOXINS_DX8M_125AS23__Form346A_SJ2453718_GS78353.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 4A
PCDD/PCDF 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: 04-Jun-2018

VER Data Filename: DX8M_125A S: 29

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: DB5

Analysis Time: 11:29:10

COMPOUND	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) ⁴
2,3,7,8-TCDD		M/M+2	0.78	0.65-0.89	9.93	7.8 - 12.9
1,2,3,7,8-PECDD ⁵		M/M+2	0.60	0.52-0.70	49.4	39 - 65
1,2,3,4,7,8-HXCDD		M+2/M+4	1.22	1.05-1.43	50.0	39 - 64
1,2,3,6,7,8-HXCDD		M+2/M+4	1.22	1.05-1.43	50.9	39 - 64
1,2,3,7,8,9-HXCDD		M+2/M+4	1.24	1.05-1.43	47.6	41 - 61
1,2,3,4,6,7,8-HPCDD		M+2/M+4	1.04	0.88-1.20	48.0	43 - 58
OCDD		M+2/M+4	0.85	0.76-1.02	94.0	79 - 126
2,3,7,8-TCDF		M/M+2	0.74	0.65-0.89	10.3	8.4 - 12
1,2,3,7,8-PECDF		M+2/M+4	1.55	1.32-1.78	52.0	41 - 60
2,3,4,7,8-PECDF		M+2/M+4	1.56	1.32-1.78	50.6	41 - 61
1,2,3,4,7,8-HXCDF		M+2/M+4	1.21	1.05-1.43	51.9	45 - 56
1,2,3,6,7,8-HXCDF		M+2/M+4	1.23	1.05-1.43	51.7	44 - 57
1,2,3,7,8,9-HXCDF		M+2/M+4	1.23	1.05-1.43	46.9	45 - 56
2,3,4,6,7,8-HXCDF		M+2/M+4	1.24	1.05-1.43	52.1	44 - 57
1,2,3,4,6,7,8-HPCDF		M+2/M+4	1.02	0.88-1.20	52.1	45 - 55
1,2,3,4,7,8,9-HPCDF		M+2/M+4	1.00	0.88-1.20	53.0	43 - 58
OCDF		M+2/M+4	0.89	0.76-1.02	93.5	63 - 159

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

(2) See Table 8, Method 1613, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(4) Contract-required concentration range as determined from the percent of the test concentration in Table 6, Method 1613, under VER.

(5) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Leanne Henley _____

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Report Filename: 1613_DIOXINS_DX8M_125AS29__Form4A_SJ2453700.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 4B
PCDD/PCDF 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: 04-Jun-2018

VER Data Filename: DX8M_125A S: 29

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: DB5

Analysis Time: 11:29:10

LABELLED COMPOUND	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) ⁴
13C-2,3,7,8-TCDD		M/M+2	0.78	0.65-0.89	94.8	82 - 121
13C-1,2,3,7,8-PECDD ⁵		M/M+2	0.64	0.52-0.70	103	62 - 160
13C-1,2,3,4,7,8-HXCDD		M+2/M+4	1.23	1.05-1.43	95.3	85 - 117
13C-1,2,3,6,7,8-HXCDD		M+2/M+4	1.21	1.05-1.43	106	85 - 118
13C-1,2,3,4,6,7,8-HPCDD		M+2/M+4	1.00	0.88-1.20	93.9	72 - 138
13C-OCDD		M+2/M+4	0.95	0.76-1.02	164	96 - 415
13C-2,3,7,8-TCDF		M/M+2	0.78	0.65-0.89	83.3	71 - 140
13C-1,2,3,7,8-PECDF		M+2/M+4	1.57	1.32-1.78	95.1	76 - 130
13C-2,3,4,7,8-PECDF		M+2/M+4	1.55	1.32-1.78	97.7	77 - 130
13C-1,2,3,4,7,8-HXCDF		M/M+2	0.51	0.43-0.59	88.9	76 - 131
13C-1,2,3,6,7,8-HXCDF		M/M+2	0.51	0.43-0.59	98.2	70 - 143
13C-1,2,3,7,8,9-HXCDF		M/M+2	0.51	0.43-0.59	83.9	74 - 135
13C-2,3,4,6,7,8-HXCDF		M/M+2	0.52	0.43-0.59	94.8	73 - 137
13C-1,2,3,4,6,7,8-HPCDF		M/M+2	0.46	0.37-0.51	87.4	78 - 129
13C-1,2,3,4,7,8,9-HPCDF		M/M+2	0.45	0.37-0.51	84.0	77 - 129
CLEANUP STANDARD						
37CL-2,3,7,8-TCDD ⁶					8.85	7.9 - 12.7

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

(2) See Table 8, Method 1613, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(4) Contract-required concentration range as determined from the percent of the test concentration in Table 6, Method 1613, under VER.

(5) Alternate confirmation and quantitation ions used for native and labeled PECDD.

(6) No ion abundance ratio for 37Cl4-2,3,7,8-TCDD; concentration reported.

