



1435 Norjohn Court, Unit 1, Burlington, ON, Canada L7L 0E6

SVOC DATA PACKAGE

Client Project Information

Project ID: 1466-004 SEATTLE IRON & METALS

Project Description:

Contact: Amber Bailey

ALSE Project Information

Project ID: FAR100

Contact: Breanne Dusureault

Submission ID(s): L2541483

Final Package Review by:

A handwritten signature in black ink, appearing to read "Breanne Dusureault", is written over a horizontal line.

Date Reviewed:

27-Jan-21

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SECTION 1: PROJECT NARRATIVE

ALSE Project Information

 Project ID: FAR100
 Contact: Breanne Dusureault
 Submission ID(s): L2541483

Client Project Information

 Project ID: 1466-004 SEATTLE IRON & METALS
 Project Description:
 Contact: Amber Bailey

Analytical Method: PCB Congeners by EPA 1668C

ALS Sample ID	Client Sample Descriptions	Matrix	Date Sampled	Date Received	Temp/degrees C. on receipt	Date Extracted	Date Analyzed
L2519524-1	L2497422-3-1	PUF	15-Oct-20	21-Oct-20	10.8	n/a	n/a
L2530845-1	L2497422-8-1	PUF	17-Nov-20	18-Nov-20	5.9	n/a	n/a
L2541477-1	L2527465-3-1	PUF	15-Dec-20	16-Dec-20	5.4	n/a	n/a
L2541483-1	SITE 1 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	PUF	n/a	n/a	n/a	23-Dec-20	05-Jan-21
L2519524-2	L2497422-5-2	PUF	15-Oct-20	21-Oct-20	10.8	n/a	n/a
L2530845-2	L2516041-1-2	PUF	17-Nov-20	18-Nov-20	5.9	n/a	n/a
L2541477-2	L2527465-2-2	PUF	15-Dec-20	16-Dec-20	5.4	n/a	n/a
L2541483-2	SITE 2 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	PUF	n/a	n/a	n/a	23-Dec-20	05-Jan-21
L2519524-3	L2497422-4-3	PUF	15-Oct-20	21-Oct-20	10.8	n/a	n/a
L2530845-3	L2497422-9-3	PUF	17-Nov-20	18-Nov-20	5.9	n/a	n/a
L2541477-3	L2527465-5-3	PUF	15-Dec-20	16-Dec-20	5.4	n/a	n/a
L2541483-3	SITE 3 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	PUF	n/a	n/a	n/a	23-Dec-21	05-Jan-21
L2519524-4	L2497422-6-4	PUF	15-Oct-20	21-Oct-20	10.8	n/a	n/a
L2530845-4	L2497422-7-4	PUF	17-Nov-20	18-Nov-20	5.9	n/a	n/a
L2541477-4	L2527465-4-4	PUF	15-Dec-20	16-Dec-20	5.4	n/a	n/a
L2541483-4	SITE 4 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	PUF	n/a	n/a	n/a	23-Dec-20	05-Jan-21
L2519524-5	L2497422-2-5	PUF	15-Oct-20	21-Oct-20	10.8	n/a	n/a
L2530845-5	L2497422-10-5	PUF	17-Nov-20	18-Nov-20	5.9	n/a	n/a
L2541477-5	L2527465-1-5	PUF	15-Dec-20	16-Dec-20	5.4	n/a	n/a
L2541483-5	SITE 5 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	PUF	n/a	n/a	n/a	23-Dec-20	05-Jan-21
WG3463499-1	Method Blank	MEDIA	n/a	n/a	n/a	23-Dec-20	05-Jan-21
WG3463499-4	Method Blank	REAGENT	n/a	n/a	n/a	23-Dec-20	05-Jan-21
WG3463499-2	Laboratory Control Sample	MEDIA	n/a	n/a	n/a	23-Dec-20	05-Jan-21

Comments and Notes:
a) Sample Integrity:

The samples were received on 3 different dates as noted above. The three samples for each sites were extracted together for a total of 5 composites. Some of the samples were received at above the recommended transportation and storage temperature. However, the brief period at above the recommended temperature is not expected to have a negative impact on reported native target results.

For the samples received 16-Dec-20, the samples were logged-in with identities supplied by the client, rather than the ones written on the chain-of-custody.

b) Instrumental Analysis:

The results for some targets have been reported from the analysis of diluted extracts due to high levels.

No criteria failures or exceedances.

I certify that this data package is in compliance with the terms and condition of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this data package (hardcopy and/or electronic version) has been authorized by the Laboratory Manager or his designee, as verified by the following signature.



Steve Kennedy, Technical Supervisor

27-Jan-21

Date

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SECTION 2: DATA SUMMARY REPORT



1435 Norjohn Court, Unit 1, Burlington, ON, Canada L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact: Breanne Dusureault
ALS Project ID: FAR100
ALS WO#: L2541483
Date of Report: 27-Jan-21
Date of Sample Receipt: 16-Dec-20


Client Name: Farallon Consulting, L.L.C.
Client Address: 975 5th Avenue Northwest
Issaquah
WA 98027
Client Contact: Amber Bailey
Client Project ID: 1466-004 SEATTLE IRON & METALS

COMMENTS: PCB Congeners by EPA 1668C

PCB Congener Group Totals and Total PCB are a sum of detected values, including EMPC values, consistent with USEPA CLP SOW CBC1.2

The results for some targets have been reported from the analysis of diluted extracts due to high levels.

Certified by: _____


Steve Kennedy
Technical Supervisor

Results in this certificate relate only to the samples as submitted to the laboratory.

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Sample Analysis Summary Report

Sample Name	SITE 1 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 2 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 3 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 4 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 5 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)
ALS Sample ID	L2541483-1	L2541483-2	L2541483-3	L2541483-4	L2541483-5
Sample Size	1	1	1	1	1
Sample size units	sample	sample	sample	sample	sample
Percent Moisture	n/a	n/a	n/a	n/a	n/a
Sample Matrix	PUF	PUF	PUF	PUF	PUF
Sampling Date	n/a	n/a	n/a	n/a	n/a
Extraction Date	23-Dec-20	23-Dec-20	23-Dec-20	23-Dec-20	23-Dec-20
Target Analytes	pg	pg	pg	pg	pg
PCB-001	178000	871000	212000	351000	891000
PCB-002	8630	33600	8550	13000	32200
PCB-003	30400	124000	31600	54600	133000
PCB-004	862000	2990000	778000	1550000	3070000
PCB-010	27500	102000	27000	57800	117000
PCB-009	67700	279000	65500	128000	299000
PCB-007	33600	137000	33900	67100	149000
PCB-006	178000	766000	163000	371000	805000
PCB-005	8410	40000	11400	21400	43000
PCB-008	988000	3180000	839000	1570000	3350000
PCB-014	84.2	233	77.9	115	202
PCB-011	17900	21900	11800	14000	26500
PCB-012/013	18900	72400	19000	36000	72800
PCB-015	115000	421000	95100	198000	435000
PCB-019	137000	473000	110000	230000	486000
PCB-018/030	728000	2520000	598000	1410000	2640000
PCB-017	323000	1140000	268000	634000	1210000
PCB-027	39700	123000	31300	68200	137000
PCB-024	8940	30300	8510	16900	36800
PCB-016	278000	939000	190000	533000	992000
PCB-032	141000	543000	113000	306000	574000
PCB-034	1710	5850	1470	3040	6240
PCB-023	695	2530	617	1240	2820
PCB-026/029	74100	274000	60500	124000	278000
PCB-025	29600	96700	24500	49700	101000
PCB-031	355000	1240000	294000	661000	1250000
PCB-020/028	367000	1270000	304000	683000	1280000
PCB-021/033	258000	858000	177000	461000	856000
PCB-022	114000	431000	89400	187000	420000
PCB-036	45.3	103	49.5	95.1	236
PCB-039	855	2870	735	1500	2740
PCB-038	159	524	147	255	474
PCB-035	2710	8500	2310	4550	8110
PCB-037	32800	93600	23200	49800	87700
PCB-054	1380	4370	1250	2560	5110
PCB-050/053	38800	122000	33300	72400	140000
PCB-045/051	54000	164000	45200	99500	188000
PCB-046	16200	50400	13400	29800	57400
PCB-052	152000	607000	144000	369000	689000
PCB-073	<3.5	<2.3	<2.5	<4.5	<5.0
PCB-043	8220	26900	7070	15000	28200
PCB-049/069	81900	324000	73500	155000	350000
PCB-048	39100	130000	33700	73100	139000
PCB-044/047/065	118000	455000	104000	266000	487000
PCB-059/062/075	12700	40900	10500	22200	41500
PCB-042	34400	110000	28800	62400	114000
PCB-040/041/071	66800	250000	55600	119000	255000
PCB-064	46000	145000	39000	83500	152000
PCB-072	331	1070	289	594	1130
PCB-068	180	522	178	275	589
PCB-057	398	1330	307	653	1270
PCB-058	92.1	218	62.2	117	194
PCB-067	2170	6530	1700	3520	6440
PCB-063	1970	5870	1610	3320	6030
PCB-061/070/074/076	66400	182000	56700	113000	197000
PCB-066	31900	81500	25600	51700	86800
PCB-055	1230	2580	840	1770	2870
PCB-056	14100	34400	10500	21900	36500
PCB-060	8860	21600	6530	13500	22800
PCB-080	<7.9	<6.6	<6.3	<7.5	<11
PCB-079	128	351	279	272	804
PCB-078	<9.5	21.6	14.0	21.0	30.8
PCB-081	78.9	170	54.3	112	178
PCB-077	1390	3260	1030	2040	3350
PCB-104	12.9	44.2	19.1	33.7	55.3
PCB-096	848	2860	836	1830	3400
PCB-103	248	840	297	578	1100
PCB-094	281	968	290	604	1110
PCB-095	25600	71300	30100	56100	102000
PCB-093/098/100/102	1990	6160	2060	4170	7230

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Sample Analysis Summary Report

Sample Name	SITE 1 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 2 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 3 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 4 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 5 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)
ALS Sample ID	L2541483-1	L2541483-2	L2541483-3	L2541483-4	L2541483-5
Sample Size	1	1	1	1	1
Sample size units	sample	sample	sample	sample	sample
Percent Moisture	n/a	n/a	n/a	n/a	n/a
Sample Matrix	PUF	PUF	PUF	PUF	PUF
Sampling Date	n/a	n/a	n/a	n/a	n/a
Extraction Date	23-Dec-20	23-Dec-20	23-Dec-20	23-Dec-20	23-Dec-20
Target Analytes	pg	pg	pg	pg	pg
PCB-088/091	4730	14000	5410	10500	18600
PCB-084	7920	21300	9140	17400	30900
PCB-089	454	1350	440	928	1620
PCB-121	<5.7	12.7	<2.9	<4.8	<7.8
PCB-092	3590	9750	4430	7680	14300
PCB-090/101/113	18100	48000	22500	38400	70200
PCB-083/099	9770	27400	12000	20800	37300
PCB-112	187	<360	62.9	121	207
PCB-086/087/097/109/119/125	11400	31800	13600	23800	43300
PCB-085/110/115/116/117	19500	52500	23800	40300	71300
PCB-082	2130	5930	2390	4120	7390
PCB-111	<4.0	36.4	15.8	<4.7	44.2
PCB-120	14.1	36.8	23.6	24.5	69.8
PCB-108/124	332	1010	420	685	1270
PCB-107	495	1520	641	1060	1940
PCB-123	141	413	160	251	465
PCB-106	<4.7	<3.3	<4.3	<2.9	<5.5
PCB-118	8050	24300	10500	16400	30100
PCB-122	124	339	146	230	451
PCB-114	229	669	265	455	826
PCB-105	2990	9310	3670	5980	11100
PCB-127	<5.6	19.5	11.6	18.2	32.9
PCB-126	32.2	53.1	40.3	56.5	83.9
PCB-155	4.57	6.50	<4.8	<5.6	<8.6
PCB-152	15.5	44.7	<20	34.3	67.3
PCB-150	17.1	37.2	20.7	36.9	69.4
PCB-136	1680	4060	2010	3290	6450
PCB-145	10.3	23.4	14.0	22.6	38.5
PCB-148	6.75	16.7	11.7	15.2	29.2
PCB-135/151	2760	6500	3190	4860	9550
PCB-154	63.7	123	75.4	108	242
PCB-144	429	1050	488	764	1530
PCB-147/149	5900	14700	7110	10800	21200
PCB-134/143	472	1400	637	1010	1990
PCB-139/140	144	443	201	308	636
PCB-131	121	369	151	261	516
PCB-142	<5.0	<3.5	<3.0	<3.0	<4.8
PCB-132	2950	7490	3910	5960	10900
PCB-133	81.6	202	104	154	297
PCB-165	9.08	13.9	11.1	10.4	25.2
PCB-146	704	1930	940	1350	2710
PCB-161	<3.1	<2.2	<1.8	<1.8	<3.0
PCB-153/168	4260	10900	5370	7560	14900
PCB-141	1030	2670	1230	1760	3530
PCB-130	367	1090	470	685	1400
PCB-137/164	614	1890	831	1220	2490
PCB-129/138/163	5430	15800	7090	10400	20700
PCB-160	<3.3	<2.3	<2.0	<2.0	<3.1
PCB-158	559	1640	768	1100	2170
PCB-128/166	660	2240	943	1440	2840
PCB-159	22.4	46.6	29.3	28.9	59.3
PCB-162	9.27	33.2	14.3	23.7	43.8
PCB-167	126	449	195	279	573
PCB-156/157	380	1470	607	901	1930
PCB-169	<4.8	9.29	4.41	4.71	7.33
PCB-188	5.36	6.92	6.70	<6.3	13.6
PCB-179	548	908	540	658	1330
PCB-184	4.65	5.68	4.31	<4.3	8.93
PCB-176	139	256	147	184	361
PCB-186	<1.5	<1.2	<0.97	<1.0	<1.5
PCB-178	194	306	207	222	469
PCB-175	34.4	66.6	35.8	46.5	97.6
PCB-187	1040	1750	1060	1210	2520
PCB-182	<5.5	<8.9	7.22	<10	17.7
PCB-183	451	835	493	584	1180
PCB-185	66.6	114	69.7	86.3	176
PCB-174	610	1140	641	782	1570
PCB-177	324	643	361	447	909
PCB-181	<3.0	<17	9.03	14.4	26.1
PCB-171/173	149	368	191	259	513
PCB-172	87.7	171	108	132	250

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Sample Analysis Summary Report

Sample Name	SITE 1 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 2 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 3 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 4 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 5 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)
ALS Sample ID	L2541483-1	L2541483-2	L2541483-3	L2541483-4	L2541483-5
Sample Size	1	1	1	1	1
Sample size units	sample	sample	sample	sample	sample
Percent Moisture	n/a	n/a	n/a	n/a	n/a
Sample Matrix	PUF	PUF	PUF	PUF	PUF
Sampling Date	n/a	n/a	n/a	n/a	n/a
Extraction Date	23-Dec-20	23-Dec-20	23-Dec-20	23-Dec-20	23-Dec-20
Target Analytes	pg	pg	pg	pg	pg
PCB-192	<1.6	<1.3	<1.0	<1.1	<1.5
PCB-180/193	1080	2110	1250	1500	3130
PCB-191	19.5	44.8	24.9	32.6	61.2
PCB-170	365	917	494	644	1330
PCB-190	76.1	167	90.2	112	227
PCB-189	11.5	36.2	19.2	25.4	55.2
PCB-202	181	290	200	186	406
PCB-201	84.9	135	92.4	91.3	204
PCB-204	<0.93	<0.70	<0.77	<0.90	<0.77
PCB-197	17.4	24.4	17.9	18.8	39.2
PCB-200	65.7	95.7	66.9	61.8	136
PCB-198/199	374	696	400	425	915
PCB-196	143	233	138	161	337
PCB-203	232	439	245	264	575
PCB-195	75.4	119	70.7	86.9	170
PCB-194	177	333	194	229	473
PCB-205	10.7	17.7	9.17	12.4	22.7
PCB-208	57.6	159	70.6	77.0	164
PCB-207	27.3	54.3	29.8	32.3	69.5
PCB-206	144	441	171	203	451
PCB-209	24.0	89.2	38.9	45.8	98.4
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec
13C12-PCB-001	27	32	27	34	35
13C12-PCB-003	34	42	36	42	44
13C12-PCB-004	40	47	44	49	51
13C12-PCB-015	55	72	64	66	69
13C12-PCB-019	55	69	65	67	70
13C12-PCB-037	68	82	85	79	82
13C12-PCB-054	53	62	62	63	65
13C12-PCB-081	69	76	84	75	75
13C12-PCB-077	68	75	85	76	75
13C12-PCB-104	57	66	70	65	68
13C12-PCB-123	72	80	85	76	77
13C12-PCB-118	70	76	83	74	76
13C12-PCB-114	74	81	89	78	79
13C12-PCB-105	74	81	91	79	79
13C12-PCB-126	77	82	93	82	80
13C12-PCB-155	66	77	80	73	75
13C12-PCB-167	82	88	98	87	86
13C12-PCB-156/157	81	87	101	90	87
13C12-PCB-169	93	99	118	103	98
13C12-PCB-188	73	82	89	80	82
13C12-PCB-189	85	89	107	93	88
13C12-PCB-202	88	97	107	95	97
13C12-PCB-205	85	93	107	95	93
13C12-PCB-208	81	92	99	88	90
13C12-PCB-206	87	95	107	98	96
13C12-PCB-209	74	82	90	81	82
Field Spike Standards					
13C12-PCB-031	103	98	95	97	90
13C12-PCB-095	97	100	100	105	104
13C12-PCB-153	100	101	98	100	101
Cleanup Standards					
13C12-PCB-028	61	69	67	67	69
13C12-PCB-111	79	82	87	81	82
13C12-PCB-178	102	100	120	110	106

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Sample Analysis Summary Report

Sample Name	SITE 1 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 2 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 3 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 4 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	SITE 5 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)
ALS Sample ID	L2541483-1	L2541483-2	L2541483-3	L2541483-4	L2541483-5
Sample Size	1	1	1	1	1
Sample size units	sample	sample	sample	sample	sample
Percent Moisture	n/a	n/a	n/a	n/a	n/a
Sample Matrix	PUF	PUF	PUF	PUF	PUF
Sampling Date	n/a	n/a	n/a	n/a	n/a
Extraction Date	23-Dec-20	23-Dec-20	23-Dec-20	23-Dec-20	23-Dec-20
Target Analytes	pg	pg	pg	pg	pg
Homologue Group Totals					
Total MonoCB	217000	1030000	252000	419000	1060000
Total DiCB	2320000	8010000	2040000	4010000	8370000
Total TriCB	2890000	10100000	2300000	5420000	10400000
Total TetraCB	799000	2770000	695000	1580000	3010000
Total PentaCB	119000	332000	143000	253000	456000
Total HexaCB	28800	76600	36500	54400	107000
Total HeptaCB	5210	9870	5760	6960	14200
Total OctaCB	1360	2380	1430	1540	3280
Total NonaCB	229	654	271	312	685
DecaCB	24.0	89.2	38.9	45.8	98.4
Total PCB	6380000	22300000	5470000	11800000	23400000
Toxic Equivalency - (WHO 2005)					
Lower Bound PCB TEQ	3.74	7.07	4.74	6.76	10.3
Mid Point PCB TEQ	3.88	7.07	4.74	6.76	10.3
Upper Bound PCB TEQ	3.88	7.07	4.74	6.76	10.3

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Quality Control Summary Report

Sample Name	Method Blank	Method Blank
ALS Sample ID	WG3463499-1	WG3463499-4
Sample Size	1	1
Sample size units	sample	sample
Percent Moisture	n/a	n/a
Sample Matrix	MEDIA	REAGENT
Sampling Date	n/a	n/a
Extraction Date	23-Dec-20	23-Dec-20
Target Analytes	pg	pg
PCB-001	<2.0	<1.6
PCB-002	<2.4	<1.9
PCB-003	<2.9	<2.4
PCB-004	<10	<5.8
PCB-010	<7.4	<4.4
PCB-009	<7.6	<4.5
PCB-007	<7.2	<4.3
PCB-006	<7.4	<4.4
PCB-005	<8.3	<4.9
PCB-008	<6.6	<3.9
PCB-014	<11	<6.9
PCB-011	<41	<14
PCB-012/013	<11	<7.0
PCB-015	<13	<8.8
PCB-019	<3.9	<2.9
PCB-018/030	13.7	<8.2
PCB-017	<6.2	<4.4
PCB-027	<3.0	<3.3
PCB-024	<3.0	<3.3
PCB-016	6.15	5.09
PCB-032	5.48	<3.0
PCB-034	<5.3	<3.3
PCB-023	<4.7	<2.9
PCB-026/029	<4.8	<2.9
PCB-025	<4.4	<2.7
PCB-031	15.6	<6.3
PCB-020/028	15.0	<8.3
PCB-021/033	<9.0	<6.7
PCB-022	<6.3	<3.0
PCB-036	<4.8	<3.0
PCB-039	<4.8	<3.0
PCB-038	<5.4	<3.3
PCB-035	<5.5	<3.4
PCB-037	<6.7	<3.9
PCB-054	<1.5	<1.1
PCB-050/053	<2.1	<2.2
PCB-045/051	6.24	<2.3
PCB-046	<2.5	<2.6
PCB-052	26.8	14.4
PCB-073	<1.6	<1.7
PCB-043	<2.6	<2.7
PCB-049/069	<6.8	5.47
PCB-048	<2.8	<2.3
PCB-044/047/065	<18	<9.4
PCB-059/062/075	<1.7	<1.7
PCB-042	3.39	<2.5
PCB-040/041/071	10.3	7.02
PCB-064	6.29	4.15
PCB-072	<2.1	<1.2
PCB-068	<1.9	<1.1
PCB-057	<2.2	<1.3
PCB-058	<2.1	<1.2
PCB-067	<1.9	<1.1
PCB-063	<2.1	<1.2
PCB-061/070/074/076	<15	10.8
PCB-066	8.68	<3.3
PCB-055	<2.2	<1.3
PCB-056	<4.6	3.47
PCB-060	<2.2	<1.3
PCB-080	<1.9	<1.1
PCB-079	<2.0	<1.1
PCB-078	<2.3	<1.3
PCB-081	<2.5	<1.3
PCB-077	<2.5	<1.4
PCB-104	<2.3	<1.6
PCB-096	<2.1	<1.5
PCB-103	<3.4	<2.5
PCB-094	<3.9	<2.8
PCB-095	11.4	<5.5
PCB-093/098/100/102	<3.6	<2.7

ALS Life Sciences

Quality Control Summary Report

Sample Name	Method Blank	Method Blank
ALS Sample ID	WG3463499-1	WG3463499-4
Sample Size	1	1
Sample size units	sample	sample
Percent Moisture	n/a	n/a
Sample Matrix	MEDIA	REAGENT
Sampling Date	n/a	n/a
Extraction Date	23-Dec-20	23-Dec-20
Target Analytes	pg	pg
PCB-088/091	<3.7	<2.7
PCB-084	<4.2	<3.0
PCB-089	<4.2	<3.0
PCB-121	<2.7	<2.0
PCB-092	<3.9	<2.8
PCB-090/101/113	<9.9	<5.1
PCB-083/099	<3.8	<2.8
PCB-112	<2.7	<1.9
PCB-086/087/097/109/119/125	<3.2	<2.3
PCB-085/110/115/116/117	<16	6.72
PCB-082	<4.8	<3.5
PCB-111	<2.6	<1.9
PCB-120	<2.6	<1.9
PCB-108/124	<3.0	<1.9
PCB-107	<2.7	<1.7
PCB-123	<3.1	<2.1
PCB-106	<3.1	<2.0
PCB-118	<6.0	<3.2
PCB-122	<3.3	<2.1
PCB-114	<2.9	<1.9
PCB-105	<2.9	<1.8
PCB-127	<3.0	<1.9
PCB-126	<3.2	<2.1
PCB-155	<1.1	<0.86
PCB-152	<1.2	<0.84
PCB-150	<1.1	<0.81
PCB-136	2.74	<0.87
PCB-145	<1.2	<0.86
PCB-148	<1.6	<1.1
PCB-135/151	<1.7	<1.2
PCB-154	<1.3	<0.93
PCB-144	<1.6	<1.2
PCB-147/149	6.11	<3.6
PCB-134/143	<2.5	<1.8
PCB-139/140	<2.0	<1.5
PCB-131	<2.5	<1.8
PCB-142	<2.5	<1.8
PCB-132	<2.4	<1.7
PCB-133	<2.3	<1.7
PCB-165	<1.7	<1.2
PCB-146	<2.0	<1.5
PCB-161	<1.6	<1.1
PCB-153/168	5.89	2.67
PCB-141	<2.1	<1.5
PCB-130	<2.6	<1.9
PCB-137/164	<1.9	<1.3
PCB-129/138/163	<9.6	<5.4
PCB-160	<1.7	<1.2
PCB-158	<1.4	<1.0
PCB-128/166	<1.9	<1.3
PCB-159	<1.6	<1.1
PCB-162	<1.6	<1.2
PCB-167	<1.5	<1.0
PCB-156/157	<2.0	<1.4
PCB-169	<1.6	<1.1
PCB-188	<1.1	<1.0
PCB-179	<1.1	<0.98
PCB-184	<0.97	<0.88
PCB-176	<1.1	<0.97
PCB-186	<1.1	<0.99
PCB-178	<1.5	<1.4
PCB-175	<1.5	<1.4
PCB-187	<1.3	<1.2
PCB-182	<1.4	<1.2
PCB-183	<1.4	<1.2
PCB-185	<1.6	<1.4
PCB-174	<1.4	<1.2
PCB-177	<1.5	<1.4
PCB-181	<1.4	<1.3
PCB-171/173	<1.6	<1.4
PCB-172	<1.6	<1.4

ALS Life Sciences

Quality Control Summary Report

Sample Name	Method Blank	Method Blank
ALS Sample ID	WG3463499-1	WG3463499-4
Sample Size	1	1
Sample size units	sample	sample
Percent Moisture	n/a	n/a
Sample Matrix	MEDIA	REAGENT
Sampling Date	n/a	n/a
Extraction Date	23-Dec-20	23-Dec-20
Target Analytes	pg	pg
PCB-192	<1.2	<1.1
PCB-180/193	<1.2	<1.1
PCB-191	<1.1	<1.0
PCB-170	<1.5	<1.4
PCB-190	<0.93	<0.84
PCB-189	<0.96	<0.79
PCB-202	<1.2	<0.85
PCB-201	<1.2	<0.83
PCB-204	<1.1	<0.80
PCB-197	<1.1	<0.79
PCB-200	<1.2	<0.84
PCB-198/199	<1.4	<1.0
PCB-196	<1.5	<1.1
PCB-203	<1.3	<0.96
PCB-195	<1.5	<0.84
PCB-194	<1.3	<2.6
PCB-205	<1.2	<0.67
PCB-208	<1.6	<0.97
PCB-207	<1.7	<1.0
PCB-206	<2.6	<1.5
PCB-209	3.10	<0.70
Extraction Standards	% Rec	% Rec
13C12-PCB-001	30	24
13C12-PCB-003	30	22
13C12-PCB-004	38	32
13C12-PCB-015	37	28
13C12-PCB-019	47	38
13C12-PCB-037	48	43
13C12-PCB-054	45	37
13C12-PCB-081	61	58
13C12-PCB-077	64	59
13C12-PCB-104	45	44
13C12-PCB-123	71	67
13C12-PCB-118	66	64
13C12-PCB-114	72	71
13C12-PCB-105	76	75
13C12-PCB-126	81	78
13C12-PCB-155	59	54
13C12-PCB-167	83	78
13C12-PCB-156/157	84	80
13C12-PCB-169	94	90
13C12-PCB-188	68	64
13C12-PCB-189	91	86
13C12-PCB-202	90	83
13C12-PCB-205	87	81
13C12-PCB-208	86	79
13C12-PCB-206	91	86
13C12-PCB-209	83	77
Field Spike Standards		
13C12-PCB-031	NS	NS
13C12-PCB-095	NS	NS
13C12-PCB-153	NS	NS
Cleanup Standards		
13C12-PCB-028	43	39
13C12-PCB-111	69	64
13C12-PCB-178	85	79

ALS Life Sciences

Quality Control Summary Report

Sample Name	Method Blank	Method Blank
ALS Sample ID	WG3463499-1	WG3463499-4
Sample Size	1	1
Sample size units	sample	sample
Percent Moisture	n/a	n/a
Sample Matrix	MEDIA	REAGENT
Sampling Date	n/a	n/a
Extraction Date	23-Dec-20	23-Dec-20
Target Analytes	pg	pg
Homologue Group Totals		
Total MonoCB	<2.0	<1.6
Total DiCB	41.0	14.0
Total TriCB	77.4	34.6
Total TetraCB	111	58.0
Total PentaCB	43.3	20.5
Total HexaCB	24.3	11.7
Total HeptaCB	<0.93	<0.79
Total OctaCB	<1.1	2.60
Total NonaCB	<1.6	<0.97
DecaCB	3.10	<0.70
Total PCB	300	141
Toxic Equivalency - (WHO 2005)		
Lower Bound PCB TEQ	0.00	0.00
Mid Point PCB TEQ	0.185	0.122
Upper Bound PCB TEQ	0.370	0.244

ALS Life Sciences

Sample Analysis Summary Report

Sample Name **Laboratory Control Sample**

ALS Sample ID WG3463499-2

Sample Size 1
 Sample size units n/a
 Percent Moisture n/a
 Sample Matrix MEDIA
 Sampling Date n/a
 Extraction Date 23-Dec-20

Target Analytes **% Rec**

PCB-001	102
PCB-003	98
PCB-004	95
PCB-015	99
PCB-019	99
PCB-037	98
PCB-054	98
PCB-081	97
PCB-077	94
PCB-104	91
PCB-123	95
PCB-118	99
PCB-114	94
PCB-105	90
PCB-126	92
PCB-155	94
PCB-167	93
PCB-156/157	93
PCB-169	93
PCB-188	92
PCB-189	98
PCB-202	99
PCB-205	95
PCB-208	94
PCB-206	94
PCB-209	101

Extraction Standards **% Rec**

13C12-PCB-001	35
13C12-PCB-003	39
13C12-PCB-004	47
13C12-PCB-015	50
13C12-PCB-019	54
13C12-PCB-037	65
13C12-PCB-054	55
13C12-PCB-081	80
13C12-PCB-077	81
13C12-PCB-104	61
13C12-PCB-123	89
13C12-PCB-118	85
13C12-PCB-114	93
13C12-PCB-105	96
13C12-PCB-126	102
13C12-PCB-155	75
13C12-PCB-167	99
13C12-PCB-156/157	100
13C12-PCB-169	118
13C12-PCB-188	81
13C12-PCB-189	113
13C12-PCB-202	104
13C12-PCB-205	100
13C12-PCB-208	96
13C12-PCB-206	106
13C12-PCB-209	94

