



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

SVOC DATA PACKAGE

Client Project Information

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

ALSE Project Information

Project ID: FAR100
Contact: Claire Kocharakkal
Submission ID(s): L2504188

Final Package Review by:

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

Date Reviewed: 13-Oct-20

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SECTION 1: PROJECT NARRATIVE

ALSE Project Information

 Project ID: FAR100
 Contact: Claire Kocharakkal
 Submission ID(s): L2504188

Client Project Information

 Project ID: 1466-004
 Project Description: SEATTLE IRON & METALS
 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
L2494490-1	L2483549-13-1	PUF	25-Aug-20	26-Aug-20	5.7	n/a	n/a
L2497813-1	L2483549-20-1	PUF	1-Sep-20	2-Sep-20	5.5	n/a	n/a
L2501323-1	L2483549-17-1	PUF	9-Sep-20	10-Sep-20	4.8	n/a	n/a
L2504187-1	L2483549-7-1	PUF	15-Sep-20	16-Sep-20	7.0	n/a	n/a
L2504188-1	SITE 1 - COMPOSITE 3 (SEPTEMBER)	PUF	n/a	n/a	n/a	24-Sep-20	03-Oct-20
L2494490-2	L2483549-1-2	PUF	25-Aug-20	26-Aug-20	5.7	n/a	n/a
L2497813-2	L2483549-19-2	PUF	1-Sep-20	2-Sep-20	5.5	n/a	n/a
L2501323-2	L2483549-10-2	PUF	9-Sep-20	10-Sep-20	4.8	n/a	n/a
L2504187-2	L2483549-8-2	PUF	15-Sep-20	16-Sep-20	7.0	n/a	n/a
L2504188-2	SITE 2 - COMPOSITE 3 (SEPTEMBER)	PUF	n/a	n/a	n/a	24-Sep-20	03-Oct-20
L2494490-3	L2483549-14-3	PUF	25-Aug-20	26-Aug-20	5.7	n/a	n/a
L2497813-3	L2483549-18-3	PUF	1-Sep-20	2-Sep-20	5.5	n/a	n/a
L2501323-3	L2483549-16-3	PUF	9-Sep-20	10-Sep-20	4.8	n/a	n/a
L2504187-3	L2483549-15-3	PUF	15-Sep-20	16-Sep-20	7.0	n/a	n/a
L2504188-3	SITE 3 - COMPOSITE 3 (SEPTEMBER)	PUF	n/a	n/a	n/a	24-Sep-20	03-Oct-20
L2494490-4	L2483549-12-4	PUF	25-Aug-20	26-Aug-20	5.7	n/a	n/a
L2497813-4	L2483549-5-4	PUF	1-Sep-20	2-Sep-20	5.5	n/a	n/a
L2501323-4	L2483549-9-4	PUF	9-Sep-20	10-Sep-20	4.8	n/a	n/a
L2504187-4	L2483549-2-4	PUF	15-Sep-20	16-Sep-20	7.0	n/a	n/a
L2504188-4	SITE 4 - COMPOSITE 3 (SEPTEMBER)	PUF	n/a	n/a	n/a	24-Sep-20	03-Oct-20
L2494490-5	L2483549-11-5	PUF	25-Aug-20	26-Aug-20	5.7	n/a	n/a
L2497813-5	L2483549-4-5	PUF	1-Sep-20	2-Sep-20	5.5	n/a	n/a
L2501323-5	L2483549-6-5	PUF	9-Sep-20	10-Sep-20	4.8	n/a	n/a
L2504187-5	L2483549-3-5	PUF	15-Sep-20	16-Sep-20	7.0	n/a	n/a
L2504188-5	SITE 5 - COMPOSITE 3 (SEPTEMBER)	PUF	n/a	n/a	n/a	24-Sep-20	03-Oct-20
WG3406765-1	Method Blank	MEDIA	n/a	n/a	n/a	24-Sep-20	04-Oct-20
WG3406765-4	Method Blank	REAGENT	n/a	n/a	n/a	24-Sep-20	04-Oct-20
WG3406765-2	Laboratory Control Sample	QC	n/a	n/a	n/a	24-Sep-20	03-Oct-20

Comments and Notes:
a) Sample Integrity:

The samples were received on 4 different dates as noted above. The four 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.

b) Instrumental Analysis:

The responses of PCB-1 and PCB-3 Have been omitted from the highest level of the initial calibration due to detector saturation. Four calibration levels have been used for these targets.

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

13-Oct-20

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: Claire Kocharakkal
ALS Project ID: FAR100
ALS WO#: L2504188
Date of Report: 13-Oct-20
Date of Sample Receipt: 17-Sep-20

Client Name: Farallon Consulting, L.L.C.
Client Address: 975 5th Avenue Northwest
Issaquah, WA 98027
USA
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

Certified by:

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

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 3 (SEPTEMBER)	SITE 2 - COMPOSITE 3 (SEPTEMBER)	SITE 3 - COMPOSITE 3 (SEPTEMBER)	SITE 4 - COMPOSITE 3 (SEPTEMBER)	SITE 5 - COMPOSITE 3 (SEPTEMBER)
ALS Sample ID	L2504188-1	L2504188-2	L2504188-3	L2504188-4	L2504188-5
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	24-Sep-20	24-Sep-20	24-Sep-20	24-Sep-20	24-Sep-20
Target Analytes	pg	pg	pg	pg	pg
PCB-001	22400	157000	50500	116000	382000
PCB-002	1320	6720	2320	5610	16100
PCB-003	4600	28400	9320	25300	71800
PCB-004	126000	816000	277000	931000	2120000
PCB-010	4600	28300	11300	35800	74600
PCB-009	8890	59600	21300	67200	164000
PCB-007	5240	34200	12700	38800	95500
PCB-006	24100	156000	56300	184000	416000
PCB-005	2030	14700	4550	13100	32400
PCB-008	106000	664000	247000	812000	1740000
PCB-014	18.6	62.3	30.9	72.8	149
PCB-011	5550	7240	5130	7850	15600
PCB-012/013	2910	18600	6670	25500	48600
PCB-015	17400	107000	39700	153000	261000
PCB-019	17100	121000	42600	148000	315000
PCB-018/030	80800	500000	193000	641000	1300000
PCB-017	36900	231000	90000	298000	608000
PCB-027	5180	31000	12500	42700	80300
PCB-024	1460	8790	2980	10800	25400
PCB-016	31300	195000	73300	248000	472000
PCB-032	18400	112000	43400	147000	283000
PCB-034	216	1220	510	1660	3510
PCB-023	<-93	600	222	776	1700
PCB-026/029	10100	60300	23300	79200	156000
PCB-025	3900	23600	9170	31500	59400
PCB-031	45600	266000	102000	355000	683000
PCB-020/028	49900	286000	110000	388000	721000
PCB-021/033	31400	178000	68400	238000	432000
PCB-022	17200	97600	37100	133000	231000
PCB-036	18.0	18.6	13.4	26.8	41.8
PCB-039	227	1310	492	1790	3120
PCB-038	89.9	301	136	356	618
PCB-035	457	2660	949	3750	4350
PCB-037	5780	32100	11100	42900	62500
PCB-054	231	1300	510	1720	3320
PCB-050/053	6440	36800	14500	48100	95800
PCB-045/051	8880	50500	19600	65800	129000
PCB-046	2570	14700	5820	20600	36400
PCB-052	31800	159000	67900	227000	416000
PCB-073	<22	<22	<21	<42	<23
PCB-043	1930	7970	4220	15700	21800
PCB-049/069	15400	79200	33100	113000	204000
PCB-048	7240	38600	16000	55200	99300
PCB-044/047/065	24000	121000	49700	170000	297000
PCB-059/062/075	2560	12600	5370	18300	30900
PCB-042	5920	30500	12400	43100	71500
PCB-040/041/071	12900	68800	26400	93200	156000
PCB-064	9160	44900	18500	64900	105000
PCB-072	<67	340	<150	495	815
PCB-068	<48	173	73.6	<140	345
PCB-057	<61	414	152	<480	897
PCB-058	<52	<50	<42	151	268
PCB-067	394	2160	807	2850	4740
PCB-063	361	1940	737	2670	4460
PCB-061/070/074/076	15700	78500	30900	106000	164000
PCB-066	6470	33600	12500	43800	65600
PCB-055	291	1490	626	1880	2820
PCB-056	2950	16400	5490	19800	29200
PCB-060	1900	10600	3690	12900	19200
PCB-080	<3.3	<5.9	<3.2	<5.6	<6.2
PCB-079	83.9	340	133	509	646
PCB-078	<11	30.6	<13	40.4	51.2
PCB-081	24.5	138	41.6	164	210
PCB-077	442	2190	673	2750	3120
PCB-104	3.28	16.4	<6.3	<28	<43
PCB-096	187	951	376	1290	2390
PCB-103	67.9	314	144	464	840
PCB-094	80.3	333	125	475	841
PCB-095	8590	35500	16000	50100	88500
PCB-093/098/100/102	930	2730	1500	4930	6430

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Sample Analysis Summary Report