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

Signed: _____ Leanne Henley_____

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Report Filename: 1613_DIOXINS_DX8M_125AS29_Form4B_SJ2453700.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 6A
PCDD/PCDF RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

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

Initial Calibration Date: 04-Jun-2018

VER Data Filename: DX8M_125A S: 29

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: DB5

Analysis Time: 11:29:10

COMPOUND	LAB FLAG ¹	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS ²
2,3,7,8-TCDD		13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PECDD ³		13C-1,2,3,7,8-PECDD	1.001	0.999-1.002
1,2,3,4,7,8-HXCDD		13C-1,2,3,4,7,8-HXCDD	1.000	0.999-1.001
1,2,3,6,7,8-HXCDD		13C-1,2,3,6,7,8-HXCDD	1.000	0.998-1.004
1,2,3,7,8,9-HXCDD		13C-1,2,3,6,7,8-HXCDD	1.010	1.000-1.019
1,2,3,4,6,7,8-HPCDD		13C-1,2,3,4,6,7,8-HPCDD	1.000	0.999-1.001
OCDD		13C-OCDD	1.000	0.999-1.001
2,3,7,8-TCDF		13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PECDF		13C-1,2,3,7,8-PECDF	1.001	0.999-1.002
2,3,4,7,8-PECDF		13C-2,3,4,7,8-PECDF	1.001	0.999-1.002
1,2,3,4,7,8-HXCDF		13C-1,2,3,4,7,8-HXCDF	1.001	0.999-1.001
1,2,3,6,7,8-HXCDF		13C-1,2,3,6,7,8-HXCDF	1.000	0.997-1.005
1,2,3,7,8,9-HXCDF		13C-1,2,3,7,8,9-HXCDF	1.000	0.999-1.001
2,3,4,6,7,8-HXCDF		13C-2,3,4,6,7,8-HXCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HPCDF		13C-1,2,3,4,6,7,8-HPCDF	1.000	0.999-1.001
1,2,3,4,7,8,9-HPCDF		13C-1,2,3,4,7,8,9-HPCDF	1.000	0.999-1.001
OCDF		13C-OCDD	1.002	0.999-1.008

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

(2) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1613.

(3) Alternate confirmation and quantitation ions used for native and labeled PECDD.

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

Signed: _____ Leanne Henley _____

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 Report Filename: 1613_DIOXINS_DX8M_125AS29__Form6A_SJ2453700.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 6B
PCDD/PCDF RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

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

Initial Calibration Date: 04-Jun-2018

VER Data Filename: DX8M_125A S: 29

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: DB5

Analysis Time: 11:29:10

LAB FLAG ¹	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS ²
LABELED COMPOUND			
13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.013	0.976-1.043
13C-1,2,3,7,8-PECDD	13C-1,2,3,4-TCDD	1.382	1.000-1.567
13C-1,2,3,4,7,8-HXCDD	13C-1,2,3,7,8,9-HXCDD	0.987	0.977-1.000
13C-1,2,3,6,7,8-HXCDD	13C-1,2,3,7,8,9-HXCDD	0.990	0.981-1.003
13C-1,2,3,4,6,7,8-HPCDD	13C-1,2,3,7,8,9-HXCDD	1.094	1.086-1.110
13C-OCDD	13C-1,2,3,7,8,9-HXCDD	1.178	1.032-1.311
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.966	0.923-1.103
13C-1,2,3,7,8-PECDF	13C-1,2,3,4-TCDD	1.283	1.000-1.425
13C-2,3,4,7,8-PECDF	13C-1,2,3,4-TCDD	1.350	1.011-1.526
13C-1,2,3,4,7,8-HXCDF	13C-1,2,3,7,8,9-HXCDD	0.954	0.944-0.970
13C-1,2,3,6,7,8-HXCDF	13C-1,2,3,7,8,9-HXCDD	0.958	0.949-0.975
13C-1,2,3,7,8,9-HXCDF	13C-1,2,3,7,8,9-HXCDD	1.005	0.977-1.047
13C-2,3,4,6,7,8-HXCDF	13C-1,2,3,7,8,9-HXCDD	0.980	0.959-1.021
13C-1,2,3,4,6,7,8-HPCDF	13C-1,2,3,7,8,9-HXCDD	1.062	1.043-1.085
13C-1,2,3,4,7,8,9-HPCDF	13C-1,2,3,7,8,9-HXCDD	1.104	1.057-1.151
CLEANUP STANDARD			
37CL-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.001	0.989-1.052

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

(2) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1613.

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

Signed: _____ Leanne Henley _____

For Axys Internal Use Only [XSL Template: Form6B.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS_DX8M_125AS29_Form6B_SJ2453700.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 5

PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

SGS AXYS ANALYTICAL SERVICES

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

Instrument ID:	HR GC/MS	Initial Calibration Date:	04-Jun-2018
RT Window Data Filename:	DX8M_125A S: 11	Analysis Date:	22-Oct-2018
DB-5 IS Data Filename:	DX8M_125A S: 11	Analysis Date:	22-Oct-2018
DB-225 IS Data Filename:		Analysis Date:	
		Time:	18:56:33
		Time:	18:56:33
		Time:	

DB5 RT WINDOW DEFINING STANDARDS RESULT

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	22:59	1,3,6,8-TCDF (F)	21:28
1,2,8,9-TCDD (L)	28:22	1,2,8,9-TCDF (L)	28:12
1,2,4,7,9-PECDD (F)	32:04	1,3,4,6,8-PECDF (F)	28:54
1,2,3,8,9-PECDD (L)	37:05	1,2,3,8,9-PECDF (L)	37:08
1,2,4,6,7,9-HXCDD (F)	40:03	1,2,3,4,6,8-HXCDF (F)	39:00
1,2,3,4,6,7-HXCDD (L)	42:42	1,2,3,4,8,9-HXCDF (L)	43:02
1,2,3,4,6,7,9-HPCDD (F)	45:49	1,2,3,4,6,7,8-HPCDF (F)	45:21
1,2,3,4,6,7,8-HPCDD (L)	46:43	1,2,3,4,7,8,9-HPCDF (L)	47:07