Field Spike Standards

13C12-PCB-031	NS
13C12-PCB-095	NS
13C12-PCB-153	NS

Cleanup Standards

13C12-PCB-028	57
13C12-PCB-111	91
13C12-PCB-178	103

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	CVS	CCV	CCV	CCV	CCV
ALS Sample ID	H5-20-RS1-1035	H5-20-CCV-1155	H5-20-CCV-1157	H5-20-CCV-002	H5-21-CCV-004
Sample Size	1	1	1	1	1
Sample size units	n/a	n/a	n/a	n/a	n/a
Percent Moisture	n/a	n/a	n/a	n/a	n/a
Sample Matrix	QC	QC	QC	QC	QC
Sampling Date	n/a	n/a	n/a	n/a	n/a
Extraction Date	n/a	n/a	n/a	n/a	n/a
Target Analytes	% Rec	% Rec	% Rec	% Rec	% Rec
PCB-001	104	104	105	103	103
PCB-003	101	101	101	100	101
PCB-004	107	94	93	92	92
PCB-015	109	98	100	100	99
PCB-019	111	99	99	100	99
PCB-037	107	101	102	100	100
PCB-054	108	101	99	98	97
PCB-081	103	103	104	102	101
PCB-077	103	104	106	104	103
PCB-104	98	100	100	100	98
PCB-123	104	99	101	101	100
PCB-118	103	102	102	101	102
PCB-114	104	98	98	99	100
PCB-105	101	100	101	101	101
PCB-126	101	102	102	103	101
PCB-155	100	99	99	98	99
PCB-167	100	100	100	100	99
PCB-156/157	103	99	100	100	99
PCB-169	106	100	100	100	100
PCB-188	103	102	101	101	101
PCB-189	103	102	103	102	102
PCB-202	105	101	101	101	100
PCB-205	99	105	105	106	106
PCB-208	98	102	102	103	102
PCB-206	95	102	102	103	103
PCB-209	105	93	94	94	94
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec
13C12-PCB-001	97	77	77	71	69
13C12-PCB-003	97	79	80	78	76
13C12-PCB-004	94	94	94	93	91
13C12-PCB-015	98	90	90	88	87
13C12-PCB-019	92	104	103	102	103
13C12-PCB-037	94	93	92	94	92
13C12-PCB-054	92	88	89	88	90
13C12-PCB-081	94	92	92	93	89
13C12-PCB-077	93	92	91	93	89
13C12-PCB-104	92	85	84	82	84
13C12-PCB-123	93	96	94	93	91
13C12-PCB-118	94	93	91	92	87
13C12-PCB-114	92	98	94	94	89
13C12-PCB-105	93	98	95	95	90
13C12-PCB-126	92	101	100	101	93
13C12-PCB-155	91	93	93	93	93
13C12-PCB-167	98	100	101	98	96
13C12-PCB-156/157	97	101	104	98	97
13C12-PCB-169	101	109	112	102	97
13C12-PCB-188	92	92	93	89	92
13C12-PCB-189	104	106	109	95	89
13C12-PCB-202	94	108	111	109	110
13C12-PCB-205	97	95	99	94	95
13C12-PCB-208	94	96	99	101	106
13C12-PCB-206	97	105	108	102	103
13C12-PCB-209	99	92	95	87	88
Field Spike Standards					
13C12-PCB-031	109	95	96	92	91
13C12-PCB-095	106	101	102	101	104
13C12-PCB-153	102	105	101	103	105
Cleanup Standards					
13C12-PCB-028	101	90	91	88	86
13C12-PCB-111	99	102	102	104	101
13C12-PCB-178	99	109	109	109	111

ALS Life Sciences

Sample Analysis Report

Sample Name	SITE 1 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-1	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved: S. Jin --e-signature-- 12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A11	5-210108A08
Run Date	05-Jan-21 16:00	08-Jan-21 11:25
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256001-01	HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-001		8.95	178000	5.1		100							
PCB-002		10.34	8630	4.9		100							
PCB-003		10.47	30400	4.8		100							
PCB-004								10.63	862000	150			2000
PCB-010		10.73	27500	2.8		100							
PCB-009		11.87	67700	2.9		100							
PCB-007		11.98	33600	2.7		100							
PCB-006		12.13	178000	2.8		100							
PCB-005		12.33	8410	3.1	M	100							
PCB-008								12.43	988000	85	M		2000
PCB-014		13.38	84.2	12	J	100							
PCB-011		13.89	17900	12	M	100							
PCB-012/013		14.08	18900	12		100							
PCB-015		14.27	115000	11		100							
PCB-019		12.60	137000	3.9		100							
PCB-018/030								13.73	728000	130			2000
PCB-017								13.97	323000	160			2000
PCB-027		14.07	39700	4.6		100							
PCB-024		14.16	8940	4.6		100							
PCB-016								14.27	278000	180			2000
PCB-032		14.52	141000	4.2		100							
PCB-034		15.21	1710	23		100							
PCB-023		15.30	695	20		100							
PCB-026/029		15.48	74100	21		100							
PCB-025		15.62	29600	19		100							
PCB-031								15.83	355000	310			2000
PCB-020/028								16.01	367000	320			2000
PCB-021/033								16.15	258000	330			2000
PCB-022		16.34	114000	21		100							
PCB-036		17.18	45.3	21	M,J	100							
PCB-039		17.39	855	21		100							
PCB-038		17.71	159	23		100							
PCB-035		17.99	2710	24		100							
PCB-037		18.22	32800	23		100							
PCB-054		14.44	1380	2.0		100							
PCB-050/053		15.64	38800	4.5		100							
PCB-045/051		16.05	54000	4.7		100							
PCB-046		16.22	16200	5.4		100							
PCB-052		16.95	152000	4.9		100							
PCB-073		NotFnd	<3.5	3.5	U	100							
PCB-043		17.09	8220	5.5		100							
PCB-049/069		17.22	81900	4.2		100							
PCB-048		17.38	39100	4.6		100							
PCB-044/047/065		17.52	118000	4.3		100							
PCB-059/062/075		17.70	12700	3.5		100							
PCB-042		17.82	34400	5.1		100							
PCB-040/041/071		18.08	66800	4.8		100							
PCB-064		18.21	46000	3.5		100							
PCB-072		18.61	331	9.0		100							
PCB-068		18.76	180	8.2		100							
PCB-057		19.00	398	9.4		100							
PCB-058		19.13	92.1	8.6	M,J	100							
PCB-067		19.23	2170	8.1		100							
PCB-063		19.37	1970	8.8		100							
PCB-061/070/074/076		19.55	66400	8.9		100							
PCB-066		19.74	31900	8.9		100							
PCB-055		19.86	1230	9.1		100							
PCB-056		20.11	14100	9.6		100							
PCB-060		20.24	8860	9.2		100							
PCB-080		NotFnd	<7.9	7.9	U	100							
PCB-079		21.22	128	8.3		100							
PCB-078		21.56	<9.5	9.5	M,U	100							
PCB-081	0.0003	21.80	78.9	9.9	J	100							
PCB-077	0.0001	22.10	1390	11		100							
PCB-104		17.48	12.9	2.6	M,J	100							
PCB-096		17.73	848	2.7		100							
PCB-103		18.70	248	4.7		100							
PCB-094		18.85	281	5.4		100							
PCB-095		19.10	25600	4.9		100							
PCB-093/098/100/102		19.26	1990	5.1		100							

ALS Life Sciences

Sample Analysis Report

Sample Name SITE 1 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)
 ALS Sample ID L2541483-1
 Analysis Method EPA 1668C
 Analysis Type Sample
 Sample Matrix PUF

Sampling Date n/a
 Extraction Date 23-Dec-20
 Sample Size 1 Sample
 Percent Moisture n/a
 Split Ratio 4

Approved:
 S. Jin
 --e-signature--
 12-Jan-2021

Run Information

Run 1

Filename 5-210105A11
 Run Date 05-Jan-21 16:00
 Final Volume 25 ul
 Dilution Factor 1
 Analysis Units pg
 Instrument - Column HRMS-5 SPBOctyl 256001-01

Run 2

Filename 5-210108A08
 Run Date 08-Jan-21 11:25
 Final Volume 25 uL
 Dilution Factor 20
 Analysis Units pg
 Instrument - Column HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF		Ret. Time	Conc. pg	EDL pg	Flags	EMPC		Ret. Time	Conc. pg	EDL pg	Flags	EMPC	
	(WHO 2005)						pg	LQL					pg	LQL
PCB-088/091			19.56	4730	5.1			100						
PCB-084			19.71	7920	5.8			100						
PCB-089			19.95	454	5.8			100						
PCB-121			20.07	<5.7	3.7	J,R	5.7	100						
PCB-092			20.30	3590	5.4			100						
PCB-090/101/113			20.61	18100	4.4			100						
PCB-083/099			20.92	9770	5.3			100						
PCB-112			21.02	187	3.7			100						
PCB-086/087/097/109/119/125			21.28	11400	4.4	M		100						
PCB-085/110/115/116/117			21.70	19500	4.1	M		100						
PCB-082			21.89	2130	6.6			100						
PCB-111			21.99	<4.0	3.7	J,R	4.0	100						
PCB-120			22.22	14.1	3.6	J		100						
PCB-108/124			22.87	332	4.5			100						
PCB-107			23.01	495	4.0	M		100						
PCB-123	0.00003		23.06	141	5.1	M		100						
PCB-106			NotFnd	<4.7	4.7	U		100						
PCB-118	0.00003		23.24	8050	4.6			100						
PCB-122			23.44	124	5.0			100						
PCB-114	0.00003		23.54	229	4.8			100						
PCB-105	0.00003		23.90	2990	4.8			100						
PCB-127			24.63	<5.6	4.6	M,J,R	5.6	100						
PCB-126	0.1		25.51	32.2	5.8	M,J		100						
PCB-155			20.47	4.57	0.85	J		100						
PCB-152			20.64	15.5	1.0	J		100						
PCB-150			20.70	17.1	1.0	J		100						
PCB-136			20.94	1680	1.1	M		100						
PCB-145			21.06	10.3	1.1	M,J		100						
PCB-148			21.79	6.75	1.4	J		100						
PCB-135/151			22.14	2760	1.5	M		100						
PCB-154			22.22	63.7	1.1	M,J		100						
PCB-144			22.44	429	1.5			100						
PCB-147/149			22.63	5900	4.1	M		100						
PCB-134/143			22.76	472	5.0	M		100						
PCB-139/140			22.93	144	4.1			100						
PCB-131			23.08	121	5.1			100						
PCB-142			NotFnd	<5.0	5.0	U		100						
PCB-132			23.32	2950	4.9			100						
PCB-133			23.50	81.6	4.6	J		100						
PCB-165			23.68	9.08	3.5	J		100						
PCB-146			23.84	704	4.1			100						
PCB-161			NotFnd	<3.1	3.1	U		100						
PCB-153/168			24.15	4260	3.4			100						
PCB-141			24.29	1030	4.3			100						
PCB-130			24.52	367	5.2			100						
PCB-137/164			24.69	614	3.8	M		100						
PCB-129/138/163			24.84	5430	4.2			100						
PCB-160			NotFnd	<3.3	3.3	U		100						
PCB-158			25.05	559	2.8			100						
PCB-128/166			25.54	660	3.8			100						
PCB-159			25.98	22.4	3.2	M,J		100						
PCB-162			26.12	9.27	3.3	J		100						
PCB-167	0.00003		26.38	126	3.0			100						
PCB-156/157	0.00003		26.99	380	4.3			200						
PCB-169	0.03		28.69	<4.8	3.3	J,R	4.8	100						
PCB-188			23.45	5.36	1.4	J		100						
PCB-179			23.68	548	1.5			100						
PCB-184			23.90	4.65	1.3	J		100						
PCB-176			24.13	139	1.5			100						
PCB-186			NotFnd	<1.5	1.5	U		100						
PCB-178			25.04	194	2.1			100						
PCB-175			25.36	34.4	2.0	J		100						
PCB-187			25.51	1040	1.8	M		100						
PCB-182			25.59	<5.5	1.9	M,J,R	5.5	100						
PCB-183			25.81	451	1.9			100						
PCB-185			25.91	66.6	2.2	M,J		100						
PCB-174			25.98	610	1.8	M		100						
PCB-177			26.21	324	2.1			100						
PCB-181			26.43	<3.0	2.0	J,R	3.0	100						
PCB-171/173			26.54	149	2.1			100						
PCB-172			27.32	87.7	2.1	J		100						

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Sample Analysis Report

Sample Name	SITE 1 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-1	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved: S. Jin --e-signature-- 12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A11	5-210108A08
Run Date	05-Jan-21 16:00	08-Jan-21 11:25
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256001-01	HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-192		NotFnd	<1.6	1.6		U	100						
PCB-180/193		27.66	1080	1.6			100						
PCB-191		27.85	19.5	1.5	M,J		100						
PCB-170		28.36	365	2.1			100						
PCB-190		28.64	76.1	1.3	J		100						
PCB-189	0.00003	29.94	11.5	1.3	M,J		100						
PCB-202		26.23	181	0.95			100						
PCB-201		26.70	84.9	0.96	J		100						
PCB-204		NotFnd	<0.93	0.93		U	100						
PCB-197		27.18	17.4	0.91	M,J		100						
PCB-200		27.27	65.7	0.97	M,J		100						
PCB-198/199		28.66	374	1.2			100						
PCB-196		29.00	143	1.2			100						
PCB-203		29.10	232	1.1			100						
PCB-195		29.83	75.4	1.1	J		100						
PCB-194		31.03	177	0.95			100						
PCB-205		31.31	10.7	0.88	M,J		100						
PCB-208		29.67	57.6	1.1	J		100						
PCB-207		30.14	27.3	1.2	M,J		100						
PCB-206		32.39	144	1.8			100						
PCB-209		33.50	24.0	0.64	J,B		100						

Extraction Standards	pg	Time	% Rec	Limits
13C12-PCB-001	4000	8.94	27	5-145
13C12-PCB-003	4000	10.45	34	5-145
13C12-PCB-004	4000	10.61	40	5-145
13C12-PCB-015	4000	14.26	55	5-145
13C12-PCB-019	4000	12.58	55	5-145
13C12-PCB-037	4000	18.20	68	5-145
13C12-PCB-054	4000	14.43	53	5-145
13C12-PCB-081	4000	21.79	69	10-145
13C12-PCB-077	4000	22.09	68	10-145
13C12-PCB-104	4000	17.47	57	10-145
13C12-PCB-123	4000	23.06	72	10-145
13C12-PCB-118	4000	23.22	70	10-145
13C12-PCB-114	4000	23.53	74	10-145
13C12-PCB-105	4000	23.89	74	10-145
13C12-PCB-126	4000	25.50	77	10-145
13C12-PCB-155	4000	20.45	66	10-145
13C12-PCB-167	4000	26.35	82	10-145
13C12-PCB-156/157	8000	26.99	81	10-145
13C12-PCB-169	4000	28.66	93	10-145
13C12-PCB-188	4000	23.44	73	10-145
13C12-PCB-189	4000	29.93	85	10-145
13C12-PCB-202	4000	26.22	88	10-145
13C12-PCB-205	4000	31.31	85	10-145
13C12-PCB-208	4000	29.65	81	10-145
13C12-PCB-206	4000	32.37	87	10-145
13C12-PCB-209	4000	33.47	74	10-145

Field Spike Standards	pg	Time	% Rec	Limits
13C12-PCB-031	18000	15.78	103	70-130
13C12-PCB-095	18000	19.08	97	70-130
13C12-PCB-153	18000	24.14	100	70-130

Cleanup Standards	pg	Time	% Rec	Limits
13C12-PCB-028	4000	15.95	61	5-145
13C12-PCB-111	4000	21.98	79	10-145
13C12-PCB-178	4000	25.02	102	10-145

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Sample Analysis Report

Sample Name	SITE 1 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-1	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved:
S. Jin
--e-signature--
12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A11	5-210108A08
Run Date	05-Jan-21 16:00	08-Jan-21 11:25
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256001-01	HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
Homologue Group Totals													
Total MonoCB			217000	4.8	J	400							
Total DiCB			2320000	2.7	J	800							
Total TriCB			2890000	3.9	J	800							
Total TetraCB			799000	2.0	J	1600							
Total PentaCB			119000	2.6	J	1600							
Total HexaCB			28800	0.85	J	1600							
Total HeptaCB			5210	1.3	J	800							
Total OctaCB			1360	0.88	J	800							
Total NonaCB			229	1.1	J	400							
DecaCB			24.0	0.64	J	400							
Total PCB			6380000		J	3200							

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	3.74
Mid Point PCB TEQ	3.88
Upper Bound PCB TEQ	3.88

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identified. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
B	Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

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Sample Analysis Report

Sample Name	SITE 2 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-2	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved:
S. Jin
--e-signature--
12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A07	5-210108A09
Run Date	05-Jan-21 13:11	08-Jan-21 12:07
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256001-01	HRMS-5 SPB0ctyl 256001-01

Target Analytes	TEF (WHO 2005)					EMPC				
	Ret. Time	Conc. pg	EDL pg	Flags	LQL	Ret. Time	Conc. pg	EDL pg	Flags	LQL
PCB-001						8.94	871000	84		2000
PCB-002	10.35	33600	6.9		100					
PCB-003	10.48	124000	6.5		100					
PCB-004						10.62	2990000	120		2000
PCB-010	10.75	102000	2.7		100					
PCB-009						11.88	279000	65		2000
PCB-007	11.99	137000	2.7		100					
PCB-006						12.15	766000	66		2000
PCB-005	12.36	40000	3.1	M	100					
PCB-008						12.41	3180000	60	M	2000
PCB-014	13.40	233	19		100					
PCB-011	13.92	21900	20		100					
PCB-012/013	14.09	72400	20		100					
PCB-015						14.31	421000	220	M	2000
PCB-019						12.61	473000	34		2000
PCB-018/030						13.71	2520000	130		2000
PCB-017						13.96	1140000	150		2000
PCB-027	14.09	123000	4.6		100					
PCB-024	14.19	30300	4.6		100					
PCB-016						14.25	939000	170		2000
PCB-032						14.54	543000	100		2000
PCB-034	15.23	5850	22		100					
PCB-023	15.32	2530	19		100					
PCB-026/029						15.51	274000	300		2000
PCB-025	15.64	96700	18		100					
PCB-031						15.81	1240000	280		2000
PCB-020/028						15.99	1270000	290		2000
PCB-021/033						16.12	858000	310		2000
PCB-022						16.37	431000	310		2000
PCB-036	17.20	103	20	M	100					
PCB-039	17.41	2870	20		100					
PCB-038	17.73	524	22		100					
PCB-035	18.00	8500	23		100					
PCB-037	18.23	93600	20		100					
PCB-054	14.47	4370	1.0		100					
PCB-050/053	15.66	122000	2.9		100					
PCB-045/051	16.07	164000	3.1		100					
PCB-046	16.24	50400	3.5		100					
PCB-052						16.98	607000	120		2000
PCB-073	NotFnd	<2.3	2.3	U	100					
PCB-043	17.11	26900	3.6		100					
PCB-049/069						17.25	324000	96		2000
PCB-048										
PCB-044/047/065	17.40	130000	3.0		100	17.54	455000	98		2000
PCB-059/062/075	17.72	40900	2.3		100					
PCB-042	17.84	110000	3.3		100					
PCB-040/041/071						18.11	250000	110		2000
PCB-064	18.22	145000	2.3		100					
PCB-072	18.63	1070	7.5		100					
PCB-068	18.78	522	6.8		100					
PCB-057	19.02	1330	7.8		100					
PCB-058	19.15	218	7.2	M	100					
PCB-067	19.25	6530	6.7		100					
PCB-063	19.39	5870	7.3		100					
PCB-061/070/074/076	19.57	182000	7.4		100					
PCB-066	19.75	81500	7.4		100					
PCB-055	19.86	2580	7.6		100					
PCB-056	20.13	34400	8.0		100					
PCB-060	20.25	21600	7.6		100					
PCB-080	NotFnd	<6.6	6.6	U	100					
PCB-079	21.23	351	6.9		100					
PCB-078	21.58	21.6	7.9	M,J	100					
PCB-081	0.0003	21.81	170		100					
PCB-077	0.0001	22.11	3260		100					
PCB-104		17.50	44.2	1.1	M,J	100				
PCB-096		17.75	2860	1.1	100					
PCB-103		18.72	840	7.7	100					
PCB-094		18.86	968	8.9	100					
PCB-095		19.12	71300	8.0	100					
PCB-093/098/100/102		19.28	6160	8.4	100					

ALS Life Sciences

Sample Analysis Report

Sample Name SITE 2 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)
 ALS Sample ID L2541483-2
 Analysis Method EPA 1668C
 Analysis Type Sample
 Sample Matrix PUF

Sampling Date n/a
 Extraction Date 23-Dec-20
 Sample Size 1 Sample
 Percent Moisture n/a
 Split Ratio 4

Approved:
 S. Jin
 --e-signature--
 12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A07	5-210108A09
Run Date	05-Jan-21 13:11	08-Jan-21 12:07
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256001-01	HRMS-5 SPB0ctyl 256001-01

Target Analytes	TEF (WHO 2005)		Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
	PCB-088/091		19.57	14000	8.4			100						
PCB-084		19.73	21300	9.5			100							
PCB-089		19.97	1350	9.5			100							
PCB-121		20.09	12.7	6.2	J		100							
PCB-092		20.32	9750	8.9			100							
PCB-090/101/113		20.62	48000	7.2	M		100							
PCB-083/099		20.94	27400	8.8	M		100							
PCB-112		21.02	<360	6.1	M,R	360	100							
PCB-086/087/097/109/119/125		21.29	31800	7.3	M		100							
PCB-085/110/115/116/117		21.71	52500	6.8	M		100							
PCB-082		21.91	5930	11	M		100							
PCB-111		22.01	36.4	6.0	M,J		100							
PCB-120		22.25	36.8	6.0	M,J		100							
PCB-108/124		22.89	1010	3.1			100							
PCB-107		23.02	1520	2.8	M		100							
PCB-123	0.00003	23.07	413	3.5	M		100							
PCB-106		NotFnd	<3.3	3.3	U		100							
PCB-118	0.00003	23.25	24300	3.3			100							
PCB-122		23.45	339	3.5			100							
PCB-114	0.00003	23.55	669	3.3			100							
PCB-105	0.00003	23.90	9310	3.4			100							
PCB-127		24.63	19.5	3.2	M,J		100							
PCB-126	0.1	25.53	53.1	3.9	M,J		100							
PCB-155		20.48	6.50	0.60	M,J		100							
PCB-152		20.65	44.7	0.77	J		100							
PCB-150		20.72	37.2	0.74	J		100							
PCB-136		20.95	4060	0.80			100							
PCB-145		21.08	23.4	0.78	J		100							
PCB-148		21.81	16.7	1.0	J		100							
PCB-135/151		22.15	6500	1.1	M		100							
PCB-154		22.24	123	0.85	M		100							
PCB-144		22.45	1050	1.1			100							
PCB-147/149		22.64	14700	2.9	M		100							
PCB-134/143		22.78	1400	3.5	M		100							
PCB-139/140		22.95	443	2.9			100							
PCB-131		23.09	369	3.5			100							
PCB-142		NotFnd	<3.5	3.5	U		100							
PCB-132		23.34	7490	3.4			100							
PCB-133		23.51	202	3.3			100							
PCB-165		23.71	13.9	2.5	M,J		100							
PCB-146		23.85	1930	2.9			100							
PCB-161		NotFnd	<2.2	2.2	U		100							
PCB-153/168		24.17	10900	2.4			100							
PCB-141		24.30	2670	3.0			100							
PCB-130		24.53	1090	3.7			100							
PCB-137/164		24.70	1890	2.6	M		100							
PCB-129/138/163		24.86	15800	2.9			100							
PCB-160		NotFnd	<2.3	2.3	U		100							
PCB-158		25.06	1640	2.0			100							
PCB-128/166		25.56	2240	2.6			100							
PCB-159		25.99	46.6	2.2	M,J		100							
PCB-162		26.14	33.2	2.3	J		100							
PCB-167	0.00003	26.38	449	2.2			100							
PCB-156/157	0.00003	27.01	1470	3.0			200							
PCB-169	0.03	28.69	9.29	2.4	M,J		100							
PCB-188		23.47	6.92	1.1	J		100							
PCB-179		23.70	908	1.2			100							
PCB-184		23.91	5.68	1.1	J		100							
PCB-176		24.15	256	1.2			100							
PCB-186		NotFnd	<1.2	1.2	U		100							
PCB-178		25.05	306	1.7			100							
PCB-175		25.38	66.6	1.7	J		100							
PCB-187		25.52	1750	1.4	M		100							
PCB-182		25.60	<8.9	1.5	M,J,R	8.9	100							
PCB-183		25.82	835	1.5			100							
PCB-185		25.92	114	1.8	M		100							
PCB-174		25.99	1140	1.5	M		100							
PCB-177		26.22	643	1.7			100							
PCB-181		26.43	<17	1.6	M,J,R	17	100							
PCB-171/173		26.55	368	1.7	M		100							
PCB-172		27.33	171	1.7			100							

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Sample Analysis Report

Sample Name	SITE 2 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-2	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved: S. Jin --e-signature-- 12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A07	5-210108A09
Run Date	05-Jan-21 13:11	08-Jan-21 12:07
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256001-01	HRMS-5 SPB0ctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-192		27.51	<1.3	1.3	U	1.1	100						
PCB-180/193		27.67	2110	1.4			100						
PCB-191		27.86	44.8	1.2	J		100						
PCB-170		28.37	917	1.7			100						
PCB-190		28.64	167	1.0			100						
PCB-189	0.00003	29.94	36.2	1.2	J		100						
PCB-202		26.25	290	0.69			100						
PCB-201		26.72	135	0.72			100						
PCB-204		NotFnd	<0.70	0.70	U		100						
PCB-197		27.18	24.4	0.68	J		100						
PCB-200		27.28	95.7	0.73	J		100						
PCB-198/199		28.67	696	0.89			100						
PCB-196		29.01	233	0.93			100						
PCB-203		29.11	439	0.83			100						
PCB-195		29.85	119	1.1			100						
PCB-194		31.05	333	0.95			100						
PCB-205		31.33	17.7	0.90	J		100						
PCB-208		29.67	159	0.82			100						
PCB-207		30.15	54.3	0.86	J		100						
PCB-206		32.40	441	1.3			100						
PCB-209		33.51	89.2	0.55	J		100						

Extraction Standards	pg	Time	% Rec	Limits
13C12-PCB-001	4000	8.95	32	5-145
13C12-PCB-003	4000	10.47	42	5-145
13C12-PCB-004	4000	10.63	47	5-145
13C12-PCB-015	4000	14.29	72	5-145
13C12-PCB-019	4000	12.61	69	5-145
13C12-PCB-037	4000	18.22	82	5-145
13C12-PCB-054	4000	14.45	62	5-145
13C12-PCB-081	4000	21.80	76	10-145
13C12-PCB-077	4000	22.10	75	10-145
13C12-PCB-104	4000	17.48	66	10-145
13C12-PCB-123	4000	23.07	80	10-145
13C12-PCB-118	4000	23.24	76	10-145
13C12-PCB-114	4000	23.54	81	10-145
13C12-PCB-105	4000	23.89	81	10-145
13C12-PCB-126	4000	25.50	82	10-145
13C12-PCB-155	4000	20.47	77	10-145
13C12-PCB-167	4000	26.37	88	10-145
13C12-PCB-156/157	8000	27.01	87	10-145
13C12-PCB-169	4000	28.67	99	10-145
13C12-PCB-188	4000	23.47	82	10-145
13C12-PCB-189	4000	29.93	89	10-145
13C12-PCB-202	4000	26.23	97	10-145
13C12-PCB-205	4000	31.31	93	10-145
13C12-PCB-208	4000	29.65	92	10-145
13C12-PCB-206	4000	32.37	95	10-145
13C12-PCB-209	4000	33.48	82	10-145

Field Spike Standards	pg	Time	% Rec	Limits
13C12-PCB-031	18000	15.80	98	70-130
13C12-PCB-095	18000	19.10	100	70-130
13C12-PCB-153	18000	24.15	101	70-130

Cleanup Standards	pg	Time	% Rec	Limits
13C12-PCB-028	4000	15.97	69	5-145
13C12-PCB-111	4000	22.00	82	10-145
13C12-PCB-178	4000	25.04	100	10-145

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Sample Analysis Report

Sample Name	SITE 2 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-2	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved: S. Jin --e-signature-- 12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A07	5-210108A09
Run Date	05-Jan-21 13:11	08-Jan-21 12:07
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256001-01	HRMS-5 SPB0ctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg Flags	EMPC pg LQL	Ret. Time	Conc. pg	EDL pg Flags	EMPC pg LQL
Homologue Group Totals									
Total MonoCB			1030000	6.5	J		400		
Total DiCB			8010000	2.7	J		800		
Total TriCB			10100000	4.6	J		800		
Total TetraCB			2770000	1.0	J		1600		
Total PentaCB			332000	1.1	J		1600		
Total HexaCB			76600	0.60	J		1600		
Total HeptaCB			9870	1.0	J		800		
Total OctaCB			2380	0.68	J		800		
Total NonaCB			654	0.82	J		400		
DecaCB			89.2	0.55	J		400		
Total PCB			22300000		J		3200		

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	7.07
Mid Point PCB TEQ	7.07
Upper Bound PCB TEQ	7.07

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identified. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name	SITE 3 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-3	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved:
S. Jin
--e-signature--
12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A08	5-210108A10
Run Date	05-Jan-21 13:54	08-Jan-21 12:49
Final Volume	25 uL	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256001-01	HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF (WHO 2005)		Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg		Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	
	Time	pg	pg	pg	pg	LQL	Time	pg	pg	pg	pg	LQL		
PCB-001									8.95	212000	71			2000
PCB-002			10.33	8550	5.3									
PCB-003			10.47	31600	5.0									
PCB-004									10.63	778000	130			2000
PCB-010			10.72	27000	2.4									
PCB-009			11.87	65500	2.5									
PCB-007			11.97	33900	2.4									
PCB-006			12.12	163000	2.4									
PCB-005			12.33	11400	2.7	M								
PCB-008									12.43	839000	71	M		2000
PCB-014			13.38	77.9	13	J								
PCB-011			13.88	11800	14	M								
PCB-012/013			14.08	19000	14									
PCB-015			14.27	95100	12									
PCB-019			12.60	110000	3.3									
PCB-018/030									13.73	598000	81			2000
PCB-017									13.97	268000	96			2000
PCB-027			14.07	31300	2.6									
PCB-024			14.15	8510	2.5									
PCB-016			14.22	190000	3.9									
PCB-032			14.51	113000	2.3									
PCB-034			15.21	1470	8.2									
PCB-023			15.30	617	7.2									
PCB-026/029			15.47	60500	7.4									
PCB-025			15.62	24500	6.8									
PCB-031									15.83	294000	170			2000
PCB-020/028									16.01	304000	180			2000
PCB-021/033			16.10	177000	7.5									
PCB-022			16.34	89400	7.5									
PCB-036			17.18	49.5	7.4	M,J								
PCB-039			17.39	735	7.4									
PCB-038			17.71	147	8.3									
PCB-035			17.98	2310	8.5									
PCB-037			18.21	23200	7.8									
PCB-054			14.44	1250	1.1									
PCB-050/053			15.64	33300	3.3									
PCB-045/051			16.04	45200	3.5									
PCB-046			16.22	13400	4.0									
PCB-052			16.95	144000	3.6									
PCB-073			NotFnd	<2.5	2.5	U								
PCB-043			17.08	7070	4.1									
PCB-049/069			17.22	73500	3.1									
PCB-048			17.38	33700	3.4									
PCB-044/047/065			17.51	104000	3.1									
PCB-059/062/075			17.70	10500	2.6									
PCB-042			17.82	28800	3.8									
PCB-040/041/071			18.08	55600	3.5									
PCB-064			18.20	39000	2.6									
PCB-072			18.60	289	7.1									
PCB-068			18.76	178	6.5									
PCB-057			19.00	307	7.5									
PCB-058			19.13	62.2	6.9	M,J								
PCB-067			19.23	1700	6.4									
PCB-063			19.37	1610	7.0									
PCB-061/070/074/076			19.55	56700	7.0									
PCB-066			19.74	25600	7.0									
PCB-055			19.85	840	7.2									
PCB-056			20.11	10500	7.6									
PCB-060			20.24	6530	7.3									
PCB-080			NotFnd	<6.3	6.3	U								
PCB-079			21.27	279	6.6									
PCB-078			21.57	14.0	7.6	M,J								
PCB-081	0.0003		21.80	54.3	8.1	J								
PCB-077	0.0001		22.10	1030	8.2									
PCB-104			17.48	19.1	1.2	J								
PCB-096			17.72	836	1.3									
PCB-103			18.70	297	3.6									
PCB-094			18.84	290	4.1									
PCB-095			19.09	30100	3.7									
PCB-093/098/100/102			19.26	2060	3.9									

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Sample Analysis Report

Sample Name SITE 3 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)
 ALS Sample ID L2541483-3
 Analysis Method EPA 1668C
 Analysis Type Sample
 Sample Matrix PUF

Sampling Date n/a
 Extraction Date 23-Dec-20
 Sample Size 1 Sample
 Percent Moisture n/a
 Split Ratio 4