Sample Name	SITE 1 - COMPOSITE 3 (SEPTEMBER)	SITE 2 - COMPOSITE 3 (SEPTEMBER)	SITE 3 - COMPOSITE 3 (SEPTEMBER)	SITE 4 - COMPOSITE 3 (SEPTEMBER)	SITE 5 - COMPOSITE 3 (SEPTEMBER)
ALS Sample ID	L2504188-1	L2504188-2	L2504188-3	L2504188-4	L2504188-5
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	24-Sep-20	24-Sep-20	24-Sep-20	24-Sep-20	24-Sep-20
Target Analytes	pg	pg	pg	pg	pg
PCB-088/091	1360	6360	2710	8890	15000
PCB-084	2290	9990	4360	14300	22500
PCB-089	133	658	236	822	1290
PCB-121	<3.2	<1.9	<1.2	<6.0	<7.0
PCB-092	1290	4850	2280	7410	12000
PCB-090/101/113	7620	27300	13300	41400	64200
PCB-083/099	3910	15700	7170	23200	34900
PCB-112	<24	<54	37.2	99.4	129
PCB-086/087/097/109/119/125	4910	18500	8040	26500	39400
PCB-085/110/115/116/117	7970	29900	13200	44100	61300
PCB-082	686	2880	1120	3720	5210
PCB-111	<3.0	<3.0	3.08	<8.0	<12
PCB-120	8.53	29.2	14.7	46.8	60.8
PCB-108/124	150	591	238	920	1260
PCB-107	223	874	366	1310	1720
PCB-123	71.0	321	114	364	473
PCB-106	<12	<20	<23	<27	<23
PCB-118	3610	14300	5880	21000	27700
PCB-122	82.0	281	112	371	395
PCB-114	111	505	181	676	921
PCB-105	1480	6260	2240	8840	11700
PCB-127	<6.7	28.1	13.4	41.5	54.9
PCB-126	<13	<55	<26	<87	<62
PCB-155	<2.4	4.23	<2.6	<4.4	<5.9
PCB-152	6.77	25.3	10.2	35.5	57.2
PCB-150	11.1	26.3	15.4	42.2	67.2
PCB-136	676	1980	1010	3090	4980
PCB-145	<2.8	9.68	6.57	15.2	26.2
PCB-148	5.80	10.1	6.36	16.5	24.5
PCB-135/151	1330	3440	1850	5340	8180
PCB-154	39.6	96.7	56.8	149	216
PCB-144	193	522	275	844	1280
PCB-147/149	2930	8440	4400	12800	19000
PCB-134/143	298	790	512	1290	1780
PCB-139/140	106	291	<130	450	629
PCB-131	64.6	212	97.2	341	490
PCB-142	<1.6	<2.9	<2.3	<4.4	8.27
PCB-132	1330	4130	1950	6570	9000
PCB-133	38.9	113	58.1	189	258
PCB-165	<1.1	<2.0	<1.6	<2.1	<2.7
PCB-146	370	1100	555	1770	2450
PCB-161	<0.98	<1.8	<1.4	<1.8	<2.4
PCB-153/168	2220	6560	3350	10200	14100
PCB-141	525	1390	750	2250	3090
PCB-130	205	572	289	873	1240
PCB-137/164	321	1050	474	1600	2210
PCB-129/138/163	2820	9560	4430	14900	19800
PCB-160	<1.0	<1.9	<1.5	<1.9	<2.5
PCB-158	247	795	388	1260	1650
PCB-128/166	388	1340	570	2100	2590
PCB-159	19.4	48.4	28.1	69.7	95.0
PCB-162	<5.3	25.3	<9.4	36.7	47.7
PCB-167	80.5	302	133	504	640
PCB-156/157	225	979	411	1630	2110
PCB-169	<6.0	<9.3	<6.9	<18	<17
PCB-188	6.26	10.1	6.28	11.8	13.9
PCB-179	290	553	355	753	1180
PCB-184	<2.4	6.06	<2.9	6.82	7.19
PCB-176	67.7	154	88.2	214	313
PCB-186	<0.79	<0.77	<0.99	<1.0	<1.3
PCB-178	91.9	181	118	273	388
PCB-175	17.0	42.8	26.1	64.0	89.1
PCB-187	646	1290	854	1780	2570
PCB-182	5.26	11.2	7.01	<12	18.3
PCB-183	230	552	328	823	1130
PCB-185	42.6	84.1	54.4	98.8	138
PCB-174	259	685	382	1040	1370
PCB-177	143	392	212	593	769
PCB-181	<3.7	14.1	7.13	23.7	28.6
PCB-171/173	73.7	238	124	373	478
PCB-172	<34	109	62.2	178	214

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Sample Analysis Summary Report

Sample Name	SITE 1 - COMPOSITE 3 (SEPTEMBER)	SITE 2 - COMPOSITE 3 (SEPTEMBER)	SITE 3 - COMPOSITE 3 (SEPTEMBER)	SITE 4 - COMPOSITE 3 (SEPTEMBER)	SITE 5 - COMPOSITE 3 (SEPTEMBER)
ALS Sample ID	L2504188-1	L2504188-2	L2504188-3	L2504188-4	L2504188-5
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	24-Sep-20	24-Sep-20	24-Sep-20	24-Sep-20	24-Sep-20
Target Analytes	pg	pg	pg	pg	pg
PCB-192	<0.97	<0.94	<1.2	<1.2	<1.5
PCB-180/193	453	1410	804	2180	2800
PCB-191	7.08	25.3	18.4	47.1	59.3
PCB-170	149	601	300	978	1190
PCB-190	28.2	115	52.4	179	219
PCB-189	4.80	25.0	14.1	42.7	58.2
PCB-202	169	290	213	350	533
PCB-201	59.6	98.9	71.9	126	205
PCB-204	<0.56	1.11	<0.45	0.770	<0.90
PCB-197	<8.9	21.8	14.7	28.0	41.9
PCB-200	32.9	64.8	46.6	90.4	135
PCB-198/199	255	586	377	849	1140
PCB-196	73.7	193	120	304	389
PCB-203	140	369	226	504	716
PCB-195	25.1	87.0	48.0	135	187
PCB-194	70.6	287	165	483	591
PCB-205	<3.0	14.1	<7.8	22.1	29.8
PCB-208	48.1	119	67.0	166	196
PCB-207	18.1	49.7	30.6	67.4	82.4
PCB-206	59.3	289	134	443	534
PCB-209	<11	103	36.3	145	155
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec
13C12-PCB-001	65	76	78	74	67
13C12-PCB-003	61	75	73	70	66
13C12-PCB-004	55	68	68	59	47
13C12-PCB-015	76	102	92	86	69
13C12-PCB-019	38	47	45	40	35
13C12-PCB-037	72	102	96	92	68
13C12-PCB-054	49	57	56	54	54
13C12-PCB-081	81	102	101	91	63
13C12-PCB-077	84	106	107	94	65
13C12-PCB-104	63	79	77	72	54
13C12-PCB-123	80	100	99	89	61
13C12-PCB-118	83	104	103	93	64
13C12-PCB-114	76	97	96	87	59
13C12-PCB-105	75	98	96	87	59
13C12-PCB-126	77	100	100	87	57
13C12-PCB-155	64	81	79	73	54
13C12-PCB-167	90	113	109	101	67
13C12-PCB-156/157	84	105	104	94	63
13C12-PCB-169	88	112	112	97	63
13C12-PCB-188	85	107	102	100	70
13C12-PCB-189	88	111	109	96	64
13C12-PCB-202	66	81	80	75	51
13C12-PCB-205	89	110	109	100	67
13C12-PCB-208	95	115	113	105	73
13C12-PCB-206	89	112	110	104	69
13C12-PCB-209	88	109	107	99	66
Field Spike Standards					
13C12-PCB-031	121	119	117	112	115
13C12-PCB-095	107	111	106	108	113
13C12-PCB-153	110	113	107	112	112
Cleanup Standards					
13C12-PCB-028	72	95	78	74	66
13C12-PCB-111	85	106	87	83	66
13C12-PCB-178	82	99	81	81	64

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Sample Analysis Summary Report

Sample Name	SITE 1 - COMPOSITE 3 (SEPTEMBER)	SITE 2 - COMPOSITE 3 (SEPTEMBER)	SITE 3 - COMPOSITE 3 (SEPTEMBER)	SITE 4 - COMPOSITE 3 (SEPTEMBER)	SITE 5 - COMPOSITE 3 (SEPTEMBER)
ALS Sample ID	L2504188-1	L2504188-2	L2504188-3	L2504188-4	L2504188-5
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	24-Sep-20	24-Sep-20	24-Sep-20	24-Sep-20	24-Sep-20
Target Analytes	pg	pg	pg	pg	pg
Homologue Group Totals					
Total MonoCB	28300	192000	62100	147000	470000
Total DiCB	303000	1910000	682000	2270000	4970000
Total TriCB	356000	2150000	821000	2810000	5440000
Total TetraCB	158000	814000	330000	1130000	1960000
Total PentaCB	45800	179000	79800	261000	399000
Total HexaCB	14500	43800	21800	68400	96000
Total HeptaCB	2550	6500	3820	9670	13000
Total OctaCB	838	2010	1290	2890	3970
Total NonaCB	126	458	232	676	812
DecaCB	11.0	103	36.3	145	155
Total PCB	909000	5290000	2000000	6700000	13400000
Toxic Equivalency - (WHO 2005)					
Lower Bound PCB TEQ	0.219	0.941	0.349	1.32	1.68
Mid Point PCB TEQ	1.70	6.72	3.16	10.6	8.39
Upper Bound PCB TEQ	1.70	6.72	3.16	10.6	8.39

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Quality Control Summary Report

Sample Name	Method Blank	Method Blank
ALS Sample ID	WG3406765-1	WG3406765-4
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	24-Sep-20	24-Sep-20
Target Analytes	pg	pg
PCB-001	<2.8	<2.0
PCB-002	<3.3	<0.85
PCB-003	<3.6	3.16
PCB-004	<11	8.07
PCB-010	<5.8	<1.4
PCB-009	<5.7	<1.4
PCB-007	<5.8	<1.4
PCB-006	<5.8	<1.4
PCB-005	<6.4	<1.5
PCB-008	<5.6	10.6
PCB-014	<6.2	<2.2
PCB-011	28.2	<24
PCB-012/013	<6.4	<2.2
PCB-015	<7.7	<6.8
PCB-019	<5.1	<2.0
PCB-018/030	<8.1	10.4
PCB-017	<5.2	4.54
PCB-027	<3.8	<1.0
PCB-024	<4.0	<1.1
PCB-016	<5.7	<3.7
PCB-032	<3.5	3.51
PCB-034	<5.6	<1.7
PCB-023	<5.4	<1.6
PCB-026/029	<5.2	2.58
PCB-025	<4.5	<1.4
PCB-031	<4.9	13.8
PCB-020/028	<19	17.1
PCB-021/033	<11	10.2
PCB-022	<6.7	8.58
PCB-036	<4.9	<1.5
PCB-039	<5.3	<1.6
PCB-038	<5.4	<1.7
PCB-035	<5.6	<1.7
PCB-037	<7.3	<5.8
PCB-054	<3.8	<1.5
PCB-050/053	<5.0	<2.1
PCB-045/051	<5.3	<2.2
PCB-046	<5.7	<2.4
PCB-052	18.6	<16
PCB-073	<4.0	<1.6
PCB-043	<5.9	<2.5
PCB-049/069	<6.6	7.17
PCB-048	<5.4	<2.1
PCB-044/047/065	<16	18.7
PCB-059/062/075	<3.9	<1.6
PCB-042	<4.9	4.09
PCB-040/041/071	<6.4	8.68
PCB-064	<3.6	6.54
PCB-072	<7.4	<2.5
PCB-068	<7.2	<2.5
PCB-057	<7.8	<2.7
PCB-058	<7.7	<2.6
PCB-067	<6.3	<2.1
PCB-063	<6.9	<2.4
PCB-061/070/074/076	22.0	18.6
PCB-066	<6.8	4.52
PCB-055	<7.6	<2.6
PCB-056	<7.8	<2.7
PCB-060	<7.5	<2.6
PCB-080	<6.5	<2.2
PCB-079	<6.3	<2.2
PCB-078	<8.1	<2.8
PCB-081	<9.1	<2.8
PCB-077	<9.5	<2.9
PCB-104	<1.3	<0.57
PCB-096	<1.3	<0.48
PCB-103	<3.4	<1.3
PCB-094	<3.9	<1.5
PCB-095	<12	<13
PCB-093/098/100/102	<3.6	<1.4