(F) = First eluting isomer (DB-5); (L) = Last eluting isomer (DB-5)

ISOMER SPECIFICITY (IS) TEST STANDARDS RESULT

Isomers	% Valley Height Between Compared Peaks	Isomers	% Valley Height Between Compared Peaks
1,2,3,4-TCDD 1,2,7,8-TCDD	0	1,2,3,8-TCDD 2,3,7,8-TCDD	18
1,2,7,8-TCDD 1,4,7,8-TCDD	0	2,3,4,7-TCDF 2,3,7,8-TCDF	N/A
1,4,7,8-TCDD 1,2,3,7-TCDD	0	2,3,7,8-TCDF 1,2,3,9-TCDF	N/A
1,2,3,7-TCDD 1,2,3,8-TCDD	DB-5 column; co-elute as per Figure 6 in Method		

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

Signed: _____ Leanne Henley _____

For Axy Internal Use Only [XSL Template: DXForm5.xsl; Created: 29-Oct-2018 16:27:13; Application: XMLTransformer-1.16.51;
Report Filename: 1613_DIOXINS__DX8M_125AS11_Form5_SJ2453071.html; Workgroup: WG65521; Design ID: 3359]

SGS AXYS METHOD MLA-017 Rev 20

Form 5

PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

SGS AXYS ANALYTICAL SERVICES

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

Instrument ID:	HR GC/MS	Initial Calibration Date:	04-Jun-2018
RT Window Data Filename:	DX8M_125A S: 23	Analysis Date:	23-Oct-2018
DB-5 IS Data Filename:	DX8M_125A S: 23	Analysis Date:	23-Oct-2018
DB-225 IS Data Filename:		Analysis Date:	
		Time:	06:07:37
		Time:	06:07:37
		Time:	

DB5 RT WINDOW DEFINING STANDARDS RESULT

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	23:00	1,3,6,8-TCDF (F)	21:29
1,2,8,9-TCDD (L)	28:23	1,2,8,9-TCDF (L)	28:12
1,2,4,7,9-PECDD (F)	32:05	1,3,4,6,8-PECDF (F)	28:55
1,2,3,8,9-PECDD (L)	37:06	1,2,3,8,9-PECDF (L)	37:09
1,2,4,6,7,9-HXCDD (F)	40:04	1,2,3,4,6,8-HXCDF (F)	39:01
1,2,3,4,6,7-HXCDD (L)	42:43	1,2,3,4,8,9-HXCDF (L)	43:03
1,2,3,4,6,7,9-HPCDD (F)	45:49	1,2,3,4,6,7,8-HPCDF (F)	45:21
1,2,3,4,6,7,8-HPCDD (L)	46:44	1,2,3,4,7,8,9-HPCDF (L)	47:08

(F) = First eluting isomer (DB-5); (L) = Last eluting isomer (DB-5)

ISOMER SPECIFICITY (IS) TEST STANDARDS RESULT

Isomers	% Valley Height Between Compared Peaks	Isomers	% Valley Height Between Compared Peaks
1,2,3,4-TCDD 1,2,7,8-TCDD	0	1,2,3,8-TCDD 2,3,7,8-TCDD	17
1,2,7,8-TCDD 1,4,7,8-TCDD	0	2,3,4,7-TCDF 2,3,7,8-TCDF	N/A
1,4,7,8-TCDD 1,2,3,7-TCDD	0	2,3,7,8-TCDF 1,2,3,9-TCDF	N/A
1,2,3,7-TCDD 1,2,3,8-TCDD	DB-5 column; co-elute as per Figure 6 in Method		