Approved:
 S. Jin
 --e-signature--
 12-Jan-2021

Run Information

Run 1

Run 2

Filename 5-210105A08
 Run Date 05-Jan-21 13:54
 Final Volume 25 uL
 Dilution Factor 1
 Analysis Units pg
 Instrument - Column HRMS-5 SPBOctyl 256001-01

Filename 5-210108A10
 Run Date 08-Jan-21 12:49
 Final Volume 25 uL
 Dilution Factor 20
 Analysis Units pg
 Instrument - Column HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF (WHO 2005)		Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
	PCB-088/091		19.55	5410	3.9			100						
PCB-084		19.70	9140	4.4			100							
PCB-089		19.95	440	4.4			100							
PCB-121		20.06	<2.9	2.9	U	1.4	100							
PCB-092		20.30	4430	4.2			100							
PCB-090/101/113		20.60	22500	3.3			100							
PCB-083/099		20.92	12000	4.1	M		100							
PCB-112		21.00	62.9	2.8	M,J		100							
PCB-086/087/097/109/119/125		21.27	13600	3.4	M		100							
PCB-085/110/115/116/117		21.69	23800	3.2	M		100							
PCB-082		21.89	2390	5.1	M		100							
PCB-111		21.98	15.8	2.8	M,J		100							
PCB-120		22.24	23.6	2.8	J		100							
PCB-108/124		22.87	420	4.1			100							
PCB-107		23.01	641	3.7	M		100							
PCB-123	0.00003	23.06	160	4.8	M		100							
PCB-106		NotFnd	<4.3	4.3	U		100							
PCB-118	0.00003	23.24	10500	4.3			100							
PCB-122		23.44	146	4.6			100							
PCB-114	0.00003	23.54	265	4.3			100							
PCB-105	0.00003	23.89	3670	4.4			100							
PCB-127		24.61	11.6	4.2	M,J		100							
PCB-126	0.1	25.52	40.3	5.1	M,J		100							
PCB-155		20.47	<4.8	0.67	J,R	4.8	100							
PCB-152		20.63	<20	0.81	M,J,R	20	100							
PCB-150		20.70	20.7	0.77	M,J		100							
PCB-136		20.94	2010	0.83			100							
PCB-145		21.06	14.0	0.82	J		100							
PCB-148		21.79	11.7	1.1	J		100							
PCB-135/151		22.14	3190	1.2	M		100							
PCB-154		22.22	75.4	0.88	M,J		100							
PCB-144		22.44	488	1.1			100							
PCB-147/149		22.62	7110	2.4	M		100							
PCB-134/143		22.76	637	2.9	M		100							
PCB-139/140		22.93	201	2.4			100							
PCB-131		23.07	151	3.0			100							
PCB-142		23.16	<3.0	3.0	U	2.2	100							
PCB-132		23.32	3910	2.8			100							
PCB-133		23.50	104	2.7			100							
PCB-165		23.68	11.1	2.1	M,J		100							
PCB-146		23.83	940	2.4			100							
PCB-161		NotFnd	<1.8	1.8	U		100							
PCB-153/168		24.15	5370	2.0			100							
PCB-141		24.29	1230	2.5			100							
PCB-130		24.52	470	3.1			100							
PCB-137/164		24.69	831	2.2	M		100							
PCB-129/138/163		24.84	7090	2.5			100							
PCB-160		NotFnd	<2.0	2.0	U		100							
PCB-158		25.05	768	1.7			100							
PCB-128/166		25.54	943	2.2			100							
PCB-159		25.98	29.3	1.9	J		100							
PCB-162		26.11	14.3	1.9	J		100							
PCB-167	0.00003	26.37	195	1.8			100							
PCB-156/157	0.00003	26.99	607	2.5			200							
PCB-169	0.03	28.67	4.41	1.9	M,J		100							
PCB-188		23.45	6.70	0.93	J		100							
PCB-179		23.68	540	0.96			100							
PCB-184		23.90	4.31	0.86	J		100							
PCB-176		24.13	147	0.95			100							
PCB-186		NotFnd	<0.97	0.97	U		100							
PCB-178		25.04	207	1.3			100							
PCB-175		25.36	35.8	1.3	J		100							
PCB-187		25.50	1060	1.1	M		100							
PCB-182		25.59	7.22	1.2	M,J		100							
PCB-183		25.81	493	1.2			100							
PCB-185		25.91	69.7	1.4	J		100							
PCB-174		25.98	641	1.2			100							
PCB-177		26.21	361	1.4			100							
PCB-181		26.40	9.03	1.3	J		100							
PCB-171/173		26.54	191	1.4			100							
PCB-172		27.32	108	1.4			100							

ALS Life Sciences

Sample Analysis Report

Sample Name SITE 3 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID L2541483-3	Extraction Date	23-Dec-20	
Analysis Method EPA 1668C	Sample Size	1	Sample
Analysis Type Sample	Percent Moisture	n/a	
Sample Matrix PUF	Split Ratio	4	

Approved: S. Jin --e-signature-- 12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A08	5-210108A10
Run Date	05-Jan-21 13:54	08-Jan-21 12:49
Final Volume	25 uL	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256001-01	HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	EMPC pg	LQL
PCB-192		NotFnd	<1.0	1.0	U	100					
PCB-180/193		27.66	1250	1.1		100					
PCB-191		27.85	24.9	0.98	J	100					
PCB-170		28.36	494	1.4		100					
PCB-190		28.63	90.2	0.82	J	100					
PCB-189	0.00003	29.93	19.2	0.80	J	100					
PCB-202		26.23	200	0.80		100					
PCB-201		26.70	92.4	0.79	J	100					
PCB-204		NotFnd	<0.77	0.77	U	100					
PCB-197		27.18	17.9	0.75	J	100					
PCB-200		27.27	66.9	0.80	J	100					
PCB-198/199		28.66	400	0.98		100					
PCB-196		29.00	138	1.0		100					
PCB-203		29.10	245	0.92		100					
PCB-195		29.83	70.7	0.88	J	100					
PCB-194		31.03	194	0.79		100					
PCB-205		31.33	9.17	0.71	J	100					
PCB-208		29.65	70.6	0.76	J	100					
PCB-207		30.13	29.8	0.80	J	100					
PCB-206		32.39	171	1.2		100					
PCB-209		33.50	38.9	0.64	J	100					
Extraction Standards											
	pg	Time	% Rec	Limits							
13C12-PCB-001	4000	8.92	27	5-145							
13C12-PCB-003	4000	10.45	36	5-145							
13C12-PCB-004	4000	10.61	44	5-145							
13C12-PCB-015	4000	14.26	64	5-145							
13C12-PCB-019	4000	12.58	65	5-145							
13C12-PCB-037	4000	18.20	85	5-145							
13C12-PCB-054	4000	14.43	62	5-145							
13C12-PCB-081	4000	21.79	84	10-145							
13C12-PCB-077	4000	22.09	85	10-145							
13C12-PCB-104	4000	17.47	70	10-145							
13C12-PCB-123	4000	23.06	85	10-145							
13C12-PCB-118	4000	23.22	83	10-145							
13C12-PCB-114	4000	23.53	89	10-145							
13C12-PCB-105	4000	23.88	91	10-145							
13C12-PCB-126	4000	25.48	93	10-145							
13C12-PCB-155	4000	20.45	80	10-145							
13C12-PCB-167	4000	26.35	98	10-145							
13C12-PCB-156/157	8000	26.99	101	10-145							
13C12-PCB-169	4000	28.66	118	10-145							
13C12-PCB-188	4000	23.44	89	10-145							
13C12-PCB-189	4000	29.92	107	10-145							
13C12-PCB-202	4000	26.22	107	10-145							
13C12-PCB-205	4000	31.30	107	10-145							
13C12-PCB-208	4000	29.64	99	10-145							
13C12-PCB-206	4000	32.36	107	10-145							
13C12-PCB-209	4000	33.47	90	10-145							
Field Spike Standards											
13C12-PCB-031	18000	15.77	95	70-130							
13C12-PCB-095	18000	19.08	100	70-130							
13C12-PCB-153	18000	24.14	98	70-130							
Cleanup Standards											
13C12-PCB-028	4000	15.95	67	5-145							
13C12-PCB-111	4000	21.98	87	10-145							
13C12-PCB-178	4000	25.02	120	10-145							

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Sample Analysis Report

Sample Name	SITE 3 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-3	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved: S. Jin --e-signature-- 12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A08	5-210108A10
Run Date	05-Jan-21 13:54	08-Jan-21 12:49
Final Volume	25 uL	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256001-01	HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF (WHO 2005)		Ret. Time	Conc. pg	EDL pg	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	EMPC pg	LQL
			Time	pg	pg	pg		Time	pg	pg	pg	LQL
Homologue Group Totals												
Total MonoCB				252000	5.0	J	400					
Total DiCB				2040000	2.4	J	800					
Total TriCB				2300000	2.3	J	800					
Total TetraCB				695000	1.1	J	1600					
Total PentaCB				143000	1.2	J	1600					
Total HexaCB				36500	0.67	J	1600					
Total HeptaCB				5760	0.80	J	800					
Total OctaCB				1430	0.71	J	800					
Total NonaCB				271	0.76	J	400					
DecaCB				38.9	0.64	J	400					
Total PCB				5470000		J	3200					

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	4.74
Mid Point PCB TEQ	4.74
Upper Bound PCB TEQ	4.74

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.

TEF Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency

LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.

M Indicates that a peak has been manually integrated.

U Indicates that this compound was not detected above the EDL.

J Indicates that the analyte was positively identified. The associated numerical result is an estimate.

R Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Sample Analysis Report

Sample Name	SITE 4 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-4	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved:
S. Jin
--e-signature--
12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A09	5-210108A11
Run Date	05-Jan-21 14:36	08-Jan-21 13:31
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256001-01	HRMS-5 SPB0ctyl 256001-01

Target Analytes	TEF (WHO 2005)					EMPC				
	Ret. Time	Conc. pg	EDL pg	Flags	LQL	Ret. Time	Conc. pg	EDL pg	Flags	LQL
PCB-001						8.94	351000	54		2000
PCB-002	10.34	13000	5.7		100					
PCB-003	10.47	54600	5.5		100					
PCB-004						10.62	1550000	120		2000
PCB-010	10.72	57800	2.3		100					
PCB-009	11.87	128000	2.3		100					
PCB-007	11.97	67100	2.2		100					
PCB-006						12.15	371000	72		2000
PCB-005	12.33	21400	2.5	M	100					
PCB-008						12.41	1570000	66	M	2000
PCB-014	13.38	115	15		100					
PCB-011	13.89	14000	15	M	100					
PCB-012/013	14.07	36000	15		100					
PCB-015	14.27	198000	13		100					
PCB-019						12.61	230000	32		2000
PCB-018/030						13.71	1410000	86		2000
PCB-017						13.96	634000	100		2000
PCB-027	14.07	68200	4.7		100					
PCB-024	14.16	16900	4.6		100					
PCB-016						14.25	533000	110		2000
PCB-032						14.54	306000	69		2000
PCB-034	15.20	3040	9.1		100					
PCB-023	15.30	1240	8.0		100					
PCB-026/029	15.47	124000	8.2		100					
PCB-025	15.62	49700	7.6		100					
PCB-031						15.81	661000	260		2000
PCB-020/028						15.99	683000	260		2000
PCB-021/033						16.13	461000	270		2000
PCB-022	16.33	187000	8.4		100					
PCB-036	17.18	95.1	8.3	M,J	100					
PCB-039	17.39	1500	8.2		100					
PCB-038	17.70	255	9.2		100					
PCB-035	17.98	4550	9.5		100					
PCB-037	18.21	49800	9.1		100					
PCB-054	14.44	2560	1.2		100					
PCB-050/053	15.64	72400	5.9		100					
PCB-045/051	16.04	99500	6.2		100					
PCB-046	16.22	29800	7.1		100					
PCB-052						16.97	369000	84		2000
PCB-073	NotFnd	<4.5	4.5	U	100					
PCB-043	17.09	15000	7.3		100					
PCB-049/069	17.22	155000	5.5		100					
PCB-048	17.38	73100	6.1		100					
PCB-044/047/065						17.54	266000	71		2000
PCB-059/062/075	17.70	22200	4.6		100					
PCB-042	17.81	62400	6.7		100					
PCB-040/041/071	18.08	119000	6.3		100					
PCB-064	18.20	83500	4.6		100					
PCB-072	18.60	594	8.4		100					
PCB-068	18.76	275	7.7		100					
PCB-057	19.00	653	8.9		100					
PCB-058	19.13	117	8.1	M	100					
PCB-067	19.23	3520	7.6		100					
PCB-063	19.37	3320	8.3		100					
PCB-061/070/074/076	19.55	113000	8.3		100					
PCB-066	19.73	51700	8.3		100					
PCB-055	19.85	1770	8.5		100					
PCB-056	20.11	21900	9.0		100					
PCB-060	20.23	13500	8.6		100					
PCB-080	NotFnd	<7.5	7.5	U	100					
PCB-079	21.22	272	7.8		100					
PCB-078	21.56	21.0	9.0	M,J	100					
PCB-081	21.80	112	9.9		100					
PCB-077	0.0001	22.10	2040		100					
PCB-104	17.48	33.7	1.2	J	100					
PCB-096	17.72	1830	1.4		100					
PCB-103	18.70	578	6.0		100					
PCB-094	18.84	604	6.9		100					
PCB-095	19.09	56100	6.3		100					
PCB-093/098/100/102	19.26	4170	6.5		100					

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Sample Analysis Report

Sample Name	SITE 4 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-4	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved:
S. Jin
--e-signature--
12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A09	5-210108A11
Run Date	05-Jan-21 14:36	08-Jan-21 13:31
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256001-01	HRMS-5 SPB0ctyl 256001-01

Target Analytes	TEF		Ret. Time	Conc. pg	EDL pg	Flags	EMPC		Ret. Time	Conc. pg	EDL pg	Flags	EMPC	
	(WHO 2005)						pg	LQL					pg	LQL
PCB-088/091			19.55	10500	6.6									100
PCB-084			19.70	17400	7.4									100
PCB-089			19.95	928	7.4									100
PCB-121			20.08	<4.8	4.8	M,U								100
PCB-092			20.30	7680	7.0									100
PCB-090/101/113			20.60	38400	5.6									100
PCB-083/099			20.92	20800	6.9	M								100
PCB-112			21.00	121	4.8	M								100
PCB-086/087/097/109/119/125			21.27	23800	5.7	M								100
PCB-085/110/115/116/117			21.69	40300	5.3	M								100
PCB-082			21.89	4120	8.5	M								100
PCB-111			21.99	<4.7	4.7	M,U	3.5							100
PCB-120			22.23	24.5	4.7	M,J								100
PCB-108/124			22.87	685	2.8									100
PCB-107			23.01	1060	2.5	M								100
PCB-123	0.00003		23.06	251	3.2	M								100
PCB-106			NotFnd	<2.9	2.9	U								100
PCB-118	0.00003		23.24	16400	3.0									100
PCB-122			23.44	230	3.1									100
PCB-114	0.00003		23.54	455	3.0									100
PCB-105	0.00003		23.89	5980	3.0									100
PCB-127			24.61	18.2	2.8	J								100
PCB-126	0.1		25.52	56.5	3.5	M,J								100
PCB-155			20.47	<5.6	0.55	M,J,R	5.6							100
PCB-152			20.63	34.3	0.68	J								100
PCB-150			20.70	36.9	0.65	J								100
PCB-136			20.93	3290	0.71									100
PCB-145			21.06	22.6	0.69	J								100
PCB-148			21.79	15.2	0.93	M,J								100
PCB-135/151			22.14	4860	0.99	M								100
PCB-154			22.22	108	0.75	M								100
PCB-144			22.43	764	0.97									100
PCB-147/149			22.62	10800	2.4	M								100
PCB-134/143			22.76	1010	2.9	M								100
PCB-139/140			22.93	308	2.4									100
PCB-131			23.07	261	3.0									100
PCB-142			NotFnd	<3.0	3.0	U								100
PCB-132			23.32	5960	2.8									100
PCB-133			23.50	154	2.7									100
PCB-165			23.68	10.4	2.1	M,J								100
PCB-146			23.83	1350	2.4									100
PCB-161			NotFnd	<1.8	1.8	U								100
PCB-153/168			24.15	7560	2.0									100
PCB-141			24.29	1760	2.5									100
PCB-130			24.51	685	3.1									100
PCB-137/164			24.67	1220	2.2	M								100
PCB-129/138/163			24.84	10400	2.5									100
PCB-160			NotFnd	<2.0	2.0	U								100
PCB-158			25.05	1100	1.7									100
PCB-128/166			25.54	1440	2.2									100
PCB-159			25.98	28.9	1.9	M,J								100
PCB-162			26.12	23.7	1.9	J								100
PCB-167	0.00003		26.37	279	1.8									100
PCB-156/157	0.00003		26.99	901	2.5									200
PCB-169	0.03		28.69	4.71	1.9	M,J								100
PCB-188			23.45	<6.3	0.95	J,R	6.3							100
PCB-179			23.68	658	0.99									100
PCB-184			23.90	<4.3	0.89	J,R	4.3							100
PCB-176			24.13	184	0.98									100
PCB-186			NotFnd	<1.0	1.0	U								100
PCB-178			25.04	222	1.4									100
PCB-175			25.36	46.5	1.4	M,J								100
PCB-187			25.50	1210	1.2	M								100
PCB-182			25.58	<10	1.2	M,J,R	10							100
PCB-183			25.81	584	1.3									100
PCB-185			25.91	86.3	1.5	M,J								100
PCB-174			25.98	782	1.2	M								100
PCB-177			26.21	447	1.4									100
PCB-181			26.40	14.4	1.3	M,J								100
PCB-171/173			26.54	259	1.4									100
PCB-172			27.32	132	1.4									100

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Sample Analysis Report

Sample Name	SITE 4 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-4	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved:
S. Jin
--e-signature--
12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A09	5-210108A11
Run Date	05-Jan-21 14:36	08-Jan-21 13:31
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256001-01	HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-192		NotFnd	<1.1	1.1		U	100						
PCB-180/193		27.66	1500	1.1		M	100						
PCB-191		27.85	32.6	1.0		M,J	100						
PCB-170		28.35	644	1.4			100						
PCB-190		28.63	112	0.85			100						
PCB-189	0.00003	29.93	25.4	1.0		J	100						
PCB-202		26.23	186	0.93			100						
PCB-201		26.70	91.3	0.93		J	100						
PCB-204		NotFnd	<0.90	0.90		U	100						
PCB-197		27.16	18.8	0.88		J	100						
PCB-200		27.26	61.8	0.94		J	100						
PCB-198/199		28.66	425	1.2			100						
PCB-196		29.00	161	1.2			100						
PCB-203		29.10	264	1.1			100						
PCB-195		29.83	86.9	0.87		J	100						
PCB-194		31.03	229	0.78			100						
PCB-205		31.31	12.4	0.71		J	100						
PCB-208		29.65	77.0	1.3		J	100						
PCB-207		30.13	32.3	1.3		J	100						
PCB-206		32.37	203	2.0			100						
PCB-209		33.50	45.8	0.69		J	100						
Extraction Standards													
	pg	Time	% Rec	Limits									
13C12-PCB-001	4000	8.94	34	5-145									
13C12-PCB-003	4000	10.45	42	5-145									
13C12-PCB-004	4000	10.61	49	5-145									
13C12-PCB-015	4000	14.26	66	5-145									
13C12-PCB-019	4000	12.58	67	5-145									
13C12-PCB-037	4000	18.20	79	5-145									
13C12-PCB-054	4000	14.43	63	5-145									
13C12-PCB-081	4000	21.78	75	10-145									
13C12-PCB-077	4000	22.09	76	10-145									
13C12-PCB-104	4000	17.47	65	10-145									
13C12-PCB-123	4000	23.06	76	10-145									
13C12-PCB-118	4000	23.22	74	10-145									
13C12-PCB-114	4000	23.53	78	10-145									
13C12-PCB-105	4000	23.88	79	10-145									
13C12-PCB-126	4000	25.48	82	10-145									
13C12-PCB-155	4000	20.45	73	10-145									
13C12-PCB-167	4000	26.35	87	10-145									
13C12-PCB-156/157	8000	26.99	90	10-145									
13C12-PCB-169	4000	28.66	103	10-145									
13C12-PCB-188	4000	23.44	80	10-145									
13C12-PCB-189	4000	29.92	93	10-145									
13C12-PCB-202	4000	26.22	95	10-145									
13C12-PCB-205	4000	31.30	95	10-145									
13C12-PCB-208	4000	29.64	88	10-145									
13C12-PCB-206	4000	32.36	98	10-145									
13C12-PCB-209	4000	33.47	81	10-145									
Field Spike Standards													
13C12-PCB-031	18000	15.77	97	70-130									
13C12-PCB-095	18000	19.08	105	70-130									
13C12-PCB-153	18000	24.13	100	70-130									
Cleanup Standards													
13C12-PCB-028	4000	15.95	67	5-145									
13C12-PCB-111	4000	21.97	81	10-145									
13C12-PCB-178	4000	25.02	110	10-145									

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Sample Analysis Report

Sample Name	SITE 4 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-4	Extraction Date	23-Dec-20	Approved: S. Jin --e-signature-- 12-Jan-2021
Analysis Method	EPA 1668C	Sample Size	1 Sample	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210105A09	5-210108A11
Run Date	05-Jan-21 14:36	08-Jan-21 13:31
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256001-01	HRMS-5 SPB0ctyl 256001-01

Target Analytes	TEF (WHO 2005)		Ret.	Conc.	EDL	EMPC		Ret.	Conc.	EDL	EMPC			
	Time	pg	pg	pg	pg	Flags	pg	LQL	Time	pg	pg	Flags	pg	LQL
Homologue Group Totals														
Total MonoCB			419000	5.5	J		400							
Total DiCB			4010000	2.2	J		800							
Total TriCB			5420000	4.6	J		800							
Total TetraCB			1580000	1.2	J		1600							
Total PentaCB			253000	1.2	J		1600							
Total HexaCB			54400	0.55	J		1600							
Total HeptaCB			6960	0.85	J		800							
Total OctaCB			1540	0.71	J		800							
Total NonaCB			312	1.3	J		400							
DecaCB			45.8	0.69	J		400							
Total PCB			11800000		J		3200							
Toxic Equivalency - (WHO 2005)														
Lower Bound PCB TEQ			6.76											
Mid Point PCB TEQ			6.76											
Upper Bound PCB TEQ			6.76											

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identified. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

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Sample Analysis Report

Sample Name	SITE 5 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-5	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved: S. Jin --e-signature-- 12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A10	5-210108A12
Run Date	05-Jan-21 15:19	08-Jan-21 14:14
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256001-01	HRMS-5 SPB0ctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-001								8.95	891000	96			2000
PCB-002		10.34	32200	6.1									
PCB-003		10.47	133000	5.8									
PCB-004								10.63	3070000	92			2000
PCB-010		10.73	117000	3.2									
PCB-009								11.90	299000	53			2000
PCB-007		11.98	149000	3.1									
PCB-006								12.15	805000	54			2000
PCB-005		12.34	43000	3.6	M								
PCB-008								12.41	3350000	49	M		2000
PCB-014		13.39	202	25									
PCB-011		13.90	26500	26									
PCB-012/013		14.08	72800	26									
PCB-015								14.31	435000	240	M		2000
PCB-019								12.62	486000	35			2000
PCB-018/030								13.72	2640000	93			2000
PCB-017								13.97	1210000	110			2000
PCB-027		14.08	137000	8.3									
PCB-024		14.17	36800	8.3									
PCB-016								14.26	992000	120			2000
PCB-032								14.55	574000	74			2000
PCB-034		15.22	6240	25									
PCB-023		15.32	2820	22									
PCB-026/029								15.51	278000	410			2000
PCB-025		15.63	101000	21									
PCB-031								15.82	1250000	380			2000
PCB-020/028								16.00	1280000	390			2000
PCB-021/033								16.13	856000	410			2000
PCB-022								16.38	420000	410			2000
PCB-036		17.20	236	23	M								
PCB-039		17.41	2740	23									
PCB-038		17.72	474	26									
PCB-035		17.99	8110	26									
PCB-037		18.22	87700	24									
PCB-054		14.46	5110	2.3									
PCB-050/053		15.65	140000	6.4									
PCB-045/051		16.06	188000	6.7									
PCB-046		16.23	57400	7.8									
PCB-052								16.98	689000	60			2000
PCB-073		NotFnd	<5.0	5.0	U								
PCB-043		17.10	28200	8.0									
PCB-049/069								17.25	350000	50			2000
PCB-048		17.40	139000	6.6									
PCB-044/047/065								17.55	487000	51			2000
PCB-059/062/075		17.71	41500	5.0									
PCB-042		17.83	114000	7.3									
PCB-040/041/071								18.11	255000	57			2000
PCB-064		18.22	152000	5.0									
PCB-072		18.62	1130	13									
PCB-068		18.78	589	11									
PCB-057		19.01	1270	13									
PCB-058		19.15	194	12	M								
PCB-067		19.24	6440	11									
PCB-063		19.38	6030	12									
PCB-061/070/074/076		19.56	197000	12									
PCB-066		19.74	86800	12									
PCB-055		19.86	2870	13									
PCB-056		20.12	36500	13									
PCB-060		20.25	22800	13									
PCB-080		NotFnd	<11	11	U								
PCB-079		21.29	804	12									
PCB-078		21.58	30.8	13	M,J								
PCB-081	0.0003	21.81	178	14									
PCB-077	0.0001	22.11	3350	15									
PCB-104		17.49	55.3	2.0	M,J								
PCB-096		17.74	3400	2.2									
PCB-103		18.71	1100	9.8									
PCB-094		18.86	1110	11									
PCB-095		19.11	102000	10									
PCB-093/098/100/102		19.28	7230	11									

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Sample Analysis Report

Sample Name	SITE 5 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-5	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved:
S. Jin
--e-signature--
12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A10	5-210108A12
Run Date	05-Jan-21 15:19	08-Jan-21 14:14
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256001-01	HRMS-5 SPB0ctyl 256001-01

Target Analytes	TEF (WHO 2005)		Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
	PCB-088/091			19.57	18600	11		100						
PCB-084			19.72	30900	12		100							
PCB-089			19.97	1620	12		100							
PCB-121			20.08	<7.8	7.8	M,U	2.7	100						
PCB-092			20.32	14300	11		100							
PCB-090/101/113			20.62	70200	9.0		100							
PCB-083/099			20.93	37300	11	M	100							
PCB-112			21.01	207	7.7	M	100							
PCB-086/087/097/109/119/125			21.29	43300	9.2	M	100							
PCB-085/110/115/116/117			21.70	71300	8.5	M	100							
PCB-082			21.90	7390	14	M	100							
PCB-111			21.99	44.2	7.6	M,J	100							
PCB-120			22.25	69.8	7.5	J	100							
PCB-108/124			22.89	1270	5.3		100							
PCB-107			23.01	1940	4.7	M	100							
PCB-123	0.00003		23.07	465	6.1	M	100							
PCB-106			NotFnd	<5.5	5.5	U	100							
PCB-118	0.00003		23.25	30100	5.6		100							
PCB-122			23.45	451	5.9		100							
PCB-114	0.00003		23.55	826	5.7		100							
PCB-105	0.00003		23.90	11100	5.7		100							
PCB-127			24.63	32.9	5.3	J	100							
PCB-126	0.1		25.53	83.9	7.0	M,J	100							
PCB-155			20.48	<8.6	0.83	J,R	8.6	100						
PCB-152			20.65	67.3	1.1	J	100							
PCB-150			20.71	69.4	1.0	J	100							
PCB-136			20.95	6450	1.1		100							
PCB-145			21.08	38.5	1.1	J	100							
PCB-148			21.81	29.2	1.5	J	100							
PCB-135/151			22.15	9550	1.6	M	100							
PCB-154			22.23	242	1.2	M	100							
PCB-144			22.45	1530	1.6		100							
PCB-147/149			22.63	21200	3.9	M	100							
PCB-134/143			22.78	1990	4.7	M	100							
PCB-139/140			22.95	636	3.8		100							
PCB-131			23.08	516	4.8		100							
PCB-142			NotFnd	<4.8	4.8	U	100							
PCB-132			23.33	10900	4.6		100							
PCB-133			23.51	297	4.4		100							
PCB-165			23.71	25.2	3.3	M,J	100							
PCB-146			23.84	2710	3.9		100							
PCB-161			NotFnd	<3.0	3.0	U	100							
PCB-153/168			24.17	14900	3.2		100							
PCB-141			24.30	3530	4.1		100							
PCB-130			24.52	1400	4.9		100							
PCB-137/164			24.69	2490	3.5	M	100							
PCB-129/138/163			24.86	20700	4.0		100							
PCB-160			NotFnd	<3.1	3.1	U	100							
PCB-158			25.06	2170	2.7		100							
PCB-128/166			25.56	2840	3.5		100							
PCB-159			25.99	59.3	3.0	M,J	100							
PCB-162			26.14	43.8	3.1	J	100							
PCB-167	0.00003		26.38	573	2.9		100							
PCB-156/157	0.00003		27.01	1930	4.1		200							
PCB-169	0.03		28.66	7.33	3.2	M,J	100							
PCB-188			23.48	13.6	1.2	J	100							
PCB-179			23.70	1330	1.4		100							
PCB-184			23.91	8.93	1.2	J	100							
PCB-176			24.14	361	1.3		100							
PCB-186			24.40	<1.5	1.4	M,J,R	1.5	100						
PCB-178			25.05	469	1.9		100							
PCB-175			25.38	97.6	1.9	J	100							
PCB-187			25.51	2520	1.6	M	100							
PCB-182			25.62	17.7	1.7	M,J	100							
PCB-183			25.82	1180	1.7		100							
PCB-185			25.92	176	2.0	M	100							
PCB-174			25.99	1570	1.7	M	100							
PCB-177			26.22	909	1.9		100							
PCB-181			26.41	26.1	1.8	J	100							
PCB-171/173			26.55	513	1.9		100							
PCB-172			27.33	250	1.9		100							

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Sample Analysis Report

Sample Name	SITE 5 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-5	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved: S. Jin --e-signature-- 12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A10	5-210108A12
Run Date	05-Jan-21 15:19	08-Jan-21 14:14
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256001-01	HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-192		NotFnd	<1.5	1.5		U	100						
PCB-180/193		27.67	3130	1.5			100						
PCB-191		27.85	61.2	1.4		J	100						
PCB-170		28.36	1330	1.9			100						
PCB-190		28.64	227	1.2			100						
PCB-189	0.00003	29.94	55.2	1.0		J	100						
PCB-202		26.25	406	0.75			100						
PCB-201		26.72	204	0.79			100						
PCB-204		NotFnd	<0.77	0.77		U	100						
PCB-197		27.18	39.2	0.75		J	100						
PCB-200		27.27	136	0.80			100						
PCB-198/199		28.67	915	0.98			100						
PCB-196		29.01	337	1.0			100						
PCB-203		29.11	575	0.91			100						
PCB-195		29.85	170	1.2			100						
PCB-194		31.05	473	1.1			100						
PCB-205		31.33	22.7	1.0		J	100						
PCB-208		29.67	164	1.3			100						
PCB-207		30.14	69.5	1.3		J	100						
PCB-206		32.39	451	2.0			100						
PCB-209		33.50	98.4	0.97		J	100						

Extraction Standards	pg	Time	% Rec	Limits
13C12-PCB-001	4000	8.92	35	5-145
13C12-PCB-003	4000	10.45	44	5-145
13C12-PCB-004	4000	10.62	51	5-145
13C12-PCB-015	4000	14.28	69	5-145
13C12-PCB-019	4000	12.60	70	5-145
13C12-PCB-037	4000	18.21	82	5-145
13C12-PCB-054	4000	14.45	65	5-145
13C12-PCB-081	4000	21.80	75	10-145
13C12-PCB-077	4000	22.10	75	10-145
13C12-PCB-104	4000	17.48	68	10-145
13C12-PCB-123	4000	23.07	77	10-145
13C12-PCB-118	4000	23.24	76	10-145
13C12-PCB-114	4000	23.54	79	10-145
13C12-PCB-105	4000	23.89	79	10-145
13C12-PCB-126	4000	25.50	80	10-145
13C12-PCB-155	4000	20.46	75	10-145
13C12-PCB-167	4000	26.37	86	10-145
13C12-PCB-156/157	8000	27.01	87	10-145
13C12-PCB-169	4000	28.67	98	10-145
13C12-PCB-188	4000	23.45	82	10-145
13C12-PCB-189	4000	29.93	88	10-145
13C12-PCB-202	4000	26.23	97	10-145
13C12-PCB-205	4000	31.31	93	10-145
13C12-PCB-208	4000	29.65	90	10-145
13C12-PCB-206	4000	32.37	96	10-145
13C12-PCB-209	4000	33.48	82	10-145

Field Spike Standards	pg	Time	% Rec	Limits
13C12-PCB-031	18000	15.79	90	70-130
13C12-PCB-095	18000	19.09	104	70-130
13C12-PCB-153	18000	24.15	101	70-130

Cleanup Standards	pg	Time	% Rec	Limits
13C12-PCB-028	4000	15.97	69	5-145
13C12-PCB-111	4000	21.99	82	10-145
13C12-PCB-178	4000	25.04	106	10-145

ALS Life Sciences

Sample Analysis Report

Sample Name	SITE 5 - COMPOSITE 4 (WET SEASON - OCT, NOV, DEC)	Sampling Date	n/a	
ALS Sample ID	L2541483-5	Extraction Date	23-Dec-20	
Analysis Method	EPA 1668C	Sample Size	1	Sample
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved:
S. Jin
--e-signature--
12-Jan-2021

Run Information	Run 1	Run 2
Filename	5-210105A10	5-210108A12
Run Date	05-Jan-21 15:19	08-Jan-21 14:14
Final Volume	25 ul	25 uL
Dilution Factor	1	20
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256001-01	HRMS-5 SPB0ctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
Homologue Group Totals													
Total MonoCB			1060000	5.8	J		400						
Total DiCB			8370000	3.1	J		800						
Total TriCB			10400000	8.3	J		800						
Total TetraCB			3010000	2.3	J		1600						
Total PentaCB			456000	2.0	J		1600						
Total HexaCB			107000	0.83	J		1600						
Total HeptaCB			14200	1.0	J		800						
Total OctaCB			3280	0.75	J		800						
Total NonaCB			685	1.3	J		400						
DecaCB			98.4	0.97	J		400						
Total PCB			23400000		J		3200						

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	10.3
Mid Point PCB TEQ	10.3
Upper Bound PCB TEQ	10.3

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identified. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

SVOC DATA PACKAGE

SECTION 3: METHOD SUMMARY

**PCB METHOD SUMMARY
Method 1668**

Introduction:

This summary is to provide ALSE Burlington PCB method details in order to provide persons reviewing or validating this data package sufficient information to re-construct the sample calculation, data verification and review. It incorporates the analysis of PCBs via the following reference methods

US EPA Office of Water, Method 1668A
US EPA Office of Water, Method 1668C

Any deviations to what is listed herein would be listed in the project narrative

To avoid the confusion and conflicting nomenclature within the methods, we have defined the labeled standards in terms relating to the time of addition to the sample or extract. Therefore;

The Field or Sampling Standards are added prior to field sampling
The Extraction Standards are added prior to extraction
The Clean-up Standards are added prior to extract clean-up
The Injection Standards are added prior to extract injection.