ALS Life Sciences

Quality Control Summary Report

Sample Name	Method Blank	Method Blank
ALS Sample ID	WG3406765-1	WG3406765-4
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	24-Sep-20	24-Sep-20
Target Analytes	pg	pg
PCB-088/091	<3.7	2.14
PCB-084	<3.9	4.32
PCB-089	<4.0	<1.5
PCB-121	<2.7	<1.0
PCB-092	<3.7	<2.5
PCB-090/101/113	14.0	<12
PCB-083/099	<3.9	6.25
PCB-112	<2.5	<0.94
PCB-086/087/097/109/119/125	10.4	11.1
PCB-085/110/115/116/117	15.0	16.4
PCB-082	<4.1	<1.6
PCB-111	<2.6	<0.99
PCB-120	<2.5	<0.95
PCB-108/124	<2.1	<0.95
PCB-107	<1.7	<0.79
PCB-123	<2.5	<1.0
PCB-106	<1.9	<0.84
PCB-118	<7.5	<7.9
PCB-122	<2.2	<0.98
PCB-114	<2.4	<1.1
PCB-105	<5.4	5.00
PCB-127	<2.0	<0.90
PCB-126	<2.5	<1.1
PCB-155	<1.3	<0.49
PCB-152	<1.2	<0.43
PCB-150	<1.2	<0.44
PCB-136	<2.2	<1.6
PCB-145	<1.2	<0.44
PCB-148	<1.6	<0.60
PCB-135/151	<1.8	3.56
PCB-154	<1.3	<0.48
PCB-144	<1.6	<0.59
PCB-147/149	8.15	6.96
PCB-134/143	<2.7	<0.88
PCB-139/140	<2.3	<0.77
PCB-131	<2.6	<0.88
PCB-142	<2.6	<0.87
PCB-132	<2.6	3.59
PCB-133	<2.4	<0.81
PCB-165	<2.0	<0.66
PCB-146	<2.2	<0.72
PCB-161	<1.7	<0.58
PCB-153/168	<2.8	5.93
PCB-141	<2.3	<0.84
PCB-130	<2.8	<0.93
PCB-137/164	<2.1	<0.68
PCB-129/138/163	7.86	8.47
PCB-160	<1.8	<0.60
PCB-158	<1.5	<0.91
PCB-128/166	<2.1	<0.70
PCB-159	<1.8	<0.59
PCB-162	<2.0	<0.65
PCB-167	<2.0	<0.64
PCB-156/157	<2.8	1.70
PCB-169	<2.3	<0.78
PCB-188	<1.8	<0.78
PCB-179	<1.6	0.716
PCB-184	<1.6	<0.66
PCB-176	<1.6	<0.69
PCB-186	<1.7	<0.70
PCB-178	<2.3	<0.96
PCB-175	<2.2	<0.94
PCB-187	<2.1	0.886
PCB-182	<2.0	<0.86
PCB-183	<2.1	<0.88
PCB-185	<2.4	<1.0
PCB-174	<2.1	<0.89
PCB-177	<2.2	<0.95
PCB-181	<2.4	<1.0
PCB-171/173	<2.5	<1.0
PCB-172	<2.4	<1.0

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Quality Control Summary Report

Sample Name	Method Blank	Method Blank
ALS Sample ID	WG3406765-1	WG3406765-4
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	24-Sep-20	24-Sep-20
Target Analytes	pg	pg
PCB-192	<2.1	<0.91
PCB-180/193	<2.0	<1.3
PCB-191	<1.9	<0.78
PCB-170	<2.8	<1.2
PCB-190	<1.8	<0.77
PCB-189	<2.1	<0.84
PCB-202	<1.4	<0.56
PCB-201	<1.3	<0.51
PCB-204	<1.4	<0.54
PCB-197	<1.3	<0.53
PCB-200	<1.3	<0.51
PCB-198/199	<2.1	<0.83
PCB-196	<2.1	<0.84
PCB-203	<2.0	<0.80
PCB-195	<2.4	<0.97
PCB-194	<2.4	<2.4
PCB-205	<2.4	<0.98
PCB-208	<7.8	<3.1
PCB-207	<9.0	<3.6
PCB-206	<14	<5.9
PCB-209	<1.7	<0.79
Extraction Standards	% Rec	% Rec
13C12-PCB-001	56	54
13C12-PCB-003	52	50
13C12-PCB-004	50	44
13C12-PCB-015	58	51
13C12-PCB-019	38	28
13C12-PCB-037	49	49
13C12-PCB-054	46	38
13C12-PCB-081	58	59
13C12-PCB-077	61	63
13C12-PCB-104	56	48
13C12-PCB-123	60	61
13C12-PCB-118	68	66
13C12-PCB-114	62	61
13C12-PCB-105	61	62
13C12-PCB-126	62	62
13C12-PCB-155	56	50
13C12-PCB-167	72	78
13C12-PCB-156/157	70	75
13C12-PCB-169	74	75
13C12-PCB-188	73	73
13C12-PCB-189	76	74
13C12-PCB-202	60	59
13C12-PCB-205	73	82
13C12-PCB-208	77	90
13C12-PCB-206	74	83
13C12-PCB-209	74	80
Cleanup Standards		
13C12-PCB-028	47	47
13C12-PCB-111	58	65
13C12-PCB-178	62	71

ALS Life Sciences

Quality Control Summary Report

Sample Name	Method Blank	Method Blank
ALS Sample ID	WG3406765-1	WG3406765-4
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	24-Sep-20	24-Sep-20
Target Analytes	pg	pg
Homologue Group Totals		
Total MonoCB	<2.8	5.16
Total DiCB	28.2	49.5
Total TriCB	44.8	80.2
Total TetraCB	75.0	84.3
Total PentaCB	64.3	80.6
Total HexaCB	21.0	33.6
Total HeptaCB	<1.6	2.90
Total OctaCB	<1.3	2.40
Total NonaCB	<7.8	<3.1
DecaCB	<1.7	<0.79
Total PCB	233	339
Toxic Equivalency - (WHO 2005)		
Lower Bound PCB TEQ	0.00	0.000201
Mid Point PCB TEQ	0.162	0.0678
Upper Bound PCB TEQ	0.323	0.135

ALS Life Sciences

Sample Analysis Summary Report

Sample Name **Laboratory Control Sample**

ALS Sample ID WG3406765-2

Sample Size 1
 Sample size units n/a
 Percent Moisture n/a
 Sample Matrix QC
 Sampling Date n/a
 Extraction Date 24-Sep-20

Target Analytes **% Rec**

PCB-001	91
PCB-003	89
PCB-004	124
PCB-015	100
PCB-019	125
PCB-037	98
PCB-054	125
PCB-081	96
PCB-077	89
PCB-104	108
PCB-123	100
PCB-118	99
PCB-114	104
PCB-105	103
PCB-126	100
PCB-155	112
PCB-167	101
PCB-156/157	102
PCB-169	104
PCB-188	105
PCB-189	94
PCB-202	115
PCB-205	103
PCB-208	90
PCB-206	90
PCB-209	109

Extraction Standards **% Rec**

13C12-PCB-001	70
13C12-PCB-003	65
13C12-PCB-004	57
13C12-PCB-015	68
13C12-PCB-019	36
13C12-PCB-037	63
13C12-PCB-054	47
13C12-PCB-081	70
13C12-PCB-077	75
13C12-PCB-104	54
13C12-PCB-123	68
13C12-PCB-118	75
13C12-PCB-114	69
13C12-PCB-105	69
13C12-PCB-126	68
13C12-PCB-155	53
13C12-PCB-167	82
13C12-PCB-156/157	79
13C12-PCB-169	80
13C12-PCB-188	75
13C12-PCB-189	76
13C12-PCB-202	58
13C12-PCB-205	83
13C12-PCB-208	90
13C12-PCB-206	79
13C12-PCB-209	81

Cleanup Standards

13C12-PCB-028	59
13C12-PCB-111	68
13C12-PCB-178	69

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Sample Analysis Summary Report

Sample Name	CSV	CCV	CCV	CCV	CCV
ALS Sample ID	H5-20-RS1-004	H5-20-CCV-814	H5-20-CCV-816	H5-20-CCV-819	H5-20-CCV-821
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	109	90	91	89	87
PCB-003	110	92	94	90	87
PCB-004	111	117	122	120	117
PCB-015	111	100	105	98	94
PCB-019	114	119	121	117	122
PCB-037	111	98	101	96	95
PCB-054	112	120	122	121	122
PCB-081	105	103	104	102	101
PCB-077	105	99	99	98	98
PCB-104	101	117	119	116	118
PCB-123	106	105	107	104	103
PCB-118	106	104	106	103	102
PCB-114	109	109	110	106	106
PCB-105	105	111	112	107	109
PCB-126	105	105	107	106	104
PCB-155	105	115	118	119	118
PCB-167	105	106	107	104	105
PCB-156/157	104	109	109	107	106
PCB-169	107	112	111	108	107
PCB-188	105	112	113	112	114
PCB-189	110	98	98	97	97
PCB-202	109	113	115	114	115
PCB-205	104	112	113	114	112
PCB-208	101	100	99	100	99
PCB-206	102	99	98	98	99
PCB-209	119	104	105	103	101
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec
13C12-PCB-001	99	122	128	127	123
13C12-PCB-003	100	121	126	123	119
13C12-PCB-004	99	98	99	99	99
13C12-PCB-015	101	107	111	99	104
13C12-PCB-019	101	63	61	62	59
13C12-PCB-037	102	93	97	85	86
13C12-PCB-054	100	76	75	76	75
13C12-PCB-081	102	96	99	92	93
13C12-PCB-077	101	103	109	100	102
13C12-PCB-104	100	85	82	90	84
13C12-PCB-123	102	90	93	86	87
13C12-PCB-118	102	99	104	96	98
13C12-PCB-114	101	92	96	91	90
13C12-PCB-105	101	91	95	89	89
13C12-PCB-126	103	91	96	85	90
13C12-PCB-155	99	80	78	80	80
13C12-PCB-167	101	102	104	106	104
13C12-PCB-156/157	102	98	100	101	100
13C12-PCB-169	103	93	95	93	98
13C12-PCB-188	99	98	98	102	99
13C12-PCB-189	103	99	102	94	97
13C12-PCB-202	100	77	74	79	76
13C12-PCB-205	100	103	104	103	104
13C12-PCB-208	99	108	109	112	107
13C12-PCB-206	100	100	102	105	107
13C12-PCB-209	99	103	104	103	100
Field Spike Standards					
13C12-PCB-031	98	122	123	127	125
13C12-PCB-095	98	110	105	113	111
13C12-PCB-153	98	112	114	114	112
Cleanup Standards					
13C12-PCB-028	99	104	108	103	102
13C12-PCB-111	99	105	107	106	109
13C12-PCB-178	100	94	94	97	97

