

**SGS**

**AXYS**

2045 Mills Road West

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SGS AXYS Client No.: 4972

Client Address: AECOM  
1111 Third Avenue, Suite 1600  
Seattle, WA, US, 98101

The SGS AXYS contact for these data is Sean Campbell.

# BATCH SUMMARY

<b>Batch ID:</b> WG67785	<b>Date:</b> 10-May-2019
<b>Analysis Type:</b> Dioxin/Furan	<b>Matrix Type:</b> Filter
<b>BATCH MAKEUP</b>	
<b>Contract:</b> 4972 <b>Samples:</b>  L30771-1 PDI-RB-XF-190127 L30771-2 PDI-WS-T04-1902 L30771-3 PDI-WS-T05-1902 L30771-4 PDI-WS-T06-1901 L30771-5 PDI-WS-T07-1901 L30771-6 PDI-WS-T01-1902 L30771-7 PDI-WS-T02-1902 L30771-8 PDI-WS-T03-1902	<b>Blank:</b> WG67785-101  <b>Reference or Spike:</b> WG67785-102  <b>Duplicate:</b> WG67785-103
<b>Comments:</b> <ol style="list-style-type: none"> <li>1. Data are considered final.</li> <li>2. Data are not blank corrected. Blank data should be taken into consideration when evaluating sample data.</li> <li>3. Blank data should be evaluated against specifications using the same blank sample size as the size of the client samples.</li> </ol>	

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February 2017

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

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.  
PDI-RB-XF-190127  
Sample Collection:  
27-Jan-2019 15:50

## 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: FILTER

Sample Receipt Date: 22-Feb-2019

Extraction Date: 22-Apr-2019

Analysis Date: 09-May-2019 Time: 02:12:38

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/sample

Project No. PORTLAND HARBOR PDI AND  
BASELINE WATER

Lab Sample I.D.: L30771-1 R

Sample Size: 0.2 sample

Initial Calibration Date: 08-May-2019

Instrument ID: HR GC/MS

GC Column ID: DB5

Sample Data Filename: DX9B\_068 S: 7

Blank Data Filename: DX9B\_068 S: 6

Cal. Ver. Data Filename: DX9B\_068 S: 1

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
2,3,7,8-TCDD	U		2.50 (Q)		
1,2,3,7,8-PECDD <sup>4</sup>	U		2.50 (Q)		
1,2,3,4,7,8-HXCDD	U		2.50 (Q)		
1,2,3,6,7,8-HXCDD	U		2.50 (Q)		
1,2,3,7,8,9-HXCDD	U		2.50 (Q)		
1,2,3,4,6,7,8-HPCDD	K J	3.00	2.50 (Q)	0.43	1.000
OCDD	J	8.33	2.50 (Q)	0.82	1.000
2,3,7,8-TCDF	U		2.50 (Q)		
1,2,3,7,8-PECDF	U		2.50 (Q)		
2,3,4,7,8-PECDF	U		2.50 (Q)		
1,2,3,4,7,8-HXCDF	U		2.50 (Q)		
1,2,3,6,7,8-HXCDF	U		2.50 (Q)		
1,2,3,7,8,9-HXCDF	U		2.50 (Q)		
2,3,4,6,7,8-HXCDF	U		2.50 (Q)		
1,2,3,4,6,7,8-HPCDF	U		2.50 (Q)		
1,2,3,4,7,8,9-HPCDF	U		2.50 (Q)		
OCDF	J	3.29	2.50 (Q)	0.80	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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form1A.xsl; Created: 10-May-2019 12:25:07; Application: XMLTransformer-1.17.8;  
Report Filename: 1613\_DIOXINS\_1613DB5\_L30771-1\_Form1A\_DX9B\_068S7\_SJ2558638.html; Workgroup: WG67785; Design ID: 3359 ]

SGS AXYS METHOD MLA-017 Rev 20

Form 2  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-RB-XF-190127  
Sample Collection:  
27-Jan-2019 15:50

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	L30771-1 R
<b>Sample Receipt Date:</b>	22-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	08-May-2019
<b>Analysis Date:</b>	09-May-2019 Time: 02:12:38	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB5
<b>Injection Volume (uL):</b>	1.0	<b>Sample Data Filename:</b>	DX9B_068 S: 7
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg absolute	<b>Cal. Ver. Data Filename:</b>	DX9B_068 S: 1

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

LABELLED COMPOUND	LAB FLAG <sup>1</sup>	SPIKE CONC.	CONC. FOUND	R(%) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
13C-2,3,7,8-TCDD		2000	1620	80.8	0.79	1.012
13C-1,2,3,7,8-PECDD <sup>4</sup>		2000	1610	80.3	0.64	1.385
13C-1,2,3,4,7,8-HXCDD		2000	1700	84.9	1.28	0.987
13C-1,2,3,6,7,8-HXCDD		2000	1680	84.0	1.26	0.990
13C-1,2,3,4,6,7,8-HPCDD		2000	1690	84.6	1.05	1.095
13C-OCDD		4000	2810	70.2	0.93	1.179
13C-2,3,7,8-TCDF		2000	1520	76.2	0.84	0.965
13C-1,2,3,7,8-PECDF		2000	1670	83.4	1.60	1.285
13C-2,3,4,7,8-PECDF		2000	1470	73.5	1.59	1.353
13C-1,2,3,4,7,8-HXCDF		2000	1520	76.2	0.53	0.954
13C-1,2,3,6,7,8-HXCDF		2000	1650	82.5	0.54	0.958
13C-1,2,3,7,8,9-HXCDF		2000	1350	67.7	0.54	1.004
13C-2,3,4,6,7,8-HXCDF		2000	1490	74.6	0.54	0.980
13C-1,2,3,4,6,7,8-HPCDF		2000	1400	69.8	0.44	1.062
13C-1,2,3,4,7,8,9-HPCDF		2000	1410	70.3	0.45	1.104

## CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	157	78.6		1.013
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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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T04-1902  
Sample Collection:  
17-Feb-2019 19:35

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	L30771-2 R
<b>Sample Receipt Date:</b>	22-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	08-May-2019
<b>Analysis Date:</b>	09-May-2019 Time: 03:07:21	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB5
<b>Injection Volume (uL):</b>	1.0	<b>Sample Data Filename:</b>	<b>DX9B_068 S: 8</b>
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg/sample	<b>Cal. Ver. Data Filename:</b>	DX9B_068 S: 1

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COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
2,3,7,8-TCDD	K J	3.61	2.50 (Q)	0.48	1.001
1,2,3,7,8-PECDD <sup>4</sup>	K J	5.35	2.50 (Q)	0.90	1.001
1,2,3,4,7,8-HXCDD	J	8.92	2.50 (Q)	1.25	1.000
1,2,3,6,7,8-HXCDD	J	26.8	2.50 (Q)	1.07	1.000
1,2,3,7,8,9-HXCDD	J	23.1	2.50 (Q)	1.21	1.010
1,2,3,4,6,7,8-HPCDD		705	4.58 (S)	1.05	1.000
OCDD		6840	2.50 (Q)	0.90	1.000
2,3,7,8-TCDF		93.7	2.50 (Q)	0.77	1.001
1,2,3,7,8-PECDF	J	32.2	2.50 (Q)	1.65	1.001
2,3,4,7,8-PECDF	J	19.3	2.50 (Q)	1.53	1.001
1,2,3,4,7,8-HXCDF		50.4	2.50 (Q)	1.22	1.000
1,2,3,6,7,8-HXCDF	J	14.4	2.50 (Q)	1.30	1.000
1,2,3,7,8,9-HXCDF	U		2.50 (Q)		
2,3,4,6,7,8-HXCDF	J	6.55	2.50 (Q)	1.10	1.000
1,2,3,4,6,7,8-HPCDF		181	2.50 (Q)	1.02	1.000
1,2,3,4,7,8,9-HPCDF	K J	18.3	2.50 (Q)	1.24	1.000
OCDF		363	2.50 (Q)	0.92	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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form1A.xsl; Created: 10-May-2019 12:25:07; Application: XMLTransformer-1.17.8;  
Report Filename: 1613\_DIOXINS\_1613DB5\_L30771-2\_Form1A\_DX9B\_068S8\_SJ2558639.html; Workgroup: WG67785; Design ID: 3359 ]

SGS AXYS METHOD MLA-017 Rev 20

Form 2  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T04-1902  
Sample Collection:  
17-Feb-2019 19:35

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	L30771-2 R
<b>Sample Receipt Date:</b>	22-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	08-May-2019
<b>Analysis Date:</b>	09-May-2019 Time: 03:07:21	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB5
<b>Injection Volume (uL):</b>	1.0	<b>Sample Data Filename:</b>	<b>DX9B_068 S: 8</b>
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg absolute	<b>Cal. Ver. Data Filename:</b>	DX9B_068 S: 1

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LABELLED COMPOUND	LAB FLAG <sup>1</sup>	SPIKE CONC.	CONC. FOUND	R(%) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
13C-2,3,7,8-TCDD		2000	1780	88.9	0.78	1.013
13C-1,2,3,7,8-PECDD <sup>4</sup>		2000	1790	89.5	0.63	1.385
13C-1,2,3,4,7,8-HXCDD		2000	1850	92.7	1.29	0.987
13C-1,2,3,6,7,8-HXCDD		2000	1830	91.4	1.27	0.990
13C-1,2,3,4,6,7,8-HPCDD		2000	1900	94.8	1.03	1.095
13C-OCDD		4000	3500	87.6	0.92	1.179
13C-2,3,7,8-TCDF		2000	1750	87.6	0.83	0.965
13C-1,2,3,7,8-PECDF		2000	1890	94.3	1.61	1.285
13C-2,3,4,7,8-PECDF		2000	1690	84.5	1.59	1.353
13C-1,2,3,4,7,8-HXCDF		2000	1700	85.0	0.52	0.953
13C-1,2,3,6,7,8-HXCDF		2000	1820	90.8	0.54	0.958
13C-1,2,3,7,8,9-HXCDF		2000	1560	78.0	0.54	1.004
13C-2,3,4,6,7,8-HXCDF		2000	1700	84.9	0.54	0.980
13C-1,2,3,4,6,7,8-HPCDF		2000	1710	85.5	0.45	1.062
13C-1,2,3,4,7,8,9-HPCDF		2000	1620	81.2	0.45	1.104

## CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	177	88.5		1.014
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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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T04-1902  
Sample Collection:  
17-Feb-2019 19:35

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	L30771-2 R
<b>Sample Receipt Date:</b>	22-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	26-Apr-2019
<b>Analysis Date:</b>	30-Apr-2019 <b>Time:</b> 01:07:44	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB225
<b>Injection Volume (uL):</b>	2.0	<b>Sample Data Filename:</b>	DB92_045 S: 8
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg/sample	<b>Cal. Ver. Data Filename:</b>	DB92_045 S: 2

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COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
1,2,3,7,8,9-HXCDD	J	21.1	2.50 (Q)	1.32	1.059
2,3,7,8-TCDF		79.2	2.50 (Q)	0.81	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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

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Report Filename: 1613\_DIOXINS\_1613DB225\_L30771-2\_Form1A\_DB92\_045S8\_SJ2558760.html; Workgroup: WG67785; Design ID: 3359 ]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.  
PDI-WS-T05-1902  
Sample Collection:  
17-Feb-2019 19:17

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	L30771-3 R
<b>Sample Receipt Date:</b>	22-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	08-May-2019
<b>Analysis Date:</b>	09-May-2019 Time: 04:01:58	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB5
<b>Injection Volume (uL):</b>	1.0	<b>Sample Data Filename:</b>	<b>DX9B_068 S: 9</b>
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg/sample	<b>Cal. Ver. Data Filename:</b>	DX9B_068 S: 1

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
2,3,7,8-TCDD	U		2.50 (Q)		
1,2,3,7,8-PECDD <sup>4</sup>	K J	5.20	2.50 (Q)	0.47	1.001
1,2,3,4,7,8-HXCDD	K J	7.95	2.50 (Q)	0.88	1.001
1,2,3,6,7,8-HXCDD	K J	26.0	2.50 (Q)	1.50	1.000
1,2,3,7,8,9-HXCDD	J	23.4	2.50 (Q)	1.06	1.010
1,2,3,4,6,7,8-HPCDD		685	2.76 (S)	1.07	1.000
OCDD		6830	2.50 (Q)	0.89	1.000
2,3,7,8-TCDF	K J	3.94	2.50 (Q)	1.11	1.002
1,2,3,7,8-PECDF	J	3.54	2.50 (Q)	1.35	1.001
2,3,4,7,8-PECDF	J	3.31	2.50 (Q)	1.53	1.000
1,2,3,4,7,8-HXCDF	K J	8.48	2.50 (Q)	1.82	1.000
1,2,3,6,7,8-HXCDF	J	7.01	2.50 (Q)	1.13	1.000
1,2,3,7,8,9-HXCDF	U		2.50 (Q)		
2,3,4,6,7,8-HXCDF	K J	6.29	2.50 (Q)	1.53	1.000
1,2,3,4,6,7,8-HPCDF		173	2.50 (Q)	1.02	1.000
1,2,3,4,7,8,9-HPCDF	J	10.7	2.50 (Q)	1.02	1.000
OCDF		297	2.50 (Q)	0.87	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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form1A.xsl; Created: 10-May-2019 12:25:07; Application: XMLTransformer-1.17.8;  
Report Filename: 1613\_DIOXINS\_1613DB5\_L30771-3\_Form1A\_DX9B\_068S9\_SJ2558640.html; Workgroup: WG67785; Design ID: 3359 ]



## SGS AXYS METHOD MLA-017 Rev 20

Form 2  
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.  
PDI-WS-T05-1902  
Sample Collection:  
17-Feb-2019 19:17

## 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: FILTER

Sample Receipt Date: 22-Feb-2019

Extraction Date: 22-Apr-2019

Analysis Date: 09-May-2019 Time: 04:01:58

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg absolute

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  
L30771-3 R

0.2 sample

08-May-2019

HR GC/MS

DB5

DX9B\_068 S: 9

DX9B\_068 S: 6

DX9B\_068 S: 1

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

LABELLED COMPOUND	LAB FLAG <sup>1</sup>	SPIKE CONC.	CONC. FOUND	R(%) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
13C-2,3,7,8-TCDD		2000	1790	89.6	0.79	1.013
13C-1,2,3,7,8-PECDD <sup>4</sup>		2000	1800	90.1	0.64	1.385
13C-1,2,3,4,7,8-HXCDD		2000	1810	90.5	1.32	0.987
13C-1,2,3,6,7,8-HXCDD		2000	1810	90.3	1.28	0.990
13C-1,2,3,4,6,7,8-HPCDD		2000	1910	95.6	1.05	1.095
13C-OCDD		4000	3520	87.9	0.92	1.179
13C-2,3,7,8-TCDF		2000	1660	83.2	0.84	0.965
13C-1,2,3,7,8-PECDF		2000	1870	93.7	1.61	1.285
13C-2,3,4,7,8-PECDF		2000	1610	80.4	1.62	1.353
13C-1,2,3,4,7,8-HXCDF		2000	1610	80.6	0.53	0.954
13C-1,2,3,6,7,8-HXCDF		2000	1790	89.5	0.53	0.958
13C-1,2,3,7,8,9-HXCDF		2000	1440	72.0	0.54	1.005
13C-2,3,4,6,7,8-HXCDF		2000	1600	80.0	0.53	0.980
13C-1,2,3,4,6,7,8-HPCDF		2000	1580	79.1	0.44	1.063
13C-1,2,3,4,7,8,9-HPCDF		2000	1500	75.1	0.44	1.104

## CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	174	87.2		1.014
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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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T05-1902  
Sample Collection:  
17-Feb-2019 19:17

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:** FILTER  
**Sample Receipt Date:** 22-Feb-2019  
**Extraction Date:** 22-Apr-2019  
**Analysis Date:** 30-Apr-2019 **Time:** 01:52:18  
**Extract Volume (uL):** 20  
**Injection Volume (uL):** 2.0  
**Dilution Factor:** N/A  
**Concentration Units:** pg/sample

**Project No.** PORTLAND HARBOR PDI AND  
BASELINE WATER  
**Lab Sample I.D.:** L30771-3 R  
**Sample Size:** 0.2 sample  
**Initial Calibration Date:** 26-Apr-2019  
**Instrument ID:** HR GC/MS  
**GC Column ID:** DB225  
**Sample Data Filename:** DB92\_045 S: 9  
**Blank Data Filename:** DX9B\_068 S: 6  
**Cal. Ver. Data Filename:** DB92\_045 S: 2

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
1,2,3,7,8,9-HXCDD	J	16.0	2.50 (Q)	1.39	1.059
2,3,7,8-TCDF	U		2.50 (Q)		

- (1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; 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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

For Axy Internal Use Only [ XSL Template: Form1A.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8; Report Filename: 1613\_DIOXINS\_1613DB225\_L30771-3\_Form1A\_DB92\_045S9\_SJ2558761.html; Workgroup: WG67785; Design ID: 3359 ]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T06-1901  
Sample Collection:  
27-Jan-2019 10:40

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	L30771-4 R (A)
<b>Sample Receipt Date:</b>	22-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	08-May-2019
<b>Analysis Date:</b>	09-May-2019 Time: 04:56:40	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB5
<b>Injection Volume (uL):</b>	1.0	<b>Sample Data Filename:</b>	<b>DX9B_068 S: 10</b>
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg/sample	<b>Cal. Ver. Data Filename:</b>	DX9B_068 S: 1

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
2,3,7,8-TCDD	K J	2.94	2.50 (Q)	0.41	1.001
1,2,3,7,8-PECDD <sup>4</sup>	J	3.45	2.50 (Q)	0.59	1.001
1,2,3,4,7,8-HXCDD	J	6.63	2.50 (Q)	1.34	1.000
1,2,3,6,7,8-HXCDD	J	21.1	2.50 (Q)	1.42	1.000
1,2,3,7,8,9-HXCDD	J	17.5	2.50 (Q)	1.33	1.009
1,2,3,4,6,7,8-HPCDD		572	3.28 (S)	1.07	1.000
OCDD		4790	2.50 (Q)	0.89	1.000
2,3,7,8-TCDF	K J	2.63	2.50 (Q)	1.00	1.001
1,2,3,7,8-PECDF	U		2.50 (Q)		
2,3,4,7,8-PECDF	U		2.50 (Q)		
1,2,3,4,7,8-HXCDF	J	5.82	2.50 (Q)	1.38	1.000
1,2,3,6,7,8-HXCDF	K J	4.54	2.50 (Q)	1.00	1.001
1,2,3,7,8,9-HXCDF	U		2.50 (Q)		
2,3,4,6,7,8-HXCDF	J	3.99	2.50 (Q)	1.37	1.000
1,2,3,4,6,7,8-HPCDF		89.1	2.50 (Q)	1.12	1.000
1,2,3,4,7,8,9-HPCDF	K J	5.77	2.50 (Q)	0.80	1.000
OCDF		196	2.50 (Q)	0.91	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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form1A.xsl; Created: 10-May-2019 12:25:07; Application: XMLTransformer-1.17.8;  
Report Filename: 1613\_DIOXINS\_1613DB5\_L30771-4\_Form1A\_DX9B\_068S10\_SJ2558641.html; Workgroup: WG67785; Design ID: 3359 ]

## SGS AXYS METHOD MLA-017 Rev 20

Form 2  
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.  
PDI-WS-T06-1901  
Sample Collection:  
27-Jan-2019 10:40

## 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: FILTER

Sample Receipt Date: 22-Feb-2019

Extraction Date: 22-Apr-2019

Analysis Date: 09-May-2019 Time: 04:56:40

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND  
BASELINE WATER

Lab Sample I.D.: L30771-4 R (A)

Sample Size: 0.2 sample

Initial Calibration Date: 08-May-2019

Instrument ID: HR GC/MS

GC Column ID: DB5

Sample Data Filename: DX9B\_068 S: 10

Blank Data Filename: DX9B\_068 S: 6

Cal. Ver. Data Filename: DX9B\_068 S: 1

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

LABELLED COMPOUND	LAB FLAG <sup>1</sup>	SPIKE CONC.	CONC. FOUND	R(%) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
13C-2,3,7,8-TCDD		2000	1800	90.0	0.78	1.013
13C-1,2,3,7,8-PECDD <sup>4</sup>		2000	1750	87.3	0.64	1.385
13C-1,2,3,4,7,8-HXCDD		2000	1820	90.8	1.29	0.987
13C-1,2,3,6,7,8-HXCDD		2000	1780	88.8	1.27	0.990
13C-1,2,3,4,6,7,8-HPCDD		2000	1900	94.9	1.03	1.095
13C-OCDD		4000	3550	88.7	0.91	1.179
13C-2,3,7,8-TCDF		2000	1770	88.4	0.83	0.965
13C-1,2,3,7,8-PECDF		2000	1880	94.1	1.59	1.285
13C-2,3,4,7,8-PECDF		2000	1690	84.7	1.60	1.353
13C-1,2,3,4,7,8-HXCDF		2000	1760	88.0	0.53	0.954
13C-1,2,3,6,7,8-HXCDF		2000	1850	92.4	0.53	0.958
13C-1,2,3,7,8,9-HXCDF		2000	1650	82.4	0.54	1.004
13C-2,3,4,6,7,8-HXCDF		2000	1720	86.1	0.53	0.980
13C-1,2,3,4,6,7,8-HPCDF		2000	1680	84.2	0.45	1.062
13C-1,2,3,4,7,8,9-HPCDF		2000	1670	83.6	0.45	1.104

## CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	178	89.1		1.013
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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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T06-1901  
Sample Collection:  
27-Jan-2019 10:40

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	L30771-4 R (A)
<b>Sample Receipt Date:</b>	22-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	26-Apr-2019
<b>Analysis Date:</b>	30-Apr-2019 Time: 02:36:51	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB225
<b>Injection Volume (uL):</b>	2.0	<b>Sample Data Filename:</b>	DB92_045 S: 10
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg/sample	<b>Cal. Ver. Data Filename:</b>	DB92_045 S: 2

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
1,2,3,7,8,9-HXCDD	K J	9.49	2.50 (Q)	1.53	1.059
2,3,7,8-TCDF	U		2.50 (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.