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

Signed: _____ Leanne Henley _____

Accreditation ScopeSGS AXYS Analytical Services Ltd.
file ref.: ACC-101 Rev. 40

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		SGS AXYS MLA-021	MLA-021		Y	Y								Y		Y							Y		Y			Y	Y			Y		
	Anthracene	EPA 1625	MLA-021																						Y			Y					Y	
		EPA 8270	MLA-021			Y				Y	Y			Y	Y													Y					Y	
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y						Y		Y							Y		
	Benz[a]anthracene	EPA 1625	MLA-021																						Y			Y	Y			Y		
		EPA 8270	MLA-021			Y				Y	Y			Y	Y																		Y	
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y						Y		Y							Y		
	Benzo[a]pyrene	EPA 1625	MLA-021																						Y			Y	Y			Y		
		EPA 8270	MLA-021			Y				Y	Y			Y	Y																		Y	
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y						Y		Y							Y		
	Benzo[b]fluoranthene	EPA 1625	MLA-021																							Y			Y	Y		Y	Y	
		EPA 8270	MLA-021			Y				Y	Y			Y	Y																		Y	
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y						Y		Y							Y		
	Benzo[e]pyrene	SGS AXYS MLA-021	MLA-021		Y												Y						Y		Y								Y	
	Benzo[ghi]perylene	EPA 1625	MLA-021																							Y			Y	Y			Y	
		EPA 8270	MLA-021			Y				Y	Y			Y	Y																		Y	
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y						Y		Y								Y	
	Benzo[j/k]fluoranthenes	SGS AXYS MLA-021	MLA-021		Y												Y						Y		Y								Y	
	Benzo[k]fluoranthene	EPA 1625	MLA-021																							Y			Y	Y		Y	Y	
		EPA 8270	MLA-021			Y				Y				Y	Y																		Y	
		SGS AXYS MLA-021	MLA-021			Y									Y										Y								Y	
	Biphenyl	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C1-Acenaphthenes	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C1-Benz(a)anthracenes/chrysenes	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C1-Benzofluoranthenes/ Benzopyrenes	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C1-Biphenyls	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C1-Dibenzothiophene	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C1-Fluoranthenes/Pyrenes	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C1-Fluorenes	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C1-Naphthalenes	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C1-Phenanthrenes/Anthracenes	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C2-Benz(a)anthracenes/Chrysenes	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C2-Benzofluoranthenes/ Benzopyrenes	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C2-Biphenyls	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C2-Dibenzothiophene	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C2-Fluoranthenes/Pyrenes	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C2-Fluorenes	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C2-Naphthalenes	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C2-Phenanthrenes/Anthracenes	SGS AXYS MLA-021	MLA-021		Y																			Y										
	C3-Benz(a)anthracenes/Chrysenes	SGS AXYS MLA-021	MLA-021		Y																			Y										
C3-Dibenzothiophene	SGS AXYS MLA-021	MLA-021		Y																			Y											
C3-Fluoranthenes/Pyrenes	SGS AXYS MLA-021	MLA-021		Y																			Y											
C3-Fluorenes	SGS AXYS MLA-021	MLA-021		Y																			Y											
C3-Naphthalenes	SGS AXYS MLA-021	MLA-021		Y																			Y											
C3-Phenanthrenes/Anthracenes	SGS AXYS MLA-021	MLA-021		Y																			Y											
C4-Benz(a)anthracenes/Chrysenes	SGS AXYS MLA-021	MLA-021		Y																			Y											
C4-Dibenzothiophene	SGS AXYS MLA-021	MLA-021		Y																			Y											
C4-Fluoranthenes/Pyrenes	SGS AXYS MLA-021	MLA-021		Y																			Y											
C4-Naphthalenes	SGS AXYS MLA-021	MLA-021		Y																			Y											
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		EPA 1614	MLA-033										Y																					
	SGS AXYS MLA-033	SGS AXYS MLA-033	MLA-033	Y	Y											Y							Y											
		EPA 625	MLA-007																															
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		EPA 8270	MLA-007				Y			Y	Y			Y													Y	Y			Y		Y	
	SGS AXYS MLA-010	MLA-010	MLA-010				Y							Y											Y								Y	
		SGS AXYS MLA-007	MLA-007		Y		Y							Y		Y						Y	Y		Y								Y	
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	SGS AXYS MLA-010	MLA-010	MLA-010				Y							Y											Y								Y	
		SGS AXYS MLA-007	MLA-007		Y		Y							Y		Y						Y	Y		Y								Y	
	EPA 1668	MLA-010	MLA-010				Y						Y	Y											Y					Y		Y		
		EPA 625	MLA-007																							Y								
	EPA 8270	MLA-007	MLA-007				Y			Y	Y		Y														Y	Y			Y		Y	
		SGS AXYS MLA-010	MLA-010				Y							Y											Y								Y	
	SGS AXYS MLA-007	MLA-007	MLA-007		Y		Y							Y		Y						Y	Y		Y								Y	
		EPA 1668	MLA-010				Y						Y	Y											Y					Y		Y		
	EPA 625	MLA-007	MLA-007																						Y									
		EPA 8270	MLA-007				Y			Y	Y	Y		Y												Y	Y			Y		Y		
	SGS AXYS MLA-010	MLA-010	MLA-010				Y							Y											Y								Y	
		SGS AXYS MLA-007	MLA-007		Y		Y							Y		Y						Y	Y		Y								Y	
	EPA 1668	MLA-010	MLA-010				Y						Y	Y											Y					Y		Y		
		EPA 625	MLA-007																						Y									
	EPA 8270	MLA-007	MLA-007				Y			Y	Y	Y		Y												Y	Y			Y		Y		
		SGS AXYS MLA-010	MLA-010				Y							Y											Y								Y	
	SGS AXYS MLA-007	MLA-007	MLA-007		Y		Y							Y		Y						Y	Y		Y								Y	
		SGS AXYS MLA-007	MLA-007		Y											Y						Y	Y		Y									
	EPA 1668	MLA-010	MLA-010				Y			Y	Y	Y	Y	Y	Y							Y			Y					Y		Y		
		EPA 8270	MLA-007									Y															Y	Y						
	SGS AXYS MLA-010	MLA-010	MLA-010	Y	Y	Y								Y		Y						Y	Y		Y								Y	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y						Y	Y		Y								Y	
	EPA 1668	MLA-010	MLA-010				Y			Y	Y	Y	Y	Y	Y							Y			Y					Y		Y		
		EPA 8270	MLA-007								Y																Y	Y						
	SGS AXYS MLA-010	MLA-010	MLA-010	Y	Y	Y								Y		Y						Y	Y		Y								Y	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y						Y	Y		Y								Y	
	EPA 1668	MLA-010	MLA-010				Y			Y	Y	Y	Y	Y	Y							Y			Y					Y		Y		
		EPA 8270	MLA-007								Y																Y	Y						
	SGS AXYS MLA-010	MLA-010	MLA-010	Y	Y	Y								Y		Y						Y	Y		Y								Y	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y						Y	Y		Y								Y	