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Sample Analysis Report

Sample Name	SITE 1 - COMPOSITE 3 (SEPTEMBER)	Sampling Date	n/a	
ALS Sample ID	L2504188-1	Extraction Date	24-Sep-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--
08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A09	5-201004A07
Run Date	03-Oct-20 17:51	04-Oct-20 18:37
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC Flags	EMPC pg	EMPC LQL	Ret. Time	Conc. pg	EDL pg	EMPC Flags	EMPC pg	EMPC LQL
PCB-001								8.91	22400	9.5			1000
PCB-002								10.33	1320	11			1000
PCB-003								10.45	4600	12			1000
PCB-004								10.61	126000	39			1000
PCB-010								10.72	4600	18			1000
PCB-009								11.88	8890	18			1000
PCB-007								11.99	5240	19			1000
PCB-006								12.15	24100	18			1000
PCB-005								12.34	2030	20	M		1000
PCB-008								12.41	106000	18	M		1000
PCB-014		13.27	18.6	2.8	J		100						
PCB-011								13.92	5550	44	M		1000
PCB-012/013								14.11	2910	43			1000
PCB-015								14.31	17400	46			1000
PCB-019								12.61	17100	22			1000
PCB-018/030								13.73	80800	16	M		1000
PCB-017								13.97	36900	19	M		1000
PCB-027								14.10	5180	14	M		1000
PCB-024		14.06	1460	2.4			100						
PCB-016								14.26	31300	21	M		1000
PCB-032								14.55	18400	13			1000
PCB-034								15.26	216	42	J		1000
PCB-023								15.34	<93	40	J,R	93	1000
PCB-026/029								15.52	10100	39			1000
PCB-025								15.66	3900	34			1000
PCB-031								15.84	45600	37			1000
PCB-020/028								16.01	49900	40			1000
PCB-021/033								16.15	31400	38			1000
PCB-022								16.38	17200	41			1000
PCB-036		17.07	18.0	5.0	J		100						
PCB-039		17.30	227	4.9			100						
PCB-038		17.61	89.9	4.9	J		100						
PCB-035								18.03	457	42	J		1000
PCB-037								18.27	5780	51			1000
PCB-054								14.47	231	15	J		1000
PCB-050/053								15.68	6440	28			1000
PCB-045/051								16.09	8880	30			1000
PCB-046								16.26	2570	32			1000
PCB-052								17.00	31800	30			1000
PCB-073								NotFnd	<22	22	U		1000
PCB-043								17.13	1930	34			1000
PCB-049/069								17.27	15400	25			1000
PCB-048								17.44	7240	29			1000
PCB-044/047/065								17.57	24000	27			1000
PCB-059/062/075								17.75	2560	22			1000
PCB-042								17.86	5920	28			1000
PCB-040/041/071								18.13	12900	30			1000
PCB-064								18.25	9160	21			1000
PCB-072								18.65	<67	49	M,J,R	67	1000
PCB-068								18.81	<48	48	M,U	35	1000
PCB-057								19.06	<61	52	J,R	61	1000
PCB-058								19.18	<52	52	M,U	33	1000
PCB-067								19.27	394	42	J		1000
PCB-063								19.41	361	47	J		1000
PCB-061/070/074/076								19.60	15700	50			1000
PCB-066								19.78	6470	46	M		1000
PCB-055								19.86	291	51	M,J		1000
PCB-056								20.16	2950	52			1000
PCB-060								20.28	1900	51			1000
PCB-080		NotFnd	<3.3	3.3	U		100						
PCB-079		21.11	83.9	3.3	J		100						
PCB-078		21.45	<11	4.1	M,J,R	11	100						
PCB-081	0.0003	21.67	24.5	4.2	J		100						
PCB-077	0.0001	21.96	442	4.2			100						
PCB-104		17.40	3.28	0.64	J		100						
PCB-096		17.63	187	0.54			100						
PCB-103								18.75	67.9	37	M,J		1000
PCB-094								18.89	80.3	44	J		1000
PCB-095								19.13	8590	41	M		1000
PCB-093/098/100/102								19.31	930	40	M,J		1000

ALS Life Sciences

Sample Analysis Report

Sample Name	SITE 1 - COMPOSITE 3 (SEPTEMBER)	Sampling Date	n/a	
ALS Sample ID	L2504188-1	Extraction Date	24-Sep-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--
08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A09	5-201004A07
Run Date	03-Oct-20 17:51	04-Oct-20 18:37
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)			Ret. Conc. EDL			EMPC			Ret. Conc. EDL			EMPC		
	Time	pg	pg	Time	pg	pg	Time	pg	pg	Time	pg	pg	Time	pg	pg
PCB-088/091							19.60	1360	42						1000
PCB-084							19.74	2290	43						1000
PCB-089		19.85	133	4.7											
PCB-121		NotFnd	<3.2	3.2	U										100
PCB-092							20.35	1290	41						1000
PCB-090/101/113							20.66	7620	36						1000
PCB-083/099							20.97	3910	43						1000
PCB-112		20.89	<24	2.9	M,J,R	24									100
PCB-086/087/097/109/119/125							21.32	4910	35	M					1000
PCB-085/110/115/116/117							21.73	7970	33	M					1000
PCB-082		21.78	686	4.7											100
PCB-111		NotFnd	<3.0	3.0	U										100
PCB-120		22.14	8.53	2.8	J										100
PCB-108/124							22.91	150	14	M,J					1000
PCB-107							23.04	223	11	M,J					1000
PCB-123	0.00003						23.10	71.0	15	M,J					1000
PCB-106							NotFnd	<12	12	U					1000
PCB-118	0.00003						23.27	3610	14	M					1000
PCB-122							23.47	82.0	14	M,J					1000
PCB-114	0.00003						23.57	111	15	M,J					1000
PCB-105	0.00003						23.93	1480	16						1000
PCB-127		24.52	<6.7	1.9	M,J,R	6.7									100
PCB-126	0.1	25.35	<13	2.4	M,J,R	13									100
PCB-155		20.38	<2.4	0.43	J,R	2.4									100
PCB-152		20.54	6.77	0.45	J										100
PCB-150		20.60	11.1	0.44	J										100
PCB-136		20.83	676	0.45											100
PCB-145		20.97	<2.8	0.46	M,J,R	2.8									100
PCB-148		21.71	5.80	0.60	J										100
PCB-135/151		22.04	1330	0.66											100
PCB-154		22.14	39.6	0.48	J										100
PCB-144		22.33	193	0.61											100
PCB-147/149							22.67	2930	14						1000
PCB-134/143							22.79	298	16	M,J					1000
PCB-139/140							22.97	106	14	J					1000
PCB-131		22.97	64.6	1.5	J										100
PCB-142		23.06	<1.6	1.6	U	0.87									100
PCB-132		23.21	1330	1.5											100
PCB-133		23.41	38.9	1.4	J										100
PCB-165		NotFnd	<1.1	1.1	U										100
PCB-146		23.73	370	1.2											100
PCB-161		NotFnd	<0.98	0.98	U										100
PCB-153/168							24.19	2220	12						1000
PCB-141							24.32	525	14	J					1000
PCB-130							24.54	205	17	J					1000
PCB-137/164							24.71	321	13	M,J					1000
PCB-129/138/163							24.88	2820	15	M					1000
PCB-160		NotFnd	<1.0	1.0	U										100
PCB-158							25.07	247	9.1	M,J					1000
PCB-128/166							25.56	388	13	J					1000
PCB-159		25.86	19.4	0.98	J										100
PCB-162		26.00	<5.3	1.0	J,R	5.3									100
PCB-167	0.00003	26.26	80.5	1.1	J										100
PCB-156/157	0.00003	26.86	225	1.5											200
PCB-169	0.03	28.52	<6.0	1.2	M,J,R	6.0									100
PCB-188		23.37	6.26	0.81	J										100
PCB-179		23.57	290	0.75											100
PCB-184		23.82	<2.4	0.73	J,R	2.4									100
PCB-176		24.03	67.7	0.76	J										100
PCB-186		NotFnd	<0.79	0.79	U										100
PCB-178		24.93	91.9	1.1	J										100
PCB-175		25.27	17.0	1.0	J										100
PCB-187		25.40	646	0.97											100
PCB-182		25.50	5.26	0.93	J										100
PCB-183		25.71	230	1.0											100
PCB-185		25.79	42.6	1.1	J										100
PCB-174		25.86	259	0.91											100
PCB-177		26.09	143	1.0											100
PCB-181		26.29	<3.7	1.1	M,J,R	3.7									100
PCB-171/173		26.41	73.7	1.1	J										100
PCB-172		27.21	<34	1.1	M,J,R	34									100

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Sample Analysis Report

Sample Name	SITE 1 - COMPOSITE 3 (SEPTEMBER)	Sampling Date	n/a	Approved: S. Jin --e-signature-- 08-Oct-2020
ALS Sample ID	L2504188-1	Extraction Date	24-Sep-20	
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	5-201003A09	5-201004A07
Run Date	03-Oct-20 17:51	04-Oct-20 18:37
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)		Ret. Conc.		EDL		EMPC		Ret. Conc.		EDL		EMPC	
	Time	pg	pg	pg	Flags	pg	LQL	Time	pg	pg	Flags	pg	LQL	
PCB-192		NotFnd	<0.97	0.97	U		100							
PCB-180/193			27.54	453	0.92		100							
PCB-191			27.73	7.08	0.86	J	100							
PCB-170			28.23	149	1.2		100							
PCB-190			28.49	28.2	0.85	M,J	100							
PCB-189	0.00003		29.81	4.80	1.2	J	100							
PCB-202			26.12	169	0.57		100							
PCB-201			26.60	59.6	0.54	J	100							
PCB-204		NotFnd	<0.56	0.56	U		100							
PCB-197			27.05	<8.9	0.56	J,R	8.9	100						
PCB-200			27.15	32.9	0.52	J	100							
PCB-198/199			28.54	255	0.82		100							
PCB-196			28.88	73.7	0.85	J	100							
PCB-203			28.98	140	0.78		100							
PCB-195			29.69	25.1	1.0	J	100							
PCB-194			30.89	70.6	0.96	J	100							
PCB-205			31.16	<3.0	0.99	J,R	3.0	100						
PCB-208			29.54	48.1	3.6	J	100							
PCB-207			30.01	18.1	4.2	M,J	100							
PCB-206			32.22	59.3	6.6	J	100							
PCB-209			33.34	<11	0.82	J,R	11	100						
Extraction Standards	pg	Time	% Rec	Limits				Time	% Rec	Limits				
13C12-PCB-001	4000							8.90	65	5-145				
13C12-PCB-003	4000							10.45	61	5-145				
13C12-PCB-004	4000	10.49	55	5-145										
13C12-PCB-015	4000	14.15	76	5-145										
13C12-PCB-019	4000	12.48	38	5-145										
13C12-PCB-037	4000	18.08	72	5-145										
13C12-PCB-054	4000							14.46	49	5-145				
13C12-PCB-081	4000	21.65	81	10-145										
13C12-PCB-077	4000	21.95	84	10-145										
13C12-PCB-104	4000	17.39	63	10-145										
13C12-PCB-123	4000	22.95	80	10-145										
13C12-PCB-118	4000	23.12	83	10-145										
13C12-PCB-114	4000	23.41	76	10-145										
13C12-PCB-105	4000	23.76	75	10-145										
13C12-PCB-126	4000	25.34	77	10-145										
13C12-PCB-155	4000	20.37	64	10-145										
13C12-PCB-167	4000	26.25	90	10-145										
13C12-PCB-156/157	8000	26.86	84	10-145										
13C12-PCB-169	4000	28.52	88	10-145										
13C12-PCB-188	4000	23.36	85	10-145										
13C12-PCB-189	4000	29.79	88	10-145										
13C12-PCB-202	4000	26.11	66	10-145										
13C12-PCB-205	4000	31.16	89	10-145										
13C12-PCB-208	4000	29.53	95	10-145										
13C12-PCB-206	4000	32.20	89	10-145										
13C12-PCB-209	4000	33.32	88	10-145										
Field Spike Standards														
13C12-PCB-031	24000	15.68	121	70-130										
13C12-PCB-095	24000	18.98	107	70-130										
13C12-PCB-153	24000	24.05	110	70-130										
Cleanup Standards														
13C12-PCB-028	4000	15.86	72	5-145										
13C12-PCB-111	4000	21.89	85	10-145										
13C12-PCB-178	4000	24.92	82	10-145										