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

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

For Axys Internal Use Only [ XSL Template: Form1A.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8;  
Report Filename: 1613\_DIOXINS\_1613DB225\_L30771-4\_Form1A\_DB92\_045S10\_SJ2558762.html; Workgroup: WG67785; Design ID: 3359 ]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T06-1901 (Duplicate)  
Sample Collection:  
27-Jan-2019 10:40

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	WG67785-103 (DUP L30771-4)
<b>Sample Receipt Date:</b>	22-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	08-May-2019
<b>Analysis Date:</b>	09-May-2019 Time: 05:51:20	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB5
<b>Injection Volume (uL):</b>	1.0	<b>Sample Data Filename:</b>	DX9B_068 S: 11
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg/sample	<b>Cal. Ver. Data Filename:</b>	DX9B_068 S: 1

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
2,3,7,8-TCDD	U		2.50 (Q)		
1,2,3,7,8-PECDD <sup>4</sup>	J	4.41	2.50 (Q)	0.53	1.001
1,2,3,4,7,8-HXCDD	J	5.04	2.50 (Q)	1.06	1.000
1,2,3,6,7,8-HXCDD	K J	19.1	2.50 (Q)	1.01	1.000
1,2,3,7,8,9-HXCDD	J	15.3	2.50 (Q)	1.21	1.010
1,2,3,4,6,7,8-HPCDD		445	3.64 (S)	1.03	1.000
OCDD		4340	2.50 (Q)	0.90	1.000
2,3,7,8-TCDF	J	2.78	2.50 (Q)	0.80	1.001
1,2,3,7,8-PECDF	U		2.50 (Q)		
2,3,4,7,8-PECDF	U		2.50 (Q)		
1,2,3,4,7,8-HXCDF	J	5.18	2.50 (Q)	1.18	1.000
1,2,3,6,7,8-HXCDF	J	4.31	2.50 (Q)	1.29	1.000
1,2,3,7,8,9-HXCDF	U		2.50 (Q)		
2,3,4,6,7,8-HXCDF	J	3.89	2.50 (Q)	1.19	1.000
1,2,3,4,6,7,8-HPCDF		99.7	2.50 (Q)	1.01	1.000
1,2,3,4,7,8,9-HPCDF	K J	6.05	2.56 (S)	1.80	1.000
OCDF		205	2.50 (Q)	0.88	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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

SGS AXYS METHOD MLA-017 Rev 20

Form 2  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T06-1901 (Duplicate)  
Sample Collection:  
27-Jan-2019 10:40

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	WG67785-103 (DUP L30771-4)
<b>Sample Receipt Date:</b>	22-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	08-May-2019
<b>Analysis Date:</b>	09-May-2019 Time: 05:51:20	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB5
<b>Injection Volume (uL):</b>	1.0	<b>Sample Data Filename:</b>	DX9B_068 S: 11
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg absolute	<b>Cal. Ver. Data Filename:</b>	DX9B_068 S: 1

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

LABELLED COMPOUND	LAB FLAG <sup>1</sup>	SPIKE CONC.	CONC. FOUND	R(%) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
13C-2,3,7,8-TCDD		2000	1830	91.4	0.79	1.012
13C-1,2,3,7,8-PECDD <sup>4</sup>		2000	1830	91.3	0.62	1.385
13C-1,2,3,4,7,8-HXCDD		2000	1920	96.0	1.29	0.987
13C-1,2,3,6,7,8-HXCDD		2000	1860	93.0	1.27	0.990
13C-1,2,3,4,6,7,8-HPCDD		2000	1980	99.1	1.05	1.095
13C-OCDD		4000	3600	90.1	0.91	1.179
13C-2,3,7,8-TCDF		2000	1840	91.8	0.84	0.965
13C-1,2,3,7,8-PECDF		2000	1910	95.3	1.62	1.285
13C-2,3,4,7,8-PECDF		2000	1680	83.9	1.60	1.353
13C-1,2,3,4,7,8-HXCDF		2000	1780	88.8	0.53	0.954
13C-1,2,3,6,7,8-HXCDF		2000	1880	94.1	0.53	0.958
13C-1,2,3,7,8,9-HXCDF		2000	1660	83.0	0.54	1.004
13C-2,3,4,6,7,8-HXCDF		2000	1760	88.0	0.54	0.980
13C-1,2,3,4,6,7,8-HPCDF		2000	1720	86.2	0.45	1.062
13C-1,2,3,4,7,8,9-HPCDF		2000	1750	87.7	0.46	1.104

## CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	183	91.5		1.013
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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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T06-1901 (Duplicate)  
Sample Collection:  
27-Jan-2019 10:40

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:** FILTER  
**Sample Receipt Date:** 22-Feb-2019  
**Extraction Date:** 22-Apr-2019  
**Analysis Date:** 30-Apr-2019 **Time:** 03:21:26  
**Extract Volume (uL):** 20  
**Injection Volume (uL):** 2.0  
**Dilution Factor:** N/A  
**Concentration Units:** pg/sample

**Project No.** PORTLAND HARBOR PDI AND  
BASELINE WATER  
**Lab Sample I.D.:** WG67785-103 (DUP L30771-4)  
**Sample Size:** 0.2 sample  
**Initial Calibration Date:** 26-Apr-2019  
**Instrument ID:** HR GC/MS  
**GC Column ID:** DB225  
**Sample Data Filename:** DB92\_045 S: 11  
**Blank Data Filename:** DX9B\_068 S: 6  
**Cal. Ver. Data Filename:** DB92\_045 S: 2

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
1,2,3,7,8,9-HXCDD	J	10.1	2.50 (Q)	1.35	1.059
2,3,7,8-TCDF	U		2.50 (Q)		

- (1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; 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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form1A.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8; Report Filename: 1613\_DIOXINS\_1613DB225\_WG67785-103\_Form1A\_DB92\_045S11\_SJ2558763.html; Workgroup: WG67785; Design ID: 3359 ]



## SGS AXYS METHOD MLA-017 Rev 20

PCDD/PCDF ANALYSIS REPORT  
RELATIVE PERCENT DIFFERENCE

## SGS AXYS ANALYTICAL SERVICES

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

Project No.

PORTLAND HARBOR PDI AND  
BASELINE WATER

Contract No.: 4972

Client ID: PDI-WS-T06-1901

Concentration Units: pg/sample

COMPOUND	L30771-4 (A)		WG67785-103		MEAN	RELATIVE PERCENT DIFFERENCE
	LAB FLAG <sup>1</sup>	CONC. FOUND	LAB FLAG <sup>1</sup>	CONC. FOUND		
2,3,7,8-TCDD	K J	2.94	U			
1,2,3,7,8-PECDD	J	3.45	J	4.41	3.93	24.4
1,2,3,4,7,8-HXCDD	J	6.63	J	5.04	5.83	27.2
1,2,3,6,7,8-HXCDD	J	21.1	K J	19.1		
1,2,3,7,8,9-HXCDD	J	17.5	J	15.3	16.4	13.4
1,2,3,4,6,7,8-HPCDD		572		445	508	24.9
OCDD		4790		4340	4570	9.91
2,3,7,8-TCDF	K J	2.63	J	2.78		
1,2,3,7,8-PECDF	U		U			
2,3,4,7,8-PECDF	U		U			
1,2,3,4,7,8-HXCDF	J	5.82	J	5.18	5.50	11.6
1,2,3,6,7,8-HXCDF	K J	4.54	J	4.31		
1,2,3,7,8,9-HXCDF	U		U			
2,3,4,6,7,8-HXCDF	J	3.99	J	3.89	3.94	2.72
1,2,3,4,6,7,8-HPCDF		89.1		99.7	94.4	11.2
1,2,3,4,7,8,9-HPCDF	K J	5.77	K J	6.05		
OCDF		196		205	201	4.32

(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.

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

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

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: RPD.xsl; Created: 10-May-2019 12:26:03; Application: XMLTransformer-1.17.8;  
Report Filename: RPD\_DIOXINS\_1613-RPD\_WG67785-103\_L30771-4\_.html; Workgroup: WG67785; Design ID: 3359 ]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.  
PDI-WS-T07-1901  
Sample Collection:  
26-Jan-2019 09:46

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	L30771-5 R
<b>Sample Receipt Date:</b>	22-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	08-May-2019
<b>Analysis Date:</b>	09-May-2019 Time: 14:32:47	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB5
<b>Injection Volume (uL):</b>	1.0	<b>Sample Data Filename:</b>	<b>DX9B_069 S: 8</b>
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg/sample	<b>Cal. Ver. Data Filename:</b>	DX9B_069 S: 1

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
2,3,7,8-TCDD	U		3.72 (S)		
1,2,3,7,8-PECDD <sup>4</sup>	J	4.93	3.79 (S)	0.68	1.000
1,2,3,4,7,8-HXCDD	K J	8.96	4.66 (S)	1.02	1.000
1,2,3,6,7,8-HXCDD	J	28.1	4.71 (S)	1.06	1.000
1,2,3,7,8,9-HXCDD	J	24.8	4.87 (S)	1.07	1.010
1,2,3,4,6,7,8-HPCDD		702	10.7 (S)	1.03	1.000
OCDD		6560	5.83 (S)	0.89	1.000
2,3,7,8-TCDF	J	3.79	2.74 (S)	0.74	1.001
1,2,3,7,8-PECDF	J	4.22	2.91 (S)	1.69	1.000
2,3,4,7,8-PECDF	J	3.56	2.68 (S)	1.63	1.000
1,2,3,4,7,8-HXCDF	J	8.46	3.46 (S)	1.32	1.000
1,2,3,6,7,8-HXCDF	K J	6.14	3.18 (S)	0.83	1.000
1,2,3,7,8,9-HXCDF	U		4.46 (S)		
2,3,4,6,7,8-HXCDF	J	4.71	3.36 (S)	1.20	1.000
1,2,3,4,6,7,8-HPCDF		118	4.70 (S)	0.99	1.000
1,2,3,4,7,8,9-HPCDF	K J	8.94	6.43 (S)	0.61	1.000
OCDF		317	6.01 (S)	0.83	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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

## SGS AXYS METHOD MLA-017 Rev 20

Form 2  
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.  
PDI-WS-T07-1901  
Sample Collection:  
26-Jan-2019 09:46

## 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: FILTER

Sample Receipt Date: 22-Feb-2019

Extraction Date: 22-Apr-2019

Analysis Date: 09-May-2019 Time: 14:32:47

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND  
BASELINE WATER

Lab Sample I.D.: L30771-5 R

Sample Size: 0.2 sample

Initial Calibration Date: 08-May-2019

Instrument ID: HR GC/MS

GC Column ID: DB5

Sample Data Filename: DX9B\_069 S: 8

Blank Data Filename: DX9B\_068 S: 6

Cal. Ver. Data Filename: DX9B\_069 S: 1

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

LABELLED COMPOUND	LAB FLAG <sup>1</sup>	SPIKE CONC.	CONC. FOUND	R(%) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
13C-2,3,7,8-TCDD		2000	1690	84.3	0.78	1.013
13C-1,2,3,7,8-PECDD <sup>4</sup>		2000	1630	81.3	0.64	1.385
13C-1,2,3,4,7,8-HXCDD		2000	1700	84.8	1.34	0.987
13C-1,2,3,6,7,8-HXCDD		2000	1700	85.1	1.21	0.990
13C-1,2,3,4,6,7,8-HPCDD		2000	1570	78.7	1.00	1.095
13C-OCDD		4000	3310	82.8	0.91	1.179
13C-2,3,7,8-TCDF		2000	1470	73.7	0.87	0.965
13C-1,2,3,7,8-PECDF		2000	1620	81.2	1.62	1.285
13C-2,3,4,7,8-PECDF		2000	1540	76.9	1.59	1.353
13C-1,2,3,4,7,8-HXCDF		2000	1600	79.9	0.53	0.954
13C-1,2,3,6,7,8-HXCDF		2000	1650	82.6	0.54	0.958
13C-1,2,3,7,8,9-HXCDF		2000	1550	77.7	0.53	1.004
13C-2,3,4,6,7,8-HXCDF		2000	1590	79.4	0.54	0.980
13C-1,2,3,4,6,7,8-HPCDF		2000	1590	79.5	0.47	1.062
13C-1,2,3,4,7,8,9-HPCDF		2000	1550	77.4	0.49	1.104

## CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	155	77.3		1.013
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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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T07-1901  
Sample Collection:  
26-Jan-2019 09:46

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:** FILTER  
**Sample Receipt Date:** 22-Feb-2019  
**Extraction Date:** 22-Apr-2019  
**Analysis Date:** 30-Apr-2019 **Time:** 04:06:00  
**Extract Volume (uL):** 20  
**Injection Volume (uL):** 2.0  
**Dilution Factor:** N/A  
**Concentration Units:** pg/sample

**Project No.** PORTLAND HARBOR PDI AND  
BASELINE WATER  
**Lab Sample I.D.:** L30771-5 R  
**Sample Size:** 0.2 sample  
**Initial Calibration Date:** 26-Apr-2019  
**Instrument ID:** HR GC/MS  
**GC Column ID:** DB225  
**Sample Data Filename:** DB92\_045 S: 12  
**Blank Data Filename:** DX9B\_068 S: 6  
**Cal. Ver. Data Filename:** DB92\_045 S: 2

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
1,2,3,7,8,9-HXCDD	K J	15.5	2.50 (Q)	1.50	1.059
2,3,7,8-TCDF	J	2.80	2.50 (Q)	0.68	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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form1A.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8; Report Filename: 1613\_DIOXINS\_1613DB225\_L30771-5\_Form1A\_DB92\_045S12\_SJ2558764.html; Workgroup: WG67785; Design ID: 3359 ]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.  
PDI-WS-T01-1902  
Sample Collection:  
18-Feb-2019 20:15

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	L30771-6 R
<b>Sample Receipt Date:</b>	21-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	08-May-2019
<b>Analysis Date:</b>	09-May-2019 Time: 15:27:24	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB5
<b>Injection Volume (uL):</b>	1.0	<b>Sample Data Filename:</b>	<b>DX9B_069 S: 9</b>
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg/sample	<b>Cal. Ver. Data Filename:</b>	DX9B_069 S: 1

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
2,3,7,8-TCDD	U		3.24 (S)		
1,2,3,7,8-PECDD <sup>4</sup>	U		4.31 (S)		
1,2,3,4,7,8-HXCDD	U		5.81 (S)		
1,2,3,6,7,8-HXCDD	J	20.4	5.86 (S)	1.34	1.001
1,2,3,7,8,9-HXCDD	J	10.9	6.06 (S)	1.08	1.010
1,2,3,4,6,7,8-HPCDD		516	9.03 (S)	1.08	1.000
OCDD		4880	6.23 (S)	0.91	1.000
2,3,7,8-TCDF	K J	3.44	2.50 (Q)	0.94	1.001
1,2,3,7,8-PECDF	U		3.04 (S)		
2,3,4,7,8-PECDF	U		2.85 (S)		
1,2,3,4,7,8-HXCDF	J	4.78	4.08 (S)	1.06	1.000
1,2,3,6,7,8-HXCDF	U		3.70 (S)		
1,2,3,7,8,9-HXCDF	U		5.94 (S)		
2,3,4,6,7,8-HXCDF	U		4.39 (S)		
1,2,3,4,6,7,8-HPCDF		94.8	4.40 (S)	1.13	1.000
1,2,3,4,7,8,9-HPCDF	J	6.26	5.76 (S)	1.05	1.000
OCDF		236	5.42 (S)	0.85	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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form1A.xsl; Created: 10-May-2019 12:25:07; Application: XMLTransformer-1.17.8;  
Report Filename: 1613\_DIOXINS\_1613DB5\_L30771-6\_Form1A\_DX9B\_069S9\_SJ2559309.html; Workgroup: WG67785; Design ID: 3359 ]

SGS AXYS METHOD MLA-017 Rev 20

Form 2  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T01-1902  
Sample Collection:  
18-Feb-2019 20:15

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	L30771-6 R
<b>Sample Receipt Date:</b>	21-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	08-May-2019
<b>Analysis Date:</b>	09-May-2019 Time: 15:27:24	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB5
<b>Injection Volume (uL):</b>	1.0	<b>Sample Data Filename:</b>	DX9B_069 S: 9
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg absolute	<b>Cal. Ver. Data Filename:</b>	DX9B_069 S: 1

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

LABELED COMPOUND	LAB FLAG <sup>1</sup>	SPIKE CONC.	CONC. FOUND	R(%) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
13C-2,3,7,8-TCDD		2000	1750	87.7	0.81	1.013
13C-1,2,3,7,8-PECDD <sup>4</sup>		2000	1700	84.9	0.63	1.385
13C-1,2,3,4,7,8-HXCDD		2000	1810	90.7	1.30	0.987
13C-1,2,3,6,7,8-HXCDD		2000	1940	97.0	1.25	0.990
13C-1,2,3,4,6,7,8-HPCDD		2000	1730	86.3	0.99	1.095
13C-OCDD		4000	3080	77.0	0.91	1.179
13C-2,3,7,8-TCDF		2000	1500	75.0	0.83	0.965
13C-1,2,3,7,8-PECDF		2000	1630	81.6	1.60	1.285
13C-2,3,4,7,8-PECDF		2000	1550	77.3	1.60	1.353
13C-1,2,3,4,7,8-HXCDF		2000	1690	84.5	0.54	0.954
13C-1,2,3,6,7,8-HXCDF		2000	1790	89.7	0.54	0.958
13C-1,2,3,7,8,9-HXCDF		2000	1470	73.4	0.53	1.004
13C-2,3,4,6,7,8-HXCDF		2000	1540	77.2	0.54	0.980
13C-1,2,3,4,6,7,8-HPCDF		2000	1600	79.8	0.48	1.062
13C-1,2,3,4,7,8,9-HPCDF		2000	1570	78.4	0.48	1.104

## CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	168	84.2		1.013
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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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T01-1902  
Sample Collection:  
18-Feb-2019 20:15

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:** FILTER  
**Sample Receipt Date:** 21-Feb-2019  
**Extraction Date:** 22-Apr-2019  
**Analysis Date:** 30-Apr-2019 **Time:** 04:50:34  
**Extract Volume (uL):** 20  
**Injection Volume (uL):** 2.0  
**Dilution Factor:** N/A  
**Concentration Units:** pg/sample

**Project No.** PORTLAND HARBOR PDI AND  
BASELINE WATER  
**Lab Sample I.D.:** L30771-6 R  
**Sample Size:** 0.2 sample  
**Initial Calibration Date:** 26-Apr-2019  
**Instrument ID:** HR GC/MS  
**GC Column ID:** DB225  
**Sample Data Filename:** DB92\_045 S: 13  
**Blank Data Filename:** DX9B\_068 S: 6  
**Cal. Ver. Data Filename:** DB92\_045 S: 2

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
1,2,3,7,8,9-HXCDD	J	10.8	2.50 (Q)	1.35	1.059
2,3,7,8-TCDF	U		2.50 (Q)		

- (1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; 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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

For Axy Internal Use Only [ XSL Template: Form1A.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8; Report Filename: 1613\_DIOXINS\_1613DB225\_L30771-6\_Form1A\_DB92\_045S13\_SJ2558765.html; Workgroup: WG67785; Design ID: 3359 ]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T02-1902  
Sample Collection:  
18-Feb-2019 21:36

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	L30771-7 R
<b>Sample Receipt Date:</b>	21-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	08-May-2019
<b>Analysis Date:</b>	09-May-2019 Time: 16:22:00	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB5
<b>Injection Volume (uL):</b>	1.0	<b>Sample Data Filename:</b>	<b>DX9B_069 S: 10</b>
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg/sample	<b>Cal. Ver. Data Filename:</b>	DX9B_069 S: 1

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
2,3,7,8-TCDD	U		4.61 (S)		
1,2,3,7,8-PECDD <sup>4</sup>	U		7.33 (S)		
1,2,3,4,7,8-HXCDD	K J	10.1	4.92 (S)	0.90	1.000
1,2,3,6,7,8-HXCDD	J	24.7	5.05 (S)	1.39	1.000
1,2,3,7,8,9-HXCDD	J	20.9	5.18 (S)	1.14	1.010
1,2,3,4,6,7,8-HPCDD		715	6.88 (S)	1.06	1.000
OCDD		8960	8.90 (S)	0.88	1.000
2,3,7,8-TCDF	J	5.55	3.53 (S)	0.84	1.001
1,2,3,7,8-PECDF	U		5.80 (S)		
2,3,4,7,8-PECDF	U		5.44 (S)		
1,2,3,4,7,8-HXCDF	J	9.33	3.80 (S)	1.41	1.000
1,2,3,6,7,8-HXCDF	J	5.56	3.32 (S)	1.42	1.001
1,2,3,7,8,9-HXCDF	U		4.96 (S)		
2,3,4,6,7,8-HXCDF	K J	4.82	3.73 (S)	1.82	1.000
1,2,3,4,6,7,8-HPCDF		141	3.23 (S)	1.01	1.000
1,2,3,4,7,8,9-HPCDF	K J	10.6	3.83 (S)	1.39	1.000
OCDF		377	6.03 (S)	0.85	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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form1A.xsl; Created: 10-May-2019 12:25:07; Application: XMLTransformer-1.17.8;  
Report Filename: 1613\_DIOXINS\_1613DB5\_L30771-7\_Form1A\_DX9B\_069S10\_SJ2559310.html; Workgroup: WG67785; Design ID: 3359 ]