Calibration Standard Levels:

Six levels of standard are available for calibration as listed in Table 1. The low point (the CS0) is below method requirements and therefore is optional

Table 1. Concentration of CB congeners in calibration and calibration verification standards

Solution concentration (ng/mL)

CB congener	IUPAC ¹	CS-0.2 (Hi sens) ²	CS-1	CS-2	CS-3 (VER)	CS-4	CS-5
Native Toxics/LOC							
2-MoCB	1	0.2	1	5	50	400	2000
4-MoCB	3	0.2	1	5	50	400	2000
2,2'-DiCB	4	0.2	1	5	50	400	2000
4,4'-DiCB	15	0.2	1	5	50	400	2000
2,2',6,6'-TrCB	19	0.2	1	5	50	400	2000
3,4,4'-TrCB	37	0.2	1	5	50	400	2000
2,2',6,6'-TeCB	54	0.2	1	5	50	400	2000
3,3',4,4'-TeCB	77	0.2	1	5	50	400	2000
3,4,4',5-TeCB	81	0.2	1	5	50	400	2000
2,2',4,6,6'-PeCB	104	0.2	1	5	50	400	2000
2,3,3',4,4'-PeCB	105	0.2	1	5	50	400	2000
2,3,4,4',5-PeCB	114	0.2	1	5	50	400	2000
2,3',4,4',5-PeCB	118	0.2	1	5	50	400	2000
2',3,4,4',5-PeCB	123	0.2	1	5	50	400	2000
3,3',4,4',5-PeCB	126	0.2	1	5	50	400	2000
2,2',4,4',6,6'-HxCB	155	0.2	1	5	50	400	2000
2,3,3',4,4',5-HxCB	156	0.2	1	5	50	400	2000
2,3,3',4,4',5'-HxCB	157	0.2	1	5	50	400	2000
2,3',4,4',5,5'-HxCB	167	0.2	1	5	50	400	2000
3,3',4,4',5,5'-HxCB	169	0.2	1	5	50	400	2000
2,2',3,4',5,6,6'-HpCB	188	0.2	1	5	50	400	2000
2,3,3',4,4',5,5'-HpCB	189	0.2	1	5	50	400	2000
2,2',3,3',5,5',6,6'-OoCB	202	0.2	1	5	50	400	2000
2,3,3',4,4',5,5',6-OoCB	205	0.2	1	5	50	400	2000
2,2',3,3',4,4',5,5',6-NoCB	206	0.2	1	5	50	400	2000
2,2',3,3',4,4',5,5',6,6'-NoCB	208	0.2	1	5	50	400	2000
DeCB 209	209	0.2	1	5	50	400	2000
Labeled Toxics/LOC/window-defining							
13C12-2-MoCB	1L	100	100	100	100	100	100
13C12-4-MoCB	3L	100	100	100	100	100	100
13C12-2,2'-DiCB	4L	100	100	100	100	100	100
13C12-4,4'-DiCB	15L	100	100	100	100	100	100
13C12-2,2',6,6'-TrCB	19L	100	100	100	100	100	100
13C12-3,4,4'-TrCB	37L	100	100	100	100	100	100
13C12-2,2',6,6'-TeCB	54L	100	100	100	100	100	100
13C12-3,3',4,4'-TeCB	77L	100	100	100	100	100	100
13C12-3,4,4',5-TeCB	81L	100	100	100	100	100	100
13C12-2,2',4,6,6'-PeCB	104L	100	100	100	100	100	100
13C12-2,3,3',4,4'-PeCB	105L	100	100	100	100	100	100
13C12-2,3,4,4',5-PeCB	114L	100	100	100	100	100	100
13C12-2,3',4,4',5-PeCB	118L	100	100	100	100	100	100
13C12-2',3,4,4',5-PeCB	123L	100	100	100	100	100	100
13C12-3,3',4,4',5-PeCB	126L	100	100	100	100	100	100
13C12-2,2',4,4',6,6'-HxCB	155L	100	100	100	100	100	100
13C12-2,3,3',4,4',5-HxCB	156L	100	100	100	100	100	100
13C12-2,3,3',4,4',5'-HxCB	157L	100	100	100	100	100	100
13C12-2,3',4,4',5,5'-HxCB	167L	100	100	100	100	100	100
13C12-3,3',4,4',5,5'-HxCB	169L	100	100	100	100	100	100
13C12-2,2',3,4',5,6,6'-HpCB	188L	100	100	100	100	100	100
13C12-2,3,3',4,4',5,5'-HpCB	189L	100	100	100	100	100	100
13C12-2,2',3,3',5,5',6,6'-OoCB	202L	100	100	100	100	100	100
13C12-2,3,3',4,4',5,5',6-OoCB	205L	100	100	100	100	100	100
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	100	100	100	100	100	100
13C12-2,2',3,3',4,4',5,5',6,6'-NoCB	208L	100	100	100	100	100	100
13C12-DeCB 209L	209L	100	100	100	100	100	100
Labeled clean-up							
13C12-2,4,4'-TrCB	28L	100	100	100	100	100	100
13C12-2,3,3',5,5'-PeCB	111L	100	100	100	100	100	100
13C12-2,2',3,3',5,5',6-HpCB	178L	100	100	100	100	100	100
Labeled Injection Internal							
13C12-2,5-DiCB	9L	100	100	100	100	100	100
13C12-2,2',5,5'-TeCB	52L	100	100	100	100	100	100
13C12-2,2',4',5,5'-PeCB	101L	100	100	100	100	100	100
13C12-2,2',3',4,4',5'-HxCB	138L	100	100	100	100	100	100
13C12-2,2',3,3',4,4',5,5'-OoCB	194L	100	100	100	100	100	100

Method Control Limits for 1668A

The initial and continuing calibration control limits for both methods are presented in Table 2 below. For the initial calibration CS1 and for each calibration verification CS3, the signal to noise ratio for each quantification ion for labelled and non-labelled analytes must be greater than or equal to 10:1

Table 2A. QC acceptance criteria for chlorinated biphenyls in VER, IPR, OPR, and samples ¹

Congener	IUPAC Number ²	Test conc (ng/mL)	VER (%)	IPR		OPR (%)	Labelled compound recovery in samples (%)
				RSD (%)	X (%)		
2-MoCB	1	50	70-130	40	60-140	50-150	
4-MoCB	3	50	70-130	40	60-140	50-150	
2,2'-DiCB	4	50	70-130	40	60-140	50-150	
4,4'-DiCB	15	50	70-130	40	60-140	50-150	
2,2'6-TrCB	19	50	70-130	40	60-140	50-150	
3,4,4'-TrCB	37	50	70-130	40	60-140	50-150	
2,2'6,6'TeCB	54	50	70-130	40	60-140	50-150	
3,3',4,4'-TeCB	77	50	70-130	40	60-140	50-150	
3,4,4',5-TeCB	81	50	70-130	40	60-140	50-150	
2,2',4,6,6'-PeCB	104	50	70-130	40	60-140	50-150	
2,3,3',4,4'-PeCB	105	50	70-130	40	60-140	50-150	
2,3,4,4',5-PeCB	114	50	70-130	40	60-140	50-150	
2,3',4,4',5-PeCB	118	50	70-130	40	60-140	50-150	
2',3,4,4',5-PeCB	123	50	70-130	40	60-140	50-150	
3,3',4,4',5-PeCB	126	50	70-130	40	60-140	50-150	
2,2',4,4',6,6'-HxCB	155	50	70-130	40	60-140	50-150	
2,3,3',4,4',5-HxCB ³	156	50	70-130	40	60-140	50-150	
2,3,3',4,4',5'-HxCB ³	157	50	70-130	40	60-140	50-150	
2,3',4,4',5,5'-HxCB	167	50	70-130	40	60-140	50-150	
3,3',4,4',5,5'-HxCB	169	50	70-130	40	60-140	50-150	
2,2',3,4',5,6,6'-HpCB	188	50	70-130	40	60-140	50-150	
2,3,3',4,4',5,5'-HpCB	189	50	70-130	40	60-140	50-150	
2,2',3,3',5,5',6,6'-OcCB	202	50	70-130	40	60-140	50-150	
2,3,3',4,4',5,5',6-OcCB	205	50	70-130	40	60-140	50-150	
2,2',3,3',4,4',5,5',6-NoCB	206	50	70-130	40	60-140	50-150	
2,2',3,3',4,5,5',6,6'-NoCB	208	50	70-130	40	60-140	50-150	
DeCB	209	50	70-130	40	60-140	50-150	
13C12-2-MoCB	1L	100	50-150	50	35-135	30-140	25-150
13C12-4-MoCB	3L	100	50-150	50	35-135	30-140	25-150
13C12-2,2'-DiCB	4L	100	50-150	50	35-135	30-140	25-150
13C12-4,4'-DiCB	15L	100	50-150	50	35-135	30-140	25-150
13C12-2,2',6-TrCB	19L	100	50-150	50	35-135	30-140	25-150
13C12-3,4,4'-TrCB	37L	100	50-150	50	35-135	30-140	25-150
13C12-2,2',6,6'-TeCB	54L	100	50-150	50	35-135	30-140	25-150
13C12-3,3',4,4'-TCB	77L	100	50-150	50	35-135	30-140	25-150
13C12-3,4,4',5-TeCB	81L	100	50-150	50	35-135	30-140	25-150
13C12-2,2',4,6,6'-PeCB	104L	100	50-150	50	35-135	30-140	25-150
13C12-2,3,3',4,4'-PeCB	105L	100	50-150	50	35-135	30-140	25-150
13C12-2,3,4,4',5-PeCB	114L	100	50-150	50	35-135	30-140	25-150
13C12-2,3',4,4',5-PeCB	118L	100	50-150	50	35-135	30-140	25-150
13C12-2',3,4,4',5-PeCB	123L	100	50-150	50	35-135	30-140	25-150
13C12-3,3',4,4',5-PeCB	126L	100	50-150	50	35-135	30-140	25-150
13C12-2,2',4,4',6,6'-HxCB	155L	100	50-150	50	35-135	30-140	25-150
13C12-2,3,3',4,4',5-HxCB ³	156L	100	50-150	50	35-135	30-140	25-150
13C12-2,3,3',4,4',5'-HxCB ³	157L	100	50-150	50	35-135	30-140	25-150
13C12-2,3',4,4',5,5'-HxCB	167L	100	50-150	50	35-135	30-140	25-150
13C12-3,3',4,4',5,5'-HxCB	169L	100	50-150	50	35-135	30-140	25-150
13C12-2,2',3,4',5,6,6'-HpCB	188L	100	50-150	50	35-135	30-140	25-150
13C12-2',3,3',4,4',5,5'-HpCB	189L	100	50-150	50	35-135	30-140	25-150
13C12-2,2',3,3',5,5',6,6'-OcCB	202L	100	50-150	50	35-135	30-140	25-150
13C12-2,3,3',4,4',5,5',6-OcCB	205L	100	50-150	50	35-135	30-140	25-150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	100	50-150	50	35-135	30-140	25-150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	100	50-150	50	35-135	30-140	25-150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	100	50-150	50	35-135	30-140	25-150
Cleanup standard							
13C12-2,4,4'-TrCB	28L	100	60-130	45	45-120	40-125	30-135
13C12-2,3,3',5,5'-PeCB	111L	100	60-130	45	45-120	40-125	30-135
13C12-2,2',3,3',5,5',6-HpCB	178L	100	60-130	45	45-120	40-125	30-135

1. QC acceptance criteria for IPR, OPR, and samples based on a 20 ul extract final volume

2. Suffix "L" indicates labelled compound.

3. PCBs 156 and 157 are tested as the sum of two concentrations

Method Control Limits for 1668C

The initial and continuing calibration control limits for both methods are presented in Table 2 below. For the initial calibration CS1 and for each calibration verification CS3, the signal to noise ratio for each quantification ion for labelled and non-labelled analytes must be greater than or equal to 10:1

Table 2A. QC acceptance criteria for chlorinated biphenyls in VER, IPR, OPR, and samples ¹

Congener	IUPAC Number ²	Test conc (ng/mL)	VER (%)	IPR		OPR (%)	Labelled compound recovery in samples (%)
				RSD (%)	X (%)		
2-MoCB	1	50	75 - 125	25	70 - 130	60 - 135	
4-MoCB	3	50	75 - 125	25	70 - 130	60 - 135	
2,2'-DiCB	4	50	75 - 125	25	70 - 130	60 - 135	
4,4'-DiCB	15	50	75 - 125	25	70 - 130	60 - 135	
2,2'-TrCB	19	50	75 - 125	25	70 - 130	60 - 135	
3,4,4'-TrCB	37	50	75 - 125	25	70 - 130	60 - 135	
2,2',6,6'-TeCB	54	50	75 - 125	25	70 - 130	60 - 135	
3,3',4,4'-TeCB	77	50	75 - 125	25	70 - 130	60 - 135	
3,4,4',5-TeCB	81	50	75 - 125	25	70 - 130	60 - 135	
2,2',4,6,6'-PeCB	104	50	75 - 125	25	70 - 130	60 - 135	
2,3,3',4,4'-PeCB	105	50	75 - 125	25	70 - 130	60 - 135	
2,3,4,4',5-PeCB	114	50	75 - 125	25	70 - 130	60 - 135	
2,3',4,4',5-PeCB	118	50	75 - 125	25	70 - 130	60 - 135	
2',3,4,4',5-PeCB	123	50	75 - 125	25	70 - 130	60 - 135	
3,3',4,4',5-PeCB	126	50	75 - 125	25	70 - 130	60 - 135	
2,2',4,4',6,6'-HxCB	155	50	75 - 125	25	70 - 130	60 - 135	
2,3,3',4,4',5-HxCB ³	156	50	75 - 125	25	70 - 130	60 - 135	
2,3,3',4,4',5'-HxCB ³	157	50	75 - 125	25	70 - 130	60 - 135	
2,3',4,4',5,5'-HxCB	167	50	75 - 125	25	70 - 130	60 - 135	
3,3',4,4',5,5'-HxCB	169	50	75 - 125	25	70 - 130	60 - 135	
2,2',3,4',5,6,6'-HpCB	188	50	75 - 125	25	70 - 130	60 - 135	
2,3,3',4,4',5,5'-HpCB	189	50	75 - 125	25	70 - 130	60 - 135	
2,2',3,3',5,5',6,6'-OcCB	202	50	75 - 125	25	70 - 130	60 - 135	
2,3,3',4,4',5,5',6-OcCB	205	50	75 - 125	25	70 - 130	60 - 135	
2,2',3,3',4,4',5,5',6-NoCB	206	50	75 - 125	25	70 - 130	60 - 135	
2,2',3,3',4,5,5',6,6'-NoCB	208	50	75 - 125	25	70 - 130	60 - 135	
DeCB	209	50	75 - 125	25	70 - 130	60 - 135	
13C12-2-MoCB	1L	100	50 - 145	70	20 - 135	5 - 145	5 - 145
13C12-4-MoCB	3L	100	50 - 145	70	20 - 135	5 - 145	5 - 145
13C12-2,2'-DiCB	4L	100	50 - 145	70	20 - 135	5 - 145	5 - 145
13C12-4,4'-DiCB	15L	100	50 - 145	70	20 - 135	5 - 145	5 - 145
13C12-2,2',6-TrCB	19L	100	50 - 145	70	20 - 135	5 - 145	5 - 145
13C12-3,4,4'-TrCB	37L	100	50 - 145	70	20 - 135	5 - 145	5 - 145
13C12-2,2',6,6'-TeCB	54L	100	50 - 145	70	20 - 135	5 - 145	5 - 145
13C12-3,3',4,4'-TeCB	77L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-3,4,4',5-TeCB	81L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2,2',4,6,6'-PeCB	104L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2,3,3',4,4'-PeCB	105L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2,3,4,4',5-PeCB	114L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2,3',4,4',5-PeCB	118L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2',3,4,4',5-PeCB	123L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-3,3',4,4',5-PeCB	126L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2,2',4,4',6,6'-HxCB	155L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2,3,3',4,4',5-HxCB ³	156L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2,3,3',4,4',5'-HxCB ³	157L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2,3',4,4',5,5'-HxCB	167L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-3,3',4,4',5,5'-HxCB	169L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2,2',3,4',5,6,6'-HpCB	188L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2',3,3',4,4',5,5'-HpCB	189L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2,2',3,3',5,5',6,6'-OcCB	202L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2,3,3',4,4',5,5',6-OcCB	205L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	100	50 - 145	50	45 - 135	10 - 145	10 - 145
Cleanup standards							
13C12-2,4,4'-TrCB	28L	100	65 - 135	70	20 - 135	5 - 145	5 - 145
13C12-2,3,3',5,5'-PeCB	111L	100	75 - 125	50	45 - 135	10 - 145	10 - 145
13C12-2,2',3,3',5,5',6-HpCB	178L	100	75 - 125	50	45 - 135	10 - 145	10 - 145

1. QC acceptance criteria for IPR, OPR, and samples based on a 20-µL extract final volume

2. Suffix "L" indicates labeled compound.

3. CBs 156/157 and 156L/157L are tested as the sum of the two congeners

Reporting Limits:

Unless indicated in the otherwise, the PCB results are reported down to 2.5:1 signal to noise for each isomer grouping for each extract injection. This is consistent to SW846 8290 defined protocols (i.e. EDL or Estimated Detection Limit) and is commonly applied throughout the industry to any or all the HRMS performance based methods applicable to this method summary.

Method Blank:

The Method Blank must be below the EMLs published in the required method, 1668A or 1668C.

MS/MSD:

The % relative difference between the MS and MSD spike recoveries should be less than or equal to 20%.

Instrument/Run Performance Criteria:

- 1 Elution windows must be defined by a 'Window Performance Mix' at the beginning of each 12-hour run sequence
- 2 GC performance criteria of 40% maximum valley between PCB-34/PCB-23, and PCB-187/PCB-182 (Octyl Column).
- 3 At the beginning of and just following the end of each 12 hour run sequence, the instrument must be checked to demonstrate a resolution of 10,000 within each quantification window (8,000 minimum across the window).
- 4 The relative retention times (RRT) of the compounds in the daily 209 congener mix must fall into the ranges presented in Table 4.
- 5 The RT in the daily CS3 verification standards must be within 15 seconds of the CS3 in the initial calibration run.
- 6 The maximum time between scans within a descriptor is 1 second.
- 7 Lock mass deviations to the average response must be less than or equal 20%.

Laboratory Duplicates:

The % relative difference between duplicates should be less than or equal to 25% but only where the response is greater than the low calibration standard.

Analyte Identification Criteria:

- 1 Ion ratio must be within 15% of theoretical or within 10% of the most recent CS3.
- 2 The retention time (RT) of the peak maxima for each pair of quantification ions must be no more than 2 seconds (i.e. 2 scans) difference.
- 3 The retention time (RT) of the peak maxima of all native analytes for which a labeled analogue is used must be within -1 to +3 seconds of the RT of corresponding ¹³C₁₂-labelled isomer of that injection run.
- 4 For those native analytes without a corresponding labelled isomer, the relative retention time (RRT) must be within 0.005 of the relative retention time observed in the daily 209 congener run.

DEVIATIONS AND CLARIFICATIONS FROM THE PRIMARY REFERENCES

The reference methods applicable to this document are:

US EPA Office of Water, Method 1668A
US EPA Office of Water, Method 1668C

These methods are referred-to herein as Method 1668

The following changes and clarifications apply:

1) As stated in method 1668, alternate columns and column systems are allowable changes to the method. In the context of the method, it is clear that Table 2 of this method (including retention times, relative retention times, and quantitation references) is specific to the Octyl GC column if used exactly as suggested in the method.

As a performance based method, changes in the internal standard references could be considered an improvement even when using the SPB-Octyl column. However when using an alternate column system (which may or may not include use of the Octyl column), optimization of the quantitation references can be an important part of optimizing the method. Consider that the MS acquisition method must be divided into mass descriptors or 'functions', each one defining the masses that are monitored during that time range. When monitoring for all 209 PCB congeners, there are large chromatographic regions where elution of target compounds is nearly continuous with little separation between peaks. In addition, there is a slight acquisition "gap" that occurs at each function change (for Water's instruments 1-2 seconds, for Thermo instruments 6-8 seconds), and also the likelihood of slight retention time shifts from one run to another. Consequently, choosing the exact location of each function boundary can be challenging. For a 1668 method, there are typically between 5 and 8 functions dependent upon the column, the GC conditions, the instrument and the choice of the function boundaries by the laboratory. Each function can have 1 to as many as 4 chlorination levels. When optimizing the quantification model in the case where RT and elution patterns have changed – even slightly - the best choice of internal standard references can and should change dependent upon target retention times and placement of function boundaries. For example, the best quantification is achieved using an internal standard reference that elutes at close to the same retention time. Another consideration is that it is best practice where possible (i.e. generally allows for more accurate target determinations) to have the internal standard reference within the same function rather than quantify a target relative to an internal standard from an outside function.

The quantification references used in this analysis are detailed in Table 3.

2) The absolute retention time criterion for decachlorobiphenyl of 55 minutes is not generally followed and is an unnecessary restriction since method 1668 was developed without the use of electronic pressure control on the GC injection system, and there are GC performance criteria that can be met without this restriction. As a result, the RRT criteria of 1668 may not be applicable.

3) Although not clearly stated in method 1668, we maintain that each and every individual clean-up procedure is, by definition, performance-based and optional. There is not an expectation within the industry to follow exactly the descriptions of clean-ups in reference methods. Adaptations which meet or exceed the required performance criteria are therefore acceptable within the scope of each reference method. The reference method descriptions are intended as guidelines or templates available to help the laboratory to define effective in-house clean-up methods. The objective within the laboratory is to provide quality clean extracts to the instrument for analysis. Each individual clean-up is part of the laboratory's available tools in order to achieve this objective.

4) There are differences within the individual reference methods as to the precise spiking protocols for adding extraction standards and native spikes (for LCS, MS and MSD). To ensure consistency within the laboratory between HRMS methods, the PCB preparative method requires solid samples (including stack and ambient sorbants/filters) to be spiked in the Soxhlet extractor from a nonane solution and waters are spiked before filtering from an acetone solution.

5) Sub-sampling of solids and pre-extraction processing is done in a manner that minimizes potential for cross-contamination. These processes are designed around SW846 protocols rather than 1668 protocols. Solids are sub-sampled directly from the bottle as submitted to the laboratory wherever practical. If the sample is submitted such that homogenization in the bottle is impractical (eg. the bottle is too full or lumps cannot be broken down), then transferring the sample to a tray or another bottle maybe in order.

6) The concentration of labelled and native spiking solutions are not consistent with those listed in all of the reference methods. These concentrations are prepared at levels convenient and expedient for accurate laboratory processing.

7) Extraction and injection standard concentrations differ from 1668, in order to aid precise measurement and standardise volumes with other reference methods such as PCDD/F by 1613B.

8) Method 1668C recognizes the option to use the 209 congener mix as the daily calibration verification solution rather than the CS3. This document acknowledges and allows either calibration option for both 1668A and 1668C analytical approaches.

9) For method 1668C analysis, the OPR labelled recovery limits are the same as for the sample recovery limits in method 1668C. This represents a broader acceptance range for the OPR than is currently listed in method 1668C. However, the control of the native (i.e. non-labelled) recovery limits is the key item to demonstrate/monitor in the OPR. Furthermore, in the OPR performance, it is important to demonstrate these native controls are maintained within the same range of labelled recoveries as is observed in the sample data.

Table 3: Quantitation References for Native and Labeled CBs

CI No. ¹	Congener No. ^{2,3}	RT Ref ⁴	Quantitation Reference ⁵
Native Compounds			
1	1	1L	1L
1	2	3L	1L/3L
1	3	3L	3L
2	4	4L	4L
2	10	4L	4L/15L
2	9	4L	4L/15L
2	7	4L	4L/15L
2	6	4L	4L/15L
2	5	4L	4L/15L
2	8	4L	4L/15L
2	14	15L	4L/15L
2	11	15L	4L/15L
2	13/12	15L	4L/15L
2	15	15L	15L
3	19	19L	19L
3	30/18	19L	19L/37L
3	17	19L	19L/37L
3	27	19L	19L/37L
3	24	19L	19L/37L
3	16	19L	19L/37L
3	32	19L	19L/37L
3	34	19L	19L/37L
3	23	19L	19L/37L
3	26/29	19L	19L/37L
3	25	37L	19L/37L
3	31	37L	19L/37L
3	28/20	37L	19L/37L
3	21/33	37L	19L/37L
3	22	37L	19L/37L
3	36	37L	19L/37L
3	39	37L	19L/37L
3	38	37L	19L/37L
3	35	37L	19L/37L
3	37	37L	37L
4	54	54L	54L
4	50/53	54L	54L/81L/77L
4	45/51	54L	54L/81L/77L
4	46	54L	54L/81L/77L
4	52	54L	54L/81L/77L
4	73	54L	54L/81L/77L
4	43	54L	54L/81L/77L
4	69/49	54L	54L/81L/77L
4	48	54L	54L/81L/77L
4	44/47/65	54L	54L/81L/77L
4	59/62/75	54L	54L/81L/77L
4	42	54L	54L/81L/77L
4	41/40/71	54L	54L/81L/77L
4	64	54L	54L/81L/77L
4	72	81L	54L/81L/77L
4	68	81L	54L/81L/77L

CI No. ¹	Congener No. ^{2,3}	RT Ref ⁴	Quantitation Reference ⁵
4	57	81L	54L/81L/77L
4	58	81L	54L/81L/77L
4	67	81L	54L/81L/77L
4	63	81L	54L/81L/77L
4	61/70/74/76	81L	54L/81L/77L
4	66	81L	54L/81L/77L
4	55	81L	54L/81L/77L
4	56	81L	54L/81L/77L
4	60	81L	54L/81L/77L
4	80	81L	54L/81L/77L
4	79	81L	54L/81L/77L
4	78	81L	54L/81L/77L
4	81	81L	81L
4	77	77L	77L
5	104	104L	104L
5	96	104L	104L/123L/114L/118L
5	103	104L	104L/123L/114L/118L
5	94	104L	104L/123L/114L/118L
5	95	104L	104L/123L/114L/118L
5	95/100/93/102/98	104L	104L/123L/114L/118L
5	88/91	104L	104L/123L/114L/118L
5	84	104L	104L/123L/114L/118L
5	89	104L	104L/123L/114L/118L
5	121	104L	104L/123L/114L/118L
5	92	123L	104L/123L/114L/118L
5	113/90/101	104L	104L/123L/114L/118L
5	83/99	104L	104L/123L/114L/118L
5	112	104L	104L/123L/114L/118L
5	108/119/86/97/125/87	104L	104L/123L/114L/118L
5	117/116/85/110/115	104L	104L/123L/114L/118L
5	82	104L	104L/123L/114L/118L
5	111	104L	104L/123L/114L/118L
5	120	104L	104L/123L/114L/118L
5	107/124	104L	104L/123L/114L/118L
5	109	104L	104L/123L/114L/118L
5	123	123L	123L
5	106	123L	104L/123L/114L/118L
5	118	118L	118L
5	122	118L	104L/123L/114L/118L
5	114	114L	114L
5	105	105L	105L
5	127	105L	104L/123L/114L/118L
5	126	126L	126L
6	155	155L	155L
6	152	155L	155L/156L/157L/167L
6	150	155L	155L/156L/157L/167L
6	136	155L	155L/156L/157L/167L
6	145	155L	155L/156L/157L/167L
6	148	155L	155L/156L/157L/167L
6	151/135	135L	155L/156L/157L/167L
6	154	155L	155L/156L/157L/167L
6	144	155L	155L/156L/157L/167L
6	147/149	155L	155L/156L/157L/167L
6	134/143	155L	155L/156L/157L/167L

CI No. ¹	Congener No. ^{2,3}	RT Ref ⁴	Quantitation Reference ⁵
6	139/140	155L	155L/156L/157L/167L
6	131	155L	155L/156L/157L/167L
6	142	155L	155L/156L/157L/167L
6	132	155L	155L/156L/157L/167L
6	133	155L	155L/156L/157L/167L
6	165	167L	155L/156L/157L/167L
6	146	167L	155L/156L/157L/167L
6	161	167L	155L/156L/157L/167L
6	153/168	167L	155L/156L/157L/167L
6	141	167L	155L/156L/157L/167L
6	130	167L	155L/156L/157L/167L
6	137/164	167L	155L/156L/157L/167L
6	138/163/129	167L	155L/156L/157L/167L
6	160	167L	155L/156L/157L/167L
6	158	167L	155L/156L/157L/167L
6	128/166	167L	155L/156L/157L/167L
6	159	167L	155L/156L/157L/167L
6	162	167L	155L/156L/157L/167L
6	167	167L	155L/156L/157L/167L
6	156/157	156L/157L	156L/157L
6	169	169L	169L
7	188	188L	188L
7	179	188L	188L/189L
7	184	188L	188L/189L
7	176	188L	188L/189L
7	186	188L	188L/189L
7	178	188L	188L/189L
7	175	188L	188L/189L
7	187	188L	188L/189L
7	182	188L	188L/189L
7	183	188L	188L/189L
7	185	188L	188L/189L
7	174	188L	188L/189L
7	177	188L	188L/189L
7	181	188L	188L/189L
7	171/173	188L	188L/189L
7	172	189L	188L/189L
7	192	189L	188L/189L
7	180/193	189L	188L/189L
7	191	189L	188L/189L
7	170	189L	188L/189L
7	190	189L	188L/189L
7	189	189L	189L
8	202	202L	202L
8	201	202L	202L/205L
8	204	202L	202L/205L
8	197	202L	202L/205L
8	200	202L	202L/205L
8	198/199	202L	202L/205L
8	196	205L	202L/205L
8	203	205L	202L/205L
8	195	205L	202L/205L
8	194	205L	202L/205L
8	205	205L	205L
9	208	208L	208L
9	207	208L	208L/206L
9	206	206L	206L
10	209	209L	209L

Cl No. ¹	Congener No. ^{2,3}	RT Ref ⁴	Quantitation Reference ⁵
Labelled Extraction Standards			
1	1L	9L	9L
1	3L	9L	9L
2	4L	9L	9L
2	15L	9L	9L
3	19L	9L	9L
3	37L	52L	52L
4	54L	52L	52L
4	81L	101L	101L
4	77L	101L	101L
5	104L	101L	101L
5	123L	101L	101L
5	118L	101L	101L
5	114L	101L	101L
5	105L	101L	101L
5	126L	101L	101L
6	155L	101L	101L
6	167L	138L	138L
6	156L/157L	157L	138L
6	169L	138L	138L
7	188L	138L	138L
7	189L	138L	138L
8	202L	138L	138L
8	205L	194L	194L
9	208L	194L	194L
9	206L	194L	194L
10	209L	194L	194L
Labelled clean-up standards			
3	28L	52L	52L
5	111L	101L	101L
7	178L	138L	138L
Labelled injection internal standards			
2	9L	138L	138L
4	52L	138L	138L
5	101L	138L	138L
6	138L	138L	
8	194L	138L	138L

1. Number of chlorines on congener.

2. Suffix "L" indicates labelled compound.

3. Multiple congeners in a box indicates a group of congeners that co-elute or may not be adequately resolved on a 30-m SPB-Octyl column. Congeners included in the group are listed as the last entry in the box.