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Sample Analysis Report

Sample Name	SITE 2 - COMPOSITE 3 (SEPTEMBER)	Sampling Date	n/a	
ALS Sample ID	L2504188-2	Extraction Date	24-Sep-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-- 08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A10	5-201004A08
Run Date	03-Oct-20 18:33	04-Oct-20 19:19
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)				EMPC				EMPC			
	Ret. Time	Conc. pg	EDL pg	Flags	Ret. Time	Conc. pg	EDL pg	Flags	Ret. Time	Conc. pg	EDL pg	Flags
PCB-001					8.90	157000	14					1000
PCB-002					10.33	6720	16					1000
PCB-003					10.45	28400	16					1000
PCB-004					10.61	816000	35					1000
PCB-010					10.72	28300	15					1000
PCB-009					11.88	59600	15					1000
PCB-007					11.99	34200	15					1000
PCB-006					12.13	156000	15					1000
PCB-005					12.34	14700	16					1000
PCB-008					12.41	664000	14					1000
PCB-014	13.29	62.3	7.6	J								
PCB-011					13.92	7240	55					1000
PCB-012/013					14.10	18600	55					1000
PCB-015					14.30	107000	53					1000
PCB-019					12.61	121000	18					1000
PCB-018/030					13.73	500000	21					1000
PCB-017					13.97	231000	26					1000
PCB-027					14.10	31000	19					1000
PCB-024	14.08	8790	3.7									
PCB-016					14.26	195000	28					1000
PCB-032					14.55	112000	17					1000
PCB-034					15.25	1220	62					1000
PCB-023					15.34	600	60	J				1000
PCB-026/029					15.52	60300	58					1000
PCB-025					15.65	23600	50					1000
PCB-031					15.83	266000	54					1000
PCB-020/028					16.01	286000	59					1000
PCB-021/033					16.14	178000	56					1000
PCB-022					16.38	97600	61					1000
PCB-036	17.09	18.6	8.2	M,J								
PCB-039	17.32	1310	8.0									100
PCB-038	17.63	301	8.1									100
PCB-035					18.02	2660	62					1000
PCB-037					18.25	32100	69					1000
PCB-054					14.47	1300	17					1000
PCB-050/053					15.68	36800	28					1000
PCB-045/051					16.08	50500	30					1000
PCB-046					16.26	14700	32					1000
PCB-052					17.00	159000	30					1000
PCB-073					NotFnd	<22	22	U				1000
PCB-043					17.14	7970	33					1000
PCB-049/069					17.27	79200	25					1000
PCB-048					17.43	38600	28					1000
PCB-044/047/065					17.56	121000	27					1000
PCB-059/062/075					17.74	12600	22					1000
PCB-042					17.86	30500	27					1000
PCB-040/041/071					18.12	68800	30					1000
PCB-064					18.25	44900	20					1000
PCB-072					18.64	340	48	J				1000
PCB-068					18.80	173	46	J				1000
PCB-057					19.04	414	51	J				1000
PCB-058					NotFnd	<50	50	U				1000
PCB-067					19.26	2160	40					1000
PCB-063					19.42	1940	45					1000
PCB-061/070/074/076					19.60	78500	48					1000
PCB-066					19.77	33600	44					1000
PCB-055					19.87	1490	49					1000
PCB-056					20.15	16400	50					1000
PCB-060					20.27	10600	49					1000
PCB-080		NotFnd	<5.9	5.9	U							100
PCB-079		21.13	340	5.9								100
PCB-078		21.46	30.6	7.3	J							100
PCB-081	0.0003	21.69	138	7.3								100
PCB-077	0.0001	21.98	2190	7.3								100
PCB-104		17.43	16.4	0.69	J							100
PCB-096		17.65	951	0.60								100
PCB-103					18.75	314	29	J				1000
PCB-094					18.88	333	34	J				1000
PCB-095					19.13	35500	32	M				1000
PCB-093/098/100/102					19.31	2730	31	M				1000

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Sample Analysis Report

Sample Name	SITE 2 - COMPOSITE 3 (SEPTEMBER)	Sampling Date	n/a	
ALS Sample ID	L2504188-2	Extraction Date	24-Sep-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--
08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A10	5-201004A08
Run Date	03-Oct-20 18:33	04-Oct-20 19:19
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC Flags	pg	LQL	Ret. Time	Conc. pg	EDL pg	EMPC Flags	pg	LQL
PCB-088/091								19.60	6360	32			1000
PCB-084								19.74	9990	33			1000
PCB-089		19.86	658	2.7									
PCB-121		NotFnd	<1.9	1.9	U								
PCB-092								20.35	4850	32			1000
PCB-090/101/113								20.66	27300	27			1000
PCB-083/099								20.97	15700	33			1000
PCB-112		20.92	<54	1.7	M,J,R	54	100						
PCB-086/087/097/109/119/125								21.31	18500	27	M		1000
PCB-085/110/115/116/117								21.72	29900	25	M		1000
PCB-082		21.79	2880	2.8									
PCB-111		21.92	<3.0	1.8	J,R	3.0	100						
PCB-120		22.16	29.2	1.7	J		100						
PCB-108/124								22.91	591	22	J		1000
PCB-107								23.03	874	18	M,J		1000
PCB-123	0.00003							23.08	321	25	M,J		1000
PCB-106								NotFnd	<20	20	U		1000
PCB-118	0.00003							23.27	14300	22			1000
PCB-122								23.47	281	23	J		1000
PCB-114	0.00003							23.57	505	25	J		1000
PCB-105	0.00003							23.91	6260	24			1000
PCB-127		24.53	28.1	3.3	J		100						
PCB-126	0.1	25.38	<55	4.2	M,J,R	55	100						
PCB-155		20.42	4.23	0.66	J		100						
PCB-152		20.55	25.3	0.67	J		100						
PCB-150		20.62	26.3	0.67	J		100						
PCB-136		20.84	1980	0.68			100						
PCB-145		20.99	9.68	0.69	M,J		100						
PCB-148		21.72	10.1	0.91	J		100						
PCB-135/151		22.06	3440	0.99			100						
PCB-154		22.16	96.7	0.72	J		100						
PCB-144		22.35	522	0.92			100						
PCB-147/149								22.67	8440	15			1000
PCB-134/143								22.80	790	17	J		1000
PCB-139/140								22.97	291	15	J		1000
PCB-131		22.98	212	2.8			100						
PCB-142		23.08	<2.9	2.9	U	2.5	100						
PCB-132		23.22	4130	2.8			100						
PCB-133		23.42	113	2.5			100						
PCB-165		NotFnd	<2.0	2.0	U		100						
PCB-146		23.76	1100	2.2			100						
PCB-161		NotFnd	<1.8	1.8	U		100						
PCB-153/168								24.19	6560	12			1000
PCB-141								24.32	1390	14			1000
PCB-130								24.54	572	18	J		1000
PCB-137/164								24.70	1050	13	M		1000
PCB-129/138/163								24.87	9560	15			1000
PCB-160		NotFnd	<1.9	1.9	U		100						
PCB-158								25.07	795	9.3	J		1000
PCB-128/166								25.56	1340	13			1000
PCB-159		25.88	48.4	1.8	M,J		100						
PCB-162		26.03	25.3	1.9	J		100						
PCB-167	0.00003	26.27	302	1.9			100						
PCB-156/157	0.00003	26.87	979	2.8			200						
PCB-169	0.03	28.53	<9.3	2.2	M,J,R	9.3	100						
PCB-188		23.38	10.1	0.79	J		100						
PCB-179		23.60	553	0.73			100						
PCB-184		23.83	6.06	0.71	J		100						
PCB-176		24.05	154	0.74			100						
PCB-186		NotFnd	<0.77	0.77	U		100						
PCB-178		24.95	181	1.0			100						
PCB-175		25.28	42.8	1.0	J		100						
PCB-187		25.41	1290	0.94			100						
PCB-182		25.51	11.2	0.90	J		100						
PCB-183		25.73	552	0.98			100						
PCB-185		25.82	84.1	1.1	M,J		100						
PCB-174		25.87	685	0.89	M		100						
PCB-177		26.11	392	1.0			100						
PCB-181		26.31	14.1	1.1	J		100						
PCB-171/173		26.43	238	1.1			100						
PCB-172		27.22	109	1.0			100						

ALS Life Sciences

Sample Analysis Report

Sample Name SITE 2 - COMPOSITE 3 (SEPTEMBER)
 ALS Sample ID L2504188-2
 Analysis Method EPA 1668C
 Analysis Type Sample
 Sample Matrix PUF

Sampling Date n/a
 Extraction Date 24-Sep-20
 Sample Size 1 Sample
 Percent Moisture n/a
 Split Ratio 4