## SGS AXYS METHOD MLA-017 Rev 20

Form 2  
PCDD/PCDF ANALYSIS REPORTCLIENT SAMPLE NO.  
PDI-WS-T02-1902  
Sample Collection:  
18-Feb-2019 21:36

## 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: FILTER

Sample Receipt Date: 21-Feb-2019

Extraction Date: 22-Apr-2019

Analysis Date: 09-May-2019 Time: 16:22:00

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg absolute

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  
L30771-7 R

0.2 sample

08-May-2019

HR GC/MS

DB5

DX9B\_069 S: 10

DX9B\_068 S: 6

DX9B\_069 S: 1

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

LABELED COMPOUND	LAB FLAG <sup>1</sup>	SPIKE CONC.	CONC. FOUND	R(%) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
13C-2,3,7,8-TCDD		2000	1730	86.5	0.79	1.013
13C-1,2,3,7,8-PECDD <sup>4</sup>		2000	1670	83.5	0.64	1.385
13C-1,2,3,4,7,8-HXCDD		2000	1810	90.3	1.28	0.987
13C-1,2,3,6,7,8-HXCDD		2000	1800	90.2	1.25	0.990
13C-1,2,3,4,6,7,8-HPCDD		2000	1690	84.3	1.02	1.095
13C-OCDD		4000	3160	79.1	0.91	1.179
13C-2,3,7,8-TCDF		2000	1460	72.8	0.86	0.965
13C-1,2,3,7,8-PECDF		2000	1660	82.9	1.58	1.285
13C-2,3,4,7,8-PECDF		2000	1580	79.2	1.57	1.353
13C-1,2,3,4,7,8-HXCDF		2000	1650	82.4	0.54	0.954
13C-1,2,3,6,7,8-HXCDF		2000	1700	84.8	0.54	0.958
13C-1,2,3,7,8,9-HXCDF		2000	1550	77.3	0.54	1.005
13C-2,3,4,6,7,8-HXCDF		2000	1570	78.5	0.54	0.980
13C-1,2,3,4,6,7,8-HPCDF		2000	1590	79.7	0.47	1.062
13C-1,2,3,4,7,8,9-HPCDF		2000	1620	80.9	0.47	1.104

## CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	177	88.7		1.014
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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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T02-1902  
Sample Collection:  
18-Feb-2019 21:36

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	L30771-7 R
<b>Sample Receipt Date:</b>	21-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	26-Apr-2019
<b>Analysis Date:</b>	30-Apr-2019 Time: 05:35:08	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB225
<b>Injection Volume (uL):</b>	2.0	<b>Sample Data Filename:</b>	DB92_045 S: 14
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg/sample	<b>Cal. Ver. Data Filename:</b>	DB92_045 S: 2

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COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
1,2,3,7,8,9-HXCDD	J	19.0	2.50 (Q)	1.13	1.059
2,3,7,8-TCDF	J	3.97	2.50 (Q)	0.73	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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

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Report Filename: 1613\_DIOXINS\_1613DB225\_L30771-7\_Form1A\_DB92\_045S14\_SJ2558766.html; Workgroup: WG67785; Design ID: 3359 ]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T03-1902  
Sample Collection:  
18-Feb-2019 11:31

## SGS AXYS ANALYTICAL SERVICES

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	L30771-8 R
<b>Sample Receipt Date:</b>	21-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	08-May-2019
<b>Analysis Date:</b>	09-May-2019 Time: 17:16:35	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB5
<b>Injection Volume (uL):</b>	1.0	<b>Sample Data Filename:</b>	<b>DX9B_069 S: 11</b>
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg/sample	<b>Cal. Ver. Data Filename:</b>	DX9B_069 S: 1

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
2,3,7,8-TCDD	U		3.89 (S)		
1,2,3,7,8-PECDD <sup>4</sup>	U		6.28 (S)		
1,2,3,4,7,8-HXCDD	K J	11.7	6.72 (S)	2.13	1.000
1,2,3,6,7,8-HXCDD	J	30.0	6.48 (S)	1.16	1.000
1,2,3,7,8,9-HXCDD	J	21.1	6.86 (S)	1.18	1.010
1,2,3,4,6,7,8-HPCDD		754	9.20 (S)	1.01	1.000
OCDD		8220	6.35 (S)	0.90	1.000
2,3,7,8-TCDF	J	6.07	3.25 (S)	0.89	1.001
1,2,3,7,8-PECDF	U		5.52 (S)		
2,3,4,7,8-PECDF	U		4.79 (S)		
1,2,3,4,7,8-HXCDF	J	10.7	4.12 (S)	1.24	1.001
1,2,3,6,7,8-HXCDF	K J	6.24	3.85 (S)	0.81	1.000
1,2,3,7,8,9-HXCDF	U		6.19 (S)		
2,3,4,6,7,8-HXCDF	K J	4.49	4.48 (S)	0.70	1.000
1,2,3,4,6,7,8-HPCDF		156	4.62 (S)	1.15	1.000
1,2,3,4,7,8,9-HPCDF	K J	7.97	6.36 (S)	0.82	1.000
OCDF		377	6.99 (S)	0.88	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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form1A.xsl; Created: 10-May-2019 12:25:07; Application: XMLTransformer-1.17.8;  
Report Filename: 1613\_DIOXINS\_1613DB5\_L30771-8\_Form1A\_DX9B\_069S11\_SJ2559311.html; Workgroup: WG67785; Design ID: 3359 ]

SGS AXYS METHOD MLA-017 Rev 20

**Form 2**  
**PCDD/PCDF ANALYSIS REPORT**

**CLIENT SAMPLE NO.**  
**PDI-WS-T03-1902**  
**Sample Collection:**  
**18-Feb-2019 11:31**

**SGS AXYS ANALYTICAL SERVICES**

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

<b>Contract No.:</b>	4972	<b>Project No.</b>	PORTLAND HARBOR PDI AND BASELINE WATER
<b>Matrix:</b>	FILTER	<b>Lab Sample I.D.:</b>	L30771-8 R
<b>Sample Receipt Date:</b>	21-Feb-2019	<b>Sample Size:</b>	0.2 sample
<b>Extraction Date:</b>	22-Apr-2019	<b>Initial Calibration Date:</b>	08-May-2019
<b>Analysis Date:</b>	09-May-2019 Time: 17:16:35	<b>Instrument ID:</b>	HR GC/MS
<b>Extract Volume (uL):</b>	20	<b>GC Column ID:</b>	DB5
<b>Injection Volume (uL):</b>	1.0	<b>Sample Data Filename:</b>	<b>DX9B_069 S: 11</b>
<b>Dilution Factor:</b>	N/A	<b>Blank Data Filename:</b>	DX9B_068 S: 6
<b>Concentration Units:</b>	pg absolute	<b>Cal. Ver. Data Filename:</b>	DX9B_069 S: 1

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

LABELLED COMPOUND	LAB FLAG <sup>1</sup>	SPIKE CONC.	CONC. FOUND	R(%) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
13C-2,3,7,8-TCDD		2000	1670	83.5	0.77	1.013
13C-1,2,3,7,8-PECDD <sup>4</sup>		2000	1630	81.5	0.63	1.385
13C-1,2,3,4,7,8-HXCDD		2000	1700	85.2	1.27	0.987
13C-1,2,3,6,7,8-HXCDD		2000	1670	83.4	1.25	0.990
13C-1,2,3,4,6,7,8-HPCDD		2000	1510	75.3	1.02	1.095
13C-OCDD		4000	2500	62.5	0.93	1.179
13C-2,3,7,8-TCDF		2000	1530	76.3	0.80	0.965
13C-1,2,3,7,8-PECDF		2000	1500	74.9	1.59	1.284
13C-2,3,4,7,8-PECDF		2000	1450	72.7	1.57	1.353
13C-1,2,3,4,7,8-HXCDF		2000	1550	77.7	0.53	0.954
13C-1,2,3,6,7,8-HXCDF		2000	1560	78.0	0.53	0.958
13C-1,2,3,7,8,9-HXCDF		2000	1280	64.1	0.52	1.004
13C-2,3,4,6,7,8-HXCDF		2000	1350	67.6	0.53	0.980
13C-1,2,3,4,6,7,8-HPCDF		2000	1450	72.7	0.47	1.062
13C-1,2,3,4,7,8,9-HPCDF		2000	1330	66.3	0.50	1.104

**CLEANUP STANDARD**

37CL-2,3,7,8-TCDD		200	155	77.5		1.014
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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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF ANALYSIS REPORT

CLIENT SAMPLE NO.  
PDI-WS-T03-1902  
Sample Collection:  
18-Feb-2019 11:31

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:** FILTER  
**Sample Receipt Date:** 21-Feb-2019  
**Extraction Date:** 22-Apr-2019  
**Analysis Date:** 30-Apr-2019 **Time:** 06:19:43  
**Extract Volume (uL):** 20  
**Injection Volume (uL):** 2.0  
**Dilution Factor:** N/A  
**Concentration Units:** pg/sample

**Project No.** PORTLAND HARBOR PDI AND  
BASELINE WATER  
**Lab Sample I.D.:** L30771-8 R  
**Sample Size:** 0.2 sample  
**Initial Calibration Date:** 26-Apr-2019  
**Instrument ID:** HR GC/MS  
**GC Column ID:** DB225  
**Sample Data Filename:** DB92\_045 S: 15  
**Blank Data Filename:** DX9B\_068 S: 6  
**Cal. Ver. Data Filename:** DB92\_045 S: 2

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
1,2,3,7,8,9-HXCDD	J	17.2	2.50 (Q)	1.36	1.059
2,3,7,8-TCDF	K J	4.41	2.50 (Q)	0.93	1.000

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

For Axys Internal Use Only [ XSL Template: Form1A.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8; Report Filename: 1613\_DIOXINS\_1613DB225\_L30771-8\_Form1A\_DB92\_045S15\_SJ2558767.html; Workgroup: WG67785; Design ID: 3359 ]

SGS AXYS METHOD MLA-017 Rev 20

Form 1A  
PCDD/PCDF 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

Matrix: FILTER

Sample Receipt Date: N/A

Extraction Date: 22-Apr-2019

Analysis Date: 09-May-2019 Time: 01:17:53

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.: WG67785-101

Sample Size: 0.2 sample

Initial Calibration Date: 08-May-2019

Instrument ID: HR GC/MS

GC Column ID: DB5

Sample Data Filename: DX9B\_068 S: 6

Blank Data Filename: DX9B\_068 S: 6

Cal. Ver. Data Filename: DX9B\_068 S: 1

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

COMPOUND	LAB FLAG <sup>1</sup>	CONCENTRATION FOUND	REPORTING LIMIT (RL) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
2,3,7,8-TCDD	U		2.50 (Q)		
1,2,3,7,8-PECDD <sup>4</sup>	U		2.50 (Q)		
1,2,3,4,7,8-HXCDD	U		2.50 (Q)		
1,2,3,6,7,8-HXCDD	U		2.50 (Q)		
1,2,3,7,8,9-HXCDD	U		2.50 (Q)		
1,2,3,4,6,7,8-HPCDD	J	2.90	2.50 (Q)	0.99	1.000
OCDD	U		4.36 (S)		
2,3,7,8-TCDF	U		2.50 (Q)		
1,2,3,7,8-PECDF	U		2.50 (Q)		
2,3,4,7,8-PECDF	U		2.50 (Q)		
1,2,3,4,7,8-HXCDF	U		2.50 (Q)		
1,2,3,6,7,8-HXCDF	U		2.50 (Q)		
1,2,3,7,8,9-HXCDF	U		2.50 (Q)		
2,3,4,6,7,8-HXCDF	U		2.50 (Q)		
1,2,3,4,6,7,8-HPCDF	U		2.50 (Q)		
1,2,3,4,7,8,9-HPCDF	U		2.50 (Q)		
OCDF	U		3.83 (S)		

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; 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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form1A.xsl; Created: 10-May-2019 12:25:07; Application: XMLTransformer-1.17.8;  
Report Filename: 1613\_DIOXINS\_1613DB5\_WG67785-101\_Form1A\_DX9B\_068S6\_SJ2558839.html; Workgroup: WG67785; 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

Matrix: FILTER

Sample Receipt Date: N/A

Extraction Date: 22-Apr-2019

Analysis Date: 09-May-2019 Time: 01:17:53

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg absolute

Project No. N/A

Lab Sample I.D.: WG67785-101

Sample Size: 0.2 sample

Initial Calibration Date: 08-May-2019

Instrument ID: HR GC/MS

GC Column ID: DB5

Sample Data Filename: DX9B\_068 S: 6

Blank Data Filename: DX9B\_068 S: 6

Cal. Ver. Data Filename: DX9B\_068 S: 1

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

LABELLED COMPOUND	LAB FLAG <sup>1</sup>	SPIKE CONC.	CONC. FOUND	R(%) <sup>2</sup>	ION ABUND. RATIO <sup>3</sup>	RRT <sup>3</sup>
13C-2,3,7,8-TCDD		2000	1580	79.1	0.79	1.013
13C-1,2,3,7,8-PECDD <sup>4</sup>		2000	1610	80.6	0.62	1.385
13C-1,2,3,4,7,8-HXCDD		2000	1700	84.8	1.29	0.987
13C-1,2,3,6,7,8-HXCDD		2000	1740	87.0	1.27	0.990
13C-1,2,3,4,6,7,8-HPCDD		2000	1370	68.6	1.05	1.095
13C-OCDD		4000	1680	42.1	0.94	1.179
13C-2,3,7,8-TCDF		2000	1530	76.4	0.83	0.965
13C-1,2,3,7,8-PECDF		2000	1670	83.7	1.61	1.285
13C-2,3,4,7,8-PECDF		2000	1510	75.4	1.61	1.353
13C-1,2,3,4,7,8-HXCDF		2000	1580	79.1	0.53	0.953
13C-1,2,3,6,7,8-HXCDF		2000	1700	85.1	0.54	0.957
13C-1,2,3,7,8,9-HXCDF		2000	1440	71.9	0.54	1.004
13C-2,3,4,6,7,8-HXCDF		2000	1450	72.3	0.53	0.980
13C-1,2,3,4,6,7,8-HPCDF		2000	1180	59.2	0.46	1.062
13C-1,2,3,4,7,8,9-HPCDF		2000	1410	70.7	0.46	1.104

## CLEANUP STANDARD

37CL-2,3,7,8-TCDD		200	151	75.5		1.014
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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 37C14-2,3,7,8-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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form2.xsl; Created: 10-May-2019 12:25:07; Application: XMLTransformer-1.17.8;  
Report Filename: 1613\_DIOXINS\_1613DB5\_WG67785-101\_Form2\_DX9B\_068S6\_SJ2558839.html; Workgroup: WG67785; 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:

DX9B\_068 S: 2

Matrix: FILTER

Lab Sample I.D.:

WG67785-102

Extraction Date: 22-Apr-2019

Analysis Date:

08-May-2019 Time: 21:39:05

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

COMPOUND	LAB FLAG <sup>1</sup>	ION ABUND. RATIO <sup>2</sup>	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS <sup>3</sup> (ng/mL)	% RECOVERY
2,3,7,8-TCDD		0.79	10.0	9.90	6.70 - 15.8	99.0
1,2,3,7,8-PECDD <sup>4</sup>		0.64	50.0	49.2	35.0 - 71.0	98.4
1,2,3,4,7,8-HXCDD		1.22	50.0	48.6	35.0 - 82.0	97.2
1,2,3,6,7,8-HXCDD		1.23	50.0	49.9	38.0 - 67.0	99.8
1,2,3,7,8,9-HXCDD		1.22	50.0	50.5	32.0 - 81.0	101
1,2,3,4,6,7,8-HPCDD		1.05	50.0	50.5	35.0 - 70.0	101
OCDD		0.88	100	94.1	78.0 - 144	94.1
2,3,7,8-TCDF		0.77	10.0	9.85	7.50 - 15.8	98.5
1,2,3,7,8-PECDF		1.58	50.0	48.4	40.0 - 67.0	96.8
2,3,4,7,8-PECDF		1.55	50.0	48.8	34.0 - 80.0	97.6
1,2,3,4,7,8-HXCDF		1.25	50.0	48.2	36.0 - 67.0	96.3
1,2,3,6,7,8-HXCDF		1.25	50.0	48.4	42.0 - 65.0	96.8
1,2,3,7,8,9-HXCDF		1.24	50.0	50.1	39.0 - 65.0	100
2,3,4,6,7,8-HXCDF		1.24	50.0	48.9	35.0 - 78.0	97.8
1,2,3,4,6,7,8-HPCDF		1.06	50.0	55.2	41.0 - 61.0	110
1,2,3,4,7,8,9-HPCDF		1.06	50.0	48.5	39.0 - 69.0	97.1
OCDF		0.90	100	89.2	63.0 - 170	89.2

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

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.

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## 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:

DX9B\_068 S: 2

Matrix: FILTER

Lab Sample I.D.:

WG67785-102

Extraction Date: 22-Apr-2019

Analysis Date:

08-May-2019 Time: 21:39:05

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

LABELLED COMPOUND	LAB FLAG <sup>1</sup>	ION ABUND. RATIO <sup>2</sup>	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS <sup>3</sup> (ng/mL)	% RECOVERY
13C-2,3,7,8-TCDD		0.79	100	88.2	20.0-175	88.2
13C-1,2,3,7,8-PECDD <sup>4</sup>		0.64	100	85.9	21.0-227	85.9
13C-1,2,3,4,7,8-HXCDD		1.31	100	88.5	21.0-193	88.5
13C-1,2,3,6,7,8-HXCDD		1.27	100	89.7	25.0-163	89.7
13C-1,2,3,4,6,7,8-HPCDD		1.03	100	87.8	26.0-166	87.8
13C-OCDD		0.92	200	157	26.0-397	78.4
13C-2,3,7,8-TCDF		0.82	100	84.4	22.0-152	84.4
13C-1,2,3,7,8-PECDF		1.59	100	89.8	21.0-192	89.8
13C-2,3,4,7,8-PECDF		1.61	100	82.0	13.0-328	82.0
13C-1,2,3,4,7,8-HXCDF		0.53	100	87.3	19.0-202	87.3
13C-1,2,3,6,7,8-HXCDF		0.53	100	91.1	21.0-159	91.1
13C-1,2,3,7,8,9-HXCDF		0.54	100	80.7	17.0-205	80.7
13C-2,3,4,6,7,8-HXCDF		0.53	100	85.0	22.0-176	85.0
13C-1,2,3,4,6,7,8-HPCDF		0.45	100	82.8	21.0-158	82.8
13C-1,2,3,4,7,8,9-HPCDF		0.44	100	80.6	20.0-186	80.6

## CLEANUP STANDARD

37CL-2,3,7,8-TCDD			10.0	8.67	3.10-19.1	86.7
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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: \_\_\_\_\_ Henry Huang \_\_\_\_\_

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.