Accreditation Scope																																					
SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40																																					

Accreditation Scope				Serum										Tissue					Urine		Water		Water, Non-Potable										
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Solids										Tissue					Urine		Water		Water, Non-Potable										
				CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025
	PCB 131/142	EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-007	MLA-007		Y											Y							Y										
	PCB 132 2,2',3,3',4,6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y					Y					Y		Y	Y	Y	Y		Y	Y	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y				Y		Y		Y									Y
	PCB 132/168	EPA 8270	MLA-007									Y																					
		EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y		Y	Y	Y	Y		Y	Y
	PCB 133 2,2',3,3',5,5'-Hexachlorobiphenyl	EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y			Y		Y		Y			Y	Y	Y	Y		Y	Y	
	PCB 134 2,2',3,3',5,6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y					Y		Y				Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y				Y		Y		Y		Y						Y	
	PCB 134/143	EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-007	MLA-007		Y											Y						Y		Y									
	PCB 135 2,2',3,3',5,6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y					Y		Y				Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y				Y		Y		Y		Y						Y	
	PCB 136 2,2',3,3',6,6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y					Y		Y					Y	Y	Y	Y	Y		Y	Y
		EPA 8270	MLA-007									Y																					
	PCB 136 2,2',3,3',6,6'-Hexachlorobiphenyl	SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y			Y		Y		Y		Y							Y	
		SGS AXYS MLA-007	MLA-007		Y											Y						Y		Y									
	PCB 137 2,2',3,4,4',5'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y					Y		Y				Y		Y	Y	Y	Y		Y	Y
		EPA 8270	MLA-007									Y																					
	PCB 137 2,2',3,4,4',5'-Hexachlorobiphenyl	SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y			Y		Y		Y		Y		Y					Y	
		SGS AXYS MLA-007	MLA-007		Y											Y						Y		Y									
	PCB 138 2,2',3,4,4',5'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y					Y		Y				Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y			Y		Y		Y		Y							Y	
	PCB 138/163/164	EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-007	MLA-007		Y											Y						Y		Y									
	PCB 139 2,2',3,4,4',6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y			Y		Y		Y		Y							Y	
	PCB 14 3,5-Dichlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y		Y	Y	Y	Y		Y	Y
		EPA 8270	MLA-007									Y																					
	PCB 140 2,2',3,4,4',6'-Hexachlorobiphenyl	SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y		Y		Y		Y	Y	Y	Y		Y	Y
		EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y		Y	Y	Y	Y		Y	Y
	PCB 141 2,2',3,4,5,5'-Hexachlorobiphenyl	EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y		Y		Y		Y	Y	Y	Y		Y	Y
	PCB 142 2,2',3,4,5,6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y			Y		Y		Y		Y							Y	
	PCB 143 2,2',3,4,5,6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y			Y		Y		Y		Y							Y	
	PCB 144 2,2',3,4,5',6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y			Y		Y		Y		Y							Y	
	PCB 144/135	EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-007	MLA-007		Y											Y						Y		Y									
	PCB 145 2,2',3,4,6,6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y		Y	Y	Y	Y		Y	Y
		EPA 8270	MLA-007									Y																					
	PCB 146 2,2',3,4',5,5'-Hexachlorobiphenyl	SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y			Y		Y		Y		Y						Y		
		EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y		Y	Y	Y	Y		Y	Y

Accreditation Scope				SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40																			
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Serum										Tissue									
				CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	Urine
		SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Pentachlorobiphenyls (BZ-83 + BZ-99)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Pentachlorobiphenyls (BZ-85 + BZ-116 + BZ-117)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Pentachlorobiphenyls (BZ-86 + BZ-87 + BZ 97 + BZ-109 + BZ-119 + BZ-125)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Pentachlorobiphenyls (BZ-86 + BZ-87 + BZ-97 + BZ-108 + BZ-119 +BZ-125)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Pentachlorobiphenyls (BZ-88 + BZ-91)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Pentachlorobiphenyls (BZ-90 + BZ-101 + BZ-113)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Pentachlorobiphenyls (BZ-93 + BZ-95 + BZ-98 + BZ-100 + BZ-102)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Tetrachlorobiphenyls (BZ-40 + BZ-41 + BZ-71)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Tetrachlorobiphenyls (BZ-44 + BZ-47 + BZ-65)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Tetrachlorobiphenyls (BZ-45 + BZ-51)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Tetrachlorobiphenyls (BZ-49 + BZ-69)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Tetrachlorobiphenyls (BZ-50 + BZ-53)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Tetrachlorobiphenyls (BZ-59 + BZ-62 + BZ-75)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Tetrachlorobiphenyls (BZ-61 + BZ-70 + BZ-74 + BZ-76)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Trichlorobiphenyls (BZ-18 + BZ-30)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Trichlorobiphenyls (BZ-20 + BZ-28)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Trichlorobiphenyls (BZ-21 + BZ-33)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Sum - Trichlorobiphenyls (BZ-26 + BZ-29)	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
	Total Dichlorobiphenyls	SGS AXYS MLA-010	MLA-010											Y									
		EPA 1668	MLA-010											Y									
		EPA 8270	MLA-007										Y										
		SGS AXYS MLA-010	MLA-010	Y	Y								Y	Y		Y		Y	Y			Y	
	Total Heptachlorobiphenyls	SGS AXYS MLA-007	MLA-007			Y								Y				Y					
		EPA 1668	MLA-010											Y				Y					
		EPA 8270	MLA-007									Y											
		SGS AXYS MLA-010	MLA-010	Y	Y								Y	Y		Y		Y	Y			Y	
	Total Hexachlorobiphenyls	SGS AXYS MLA-007	MLA-007			Y								Y				Y					
		EPA 1668	MLA-010										Y					Y					
		EPA 8270	MLA-007								Y												
		SGS AXYS MLA-010	MLA-010	Y	Y								Y	Y		Y		Y	Y			Y	
	Total Monochlorobiphenyls	SGS AXYS MLA-007	MLA-007			Y								Y				Y					
		EPA 1668	MLA-010											Y				Y					