Approved:
 S. Jin
 --e-signature--
 08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A10	5-201004A08
Run Date	03-Oct-20 18:33	04-Oct-20 19:19
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)		Ret. Conc.		EDL		EMPC		Ret. Conc.		EDL		EMPC	
	Time	pg	pg	pg	Flags	pg	LQL	Time	pg	pg	Flags	pg	LQL	
PCB-192	NotFnd	<0.94	0.94		U		100							
PCB-180/193		27.56	1410	0.90			100							
PCB-191		27.74	25.3	0.84	J		100							
PCB-170		28.24	601	1.2			100							
PCB-190		28.50	115	0.83	M		100							
PCB-189	0.00003	29.82	25.0	1.2	J		100							
PCB-202		26.15	290	0.64			100							
PCB-201		26.62	98.9	0.57	J		100							
PCB-204		26.95	1.11	0.60	J		100							
PCB-197		27.08	21.8	0.60	J		100							
PCB-200		27.16	64.8	0.56	J		100							
PCB-198/199		28.55	586	0.87			100							
PCB-196		28.89	193	0.90			100							
PCB-203		29.00	369	0.83			100							
PCB-195		29.71	87.0	1.1	J		100							
PCB-194		30.91	287	1.1			100							
PCB-205		31.19	14.1	1.0	J		100							
PCB-208		29.55	119	3.4			100							
PCB-207		30.03	49.7	3.8	J		100							
PCB-206		32.23	289	5.9			100							
PCB-209		33.35	103	0.83			100							
Extraction Standards	pg	Time	% Rec	Limits				Time	% Rec	Limits				
13C12-PCB-001	4000							8.90	76	5-145				
13C12-PCB-003	4000							10.44	75	5-145				
13C12-PCB-004	4000	10.51	68	5-145										
13C12-PCB-015	4000	14.17	102	5-145										
13C12-PCB-019	4000	12.50	47	5-145										
13C12-PCB-037	4000	18.10	102	5-145										
13C12-PCB-054	4000							14.46	57	5-145				
13C12-PCB-081	4000	21.67	102	10-145										
13C12-PCB-077	4000	21.97	106	10-145										
13C12-PCB-104	4000	17.41	79	10-145										
13C12-PCB-123	4000	22.96	100	10-145										
13C12-PCB-118	4000	23.13	104	10-145										
13C12-PCB-114	4000	23.43	97	10-145										
13C12-PCB-105	4000	23.77	98	10-145										
13C12-PCB-126	4000	25.36	100	10-145										
13C12-PCB-155	4000	20.39	81	10-145										
13C12-PCB-167	4000	26.26	113	10-145										
13C12-PCB-156/157	8000	26.89	105	10-145										
13C12-PCB-169	4000	28.53	112	10-145										
13C12-PCB-188	4000	23.37	107	10-145										
13C12-PCB-189	4000	29.81	111	10-145										
13C12-PCB-202	4000	26.14	81	10-145										
13C12-PCB-205	4000	31.17	110	10-145										
13C12-PCB-208	4000	29.54	115	10-145										
13C12-PCB-206	4000	32.22	112	10-145										
13C12-PCB-209	4000	33.34	109	10-145										
Field Spike Standards														
13C12-PCB-031	24000	15.70	119	70-130										
13C12-PCB-095	24000	19.00	111	70-130										
13C12-PCB-153	24000	24.06	113	70-130										
Cleanup Standards														
13C12-PCB-028	4000	15.88	95	5-145										
13C12-PCB-111	4000	21.91	106	10-145										
13C12-PCB-178	4000	24.94	99	10-145										

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Sample Analysis Report

Sample Name	SITE 2 - COMPOSITE 3 (SEPTEMBER)	Sampling Date	n/a	
ALS Sample ID	L2504188-2	Extraction Date	24-Sep-20	Approved: S. Jin --e-signature-- 08-Oct-2020
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	5-201003A10	5-201004A08
Run Date	03-Oct-20 18:33	04-Oct-20 19:19
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 251239-06	HRMS-5 SPB0ctyl 251239-06

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC Flags	pg	LQL	Ret. Time	Conc. pg	EDL pg	EMPC Flags	pg	LQL
Homologue Group Totals			pg	pg	Flags	pg							
Total MonoCB			192000	14	J	400							
Total DiCB			1910000	7.6	J	800							
Total TriCB			2150000	3.7	J	800							
Total TetraCB			814000	5.9	J	1600							
Total PentaCB			179000	0.60	J	1600							
Total HexaCB			43800	0.66	J	1600							
Total HeptaCB			6500	0.71	J	800							
Total OctaCB			2010	0.56	J	800							
Total NonaCB			458	3.4	J	400							
DecaCB			103	0.83	J	400							
Total PCB			5290000		J	3200							
Toxic Equivalency - (WHO 2005)													
Lower Bound PCB TEQ			0.941										
Mid Point PCB TEQ			6.72										
Upper Bound PCB TEQ			6.72										

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 3 - COMPOSITE 3 (SEPTEMBER)	Sampling Date	n/a		
ALS Sample ID	L2504188-3	Extraction Date	24-Sep-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-- 08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A11	5-201004A09
Run Date	03-Oct-20 19:15	04-Oct-20 20:01
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)				EMPC				EMPC			
	Ret. Time	Conc. pg	EDL pg	Flags	Ret. Time	Conc. pg	EDL pg	Flags	Ret. Time	Conc. pg	EDL pg	Flags
PCB-001					8.91	50500	13					1000
PCB-002					10.34	2320	15					1000
PCB-003					10.47	9320	17					1000
PCB-004					10.61	277000	33					1000
PCB-010					10.73	11300	16					1000
PCB-009					11.88	21300	16					1000
PCB-007					11.99	12700	16					1000
PCB-006					12.15	56300	16					1000
PCB-005					12.36	4550	17	M				1000
PCB-008					12.41	247000	15	M				1000
PCB-014	13.27	30.9	3.3	J								100
PCB-011					13.93	5130	52					1000
PCB-012/013					14.11	6670	51					1000
PCB-015					14.31	39700	54					1000
PCB-019					12.61	42600	18					1000
PCB-018/030					13.73	193000	21					1000
PCB-017					13.97	90000	25					1000
PCB-027					14.10	12500	18					1000
PCB-024	14.06	2980	1.8									100
PCB-016					14.26	73300	27					1000
PCB-032					14.55	43400	16					1000
PCB-034					15.25	510	68	J				1000
PCB-023					15.35	222	66	J				1000
PCB-026/029					15.52	23300	64					1000
PCB-025					15.66	9170	55					1000
PCB-031					15.84	102000	60					1000
PCB-020/028					16.01	110000	65					1000
PCB-021/033					16.15	68400	61					1000
PCB-022					16.39	37100	67					1000
PCB-036	17.07	13.4	7.7	M,J								100
PCB-039	17.29	492	7.5									100
PCB-038	17.60	136	7.5									100
PCB-035					18.04	949	68	J				1000
PCB-037					18.27	11100	83					1000
PCB-054					14.47	510	16	J				1000
PCB-050/053					15.68	14500	27					1000
PCB-045/051					16.09	19600	29					1000
PCB-046					16.26	5820	31					1000
PCB-052					17.01	67900	29					1000
PCB-073					NotFnd	<21	21	U				1000
PCB-043					17.14	4220	32					1000
PCB-049/069					17.28	33100	24					1000
PCB-048					17.44	16000	27					1000
PCB-044/047/065					17.57	49700	26					1000
PCB-059/062/075					17.75	5370	21					1000
PCB-042					17.87	12400	26					1000
PCB-040/041/071					18.13	26400	29					1000
PCB-064					18.25	18500	20					1000
PCB-072					18.65	<150	40	M,J,R	150			1000
PCB-068					18.82	73.6	39	M,J				1000
PCB-057					19.05	152	42	J				1000
PCB-058					NotFnd	<42	42	U				1000
PCB-067					19.27	807	34	J				1000
PCB-063					19.42	737	38	J				1000
PCB-061/070/074/076					19.61	30900	40					1000
PCB-066					19.78	12500	37	M				1000
PCB-055					19.87	626	41	M,J				1000
PCB-056					20.16	5490	42					1000
PCB-060					20.28	3690	41					1000
PCB-080	NotFnd	<3.2	3.2	U								100
PCB-079	21.11	133	3.2									100
PCB-078	21.44	<13	4.0	J,R	13							100
PCB-081	0.0003	21.66	41.6	4.0	J							100
PCB-077	0.0001	21.95	673	3.9								100
PCB-104		17.39	<6.3	0.68	J,R	6.3						100
PCB-096		17.62	376	0.57								100
PCB-103					18.75	144	26	J				1000
PCB-094					18.89	125	31	J				1000
PCB-095					19.14	16000	29	M				1000
PCB-093/098/100/102					19.32	1500	28	M				1000

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Sample Analysis Report

Sample Name SITE 3 - COMPOSITE 3 (SEPTEMBER)
 ALS Sample ID L2504188-3
 Analysis Method EPA 1668C
 Analysis Type Sample
 Sample Matrix PUF

Sampling Date n/a
 Extraction Date 24-Sep-20
 Sample Size 1 Sample
 Percent Moisture n/a
 Split Ratio 4

Approved:
 S. Jin
 --e-signature--
 08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A11	5-201004A09
Run Date	03-Oct-20 19:15	04-Oct-20 20:01
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)			Ret. Conc. EDL			EMPC			Ret. Conc. EDL			EMPC		
	Time	pg	pg	Time	pg	pg	Flags	pg	LQL	Time	pg	pg	Flags	pg	LQL
PCB-088/091										19.61	2710	29			1000
PCB-084										19.74	4360	30			1000
PCB-089		19.85	236	1.8											
PCB-121		NotFnd	<1.2	1.2		U									100
PCB-092										20.35	2280	29			1000
PCB-090/101/113										20.66	13300	25			1000
PCB-083/099										20.97	7170	30			1000
PCB-112		20.89	37.2	1.1		M,J									100
PCB-086/087/097/109/119/125										21.32	8040	25	M		1000
PCB-085/110/115/116/117										21.73	13200	23	M		1000
PCB-082		21.77	1120	1.8											100
PCB-111		21.88	3.08	1.2		M,J									100
PCB-120		22.13	14.7	1.1		M,J									100
PCB-108/124										22.91	238	25	J		1000
PCB-107										23.04	366	21	M,J		1000
PCB-123	0.00003									23.09	114	29	M,J		1000
PCB-106										NotFnd	<23	23	U		1000
PCB-118	0.00003									23.27	5880	26	M		1000
PCB-122										23.47	112	26	M,J		1000
PCB-114	0.00003									23.57	181	29	J		1000
PCB-105	0.00003									23.93	2240	30			1000
PCB-127		24.51	13.4	2.6		J									100
PCB-126	0.1	25.35	<26	3.3		J,R	26								100
PCB-155		20.38	<2.6	0.52		J,R	2.6								100
PCB-152		20.53	10.2	0.51		J									100
PCB-150		20.60	15.4	0.51		J									100
PCB-136		20.83	1010	0.52											100
PCB-145		20.97	6.57	0.53		J									100
PCB-148		21.69	6.36	0.69		J									100
PCB-135/151		22.03	1850	0.75											100
PCB-154		22.13	56.8	0.55		J									100
PCB-144		22.33	275	0.70											100
PCB-147/149										22.67	4400	25			1000
PCB-134/143										22.80	512	28	J		1000
PCB-139/140										22.98	<130	24	J,R	130	1000
PCB-131		22.96	97.2	2.2		M,J									100
PCB-142		23.03	<2.3	2.3		M,U	1.0								100
PCB-132		23.20	1950	2.2											100
PCB-133		23.39	58.1	2.0		J									100
PCB-165		NotFnd	<1.6	1.6		U									100
PCB-146		23.73	555	1.7											100
PCB-161		NotFnd	<1.4	1.4		U									100
PCB-153/168										24.20	3350	20			1000
PCB-141										24.32	750	24	J		1000
PCB-130										24.54	289	29	J		1000
PCB-137/164										24.71	474	21	M,J		1000
PCB-129/138/163										24.88	4430	25			1000
PCB-160		NotFnd	<1.5	1.5		U									100
PCB-158										25.07	388	15	J		1000
PCB-128/166										25.57	570	22	J		1000
PCB-159		25.86	28.1	1.4		M,J									100
PCB-162		25.99	<9.4	1.5		J,R	9.4								100
PCB-167	0.00003	26.25	133	1.5											100
PCB-156/157	0.00003	26.85	411	2.1											200
PCB-169	0.03	28.49	<6.9	1.7		M,J,R	6.9								100
PCB-188		23.36	6.28	1.0		J									100
PCB-179		23.57	355	0.94											100
PCB-184		23.80	<2.9	0.91		J,R	2.9								100
PCB-176		24.02	88.2	0.95		J									100
PCB-186		24.28	<0.99	0.99		U									100
PCB-178		24.93	118	1.3											100
PCB-175		25.25	26.1	1.3		J									100
PCB-187		25.39	854	1.2		M									100
PCB-182		25.50	7.01	1.2		M,J									100
PCB-183		25.70	328	1.3											100
PCB-185		25.79	54.4	1.4		M,J									100
PCB-174		25.85	382	1.1		M									100
PCB-177		26.08	212	1.3											100
PCB-181		26.28	7.13	1.4		J									100
PCB-171/173		26.40	124	1.4											100
PCB-172		27.20	62.2	1.3		J									100