**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:** 26-Apr-2019

**Instrument ID:** HR GC/MS

**GC Column ID:** DB225

**CS0 Data Filename:** DB92\_042 S: 4

**CS1 Data Filename:** DB92\_042 S: 3

**CS2 Data Filename:** DB92\_042 S: 2

**CS3 Data Filename:** DB92\_042 S: 7

**CS4 Data Filename:** DB92\_042 S: 6

**CS5 Data Filename:** DB92\_042 S: 5

**CS6 Data Filename:** N/A

COMPOUND	LAB FLAG <sup>1</sup>	RELATIVE RESPONSE (RR)						MEAN RR	CV (%RSD) <sup>2</sup>
		CS0	CS1	CS2	CS3	CS4	CS5		
1,2,3,7,8,9-HXCDD		0.95	1.01	0.96	1.03	1.05	1.02	1.00	4.13
2,3,7,8-TCDF		1.16	1.10	1.06	1.12	1.11	1.08	1.10	3.19

(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: \_\_\_\_\_ Kristen Bowes \_\_\_\_\_

**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:** 26-Apr-2019

**Instrument ID:** HR GC/MS

**GC Column ID:** DB225

**CS0 Data Filename:** DB92\_042 S: 4

**CS1 Data Filename:** DB92\_042 S: 3

**CS2 Data Filename:** DB92\_042 S: 2

**CS3 Data Filename:** DB92\_042 S: 7

**CS4 Data Filename:** DB92\_042 S: 6

**CS5 Data Filename:** DB92\_042 S: 5

**CS6 Data Filename:** N/A

LABELLED COMPOUND	LAB FLAG <sup>1</sup>	RELATIVE RESPONSE (RR)						MEAN RR	CV (%RSD) <sup>2</sup>
		CS0	CS1	CS2	CS3	CS4	CS5		
<b>13C-2,3,7,8-TCDF</b>		1.60	1.53	1.58	1.55	1.65	1.64	1.59	3.09
<b>13C-1,2,3,4,7,8-HXCDD</b>		0.99	0.97	1.00	0.99	0.97	0.96	0.98	1.75
<b>13C-1,2,3,6,7,8-HXCDD</b>		1.05	1.04	1.09	1.06	1.01	1.01	1.04	2.78

(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: \_\_\_\_\_ Kristen Bowes \_\_\_\_\_

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## 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:** 26-Apr-2019

**Instrument ID:** HR GC/MS

**GC Column ID:** DB225

**CS0 Data Filename:** DB92\_042 S: 4

**CS1 Data Filename:** DB92\_042 S: 3

**CS2 Data Filename:** DB92\_042 S: 2

**CS3 Data Filename:** DB92\_042 S: 7

**CS4 Data Filename:** DB92\_042 S: 6

**CS5 Data Filename:** DB92\_042 S: 5

**CS6 Data Filename:** N/A

COMPOUND	LAB FLAG <sup>1</sup>	M/Z's FORMING RATIO <sup>2</sup>	ION ABUNDANCE RATIO						QC LIMITS <sup>3</sup>
			CS0	CS1	CS2	CS3	CS4	CS5	
1,2,3,7,8,9-HXCDD		M+2/M+4	1.18	1.21	1.25	1.24	1.24	1.23	1.05-1.43
2,3,7,8-TCDF		M/M+2	0.83	0.79	0.81	0.78	0.79	0.79	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: \_\_\_\_\_ Kristen Bowes \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form3C.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8;  
 Report Filename: 1613\_DIOXINS\_26-Apr-2019\_DB92\_\_Form3C\_GS81676.html; Workgroup: WG67785; Design ID: 3359 ]

## SGS AXYS METHOD MLA-017 Rev 20

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: 26-Apr-2019

Instrument ID: HR GC/MS

GC Column ID: DB225

CS0 Data Filename: DB92\_042 S: 4

CS1 Data Filename: DB92\_042 S: 3

CS2 Data Filename: DB92\_042 S: 2

CS3 Data Filename: DB92\_042 S: 7

CS4 Data Filename: DB92\_042 S: 6

CS5 Data Filename: DB92\_042 S: 5

CS6 Data Filename: N/A

LABELED COMPOUND	LAB FLAG <sup>1</sup>	M/Z's FORMING RATIO <sup>2</sup>	ION ABUNDANCE RATIO						QC LIMITS <sup>3</sup>
			CS0	CS1	CS2	CS3	CS4	CS5	
13C-2,3,7,8-TCDF		M/M+2	0.81	0.82	0.80	0.80	0.80	0.81	0.65-0.89
13C-1,2,3,4,7,8-HXCDD		M+2/M+4	1.30	1.30	1.30	1.30	1.29	1.29	1.05-1.43
13C-1,2,3,6,7,8-HXCDD		M+2/M+4	1.30	1.28	1.27	1.28	1.29	1.29	1.05-1.43

(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: \_\_\_\_\_ Kristen Bowes \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form3D.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8; Report Filename: 1613\_DIOXINS\_26-Apr-2019\_DB92\_\_Form3D\_GS81676.html; Workgroup: WG67785; 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:	26-Apr-2019
RT Window Data Filename:		Analysis Date:	Time:
DB-5 IS Data Filename:		Analysis Date:	Time:
DB-225 IS Data Filename:	DB92_042 S: 1	Analysis Date:	26-Apr-2019 Time: 08:30:43

## 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	8.4
1,4,7,8-TCDD 1,2,3,7-TCDD	N/A	2,3,7,8-TCDF 1,2,3,9-TCDF	10.9
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: \_\_\_\_\_ Robert Tones \_\_\_\_\_

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: 26-Apr-2019

VER Data Filename: DB92\_045 S: 2

Instrument ID: HR GC/MS

Analysis Date: 29-Apr-2019

GC Column ID: DB225

Analysis Time: 20:40:21

COMPOUND	LAB FLAG <sup>1</sup>	MZ's FORMING RATIO <sup>2</sup>	ION ABUND. RATIO	QC LIMITS <sup>3</sup>	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) <sup>4</sup>
1,2,3,7,8,9-HXCDD		M+2/M+4	1.22	1.05-1.43	51.8	41 - 61
2,3,7,8-TCDF		M/M+2	0.80	0.65-0.89	9.93	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: \_\_\_\_\_Angela Schlak\_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form4A.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8; Report Filename: 1613\_DIOXINS\_DB92\_045S2\_\_Form4A\_SJ2558757.html; Workgroup: WG67785; Design ID: 3359 ]

**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:** 26-Apr-2019

**VER Data Filename:** DB92\_045 S: 2

**Instrument ID:** HR GC/MS

**Analysis Date:** 29-Apr-2019

**GC Column ID:** DB225

**Analysis Time:** 20:40:21

LABELLED COMPOUND	LAB FLAG <sup>1</sup>	MZ's FORMING RATIO <sup>2</sup>	ION ABUND. RATIO	QC LIMITS <sup>3</sup>	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) <sup>4</sup>
13C-2,3,7,8-TCDF		M/M+2	0.81	0.65-0.89	101	71 - 140
13C-1,2,3,4,7,8-HXCDD		M+2/M+4	1.28	1.05-1.43	98.2	85 - 117
13C-1,2,3,6,7,8-HXCDD		M+2/M+4	1.24	1.05-1.43	98.3	85 - 118

(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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form4B.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8; Report Filename: 1613\_DIOXINS\_DB92\_045S2\_\_Form4B\_SJ2558757.html; Workgroup: WG67785; 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: 26-Apr-2019 VER Data Filename: DB92\_045 S: 2  
Instrument ID: HR GC/MS Analysis Date: 29-Apr-2019  
GC Column ID: DB225 Analysis Time: 20:40:21

COMPOUND	LAB FLAG <sup>1</sup>	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS <sup>2</sup>
1,2,3,7,8,9-HXCDD		13C-1,2,3,6,7,8-HXCDD	1.059	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: \_\_\_\_\_Angela Schlak\_\_\_\_\_

For Axs Internal Use Only [ XSL Template: Form6A.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8; Report Filename: 1613\_DIOXINS\_DB92\_045S2\_\_Form6A\_SJ2558757.html; Workgroup: WG67785; Design ID: 3359 ]

**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

<b>Initial Calibration Date:</b>	26-Apr-2019	<b>VER Data Filename:</b>	DB92_045 S: 2
<b>Instrument ID:</b>	HR GC/MS	<b>Analysis Date:</b>	29-Apr-2019
<b>GC Column ID:</b>	DB225	<b>Analysis Time:</b>	20:40:21

Labeled Compound	LAB FLAG <sup>1</sup>	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS <sup>2</sup>
13C-2,3,7,8-TCDF		13C-1,2,3,4-TCDD	1.066	0.923-1.103
13C-1,2,3,4,7,8-HXCDD		13C-1,2,3,7,8,9-HXCDD	0.935	0.918-0.945
13C-1,2,3,6,7,8-HXCDD		13C-1,2,3,7,8,9-HXCDD	0.946	0.931-0.956

- (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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form6B.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8; Report Filename: 1613\_DIOXINS\_DB92\_045S2\_Form6B\_SJ2558757.html; Workgroup: WG67785; 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: 26-Apr-2019 VER Data Filename: DB92\_045 S: 16  
Instrument ID: HR GC/MS Analysis Date: 30-Apr-2019  
GC Column ID: DB225 Analysis Time: 07:04:17

COMPOUND	LAB FLAG <sup>1</sup>	MZ's FORMING RATIO <sup>2</sup>	ION ABUND. RATIO	QC LIMITS <sup>3</sup>	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) <sup>4</sup>
1,2,3,7,8,9-HXCDD		M+2/M+4	1.22	1.05-1.43	50.1	41 - 61
2,3,7,8-TCDF		M/M+2	0.78	0.65-0.89	9.85	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: \_\_\_\_\_Angela Schlak\_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form4A.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8; Report Filename: 1613\_DIOXINS\_DB92\_045S16\_Form4A\_SJ2558768.html; Workgroup: WG67785; Design ID: 3359 ]

**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

<b>Initial Calibration Date:</b>	26-Apr-2019	<b>VER Data Filename:</b>	DB92_045 S: 16
<b>Instrument ID:</b>	HR GC/MS	<b>Analysis Date:</b>	30-Apr-2019
<b>GC Column ID:</b>	DB225	<b>Analysis Time:</b>	07:04:17

Labeled Compound	LAB FLAG <sup>1</sup>	MZ's FORMING RATIO <sup>2</sup>	ION ABUND. RATIO	QC LIMITS <sup>3</sup>	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) <sup>4</sup>
<b>13C-2,3,7,8-TCDF</b>		<b>M/M+2</b>	0.80	0.65-0.89	105	71 - 140
<b>13C-1,2,3,4,7,8-HXCDD</b>		<b>M+2/M+4</b>	1.29	1.05-1.43	98.2	85 - 117
<b>13C-1,2,3,6,7,8-HXCDD</b>		<b>M+2/M+4</b>	1.26	1.05-1.43	98.0	85 - 118

- (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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

For Axys Internal Use Only [ XSL Template: Form4B.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8; Report Filename: 1613\_DIOXINS\_DB92\_045S16\_\_Form4B\_SJ2558768.html; Workgroup: WG67785; 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: 26-Apr-2019      VER Data Filename: DB92\_045 S: 16  
Instrument ID: HR GC/MS      Analysis Date: 30-Apr-2019  
GC Column ID: DB225      Analysis Time: 07:04:17

COMPOUND	LAB FLAG <sup>1</sup>	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS <sup>2</sup>
1,2,3,7,8,9-HXCDD		13C-1,2,3,6,7,8-HXCDD	1.059	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

For Axs Internal Use Only [ XSL Template: Form6A.xsl; Created: 10-May-2019 12:24:02; Application: XMLTransformer-1.17.8; Report Filename: 1613\_DIOXINS\_DB92\_045S16\_Form6A\_SJ2558768.html; Workgroup: WG67785; Design ID: 3359 ]

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: 26-Apr-2019 VER Data Filename: DB92\_045 S: 16  
Instrument ID: HR GC/MS Analysis Date: 30-Apr-2019  
GC Column ID: DB225 Analysis Time: 07:04:17

LABED COMPOUND	LAB FLAG <sup>1</sup>	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS <sup>2</sup>
13C-2,3,7,8-TCDF		13C-1,2,3,4-TCDD	1.067	0.923-1.103
13C-1,2,3,4,7,8-HXCDD		13C-1,2,3,7,8,9-HXCDD	0.934	0.918-0.945
13C-1,2,3,6,7,8-HXCDD		13C-1,2,3,7,8,9-HXCDD	0.946	0.931-0.956

(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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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:	26-Apr-2019
RT Window Data Filename:		Analysis Date:	Time:
DB-5 IS Data Filename:		Analysis Date:	Time:
DB-225 IS Data Filename:	DB92_045 S: 1	Analysis Date:	29-Apr-2019 Time: 19:55:49

## 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	5.4
1,4,7,8-TCDD 1,2,3,7-TCDD	N/A	2,3,7,8-TCDF 1,2,3,9-TCDF	6.4
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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

**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:** 08-May-2019

**Instrument ID:** HR GC/MS

**GC Column ID:** DB5

**CS0 Data Filename:** DX9B\_067D S: 2

**CS1 Data Filename:** DX9B\_067D S: 3

**CS2 Data Filename:** DX9B\_067D S: 4

**CS3 Data Filename:** DX9B\_067D S: 5

**CS4 Data Filename:** DX9B\_067D S: 8

**CS5 Data Filename:** DX9B\_067D S: 7

**CS6 Data Filename:** N/A

COMPOUND	LAB FLAG <sup>1</sup>	RELATIVE RESPONSE (RR)						MEAN RR	CV (%RSD) <sup>2</sup>
		CS0	CS1	CS2	CS3	CS4	CS5		
2,3,7,8-TCDD		1.28	1.14	1.13	1.19	1.13	1.09	1.16	5.95
1,2,3,7,8-PECDD <sup>3</sup>		1.09	1.07	1.03	1.04	1.04	1.04	1.05	2.19
1,2,3,4,7,8-HXCDD		1.10	1.16	1.08	1.11	1.10	1.08	1.11	2.61
1,2,3,6,7,8-HXCDD		1.02	1.09	1.05	1.04	1.03	1.01	1.04	2.64
1,2,3,7,8,9-HXCDD <sup>4</sup>		1.02	1.07	1.04	1.04	1.02	0.99	1.03	2.62
1,2,3,4,6,7,8-HPCDD		1.10	1.11	1.02	1.06	1.04	1.01	1.05	3.70
OCDD		1.15	1.17	1.09	1.09	1.08	1.06	1.11	3.92
2,3,7,8-TCDF		1.00	1.03	1.00	1.05	0.97	0.96	1.00	3.38
1,2,3,7,8-PCDF		1.00	1.07	1.04	1.07	1.03	1.03	1.04	2.49
2,3,4,7,8-PCDF		1.05	1.11	1.04	1.07	1.05	1.06	1.06	2.24
1,2,3,4,7,8-HXCDF		1.22	1.29	1.22	1.27	1.24	1.23	1.24	2.25
1,2,3,6,7,8-HXCDF		1.24	1.28	1.19	1.21	1.19	1.17	1.21	3.38
1,2,3,7,8,9-HXCDF		1.06	1.16	1.12	1.08	1.10	1.08	1.10	3.30
2,3,4,6,7,8-HXCDF		1.28	1.31	1.26	1.28	1.26	1.25	1.27	1.67
1,2,3,4,6,7,8-HPCDF		1.35	1.41	1.36	1.35	1.32	1.29	1.35	2.94
1,2,3,4,7,8,9-HPCDF		1.47	1.36	1.36	1.40	1.35	1.30	1.37	4.08
OCDF <sup>5</sup>		1.40	1.59	1.46	1.46	1.53	1.49	1.49	4.32

(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: \_\_\_\_\_ Bjorn Arvi \_\_\_\_\_



## 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:** 08-May-2019

**Instrument ID:** HR GC/MS**GC Column ID:** DB5**CS0 Data Filename:** DX9B\_067D S: 2**CS1 Data Filename:** DX9B\_067D S: 3**CS2 Data Filename:** DX9B\_067D S: 4**CS3 Data Filename:** DX9B\_067D S: 5**CS4 Data Filename:** DX9B\_067D S: 8**CS5 Data Filename:** DX9B\_067D S: 7**CS6 Data Filename:** N/A

LABELED COMPOUND	LAB FLAG <sup>1</sup>	RELATIVE RESPONSE (RR)						MEAN RR	CV (%RSD) <sup>2</sup>
		CS0	CS1	CS2	CS3	CS4	CS5		
<b>13C-2,3,7,8-TCDD</b>		1.03	0.97	1.01	1.00	1.04	1.10	1.03	4.47
<b>13C-1,2,3,7,8-PECDD <sup>3</sup></b>		0.69	0.66	0.69	0.67	0.72	0.85	0.71	9.71
<b>13C-1,2,3,4,7,8-HXCDD</b>		1.00	0.93	0.96	0.95	0.96	0.96	0.96	2.53
<b>13C-1,2,3,6,7,8-HXCDD</b>		1.13	1.07	1.08	1.11	1.13	1.15	1.11	2.63
<b>13C-1,2,3,4,6,7,8-HPCDD</b>		0.82	0.77	0.80	0.75	0.78	0.79	0.79	3.15
<b>13C-OCDD</b>		0.69	0.62	0.64	0.63	0.67	0.74	0.67	6.65
<b>13C-2,3,7,8-TCDF</b>		1.80	1.77	1.76	1.78	1.82	1.89	1.80	2.73
<b>13C-1,2,3,7,8-PECDF</b>		1.25	1.17	1.23	1.22	1.29	1.50	1.28	9.15
<b>13C-2,3,4,7,8-PECDF</b>		1.23	1.17	1.23	1.18	1.29	1.49	1.27	9.26
<b>13C-1,2,3,4,7,8-HXCDF</b>		1.39	1.33	1.33	1.34	1.30	1.29	1.33	2.75
<b>13C-1,2,3,6,7,8-HXCDF</b>		1.57	1.48	1.50	1.49	1.52	1.55	1.52	2.28
<b>13C-1,2,3,7,8,9-HXCDF</b>		1.32	1.25	1.27	1.24	1.30	1.31	1.28	2.80
<b>13C-2,3,4,6,7,8-HXCDF</b>		1.41	1.32	1.33	1.29	1.34	1.31	1.33	3.20
<b>13C-1,2,3,4,6,7,8-HPCDF</b>		1.06	1.00	1.03	1.02	1.05	1.05	1.03	2.13
<b>13C-1,2,3,4,7,8,9-HPCDF</b>		0.85	0.82	0.84	0.77	0.84	0.86	0.83	3.94
<b>CLEANUP STANDARD</b>									
<b>37CL-2,3,7,8-TCDD</b>		1.39	1.25	1.15	1.15	1.16	1.23	1.22	7.66

(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: \_\_\_\_\_ Bjorn Arvi \_\_\_\_\_

## 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:** 08-May-2019

**Instrument ID:** HR GC/MS

**GC Column ID:** DB5

**CS0 Data Filename:** DX9B\_067D S: 2

**CS1 Data Filename:** DX9B\_067D S: 3

**CS2 Data Filename:** DX9B\_067D S: 4

**CS3 Data Filename:** DX9B\_067D S: 5

**CS4 Data Filename:** DX9B\_067D S: 8

**CS5 Data Filename:** DX9B\_067D S: 7

**CS6 Data Filename:** N/A

COMPOUND	LAB FLAG <sup>1</sup>	M/Z's FORMING RATIO <sup>2</sup>	ION ABUNDANCE RATIO						QC LIMITS <sup>3</sup>
			CS0	CS1	CS2	CS3	CS4	CS5	
2,3,7,8-TCDD		M/M+2	0.75	0.78	0.80	0.80	0.81	0.80	0.65-0.89
1,2,3,7,8-PECDD <sup>4</sup>		M/M+2	0.61	0.64	0.66	0.64	0.63	0.63	0.52-0.70
1,2,3,4,7,8-HXCDD		M+2/M+4	1.05	1.15	1.23	1.20	1.22	1.22	1.05-1.43
1,2,3,6,7,8-HXCDD		M+2/M+4	1.34	1.18	1.20	1.21	1.22	1.22	1.05-1.43
1,2,3,7,8,9-HXCDD		M+2/M+4	1.09	1.27	1.23	1.20	1.22	1.22	1.05-1.43
1,2,3,4,6,7,8-HPCDD		M+2/M+4	1.14	1.02	1.03	1.04	1.04	1.04	0.88-1.20
OCDD		M+2/M+4	0.84	0.87	0.91	0.89	0.90	0.89	0.76-1.02
2,3,7,8-TCDF		M/M+2	0.71	0.76	0.80	0.78	0.78	0.78	0.65-0.89
1,2,3,7,8-PECDF		M+2/M+4	1.56	1.63	1.58	1.56	1.58	1.58	1.32-1.78
2,3,4,7,8-PECDF		M+2/M+4	1.47	1.58	1.54	1.56	1.59	1.58	1.32-1.78
1,2,3,4,7,8-HXCDF		M+2/M+4	1.24	1.25	1.26	1.25	1.25	1.25	1.05-1.43
1,2,3,6,7,8-HXCDF		M+2/M+4	1.26	1.28	1.26	1.26	1.25	1.25	1.05-1.43
1,2,3,7,8,9-HXCDF		M+2/M+4	1.22	1.36	1.25	1.25	1.25	1.26	1.05-1.43
2,3,4,6,7,8-HXCDF		M+2/M+4	1.25	1.27	1.24	1.25	1.25	1.25	1.05-1.43
1,2,3,4,6,7,8-HPCDF		M+2/M+4	0.98	1.02	1.05	1.05	1.06	1.05	0.88-1.20
1,2,3,4,7,8,9-HPCDF		M+2/M+4	1.13	1.06	1.05	1.06	1.06	1.06	0.88-1.20
OCDF		M+2/M+4	0.91	0.92	0.88	0.90	0.90	0.90	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: \_\_\_\_\_ Bjorn Arvi \_\_\_\_\_

For Axy Internal Use Only [ XSL Template: Form3C.xsl; Created: 10-May-2019 12:25:07; Application: XMLTransformer-1.17.8; Report Filename: 1613\_DIOXINS\_08-May-2019\_DX9B\_Form3C\_GS81675.html; Workgroup: WG67785; 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:** 08-May-2019

**Instrument ID:** HR GC/MS**GC Column ID:** DB5**CS0 Data Filename:** DX9B\_067D S: 2**CS1 Data Filename:** DX9B\_067D S: 3**CS2 Data Filename:** DX9B\_067D S: 4**CS3 Data Filename:** DX9B\_067D S: 5**CS4 Data Filename:** DX9B\_067D S: 8**CS5 Data Filename:** DX9B\_067D S: 7**CS6 Data Filename:** N/A