4. Retention time reference that is used to locate target congener.

5. Labelled congeners that form the quantitation reference. Areas from the exact m/z's of the congeners listed in the quantitation

Table 5: HRMS Instrumental Descriptor Parameters

Function and chlorine level	m/z	m/z type	m/z formula	Substance
Fn-1; Cl-1	180.9888	QC	C4F7	PFK
	188.0393	M	12C12 H9 35Cl	Cl-1 CB
	190.0363	M+2	12C12 H9 37Cl	Cl-1 CB
	200.0795	M	13C12 H9 35Cl	13C12 Cl-1 CB
	202.0766	M+2	13C12 H9 37Cl	13C12 Cl-1 CB
	204.9983	QC	C6F7	PFK
	218.9856	lock	C4 F9	PFK
230.9850	QC	C5F9	PFK	
Fn-2; Cl-2,3	204.9883	QC	C6F7	PFK
	218.9856	QC	C4F9	PFK
	222.0003	M	12C12 H8 35Cl2	Cl-2 PCB
	223.9974	M+2	12C12 H8 35Cl 37Cl	Cl-2 PCB
	225.9944	M+4	12C12 H8 37Cl2	Cl-2 PCB
	234.0406	M	13C12 H8 35Cl2	13C12 Cl-2 PCB
	236.0376	M+2	13C12 H8 35Cl 37 Cl	13C12 Cl-2 PCB
	242.9856	lock	C6 F9	PFK
	255.9613	M	12C12 H7 35Cl3	Cl-3 PCB
	257.9584	M+2	12C12 H7 35Cl2 37Cl	Cl-3 PCB
	268.0016	M	13C12 H7 35Cl3	13C12 Cl-3 PCB
269.9986	M+2	13C12 H7 35Cl2 37Cl 13C12	13C12 Cl-3 PCB	
Fn-3 Cl-3,4,5	255.9613	M	12C12 H7 35Cl3	Cl-3 PCB
	257.9584	M+2	12C12 H7 35Cl2 37Cl	Cl-3 PCB
	268.0016	M	13C12 H7 35Cl3	13C12 Cl-3 PCB
	269.9986	M+2	13C12 H7 35Cl2 37Cl 13C12	13C12 Cl-3 PCB
	280.9825	lock	C6 F11	PFK
	289.9224	M	12C12 H6 35Cl4	Cl-4 PCB
	291.9194	M+2	12C12 H6 35Cl3 37Cl	Cl-4 PCB
	301.9626	M	13C12 H6 35Cl4	13C12 Cl-4 PCB
	303.9597	M+2	13C12 H6 35Cl3 37Cl	13C12 Cl-4 PCB
	323.8834	M	12C12 H5 35Cl5	Cl-5 PCB
	325.8804	M+2 1	2C12 H5 35Cl4 37Cl	Cl-5 PCB
	327.8775	M+4	12C12 H5 35Cl3 37Cl2	Cl-5 PCB
	337.9207	M+2	13C12 H5 35Cl4 37Cl	13C12 Cl-5 PCB
	339.9178	M+4	13C12 H5 35Cl3 37Cl2	13C12 Cl-5 PCB
Fn-4 Cl-4,5,6	280.9824		C6 F11	PFK
	289.9224	M	12C12 H6 35Cl4	Cl-4 PCB
	291.9194	M+2	12C12 H6 35Cl3 37Cl	Cl-4 PCB
	293.9165	M+4	12C12 H6 35Cl2 37Cl2	Cl-4 PCB
	301.9626	M+2	13C12 H6 35Cl3 37Cl	13C12 Cl-4 PCB
	303.9597	M+4	13C12 H6 35Cl2	13C12 Cl-4 PCB
	323.8834	M	12C12 H5 35Cl5	Cl-5 PCB
	325.8804	M+2	12C12 H5 35Cl4 37Cl	Cl-5 PCB
	327.8775	M+4	12C12 H5 35Cl3 37Cl2	Cl-5 PCB
	330.9792	lock	C7 F15	PFK
	337.9207	M+2	13C12 H5 35Cl4 37Cl 13C12	Cl-5 PCB
	339.9178	M+4	13C12 H5 35Cl3 37Cl2	13C12 Cl-5 PCB
	359.8415	M+2	13C12 H4 35Cl5 37Cl	Cl-6 PCB
	361.8385	M+4	13C12 H4 35Cl4 37Cl2	Cl-6 PCB
	363.8356	M+6	13C12 H4 35Cl3 37Cl2	Cl-6 PCB
	371.8817	M+2	13C12 H4 35Cl5 37Cl	13C12 Cl-6 PCB
373.8788	M+4	13C12 H4 35Cl4 37Cl2	13C12 Cl-6 PCB	

Function and chlorine level	m/z	m/z type	m/z formula	Substance
Fn-5 Cl-5,6,7	323.8834	M	12C12 H5 35Cl5	Cl-5 PCB
	325.8804	M+2	12C12 H5 35Cl4 37Cl	Cl-5 PCB
	327.8775	M+4	12C12 H5 35Cl3 37Cl2	Cl-5 PCB
	337.9207	M+2	13C12 H5 35Cl4 37Cl	13C12 Cl-5 PCB
	339.9178	M+4	13C12 H5 35Cl3 37Cl2	13C12 Cl-5 PCB
	354.9792	lock	C9 F13	PFK
	359.8415	M+2	12C12 H4 35Cl5 37Cl	Cl-6 PCB
	361.8385	M+4	12C12 H4 35Cl4 37Cl2	Cl-6 PCB
	363.8356	M+6	12C12 H4 35Cl3 37Cl3	Cl-6 PCB
	371.8817	M+2	13C12 H4 35Cl5 37Cl	13C12 Cl-6 PCB
	373.8788	M+4	13C12 H4 35Cl4 37Cl2	13C12 Cl-6 PCB
	393.8025	M+2	12C12 H3 35Cl6 37Cl	Cl-7 PCB
	395.7995	M+4	12C12 H3 35Cl5 37Cl2	Cl-7 PCB
	397.7966	M+6	12C12 H3 35Cl4 37Cl3	Cl-7 PCB
	405.8428	M+2	13C12 H3 35Cl6 37Cl	13C12 Cl-7 PCB
	407.8398	M+4	13C12 H3 35Cl5 37Cl2	13C12 Cl-7 PCB
	427.7635	M+2	12C12 H2 35Cl7 37Cl	Cl-8 PCB
	429.7606	M+4	12C12 H2 35Cl6 37Cl2	Cl-8 PCB
	431.7576	M+6	12C12 H2 35Cl5 37Cl3	Cl-8 PCB
	439.8038	M+2	13C12 H2 35Cl7 37Cl	13C12 Cl-8 PCB
441.8008	M+4	13C12 H2 35Cl6 37Cl2	13C12 Cl-8 PCB	
Fn-6 Cl-7,8,9,10	393.8025	M+2	12C12 H3 35Cl6 37Cl	Cl-7 PCB
	395.7995	M+4	12C12 H3 35Cl5 37Cl2	Cl-7 PCB
	397.7966	M+6	12C12 H3 35Cl4 37Cl3	Cl-7 PCB
	405.8428	M+2	13C12 H3 35Cl6 37Cl 13C12	Cl-7 PCB
	407.8398	M+4	13C12 H3 35Cl5 37Cl2	13C12 Cl-7 PCB
	427.7635	M+2	12C12 H2 35Cl7 37Cl	Cl-8 PCB
	429.7606	M+4	12C12 H2 35Cl6 37Cl2	Cl-8 PCB
	431.7576	M+6	12C12 H2 35Cl5 37Cl3	Cl-8 PCB
	439.8038	M+2	13C12 H2 35Cl7 37Cl	13C12 Cl-8 PCB
	441.8008	M+4	13C12 H2 35Cl6 37Cl2	13C12 Cl-8 PCB
	442.9728	QC	C10 F13	PFK
	454.9728	lock	C11 F13	PFK
	461.7246	M+2	12C12 H1 35Cl8 37Cl	Cl-9 PCB
	463.7216	M+4	12C12 H1 35Cl7 37Cl2	Cl-9 PCB
	465.7187	M+6	12C12 H1 35Cl6 37Cl3	Cl-9 PCB
	473.7648	M+2	13C12 H1 35Cl8 37Cl	13C12 Cl-9 PCB
475.7619	M+4	13C12 H1 35Cl7 37Cl2	13C12 Cl-9 PCB	
495.6856	M+2	13C12 H4 35Cl9 37Cl	Cl-10 PCB	
Fn-7	497.6826	M+4	12C12 35Cl8 37Cl2	Cl-10 PCB
	499.6797	M+6	12C12 35Cl7 37Cl3	Cl-10 PCB
	509.7229	M+4	13C12 H4 35Cl8 37Cl2	13C12 Cl-10 PCB
	511.7199	M+6	13C12 H4 35Cl8 37Cl4	13C12 Cl-10 PCB
	516.9697	lock	C13F19	PFK

Data Calculations:

a) Analyte Concentrations:

The relative response factor of each target relative to the standard against which it is to be calculated is determined using the area responses of both quantification ions via equation 9.1.

In cases where a native target is calculated against an exact labelled analogue, the quantification will be considered to be by isotope dilution. In other cases, the quantification will be considered to be by internal standard.

$$\text{RRF} = \frac{(A1_t + A2_t) C_s}{(A1_s + A2_s) C_t} \quad \text{Equ. 9.1}$$

Where,

$A1_t + A2_t$ = The areas of the two quantification ions for the target analyte

$A1_s + A2_s$ = The areas of the two quantification ions for the labelled compound against which the target analyte will be calculated.

C_t = The concentration in the calibration standard of the target analyte.

C_s = The concentration in the calibration standard of the labelled compound against which the target will be calculated.

For all analytes to be quantified and from the initial calibration series of standard injections, a table of RRFs is prepared. The relative standard deviation (%RSD, or the coefficient of variance) is checked to confirm that the appropriate method criteria has been met as listed in Table 3. The average of the five or six levels of standard for each analyte, RRF_{av} is applied for quantification of samples according to Equations 9.2 and 9.3 below.

$$\text{Amount in sample (pg)} = \frac{(A1_n + A2_n) Q_i}{(A1_i + A2_i) (\text{RRF}_{av})} \quad \text{Equ. 9.2}$$

$$\text{Concentration in sample (pg/g or pg/l)} = \frac{(A1_n + A2_n) Q_i}{(A1_i + A2_i) (\text{RRF}_{av}) (W_s)} \quad \text{Equ. 9.3}$$

Where,

Q_i = The amount (pg) of labelled compound added to the sample

W_s = The weight (g) or volume (l) of sample

b) Extraction, Clean-up, and Sampling Standard Recovery Calculation:

The extraction, clean-up, and sampling standard recoveries are determined by Equation 9.4 below.

$$\% \text{ Recovery} = (\text{Amount in sample}) / (\text{Amount added to sample}) \times 100 \quad \text{Equ. 9.4}$$

c) Estimated Detection Limit

$$\text{EDL} = \frac{2.5 \times H_x \times Q_{es}}{H_{es} \times W \times \text{RRF}_{av}} \quad \text{Equ. 9.5}$$

Where,

EDL = estimated detection limit for homologous PCB

H_x = sum of the height of the noise level for each quantification ions for the unlabelled PCB.

H_{es} = Sum of the heights of responses of both quantification ions for the labelled extraction standard.

W = weight of volume of sample

RRF_{av} = average relative response factor

Q_{es} = Amount of extraction standard added

Chromatogram Annotation Codes

All manually integrated peaks are expanded and reprinted with the following annotations:

* Analyst Initials AA
 * Date YYMMDD
 * integration code CC

The Syntax is: Example:
 AAYYMMDDCC SK111220MB

Code	Mnemonic	Description
MB	Manual Baseline	The peak was manually integrated because the initial baseline was determined incorrectly by the software
MS	Manual Split	The peak was manually integrated because the peak was incorrectly or not split by the software
MJ/MC	Manual Join/Manual Combine	The peak was manually integrated because the peak was split by the software and the peak should be integrated as a single peak
MA	Manual Add	The peak was manually integrated because the signal:noise ratio was judged to be >2.5
MD	Manual Delete	The peak was excluded because the signal:noise ratio was judged to be <2.5
MX	Manual Exclude	The peak was excluded due to an interference
NH	Noise Height	The noise height for Estimated Detection Limit calculation was chosen by the analyst (automated noise height not appropriate)
MT	Manual Time	The peak retention time was manually chosen

The following explanatory annotation codes may appear on the chromatograms of peaks that have been reviewed:

Code	Mnemonic	Description
+	Detected Peak	A peak was detected at this mass and retention time that was above 2.5:1 signal to noise
<	Below Detection Limit	The signal at this mass and retention time was below 2.5:1 signal to noise
EMPC	Estimated Maximum Possible Concentration	The signal at this mass and retention time is an interference such that the target compound could not be confirmed
X-RT	Not Detected due to Retention Time non-conformance	The signal at this retention time could not be used to positively identify the target compound because of retention time non-conformance (apex of quantification and confirmation ions do not maximize within the same two seconds, or the retention time of the peak does not fall within the expected range with respect to its labeled analogue)
X-LOC	Not Detected due to interference from a higher level of chlorination	The signal at this retention time is attributable to a fragment from a co-eluting compound at a higher level of chlorination, and cannot be used to positively identify the target. The result is expressed as an Estimated Maximum Possible Concentration (EMPC)
X-DPE	Not Detected due to diphenyl ether interference	The signal at this retention time is attributable to interference from a chlorinated diphenyl ether, and cannot be used to positively identify the target. The result is expressed as an Estimated Maximum Possible Concentration (EMPC)
X-IF	Not Detected due to interference	The signal at this retention time is attributable to a co-eluting interference, and cannot be used to positively identify the target. The result is expressed as an Estimated Maximum Possible Concentration (EMPC)

SVOC DATA PACKAGE

SECTION 4: CALIBRATION DATA

Including:

for Multi-Point Calibration(s)

- Multi-Point Calibration Tables
- Individual Quantitation Reports

for Continuing Calibration(s)

- Individual Quantitation Reports

ALS Life Sciences

Calibration Summary Report

Calibration Level Filename Run Date

CS-1 5-201202A03 02-Dec-2020 11:14
 CS-2 5-201202A02 02-Dec-2020 10:34
 CS-3 5-201202A01 02-Dec-2020 09:37
 CS-4 5-201202A07 02-Dec-2020 12:39
 CS-5 5-201202A08 02-Dec-2020 13:21

Approved: S. Jin
 --e-signature--
 12-Jan-2021

Target Analytes	Relative Response Factors					Mean	% RSD
	CS-1	CS-2	CS-3	CS-4	CS-5		
PCB-001	1.081	1.118	1.192	1.206	1.122	1.144	5%
PCB-003	1.143	1.149	1.201	1.234	1.251	1.196	4%
PCB-004	0.842	0.905	0.893	0.897	0.916	0.891	3%
PCB-015	0.977	1.048	1.108	1.166	1.187	1.097	8%
PCB-019	1.050	1.149	1.197	1.208	1.211	1.163	6%
PCB-037	1.042	1.037	1.139	1.158	1.193	1.114	6%
PCB-054	1.002	1.031	1.085	1.106	1.115	1.068	5%
PCB-081	1.079	1.132	1.262	1.280	1.306	1.212	8%
PCB-077	1.012	1.066	1.229	1.239	1.261	1.161	10%
PCB-104	1.053	1.109	1.176	1.197	1.230	1.153	6%
PCB-123	0.979	1.055	1.145	1.148	1.182	1.102	8%
PCB-118	1.075	1.084	1.208	1.237	1.251	1.171	7%
PCB-114	1.176	1.173	1.254	1.281	1.265	1.230	4%
PCB-105	1.089	1.151	1.229	1.255	1.302	1.205	7%
PCB-126	1.058	1.115	1.258	1.283	1.345	1.212	10%
PCB-155	1.006	1.006	1.057	1.089	1.130	1.058	5%
PCB-167	0.985	1.057	1.147	1.163	1.166	1.104	7%
PCB-156/157	1.038	1.084	1.179	1.199	1.209	1.142	7%
PCB-169	0.915	1.054	1.145	1.167	1.176	1.091	10%
PCB-188	0.830	0.874	0.984	1.010	1.019	0.943	9%
PCB-189	0.925	0.957	1.032	1.056	1.075	1.009	6%
PCB-202	1.020	1.050	1.078	1.115	1.125	1.078	4%
PCB-205	0.875	0.843	0.939	0.958	0.962	0.915	6%
PCB-208	1.170	1.154	1.251	1.269	1.262	1.221	4%
PCB-206	1.173	1.174	1.212	1.240	1.253	1.210	3%
PCB-209	1.169	0.976	0.968	0.970	0.978	1.012	9%
Extraction Standards							
13C12-PCB-001	0.981	1.007	0.979	1.074	1.335	1.075	14%
13C12-PCB-003	0.893	0.889	0.882	0.937	1.178	0.956	13%
13C12-PCB-004	0.631	0.632	0.635	0.659	0.806	0.673	11%
13C12-PCB-015	0.736	0.782	0.771	0.833	1.076	0.840	16%
13C12-PCB-019	0.456	0.476	0.480	0.494	0.610	0.503	12%
13C12-PCB-037	1.311	1.289	1.277	1.467	1.908	1.450	18%
13C12-PCB-054	1.533	1.598	1.595	1.691	2.114	1.706	14%
13C12-PCB-081	1.437	1.430	1.433	1.530	1.916	1.549	14%
13C12-PCB-077	1.472	1.453	1.455	1.558	1.941	1.576	13%
13C12-PCB-104	1.797	1.815	1.904	1.928	2.271	1.943	10%
13C12-PCB-123	1.263	1.247	1.259	1.323	1.691	1.357	14%
13C12-PCB-118	1.322	1.314	1.329	1.382	1.773	1.424	14%
13C12-PCB-114	1.188	1.190	1.199	1.247	1.667	1.298	16%
13C12-PCB-105	1.193	1.201	1.219	1.254	1.557	1.285	12%
13C12-PCB-126	1.067	1.079	1.058	1.129	1.494	1.165	16%
13C12-PCB-155	1.684	1.727	1.753	1.813	2.252	1.846	13%
13C12-PCB-167	1.195	1.173	1.177	1.243	1.550	1.268	13%
13C12-PCB-156/157	1.122	1.105	1.118	1.197	1.570	1.222	16%
13C12-PCB-169	1.114	1.070	1.053	1.099	1.405	1.148	13%
13C12-PCB-188	1.386	1.361	1.397	1.461	1.833	1.488	13%
13C12-PCB-189	1.127	1.121	1.066	1.112	1.382	1.162	11%
13C12-PCB-202	1.064	1.051	1.098	1.118	1.418	1.150	13%
13C12-PCB-205	1.417	1.429	1.421	1.482	1.695	1.489	8%
13C12-PCB-208	1.127	1.118	1.136	1.162	1.393	1.187	10%
13C12-PCB-206	0.797	0.799	0.793	0.825	0.944	0.832	8%
13C12-PCB-209	1.292	1.272	1.267	1.319	1.486	1.327	7%
Field Spike Standards							
13C12-PCB-031	1.316	1.365	1.317	1.259	1.028	1.257	11%
13C12-PCB-095	0.689	0.692	0.676	0.645	0.493	0.639	13%
13C12-PCB-153	0.911	0.915	0.911	0.855	0.682	0.855	12%
Cleanup Standards							
13C12-PCB-028	1.735	1.765	1.711	1.778	1.829	1.764	3%
13C12-PCB-111	1.122	1.138	1.140	1.124	1.164	1.138	1%
13C12-PCB-178	0.833	0.841	0.843	0.830	0.834	0.836	1%

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Calibration Report

ALS Sample ID **H5-20-CS1-1035**
 Analysis Method EPA 1668C
 Analysis Type Calibration

Filename 5-2012020A03 Inst # HRMS-5 Column SPB0ctyl 256001-01 Run Date 02-Dec-2020 11:14

Approved: *S. Jin*
 --e-signature--
 12-Jan-2021

Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	8.95	3.27	1.00	2.29E+04	1.081
PCB-003	10.48	3.32	1.00	2.21E+04	1.143
PCB-004	10.63	1.71	1.00	1.15E+04	0.842
PCB-015	14.32	1.50	1.00	1.55E+04	0.977
PCB-019	12.62	1.06	1.00	1.04E+04	1.050
PCB-037	18.24	1.15	1.00	1.14E+04	1.042
PCB-054	14.46	0.81	1.00	1.28E+04	1.002
PCB-081	21.81	0.83	1.00	8.50E+03	1.079
PCB-077	22.11	0.71	1.00	8.17E+03	1.012
PCB-104	17.5	1.49	1.00	1.04E+04	1.053
PCB-123	23.08	1.78	1.00	6.78E+03	0.979
PCB-118	23.25	1.46	1.00	7.79E+03	1.075
PCB-114	23.55	1.49	1.00	7.67E+03	1.176
PCB-105	23.91	1.53	1.00	7.13E+03	1.089
PCB-126	25.51	1.64	1.00	6.19E+03	1.058
PCB-155	20.48	1.24	1.00	9.29E+03	1.006
PCB-167	26.38	1.20	1.00	6.07E+03	0.985
PCB-156/157	27.02	1.17	2.00	1.20E+04	1.038
PCB-169	28.69	1.19	1.00	5.26E+03	0.915
PCB-188	23.48	1.01	1.00	5.94E+03	0.830
PCB-189	29.95	1.13	1.00	5.38E+03	0.925
PCB-202	26.26	0.86	1.00	5.60E+03	1.020
PCB-205	31.33	0.86	1.00	4.37E+03	0.875
PCB-208	29.67	0.87	1.00	4.64E+03	1.170
PCB-206	32.37	0.70	1.00	3.29E+03	1.173
PCB-209	33.5	1.21	1.00	5.32E+03	1.169
Extraction Standards					
13C12-PCB-001	8.95	3.01	100.00	2.12E+06	0.981
13C12-PCB-003	10.47	3.05	100.00	1.93E+06	0.893
13C12-PCB-004	10.62	1.59	100.00	1.37E+06	0.631
13C12-PCB-015	14.3	1.63	100.00	1.59E+06	0.736
13C12-PCB-019	12.61	1.03	100.00	9.86E+05	0.456
13C12-PCB-037	18.24	1.06	100.00	1.10E+06	1.311
13C12-PCB-054	14.45	0.78	100.00	1.28E+06	1.533
13C12-PCB-081	21.8	0.80	100.00	7.88E+05	1.437
13C12-PCB-077	22.1	0.81	100.00	8.07E+05	1.472
13C12-PCB-104	17.49	1.57	100.00	9.86E+05	1.797
13C12-PCB-123	23.07	1.58	100.00	6.93E+05	1.263
13C12-PCB-118	23.24	1.65	100.00	7.25E+05	1.322
13C12-PCB-114	23.54	1.67	100.00	6.52E+05	1.188
13C12-PCB-105	23.9	1.66	100.00	6.54E+05	1.193
13C12-PCB-126	25.5	1.65	100.00	5.85E+05	1.067
13C12-PCB-155	20.48	1.24	100.00	9.24E+05	1.684
13C12-PCB-167	26.37	1.29	100.00	6.16E+05	1.195
13C12-PCB-156/157	27.01	1.31	200.00	1.16E+06	1.122
13C12-PCB-169	28.67	1.30	100.00	5.75E+05	1.114
13C12-PCB-188	23.47	1.04	100.00	7.15E+05	1.386
13C12-PCB-189	29.92	1.07	100.00	5.82E+05	1.127
13C12-PCB-202	26.23	0.89	100.00	5.49E+05	1.064
13C12-PCB-205	31.3	0.89	100.00	4.99E+05	1.417
13C12-PCB-208	29.65	0.79	100.00	3.97E+05	1.127
13C12-PCB-206	32.36	0.81	100.00	2.81E+05	0.797
13C12-PCB-209	33.48	1.21	100.00	4.55E+05	1.292
Field Spike Standards					
13C12-PCB-031	15.81	1.05	100.00	1.37E+06	1.316
13C12-PCB-095	19.1	1.61	100.00	5.26E+05	0.689
13C12-PCB-153	24.16	1.31	100.00	6.14E+05	0.911
Cleanup Standards					
13C12-PCB-028	15.98	1.06	100.00	1.45E+06	1.735
13C12-PCB-111	22	1.62	100.00	6.15E+05	1.122
13C12-PCB-178	25.04	1.04	100.00	4.30E+05	0.833
Injection Standards					
13C12-PCB-9	11.88	1.56	100.00	2.16E+06	-
13C12-PCB-52	16.97	0.82	100.00	8.36E+05	-
13C12-PCB-101	20.61	1.64	100.00	5.49E+05	-
13C12-PCB-138	24.84	1.32	100.00	5.16E+05	-
13C12-PCB-194	31.02	0.89	100.00	3.52E+05	-

ALS Life Sciences

Calibration Report

ALS Sample ID **H5-20-CS2-1035**
 Analysis Method EPA 1668C
 Analysis Type Calibration

Filename 5-201202A02 Inst # HRMS-5 Column SPB0ctyl 256001-01 Run Date 02-Dec-2020 10:34

Approved: *S. Jin*
 --e-signature--
 12-Jan-2021

Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	8.97	3.23	5.00	1.14E+05	1.118
PCB-003	10.49	3.32	5.00	1.03E+05	1.149
PCB-004	10.65	1.26	5.00	5.78E+04	0.905
PCB-015	14.32	1.58	5.00	8.30E+04	1.048
PCB-019	12.64	1.07	5.00	5.53E+04	1.149
PCB-037	18.27	1.08	5.00	5.48E+04	1.037
PCB-054	14.49	0.80	5.00	6.76E+04	1.031
PCB-081	21.83	0.80	5.00	4.42E+04	1.132
PCB-077	22.13	0.79	5.00	4.23E+04	1.066
PCB-104	17.52	1.61	5.00	5.50E+04	1.109
PCB-123	23.1	1.64	5.00	3.59E+04	1.055
PCB-118	23.27	1.68	5.00	3.89E+04	1.084
PCB-114	23.58	1.58	5.00	3.81E+04	1.173
PCB-105	23.93	1.64	5.00	3.78E+04	1.151
PCB-126	25.52	1.63	5.00	3.29E+04	1.115
PCB-155	20.5	1.22	5.00	4.75E+04	1.006
PCB-167	26.4	1.19	5.00	3.27E+04	1.057
PCB-156/157	27.03	1.19	10.00	6.32E+04	1.084
PCB-169	28.7	1.18	5.00	2.98E+04	1.054
PCB-188	23.5	1.04	5.00	3.14E+04	0.874
PCB-189	29.96	1.00	5.00	2.83E+04	0.957
PCB-202	26.27	0.85	5.00	2.91E+04	1.050
PCB-205	31.34	0.93	5.00	2.16E+04	0.843
PCB-208	29.68	0.79	5.00	2.31E+04	1.154
PCB-206	32.4	0.82	5.00	1.68E+04	1.174
PCB-209	33.53	1.18	5.00	2.22E+04	0.976
Extraction Standards					
13C12-PCB-001	8.97	3.01	100.00	2.04E+06	1.007
13C12-PCB-003	10.49	3.07	100.00	1.80E+06	0.889
13C12-PCB-004	10.63	1.58	100.00	1.28E+06	0.632
13C12-PCB-015	14.32	1.61	100.00	1.58E+06	0.782
13C12-PCB-019	12.62	1.04	100.00	9.63E+05	0.476
13C12-PCB-037	18.26	1.06	100.00	1.06E+06	1.289
13C12-PCB-054	14.47	0.79	100.00	1.31E+06	1.598
13C12-PCB-081	21.82	0.80	100.00	7.81E+05	1.430
13C12-PCB-077	22.12	0.80	100.00	7.94E+05	1.453
13C12-PCB-104	17.51	1.58	100.00	9.92E+05	1.815
13C12-PCB-123	23.09	1.58	100.00	6.81E+05	1.247
13C12-PCB-118	23.26	1.59	100.00	7.18E+05	1.314
13C12-PCB-114	23.56	1.58	100.00	6.50E+05	1.190
13C12-PCB-105	23.91	1.61	100.00	6.56E+05	1.201
13C12-PCB-126	25.52	1.64	100.00	5.90E+05	1.079
13C12-PCB-155	20.49	1.24	100.00	9.44E+05	1.727
13C12-PCB-167	26.39	1.30	100.00	6.19E+05	1.173
13C12-PCB-156/157	27.02	1.29	200.00	1.17E+06	1.105
13C12-PCB-169	28.69	1.33	100.00	5.65E+05	1.070
13C12-PCB-188	23.49	1.03	100.00	7.19E+05	1.361
13C12-PCB-189	29.95	1.06	100.00	5.92E+05	1.121
13C12-PCB-202	26.26	0.91	100.00	5.55E+05	1.051
13C12-PCB-205	31.33	0.88	100.00	5.11E+05	1.429
13C12-PCB-208	29.67	0.80	100.00	4.00E+05	1.118
13C12-PCB-206	32.39	0.80	100.00	2.86E+05	0.799
13C12-PCB-209	33.5	1.21	100.00	4.55E+05	1.272
Field Spike Standards					
13C12-PCB-031	15.83	1.07	100.00	1.38E+06	1.365
13C12-PCB-095	19.13	1.62	100.00	5.26E+05	0.692
13C12-PCB-153	24.18	1.29	100.00	6.20E+05	0.915
Cleanup Standards					
13C12-PCB-028	16	1.04	100.00	1.45E+06	1.765
13C12-PCB-111	22.02	1.65	100.00	6.22E+05	1.138
13C12-PCB-178	25.06	1.04	100.00	4.44E+05	0.841
Injection Standards					
13C12-PCB-9	11.9	1.55	100.00	2.02E+06	-
13C12-PCB-52	16.99	0.82	100.00	8.21E+05	-
13C12-PCB-101	20.64	1.63	100.00	5.46E+05	-
13C12-PCB-138	24.87	1.31	100.00	5.28E+05	-
13C12-PCB-194	31.05	0.88	100.00	3.58E+05	-

ALS Life Sciences

Calibration Report

ALS Sample ID **H5-20-CS3-1035**
 Analysis Method EPA 1668C
 Analysis Type Calibration