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Sample Analysis Report

Sample Name SITE 3 - COMPOSITE 3 (SEPTEMBER)
 ALS Sample ID L2504188-3
 Analysis Method EPA 1668C
 Analysis Type Sample
 Sample Matrix PUF

Sampling Date n/a
 Extraction Date 24-Sep-20
 Sample Size 1 Sample
 Percent Moisture n/a
 Split Ratio 4

Approved:
 S. Jin
 --e-signature--
 08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A11	5-201004A09
Run Date	03-Oct-20 19:15	04-Oct-20 20:01
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)			Ret. Conc. EDL			EMPC			Ret. Conc. EDL			EMPC		
	Time	pg	pg	Time	pg	pg	Time	pg	pg	Time	pg	pg	Time	pg	pg
PCB-192	27.32	<1.2	1.2	U	0.94	100									
PCB-180/193	27.54	804	1.2			100									
PCB-191	27.72	18.4	1.1	J		100									
PCB-170	28.22	300	1.6			100									
PCB-190	28.48	52.4	1.1	M,J		100									
PCB-189	29.79	14.1	0.79	J		100									
PCB-202	26.11	213	0.47			100									
PCB-201	26.60	71.9	0.43	J		100									
PCB-204	NotFnd	<0.45	0.45	U		100									
PCB-197	27.05	14.7	0.45	J		100									
PCB-200	27.14	46.6	0.42	J		100									
PCB-198/199	28.53	377	0.66			100									
PCB-196	28.87	120	0.67			100									
PCB-203	28.96	226	0.62			100									
PCB-195	29.68	48.0	0.77	J		100									
PCB-194	30.88	165	0.75			100									
PCB-205	31.14	<7.8	0.75	M,J,R	7.8	100									
PCB-208	29.53	67.0	2.7	J		100									
PCB-207	30.00	30.6	3.1	J		100									
PCB-206	32.20	134	4.8			100									
PCB-209	33.32	36.3	0.56	J		100									

Extraction Standards	pg	Time	% Rec	Limits	Time	% Rec	Limits
13C12-PCB-001	4000				8.90	78	5-145
13C12-PCB-003	4000				10.45	73	5-145
13C12-PCB-004	4000	10.49	68	5-145			
13C12-PCB-015	4000	14.15	92	5-145			
13C12-PCB-019	4000	12.48	45	5-145			
13C12-PCB-037	4000	18.08	96	5-145			
13C12-PCB-054	4000				14.46	56	5-145
13C12-PCB-081	4000	21.65	101	10-145			
13C12-PCB-077	4000	21.95	107	10-145			
13C12-PCB-104	4000	17.38	77	10-145			
13C12-PCB-123	4000	22.93	99	10-145			
13C12-PCB-118	4000	23.10	103	10-145			
13C12-PCB-114	4000	23.41	96	10-145			
13C12-PCB-105	4000	23.74	96	10-145			
13C12-PCB-126	4000	25.33	100	10-145			
13C12-PCB-155	4000	20.36	79	10-145			
13C12-PCB-167	4000	26.23	109	10-145			
13C12-PCB-156/157	8000	26.85	104	10-145			
13C12-PCB-169	4000	28.50	112	10-145			
13C12-PCB-188	4000	23.34	102	10-145			
13C12-PCB-189	4000	29.78	109	10-145			
13C12-PCB-202	4000	26.10	80	10-145			
13C12-PCB-205	4000	31.14	109	10-145			
13C12-PCB-208	4000	29.51	113	10-145			
13C12-PCB-206	4000	32.19	110	10-145			
13C12-PCB-209	4000	33.31	107	10-145			

Field Spike Standards	pg	Time	% Rec	Limits
13C12-PCB-031	24000	15.68	117	70-130
13C12-PCB-095	24000	18.98	106	70-130
13C12-PCB-153	24000	24.03	107	70-130

Cleanup Standards	pg	Time	% Rec	Limits
13C12-PCB-028	4000	15.85	78	5-145
13C12-PCB-111	4000	21.88	87	10-145
13C12-PCB-178	4000	24.90	81	10-145

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Sample Analysis Report

Sample Name	SITE 3 - COMPOSITE 3 (SEPTEMBER)	Sampling Date	n/a	Approved: <i>S. Jin</i> --e-signature-- 08-Oct-2020
ALS Sample ID	L2504188-3	Extraction Date	24-Sep-20	
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	5-201003A11	5-201004A09
Run Date	03-Oct-20 19:15	04-Oct-20 20:01
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)				EMPC				EMPC			
	Ret. Time	Conc. pg	EDL pg	Flags	Ret. Time	Conc. pg	EDL pg	Flags	Ret. Time	Conc. pg	EDL pg	Flags
Homologue Group Totals		pg	pg	Flags		pg	pg	Flags		pg	pg	Flags
Total MonoCB		62100	13	J		400						
Total DiCB		682000	3.3	J		800						
Total TriCB		821000	1.8	J		800						
Total TetraCB		330000	3.2	J		1600						
Total PentaCB		79800	0.57	J		1600						
Total HexaCB		21800	0.51	J		1600						
Total HeptaCB		3820	0.79	J		800						
Total OctaCB		1290	0.42	J		800						
Total NonaCB		232	2.7	J		400						
DecaCB		36.3	0.56	J		400						
Total PCB		2000000		J		3200						
Toxic Equivalency - (WHO 2005)												
Lower Bound PCB TEQ		0.349										
Mid Point PCB TEQ		3.16										
Upper Bound PCB TEQ		3.16										

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 3 (SEPTEMBER)
 ALS Sample ID L2504188-4
 Analysis Method EPA 1668C
 Analysis Type Sample
 Sample Matrix PUF

Sampling Date n/a
 Extraction Date 24-Sep-20
 Sample Size 1 Sample
 Percent Moisture n/a
 Split Ratio 4

Approved:
 S. Jin
 --e-signature--
 08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A12	5-201004A10
Run Date	03-Oct-20 19:57	04-Oct-20 20:43
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)				EMPC				EMPC			
	Ret. Time	Conc. pg	EDL pg	Flags	Ret. Time	Conc. pg	EDL pg	Flags	Ret. Time	Conc. pg	EDL pg	Flags
PCB-001					8.91	116000	30					1000
PCB-002					10.34	5610	35					1000
PCB-003					10.47	25300	36					1000
PCB-004					10.62	931000	77					1000
PCB-010					10.73	35800	35					1000
PCB-009					11.90	67200	35					1000
PCB-007					11.99	38800	36					1000
PCB-006					12.15	184000	36					1000
PCB-005					12.36	13100	39	M				1000
PCB-008					12.43	812000	34	M				1000
PCB-014	13.26	72.8	4.1	J								100
PCB-011					13.93	7850	140					1000
PCB-012/013					14.11	25500	140					1000
PCB-015					14.31	153000	140					1000
PCB-019					12.62	148000	43					1000
PCB-018/030					13.73	641000	38					1000
PCB-017					13.97	298000	45					1000
PCB-027					14.10	42700	33					1000
PCB-024	14.06	10800	4.3									100
PCB-016					14.27	248000	50					1000
PCB-032					14.55	147000	30					1000
PCB-034					15.25	1660	73					1000
PCB-023					15.35	776	70	J				1000
PCB-026/029					15.53	79200	68					1000
PCB-025					15.66	31500	58					1000
PCB-031					15.84	355000	64					1000
PCB-020/028					16.01	388000	69					1000
PCB-021/033					16.15	238000	65					1000
PCB-022					16.39	133000	71					1000
PCB-036	17.06	26.8	8.6	M,J								100
PCB-039	17.29	1790	8.4									100
PCB-038	17.60	356	8.4									100
PCB-035					18.04	3750	72					1000
PCB-037					18.27	42900	82					1000
PCB-054					14.48	1720	28	M				1000
PCB-050/053					15.68	48100	53					1000
PCB-045/051					16.09	65800	56					1000
PCB-046					16.26	20600	60					1000
PCB-052					17.01	227000	56					1000
PCB-073					NotFnd	<42	42	U				1000
PCB-043					17.14	15700	62					1000
PCB-049/069					17.28	113000	46					1000
PCB-048					17.44	55200	53					1000
PCB-044/047/065					17.57	170000	50					1000
PCB-059/062/075					17.75	18300	41					1000
PCB-042					17.87	43100	51					1000
PCB-040/041/071					18.13	93200	56					1000
PCB-064					18.25	64900	38					1000
PCB-072					18.65	495	73	J				1000
PCB-068					18.83	<140	71	J,R	140			1000
PCB-057					19.05	<480	77	J,R	480			1000
PCB-058					19.19	151	76	M,J				1000
PCB-067					19.27	2850	62					1000
PCB-063					19.42	2670	68					1000
PCB-061/070/074/076					19.60	106000	73					1000
PCB-066					19.78	43800	67	M				1000
PCB-055					19.89	1880	75	M				1000
PCB-056					20.16	19800	76					1000
PCB-060					20.28	12900	74					1000
PCB-080	NotFnd	<5.6	5.6	U								100
PCB-079		21.10	509	5.6								100
PCB-078		21.43	40.4	7.0	J							100
PCB-081	0.0003	21.65	164	6.8								100
PCB-077	0.0001	21.95	2750	7.0								100
PCB-104		17.39	<28	0.91	J,R	28						100
PCB-096		17.62	1290	0.80								100
PCB-103					18.75	464	33	J				1000
PCB-094					18.89	475	38	J				1000
PCB-095					19.13	50100	36	M				1000
PCB-093/098/100/102					19.32	4930	35	M				1000