LABELED COMPOUND	LAB FLAG <sup>1</sup>	M/Z's FORMING RATIO <sup>2</sup>	ION ABUNDANCE RATIO						QC LIMITS <sup>3</sup>
			CS0	CS1	CS2	CS3	CS4	CS5	
13C-2,3,7,8-TCDD		M/M+2	0.79	0.78	0.79	0.77	0.78	0.78	0.65-0.89
13C-1,2,3,7,8-PECDD <sup>4</sup>		M/M+2	0.65	0.65	0.63	0.65	0.63	0.64	0.52-0.70
13C-1,2,3,4,7,8-HXCDD		M+2/M+4	1.28	1.31	1.28	1.29	1.29	1.31	1.05-1.43
13C-1,2,3,6,7,8-HXCDD		M+2/M+4	1.26	1.28	1.26	1.27	1.27	1.26	1.05-1.43
13C-1,2,3,4,6,7,8-HPCDD		M+2/M+4	1.05	1.04	1.05	1.03	1.06	1.05	0.88-1.20
13C-OCDD		M+2/M+4	0.93	0.92	0.92	0.91	0.93	0.93	0.76-1.02
13C-2,3,7,8-TCDF		M/M+2	0.82	0.83	0.83	0.83	0.82	0.83	0.65-0.89
13C-1,2,3,7,8-PECDF		M+2/M+4	1.58	1.61	1.60	1.59	1.58	1.59	1.32-1.78
13C-2,3,4,7,8-PECDF		M+2/M+4	1.58	1.59	1.61	1.59	1.60	1.58	1.32-1.78
13C-1,2,3,4,7,8-HXCDF		M/M+2	0.53	0.53	0.54	0.53	0.54	0.53	0.43-0.59
13C-1,2,3,6,7,8-HXCDF		M/M+2	0.53	0.54	0.52	0.53	0.53	0.54	0.43-0.59
13C-1,2,3,7,8,9-HXCDF		M/M+2	0.54	0.54	0.54	0.53	0.54	0.53	0.43-0.59
13C-2,3,4,6,7,8-HXCDF		M/M+2	0.53	0.53	0.53	0.54	0.54	0.53	0.43-0.59
13C-1,2,3,4,6,7,8-HPCDF		M/M+2	0.44	0.44	0.45	0.45	0.45	0.46	0.37-0.51
13C-1,2,3,4,7,8,9-HPCDF		M/M+2	0.45	0.45	0.46	0.45	0.45	0.45	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: \_\_\_\_\_ Bjorn Arvi \_\_\_\_\_

## 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

<b>Instrument ID:</b>	HR GC/MS	<b>Initial Calibration Date:</b>	08-May-2019
<b>RT Window Data Filename:</b>	DX9B_067D S: 5	<b>Analysis Date:</b>	08-May-2019
<b>DB-5 IS Data Filename:</b>	DX9B_067D S: 5	<b>Analysis Date:</b>	08-May-2019
<b>DB-225 IS Data Filename:</b>		<b>Analysis Date:</b>	
		<b>Time:</b>	14:52:19
		<b>Time:</b>	14:52:19
		<b>Time:</b>	

## DB5 RT WINDOW DEFINING STANDARDS RESULT

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	22:52	1,3,6,8-TCDF (F)	21:20
1,2,8,9-TCDD (L)	28:12	1,2,8,9-TCDF (L)	28:02
1,2,4,7,9-PECDD (F)	31:57	1,3,4,6,8-PECDF (F)	28:46
1,2,3,8,9-PECDD (L)	36:60	1,2,3,8,9-PECDF (L)	37:03
1,2,4,6,7,9-HXCDD (F)	39:60	1,2,3,4,6,8-HXCDF (F)	38:57
1,2,3,4,6,7-HXCDD (L)	42:38	1,2,3,4,8,9-HXCDF (L)	42:58
1,2,3,4,6,7,9-HPCDD (F)	45:46	1,2,3,4,6,7,8-HPCDF (F)	45:18
1,2,3,4,6,7,8-HPCDD (L)	46:41	1,2,3,4,7,8,9-HPCDF (L)	47:05

(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	12
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: \_\_\_\_\_ Robert Tones \_\_\_\_\_

## 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: 08-May-2019

VER Data Filename: DX9B\_068 S: 1

Instrument ID: HR GC/MS

Analysis Date: 08-May-2019

GC Column ID: DB5

Analysis Time: 20:44:27

COMPOUND	LAB FLAG <sup>1</sup>	MZ's FORMING RATIO <sup>2</sup>	ION ABUND. RATIO	QC LIMITS <sup>3</sup>	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) <sup>4</sup>
2,3,7,8-TCDD		M/M+2	0.80	0.65-0.89	10.4	7.8 - 12.9
1,2,3,7,8-PECDD <sup>5</sup>		M/M+2	0.64	0.52-0.70	51.1	39 - 65
1,2,3,4,7,8-HXCDD		M+2/M+4	1.20	1.05-1.43	49.7	39 - 64
1,2,3,6,7,8-HXCDD		M+2/M+4	1.20	1.05-1.43	50.6	39 - 64
1,2,3,7,8,9-HXCDD		M+2/M+4	1.20	1.05-1.43	51.0	41 - 61
1,2,3,4,6,7,8-HPCDD		M+2/M+4	1.05	0.88-1.20	51.6	43 - 58
OCDD		M+2/M+4	0.89	0.76-1.02	97.5	79 - 126
2,3,7,8-TCDF		M/M+2	0.80	0.65-0.89	10.2	8.4 - 12
1,2,3,7,8-PECDF		M+2/M+4	1.56	1.32-1.78	52.0	41 - 60
2,3,4,7,8-PECDF		M+2/M+4	1.58	1.32-1.78	50.4	41 - 61
1,2,3,4,7,8-HXCDF		M+2/M+4	1.27	1.05-1.43	51.7	45 - 56
1,2,3,6,7,8-HXCDF		M+2/M+4	1.23	1.05-1.43	49.3	44 - 57
1,2,3,7,8,9-HXCDF		M+2/M+4	1.24	1.05-1.43	48.9	45 - 56
2,3,4,6,7,8-HXCDF		M+2/M+4	1.24	1.05-1.43	51.1	44 - 57
1,2,3,4,6,7,8-HPCDF		M+2/M+4	1.04	0.88-1.20	49.5	45 - 55
1,2,3,4,7,8,9-HPCDF		M+2/M+4	1.04	0.88-1.20	49.4	43 - 58
OCDF		M+2/M+4	0.90	0.76-1.02	98.7	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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: 08-May-2019

VER Data Filename: DX9B\_068 S: 1

Instrument ID: HR GC/MS

Analysis Date: 08-May-2019

GC Column ID: DB5

Analysis Time: 20:44:27

LAB FLAG <sup>1</sup>	MZ's FORMING RATIO <sup>2</sup>	ION ABUND. RATIO	QC LIMITS <sup>3</sup>	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) <sup>4</sup>	
<b>LABELLED COMPOUND</b>						
	13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	97.6	82 - 121
	13C-1,2,3,7,8-PECDD <sup>5</sup>	M/M+2	0.63	0.52-0.70	91.1	62 - 160
	13C-1,2,3,4,7,8-HXCDD	M+2/M+4	1.28	1.05-1.43	96.2	85 - 117
	13C-1,2,3,6,7,8-HXCDD	M+2/M+4	1.28	1.05-1.43	99.7	85 - 118
	13C-1,2,3,4,6,7,8-HPCDD	M+2/M+4	1.06	0.88-1.20	94.4	72 - 138
	13C-OCDD	M+2/M+4	0.93	0.76-1.02	182	96 - 415
	13C-2,3,7,8-TCDF	M/M+2	0.82	0.65-0.89	97.5	71 - 140
	13C-1,2,3,7,8-PECDF	M+2/M+4	1.62	1.32-1.78	93.8	76 - 130
	13C-2,3,4,7,8-PECDF	M+2/M+4	1.58	1.32-1.78	92.9	77 - 130
	13C-1,2,3,4,7,8-HXCDF	M/M+2	0.53	0.43-0.59	97.4	76 - 131
	13C-1,2,3,6,7,8-HXCDF	M/M+2	0.53	0.43-0.59	98.3	70 - 143
	13C-1,2,3,7,8,9-HXCDF	M/M+2	0.53	0.43-0.59	97.4	74 - 135
	13C-2,3,4,6,7,8-HXCDF	M/M+2	0.53	0.43-0.59	95.2	73 - 137
	13C-1,2,3,4,6,7,8-HPCDF	M/M+2	0.45	0.37-0.51	98.9	78 - 129
	13C-1,2,3,4,7,8,9-HPCDF	M/M+2	0.44	0.37-0.51	96.5	77 - 129
<b>CLEANUP STANDARD</b>						
	37CL-2,3,7,8-TCDD <sup>6</sup>			9.36	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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: 08-May-2019      VER Data Filename: DX9B\_068 S: 1  
Instrument ID: HR GC/MS      Analysis Date: 08-May-2019  
GC Column ID: DB5      Analysis Time: 20:44:27

COMPOUND	LAB FLAG <sup>1</sup>	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS <sup>2</sup>
2,3,7,8-TCDD		13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PECDD <sup>3</sup>		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	1.011	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	1.000	0.999-1.001
2,3,4,6,7,8-HXCDF		13C-2,3,4,6,7,8-HXCDF	1.001	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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:	08-May-2019	VER Data Filename:	DX9B_068 S: 1
Instrument ID:	HR GC/MS	Analysis Date:	08-May-2019
GC Column ID:	DB5	Analysis Time:	20:44:27

LAB FLAG <sup>1</sup>	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS <sup>2</sup>
<b>LABELED COMPOUND</b>			
	13C-1,2,3,4-TCDD	1.013	0.976-1.043
	13C-1,2,3,7,8-PECDD	1.385	1.000-1.567
	13C-1,2,3,4,7,8-HXCDD	0.987	0.977-1.000
	13C-1,2,3,6,7,8-HXCDD	0.990	0.981-1.003
	13C-1,2,3,4,6,7,8-HPCDD	1.095	1.086-1.110
	13C-OCDD	1.179	1.032-1.311
	13C-2,3,7,8-TCDF	0.965	0.923-1.103
	13C-1,2,3,7,8-PECDF	1.285	1.000-1.425
	13C-2,3,4,7,8-PECDF	1.353	1.011-1.526
	13C-1,2,3,4,7,8-HXCDF	0.953	0.944-0.970
	13C-1,2,3,6,7,8-HXCDF	0.957	0.949-0.975
	13C-1,2,3,7,8,9-HXCDF	1.004	0.977-1.047
	13C-2,3,4,6,7,8-HXCDF	0.980	0.959-1.021
	13C-1,2,3,4,6,7,8-HPCDF	1.062	1.043-1.085
	13C-1,2,3,4,7,8,9-HPCDF	1.104	1.057-1.151
<b>CLEANUP STANDARD</b>			
	37CL-2,3,7,8-TCDD	1.014	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_



## 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: 08-May-2019

VER Data Filename: DX9B\_068 S: 12

Instrument ID: HR GC/MS

Analysis Date: 09-May-2019

GC Column ID: DB5

Analysis Time: 06:46:01

COMPOUND	LAB FLAG <sup>1</sup>	MZ's FORMING RATIO <sup>2</sup>	ION ABUND. RATIO	QC LIMITS <sup>3</sup>	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) <sup>4</sup>
2,3,7,8-TCDD		M/M+2	0.81	0.65-0.89	10.0	7.8 - 12.9
1,2,3,7,8-PECDD <sup>5</sup>		M/M+2	0.64	0.52-0.70	49.8	39 - 65
1,2,3,4,7,8-HXCDD		M+2/M+4	1.22	1.05-1.43	50.4	39 - 64
1,2,3,6,7,8-HXCDD		M+2/M+4	1.23	1.05-1.43	50.9	39 - 64
1,2,3,7,8,9-HXCDD		M+2/M+4	1.21	1.05-1.43	52.2	41 - 61
1,2,3,4,6,7,8-HPCDD		M+2/M+4	1.05	0.88-1.20	51.3	43 - 58
OCDD		M+2/M+4	0.89	0.76-1.02	96.8	79 - 126
2,3,7,8-TCDF		M/M+2	0.78	0.65-0.89	10.0	8.4 - 12
1,2,3,7,8-PECDF		M+2/M+4	1.58	1.32-1.78	50.9	41 - 60
2,3,4,7,8-PECDF		M+2/M+4	1.59	1.32-1.78	49.8	41 - 61
1,2,3,4,7,8-HXCDF		M+2/M+4	1.27	1.05-1.43	50.9	45 - 56
1,2,3,6,7,8-HXCDF		M+2/M+4	1.25	1.05-1.43	49.7	44 - 57
1,2,3,7,8,9-HXCDF		M+2/M+4	1.25	1.05-1.43	48.5	45 - 56
2,3,4,6,7,8-HXCDF		M+2/M+4	1.25	1.05-1.43	49.9	44 - 57
1,2,3,4,6,7,8-HPCDF		M+2/M+4	1.05	0.88-1.20	49.5	45 - 55
1,2,3,4,7,8,9-HPCDF		M+2/M+4	1.04	0.88-1.20	49.0	43 - 58
OCDF		M+2/M+4	0.90	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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: 08-May-2019

VER Data Filename: DX9B\_068 S: 12

Instrument ID: HR GC/MS

Analysis Date: 09-May-2019

GC Column ID: DB5

Analysis Time: 06:46:01

LAB FLAG <sup>1</sup>	MZ's FORMING RATIO <sup>2</sup>	ION ABUND. RATIO	QC LIMITS <sup>3</sup>	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) <sup>4</sup>	
<b>LABELLED COMPOUND</b>						
	13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	99.7	82 - 121
	13C-1,2,3,7,8-PECDD <sup>5</sup>	M/M+2	0.64	0.52-0.70	99.0	62 - 160
	13C-1,2,3,4,7,8-HXCDD	M+2/M+4	1.27	1.05-1.43	95.6	85 - 117
	13C-1,2,3,6,7,8-HXCDD	M+2/M+4	1.27	1.05-1.43	97.5	85 - 118
	13C-1,2,3,4,6,7,8-HPCDD	M+2/M+4	1.05	0.88-1.20	101	72 - 138
	13C-OCDD	M+2/M+4	0.92	0.76-1.02	211	96 - 415
	13C-2,3,7,8-TCDF	M/M+2	0.83	0.65-0.89	99.0	71 - 140
	13C-1,2,3,7,8-PECDF	M+2/M+4	1.63	1.32-1.78	98.6	76 - 130
	13C-2,3,4,7,8-PECDF	M+2/M+4	1.61	1.32-1.78	97.5	77 - 130
	13C-1,2,3,4,7,8-HXCDF	M/M+2	0.53	0.43-0.59	97.0	76 - 131
	13C-1,2,3,6,7,8-HXCDF	M/M+2	0.53	0.43-0.59	94.9	70 - 143
	13C-1,2,3,7,8,9-HXCDF	M/M+2	0.53	0.43-0.59	99.0	74 - 135
	13C-2,3,4,6,7,8-HXCDF	M/M+2	0.54	0.43-0.59	96.8	73 - 137
	13C-1,2,3,4,6,7,8-HPCDF	M/M+2	0.46	0.37-0.51	101	78 - 129
	13C-1,2,3,4,7,8,9-HPCDF	M/M+2	0.45	0.37-0.51	106	77 - 129
<b>CLEANUP STANDARD</b>						
	37CL-2,3,7,8-TCDD <sup>6</sup>			9.33	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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: 08-May-2019      VER Data Filename: DX9B\_068 S: 12  
 Instrument ID: HR GC/MS      Analysis Date: 09-May-2019  
 GC Column ID: DB5      Analysis Time: 06:46:01

COMPOUND	LAB FLAG <sup>1</sup>	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS <sup>2</sup>
2,3,7,8-TCDD		13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PECDD <sup>3</sup>		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	1.011	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	1.001	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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: 08-May-2019

VER Data Filename: DX9B\_068 S: 12

Instrument ID: HR GC/MS

Analysis Date: 09-May-2019

GC Column ID: DB5

Analysis Time: 06:46:01

LAB FLAG <sup>1</sup>	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS <sup>2</sup>
<b>LABELED COMPOUND</b>			
	13C-1,2,3,4-TCDD	1.013	0.976-1.043
	13C-1,2,3,7,8-PECDD	1.385	1.000-1.567
	13C-1,2,3,4,7,8-HXCDD	0.987	0.977-1.000
	13C-1,2,3,6,7,8-HXCDD	0.990	0.981-1.003
	13C-1,2,3,4,6,7,8-HPCDD	1.095	1.086-1.110
	13C-OCDD	1.179	1.032-1.311
	13C-2,3,7,8-TCDF	0.965	0.923-1.103
	13C-1,2,3,7,8-PECDF	1.285	1.000-1.425
	13C-2,3,4,7,8-PECDF	1.353	1.011-1.526
	13C-1,2,3,4,7,8-HXCDF	0.953	0.944-0.970
	13C-1,2,3,6,7,8-HXCDF	0.958	0.949-0.975
	13C-1,2,3,7,8,9-HXCDF	1.004	0.977-1.047
	13C-2,3,4,6,7,8-HXCDF	0.980	0.959-1.021
	13C-1,2,3,4,6,7,8-HPCDF	1.062	1.043-1.085
	13C-1,2,3,4,7,8,9-HPCDF	1.104	1.057-1.151
<b>CLEANUP STANDARD</b>			
	37CL-2,3,7,8-TCDD	1.014	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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:	08-May-2019
RT Window Data Filename:	DX9B_068 S: 1	Analysis Date:	08-May-2019
DB-5 IS Data Filename:	DX9B_068 S: 1	Analysis Date:	08-May-2019
DB-225 IS Data Filename:		Analysis Date:	
		Time:	20:44:27
		Time:	20:44:27
		Time:	

## DB5 RT WINDOW DEFINING STANDARDS RESULT

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	22:54	1,3,6,8-TCDF (F)	21:21
1,2,8,9-TCDD (L)	28:14	1,2,8,9-TCDF (L)	28:03
1,2,4,7,9-PECDD (F)	31:59	1,3,4,6,8-PECDF (F)	28:48
1,2,3,8,9-PECDD (L)	37:01	1,2,3,8,9-PECDF (L)	37:04
1,2,4,6,7,9-HXCDD (F)	40:01	1,2,3,4,6,8-HXCDF (F)	38:58
1,2,3,4,6,7-HXCDD (L)	42:40	1,2,3,4,8,9-HXCDF (L)	42:59
1,2,3,4,6,7,9-HPCDD (F)	45:46	1,2,3,4,6,7,8-HPCDF (F)	45:19
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	11
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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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: 08-May-2019

VER Data Filename: DX9B\_069 S: 1

Instrument ID: HR GC/MS

Analysis Date: 09-May-2019

GC Column ID: DB5

Analysis Time: 08:09:38

COMPOUND	LAB FLAG <sup>1</sup>	MZ's FORMING RATIO <sup>2</sup>	ION ABUND. RATIO	QC LIMITS <sup>3</sup>	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) <sup>4</sup>
2,3,7,8-TCDD		M/M+2	0.80	0.65-0.89	10.1	7.8 - 12.9
1,2,3,7,8-PECDD <sup>5</sup>		M/M+2	0.62	0.52-0.70	50.2	39 - 65
1,2,3,4,7,8-HXCDD		M+2/M+4	1.22	1.05-1.43	49.5	39 - 64
1,2,3,6,7,8-HXCDD		M+2/M+4	1.21	1.05-1.43	49.1	39 - 64
1,2,3,7,8,9-HXCDD		M+2/M+4	1.19	1.05-1.43	51.0	41 - 61
1,2,3,4,6,7,8-HPCDD		M+2/M+4	1.05	0.88-1.20	51.4	43 - 58
OCDD		M+2/M+4	0.88	0.76-1.02	94.9	79 - 126
2,3,7,8-TCDF		M/M+2	0.78	0.65-0.89	10.4	8.4 - 12
1,2,3,7,8-PECDF		M+2/M+4	1.58	1.32-1.78	50.0	41 - 60
2,3,4,7,8-PECDF		M+2/M+4	1.59	1.32-1.78	48.1	41 - 61
1,2,3,4,7,8-HXCDF		M+2/M+4	1.27	1.05-1.43	50.5	45 - 56
1,2,3,6,7,8-HXCDF		M+2/M+4	1.20	1.05-1.43	47.9	44 - 57
1,2,3,7,8,9-HXCDF		M+2/M+4	1.23	1.05-1.43	46.8	45 - 56
2,3,4,6,7,8-HXCDF		M+2/M+4	1.23	1.05-1.43	48.8	44 - 57
1,2,3,4,6,7,8-HPCDF		M+2/M+4	1.04	0.88-1.20	48.0	45 - 55
1,2,3,4,7,8,9-HPCDF		M+2/M+4	1.05	0.88-1.20	48.5	43 - 58
OCDF		M+2/M+4	0.88	0.76-1.02	90.8	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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: 08-May-2019