SGS AXYS Analytical Services Ltd.
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Accreditation Scope				Serum										Tissue					Urine		Water		Water, Non-Potable											
SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40				Solids																														
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **
	Lomefloxacin	SGS AXYS MLA-075 EPA 1694	MLA-075		Y								Y									Y								Y				
	Meprobamate	SGS AXYS MLA-075 SGS AXYS MLA-075	MLA-075		Y																	Y												
	Metformin	EPA 1694 SGS AXYS MLA-075	MLA-075		Y								Y									Y								Y				
	Methylprednisolone	SGS AXYS MLA-075	MLA-075		Y																	Y												
	Metoprolol	SGS AXYS MLA-075	MLA-075		Y																	Y												
	Miconazole	EPA 1694 SGS AXYS MLA-075	MLA-075										Y																	Y				
	Minocycline	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Naproxen	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Norfloxacin	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Norfluoxetine	SGS AXYS MLA-075	MLA-075		Y																	Y												
	Norgestimate	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Norverapamil	SGS AXYS MLA-075	MLA-075		Y																	Y												
	Ofloxacin	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Ormetoprim	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Oxacillin	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Oxolinic acid	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Oxycodone	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Oxytetracycline (OTC)	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Paroxetine	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Penicillin G	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Penicillin V	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Prednisolone	SGS AXYS MLA-075	MLA-075		Y																	Y												
	Prednisone	SGS AXYS MLA-075	MLA-075		Y																	Y												
	Promethazine	SGS AXYS MLA-075	MLA-075		Y																	Y												
	Propoxyphene	SGS AXYS MLA-075	MLA-075		Y																	Y												
	Propranolol	SGS AXYS MLA-075	MLA-075		Y																	Y												
	Ranitidine	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Roxithromycin	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Sarafloxacin	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Sertraline	SGS AXYS MLA-075	MLA-075		Y																	Y												
	Simvastatin	SGS AXYS MLA-075	MLA-075		Y																	Y												
	Sulfachloropyridazine	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Sulfadiazine	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				
	Sulfadimethoxine	EPA 1694 SGS AXYS MLA-075	MLA-075										Y									Y								Y				

Accreditation Scope																
SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40																
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Serum		Solids						Tissue		Urine	Water	Water, Non-Potable
				CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	
	Decanoylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Decenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	deoxycholic acid	SGS AXYS MLM-001	MLM-001	Y										Y		
	docosahexaenoic acid (DHA)	SGS AXYS MLM-001	MLM-001											Y		
	docosatetraenoic acid (adrenic acid)	SGS AXYS MLM-001	MLM-001											Y		
	Dodecanedioylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Dodecanoylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Dodecenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Dopamine	SGS AXYS MLM-001	MLM-001	Y										Y		
	eicosapentaenoic acid (EPA)	SGS AXYS MLM-001	MLM-001											Y		
	Eicosatetraenoic acid (arachidonic acid)	SGS AXYS MLM-001	MLM-001											Y		
	eicosatrienoic acid (dihomo-γ-linolenic acid)	SGS AXYS MLM-001	MLM-001											Y		
	Glutaconylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Glutamate	SGS AXYS MLM-001	MLM-001	Y										Y		
	Glutamine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Glutaryl carnitine (Hydroxyhexanoylcarnitine)	SGS AXYS MLM-001	MLM-001	Y										Y		
	Glycine	SGS AXYS MLM-001	MLM-001	Y										Y		
	glycochenodeoxycholic acid	SGS AXYS MLM-001	MLM-001	Y										Y		
	glycocholic acid	SGS AXYS MLM-001	MLM-001	Y										Y		
	glycodeoxycholic acid	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hexadecadienylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	hexadecanoic acid (palmitic acid)	SGS AXYS MLM-001	MLM-001											Y		
	Hexadecanoylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	hexadecenoic acid (palmitoleic acid)	SGS AXYS MLM-001	MLM-001											Y		
	Hexadecenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hexanoylcarnitine (Fumaryl carnitine)	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hexenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hexose (sum isomers)	SGS AXYS MLM-001	MLM-001	Y										Y		
	Histamine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Histidine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxyhexadecadienylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxyhexadecanoylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxyhexadecenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxybutyrylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxyoctadecenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxyproline	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxypropionylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxysphingomyeline C14:1	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxysphingomyeline C16:1	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxysphingomyeline C22:1	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxysphingomyeline C22:2	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxysphingomyeline C24:1	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxytetradecadienylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxytetradecenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Hydroxyvaleryl carnitine (Methylmalonylcarnitine)	SGS AXYS MLM-001	MLM-001	Y										Y		
	Isoleucine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Kynurenine	SGS AXYS MLM-001	MLM-001	Y										Y		
	Leucine	SGS AXYS MLM-001	MLM-001	Y										Y		
	lithocholic acid	SGS AXYS MLM-001	MLM-001	Y										Y		
	Lysine	SGS AXYS MLM-001	MLM-001	Y										Y		
	lysoPhosphatidylcholine acyl C14:0	SGS AXYS MLM-001	MLM-001	Y										Y		
	lysoPhosphatidylcholine acyl C16:0	SGS AXYS MLM-001	MLM-001	Y										Y		
	lysoPhosphatidylcholine acyl C16:1	SGS AXYS MLM-001	MLM-001	Y										Y		
	lysoPhosphatidylcholine acyl C17:0	SGS AXYS MLM-001	MLM-001	Y										Y		
	lysoPhosphatidylcholine acyl C18:0	SGS AXYS MLM-001	MLM-001	Y										Y		
	lysoPhosphatidylcholine acyl C18:1	SGS AXYS MLM-001	MLM-001	Y										Y		
	lysoPhosphatidylcholine acyl C18:2	SGS AXYS MLM-001	MLM-001	Y										Y		
	lysoPhosphatidylcholine acyl C20:3	SGS AXYS MLM-001	MLM-001	Y										Y		