Filename 5-201202A01 Inst # HRMS-5 Column SPB0ctyl 256001-01 Run Date 02-Dec-2020 09:37

Approved: *S. Jin*
 --e-signature--
 12-Jan-2021

Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	8.97	3.24	50.00	1.18E+06	1.192
PCB-003	10.49	3.25	50.00	1.08E+06	1.201
PCB-004	10.65	1.46	50.00	5.76E+05	0.893
PCB-015	14.32	1.55	50.00	8.66E+05	1.108
PCB-019	12.64	1.06	50.00	5.83E+05	1.197
PCB-037	18.26	1.06	50.00	5.88E+05	1.139
PCB-054	14.48	0.80	50.00	7.00E+05	1.085
PCB-081	21.83	0.79	50.00	4.64E+05	1.262
PCB-077	22.13	0.79	50.00	4.59E+05	1.229
PCB-104	17.52	1.56	50.00	5.75E+05	1.176
PCB-123	23.1	1.57	50.00	3.70E+05	1.145
PCB-118	23.27	1.61	50.00	4.12E+05	1.208
PCB-114	23.58	1.61	50.00	3.86E+05	1.254
PCB-105	23.93	1.61	50.00	3.85E+05	1.229
PCB-126	25.52	1.57	50.00	3.42E+05	1.258
PCB-155	20.5	1.25	50.00	4.76E+05	1.057
PCB-167	26.4	1.24	50.00	3.31E+05	1.147
PCB-156/157	27.03	1.23	100.00	6.46E+05	1.179
PCB-169	28.7	1.24	50.00	2.96E+05	1.145
PCB-188	23.5	1.02	50.00	3.37E+05	0.984
PCB-189	29.95	1.03	50.00	2.70E+05	1.032
PCB-202	26.27	0.90	50.00	2.90E+05	1.078
PCB-205	31.34	0.92	50.00	2.11E+05	0.939
PCB-208	29.68	0.81	50.00	2.25E+05	1.251
PCB-206	32.4	0.80	50.00	1.52E+05	1.212
PCB-209	33.53	1.21	50.00	1.94E+05	0.968
Extraction Standards					
13C12-PCB-001	8.95	3.06	100.00	1.99E+06	0.979
13C12-PCB-003	10.48	3.01	100.00	1.79E+06	0.882
13C12-PCB-004	10.63	1.57	100.00	1.29E+06	0.635
13C12-PCB-015	14.32	1.66	100.00	1.56E+06	0.771
13C12-PCB-019	12.62	1.06	100.00	9.74E+05	0.480
13C12-PCB-037	18.25	1.09	100.00	1.03E+06	1.277
13C12-PCB-054	14.47	0.80	100.00	1.29E+06	1.595
13C12-PCB-081	21.82	0.83	100.00	7.36E+05	1.433
13C12-PCB-077	22.12	0.80	100.00	7.47E+05	1.455
13C12-PCB-104	17.51	1.55	100.00	9.77E+05	1.904
13C12-PCB-123	23.09	1.65	100.00	6.47E+05	1.259
13C12-PCB-118	23.26	1.63	100.00	6.83E+05	1.329
13C12-PCB-114	23.56	1.65	100.00	6.16E+05	1.199
13C12-PCB-105	23.91	1.64	100.00	6.26E+05	1.219
13C12-PCB-126	25.51	1.59	100.00	5.43E+05	1.058
13C12-PCB-155	20.49	1.24	100.00	9.00E+05	1.753
13C12-PCB-167	26.39	1.31	100.00	5.77E+05	1.177
13C12-PCB-156/157	27.02	1.31	200.00	1.10E+06	1.118
13C12-PCB-169	28.69	1.31	100.00	5.17E+05	1.053
13C12-PCB-188	23.49	1.03	100.00	6.85E+05	1.397
13C12-PCB-189	29.95	1.07	100.00	5.23E+05	1.066
13C12-PCB-202	26.26	0.90	100.00	5.39E+05	1.098
13C12-PCB-205	31.33	0.88	100.00	4.50E+05	1.421
13C12-PCB-208	29.67	0.80	100.00	3.60E+05	1.136
13C12-PCB-206	32.39	0.78	100.00	2.51E+05	0.793
13C12-PCB-209	33.5	1.21	100.00	4.01E+05	1.267
Field Spike Standards					
13C12-PCB-031	15.83	1.08	100.00	1.32E+06	1.317
13C12-PCB-095	19.13	1.61	100.00	4.94E+05	0.676
13C12-PCB-153	24.18	1.30	100.00	5.79E+05	0.911
Cleanup Standards					
13C12-PCB-028	16	1.05	100.00	1.38E+06	1.711
13C12-PCB-111	22.02	1.64	100.00	5.85E+05	1.140
13C12-PCB-178	25.06	1.03	100.00	4.14E+05	0.843
Injection Standards					
13C12-PCB-9	11.9	1.55	100.00	2.03E+06	-
13C12-PCB-52	16.99	0.82	100.00	8.09E+05	-
13C12-PCB-101	20.64	1.64	100.00	5.13E+05	-
13C12-PCB-138	24.87	1.29	100.00	4.90E+05	-
13C12-PCB-194	31.05	0.86	100.00	3.17E+05	-

ALS Life Sciences

Calibration Report

ALS Sample ID **H5-20-CS4-1035**
 Analysis Method EPA 1668C
 Analysis Type Calibration

Filename 5-201202A07 Inst # HRMS-5 Column SPB0ctyl 256001-01 Run Date 02-Dec-2020 12:39

Approved: *S. Jin*
 --e-signature--
 12-Jan-2021

Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	8.95	3.24	400.00	1.04E+07	1.206
PCB-003	10.47	3.25	400.00	9.32E+06	1.234
PCB-004	10.63	1.49	400.00	4.77E+06	0.897
PCB-015	14.3	1.56	400.00	7.84E+06	1.166
PCB-019	12.62	1.05	400.00	4.81E+06	1.208
PCB-037	18.23	1.06	400.00	5.36E+06	1.158
PCB-054	14.47	0.79	400.00	5.90E+06	1.106
PCB-081	21.8	0.79	400.00	4.07E+06	1.280
PCB-077	22.1	0.79	400.00	4.02E+06	1.239
PCB-104	17.51	1.55	400.00	4.80E+06	1.197
PCB-123	23.08	1.57	400.00	3.16E+06	1.148
PCB-118	23.25	1.58	400.00	3.55E+06	1.237
PCB-114	23.55	1.57	400.00	3.32E+06	1.281
PCB-105	23.91	1.56	400.00	3.27E+06	1.255
PCB-126	25.5	1.59	400.00	3.01E+06	1.283
PCB-155	20.49	1.25	400.00	4.11E+06	1.089
PCB-167	26.38	1.22	400.00	2.77E+06	1.163
PCB-156/157	27.02	1.24	800.00	5.51E+06	1.199
PCB-169	28.67	1.23	400.00	2.46E+06	1.167
PCB-188	23.49	1.02	400.00	2.83E+06	1.010
PCB-189	29.95	1.03	400.00	2.25E+06	1.056
PCB-202	26.26	0.89	400.00	2.39E+06	1.115
PCB-205	31.33	0.90	400.00	1.75E+06	0.958
PCB-208	29.68	0.81	400.00	1.81E+06	1.269
PCB-206	32.4	0.81	400.00	1.26E+06	1.240
PCB-209	33.51	1.19	400.00	1.57E+06	0.970
Extraction Standards					
13C12-PCB-001	8.94	2.99	100.00	2.17E+06	1.074
13C12-PCB-003	10.47	3.05	100.00	1.89E+06	0.937
13C12-PCB-004	10.62	1.58	100.00	1.33E+06	0.659
13C12-PCB-015	14.29	1.59	100.00	1.68E+06	0.833
13C12-PCB-019	12.61	1.04	100.00	9.96E+05	0.494
13C12-PCB-037	18.22	1.08	100.00	1.16E+06	1.467
13C12-PCB-054	14.45	0.79	100.00	1.33E+06	1.691
13C12-PCB-081	21.79	0.82	100.00	7.95E+05	1.530
13C12-PCB-077	22.09	0.81	100.00	8.10E+05	1.558
13C12-PCB-104	17.49	1.57	100.00	1.00E+06	1.928
13C12-PCB-123	23.07	1.59	100.00	6.88E+05	1.323
13C12-PCB-118	23.24	1.62	100.00	7.19E+05	1.382
13C12-PCB-114	23.54	1.64	100.00	6.49E+05	1.247
13C12-PCB-105	23.9	1.64	100.00	6.52E+05	1.254
13C12-PCB-126	25.48	1.64	100.00	5.87E+05	1.129
13C12-PCB-155	20.48	1.25	100.00	9.43E+05	1.813
13C12-PCB-167	26.37	1.31	100.00	5.96E+05	1.243
13C12-PCB-156/157	27.01	1.31	200.00	1.15E+06	1.197
13C12-PCB-169	28.67	1.31	100.00	5.27E+05	1.099
13C12-PCB-188	23.48	1.03	100.00	7.01E+05	1.461
13C12-PCB-189	29.93	1.06	100.00	5.34E+05	1.112
13C12-PCB-202	26.25	0.90	100.00	5.36E+05	1.118
13C12-PCB-205	31.31	0.88	100.00	4.56E+05	1.482
13C12-PCB-208	29.67	0.80	100.00	3.57E+05	1.162
13C12-PCB-206	32.37	0.79	100.00	2.54E+05	0.825
13C12-PCB-209	33.5	1.21	100.00	4.06E+05	1.319
Field Spike Standards					
13C12-PCB-031	15.81	1.06	100.00	1.35E+06	1.259
13C12-PCB-095	19.11	1.61	100.00	4.93E+05	0.645
13C12-PCB-153	24.17	1.30	100.00	5.65E+05	0.855
Cleanup Standards					
13C12-PCB-028	15.99	1.05	100.00	1.40E+06	1.778
13C12-PCB-111	22	1.63	100.00	5.85E+05	1.124
13C12-PCB-178	25.05	1.02	100.00	3.98E+05	0.830
Injection Standards					
13C12-PCB-9	11.88	1.56	100.00	2.02E+06	-
13C12-PCB-52	16.97	0.83	100.00	7.89E+05	-
13C12-PCB-101	20.62	1.62	100.00	5.20E+05	-
13C12-PCB-138	24.86	1.26	100.00	4.80E+05	-
13C12-PCB-194	31.03	0.87	100.00	3.08E+05	-

ALS Life Sciences

Calibration Report

ALS Sample ID **H5-20-CS5-1035**
 Analysis Method EPA 1668C
 Analysis Type Calibration

Filename 5-201202A08 Inst # HRMS-5 Column SPB0ctyl 256001-01 Run Date 02-Dec-2020 13:21

Approved: *S. Jin*
 --e-signature--
 12-Jan-2021

Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	8.95	2.91	2000.00	5.31E+07	1.122
PCB-003	10.47	3.15	2000.00	5.23E+07	1.251
PCB-004	10.63	1.50	2000.00	2.62E+07	0.916
PCB-015	14.29	1.57	2000.00	4.52E+07	1.187
PCB-019	12.62	1.05	2000.00	2.62E+07	1.211
PCB-037	18.23	1.06	2000.00	3.18E+07	1.193
PCB-054	14.47	0.78	2000.00	3.29E+07	1.115
PCB-081	21.8	0.78	2000.00	2.48E+07	1.306
PCB-077	22.1	0.79	2000.00	2.43E+07	1.261
PCB-104	17.51	1.55	2000.00	2.77E+07	1.230
PCB-123	23.08	1.58	2000.00	1.98E+07	1.182
PCB-118	23.25	1.57	2000.00	2.20E+07	1.251
PCB-114	23.55	1.56	2000.00	2.09E+07	1.265
PCB-105	23.91	1.56	2000.00	2.01E+07	1.302
PCB-126	25.5	1.58	2000.00	1.99E+07	1.345
PCB-155	20.49	1.26	2000.00	2.52E+07	1.130
PCB-167	26.39	1.22	2000.00	1.75E+07	1.166
PCB-156/157	27.02	1.22	4000.00	3.68E+07	1.209
PCB-169	28.67	1.23	2000.00	1.60E+07	1.176
PCB-188	23.49	1.01	2000.00	1.81E+07	1.019
PCB-189	29.95	1.05	2000.00	1.44E+07	1.075
PCB-202	26.27	0.88	2000.00	1.55E+07	1.125
PCB-205	31.34	0.91	2000.00	1.10E+07	0.962
PCB-208	29.68	0.80	2000.00	1.19E+07	1.262
PCB-206	32.4	0.80	2000.00	7.99E+06	1.253
PCB-209	33.53	1.18	2000.00	9.81E+06	0.978
Extraction Standards					
13C12-PCB-001	8.94	3.03	100.00	2.36E+06	1.335
13C12-PCB-003	10.47	2.99	100.00	2.09E+06	1.178
13C12-PCB-004	10.62	1.58	100.00	1.43E+06	0.806
13C12-PCB-015	14.28	1.64	100.00	1.91E+06	1.076
13C12-PCB-019	12.61	1.03	100.00	1.08E+06	0.610
13C12-PCB-037	18.22	1.07	100.00	1.33E+06	1.908
13C12-PCB-054	14.46	0.79	100.00	1.48E+06	2.114
13C12-PCB-081	21.79	0.82	100.00	9.50E+05	1.916
13C12-PCB-077	22.08	0.83	100.00	9.62E+05	1.941
13C12-PCB-104	17.5	1.54	100.00	1.13E+06	2.271
13C12-PCB-123	23.08	1.57	100.00	8.38E+05	1.691
13C12-PCB-118	23.25	1.61	100.00	8.79E+05	1.773
13C12-PCB-114	23.55	1.63	100.00	8.27E+05	1.667
13C12-PCB-105	23.9	1.62	100.00	7.72E+05	1.557
13C12-PCB-126	25.48	1.61	100.00	7.41E+05	1.494
13C12-PCB-155	20.48	1.24	100.00	1.12E+06	2.252
13C12-PCB-167	26.38	1.30	100.00	7.51E+05	1.550
13C12-PCB-156/157	27.01	1.31	200.00	1.52E+06	1.570
13C12-PCB-169	28.66	1.30	100.00	6.81E+05	1.405
13C12-PCB-188	23.48	1.02	100.00	8.89E+05	1.833
13C12-PCB-189	29.93	1.06	100.00	6.70E+05	1.382
13C12-PCB-202	26.26	0.90	100.00	6.88E+05	1.418
13C12-PCB-205	31.31	0.88	100.00	5.72E+05	1.695
13C12-PCB-208	29.67	0.80	100.00	4.70E+05	1.393
13C12-PCB-206	32.39	0.80	100.00	3.19E+05	0.944
13C12-PCB-209	33.5	1.20	100.00	5.01E+05	1.486
Field Spike Standards					
13C12-PCB-031	15.82	1.07	100.00	1.24E+06	1.028
13C12-PCB-095	19.12	1.63	100.00	4.53E+05	0.493
13C12-PCB-153	24.17	1.32	100.00	5.64E+05	0.682
Cleanup Standards					
13C12-PCB-028	15.99	1.06	100.00	1.28E+06	1.829
13C12-PCB-111	22.01	1.63	100.00	5.77E+05	1.164
13C12-PCB-178	25.05	1.04	100.00	4.05E+05	0.834
Injection Standards					
13C12-PCB-9	11.88	1.57	100.00	1.77E+06	-
13C12-PCB-52	16.98	0.83	100.00	6.98E+05	-
13C12-PCB-101	20.62	1.61	100.00	4.96E+05	-
13C12-PCB-138	24.86	1.30	100.00	4.85E+05	-
13C12-PCB-194	31.03	0.88	100.00	3.38E+05	-

ALS Life Sciences

Second Source Calibration Verification Report

Sample Name	CVS	Sampling Date	n/a	
ALS Sample ID	H5-20-RS1-1035	Extraction Date	n/a	
Analysis Method	EPA 1668C	Sample Size	1	n/a
Analysis Type	CCV	Percent Moisture	n/a	
Sample Matrix	QC	Split Ratio	1	

Approved: <i>S. Jin</i> --e-signature-- 12-Jan-2021
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Run Information	Run 1
Filename	5-201202A09
Run Date	02-Dec-20 14:03
Final Volume	25 ul
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-5 SPB0ctyl 256001-01

Target Analytes	pg/uL	Ret. Time	% Rec	Limits	Flags
PCB-001	50	8.97	104	75-125	
PCB-003	50	10.49	101	75-125	
PCB-004	50	10.65	107	75-125	
PCB-015	50	14.32	109	75-125	
PCB-019	50	12.64	111	75-125	
PCB-037	50	18.27	107	75-125	
PCB-054	50	14.49	108	75-125	
PCB-081	50	21.83	103	75-125	
PCB-077	50	22.13	103	75-125	
PCB-104	50	17.52	98	75-125	
PCB-123	50	23.10	104	75-125	
PCB-118	50	23.27	103	75-125	
PCB-114	50	23.58	104	75-125	
PCB-105	50	23.93	101	75-125	
PCB-126	50	25.52	101	75-125	
PCB-155	50	20.51	100	75-125	
PCB-167	50	26.40	100	75-125	
PCB-156/157	100	27.04	103	75-125	
PCB-169	50	28.70	106	75-125	
PCB-188	50	23.50	103	75-125	
PCB-189	50	29.96	103	75-125	
PCB-202	50	26.28	105	75-125	
PCB-205	50	31.34	99	75-125	
PCB-208	50	29.69	98	75-125	
PCB-206	50	32.41	95	75-125	
PCB-209	50	33.53	105	75-125	

Extraction Standards		Time	% Rec	Limits
13C12-PCB-001	100	8.97	97	50-145
13C12-PCB-003	100	10.48	97	50-145
13C12-PCB-004	100	10.63	94	50-145
13C12-PCB-015	100	14.32	98	50-145
13C12-PCB-019	100	12.62	92	50-145
13C12-PCB-037	100	18.25	94	50-145
13C12-PCB-054	100	14.47	92	50-145
13C12-PCB-081	100	21.82	94	50-145
13C12-PCB-077	100	22.12	93	50-145
13C12-PCB-104	100	17.51	92	50-145
13C12-PCB-123	100	23.09	93	50-145
13C12-PCB-118	100	23.26	94	50-145
13C12-PCB-114	100	23.56	92	50-145
13C12-PCB-105	100	23.91	93	50-145
13C12-PCB-126	100	25.52	92	50-145
13C12-PCB-155	100	20.49	91	50-145
13C12-PCB-167	100	26.39	98	50-145
13C12-PCB-156/157	200	27.03	97	50-145
13C12-PCB-169	100	28.69	101	50-145
13C12-PCB-188	100	23.49	92	50-145
13C12-PCB-189	100	29.95	104	50-145
13C12-PCB-202	100	26.26	94	50-145
13C12-PCB-205	100	31.33	97	50-145
13C12-PCB-208	100	29.68	94	50-145
13C12-PCB-206	100	32.40	97	50-145
13C12-PCB-209	100	33.51	99	50-145

Field Spike Standards				
13C12-PCB-031	100	15.83	109	70-130
13C12-PCB-095	100	19.13	106	70-130
13C12-PCB-153	100	24.18	102	70-130

Cleanup Standards				
13C12-PCB-028	100	16.00	101	65-135
13C12-PCB-111	100	22.02	99	75-125
13C12-PCB-178	100	25.06	99	75-125

INSTRUMENT 209 PCB CALIBRATION REPORT

Table with columns: Target Analyte, #Hom, Resp, Ra, Ra fail=YES RT, Conc., H/A, IALC RRF, User RF, %Rec, Mod.Date, Mod.Comment, Code Comments, Noise 1-5, Ion1 Ht, Ion2 Ht, Ion3 Ht, Ion4 Ht, Ion5 Ht, Ion6 Ht, Ion7 Ht, Ion8 Ht, Ion9 Ht, Ion10 Ht, Ion11 Ht, Ion12 Ht, Ion13 Ht, Ion14 Ht, Ion15 Ht, Ion16 Ht, Ion17 Ht, Ion18 Ht, Ion19 Ht, Ion20 Ht, Ion21 Ht, Ion22 Ht, Ion23 Ht, Ion24 Ht, Ion25 Ht, Ion26 Ht, Ion27 Ht, Ion28 Ht, Ion29 Ht, Ion30 Ht, Ion31 Ht, Ion32 Ht, Ion33 Ht, Ion34 Ht, Ion35 Ht, Ion36 Ht, Ion37 Ht, Ion38 Ht, Ion39 Ht, Ion40 Ht, Ion41 Ht, Ion42 Ht, Ion43 Ht, Ion44 Ht, Ion45 Ht, Ion46 Ht, Ion47 Ht, Ion48 Ht, Ion49 Ht, Ion50 Ht, Ion51 Ht, Ion52 Ht, Ion53 Ht, Ion54 Ht, Ion55 Ht, Ion56 Ht, Ion57 Ht, Ion58 Ht, Ion59 Ht, Ion60 Ht, Ion61 Ht, Ion62 Ht, Ion63 Ht, Ion64 Ht, Ion65 Ht, Ion66 Ht, Ion67 Ht, Ion68 Ht, Ion69 Ht, Ion70 Ht, Ion71 Ht, Ion72 Ht, Ion73 Ht, Ion74 Ht, Ion75 Ht, Ion76 Ht, Ion77 Ht, Ion78 Ht, Ion79 Ht, Ion80 Ht, Ion81 Ht, Ion82 Ht, Ion83 Ht, Ion84 Ht, Ion85 Ht, Ion86 Ht, Ion87 Ht, Ion88 Ht, Ion89 Ht, Ion90 Ht, Ion91 Ht, Ion92 Ht, Ion93 Ht, Ion94 Ht, Ion95 Ht, Ion96 Ht, Ion97 Ht, Ion98 Ht, Ion99 Ht, Ion100 Ht, RT, RL, RT CL, RT UCL, Acq.Date, Acq.Time, ID, Spl Size.

INSTRUMENT 209 PCB CALIBRATION REPORT

Table with columns: Target Analyte, #Hom, Resp, Ra, Fail=Yes/RT, Conc., H/A, Ical, RRF, User/Rf, %Rec, Mod.Date, Mod.Comment, Code Comments, Noise 1-4, Ion1 Ht, Ion2 Ht, Ion1 Area, Ion2 Area, RRT, RT, RL, RT, RL, Acq.Date, Acq.Time, ID, Spi Size. Contains 99 rows of calibration data.

ALS Life Sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a		
ALS Sample ID	H5-20-CCV-1155	Extraction Date	n/a		
Analysis Method	EPA 1668C	Sample Size	1	n/a	
Analysis Type	CCV	Percent Moisture	n/a		
Sample Matrix	QC	Split Ratio	1		

Approved:
S. Jin
--e-signature--
12-Jan-2021

Run Information		Run 1
Filename	5-210104A29	
Run Date	05-Jan-21 08:06	
Final Volume	25 ul	
Dilution Factor	1	
Analysis Units	%	
Instrument - Column	HRMS-5 SPB0ctyl 256001-01	

Target Analytes	pg/uL	Ret.		Limits	
		Time	% Rec		Flags
PCB-001	50	8.97	104	75-125	
PCB-003	50	10.48	101	75-125	
PCB-004	50	10.62	94	75-125	
PCB-015	50	14.29	98	75-125	
PCB-019	50	12.60	99	75-125	
PCB-037	50	18.22	101	75-125	
PCB-054	50	14.44	101	75-125	
PCB-081	50	21.80	103	75-125	
PCB-077	50	22.10	104	75-125	
PCB-104	50	17.48	100	75-125	
PCB-123	50	23.07	99	75-125	
PCB-118	50	23.24	102	75-125	
PCB-114	50	23.54	98	75-125	
PCB-105	50	23.90	100	75-125	
PCB-126	50	25.50	102	75-125	
PCB-155	50	20.47	99	75-125	
PCB-167	50	26.38	100	75-125	
PCB-156/157	100	27.01	99	75-125	
PCB-169	50	28.67	100	75-125	
PCB-188	50	23.47	102	75-125	
PCB-189	50	29.94	102	75-125	
PCB-202	50	26.25	101	75-125	
PCB-205	50	31.33	105	75-125	
PCB-208	50	29.67	102	75-125	
PCB-206	50	32.39	102	75-125	
PCB-209	50	33.50	93	75-125	

Extraction Standards		Time	% Rec	Limits
13C12-PCB-001	100	8.95	77	50-145
13C12-PCB-003	100	10.47	79	50-145
13C12-PCB-004	100	10.62	94	50-145
13C12-PCB-015	100	14.28	90	50-145
13C12-PCB-019	100	12.58	104	50-145
13C12-PCB-037	100	18.22	93	50-145
13C12-PCB-054	100	14.43	88	50-145
13C12-PCB-081	100	21.78	92	50-145
13C12-PCB-077	100	22.08	92	50-145
13C12-PCB-104	100	17.47	85	50-145
13C12-PCB-123	100	23.06	96	50-145
13C12-PCB-118	100	23.22	93	50-145
13C12-PCB-114	100	23.53	98	50-145
13C12-PCB-105	100	23.89	98	50-145
13C12-PCB-126	100	25.48	101	50-145
13C12-PCB-155	100	20.45	93	50-145
13C12-PCB-167	100	26.37	100	50-145
13C12-PCB-156/157	200	26.99	101	50-145
13C12-PCB-169	100	28.66	109	50-145
13C12-PCB-188	100	23.45	92	50-145
13C12-PCB-189	100	29.93	106	50-145
13C12-PCB-202	100	26.23	108	50-145
13C12-PCB-205	100	31.31	95	50-145
13C12-PCB-208	100	29.65	96	50-145
13C12-PCB-206	100	32.37	105	50-145
13C12-PCB-209	100	33.48	92	50-145

Field Spike Standards				
13C12-PCB-031	100	15.79	95	70-130
13C12-PCB-095	100	19.09	101	70-130
13C12-PCB-153	100	24.14	105	70-130

Cleanup Standards				
13C12-PCB-028	100	15.96	90	65-135
13C12-PCB-111	100	21.98	102	75-125
13C12-PCB-178	100	25.02	109	75-125

ALS Life Sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a		Approved: <i>S. Jin</i> --e-signature-- 12-Jan-2021
ALS Sample ID	H5-20-CCV-1157	Extraction Date	n/a		
Analysis Method	EPA 1668C	Sample Size	1	n/a	
Analysis Type	CCV	Percent Moisture	n/a		
Sample Matrix	QC	Split Ratio	1		

Run Information	Run 1
Filename	5-210105A13
Run Date	05-Jan-21 17:25
Final Volume	25 ul
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-5 SPBOctyl 256001-01

Target Analytes	pg/uL	Ret.		Limits	
		Time	% Rec	Time	Flags
PCB-001	50	8.97	105	75-125	
PCB-003	50	10.48	101	75-125	
PCB-004	50	10.63	93	75-125	
PCB-015	50	14.29	100	75-125	
PCB-019	50	12.61	99	75-125	
PCB-037	50	18.23	102	75-125	
PCB-054	50	14.44	99	75-125	
PCB-081	50	21.80	104	75-125	
PCB-077	50	22.10	106	75-125	
PCB-104	50	17.48	100	75-125	
PCB-123	50	23.07	101	75-125	
PCB-118	50	23.24	102	75-125	
PCB-114	50	23.54	98	75-125	
PCB-105	50	23.90	101	75-125	
PCB-126	50	25.50	102	75-125	
PCB-155	50	20.47	99	75-125	
PCB-167	50	26.38	100	75-125	
PCB-156/157	100	27.01	100	75-125	
PCB-169	50	28.67	100	75-125	
PCB-188	50	23.47	101	75-125	
PCB-189	50	29.93	103	75-125	
PCB-202	50	26.25	101	75-125	
PCB-205	50	31.33	105	75-125	
PCB-208	50	29.67	102	75-125	
PCB-206	50	32.39	102	75-125	
PCB-209	50	33.50	94	75-125	
Extraction Standards					
		Time	% Rec	Limits	
13C12-PCB-001	100	8.95	77	50-145	
13C12-PCB-003	100	10.47	80	50-145	
13C12-PCB-004	100	10.62	94	50-145	
13C12-PCB-015	100	14.28	90	50-145	
13C12-PCB-019	100	12.60	103	50-145	
13C12-PCB-037	100	18.22	92	50-145	
13C12-PCB-054	100	14.43	89	50-145	
13C12-PCB-081	100	21.78	92	50-145	
13C12-PCB-077	100	22.09	91	50-145	
13C12-PCB-104	100	17.47	84	50-145	
13C12-PCB-123	100	23.06	94	50-145	
13C12-PCB-118	100	23.22	91	50-145	
13C12-PCB-114	100	23.53	94	50-145	
13C12-PCB-105	100	23.89	95	50-145	
13C12-PCB-126	100	25.48	100	50-145	
13C12-PCB-155	100	20.45	93	50-145	
13C12-PCB-167	100	26.35	101	50-145	
13C12-PCB-156/157	200	26.99	104	50-145	
13C12-PCB-169	100	28.66	112	50-145	
13C12-PCB-188	100	23.45	93	50-145	
13C12-PCB-189	100	29.93	109	50-145	
13C12-PCB-202	100	26.22	111	50-145	
13C12-PCB-205	100	31.31	99	50-145	
13C12-PCB-208	100	29.65	99	50-145	
13C12-PCB-206	100	32.37	108	50-145	
13C12-PCB-209	100	33.47	95	50-145	
Field Spike Standards					
13C12-PCB-031	100	15.79	96	70-130	
13C12-PCB-095	100	19.09	102	70-130	
13C12-PCB-153	100	24.14	101	70-130	
Cleanup Standards					
13C12-PCB-028	100	15.97	91	65-135	
13C12-PCB-111	100	21.98	102	75-125	
13C12-PCB-178	100	25.02	109	75-125	

ALS Life Sciences

Continuing Calibration Report

Sample Name CCV
 ALS Sample ID H5-20-CCV-002
 Analysis Method EPA 1668C
 Analysis Type CCV
 Sample Matrix QC

Sampling Date n/a
 Extraction Date n/a
 Sample Size 1 n/a
 Percent Moisture n/a
 Split Ratio 1

Approved:
S. Jin
 --e-signature--
 12-Jan-2021

Run Information **Run 1**
 Filename 5-210107A31
 Run Date 08-Jan-21 05:38
 Final Volume 25 ul
 Dilution Factor 1
 Analysis Units %
 Instrument - Column HRMS-5 SPBOctyl 256001-01

Target Analytes	pg/uL	Ret.		Limits	
		Time	% Rec		Flags
PCB-001	50	8.94	103	75-125	
PCB-003	50	10.45	100	75-125	
PCB-004	50	10.61	92	75-125	
PCB-015	50	14.27	100	75-125	
PCB-019	50	12.58	100	75-125	
PCB-037	50	18.20	100	75-125	
PCB-054	50	14.43	98	75-125	
PCB-081	50	21.77	102	75-125	
PCB-077	50	22.08	104	75-125	
PCB-104	50	17.46	100	75-125	
PCB-123	50	23.04	101	75-125	
PCB-118	50	23.21	101	75-125	
PCB-114	50	23.51	99	75-125	
PCB-105	50	23.88	101	75-125	
PCB-126	50	25.47	103	75-125	
PCB-155	50	20.44	98	75-125	
PCB-167	50	26.35	100	75-125	
PCB-156/157	100	26.98	100	75-125	
PCB-169	50	28.65	100	75-125	
PCB-188	50	23.44	101	75-125	
PCB-189	50	29.92	102	75-125	
PCB-202	50	26.22	101	75-125	
PCB-205	50	31.30	106	75-125	
PCB-208	50	29.64	103	75-125	
PCB-206	50	32.36	103	75-125	
PCB-209	50	33.47	94	75-125	