VER Data Filename: DX9B\_069 S: 1

Instrument ID: HR GC/MS

Analysis Date: 09-May-2019

GC Column ID: DB5

Analysis Time: 08:09:38

LAB FLAG <sup>1</sup>	MZ's FORMING RATIO <sup>2</sup>	ION ABUND. RATIO	QC LIMITS <sup>3</sup>	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) <sup>4</sup>	
<b>LABELLED COMPOUND</b>						
	13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	99.9	82 - 121
	13C-1,2,3,7,8-PECDD <sup>5</sup>	M/M+2	0.64	0.52-0.70	92.9	62 - 160
	13C-1,2,3,4,7,8-HXCDD	M+2/M+4	1.29	1.05-1.43	91.8	85 - 117
	13C-1,2,3,6,7,8-HXCDD	M+2/M+4	1.24	1.05-1.43	101	85 - 118
	13C-1,2,3,4,6,7,8-HPCDD	M+2/M+4	1.01	0.88-1.20	94.8	72 - 138
	13C-OCDD	M+2/M+4	0.92	0.76-1.02	220	96 - 415
	13C-2,3,7,8-TCDF	M/M+2	0.83	0.65-0.89	93.4	71 - 140
	13C-1,2,3,7,8-PECDF	M+2/M+4	1.62	1.32-1.78	93.9	76 - 130
	13C-2,3,4,7,8-PECDF	M+2/M+4	1.58	1.32-1.78	93.6	77 - 130
	13C-1,2,3,4,7,8-HXCDF	M/M+2	0.52	0.43-0.59	90.0	76 - 131
	13C-1,2,3,6,7,8-HXCDF	M/M+2	0.54	0.43-0.59	94.6	70 - 143
	13C-1,2,3,7,8,9-HXCDF	M/M+2	0.53	0.43-0.59	93.0	74 - 135
	13C-2,3,4,6,7,8-HXCDF	M/M+2	0.54	0.43-0.59	92.1	73 - 137
	13C-1,2,3,4,6,7,8-HPCDF	M/M+2	0.47	0.37-0.51	97.5	78 - 129
	13C-1,2,3,4,7,8,9-HPCDF	M/M+2	0.48	0.37-0.51	97.8	77 - 129
<b>CLEANUP STANDARD</b>						
	37CL-2,3,7,8-TCDD <sup>6</sup>			9.60	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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:	08-May-2019	VER Data Filename:	DX9B_069 S: 1
Instrument ID:	HR GC/MS	Analysis Date:	09-May-2019
GC Column ID:	DB5	Analysis Time:	08:09:38

COMPOUND	LAB FLAG <sup>1</sup>	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS <sup>2</sup>
2,3,7,8-TCDD		13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PECDD <sup>3</sup>		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	1.011	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	1.000	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	1.000	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	1.001	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_



## 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:	08-May-2019	VER Data Filename:	DX9B_069 S: 1
Instrument ID:	HR GC/MS	Analysis Date:	09-May-2019
GC Column ID:	DB5	Analysis Time:	08:09:38

LAB FLAG <sup>1</sup>	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS <sup>2</sup>
<b>LABELED COMPOUND</b>			
	13C-1,2,3,4-TCDD	1.013	0.976-1.043
	13C-1,2,3,7,8-PECDD	1.385	1.000-1.567
	13C-1,2,3,4,7,8-HXCDD	0.986	0.977-1.000
	13C-1,2,3,6,7,8-HXCDD	0.990	0.981-1.003
	13C-1,2,3,4,6,7,8-HPCDD	1.095	1.086-1.110
	13C-OCDD	1.179	1.032-1.311
	13C-2,3,7,8-TCDF	0.965	0.923-1.103
	13C-1,2,3,7,8-PECDF	1.285	1.000-1.425
	13C-2,3,4,7,8-PECDF	1.353	1.011-1.526
	13C-1,2,3,4,7,8-HXCDF	0.953	0.944-0.970
	13C-1,2,3,6,7,8-HXCDF	0.958	0.949-0.975
	13C-1,2,3,7,8,9-HXCDF	1.004	0.977-1.047
	13C-2,3,4,6,7,8-HXCDF	0.980	0.959-1.021
	13C-1,2,3,4,6,7,8-HPCDF	1.062	1.043-1.085
	13C-1,2,3,4,7,8,9-HPCDF	1.104	1.057-1.151
<b>CLEANUP STANDARD</b>			
	37CL-2,3,7,8-TCDD	1.014	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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: 08-May-2019

VER Data Filename: DX9B\_069 S: 12

Instrument ID: HR GC/MS

Analysis Date: 09-May-2019

GC Column ID: DB5

Analysis Time: 18:11:11

COMPOUND	LAB FLAG <sup>1</sup>	MZ's FORMING RATIO <sup>2</sup>	ION ABUND. RATIO	QC LIMITS <sup>3</sup>	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) <sup>4</sup>
2,3,7,8-TCDD		M/M+2	0.79	0.65-0.89	10.1	7.8 - 12.9
1,2,3,7,8-PECDD <sup>5</sup>		M/M+2	0.63	0.52-0.70	48.6	39 - 65
1,2,3,4,7,8-HXCDD		M+2/M+4	1.21	1.05-1.43	48.0	39 - 64
1,2,3,6,7,8-HXCDD		M+2/M+4	1.20	1.05-1.43	48.1	39 - 64
1,2,3,7,8,9-HXCDD		M+2/M+4	1.20	1.05-1.43	49.6	41 - 61
1,2,3,4,6,7,8-HPCDD		M+2/M+4	1.03	0.88-1.20	50.5	43 - 58
OCDD		M+2/M+4	0.88	0.76-1.02	95.2	79 - 126
2,3,7,8-TCDF		M/M+2	0.78	0.65-0.89	10.1	8.4 - 12
1,2,3,7,8-PECDF		M+2/M+4	1.60	1.32-1.78	48.9	41 - 60
2,3,4,7,8-PECDF		M+2/M+4	1.57	1.32-1.78	48.1	41 - 61
1,2,3,4,7,8-HXCDF		M+2/M+4	1.24	1.05-1.43	50.1	45 - 56
1,2,3,6,7,8-HXCDF		M+2/M+4	1.25	1.05-1.43	49.0	44 - 57
1,2,3,7,8,9-HXCDF		M+2/M+4	1.27	1.05-1.43	45.9	45 - 56
2,3,4,6,7,8-HXCDF		M+2/M+4	1.24	1.05-1.43	48.7	44 - 57
1,2,3,4,6,7,8-HPCDF		M+2/M+4	1.02	0.88-1.20	46.3	45 - 55
1,2,3,4,7,8,9-HPCDF		M+2/M+4	1.04	0.88-1.20	47.7	43 - 58
OCDF		M+2/M+4	0.89	0.76-1.02	91.6	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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: 08-May-2019

VER Data Filename: DX9B\_069 S: 12

Instrument ID: HR GC/MS

Analysis Date: 09-May-2019

GC Column ID: DB5

Analysis Time: 18:11:11

LAB FLAG <sup>1</sup>	MZ's FORMING RATIO <sup>2</sup>	ION ABUND. RATIO	QC LIMITS <sup>3</sup>	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL) <sup>4</sup>	
<b>LABELLED COMPOUND</b>						
	13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	101	82 - 121
	13C-1,2,3,7,8-PECDD <sup>5</sup>	M/M+2	0.64	0.52-0.70	97.2	62 - 160
	13C-1,2,3,4,7,8-HXCDD	M+2/M+4	1.28	1.05-1.43	95.2	85 - 117
	13C-1,2,3,6,7,8-HXCDD	M+2/M+4	1.28	1.05-1.43	96.3	85 - 118
	13C-1,2,3,4,6,7,8-HPCDD	M+2/M+4	1.00	0.88-1.20	98.4	72 - 138
	13C-OCDD	M+2/M+4	0.92	0.76-1.02	207	96 - 415
	13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	91.0	71 - 140
	13C-1,2,3,7,8-PECDF	M+2/M+4	1.60	1.32-1.78	93.6	76 - 130
	13C-2,3,4,7,8-PECDF	M+2/M+4	1.62	1.32-1.78	94.8	77 - 130
	13C-1,2,3,4,7,8-HXCDF	M/M+2	0.52	0.43-0.59	87.3	76 - 131
	13C-1,2,3,6,7,8-HXCDF	M/M+2	0.53	0.43-0.59	87.3	70 - 143
	13C-1,2,3,7,8,9-HXCDF	M/M+2	0.55	0.43-0.59	90.0	74 - 135
	13C-2,3,4,6,7,8-HXCDF	M/M+2	0.54	0.43-0.59	87.6	73 - 137
	13C-1,2,3,4,6,7,8-HPCDF	M/M+2	0.47	0.37-0.51	96.2	78 - 129
	13C-1,2,3,4,7,8,9-HPCDF	M/M+2	0.47	0.37-0.51	98.1	77 - 129
<b>CLEANUP STANDARD</b>						
	37CL-2,3,7,8-TCDD <sup>6</sup>			9.88	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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:	08-May-2019	VER Data Filename:	DX9B_069 S: 12
Instrument ID:	HR GC/MS	Analysis Date:	09-May-2019
GC Column ID:	DB5	Analysis Time:	18:11:11

COMPOUND	LAB FLAG <sup>1</sup>	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS <sup>2</sup>
2,3,7,8-TCDD		13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PECDD <sup>3</sup>		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	1.001	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	1.001	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	1.000	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	1.001	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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: 08-May-2019

VER Data Filename: DX9B\_069 S: 12

Instrument ID: HR GC/MS

Analysis Date: 09-May-2019

GC Column ID: DB5

Analysis Time: 18:11:11

LAB FLAG <sup>1</sup>	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS <sup>2</sup>
<b>LABELED COMPOUND</b>			
	13C-1,2,3,4-TCDD	1.012	0.976-1.043
	13C-1,2,3,7,8-PECDD	1.384	1.000-1.567
	13C-1,2,3,4,7,8-HXCDD	0.987	0.977-1.000
	13C-1,2,3,6,7,8-HXCDD	0.990	0.981-1.003
	13C-1,2,3,4,6,7,8-HPCDD	1.095	1.086-1.110
	13C-OCDD	1.179	1.032-1.311
	13C-2,3,7,8-TCDF	0.965	0.923-1.103
	13C-1,2,3,7,8-PECDF	1.284	1.000-1.425
	13C-2,3,4,7,8-PECDF	1.352	1.011-1.526
	13C-1,2,3,4,7,8-HXCDF	0.954	0.944-0.970
	13C-1,2,3,6,7,8-HXCDF	0.958	0.949-0.975
	13C-1,2,3,7,8,9-HXCDF	1.005	0.977-1.047
	13C-2,3,4,6,7,8-HXCDF	0.980	0.959-1.021
	13C-1,2,3,4,6,7,8-HPCDF	1.062	1.043-1.085
	13C-1,2,3,4,7,8,9-HPCDF	1.104	1.057-1.151
<b>CLEANUP STANDARD</b>			
	37CL-2,3,7,8-TCDD	1.013	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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

## 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

<b>Instrument ID:</b>	HR GC/MS	<b>Initial Calibration Date:</b>	08-May-2019
<b>RT Window Data Filename:</b>	DX9B_069 S: 1	<b>Analysis Date:</b>	09-May-2019
<b>DB-5 IS Data Filename:</b>	DX9B_069 S: 1	<b>Analysis Date:</b>	09-May-2019
<b>DB-225 IS Data Filename:</b>		<b>Analysis Date:</b>	
		<b>Time:</b>	08:09:38
		<b>Time:</b>	08:09:38
		<b>Time:</b>	

## DB5 RT WINDOW DEFINING STANDARDS RESULT

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	22:54	1,3,6,8-TCDF (F)	21:21
1,2,8,9-TCDD (L)	28:14	1,2,8,9-TCDF (L)	28:04
1,2,4,7,9-PECDD (F)	31:59	1,3,4,6,8-PECDF (F)	28:48
1,2,3,8,9-PECDD (L)	37:01	1,2,3,8,9-PECDF (L)	37:04
1,2,4,6,7,9-HXCDD (F)	40:01	1,2,3,4,6,8-HXCDF (F)	38:57
1,2,3,4,6,7-HXCDD (L)	42:40	1,2,3,4,8,9-HXCDF (L)	42:59
1,2,3,4,6,7,9-HPCDD (F)	45:46	1,2,3,4,6,7,8-HPCDF (F)	45:18
1,2,3,4,6,7,8-HPCDD (L)	46:41	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	13
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: \_\_\_\_\_ Angela Schlak \_\_\_\_\_

**Accreditation Scope**SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

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 Washington DE Maine DOH ANAB DoD **	CALA Florida DOH Minnesota DOH New Jersey DEP Virginia DGS	CALA	CALA	CALA California DPH Florida DOH Minnesota DOH New Jersey DEP New York DOH Virginia DGS Washington DE * Maine DOH Pennsylvania DEP ANAB DoD **	
BFR	BTBPE	SGS AXYS MLA-033	MLA-033		Y		Y			
	DBDPE	SGS AXYS MLA-033	MLA-033		Y		Y			
	HBB	SGS AXYS MLA-033	MLA-033		Y		Y			
	PBEB	SGS AXYS MLA-033	MLA-033		Y		Y			
Bisphenols	Bisphenol A	SGS AXYS MLA-113	MLA-113		Y			Y		
	Bisphenol AF	SGS AXYS MLA-113	MLA-113		Y			Y		
	Bisphenol B	SGS AXYS MLA-113	MLA-113		Y			Y		
	Bisphenol E	SGS AXYS MLA-113	MLA-113		Y			Y		
	Bisphenol F	SGS AXYS MLA-113	MLA-113		Y			Y		
	Bisphenol S	SGS AXYS MLA-113	MLA-113		Y			Y		
BPA and MPE	4,4'-dihydroxy-2,2-diphenylpropane (Bisphenol A) (BPA)	SGS AXYS MLA-059	MLA-059					Y		
	Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)	SGS AXYS MLA-059	MLA-059					Y		
	Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP)	SGS AXYS MLA-059	MLA-059					Y		
	Mono-(3-carboxypropyl) phthalate (MCPHP)	SGS AXYS MLA-059	MLA-059					Y		
	Mono-2-ethylhexyl phthalate (MEHP)	SGS AXYS MLA-059	MLA-059					Y		
	Mono-benzyl phthalate (MBzP)	SGS AXYS MLA-059	MLA-059					Y		
	Mono-butyl phthalate (MBP) (n + iso)	SGS AXYS MLA-059	MLA-059					Y		
	Mono-cyclohexyl phthalate (MCHP)	SGS AXYS MLA-059	MLA-059					Y		
	Mono-ethyl phthalate (MEP)	SGS AXYS MLA-059	MLA-059					Y		
	Mono-iso-nonyl phthalate (MINP)	SGS AXYS MLA-059	MLA-059					Y		
	Mono-methyl phthalate (MMP)	SGS AXYS MLA-059	MLA-059					Y		
HBCDD	alpha-hexabromocyclododecane (a-HBCDD)	SGS AXYS MLA-070	MLA-070		Y					
	beta-hexabromocyclododecane (b-HBCDD)	SGS AXYS MLA-070	MLA-070		Y					
	gamma-hexabromocyclododecane (g-HBCDD)	SGS AXYS MLA-070	MLA-070		Y					
OC Pesticides	"Organochlorine Pesticides" category (CA only)	EPA 608	MLA-007						Y	
		EPA 625	MLA-007						Y	
		EPA 8081	MLA-007		Y					
	"Pesticides" category (CA only)	EPA 8270	MLA-007		Y					
	2,4'-DDD	EPA 625	MLA-007							Y
		EPA 8270	MLA-007			Y				
		EPA 1699	MLA-028			Y				Y
		SGS AXYS MLA-028	MLA-028		Y	Y	Y		Y	
		SGS AXYS MLA-007	MLA-007		Y	Y	Y	Y	Y	Y
	2,4'-DDE	EPA 625	MLA-007							Y
		EPA 8270	MLA-007			Y				
		EPA 1699	MLA-028			Y				Y
		SGS AXYS MLA-028	MLA-028		Y	Y	Y	Y	Y	Y
		SGS AXYS MLA-007	MLA-007		Y	Y	Y	Y	Y	Y
	2,4'-DDT	EPA 625	MLA-007							Y
		EPA 8270	MLA-007			Y				
		EPA 1699	MLA-028			Y				Y
		SGS AXYS MLA-028	MLA-028		Y	Y	Y	Y	Y	Y
		SGS AXYS MLA-007	MLA-007		Y	Y	Y	Y	Y	Y
	4,4'-DDD	EPA 625	MLA-007							Y
		EPA 8270	MLA-007			Y	Y	Y	Y	Y
		EPA 1699	MLA-028			Y				Y
		SGS AXYS MLA-028	MLA-028		Y	Y	Y	Y	Y	Y
		SGS AXYS MLA-007	MLA-007		Y	Y	Y	Y	Y	Y
	4,4'-DDE	EPA 625	MLA-007							Y
		EPA 8270	MLA-007			Y	Y	Y	Y	Y
		SGS AXYS MLA-007	MLA-007		Y	Y	Y	Y	Y	Y

**Accreditation Scope**

SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Solids								Tissue				Water, Non-Potable													
				CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH
		EPA 1699	MLA-028																										
		SGS AXYS MLA-028	MLA-028	Y	Y	Y						Y									Y						Y		
4,4'-DDT		SGS AXYS MLA-007	MLA-007	Y	Y	Y							Y																
		EPA 625	MLA-007																										
		EPA 8270	MLA-007				Y			Y	Y	Y	Y																
		EPA 1699	MLA-028				Y																						
Aldrin		SGS AXYS MLA-028	MLA-028	Y	Y	Y						Y									Y						Y		
		SGS AXYS MLA-007	MLA-007	Y	Y	Y							Y									Y							
		EPA 625	MLA-007																										
		EPA 8270	MLA-007				Y			Y	Y	Y	Y														Y		
Alpha-HCH		EPA 1699	MLA-028				Y																						
		SGS AXYS MLA-028	MLA-028	Y	Y	Y						Y									Y						Y		
Beta-HCH		SGS AXYS MLA-007	MLA-007	Y	Y	Y							Y																
		EPA 625	MLA-007																										
		EPA 8270	MLA-007				Y			Y	Y	Y	Y																
		EPA 1699	MLA-028				Y																						
Chlordane, technical		SGS AXYS MLA-028	MLA-028	Y	Y	Y						Y									Y						Y		
		SGS AXYS MLA-007	MLA-007	Y	Y	Y							Y									Y							
cis-Chlordane (alpha-Chlordane)		EPA 8270	MLA-007				Y			Y	Y	Y																	
		EPA 1699	MLA-028				Y																						
cis-Nonachlor		SGS AXYS MLA-028	MLA-028	Y	Y	Y						Y									Y						Y		
		SGS AXYS MLA-007	MLA-007	Y	Y	Y							Y									Y							
Delta-HCH		EPA 8270	MLA-007				Y					Y																	
		EPA 1699	MLA-028				Y																						
Dieldrin		SGS AXYS MLA-028	MLA-028	Y	Y	Y						Y									Y						Y		
		SGS AXYS MLA-007	MLA-007	Y	Y	Y							Y									Y							
Endosulphan I		EPA 608	MLA-007																										
		EPA 8081	MLA-007				Y			Y	Y	Y	Y																
Endosulphan II		EPA 1699	MLA-028				Y																						
		SGS AXYS MLA-028	MLA-028	Y	Y	Y						Y									Y						Y		
		SGS AXYS MLA-007	MLA-007	Y	Y	Y							Y									Y							
		EPA 608	MLA-007																										
		EPA 8081	MLA-007				Y			Y	Y	Y	Y																
		EPA 1699	MLA-028				Y																						
		SGS AXYS MLA-028	MLA-028	Y	Y	Y						Y									Y						Y		
		SGS AXYS MLA-007	MLA-007	Y	Y	Y							Y									Y							
		EPA 608	MLA-007																										
		EPA 8081	MLA-007				Y			Y	Y	Y	Y																
		EPA 1699	MLA-028				Y																						
		SGS AXYS MLA-028	MLA-028	Y	Y	Y						Y									Y						Y		
		SGS AXYS MLA-007	MLA-007	Y	Y	Y							Y									Y							
		EPA 608	MLA-007																										
		EPA 8081	MLA-007				Y			Y	Y	Y	Y																
		EPA 1699	MLA-028				Y																						



**Accreditation Scope**

SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

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
Endosulphan sulphate	EPA 1699	MLA-028				Y										
	SGS AXYS MLA-028	MLA-028		Y	Y	Y				Y			Y	Y		Y
	SGS AXYS MLA-007	MLA-007		Y	Y	Y				Y			Y	Y		
	EPA 608	MLA-007													Y	Y
	EPA 8081	MLA-007			Y		Y	Y	Y	Y						Y
	EPA 1699	MLA-028			Y									Y		
	SGS AXYS MLA-028	MLA-028		Y	Y	Y			Y		Y		Y	Y		Y
	SGS AXYS MLA-007	MLA-007		Y	Y	Y				Y			Y	Y		
	EPA 608	MLA-007												Y	Y	Y
	EPA 8081	MLA-007			Y		Y	Y	Y	Y						Y
	EPA 1699	MLA-028			Y									Y		
	SGS AXYS MLA-028	MLA-028		Y	Y	Y			Y		Y		Y	Y		Y
	SGS AXYS MLA-007	MLA-007		Y	Y	Y				Y			Y	Y		
	EPA 608	MLA-007												Y	Y	Y
	EPA 8081	MLA-007			Y		Y	Y	Y	Y						Y
	EPA 1699	MLA-028			Y									Y		
	SGS AXYS MLA-028	MLA-028		Y	Y	Y			Y		Y		Y	Y		Y
	SGS AXYS MLA-007	MLA-007		Y	Y	Y				Y			Y	Y		
	EPA 625	MLA-007												Y	Y	Y
	EPA 8270	MLA-007			Y		Y	Y	Y	Y						Y
	EPA 1699	MLA-028			Y									Y		
	SGS AXYS MLA-028	MLA-028		Y	Y	Y			Y		Y		Y	Y		Y
SGS AXYS MLA-007	MLA-007		Y	Y	Y				Y			Y	Y			
EPA 625	MLA-007												Y	Y	Y	
EPA 8270	MLA-007			Y		Y	Y	Y	Y						Y	
EPA 1699	MLA-028			Y									Y			
SGS AXYS MLA-028	MLA-028		Y	Y	Y			Y		Y		Y	Y		Y	
SGS AXYS MLA-007	MLA-007		Y	Y	Y				Y			Y	Y			
EPA 608	MLA-007												Y	Y	Y	
EPA 8081	MLA-007			Y		Y	Y	Y	Y						Y	
EPA 1699	MLA-028			Y									Y			
SGS AXYS MLA-028	MLA-028		Y	Y	Y			Y		Y		Y	Y		Y	
SGS AXYS MLA-007	MLA-007		Y	Y	Y				Y			Y	Y			
EPA 1625	MLA-007												Y	Y		
EPA 8270	MLA-007			Y		Y	Y	Y	Y						Y	
EPA 1699	MLA-028			Y									Y			
SGS AXYS MLA-028	MLA-028		Y	Y	Y			Y		Y		Y	Y		Y	
SGS AXYS MLA-007	MLA-007		Y	Y	Y				Y			Y	Y			
EPA 608	MLA-007												Y	Y		
EPA 8081	MLA-007			Y		Y	Y	Y	Y						Y	
EPA 1699	MLA-028			Y									Y			
SGS AXYS MLA-028	MLA-028		Y	Y	Y			Y		Y		Y	Y		Y	
SGS AXYS MLA-007	MLA-007		Y	Y	Y				Y			Y	Y			
EPA 8270	MLA-007			Y		Y		Y					Y	Y	Y	
EPA 1699	MLA-028			Y									Y			
SGS AXYS MLA-028	MLA-028		Y	Y	Y			Y		Y		Y	Y		Y	