Accreditation Scope				Serum		Solids		Tissue		Urine	Water	Water, Non-Potable													
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **
	lysoPhosphatidylcholine acyl C20:4	SGS AXYS MLM-001	MLM-001	Y									Y												
	lysoPhosphatidylcholine acyl C24:0	SGS AXYS MLM-001	MLM-001	Y									Y												
	lysoPhosphatidylcholine acyl C26:1	SGS AXYS MLM-001	MLM-001	Y									Y												
	lysoPhosphatidylcholine acyl C28:0	SGS AXYS MLM-001	MLM-001	Y									Y												
	lysoPhosphatidylcholine acyl C28:1	SGS AXYS MLM-001	MLM-001	Y									Y												
	Methionine	SGS AXYS MLM-001	MLM-001	Y									Y												
	Methioninesulfoxide	SGS AXYS MLM-001	MLM-001	Y									Y												
	Methylglutaryl carnitine	SGS AXYS MLM-001	MLM-001	Y									Y												
	Nitrotyrosine	SGS AXYS MLM-001	MLM-001	Y									Y												
	Nonacyl carnitine	SGS AXYS MLM-001	MLM-001	Y									Y												
	octadecadienoic acid (linoleic acid)	SGS AXYS MLM-001	MLM-001										Y												
	Octadecadienyl carnitine	SGS AXYS MLM-001	MLM-001	Y									Y												
	octadecanoic acid (stearic acid)	SGS AXYS MLM-001	MLM-001										Y												
	Octadecanoyl carnitine	SGS AXYS MLM-001	MLM-001	Y									Y												
	octadecatrienoic acid (γ-linolenic acid)	SGS AXYS MLM-001	MLM-001										Y												
	Octadecenoyl carnitine	SGS AXYS MLM-001	MLM-001	Y									Y												
	Octanoyl carnitine	SGS AXYS MLM-001	MLM-001	Y									Y												
	Ornithine	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phenylalanine	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phenylethylamine	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C30:0	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C30:1	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C30:2	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C32:1	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C32:2	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C34:0	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C34:1	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C34:2	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C34:3	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C36:0	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C36:1	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C36:2	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C36:3	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C36:4	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C36:5	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C38:0	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C38:1	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C38:2	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C38:3	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C38:5	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C38:6	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C40:1	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C40:2	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C40:3	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C40:4	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C40:5	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C40:6	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C42:0	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C42:1	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C42:2	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C42:3	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C42:4	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C42:5	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C44:3	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C44:4	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C44:5	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine acyl-alkyl C44:6	SGS AXYS MLM-001	MLM-001	Y									Y												
	Phosphatidylcholine diacyl C24:0	SGS AXYS MLM-001	MLM-001	Y									Y												

Accreditation Scope				Serum		Solids		Tissue		Urine		Water		Water, Non-Potable	
SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40				CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	Pennsylvania DEP	ANAB ISO 17025
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	Pennsylvania DEP	ANAB ISO 17025
	Phosphatidylcholine diacyl C26:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C28:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C30:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C30:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C32:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C32:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C32:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C32:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C34:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C34:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C34:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C34:4	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C36:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C36:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C36:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C36:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C36:4	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C36:5	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C36:6	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C38:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C38:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C38:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C38:4	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C38:5	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C38:6	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C40:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C40:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C40:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C40:4	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C40:5	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C40:6	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C42:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C42:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C42:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C42:4	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C42:5	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C42:6	SGS AXYS MLM-001	MLM-001	Y											
	Pimelylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Proline	SGS AXYS MLM-001	MLM-001	Y											
	Propenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Propionylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Putrescine	SGS AXYS MLM-001	MLM-001	Y											
	Sarcosine	SGS AXYS MLM-001	MLM-001	Y											
	Serine	SGS AXYS MLM-001	MLM-001	Y											
	Serotonin	SGS AXYS MLM-001	MLM-001	Y											
	Spermidine	SGS AXYS MLM-001	MLM-001	Y											
	Spermine	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C16:0	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C16:1	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C18:0	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C18:1	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C20:2	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C22:3	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C24:0	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C24:1	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C26:0	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C26:1	SGS AXYS MLM-001	MLM-001	Y											
	Symmetric dimethylarginine	SGS AXYS MLM-001	MLM-001	Y											