Extraction Standards		Time	% Rec	Limits
13C12-PCB-001	100	8.94	71	50-145
13C12-PCB-003	100	10.45	78	50-145
13C12-PCB-004	100	10.59	93	50-145
13C12-PCB-015	100	14.25	88	50-145
13C12-PCB-019	100	12.57	102	50-145
13C12-PCB-037	100	18.19	94	50-145
13C12-PCB-054	100	14.41	88	50-145
13C12-PCB-081	100	21.76	93	50-145
13C12-PCB-077	100	22.07	93	50-145
13C12-PCB-104	100	17.45	82	50-145
13C12-PCB-123	100	23.03	93	50-145
13C12-PCB-118	100	23.20	92	50-145
13C12-PCB-114	100	23.50	94	50-145
13C12-PCB-105	100	23.86	95	50-145
13C12-PCB-126	100	25.46	101	50-145
13C12-PCB-155	100	20.43	93	50-145
13C12-PCB-167	100	26.33	98	50-145
13C12-PCB-156/157	200	26.97	98	50-145
13C12-PCB-169	100	28.64	102	50-145
13C12-PCB-188	100	23.43	89	50-145
13C12-PCB-189	100	29.90	95	50-145
13C12-PCB-202	100	26.21	109	50-145
13C12-PCB-205	100	31.28	94	50-145
13C12-PCB-208	100	29.62	101	50-145
13C12-PCB-206	100	32.34	102	50-145
13C12-PCB-209	100	33.44	87	50-145

Field Spike Standards				
13C12-PCB-031	100	15.77	92	70-130
13C12-PCB-095	100	19.06	101	70-130
13C12-PCB-153	100	24.12	103	70-130

Cleanup Standards				
13C12-PCB-028	100	15.94	88	65-135
13C12-PCB-111	100	21.96	104	75-125
13C12-PCB-178	100	25.00	109	75-125

ALS Life Sciences

Continuing Calibration Report

Sample Name CCV
 ALS Sample ID H5-21-CCV-004
 Analysis Method EPA 1668C
 Analysis Type CCV
 Sample Matrix QC

Sampling Date n/a
 Extraction Date n/a
 Sample Size 1 n/a
 Percent Moisture n/a
 Split Ratio 1

Approved:
S. Jin
 --e-signature--
 12-Jan-2021

Run Information **Run 1**
 Filename 5-210108A13
 Run Date 08-Jan-21 14:56
 Final Volume 25 ul
 Dilution Factor 1
 Analysis Units %
 Instrument - Column HRMS-5 SPBOctyl 256001-01

Target Analytes	pg/uL	Ret.		Limits	
		Time	% Rec	Flags	
PCB-001	50	8.98	103	75-125	
PCB-003	50	10.49	101	75-125	
PCB-004	50	10.65	92	75-125	
PCB-015	50	14.31	99	75-125	
PCB-019	50	12.62	99	75-125	
PCB-037	50	18.25	100	75-125	
PCB-054	50	14.47	97	75-125	
PCB-081	50	21.82	101	75-125	
PCB-077	50	22.12	103	75-125	
PCB-104	50	17.50	98	75-125	
PCB-123	50	23.09	100	75-125	
PCB-118	50	23.26	102	75-125	
PCB-114	50	23.56	100	75-125	
PCB-105	50	23.93	101	75-125	
PCB-126	50	25.52	101	75-125	
PCB-155	50	20.48	99	75-125	
PCB-167	50	26.39	99	75-125	
PCB-156/157	100	27.03	99	75-125	
PCB-169	50	28.70	100	75-125	
PCB-188	50	23.49	101	75-125	
PCB-189	50	29.96	102	75-125	
PCB-202	50	26.26	100	75-125	
PCB-205	50	31.35	106	75-125	
PCB-208	50	29.68	102	75-125	
PCB-206	50	32.41	103	75-125	
PCB-209	50	33.53	94	75-125	

Extraction Standards		Time	% Rec	Limits
13C12-PCB-001	100	8.97	69	50-145
13C12-PCB-003	100	10.48	76	50-145
13C12-PCB-004	100	10.63	91	50-145
13C12-PCB-015	100	14.30	87	50-145
13C12-PCB-019	100	12.61	103	50-145
13C12-PCB-037	100	18.24	92	50-145
13C12-PCB-054	100	14.45	90	50-145
13C12-PCB-081	100	21.81	89	50-145
13C12-PCB-077	100	22.11	89	50-145
13C12-PCB-104	100	17.49	84	50-145
13C12-PCB-123	100	23.08	91	50-145
13C12-PCB-118	100	23.25	87	50-145
13C12-PCB-114	100	23.55	89	50-145
13C12-PCB-105	100	23.91	90	50-145
13C12-PCB-126	100	25.51	93	50-145
13C12-PCB-155	100	20.48	93	50-145
13C12-PCB-167	100	26.38	96	50-145
13C12-PCB-156/157	200	27.02	97	50-145
13C12-PCB-169	100	28.69	97	50-145
13C12-PCB-188	100	23.48	92	50-145
13C12-PCB-189	100	29.94	89	50-145
13C12-PCB-202	100	26.25	110	50-145
13C12-PCB-205	100	31.34	95	50-145
13C12-PCB-208	100	29.67	106	50-145
13C12-PCB-206	100	32.40	103	50-145
13C12-PCB-209	100	33.51	88	50-145

Field Spike Standards				
13C12-PCB-031	100	15.81	91	70-130
13C12-PCB-095	100	19.11	104	70-130
13C12-PCB-153	100	24.17	105	70-130

Cleanup Standards				
13C12-PCB-028	100	15.99	86	65-135
13C12-PCB-111	100	22.01	101	75-125
13C12-PCB-178	100	25.05	111	75-125

SVOC DATA PACKAGE

SECTION 5: QC SAMPLE DATA

Including:

- Laboratory Method Blank Analysis Reports
- Laboratory Control Sample Analysis Reports
- Matrix Spike Analysis Reports
- Other QC Sample Analysis Reports (where applicable)

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name **Method Blank**
 ALS Sample ID WG3463499-1
 Analysis Method EPA 1668C
 Analysis Type Blank
 Sample Matrix MEDIA

Sampling Date n/a
 Extraction Date 23-Dec-20
 Sample Size 1 Sample
 Percent Moisture n/a
 Split Ratio 4

Approved:
 S. Jin
 --e-signature--
 12-Jan-2021

Run Information **Run 1**
 Filename 5-210105A04
 Run Date 05-Jan-21 11:05
 Final Volume 25 ul
 Dilution Factor 1
 Analysis Units pg
 Instrument - Column HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-001		NotFnd	<2.0	2.0	U		100
PCB-002		NotFnd	<2.4	2.4	U		100
PCB-003		NotFnd	<2.9	2.9	U		100
PCB-004		NotFnd	<10	10	U		100
PCB-010		NotFnd	<7.4	7.4	U		100
PCB-009		NotFnd	<7.6	7.6	U		100
PCB-007		NotFnd	<7.2	7.2	U		100
PCB-006		NotFnd	<7.4	7.4	U		100
PCB-005		NotFnd	<8.3	8.3	U		100
PCB-008		NotFnd	<6.6	6.6	U		100
PCB-014		NotFnd	<11	11	U		100
PCB-011		13.95	<41	11	J,R	41	100
PCB-012/013		NotFnd	<11	11	U		100
PCB-015		NotFnd	<13	13	U		100
PCB-019		NotFnd	<3.9	3.9	U		100
PCB-018/030		13.72	13.7	3.4	J		100
PCB-017		13.97	<6.2	4.0	J,R	6.2	100
PCB-027		NotFnd	<3.0	3.0	U		100
PCB-024		NotFnd	<3.0	3.0	U		100
PCB-016		14.26	6.15	4.6	M,J		100
PCB-032		14.55	5.48	2.7	M,J		100
PCB-034		NotFnd	<5.3	5.3	U		100
PCB-023		NotFnd	<4.7	4.7	U		100
PCB-026/029		NotFnd	<4.8	4.8	U		100
PCB-025		NotFnd	<4.4	4.4	U		100
PCB-031		15.83	15.6	4.5	M,J		100
PCB-020/028		15.99	15.0	4.7	M,J		100
PCB-021/033		16.14	<9.0	4.9	M,J,R	9.0	100
PCB-022		16.39	<6.3	4.9	J,R	6.3	100
PCB-036		NotFnd	<4.8	4.8	U		100
PCB-039		NotFnd	<4.8	4.8	U		100
PCB-038		NotFnd	<5.4	5.4	U		100
PCB-035		NotFnd	<5.5	5.5	U		100
PCB-037		NotFnd	<6.7	6.7	U		100
PCB-054		NotFnd	<1.5	1.5	U		100
PCB-050/053		NotFnd	<2.1	2.1	U		100
PCB-045/051		16.08	6.24	2.2	M,J		100
PCB-046		NotFnd	<2.5	2.5	U		100
PCB-052		16.96	26.8	2.3	M,J		100
PCB-073		NotFnd	<1.6	1.6	U		100
PCB-043		NotFnd	<2.6	2.6	U		100
PCB-049/069		17.24	<6.8	1.9	J,R	6.8	100
PCB-048		17.41	<2.8	2.2	M,J,R	2.8	100
PCB-044/047/065		17.54	<18	2.0	J,R	18	100
PCB-059/062/075		17.71	<1.7	1.6	M,J,R	1.7	100
PCB-042		17.83	3.39	2.4	M,J		100
PCB-040/041/071		18.13	10.3	2.2	M,J		100
PCB-064		18.22	6.29	1.6	J		100
PCB-072		NotFnd	<2.1	2.1	U		100
PCB-068		NotFnd	<1.9	1.9	U		100
PCB-057		NotFnd	<2.2	2.2	U		100
PCB-058		NotFnd	<2.1	2.1	U		100
PCB-067		NotFnd	<1.9	1.9	U		100
PCB-063		NotFnd	<2.1	2.1	U		100
PCB-061/070/074/076		19.58	<15	2.1	M,J,R	15	100
PCB-066		19.78	8.68	2.1	J		100
PCB-055		NotFnd	<2.2	2.2	U		100
PCB-056		20.17	<4.6	2.3	M,J,R	4.6	100
PCB-060		NotFnd	<2.2	2.2	U		100
PCB-080		NotFnd	<1.9	1.9	U		100
PCB-079		NotFnd	<2.0	2.0	U		100
PCB-078		NotFnd	<2.3	2.3	U		100
PCB-081	0.0003	NotFnd	<2.5	2.5	U		100
PCB-077	0.0001	NotFnd	<2.5	2.5	U		100
PCB-104		NotFnd	<2.3	2.3	U		100
PCB-096		NotFnd	<2.1	2.1	U		100
PCB-103		NotFnd	<3.4	3.4	U		100
PCB-094		NotFnd	<3.9	3.9	U		100
PCB-095		19.11	11.4	3.5	M,J		100
PCB-093/098/100/102		NotFnd	<3.6	3.6	U		100

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a		
ALS Sample ID	WG3463499-1	Extraction Date	23-Dec-20		
Analysis Method	EPA 1668C	Sample Size	1	Sample	
Analysis Type	Blank	Percent Moisture	n/a		
Sample Matrix	MEDIA	Split Ratio	4		
					Approved: S. Jin --e-signature-- 12-Jan-2021

Run Information	Run 1
Filename	5-210105A04
Run Date	05-Jan-21 11:05
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-088/091		NotFnd	<3.7	3.7	U	100	
PCB-084		NotFnd	<4.2	4.2	U	100	
PCB-089		NotFnd	<4.2	4.2	U	100	
PCB-121		NotFnd	<2.7	2.7	U	100	
PCB-092		NotFnd	<3.9	3.9	U	100	
PCB-090/101/113		20.62	<9.9	3.1	J,R	9.9	100
PCB-083/099		NotFnd	<3.8	3.8	U	100	
PCB-112		NotFnd	<2.7	2.7	U	100	
PCB-086/087/097/109/119/125		NotFnd	<3.2	3.2	U	100	
PCB-085/110/115/116/117		21.71	<16	3.0	M,J,R	16	100
PCB-082		NotFnd	<4.8	4.8	U	100	
PCB-111		NotFnd	<2.6	2.6	U	100	
PCB-120		NotFnd	<2.6	2.6	U	100	
PCB-108/124		NotFnd	<3.0	3.0	U	100	
PCB-107		NotFnd	<2.7	2.7	U	100	
PCB-123	0.00003	NotFnd	<3.1	3.1	U	100	
PCB-106		NotFnd	<3.1	3.1	U	100	
PCB-118	0.00003	23.26	<6.0	3.2	J,R	6.0	100
PCB-122		NotFnd	<3.3	3.3	U	100	
PCB-114	0.00003	NotFnd	<2.9	2.9	U	100	
PCB-105	0.00003	23.93	<2.9	2.9	M,J,R	2.9	100
PCB-127		NotFnd	<3.0	3.0	U	100	
PCB-126	0.1	NotFnd	<3.2	3.2	U	100	
PCB-155		NotFnd	<1.1	1.1	U	100	
PCB-152		NotFnd	<1.2	1.2	U	100	
PCB-150		NotFnd	<1.1	1.1	U	100	
PCB-136		20.95	2.74	1.2	J		100
PCB-145		NotFnd	<1.2	1.2	U	100	
PCB-148		NotFnd	<1.6	1.6	U	100	
PCB-135/151		NotFnd	<1.7	1.7	U	100	
PCB-154		NotFnd	<1.3	1.3	U	100	
PCB-144		NotFnd	<1.6	1.6	U	100	
PCB-147/149		22.64	6.11	2.0	M,J		100
PCB-134/143		NotFnd	<2.5	2.5	U	100	
PCB-139/140		NotFnd	<2.0	2.0	U	100	
PCB-131		NotFnd	<2.5	2.5	U	100	
PCB-142		NotFnd	<2.5	2.5	U	100	
PCB-132		NotFnd	<2.4	2.4	U	100	
PCB-133		NotFnd	<2.3	2.3	U	100	
PCB-165		NotFnd	<1.7	1.7	U	100	
PCB-146		NotFnd	<2.0	2.0	U	100	
PCB-161		NotFnd	<1.6	1.6	U	100	
PCB-153/168		24.18	5.89	1.7	J		100
PCB-141		NotFnd	<2.1	2.1	U	100	
PCB-130		NotFnd	<2.6	2.6	U	100	
PCB-137/164		NotFnd	<1.9	1.9	U	100	
PCB-129/138/163		24.86	<9.6	2.1	M,J,R	9.6	100
PCB-160		NotFnd	<1.7	1.7	U	100	
PCB-158		NotFnd	<1.4	1.4	U	100	
PCB-128/166		NotFnd	<1.9	1.9	U	100	
PCB-159		NotFnd	<1.6	1.6	U	100	
PCB-162		NotFnd	<1.6	1.6	U	100	
PCB-167	0.00003	NotFnd	<1.5	1.5	U	100	
PCB-156/157	0.00003	NotFnd	<2.0	2.0	U	200	
PCB-169	0.03	NotFnd	<1.6	1.6	U	100	
PCB-188		NotFnd	<1.1	1.1	U	100	
PCB-179		NotFnd	<1.1	1.1	U	100	
PCB-184		NotFnd	<0.97	0.97	U	100	
PCB-176		NotFnd	<1.1	1.1	U	100	
PCB-186		NotFnd	<1.1	1.1	U	100	
PCB-178		NotFnd	<1.5	1.5	U	100	
PCB-175		NotFnd	<1.5	1.5	U	100	
PCB-187		NotFnd	<1.3	1.3	U	100	
PCB-182		NotFnd	<1.4	1.4	U	100	
PCB-183		NotFnd	<1.4	1.4	U	100	
PCB-185		NotFnd	<1.6	1.6	U	100	
PCB-174		NotFnd	<1.4	1.4	U	100	
PCB-177		NotFnd	<1.5	1.5	U	100	
PCB-181		NotFnd	<1.4	1.4	U	100	
PCB-171/173		NotFnd	<1.6	1.6	U	100	
PCB-172		NotFnd	<1.6	1.6	U	100	

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a		
ALS Sample ID	WG3463499-1	Extraction Date	23-Dec-20		
Analysis Method	EPA 1668C	Sample Size	1	Sample	
Analysis Type	Blank	Percent Moisture	n/a		
Sample Matrix	MEDIA	Split Ratio	4		
					Approved: S. Jin --e-signature-- 12-Jan-2021

Run Information		Run 1
Filename	5-210105A04	
Run Date	05-Jan-21 11:05	
Final Volume	25 ul	
Dilution Factor	1	
Analysis Units	pg	
Instrument - Column	HRMS-5 SPBOctyl 256001-01	

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-192		NotFnd	<1.2	1.2	U	100	
PCB-180/193		NotFnd	<1.2	1.2	U	100	
PCB-191		NotFnd	<1.1	1.1	U	100	
PCB-170		NotFnd	<1.5	1.5	U	100	
PCB-190		NotFnd	<0.93	0.93	U	100	
PCB-189	0.00003	NotFnd	<0.96	0.96	U	100	
PCB-202		NotFnd	<1.2	1.2	U	100	
PCB-201		NotFnd	<1.2	1.2	U	100	
PCB-204		NotFnd	<1.1	1.1	U	100	
PCB-197		NotFnd	<1.1	1.1	U	100	
PCB-200		NotFnd	<1.2	1.2	U	100	
PCB-198/199		NotFnd	<1.4	1.4	U	100	
PCB-196		NotFnd	<1.5	1.5	U	100	
PCB-203		NotFnd	<1.3	1.3	U	100	
PCB-195		NotFnd	<1.5	1.5	U	100	
PCB-194		NotFnd	<1.3	1.3	U	100	
PCB-205		NotFnd	<1.2	1.2	U	100	
PCB-208		NotFnd	<1.6	1.6	U	100	
PCB-207		NotFnd	<1.7	1.7	U	100	
PCB-206		NotFnd	<2.6	2.6	U	100	
PCB-209		33.50	3.10	1.1	M,J	100	
Extraction Standards	pg	Time	% Rec	Limits			
13C12-PCB-001	4000	8.94	30	5-145			
13C12-PCB-003	4000	10.48	30	5-145			
13C12-PCB-004	4000	10.61	38	5-145			
13C12-PCB-015	4000	14.32	37	5-145			
13C12-PCB-019	4000	12.60	47	5-145			
13C12-PCB-037	4000	18.26	48	5-145			
13C12-PCB-054	4000	14.44	45	5-145			
13C12-PCB-081	4000	21.82	61	10-145			
13C12-PCB-077	4000	22.12	64	10-145			
13C12-PCB-104	4000	17.48	45	10-145			
13C12-PCB-123	4000	23.07	71	10-145			
13C12-PCB-118	4000	23.25	66	10-145			
13C12-PCB-114	4000	23.55	72	10-145			
13C12-PCB-105	4000	23.90	76	10-145			
13C12-PCB-126	4000	25.51	81	10-145			
13C12-PCB-155	4000	20.46	59	10-145			
13C12-PCB-167	4000	26.37	83	10-145			
13C12-PCB-156/157	8000	27.01	84	10-145			
13C12-PCB-169	4000	28.67	94	10-145			
13C12-PCB-188	4000	23.45	68	10-145			
13C12-PCB-189	4000	29.93	91	10-145			
13C12-PCB-202	4000	26.23	90	10-145			
13C12-PCB-205	4000	31.31	87	10-145			
13C12-PCB-208	4000	29.65	86	10-145			
13C12-PCB-206	4000	32.37	91	10-145			
13C12-PCB-209	4000	33.48	83	10-145			
Field Spike Standards							
13C12-PCB-031	0		NS	70-130			
13C12-PCB-095	0		NS	70-130			
13C12-PCB-153	0		NS	70-130			
Cleanup Standards							
13C12-PCB-028	4000	15.98	43	5-145			
13C12-PCB-111	4000	22.00	69	10-145			
13C12-PCB-178	4000	25.04	85	10-145			

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a	
ALS Sample ID	WG3463499-1	Extraction Date	23-Dec-20	Approved: <i>S. Jin</i> --e-signature-- 12-Jan-2021
Analysis Method	EPA 1668C	Sample Size	1 Sample	
Analysis Type	Blank	Percent Moisture	n/a	
Sample Matrix	MEDIA	Split Ratio	4	

Run Information	Run 1
Filename	5-210105A04
Run Date	05-Jan-21 11:05
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg Flags	EMPC pg LQL
Homologue Group Totals					
Total MonoCB			<2.0	2.0 U	400
Total DiCB			41.0	6.6 J	800
Total TriCB			77.4	2.7 J	800
Total TetraCB			111	1.5 J	1600
Total PentaCB			43.3	2.1 J	1600
Total HexaCB			24.3	1.1 J	1600
Total HeptaCB			<0.93	0.93 U	800
Total OctaCB			<1.1	1.1 U	800
Total NonaCB			<1.6	1.6 U	400
DecaCB			3.10	1.1 J	400
Total PCB			300	J	3200
Toxic Equivalency - (WHO 2005)					
Lower Bound PCB TEQ			0.00		
Mid Point PCB TEQ			0.185		
Upper Bound PCB TEQ			0.370		

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor TEQ Indicates the Toxic Equivalency
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identified. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
NS	Indicates that this compound was not added.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a
ALS Sample ID	WG3463499-4	Extraction Date	23-Dec-20
Analysis Method	EPA 1668C	Sample Size	1 Sample
Analysis Type	Blank	Percent Moisture	n/a
Sample Matrix	REAGENT	Split Ratio	4

Approved:
S. Jin
--e-signature--
12-Jan-2021

Run Information	Run 1
Filename	5-210105A05
Run Date	05-Jan-21 11:47
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-001		NotFnd	<1.6	1.6	U		100
PCB-002		NotFnd	<1.9	1.9	U		100
PCB-003		NotFnd	<2.4	2.4	U		100
PCB-004		NotFnd	<5.8	5.8	U		100
PCB-010		NotFnd	<4.4	4.4	U		100
PCB-009		NotFnd	<4.5	4.5	U		100
PCB-007		NotFnd	<4.3	4.3	U		100
PCB-006		NotFnd	<4.4	4.4	U		100
PCB-005		NotFnd	<4.9	4.9	U		100
PCB-008		NotFnd	<3.9	3.9	U		100
PCB-014		NotFnd	<6.9	6.9	U		100
PCB-011		13.96	<14	7.1	M,J,R	14	100
PCB-012/013		NotFnd	<7.0	7.0	U		100
PCB-015		NotFnd	<8.8	8.8	U		100
PCB-019		NotFnd	<2.9	2.9	U		100
PCB-018/030		13.72	<8.2	3.7	M,J,R	8.2	100
PCB-017		13.96	<4.4	4.4	M,U	3.2	100
PCB-027		NotFnd	<3.3	3.3	U		100
PCB-024		NotFnd	<3.3	3.3	U		100
PCB-016		14.25	5.09	5.0	M,J		100
PCB-032		NotFnd	<3.0	3.0	U		100
PCB-034		NotFnd	<3.3	3.3	U		100
PCB-023		NotFnd	<2.9	2.9	U		100
PCB-026/029		NotFnd	<2.9	2.9	U		100
PCB-025		NotFnd	<2.7	2.7	U		100
PCB-031		15.83	<6.3	2.7	M,J,R	6.3	100
PCB-020/028		15.98	<8.3	2.9	M,J,R	8.3	100
PCB-021/033		16.14	<6.7	3.0	M,J,R	6.7	100
PCB-022		NotFnd	<3.0	3.0	U		100
PCB-036		NotFnd	<3.0	3.0	U		100
PCB-039		NotFnd	<3.0	3.0	U		100
PCB-038		NotFnd	<3.3	3.3	U		100
PCB-035		NotFnd	<3.4	3.4	U		100
PCB-037		NotFnd	<3.9	3.9	U		100
PCB-054		NotFnd	<1.1	1.1	U		100
PCB-050/053		NotFnd	<2.2	2.2	U		100
PCB-045/051		16.05	<2.3	2.3	U	2.0	100
PCB-046		NotFnd	<2.6	2.6	U		100
PCB-052		16.97	14.4	2.4	J		100
PCB-073		NotFnd	<1.7	1.7	U		100
PCB-043		NotFnd	<2.7	2.7	U		100
PCB-049/069		17.23	5.47	2.0	J		100
PCB-048		NotFnd	<2.3	2.3	U		100
PCB-044/047/065		17.55	<9.4	2.1	M,J,R	9.4	100
PCB-059/062/075		NotFnd	<1.7	1.7	U		100
PCB-042		NotFnd	<2.5	2.5	U		100
PCB-040/041/071		18.11	7.02	2.3	M,J		100
PCB-064		18.23	4.15	1.7	J		100
PCB-072		NotFnd	<1.2	1.2	U		100
PCB-068		NotFnd	<1.1	1.1	U		100
PCB-057		NotFnd	<1.3	1.3	U		100
PCB-058		NotFnd	<1.2	1.2	U		100
PCB-067		NotFnd	<1.1	1.1	U		100
PCB-063		NotFnd	<1.2	1.2	U		100
PCB-061/070/074/076		19.61	10.8	1.2	M,J		100
PCB-066		19.76	<3.3	1.2	J,R	3.3	100
PCB-055		NotFnd	<1.3	1.3	U		100
PCB-056		20.15	3.47	1.3	J		100
PCB-060		NotFnd	<1.3	1.3	U		100
PCB-080		NotFnd	<1.1	1.1	U		100
PCB-079		NotFnd	<1.1	1.1	U		100
PCB-078		NotFnd	<1.3	1.3	U		100
PCB-081	0.0003	NotFnd	<1.3	1.3	U		100
PCB-077	0.0001	NotFnd	<1.4	1.4	U		100
PCB-104		NotFnd	<1.6	1.6	U		100
PCB-096		NotFnd	<1.5	1.5	U		100
PCB-103		NotFnd	<2.5	2.5	U		100
PCB-094		NotFnd	<2.8	2.8	U		100
PCB-095		19.12	<5.5	2.5	J,R	5.5	100
PCB-093/098/100/102		NotFnd	<2.7	2.7	U		100

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a
ALS Sample ID	WG3463499-4	Extraction Date	23-Dec-20
Analysis Method	EPA 1668C	Sample Size	1 Sample
Analysis Type	Blank	Percent Moisture	n/a
Sample Matrix	REAGENT	Split Ratio	4

Approved:
S. Jin
--e-signature--
12-Jan-2021

Run Information	Run 1
Filename	5-210105A05
Run Date	05-Jan-21 11:47
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-088/091		NotFnd	<2.7	2.7	U		100
PCB-084		NotFnd	<3.0	3.0	U		100
PCB-089		NotFnd	<3.0	3.0	U		100
PCB-121		NotFnd	<2.0	2.0	U		100
PCB-092		NotFnd	<2.8	2.8	U		100
PCB-090/101/113		20.62	<5.1	2.3	M,J,R	5.1	100
PCB-083/099		20.94	<2.8	2.8	U	1.7	100
PCB-112		NotFnd	<1.9	1.9	U		100
PCB-086/087/097/109/119/125		NotFnd	<2.3	2.3	U		100
PCB-085/110/115/116/117		21.71	6.72	2.2	J		100
PCB-082		NotFnd	<3.5	3.5	U		100
PCB-111		NotFnd	<1.9	1.9	U		100
PCB-120		NotFnd	<1.9	1.9	U		100
PCB-108/124		NotFnd	<1.9	1.9	U		100
PCB-107		NotFnd	<1.7	1.7	U		100
PCB-123	0.00003	NotFnd	<2.1	2.1	U		100
PCB-106		NotFnd	<2.0	2.0	U		100
PCB-118	0.00003	23.25	<3.2	2.0	M,J,R	3.2	100
PCB-122		NotFnd	<2.1	2.1	U		100
PCB-114	0.00003	NotFnd	<1.9	1.9	U		100
PCB-105	0.00003	NotFnd	<1.8	1.8	U		100
PCB-127		NotFnd	<1.9	1.9	U		100
PCB-126	0.1	NotFnd	<2.1	2.1	U		100
PCB-155		NotFnd	<0.86	0.86	U		100
PCB-152		NotFnd	<0.84	0.84	U		100
PCB-150		NotFnd	<0.81	0.81	U		100
PCB-136		NotFnd	<0.87	0.87	U		100
PCB-145		NotFnd	<0.86	0.86	U		100
PCB-148		NotFnd	<1.1	1.1	U		100
PCB-135/151		NotFnd	<1.2	1.2	U		100
PCB-154		NotFnd	<0.93	0.93	U		100
PCB-144		NotFnd	<1.2	1.2	U		100
PCB-147/149		22.63	<3.6	1.5	M,J,R	3.6	100
PCB-134/143		NotFnd	<1.8	1.8	U		100
PCB-139/140		NotFnd	<1.5	1.5	U		100
PCB-131		NotFnd	<1.8	1.8	U		100
PCB-142		NotFnd	<1.8	1.8	U		100
PCB-132		NotFnd	<1.7	1.7	U		100
PCB-133		NotFnd	<1.7	1.7	U		100
PCB-165		NotFnd	<1.2	1.2	U		100
PCB-146		NotFnd	<1.5	1.5	U		100
PCB-161		NotFnd	<1.1	1.1	U		100
PCB-153/168		24.15	2.67	1.2	J		100
PCB-141		NotFnd	<1.5	1.5	U		100
PCB-130		NotFnd	<1.9	1.9	U		100
PCB-137/164		NotFnd	<1.3	1.3	U		100
PCB-129/138/163		24.86	<5.4	1.5	J,R	5.4	100
PCB-160		NotFnd	<1.2	1.2	U		100
PCB-158		NotFnd	<1.0	1.0	U		100
PCB-128/166		NotFnd	<1.3	1.3	U		100
PCB-159		NotFnd	<1.1	1.1	U		100
PCB-162		NotFnd	<1.2	1.2	U		100
PCB-167	0.00003	NotFnd	<1.0	1.0	U		100
PCB-156/157	0.00003	NotFnd	<1.4	1.4	U		200
PCB-169	0.03	NotFnd	<1.1	1.1	U		100
PCB-188		NotFnd	<1.0	1.0	U		100
PCB-179		NotFnd	<0.98	0.98	U		100
PCB-184		NotFnd	<0.88	0.88	U		100
PCB-176		NotFnd	<0.97	0.97	U		100
PCB-186		NotFnd	<0.99	0.99	U		100
PCB-178		NotFnd	<1.4	1.4	U		100
PCB-175		NotFnd	<1.4	1.4	U		100
PCB-187		NotFnd	<1.2	1.2	U		100
PCB-182		NotFnd	<1.2	1.2	U		100
PCB-183		NotFnd	<1.2	1.2	U		100
PCB-185		NotFnd	<1.4	1.4	U		100
PCB-174		NotFnd	<1.2	1.2	U		100
PCB-177		NotFnd	<1.4	1.4	U		100
PCB-181		NotFnd	<1.3	1.3	U		100
PCB-171/173		NotFnd	<1.4	1.4	U		100
PCB-172		NotFnd	<1.4	1.4	U		100

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a		
ALS Sample ID	WG3463499-4	Extraction Date	23-Dec-20		
Analysis Method	EPA 1668C	Sample Size	1	Sample	
Analysis Type	Blank	Percent Moisture	n/a		
Sample Matrix	REAGENT	Split Ratio	4		
					Approved: S. Jin --e-signature-- 12-Jan-2021

Run Information		Run 1
Filename	5-210105A05	
Run Date	05-Jan-21 11:47	
Final Volume	25 ul	
Dilution Factor	1	
Analysis Units	pg	
Instrument - Column	HRMS-5 SPBOctyl 256001-01	

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-192		NotFnd	<1.1	1.1	U	100	
PCB-180/193		NotFnd	<1.1	1.1	U	100	
PCB-191		NotFnd	<1.0	1.0	U	100	
PCB-170		NotFnd	<1.4	1.4	U	100	
PCB-190		NotFnd	<0.84	0.84	U	100	
PCB-189	0.00003	NotFnd	<0.79	0.79	U	100	
PCB-202		NotFnd	<0.85	0.85	U	100	
PCB-201		NotFnd	<0.83	0.83	U	100	
PCB-204		NotFnd	<0.80	0.80	U	100	
PCB-197		NotFnd	<0.79	0.79	U	100	
PCB-200		NotFnd	<0.84	0.84	U	100	
PCB-198/199		NotFnd	<1.0	1.0	U	100	
PCB-196		NotFnd	<1.1	1.1	U	100	
PCB-203		NotFnd	<0.96	0.96	U	100	
PCB-195		NotFnd	<0.84	0.84	U	100	
PCB-194		31.03	<2.6	0.75	J,R	2.6	100
PCB-205		NotFnd	<0.67	0.67	U	100	
PCB-208		NotFnd	<0.97	0.97	U	100	
PCB-207		NotFnd	<1.0	1.0	U	100	
PCB-206		NotFnd	<1.5	1.5	U	100	
PCB-209		NotFnd	<0.70	0.70	U	100	