**Accreditation Scope**

SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Serum											Tissue		Urine		Water						
				California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB DoD **	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB DoD **
Oxychlorthane	SGS AXYS MLA-007	MLA-007	Y	Y	Y																				
	EPA 8270	MLA-007			Y					Y															
	EPA 1699	MLA-028			Y																				
	SGS AXYS MLA-028	MLA-028	Y	Y	Y				Y													Y			
	SGS AXYS MLA-007	MLA-007	Y	Y	Y					Y															
	EPA 8270	MLA-007								Y															
	SGS AXYS MLA-007	MLA-007			Y						Y														
	EPA 8270	MLA-007				Y		Y	Y	Y														Y	
	EPA 1699	MLA-028				Y																			
	SGS AXYS MLA-028	MLA-028	Y	Y	Y				Y		Y											Y			
	SGS AXYS MLA-007	MLA-007	Y	Y	Y						Y														
	EPA 8270	MLA-007				Y				Y															
	EPA 1699	MLA-028				Y																			
	SGS AXYS MLA-028	MLA-028	Y	Y	Y				Y		Y											Y			
SGS AXYS MLA-007	MLA-007	Y	Y	Y						Y															
PAH	1,2,6-Trimethylphenanthrene	SGS AXYS MLA-021	MLA-021							Y															
	1,2-Dimethylnaphthalene	SGS AXYS MLA-021	MLA-021							Y															
	1,4,6,7-Tetramethylnaphthalene	SGS AXYS MLA-021	MLA-021							Y															
	1,7-Dimethylfluorene	SGS AXYS MLA-021	MLA-021							Y															
	1,7-Dimethylphenanthrene	SGS AXYS MLA-021	MLA-021							Y															
	1,8-Dimethylphenanthrene	SGS AXYS MLA-021	MLA-021							Y															
	1-Methylchrysene	SGS AXYS MLA-021	MLA-021							Y															
	1-Methylnaphthalene	SGS AXYS MLA-021	MLA-021							Y															
	1-Methylphenanthrene	SGS AXYS MLA-021	MLA-021							Y															
	2,3,5-Trimethylnaphthalene	SGS AXYS MLA-021	MLA-021							Y															
	2,3,6-Trimethylnaphthalene	SGS AXYS MLA-021	MLA-021							Y															
	2,4-Dimethyldibenzothiophene	SGS AXYS MLA-021	MLA-021							Y															
	2,6-Dimethylnaphthalene	SGS AXYS MLA-021	MLA-021							Y															
	2,6-Dimethylphenanthrene	SGS AXYS MLA-021	MLA-021							Y															
	2-Methylantracene	SGS AXYS MLA-021	MLA-021							Y															
	2-Methyldibenzothiophene	SGS AXYS MLA-021	MLA-021							Y															
	2-Methylfluorene	SGS AXYS MLA-021	MLA-021							Y															
	2-Methylnaphthalene	EPA 8270	MLA-021				Y		Y															Y	
		SGS AXYS MLA-021	MLA-021				Y	Y																Y	
	2-Methylphenanthrene	SGS AXYS MLA-021	MLA-021				Y																	Y	
	3,6-Dimethylphenanthrene	SGS AXYS MLA-021	MLA-021				Y																	Y	
	3-Methyldibenzothiophene	SGS AXYS MLA-021	MLA-021				Y																	Y	
	3-Methylfluoranthene/ Benzo(a)fluorene	SGS AXYS MLA-021	MLA-021				Y																	Y	
	3-Methylphenanthrene	SGS AXYS MLA-021	MLA-021				Y																	Y	
	5,9-Dimethylchrysene	SGS AXYS MLA-021	MLA-021				Y																	Y	
	5/6-Methylchrysenes	SGS AXYS MLA-021	MLA-021				Y																	Y	
	7-Methylbenzo(a)pyrene	SGS AXYS MLA-021	MLA-021				Y																	Y	
	9/4-Methylphenanthrenes	SGS AXYS MLA-021	MLA-021				Y																	Y	
	Acenaphthene	EPA 1625	MLA-021																					Y	Y
		EPA 8270	MLA-021				Y		Y	Y	Y														
		SGS AXYS MLA-021	MLA-021	Y	Y						Y													Y	Y
	Acenaphthylene	EPA 1625	MLA-021																					Y	Y
		EPA 8270	MLA-021				Y		Y	Y	Y														
		SGS AXYS MLA-021	MLA-021	Y	Y						Y													Y	Y
	Anthracene	EPA 1625	MLA-021																				Y	Y	



**Accreditation Scope**

SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

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 DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS		CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP
Polycyclic Aromatic Hydrocarbons	Dibenz[a,h]anthracene	SGS AXYS MLA-021	MLA-021																												
		EPA 1625	MLA-021																												
		EPA 8270	MLA-021																												
	Dibenzothiophene	SGS AXYS MLA-021	MLA-021																												
		EPA 1625	MLA-021																												
		EPA 8270	MLA-021																												
	Fluorene	SGS AXYS MLA-021	MLA-021																												
		EPA 1625	MLA-021																												
		EPA 8270	MLA-021																												
	Indeno[1,2,3-cd]pyrene	SGS AXYS MLA-021	MLA-021																												
		EPA 1625	MLA-021																												
		EPA 8270	MLA-021																												
	Naphthalene	SGS AXYS MLA-021	MLA-021																												
		EPA 1625	MLA-021																												
		EPA 8270	MLA-021																												
	Perylene	SGS AXYS MLA-021	MLA-021																												
		EPA 1625	MLA-021																												
		EPA 8270	MLA-021																												
	Phenanthrene	SGS AXYS MLA-021	MLA-021																												
		EPA 1625	MLA-021																												
		EPA 8270	MLA-021																												
	Pyrene	SGS AXYS MLA-021	MLA-021																												
EPA 1625		MLA-021																													
EPA 8270		MLA-021																													
Retene	SGS AXYS MLA-021	MLA-021																													
	EPA 1625	MLA-021																													
	EPA 8270	MLA-021																													
Polychlorinated Biphenyls (PBDPE)	BDE 10 2,6-dibromodiphenylether	EPA 1614	MLA-033																												
		SGS AXYS MLA-033	MLA-033																												
	BDE 100 2,2',4,4',6-pentabromodiphenylether	EPA 1614	MLA-033																												
		SGS AXYS MLA-033	MLA-033																												
	BDE 105 2,3,3',4,4'-pentabromodiphenylether	EPA 1614	MLA-033																												
		SGS AXYS MLA-033	MLA-033																												
	BDE 11 3,3'-dibromodiphenylether	EPA 1614	MLA-033																												
		SGS AXYS MLA-033	MLA-033																												
	BDE 116 2,3,4,5,6-pentabromodiphenylether	EPA 1614	MLA-033																												
		SGS AXYS MLA-033	MLA-033																												
	BDE 119 2,3',4,4',6-pentabromodiphenylether	EPA 1614	MLA-033																												
		SGS AXYS MLA-033	MLA-033																												
	BDE 12 3,4-dibromodiphenylether	EPA 1614	MLA-033																												
		SGS AXYS MLA-033	MLA-033																												
	BDE 126 3,3',4,4',5-pentabromodiphenylether	EPA 1614	MLA-033																												
		SGS AXYS MLA-033	MLA-033																												
	BDE 13 3,4'-dibromodiphenylether	EPA 1614	MLA-033																												
		SGS AXYS MLA-033	MLA-033																												
	BDE 140 2,2',3,4,4',6'-hexabromodiphenylether	EPA 1614	MLA-033																												
		SGS AXYS MLA-033	MLA-033																												
BDE 15 4,4'-dibromodiphenylether	EPA 1614	MLA-033																													
	SGS AXYS MLA-033	MLA-033																													
BDE 153 2,2',4,4',5,5'-hexabromodiphenylether	EPA 1614	MLA-033																													
	SGS AXYS MLA-033	MLA-033																													
BDE 154 2,2',4,4',5',6-hexabromodiphenylether	EPA 1614	MLA-033																													
	SGS AXYS MLA-033	MLA-033																													





**Accreditation Scope**

SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Serum								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 DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP
PCB 101/90/89		EPA 8270	MLA-007																											
		SGS AXYS MLA-007	MLA-007		Y									Y																
PCB 102 2,2',4,5,6'-Pentachlorobiphenyl		EPA 1668	MLA-010				Y	Y	Y	Y	Y	Y								Y			Y	Y	Y	Y		Y		
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y								Y		Y						
PCB 103 2,2',4,5',6'-Pentachlorobiphenyl		EPA 1668	MLA-010				Y	Y	Y	Y	Y	Y									Y		Y	Y	Y	Y		Y		
		EPA 8270	MLA-007										Y																	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y									Y		Y					
PCB 104 2,2',4,6,6'-Pentachlorobiphenyl		EPA 1668	MLA-010				Y	Y	Y	Y	Y	Y									Y		Y	Y	Y	Y		Y		
		EPA 8270	MLA-007										Y																	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y									Y		Y					
PCB 105 2,3,3',4,4'-Pentachlorobiphenyl		EPA 1668	MLA-010				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					
PCB 105/127		EPA 8270	MLA-007										Y																	
		SGS AXYS MLA-007	MLA-007		Y									Y									Y							
PCB 106 2,3,3',4,5'-Pentachlorobiphenyl		EPA 1668	MLA-010				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					
PCB 107 2,3,3',4',5'-Pentachlorobiphenyl		EPA 1668	MLA-010				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					
PCB 107/109		EPA 8270	MLA-007										Y																	
		SGS AXYS MLA-007	MLA-007		Y									Y									Y							
PCB 108 2,3,3',4,5'-Pentachlorobiphenyl		EPA 1668	MLA-010				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					
PCB 109 2,3,3',4,6-Pentachlorobiphenyl		EPA 1668	MLA-010				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					
PCB 11 3,3'-Dichlorobiphenyl		EPA 1668	MLA-010				Y	Y	Y	Y	Y	Y	Y									Y		Y	Y	Y	Y		Y	
		EPA 8270	MLA-007											Y																
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y									Y		Y					
PCB 110 2,3,3',4',6'-Pentachlorobiphenyl		EPA 1668	MLA-010				Y	Y	Y	Y	Y	Y	Y									Y		Y	Y	Y	Y		Y	
		EPA 8270	MLA-007											Y																
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y									Y		Y					
		SGS AXYS MLA-007	MLA-007		Y									Y										Y						
PCB 111 2,3,3',5,5'-Pentachlorobiphenyl		EPA 1668	MLA-010				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					
PCB 111/117		EPA 8270	MLA-007										Y																	
PCB 112 2,3,3',5,6'-Pentachlorobiphenyl		EPA 1668	MLA-010				Y	Y	Y	Y	Y	Y	Y									Y		Y	Y	Y	Y		Y	
		EPA 8270	MLA-007											Y																
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y									Y		Y					
PCB 113 2,3,3',5',6'-Pentachlorobiphenyl		EPA 1668	MLA-010				Y	Y	Y	Y	Y	Y	Y									Y		Y	Y	Y	Y		Y	
		EPA 8270	MLA-007											Y																
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y									Y		Y					
PCB 114 2,3,4,4',5'-Pentachlorobiphenyl		EPA 1668	MLA-010				Y	Y	Y	Y	Y	Y	Y									Y		Y	Y	Y	Y		Y	
		EPA 8270	MLA-007											Y																
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y									Y		Y					
PCB 115 2,3,4,4',6'-Pentachlorobiphenyl		EPA 1668	MLA-010				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					
PCB 116 2,3,4,5,6'-Pentachlorobiphenyl		EPA 1668	MLA-010				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					
PCB 117 2,3,4',5,6'-Pentachlorobiphenyl		EPA 1668	MLA-010				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					
PCB 118 2,3',4,4',5'-Pentachlorobiphenyl		EPA 1668	MLA-010				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. 42

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	Solids									Tissue	CALA	Urine	Water	Water, Non-Potable						
					CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH						ANAB DoD **	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS
		SGS AXYS MLA-010	MLA-010	Y	Y																			
		SGS AXYS MLA-901	MLA-901	Y		Y																		
	PCB 118/106	EPA 8270	MLA-007								Y													
		SGS AXYS MLA-007	MLA-007		Y												Y							
	PCB 119 2,3',4,4',6-Pentachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y						Y	Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007								Y													
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
	PCB 12 3,4-Dichlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
	PCB 12/13	EPA 8270	MLA-007								Y													
	PCB 120 2,3',4,5,5'-Pentachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y						Y	Y	Y	Y	Y	Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
	PCB 121 2,3',4,5',6-Pentachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
	PCB 122 2,3',3',4',5'-Pentachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007								Y													
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
	PCB 123 2,3',4,4',5'-Pentachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007								Y													
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
	PCB 124 2,3',4',5,5'-Pentachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007								Y													
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
	PCB 125 2,3',4',5',6-Pentachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007								Y													
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
	PCB 126 3,3',4,4',5-Pentachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007								Y													
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
		SGS AXYS MLA-007	MLA-007		Y								Y				Y							
	PCB 127 3,3',4,5,5'-Pentachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
	PCB 128 2,2',3,3',4,4'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007								Y													
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
		SGS AXYS MLA-007	MLA-007		Y								Y				Y							
	PCB 129 2,2',3,3',4,5-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007								Y													
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
		SGS AXYS MLA-007	MLA-007		Y								Y				Y							
	PCB 13 3,4'-Dichlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
	PCB 130 2,2',3,3',4,5'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007								Y													
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
		SGS AXYS MLA-007	MLA-007		Y								Y				Y							
	PCB 131 2,2',3,3',4,6-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y				Y							
	PCB 131/142	EPA 8270	MLA-007								Y													
		SGS AXYS MLA-007	MLA-007		Y								Y				Y							



<b>Accreditation Scope</b> SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 42				Serum								Tissue					Urine					Water					Water, Non-Potable				
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB DoD **		
				PCB 132 2,2',3,3',4,6'-Hexachlorobiphenyl		EPA 1668	MLA-010		Y									Y						Y					Y		
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y						Y					Y						
PCB 132/168		EPA 8270	MLA-007							Y																					
PCB 133 2,2',3,3',5,5'-Hexachlorobiphenyl		EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y									Y			Y	Y	Y	Y	Y	Y		
		EPA 8270	MLA-007							Y																					
		SGS AXYS MLA-010	MLA-010	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		
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y						Y	Y										
PCB 134/143		EPA 8270	MLA-007							Y																					
		SGS AXYS MLA-007	MLA-007		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		
		SGS AXYS MLA-010	MLA-010	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		
		EPA 8270	MLA-007							Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y						Y	Y										
		SGS AXYS MLA-007	MLA-007		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		
		EPA 8270	MLA-007							Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y						Y	Y										
		SGS AXYS MLA-007	MLA-007		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		
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y						Y	Y										
		SGS AXYS MLA-901	MLA-901	Y																											
PCB 138/163/164		EPA 8270	MLA-007							Y																					
		SGS AXYS MLA-007	MLA-007		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		
		SGS AXYS MLA-010	MLA-010	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		
		EPA 8270	MLA-007							Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y						Y	Y										
PCB 140 2,2',3,4,4',6'-Hexachlorobiphenyl		EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y									Y			Y	Y	Y	Y	Y	Y		
		EPA 8270	MLA-007							Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y						Y	Y										
PCB 141 2,2',3,4,5,5'-Hexachlorobiphenyl		EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y									Y			Y	Y	Y	Y	Y	Y		
		EPA 8270	MLA-007							Y																					
		SGS AXYS MLA-010	MLA-010	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		
		SGS AXYS MLA-010	MLA-010	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		
		SGS AXYS MLA-010	MLA-010	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		
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y						Y	Y										
PCB 144/135		EPA 8270	MLA-007							Y																					
		SGS AXYS MLA-007	MLA-007		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		
		EPA 8270	MLA-007							Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y						Y	Y										
PCB 146 2,2',3,4',5,5'-Hexachlorobiphenyl		EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y									Y			Y	Y	Y	Y	Y	Y		
		EPA 8270	MLA-007							Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y						Y	Y										

## Accreditation Scope

SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Method Locations																										
				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 DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP
PCB 147 2,2',3,4',5,6'-Hexachlorobiphenyl	SGS AXYS MLA-007	MLA-007	Y																											
	SGS AXYS MLA-901	MLA-901	Y																											
	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y												Y	Y	Y	Y	Y		Y	
	EPA 8270	MLA-007								Y																				
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y							Y			Y		Y						
PCB 148 2,2',3,4',5,6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y											Y	Y	Y	Y	Y		Y		
	EPA 8270	MLA-007								Y																				
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y							Y			Y		Y						
PCB 149 2,2',3,4',5',6'-Hexachlorobiphenyl	EPA 1668	MLA-010			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						
PCB 149/139	EPA 8270	MLA-007								Y																				
	SGS AXYS MLA-007	MLA-007		Y								Y										Y								
PCB 15 4,4'-Dichlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y											Y	Y	Y	Y	Y		Y		
	EPA 8270	MLA-007								Y																				
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y							Y			Y		Y						
	SGS AXYS MLA-007	MLA-007		Y								Y										Y								
PCB 150 2,2',3,4',6,6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y											Y	Y	Y	Y	Y		Y		
	EPA 8270	MLA-007								Y																				
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y							Y			Y		Y						
PCB 151 2,2',3,5,5',6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y											Y	Y	Y	Y	Y		Y		
	EPA 8270	MLA-007								Y																				
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y							Y			Y		Y						
	SGS AXYS MLA-007	MLA-007		Y								Y										Y								
PCB 152 2,2',3,5,6,6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y											Y	Y	Y	Y	Y		Y		
	EPA 8270	MLA-007								Y																				
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y							Y			Y		Y						
PCB 153 2,2',4,4',5,5'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y											Y	Y	Y	Y	Y		Y		
	EPA 8270	MLA-007								Y																				
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y							Y			Y		Y						
	SGS AXYS MLA-007	MLA-007		Y								Y										Y								
	SGS AXYS MLA-901	MLA-901	Y																											
PCB 154 2,2',4,4',5,6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y											Y	Y	Y	Y	Y		Y		
	EPA 8270	MLA-007								Y																				
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y							Y			Y		Y						
PCB 155 2,2',4,4',6,6'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y											Y	Y	Y	Y	Y		Y		
	EPA 8270	MLA-007								Y																				
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y							Y			Y		Y						
PCB 156 2,3,3',4,4',5-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y											Y	Y	Y	Y	Y		Y		
	EPA 8270	MLA-007								Y																				
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y							Y			Y		Y						
	SGS AXYS MLA-007	MLA-007		Y								Y										Y								
	SGS AXYS MLA-901	MLA-901	Y																											
PCB 157 2,3,3',4,4',5'-Hexachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y											Y	Y	Y	Y	Y		Y		
	EPA 8270	MLA-007								Y																				
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y							Y			Y		Y						
	SGS AXYS MLA-007	MLA-007		Y								Y										Y								
PCB 158 2,3,3',4,4',6-Hexachlorobiphenyl	EPA 1668	MLA-010			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						
PCB 158/160	EPA 8270	MLA-007								Y																				
	SGS AXYS MLA-007	MLA-007		Y								Y										Y								