Accreditation Scope				Serum		Solids		Tissue		Urine		Water		Water, Non-Potable	
SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40															
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **
	Taurine	SGS AXYS MLM-001	MLM-001	Y	Y										Y
	taurochenodeoxycholic acid	SGS AXYS MLM-001	MLM-001	Y											Y
	taurocholic acid	SGS AXYS MLM-001	MLM-001	Y											Y
	taurodeoxycholic acid	SGS AXYS MLM-001	MLM-001	Y											Y
	tauroolithocholic acid	SGS AXYS MLM-001	MLM-001	Y											Y
	taurooursodeoxycholic acid	SGS AXYS MLM-001	MLM-001	Y											Y
	Tetradecadienylcarnitine	SGS AXYS MLM-001	MLM-001	Y											Y
	tetradecanoic acid (myristic acid)	SGS AXYS MLM-001	MLM-001												Y
	Tetradecanoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											Y
	Tetradecenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											Y
	Threonine	SGS AXYS MLM-001	MLM-001	Y											Y
	Tiglylcarnitine	SGS AXYS MLM-001	MLM-001	Y											Y
	Total dimethylarginine	SGS AXYS MLM-001	MLM-001	Y											Y
	Tryptophan	SGS AXYS MLM-001	MLM-001	Y											Y
	Tyrosine	SGS AXYS MLM-001	MLM-001	Y											Y
	ursodeoxycholic acid	SGS AXYS MLM-001	MLM-001	Y											Y
	Valeryl carnitine	SGS AXYS MLM-001	MLM-001	Y											Y
	Valine	SGS AXYS MLM-001	MLM-001	Y											Y
TBBPA	Tetrabromobisphenol A	SGS AXYS MLA-079	MLA-079	Y											
TOP	Perfluorobutanesulfonate (PFBS)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluorobutanoate (PFBA)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluorodecanesulfonate (PFDS)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluorodecanoate (PFDA)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluorododecanesulfonate (PFDoS)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluorododecanoate (PFDoA)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluoroheptanesulfonate (PFHpS)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluoroheptanoate (PFHpA)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluorohexanesulfonate (PFHxS)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluorohexanoate (PFHxA)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluorononanesulfonate (PFNS)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluorononanoate (PFNA)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluorooctanesulfonate (PFOS)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluorooctanoate (PFOA)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluoropentanesulfonate (PFPeS)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluoropentanoate (PFPeA)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluorotetradecanoate (PFTeDA)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluorotridecanoate (PFTrDA)	SGS AXYS MLA-111	MLA-111		Y										Y
	Perfluoroundecanoate (PFUnA)	SGS AXYS MLA-111	MLA-111		Y										Y
Note *															
Analysis of pesticides and PCBs in non-potable water samples by AXYS method MLA-007, with the exception of NPDES or State permitted discharges and Stormwater applications, may fall within the scope of Washington State Department of Ecology solids matrix accreditation, subject to approval of the Ecology Project Manager.															
Note **															
PFAS by LC-MS/MS compliant with US DoD QSM 5.1 table B-15															

Legend

Y	Accreditation scope
BFR	Brominated flame retardants (non-PBDPE)
BPA and mPE	Bisphenol A and mono-Phthalate Esters
HBCDD	Hexabromocyclododecane
OC Pesticides	Organochlorine Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PBDPE	Polybrominated diphenylethers
PCB	Polychlorinated Biphenyls
PCDDF	Polychlorinated dibenzodioxins/furans
PFAS	Per- and Polyfluoroalkyl Substances
PPCP	Pharmaceutical and Personal Care Products
TBBPA	Tetrabromobisphenol A
TOP	Total Oxidizable Precursors
California DPH	California Department of Public Health, Lab ID 2911
Florida DOH	Florida Department of Health, Lab ID E871007, (NELAC Standard)
Pennsylvania DEP	Pennsylvania Department of Environmental Protection
Minnesota DOH	Minnesota Department of Health, Lab ID 232-999-430, (NELAC Standard)
New Jersey DEP	New Jersey Department of Environmental Protection, Lab ID CANA005, (NELAC Standard)
New York DOH	New York Department of Health, Lab ID 11674, (NELAC Standard)
Washington DE	Washington Department of Ecology, Lab ID C404
Virginia DGS	Virginia Department of General Services, Division of Consolidated Laboratory Services, Lab ID 460224, (NELAC Standard)
Maine DOH	Maine Center for Disease Control and Prevention, Department of Health and Human Services, Lab ID CN00003

ANAB DoD ANSI-ASQ National Accreditation Board, certificate ADE-1861, (US DoD QSM 5.1 Standard)



CALA Canadian Association for Laboratory Accreditation Inc., Lab ID A2637, (ISO/IEC 17025:2005 Standard)



CALA
Testing
Accreditation No. A 2637



ANAB ISO 17025 ANSI-ASQ National Accreditation Board, certificate ADE-1861.01, (ISO/IEC 17025:2005 Standard)