Extraction Standards	pg	Time	% Rec	Limits
13C12-PCB-001	4000	8.95	24	5-145
13C12-PCB-003	4000	10.48	22	5-145
13C12-PCB-004	4000	10.62	32	5-145
13C12-PCB-015	4000	14.31	28	5-145
13C12-PCB-019	4000	12.60	38	5-145
13C12-PCB-037	4000	18.25	43	5-145
13C12-PCB-054	4000	14.43	37	5-145
13C12-PCB-081	4000	21.80	58	10-145
13C12-PCB-077	4000	22.11	59	10-145
13C12-PCB-104	4000	17.48	44	10-145
13C12-PCB-123	4000	23.07	67	10-145
13C12-PCB-118	4000	23.24	64	10-145
13C12-PCB-114	4000	23.54	71	10-145
13C12-PCB-105	4000	23.90	75	10-145
13C12-PCB-126	4000	25.50	78	10-145
13C12-PCB-155	4000	20.46	54	10-145
13C12-PCB-167	4000	26.37	78	10-145
13C12-PCB-156/157	8000	27.01	80	10-145
13C12-PCB-169	4000	28.67	90	10-145
13C12-PCB-188	4000	23.45	64	10-145
13C12-PCB-189	4000	29.93	86	10-145
13C12-PCB-202	4000	26.23	83	10-145
13C12-PCB-205	4000	31.31	81	10-145
13C12-PCB-208	4000	29.65	79	10-145
13C12-PCB-206	4000	32.37	86	10-145
13C12-PCB-209	4000	33.48	77	10-145

Field Spike Standards	pg	Time	% Rec	Limits
13C12-PCB-031	0			NS 70-130
13C12-PCB-095	0			NS 70-130
13C12-PCB-153	0			NS 70-130

Cleanup Standards	pg	Time	% Rec	Limits
13C12-PCB-028	4000	15.98	39	5-145
13C12-PCB-111	4000	21.99	64	10-145
13C12-PCB-178	4000	25.04	79	10-145

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a		
ALS Sample ID	WG3463499-4	Extraction Date	23-Dec-20		Approved: S. Jin --e-signature-- 12-Jan-2021
Analysis Method	EPA 1668C	Sample Size	1	Sample	
Analysis Type	Blank	Percent Moisture	n/a		
Sample Matrix	REAGENT	Split Ratio	4		

Run Information	Run 1
Filename	5-210105A05
Run Date	05-Jan-21 11:47
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPB0ctyl 256001-01

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg Flags	EMPC pg	LQL
Homologue Group Totals						
Total MonoCB			<1.6	1.6	U	400
Total DiCB			14.0	3.9	J	800
Total TriCB			34.6	2.7	J	800
Total TetraCB			58.0	1.1	J	1600
Total PentaCB			20.5	1.5	J	1600
Total HexaCB			11.7	0.81	J	1600
Total HeptaCB			<0.79	0.79	U	800
Total OctaCB			2.60	0.67	J	800
Total NonaCB			<0.97	0.97	U	400
DecaCB			<0.70	0.70	U	400
Total PCB			141		J	3200
Toxic Equivalency - (WHO 2005)						
Lower Bound PCB TEQ			0.00			
Mid Point PCB TEQ			0.122			
Upper Bound PCB TEQ			0.244			

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
TEF	Indicates the Toxic Equivalency Factor
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	Indicates that the analyte was positively identified. The associated numerical result is an estimate.
R	Indicates that the ion abundance ratio for this analyte did not meet the control limit. The reported value represents an estimated concentration.
NS	Indicates that this compound was not added.
EMPC	Estimated Maximum Possible Concentration - elevated detection limit due to interference or positive id criterion failure

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name Laboratory Control Sample
 ALS Sample ID WG3463499-2
 Analysis Method EPA 1668C
 Analysis Type LCS
 Sample Matrix MEDIA

Sampling Date n/a
 Extraction Date 23-Dec-20
 Sample Size 1 Sample
 Percent Moisture n/a
 Split Ratio 4

Approved:
 S. Jin
 --e-signature--
 12-Jan-2021

Run Information **Run 1**
 Filename 5-210105A02
 Run Date 05-Jan-21 09:40
 Final Volume 25 ul
 Dilution Factor 1
 Analysis Units % Rec
 Instrument - Column HRMS-5 SPBOctyl 256001-01

Target Analytes	pg	Ret. Time	% Rec	Limits	Flags
PCB-001	2000	8.95	102	60-135	
PCB-003	2000	10.48	98	60-135	
PCB-004	2000	10.62	95	60-135	
PCB-015	2000	14.31	99	60-135	
PCB-019	2000	12.60	99	60-135	
PCB-037	2000	18.23	98	60-135	
PCB-054	2000	14.44	98	60-135	
PCB-081	2000	21.80	97	60-135	
PCB-077	2000	22.10	94	60-135	
PCB-104	2000	17.48	91	60-135	
PCB-123	2000	23.07	95	60-135	
PCB-118	2000	23.24	99	60-135	
PCB-114	2000	23.54	94	60-135	
PCB-105	2000	23.90	90	60-135	
PCB-126	2000	25.50	92	60-135	
PCB-155	2000	20.46	94	60-135	
PCB-167	2000	26.37	93	60-135	
PCB-156/157	4000	27.01	93	60-135	
PCB-169	2000	28.67	93	60-135	
PCB-188	2000	23.45	92	60-135	
PCB-189	2000	29.93	98	60-135	
PCB-202	2000	26.23	99	60-135	
PCB-205	2000	31.33	95	60-135	
PCB-208	2000	29.65	94	60-135	
PCB-206	2000	32.37	94	60-135	
PCB-209	2000	33.50	101	60-135	
Extraction Standards					
		Time	% Rec	Limits	
13C12-PCB-001	4000	8.94	35	15-145	
13C12-PCB-003	4000	10.47	39	15-145	
13C12-PCB-004	4000	10.61	47	15-145	
13C12-PCB-015	4000	14.30	50	15-145	
13C12-PCB-019	4000	12.58	54	15-145	
13C12-PCB-037	4000	18.23	65	15-145	
13C12-PCB-054	4000	14.43	55	15-145	
13C12-PCB-081	4000	21.79	80	40-145	
13C12-PCB-077	4000	22.09	81	40-145	
13C12-PCB-104	4000	17.47	61	40-145	
13C12-PCB-123	4000	23.06	89	40-145	
13C12-PCB-118	4000	23.22	85	40-145	
13C12-PCB-114	4000	23.53	93	40-145	
13C12-PCB-105	4000	23.89	96	40-145	
13C12-PCB-126	4000	25.48	102	40-145	
13C12-PCB-155	4000	20.45	75	40-145	
13C12-PCB-167	4000	26.35	99	40-145	
13C12-PCB-156/157	8000	26.99	100	40-145	
13C12-PCB-169	4000	28.66	118	40-145	
13C12-PCB-188	4000	23.44	81	40-145	
13C12-PCB-189	4000	29.92	113	40-145	
13C12-PCB-202	4000	26.22	104	40-145	
13C12-PCB-205	4000	31.30	100	40-145	
13C12-PCB-208	4000	29.64	96	40-145	
13C12-PCB-206	4000	32.36	106	40-145	
13C12-PCB-209	4000	33.47	94	40-145	
Field Spike Standards					
13C12-PCB-031			NS	70-130	
13C12-PCB-095			NS	70-130	
13C12-PCB-153			NS	70-130	
Cleanup Standards					
13C12-PCB-028	4000	15.97	57	15-145	
13C12-PCB-111	4000	21.98	91	40-145	
13C12-PCB-178	4000	25.02	103	40-145	

NS Indicates that this compound was not added.

SVOC DATA PACKAGE

SECTION 6: INTERNAL RECORDS

Including:

- Prep Logs
- Independent calculation checks
- Others as listed below:

DX Extraction Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG3463499-1	40	✓
WG3463499-2	40	✓
WG3463499-3	40	✓
WG3463499-4	40	✓
L2541483-1	40	✓
L2541483-2	40	✓
L2541483-3	40	✓
L2541483-4	40	✓
L2541483-5	40	✓
	40	
	40	
	40	

Syringe ID: 320
 Standard: M23-ES#2- 043I
 Spike Date: 23-Dec-20

Spike Witnessing

Chemist's Initials: SP
 Witness's Initials: AM
 Correct Syringe Obtained: AM
 Correct Standard Obtained: AM
 Correct Technique Followed: AM

PCB Extraction Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG3463499-1	40	✓
WG3463499-2	40	✓
WG3463499-3	40	✓
WG3463499-4	40	✓
L2541483-1	40	✓
L2541483-2	40	✓
L2541483-3	40	✓
L2541483-4	40	✓
L2541483-5	40	✓
	40	
	40	

Syringe ID: 382
 Standard: 1668A-ES#2- 069F
 Spike Date: 23-Dec-20 SP

Spike Witnessing

Chemist's Initials: SP
 Witness's Initials: AM
 Correct Syringe Obtained: AM
 Correct Standard Obtained: AM
 Correct Technique Followed: AM

DXPCB STACK PREP

Batch ID:

WG3463499

Batch ID: WG3463499

DX Native Standard:

Sample I.D.	Volume (ul)	(Checkmark) Spiked
WG3463499-2	40	✓
WG3463499-3	40	✓

PCB Native Standard:

Sample I.D.	Volume (ul)	(Checkmark) Spiked
WG3463499-2	40	✓
WG3463499-3	40	✓

DX Cleanup Standard:

Sample I.D.	Volume (ul)	(Checkmark) Spiked
WG3463499-1	20	✓
WG3463499-2	20	✓
WG3463499-3	N/A	N/A
WG3463499-4	20	✓
L2541483-1	20	✓
L2541483-2	20	✓
L2541483-3	20	✓
L2541483-4	20	✓
L2541483-5	20	✓
	20	
	20	

PCB Cleanup Standard:

Sample I.D.	Volume (ul)	(Checkmark) Spiked
WG3463499-1	20	✓
WG3463499-2	20	✓
WG3463499-3	N/A	N/A
WG3463499-4	20	✓
L2541483-1	20	✓
L2541483-2	20	✓
L2541483-3	20	✓
L2541483-4	20	✓
L2541483-5	20	✓
	20	
	20	

Syringe ID: 322

Standard: 1613B-NS#3-030B

Date & Initials: 23-Dec-20 SS

Syringe ID: 394

Standard: 1668A-NS#1-040D

Date & Initials: 23-Dec-20 SS

Syringe ID: 357

Standard: M23-CL#1-037A

Date & Initials: 28-Dec-20 SS/Bm

Correct Syringe Obtained: Chemist's Initials

Correct Standard Obtained: Chemist's Initials

Correct Technique Followed: Chemist's Initials

Syringe ID: 395

Standard: 1668A-CL#2-038J

Date & Initials: 28-Dec-20 SS/Bm

Correct Syringe Obtained: Chemist's Initials

Correct Standard Obtained: Chemist's Initials

Correct Technique Followed: Chemist's Initials

Batch ID: WG3463499

DX Injection Standard: (Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG3463499-1	10	✓
WG3463499-2	10	✓
WG3463499-3	10	✓
WG3463499-4	10	✓
L2541483-1	10	✓
L2541483-2	10	✓
L2541483-3	10	✓
L2541483-4	10	✓
L2541483-5	10	✓
	10	
	10	
	10	
	10	
	10	
	10	
	10	
	10	
	10	
	10	
	10	

Syringe ID: 397
Standard: 1613B-IS#1-087H

Date & Initials: 5 Jan 2020 NB

Correct Syringe Obtained: NB
Correct Standard Obtained: NB
Correct Technique Followed: NB

PCB Injection Standard: (Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG3463499-1	5	✓
WG3463499-2	5	✓
WG3463499-3	5	✓
WG3463499-4	5	✓
L2541483-1	5	✓
L2541483-2	5	✓
L2541483-3	5	✓
L2541483-4	5	✓
L2541483-5	5	✓
	5	
	5	
	5	
	5	
	5	
	5	
	5	
	5	
	5	
	5	
	5	
	5	

Syringe ID: 365
Standard: 1668A-IS#2-014B

Date & Initials: 4-Jan-2021 NB

Correct Syringe Obtained: NB
Correct Standard Obtained: NB
Correct Technique Followed: NB

Batch ID: WG3463499

Reagent Lot Numbers:

Reagent	Lot#	Manufacturer
Acetone	105642	
Hexane	105523	
DCM	105939	
Toluene	105795	
Nonane	ORG-WAKONON-056	
1:1 DCM:HEX	ORG-DH2-662	
Sodium Sulphate	ORG-SSU-2462, 2461	
Acid Silica	ORG-ASI-9524, 9525, 9526	
Neutral Silica	ORG-NSI-2468	
Alumina	ORG-ALU-491	
1% Deactivated Silica	ORG-2%DAS-	
Chromacarb	ORG-CC-255	

Cornoil

073

Batch ID: WG3463499

Procedure:

This batchsheet is a guideline only. Please see test procedure for complete set of instructions.

Extraction:

- For MB and LCS you **must** use blank media - if not available see your Team Lead

XAD+Filter+Front Half Rinse

- Place a layer of pre-cleaned glasswool with 1cm of sodium sulphate or a preclened thimble into soxhlet

- Place the PUFs into the soxhlet body or precleaned thimble

- Spike with Extraction Standard (plus Native for LCS and ENI).

- Soxhlet extract in DCM for 16 hours (check with team lead or supervisor)

Rotovap:

- Rotovap and reduce to ~2mL.

- Transfer to a calibrated c-tube (marked at 1ml, 2ml) with 3x2ml hexane

- Mix well then quantitatively spilt the extract **1/2 DX/PCB 1/2 Archive**

Batch ID: WG3463499

DX/PCB:

- Perform Acid Silica column \
- Solvent Exchange (reduce to **~50ul**, bulk back up to 1ml Hexane, vortex well. ✓
- Perform Alumina Column:
 - Pre-elute the Alumina Column with 7ml Hexane ✓
 - Place F1 c-tube under the column, then load the sample with 3x1ml Hexane rinses ✓
 - F1 (Archive) 1mL Hexane ✓
 - F2 (DX/PCB) 14mL 1:1 DCM:Hexane

-Split Alumina F2 1/2 PCB 1/2 DX

Micro-Vial:

PCB:

- Blow down to ~1/2ml
- Vortex **very** well.
- Transfer every last drop to a micro-vial (Marked at 20uL with nonane).
- Blow down to the line
- Spike PCB Injection Standard, cap and vortex. **FV=25ul**

DX:

- Solvent Exchange to Hexane (Reduce to Just Dry then bulk back up to 1ml Hexane)
- ChromaCarb: - 4cm of well-packed chroma-carb.
 - Pre-elute Carbon with 5ml Hexane
 - Transfer with 3x1ml Hexane
 - F1 = **10ml** 1:1 DCM:Hexane (Archive)
 - After dripping has stopped Invert Column.
 - F2 = 14ml Toluene (DX and PCB)
- After the column has stopped dripping reduce the **F2** portion down to ~1/2ml.
- Vortex well, then transfer to a micro-vial without rinses.
- Blow the micro-vial down to just-dry.
- Spike with Injection Standard, Cap the micro-vial, and Vortex. **FV=10ul**

Batch ID: WG3463499

Comments:

NOTE: Label and Save All Columns including Acid Silica Columns

Approval of Deviation from Standard Method

Procedure does deviate from Standard Method. **Approved (Supervisor/Manager):** _____

(Batch Writer): _____

Procedure does deviate from Standard Method. **Approved (Supervisor/Manager):** _____

WG3463499		Prep Analyst:			
PUFS - M23/1668A (HR)		Date:			
	Very Good	Meets Method Req	Some Outliers	Very Poor	Comments / Was spl/batch sent for rework? Why?
MB					
LCS					
DUP					
ES rec					

ALS Life Sciences

Sample Calculation Report

CS3 RRF Check

Approved:

S. Jin
--e-signature--
12-Jan-2021

$$\text{RRF} = \frac{\text{Response of PCB-118}}{\text{Response of 13C12-PCB-118}} \times \frac{\text{Concentration of 13C12-PCB-118}}{\text{Concentration of PCB-118}}$$

$$\text{RRF} = \frac{412135.20}{682591.40} \times \frac{100}{50}$$

Calculated Value

Value from TargetLynx

$$= 1.208 \quad 1.208$$

Calculation of PCB-118 amount in L2541483-4

$$\text{pg} = \frac{\text{Response of PCB-118}}{\text{Response of 13C12-PCB-118}} \times \frac{\text{pg of 13C12-PCB-118 spiked}}{\text{Mean RRF} * \text{Sample Size}}$$

$$\text{pg} = \frac{1590651}{332225.7} \times \frac{4000}{1.17 * 1.00} = 16400 \quad 16400$$

Calculation of 13C12-PCB-118 Recovery in L2541483-4

$$\% \text{ Recovery} = \frac{\text{Response of 13C12-PCB-118}}{\text{Response of 13C12-PCB-101}} \times \frac{\text{pg of 13C12-PCB-101 spiked} * 100}{\text{Mean RRF} * \text{pg 13C12-PCB-118 Spiked}}$$

$$\% \text{ Recovery} = \frac{332225.7}{633612.9} \times \frac{8000 * 100}{1.42 * 4000} = 74 \quad 74 \quad \%$$

SVOC DATA PACKAGE

SECTION 7: SHIPPING/RECEIVING DOCUMENTS

Including:

- Airbills
- Chain-of-Custody Records
- Sample Log-in Sheet(s) - where applicable
- Others as listed below:



Chain of Custody (COC) / Analytical Request Form



COC Number: 17 - 792165

Page 1 of 1

Canada Toll Free: 1 800 668 9878

L2519524-COFC

www.alsglobal.com

Report To		Report Format		Priority		
Contact and company name below will appear on the final report		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)		Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply		
Company:	Farallon Consulting	Quality Control (QC) Report with Report <input type="checkbox"/> YES <input type="checkbox"/> NO		4 day [P4-20%] <input type="checkbox"/>		
Contact:	Amber Bailey	<input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked		3 day [P3-25%] <input type="checkbox"/>		
Phone:	206-735-6178	Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		2 day [P2-50%] <input type="checkbox"/>		
Company address below will appear on the final report		Email 1 or Fax: <u>abailey@farallonconsulting.com</u>		EMERGENCY <input type="checkbox"/> 1 Business day [E - 100%]		
Street:	975 5th AVE. NW	Email 2		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]		
City/Province:	ISSAQUAH, WA	Email 3		Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm		
Postal Code:	98059	Invoice Distribution		For tests that can not be performed according to the service level selected, you will be contacted.		
Invoice To	Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		Analysis Request		
Copy of Invoice with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Email 1 or Fax: <u>AP@farallonconsulting.com</u>		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below		
Company:		Email 2: <u>abailey@farallonconsulting.com</u>		NUMBER OF CONTAINERS		
Contact:		ON and Gas Required Fields (client use)		PCBs Dioxins		
Project Information		AFE/Cost Center: PO#		SAMPLES ON HOLD SUSPECTED HAZARD (see Special Instructions)		
ALS Account # / Quote #:		Major/Minor Code: Routing Code:				
Job #:		Requisitioner:				
PO / AFE:		Location:				
LSD:		ALS Contact: Sampler:				
ALS Lab Work Order # (lab use only):						
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type		
1	L2497422-3-1	15-Oct-20	1010	Air	1	X X
2	L2497422-5-2	15-Oct-20	1037		1	X X
3	L2497422-4-3		1205		1	X X
4	L2497422-6-4		1216		1	X X
5	L2497422-2-5		1225		1	X X
Drinking Water (DW) Samples (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)		SAMPLE CONDITION AS RECEIVED (lab use only)		
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input type="checkbox"/> NO				Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Are samples for human consumption/ use? <input type="checkbox"/> YES <input type="checkbox"/> NO				Ice Packs <input checked="" type="checkbox"/> Ice Cubes <input checked="" type="checkbox"/> Custody seal intact Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
				Cooling Initiated <input checked="" type="checkbox"/>		
				INITIAL COOLER TEMPERATURES °C: 10.8°C		
				FINAL COOLER TEMPERATURES °C:		
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)		
Released by: <u>Made</u>	Date: 10/15/20	Time: 1400	Received by: <u>ARRAN BURTON</u>	Date: 21-Oct-2020	Time: 11:00	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY L2541483 PCB DPKG 210127 YELLOW - CLIENT COPY

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form



Chain of Custody (COC) / Analytical Request Form



L2530845-COFC

COC Number: 17-792309

Page of

Canada Toll Free: 1-800-668-9878

www.alsglobal.com

Report To Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)																																							
Company: <u>Farallon Consulting</u>		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)		Regular [R] <input type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply		EMERGENCY																																					
Contact: <u>Amber Bailey</u>		Quality Control (QC) Report with Report <input type="checkbox"/> YES <input type="checkbox"/> NO		4 day [P4-20%] <input type="checkbox"/>		1 Business day [E - 100%]																																					
Phone: <u>206 735-6178</u>		<input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked		3 day [P3-25%] <input type="checkbox"/>		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]																																					
Company address below will appear on the final report		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		2 day [P2-50%] <input type="checkbox"/>																																							
Street: <u>975 5th AVE NW</u>		Email 1 or Fax: <u>abailyc@farallonconsulting.com</u>		Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm																																							
City/Province: <u>Issaquah WA</u>		Email 2		For tests that can not be performed according to the service level selected, you will be contacted.																																							
Postal Code: <u>98027</u>		Email 3		Analysis Request																																							
Invoice To		Invoice Distribution		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FIP) below																																							
Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		<table border="1"> <tr> <td rowspan="5">NUMBER OF CONTAINERS</td> <td>PCBS EPA method 1168</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td rowspan="5">SAMPLES ON HOLD</td> <td rowspan="5">SUSPECTED HAZARD (see Special Instructions)</td> </tr> <tr> <td>EPA method 8290A</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				NUMBER OF CONTAINERS	PCBS EPA method 1168						SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)	EPA method 8290A																										
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Copy of Invoice with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Email 1 or Fax: <u>APCFarallonconsulting.com</u>																																									
Company:		Email 2																																									
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ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type																																							
	<u>L2497422-1</u>	<u>10/29/20</u>	<u>1305</u>	<u>Air</u>																																							
<u>1</u>	<u>L2497422-8-1</u>	<u>11/7/20</u>	<u>0946</u>	<u>I</u>	<u>X</u>	<u>X</u>																																					
<u>2</u>	<u>L2546041-1-2</u>	<u>I</u>	<u>1011</u>	<u>I</u>	<u>X</u>	<u>X</u>																																					
<u>3</u>	<u>L2497422-9-3</u>	<u>I</u>	<u>1046</u>	<u>I</u>	<u>X</u>	<u>X</u>																																					
<u>4</u>	<u>L2497422-7-4</u>	<u>I</u>	<u>1055</u>	<u>I</u>	<u>X</u>	<u>X</u>																																					
<u>5</u>	<u>L2497422-10-5</u>	<u>I</u>	<u>1106</u>	<u>I</u>	<u>X</u>	<u>X</u>																																					
		<u>AB</u>																																									
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)		SAMPLE CONDITION AS RECEIVED (lab use only)																																							
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input type="checkbox"/> NO		<u>Do not analyze L2497422-1, Recycle/Dispo</u>		Frozen <input type="checkbox"/>		SIF Observations Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																																					
Are samples for human consumption/ use? <input type="checkbox"/> YES <input type="checkbox"/> NO				Ice Packs <input checked="" type="checkbox"/> Ice Cubes <input type="checkbox"/>		Custody seal intact Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																																					
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				INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C																																					
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Released by: <u>[Signature]</u> Date: <u>11/7/20</u> Time: <u>1205</u>		Received by: <u>ARON BURTAN</u> Date: <u>18-NOV-2020</u> Time: <u>11:45</u>		Received by: _____ Date: _____ Time: _____																																							

REFER TO BACK PAGE FOR ALIQUOTS LOCATIONS AND SAMPLING INFORMATION

L2541483 PCB DPRS 210127 YELLOW - CLIENT COPY

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



Chain of Custody (COC) / Analytical Request Form



Composite WO: L2541483

COC Number: 17-792310

L2541477-COFC

Page of

Canada Toll Free: 1 800 668 9878

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Report To Contact and company name below will appear on the final report. Company: <u>Sarallon Consulting</u> Contact: <u>Amber Bailey</u> Phone: <u>206-735-6178</u> Company address below will appear on the final report. Street: <u>975 5th AVE NW</u> City/Province: <u>ISSAQUAH WA</u> Postal Code: <u>98059</u>		Report Format / Distribution Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL) Quality Control (QC) Report with Report: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked Select Distribution: <input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>ambert@sarallonconsulting.com</u> Email 2: <u>sbailey@sarallonconsulting.com</u> Email 3:		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply) Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply Priority (Business Days): 4 day [P4-20%] <input type="checkbox"/> 3 day [P3-25%] <input type="checkbox"/> 2 day [P2-50%] <input type="checkbox"/> EMERGENCY: 1 Business day [E - 100%] <input type="checkbox"/> Same Day, Weekend or Statutory holiday [E2 - 200% (Laboratory opening fees may apply)] <input type="checkbox"/> Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm																																																																																							
Invoice To Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Copy of Invoice with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Company: Contact:		Invoice Distribution Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>Amber@sarallonconsulting.com</u> Email 2:		Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below <table border="1"> <tr> <td rowspan="5" style="writing-mode: vertical-rl; transform: rotate(180deg);">NUMBER OF CONTAINERS</td> <td>9</td> <td>8</td> <td>7</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> <td rowspan="5" style="writing-mode: vertical-rl; transform: rotate(180deg);">SAMPLES ON HOLD</td> <td rowspan="5" style="writing-mode: vertical-rl; transform: rotate(180deg);">SUSPECTED HAZARD (see Special Instructions)</td> </tr> <tr> <td>9</td> <td>8</td> <td>7</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>9</td> <td>8</td> <td>7</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>9</td> <td>8</td> <td>7</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>9</td> <td>8</td> <td>7</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> </table>		NUMBER OF CONTAINERS	9	8	7	6	5	4	3	2	1	0	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)	9	8	7	6	5	4	3	2	1	0	9	8	7	6	5	4	3	2	1	0	9	8	7	6	5	4	3	2	1	0	9	8	7	6	5	4	3	2	1	0																																	
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Project Information ALS Account # / Quote #: Job #: PO / AFE: LSD:		Oil and Gas Required Fields (client use) AFE/Cost Center: PO#: Major/Minor Code: Routing Code: Requisitioner: Location:		ALS Lab Work Order # (lab use only): ALS Contact: Sampler:																																																																																							
ALS Sample # (lab use only) Sample Identification and/or Coordinates (This description will appear on the report) Date (dd-mmm-yy) Time (hh:mm) Sample Type		<table border="1"> <thead> <tr> <th>ALS Sample # (lab use only)</th> <th>Sample Identification and/or Coordinates (This description will appear on the report)</th> <th>Date (dd-mmm-yy)</th> <th>Time (hh:mm)</th> <th>Sample Type</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>L2497422-8-1</td> <td>12/15/20</td> <td>12:41</td> <td>AW</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>L2497422-1-2</td> <td></td> <td>12:50</td> <td></td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>L2497422-9-3</td> <td></td> <td>13:24</td> <td></td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>L2497422-7-4</td> <td></td> <td>13:34</td> <td></td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>L2497422-10-5</td> <td></td> <td>13:43</td> <td></td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	1	2	3	4	5	6	7	8	9	1	L2497422-8-1	12/15/20	12:41	AW	X	X								2	L2497422-1-2		12:50		X	X								3	L2497422-9-3		13:24		X	X								4	L2497422-7-4		13:34		X	X								5	L2497422-10-5		13:43		X	X								Drinking Water (DW) Samples¹ (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input type="checkbox"/> NO Are samples for human consumption/use? <input type="checkbox"/> YES <input type="checkbox"/> NO Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only) <u>Analytical samples - composite samples submitted on 10/15, 11/17, and 12/15.</u>		SAMPLE CONDITION AS RECEIVED (lab use only) Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Ice Packs <input checked="" type="checkbox"/> Ice Cubes <input type="checkbox"/> Custody seal intact Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Cooling Initiated <input checked="" type="checkbox"/> INITIAL COOLER TEMPERATURES °C: 5.4°C FINAL COOLER TEMPERATURES °C:	
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	1	2	3	4	5	6	7	8	9																																																																														
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5	L2497422-10-5		13:43		X	X																																																																																					
SHIPMENT RELEASE (client use) Released by: <u>[Signature]</u> Date: <u>12/15/20</u> Time: <u>1500</u>		INITIAL SHIPMENT RECEPTION (lab use only) Received by: <u>PARAN BURTON</u> Date: <u>13-DEC-2020</u> Time: <u>13:10</u>		FINAL SHIPMENT RECEPTION (lab use only) Received by: Date: Time:																																																																																							

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Sample Receiving Log

Date/Time Received	Client ID	Number/Description of Containers	Temp. on Receipt*	Condition of Samples, Courier & Tracking Information	Receiver's Initials	Date/Time Login Completed	Submission ID	Sample ID Range
21-Oct-2020 11:00	FARALLON	5 x PUFs	10.8°C	Good FedEx 7714 6810 5736	Mg	21-Oct-2020 14:45	L2579524	-1-5

*Temperatures were recorded using : VWR Traceable dedicated I.R. gun (model 36934-178 SN 192108143)
 Other (specify): _____

Sample Receiving Log

Date/Time Received	Client ID	Number/Description of Containers	Temp. on Receipt*	Condition of Samples, Courier & Tracking Information	Receiver's Initials	Date/Time Login Completed	Submission ID	Sample ID Range
18-NOV-2026 11:45	FARALLON	5 x PUFFS	5.9°C	Good FedEx 770 6531 8900	Mg	18-NOV-2026 14:08	L2530845	-1-5

*Temperatures were recorded using : VWR Traceable dedicated I.R. gun (model 36934-178 SN 192108143)
 Other (specify): _____

Sample Receiving Log

Date/Time Received	Client ID	Number/Description of Containers	Temp. on Receipt*	Condition of Samples, Courier & Tracking Information	Receiver's Initials	Date/Time Login Completed	Submission ID	Sample ID Range
16-Dec-2020 13:10	FARALOW	5 x PUFs	5.4°C	Good FedEx 7718 6371 7805	MB	17-Dec-2020 12:45	L2541477 L2541483	-1-5 -1-5

*Temperatures were recorded using : VWR Traceable dedicated I.R. gun (model 36934-178 SN 192108143)
 Other (specify): _____

From: [Claire Kocharakkal](#)
To: [Amber Bailey](#); [Breanne Dusureault](#)
Subject: RE: [EXTERNAL] - COC from 12/15/20
Date: Friday, January 8, 2021 12:40:54 PM
Attachments: [image003.png](#)
[image004.png](#)
[image005.png](#)

Hello Amber,

We can certainly look into this! Breanne will be your account manager going forward and she will be happy to check in on this and respond.

Thank you!

Claire Kocharakkal
Account Manager, Environmental
Canada



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E +1 905 331 4567
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From: Amber Bailey [mailto:abailey@farallonconsulting.com]
Sent: Friday, January 08, 2021 12:37 PM
To: Claire Kocharakkal <claire.kocharakkal@ALSGlobal.com>
Subject: [EXTERNAL] - COC from 12/15/20
Importance: High

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Claire,

Can you double check on something for me? I think I wrote the incorrect sample label IDs on the COC from the 12/15 sample submission.

If so please verify that the following samples were actually the ones submitted.

Site 1: L2527465-3
Site 2: L2527465- 2
Site 3: L2527465- 5
Site 4: L2527465- 4
Site 5: L2527465- 1

If these are correct please correct on the COC to:

L2527465-3-1
L2527465- 2- 2
L2527465- 5- 3
L2527465- 4- 4
L2527465- 1- 5

I apologize for the mix up.

Thank you,

Amber Bailey, Project Environmental Scientist

Farallon Consulting, L.L.C. | 975 5th Avenue Northwest | Issaquah, Washington 98027
abailey@farallonconsulting.com | Direct: (425) 295-0811 Cell: (206) 735-6178



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