**Accreditation Scope**SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Serum										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 DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB DoD **		
PCB 172 2,2',3,3',4,5,5'-Heptachlorobiphenyl	EPA 1668	MLA-010				Y																											
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y																					
PCB 172/192	EPA 8270	MLA-007										Y																					
	SGS AXYS MLA-007	MLA-007		Y								Y																					
PCB 173 2,2',3,3',4,5,6-Heptachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y									Y		Y	Y	Y	Y				Y				
	EPA 8270	MLA-007										Y																					
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y								Y		Y	Y	Y	Y								
PCB 174 2,2',3,3',4,5,6'-Heptachlorobiphenyl	EPA 1668	MLA-010				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 174/181	EPA 8270	MLA-007										Y																					
	SGS AXYS MLA-007	MLA-007		Y								Y								Y		Y	Y	Y	Y								
PCB 175 2,2',3,3',4,5',6-Heptachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y		Y	Y	Y	Y				Y				
	EPA 8270	MLA-007										Y																					
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y								Y		Y	Y	Y	Y								
	SGS AXYS MLA-007	MLA-007		Y								Y								Y		Y	Y	Y	Y								
PCB 176 2,2',3,3',4,6,6'-Heptachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y		Y	Y	Y	Y				Y				
	EPA 8270	MLA-007										Y																					
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y								Y		Y	Y	Y	Y								
	SGS AXYS MLA-007	MLA-007		Y								Y								Y		Y	Y	Y	Y								
PCB 177 2,2',3,3',4,5',6'-Heptachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y		Y	Y	Y	Y				Y				
	EPA 8270	MLA-007										Y																					
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y								Y		Y	Y	Y	Y								
	SGS AXYS MLA-007	MLA-007		Y								Y								Y		Y	Y	Y	Y								
PCB 178 2,2',3,3',5,5',6-Heptachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y		Y	Y	Y	Y				Y				
	EPA 8270	MLA-007										Y																					
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y								Y		Y	Y	Y	Y								
	SGS AXYS MLA-007	MLA-007		Y								Y								Y		Y	Y	Y	Y								
PCB 179 2,2',3,3',5,6,6'-Heptachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y		Y	Y	Y	Y				Y				
	EPA 8270	MLA-007										Y																					
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y								Y		Y	Y	Y	Y								
	SGS AXYS MLA-007	MLA-007		Y								Y								Y		Y	Y	Y	Y								
PCB 18 2,2',5-Trichlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y		Y	Y	Y	Y				Y				
	EPA 8270	MLA-007										Y																					
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y								Y		Y	Y	Y	Y								
	SGS AXYS MLA-007	MLA-007		Y								Y								Y		Y	Y	Y	Y								
PCB 180 2,2',3,4,4',5,5'-Heptachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y		Y	Y	Y	Y				Y				
	EPA 8270	MLA-007										Y																					
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y								Y		Y	Y	Y	Y								
	SGS AXYS MLA-007	MLA-007		Y								Y								Y		Y	Y	Y	Y								
PCB 181 2,2',3,4,4',5,6-Heptachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y		Y	Y	Y	Y				Y				
	EPA 8270	MLA-007										Y																					
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y								Y		Y	Y	Y	Y								
	SGS AXYS MLA-007	MLA-007		Y								Y								Y		Y	Y	Y	Y								
PCB 182 2,2',3,4,4',5,6'-Heptachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y		Y	Y	Y	Y				Y				
	EPA 8270	MLA-007										Y																					
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y								Y		Y	Y	Y	Y								
	SGS AXYS MLA-007	MLA-007		Y								Y								Y		Y	Y	Y	Y								
PCB 183 2,2',3,4,4',5',6-Heptachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y		Y	Y	Y	Y				Y				
	EPA 8270	MLA-007										Y																					
	SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y								Y		Y	Y	Y	Y								
	SGS AXYS MLA-007	MLA-007		Y								Y								Y		Y	Y	Y	Y								
PCB 184 2,2',3,4,4',6,6'-Heptachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y		Y	Y	Y	Y				Y				
	EPA 8270	MLA-007										Y																					

**Accreditation Scope**

SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

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
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y			Y		
	PCB 185 2,2',3,4,5,5',6-Heptachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y			Y	Y	Y
		EPA 8270	MLA-007							Y							
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y		Y	Y		
		SGS AXYS MLA-007	MLA-007		Y					Y			Y				
	PCB 186 2,2',3,4,5,6,6'-Heptachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y			Y	Y	Y
		EPA 8270	MLA-007							Y							Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y		Y	Y		
	PCB 187 2,2',3,4',5,5',6-Heptachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y			Y	Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y		Y	Y		
		SGS AXYS MLA-901	MLA-901	Y													
	PCB 187/182	EPA 8270	MLA-007							Y							
		SGS AXYS MLA-007	MLA-007		Y							Y		Y			
	PCB 188 2,2',3,4',5,6,6'-Heptachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y			Y	Y	Y
		EPA 8270	MLA-007							Y							Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y		Y	Y		
	PCB 189 2,3,3',4,4',5,5'-Heptachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y			Y	Y	Y
		EPA 8270	MLA-007							Y							Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y		Y	Y		
		SGS AXYS MLA-007	MLA-007		Y							Y		Y			
	PCB 19 2,2',6-Trichlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y			Y	Y	Y
		EPA 8270	MLA-007							Y							
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y		Y	Y		
		SGS AXYS MLA-007	MLA-007		Y							Y		Y			
	PCB 190 2,3,3',4,4',5,6-Heptachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y			Y	Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y		Y	Y		
	PCB 191 2,3,3',4,4',5',6-Heptachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y			Y	Y	Y
		EPA 8270	MLA-007							Y							
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y		Y	Y		
		SGS AXYS MLA-007	MLA-007		Y							Y		Y			
	PCB 192 2,3,3',4,5,5',6-Heptachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y			Y	Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y		Y	Y		
	PCB 193 2,3,3',4',5,5',6-Heptachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y			Y	Y	Y
		EPA 8270	MLA-007							Y							
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y		Y	Y		
		SGS AXYS MLA-007	MLA-007		Y							Y		Y			
	PCB 194 2,2',3,3',4,4',5,5'-Octachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y			Y	Y	Y
		EPA 8270	MLA-007							Y							
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y		Y	Y		
		SGS AXYS MLA-007	MLA-007		Y							Y		Y			
		SGS AXYS MLA-901	MLA-901	Y													
	PCB 195 2,2',3,3',4,4',5,6-Octachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y			Y	Y	Y
		EPA 8270	MLA-007							Y							
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y		Y	Y		
		SGS AXYS MLA-007	MLA-007		Y							Y		Y			
	PCB 196 2,2',3,3',4,4',5,6'-Octachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y			Y	Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y		Y	Y		
	PCB 196/203	EPA 8270	MLA-007							Y							
		SGS AXYS MLA-007	MLA-007		Y							Y		Y			
	PCB 197 2,2',3,3',4,4',6,6'-Octachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y			Y	Y	Y

**Accreditation Scope**

SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Serum									Tissue					Urine		Water	Water, Non-Potable									
				Solids																										
				CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP
		EPA 8270	MLA-007								Y																			
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y										Y	Y							
		SGS AXYS MLA-007	MLA-007		Y							Y										Y								
	PCB 198 2,2',3,3',4,5,5',6'-Octachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y												Y	Y	Y	Y	Y	
		EPA 8270	MLA-007								Y																			
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y										Y	Y							
		SGS AXYS MLA-007	MLA-007		Y							Y										Y								
	PCB 199 2,2',3,3',4,5,5',6'-Octachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y												Y	Y	Y	Y	Y	Y	
		EPA 8270	MLA-007								Y																			
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y										Y	Y							
		SGS AXYS MLA-007	MLA-007		Y							Y										Y								
	PCB 2 3-Chlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y											Y	Y	Y	Y	Y	Y	
		EPA 8270	MLA-007								Y																			
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y										Y	Y							
	PCB 20 2,3,3'-Trichlorobiphenyl	EPA 1668	MLA-010			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							
	PCB 200 2,2',3,3',4,5,6,6'-Octachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y											Y	Y	Y	Y	Y	Y	
		EPA 8270	MLA-007								Y																			
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y										Y	Y							
	PCB 201 2,2',3,3',4,5',6,6'-Octachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y												Y	Y	Y	Y	Y	Y	
		EPA 8270	MLA-007								Y																			
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y										Y	Y							
		SGS AXYS MLA-007	MLA-007		Y							Y										Y								
	PCB 202 2,2',3,3',5,5',6,6'-Octachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y											Y	Y	Y	Y	Y	Y	
		EPA 8270	MLA-007								Y																			
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y										Y	Y							
	PCB 203 2,2',3,4,4',5,5',6'-Octachlorobiphenyl	EPA 1668	MLA-010			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							
	PCB 204 2,2',3,4,4',5,6,6'-Octachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y											Y	Y	Y	Y	Y	Y	
		EPA 8270	MLA-007								Y																			
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y										Y	Y							
	PCB 205 2,3,3',4,4',5,5',6'-Octachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y												Y	Y	Y	Y	Y	Y	
		EPA 8270	MLA-007								Y																			
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y										Y	Y							
		SGS AXYS MLA-007	MLA-007		Y							Y										Y								
	PCB 206 2,2',3,3',4,4',5,5',6'-Nonachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y											Y	Y	Y	Y	Y	Y	
		EPA 8270	MLA-007								Y																			
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y										Y	Y							
		SGS AXYS MLA-007	MLA-007		Y							Y										Y								
	PCB 207 2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y												Y	Y	Y	Y	Y	Y	
		EPA 8270	MLA-007								Y																			
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y										Y	Y							
		SGS AXYS MLA-007	MLA-007		Y							Y										Y								
	PCB 208 2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y												Y	Y	Y	Y	Y	Y	
		EPA 8270	MLA-007								Y																			
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y										Y	Y							
		SGS AXYS MLA-007	MLA-007		Y							Y										Y								
	PCB 209 Decachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y												Y	Y	Y	Y	Y	Y	
		EPA 8270	MLA-007								Y																			
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y										Y	Y							



**Accreditation Scope**SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Serum								Tissue				Urine		Water, Non-Potable											
				CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH
		SGS AXYS MLA-010	MLA-010	Y	Y							Y						Y			Y								
	PCB 36 3,3',5'-Trichlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y									Y			Y	Y	Y	Y	Y	
		EPA 8270	MLA-007									Y																	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y						Y			Y								
	PCB 37 3,4,4'-Trichlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y									Y			Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007									Y																	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y						Y			Y								
	PCB 38 3,4,5'-Trichlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y									Y			Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007									Y																	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y						Y			Y								
	PCB 39 3,4',5'-Trichlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y									Y			Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007									Y																	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y						Y			Y								
	PCB 4 2,2'-Dichlorobiphenyl	EPA 1668	MLA-010			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								
	PCB 4/10	EPA 8270	MLA-007									Y																	
	PCB 40 2,2',3,3'-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y									Y			Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007									Y																	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y						Y			Y			Y					
		SGS AXYS MLA-007	MLA-007			Y						Y						Y			Y								
	PCB 41 2,2',3,4'-Tetrachlorobiphenyl	EPA 1668	MLA-010			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				
	PCB 41/71/64/68	EPA 8270	MLA-007									Y																	
		SGS AXYS MLA-007	MLA-007			Y						Y						Y			Y								
	PCB 42 2,2',3,4'-Tetrachlorobiphenyl	EPA 1668	MLA-010			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				
	PCB 42/59	EPA 8270	MLA-007									Y																	
		SGS AXYS MLA-007	MLA-007			Y						Y						Y			Y								
	PCB 43 2,2',3,5'-Tetrachlorobiphenyl	EPA 1668	MLA-010			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				
	PCB 44 2,2',3,5'-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y									Y			Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007									Y																	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y						Y			Y			Y	Y				
		SGS AXYS MLA-007	MLA-007			Y						Y						Y			Y								
	PCB 45 2,2',3,6'-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y									Y			Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007									Y																	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y						Y			Y			Y	Y				
		SGS AXYS MLA-007	MLA-007			Y						Y						Y			Y								
	PCB 46 2,2',3,6'-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y									Y			Y	Y	Y	Y	Y	Y
		EPA 8270	MLA-007									Y																	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y						Y			Y			Y	Y				
		SGS AXYS MLA-007	MLA-007			Y						Y						Y			Y								
	PCB 47 2,2',4,4'-Tetrachlorobiphenyl	EPA 1668	MLA-010			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				
	PCB 47/48/75	EPA 8270	MLA-007									Y																	
		SGS AXYS MLA-007	MLA-007			Y						Y						Y			Y								
	PCB 48 2,2',4,5'-Tetrachlorobiphenyl	EPA 1668	MLA-010			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				
	PCB 49 2,2',4,5'-Tetrachlorobiphenyl	EPA 1668	MLA-010			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				







**Accreditation Scope**

SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Serum											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 DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB DoD **																											
PCB 8/5		EPA 8270	MLA-007																																																							
		SGS AXYS MLA-007	MLA-007		Y								Y																																													
PCB 80 3,3',5,5'-Tetrachlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y	Y		Y																																												
		SGS AXYS MLA-010	MLA-010	Y	Y	Y							Y																																													
PCB 81 3,4,4',5-Tetrachlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
		EPA 8270	MLA-007									Y																																														
PCB 82 2,2',3,3',4-Pentachlorobiphenyl		SGS AXYS MLA-010	MLA-010	Y	Y	Y																																																				
		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
PCB 83 2,2',3,3',5-Pentachlorobiphenyl		EPA 8270	MLA-007								Y																																															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y																																														
PCB 83 2,2',3,3',5-Pentachlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y																																														
PCB 83/108		EPA 8270	MLA-007								Y																																															
		SGS AXYS MLA-007	MLA-007		Y							Y																																														
PCB 84 2,2',3,3',6-Pentachlorobiphenyl		EPA 1668	MLA-010			Y		Y	Y	Y	Y																																															
		EPA 8270	MLA-007									Y																																														
PCB 84 2,2',3,3',6-Pentachlorobiphenyl		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y																																														
		SGS AXYS MLA-007	MLA-007		Y							Y																																														
PCB 85 2,2',3,4,4'-Pentachlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y																																														
PCB 85/120		EPA 8270	MLA-007								Y																																															
		SGS AXYS MLA-007	MLA-007		Y							Y																																														
PCB 86 2,2',3,4,5-Pentachlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y																																														
PCB 87 2,2',3,4,5'-Pentachlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y																																														
PCB 87/115/116		EPA 8270	MLA-007									Y																																														
		SGS AXYS MLA-007	MLA-007		Y							Y																																														
PCB 88 2,2',3,4,6-Pentachlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y																																														
PCB 88/121		EPA 8270	MLA-007								Y																																															
		SGS AXYS MLA-010	MLA-010			Y	Y	Y	Y	Y	Y																																															
PCB 89 2,2',3,4,6'-Pentachlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y																																														
PCB 9 2,5-Dichlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y																																														
PCB 90 2,2',3,4',5-Pentachlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y																																														
PCB 91 2,2',3,4',6-Pentachlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
		EPA 8270	MLA-007									Y																																														
PCB 91 2,2',3,4',6-Pentachlorobiphenyl		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y																																														
		SGS AXYS MLA-007	MLA-007		Y							Y																																														
PCB 92 2,2',3,5,5'-Pentachlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
		EPA 8270	MLA-007									Y																																														
PCB 92 2,2',3,5,5'-Pentachlorobiphenyl		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y																																														
		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
PCB 93 2,2',3,5,6-Pentachlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y																																														
PCB 94 2,2',3,5,6'-Pentachlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
		EPA 8270	MLA-007									Y																																														
PCB 94 2,2',3,5,6'-Pentachlorobiphenyl		SGS AXYS MLA-010	MLA-010	Y	Y	Y						Y																																														
		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															
PCB 95 2,2',3,5',6-Pentachlorobiphenyl		EPA 1668	MLA-010			Y	Y	Y	Y	Y	Y																																															



### Accreditation Scope

SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Serum										Tissue					Urine					Water					
				CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH
1,2,3,4,6,7,8-HpCDF	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y	Y						Y			Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
1,2,3,4,7,8,9-HpCDF	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
1,2,3,4,7,8-HxCDD	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
1,2,3,4,7,8-HxCDF	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
1,2,3,6,7,8-HxCDD	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
1,2,3,6,7,8-HxCDF	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
1,2,3,7,8,9-HxCDD	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
1,2,3,7,8,9-HxCDF	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
1,2,3,7,8-PeCDD	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
1,2,3,7,8-PeCDF	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
2,3,4,6,7,8-HxCDF	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
2,3,4,7,8-PeCDF	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
2,3,7,8-TCDD	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
2,3,7,8-TCDF	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
OCDD	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
OCDF	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y	Y	Y	Y	Y	Y	
	SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y	Y						Y									
Total HpCDD	EPA 1613	MLA-017																											
	EPA 8290	MLA-017				Y		Y	Y	Y	Y	Y			Y		Y	Y					Y				Y		

**Accreditation Scope**

SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

Accreditation Scope				SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 42																
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Method Validation																
				California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB DoD **	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	Washington DE	Maine DOH	ANAB DoD **
PFAS	Total HpCDF	SGS AXYS MLA-017	MLA-017																	
		EPA 1613	MLA-017																	
		EPA 8290	MLA-017																	
	Total HxCDD	SGS AXYS MLA-017	MLA-017																	
		EPA 1613	MLA-017																	
		EPA 8290	MLA-017																	
	Total HxCDF	SGS AXYS MLA-017	MLA-017																	
		EPA 1613	MLA-017																	
		EPA 8290	MLA-017																	
	Total PeCDD	SGS AXYS MLA-017	MLA-017																	
		EPA 1613	MLA-017																	
		EPA 8290	MLA-017																	
	Total PeCDF	SGS AXYS MLA-017	MLA-017																	
		EPA 1613	MLA-017																	
		EPA 8290	MLA-017																	
	Total TCDD	SGS AXYS MLA-017	MLA-017																	
EPA 1613		MLA-017																		
EPA 8290		MLA-017																		
Total TCDF	SGS AXYS MLA-017	MLA-017																		
	EPA 1613	MLA-017																		
	EPA 8290	MLA-017																		
4:2 Fluorotelomersulfonate (4:2 FTS)	SGS AXYS MLA-110	MLA-110																		
	EPA 1613	MLA-110																		
	EPA 8290	MLA-110																		
6:2 Fluorotelomersulfonate (6:2 FTS)	SGS AXYS MLA-110	MLA-110																		
	EPA 1613	MLA-110																		
	EPA 8290	MLA-110																		
8:2 Fluorotelomersulfonate (8:2 FTS)	SGS AXYS MLA-110	MLA-110																		
	EPA 1613	MLA-110																		
	EPA 8290	MLA-110																		
N-Ethylperfluorooctanesulfonamide (N-EtFOA)	SGS AXYS MLA-110	MLA-110																		
	EPA 1613	MLA-110																		
	EPA 8290	MLA-110																		
N-Ethylperfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	SGS AXYS MLA-110	MLA-110																		
	EPA 1613	MLA-110																		
	EPA 8290	MLA-110																		
N-Ethylperfluorooctanesulfonamidoethanol (N-EtFOSE)	SGS AXYS MLA-110	MLA-110																		
	EPA 1613	MLA-110																		
	EPA 8290	MLA-110																		
N-Methylperfluorooctanesulfonamide (N-MeFOA)	SGS AXYS MLA-110	MLA-110																		
	EPA 1613	MLA-110																		
	EPA 8290	MLA-110																		
N-Methylperfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	SGS AXYS MLA-110	MLA-110																		
	EPA 1613	MLA-110																		
	EPA 8290	MLA-110																		
N-Methylperfluorooctanesulfonamidoethanol (N-MeFOSE)	SGS AXYS MLA-110	MLA-110																		
	EPA 1613	MLA-110																		
	EPA 8290	MLA-110																		
Perfluorobutanesulfonate (PFBS)	SGS AXYS MLA-060	MLA-060																		
	EPA 1613	MLA-060																		
	EPA 8290	MLA-060																		
	SGS AXYS MLA-041	MLA-041																		
	SGS AXYS MLA-043	MLA-043																		
Perfluorobutanoate (PFBA)	SGS AXYS MLA-042	MLA-042																		
	EPA 1613	MLA-042																		
	EPA 8290	MLA-042																		
	SGS AXYS MLA-110	MLA-110																		
	SGS AXYS MLA-041	MLA-041																		
Perfluorodecanesulfonate (PFDS)	SGS AXYS MLA-043	MLA-043																		
	EPA 1613	MLA-043																		
	EPA 8290	MLA-043																		
	SGS AXYS MLA-110	MLA-110																		
	SGS AXYS MLA-042	MLA-042																		
Perfluorodecanoate (PFDA)	SGS AXYS MLA-110	MLA-110																		
	EPA 1613	MLA-110																		
	EPA 8290	MLA-110																		
	SGS AXYS MLA-060	MLA-060																		
	SGS AXYS MLA-041	MLA-041																		
Perfluorododecanesulfonate (PFDoS)	SGS AXYS MLA-043	MLA-043																		
	EPA 1613	MLA-043																		
	EPA 8290	MLA-043																		
	SGS AXYS MLA-110	MLA-110																		
	SGS AXYS MLA-042	MLA-042																		
Perfluorododecanoate (PFDoA)	SGS AXYS MLA-110	MLA-110																		
	EPA 1613	MLA-110																		
	EPA 8290	MLA-110																		
	SGS AXYS MLA-060	MLA-060																		
	SGS AXYS MLA-041	MLA-041																		

















**Accreditation Scope**

SGS AXYS Analytical Services Ltd.  
file ref.: ACC-101 Rev. 42

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Serum																				
				CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB DoD **	Tissue	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	CALA	CALA	Water	Water, Non-Potable
	Phosphatidylcholine acyl-alkyl C38:1	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C38:2	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C38:3	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C38:5	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C38:6	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C40:1	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C40:2	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C40:3	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C40:4	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C40:5	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C40:6	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C42:0	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C42:1	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C42:2	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C42:3	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C42:4	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C42:5	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C44:3	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C44:4	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C44:5	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine acyl-alkyl C44:6	SGS AXYS MLM-001	MLM-001	Y																				
	Phosphatidylcholine diacyl C24:0	SGS AXYS MLM-001	MLM-001	Y																				
	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																				



<b>Accreditation Scope</b> SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 42				Serum	Solids	Tissue	Urine	Water	Water, Non-Potable
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	CALA	CALA	CALA	CALA
	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 SGS 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 5.1.1 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
- PCP 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 5.1.1 Standard)



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