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Sample Analysis Report

Sample Name SITE 4 - COMPOSITE 3 (SEPTEMBER)
 ALS Sample ID L2504188-4
 Analysis Method EPA 1668C
 Analysis Type Sample
 Sample Matrix PUF

Sampling Date n/a
 Extraction Date 24-Sep-20
 Sample Size 1 Sample
 Percent Moisture n/a
 Split Ratio 4

Approved:
 S. Jin
 --e-signature--
 08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A12	5-201004A10
Run Date	03-Oct-20 19:57	04-Oct-20 20:43
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)			Ret. Conc. EDL			EMPC			Ret. Conc. EDL			EMPC		
	Time	pg	pg	Time	pg	pg	Flags	pg	LQL	Time	pg	pg	Flags	pg	LQL
PCB-088/091										19.60	8890	36			1000
PCB-084										19.74	14300	37			1000
PCB-089		19.84	822	8.8											
PCB-121		NotFnd	<6.0	6.0		U									
PCB-092										20.35	7410	36			1000
PCB-090/101/113										20.66	41400	31			1000
PCB-083/099										20.97	23200	38			1000
PCB-112		20.88	99.4	5.5		M,J									
PCB-086/087/097/109/119/125										21.32	26500	31		M	1000
PCB-085/110/115/116/117										21.73	44100	28		M	1000
PCB-082		21.76	3720	8.9											
PCB-111		21.89	<8.0	5.8		J,R	8.0								
PCB-120		22.12	46.8	5.4		J									
PCB-108/124										22.91	920	31		J	1000
PCB-107										23.04	1310	26		M	1000
PCB-123	0.00003									23.09	364	35		M,J	1000
PCB-106										NotFnd	<27	27		U	1000
PCB-118	0.00003									23.27	21000	29			1000
PCB-122										23.47	371	32		M,J	1000
PCB-114	0.00003									23.57	676	32		J	1000
PCB-105	0.00003									23.91	8840	35			1000
PCB-127		24.51	41.5	3.8		M,J									100
PCB-126	0.1	25.34	<87	4.8		J,R	87								100
PCB-155		20.38	<4.4	0.62		J,R	4.4								100
PCB-152		20.53	35.5	0.65		J									100
PCB-150		20.60	42.2	0.64		J									100
PCB-136		20.82	3090	0.65											100
PCB-145		20.96	15.2	0.67		J									100
PCB-148		21.70	16.5	0.87		J									100
PCB-135/151		22.03	5340	0.95											100
PCB-154		22.13	149	0.70											100
PCB-144		22.33	844	0.88											100
PCB-147/149										22.67	12800	30			1000
PCB-134/143										22.80	1290	34			1000
PCB-139/140										22.97	450	30		J	1000
PCB-131		22.95	341	2.8											100
PCB-142		23.04	<4.4	3.0		J,R	4.4								100
PCB-132		23.20	6570	2.9											100
PCB-133		23.39	189	2.6											100
PCB-165		NotFnd	<2.1	2.1		U									100
PCB-146		23.72	1770	2.2											100
PCB-161		NotFnd	<1.8	1.8		U									100
PCB-153/168										24.19	10200	25			1000
PCB-141										24.32	2250	29			1000
PCB-130										24.54	873	36		J	1000
PCB-137/164										24.71	1600	27		M	1000
PCB-129/138/163										24.87	14900	31			1000
PCB-160		NotFnd	<1.9	1.9		U									100
PCB-158										25.07	1260	19			1000
PCB-128/166										25.56	2100	27			1000
PCB-159		25.85	69.7	1.8		J									100
PCB-162		25.99	36.7	1.9		J									100
PCB-167	0.00003	26.23	504	1.9											100
PCB-156/157	0.00003	26.85	1630	2.8											200
PCB-169	0.03	28.49	<18	2.4		M,J,R	18								100
PCB-188		23.34	11.8	0.99		J									100
PCB-179		23.56	753	0.96											100
PCB-184		23.80	6.82	0.92		J									100
PCB-176		24.02	214	0.97											100
PCB-186		24.28	<1.0	1.0		M,U	0.75								100
PCB-178		24.92	273	1.3											100
PCB-175		25.24	64.0	1.3		J									100
PCB-187		25.39	1780	1.2		M									100
PCB-182		25.48	<12	1.2		M,J,R	12								100
PCB-183		25.70	823	1.3											100
PCB-185		25.77	98.8	1.5		M,J									100
PCB-174		25.85	1040	1.2		M									100
PCB-177		26.08	593	1.3											100
PCB-181		26.28	23.7	1.4		J									100
PCB-171/173		26.40	373	1.4											100
PCB-172		27.19	178	1.4											100

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Sample Analysis Report

Sample Name SITE 4 - COMPOSITE 3 (SEPTEMBER)
 ALS Sample ID L2504188-4
 Analysis Method EPA 1668C
 Analysis Type Sample
 Sample Matrix PUF

Sampling Date n/a
 Extraction Date 24-Sep-20
 Sample Size 1 Sample
 Percent Moisture n/a
 Split Ratio 4

Approved:
 S. Jin
 --e-signature--
 08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A12	5-201004A10
Run Date	03-Oct-20 19:57	04-Oct-20 20:43
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)			Ret. Conc. EDL			EMPC			Ret. Conc. EDL			EMPC		
	Time	pg	pg	Time	pg	pg	Flags	pg	LQL	Time	pg	pg	Flags	pg	LQL
PCB-192	27.31	<1.2	1.2	U	0.54	100									
PCB-180/193	27.53	2180	1.2			100									
PCB-191	27.71	47.1	1.1	J		100									
PCB-170	28.20	978	1.6			100									
PCB-190	28.48	179	1.1	M		100									
PCB-189	0.00003	29.78	42.7	0.85	J	100									
PCB-202	26.11	350	0.68			100									
PCB-201	26.58	126	0.64			100									
PCB-204	26.92	0.770	0.67	J		100									
PCB-197	27.04	28.0	0.67	J		100									
PCB-200	27.13	90.4	0.62	J		100									
PCB-198/199	28.53	849	0.98			100									
PCB-196	28.87	304	1.0			100									
PCB-203	28.96	504	0.93			100									
PCB-195	29.68	135	1.1			100									
PCB-194	30.88	483	1.0			100									
PCB-205	31.14	22.1	1.1	J		100									
PCB-208	29.53	166	3.3			100									
PCB-207	29.99	67.4	3.7	J		100									
PCB-206	32.20	443	5.5			100									
PCB-209	33.31	145	0.69			100									
Extraction Standards															
	pg	Time	% Rec	Limits		Time	% Rec	Limits							
13C12-PCB-001	4000					8.90	74	5-145	M						
13C12-PCB-003	4000					10.45	70	5-145	M						
13C12-PCB-004	4000	10.48	59	5-145											
13C12-PCB-015	4000	14.14	86	5-145											
13C12-PCB-019	4000	12.47	40	5-145											
13C12-PCB-037	4000	18.07	92	5-145											
13C12-PCB-054	4000					14.46	54	5-145							
13C12-PCB-081	4000	21.64	91	10-145											
13C12-PCB-077	4000	21.94	94	10-145											
13C12-PCB-104	4000	17.38	72	10-145											
13C12-PCB-123	4000	22.93	89	10-145											
13C12-PCB-118	4000	23.10	93	10-145											
13C12-PCB-114	4000	23.39	87	10-145											
13C12-PCB-105	4000	23.74	87	10-145											
13C12-PCB-126	4000	25.33	87	10-145											
13C12-PCB-155	4000	20.36	73	10-145											
13C12-PCB-167	4000	26.22	101	10-145											
13C12-PCB-156/157	8000	26.85	94	10-145											
13C12-PCB-169	4000	28.50	97	10-145											
13C12-PCB-188	4000	23.34	100	10-145											
13C12-PCB-189	4000	29.78	96	10-145											
13C12-PCB-202	4000	26.10	75	10-145											
13C12-PCB-205	4000	31.13	100	10-145											
13C12-PCB-208	4000	29.51	105	10-145											
13C12-PCB-206	4000	32.19	104	10-145											
13C12-PCB-209	4000	33.29	99	10-145											
Field Spike Standards															
13C12-PCB-031	24000	15.67	112	70-130											
13C12-PCB-095	24000	18.97	108	70-130											
13C12-PCB-153	24000	24.03	112	70-130											
Cleanup Standards															
13C12-PCB-028	4000	15.85	74	5-145											
13C12-PCB-111	4000	21.87	83	10-145											
13C12-PCB-178	4000	24.90	81	10-145											

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Sample Analysis Report

Sample Name	SITE 4 - COMPOSITE 3 (SEPTEMBER)	Sampling Date	n/a
ALS Sample ID	L2504188-4	Extraction Date	24-Sep-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--
08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A12	5-201004A10
Run Date	03-Oct-20 19:57	04-Oct-20 20:43
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF	Ret.	Conc.	EDL	EMPC			Ret.	Conc.	EDL	EMPC		
	(WHO 2005)	Time	pg	pg	Flags	pg	LQL	Time	pg	pg	Flags	pg	LQL
Homologue Group Totals			pg	pg	Flags	pg							
Total MonoCB			147000	30	J	400							
Total DiCB			2270000	4.1	J	800							
Total TriCB			2810000	4.3	J	800							
Total TetraCB			1130000	5.6	J	1600							
Total PentaCB			261000	0.80	J	1600							
Total HexaCB			68400	0.62	J	1600							
Total HeptaCB			9670	0.85	J	800							
Total OctaCB			2890	0.62	J	800							
Total NonaCB			676	3.3	J	400							
DecaCB			145	0.69	J	400							
Total PCB			6700000		J	3200							

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	1.32
Mid Point PCB TEQ	10.6
Upper Bound PCB TEQ	10.6

- 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

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Sample Analysis Report

Sample Name	SITE 5 - COMPOSITE 3 (SEPTEMBER)	Sampling Date	n/a	
ALS Sample ID	L2504188-5	Extraction Date	24-Sep-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-- 08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A13	5-201004A11
Run Date	03-Oct-20 20:39	04-Oct-20 21:25
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC Flags	pg	LQL	Ret. Time	Conc. pg	EDL pg	EMPC Flags	pg	LQL
PCB-001								8.90	382000	22			1000
PCB-002								10.31	16100	24			1000
PCB-003								10.44	71800	24			1000
PCB-004								10.61	2120000	41			1000
PCB-010								10.72	74600	17			1000
PCB-009								11.87	164000	17			1000
PCB-007								11.98	95500	17			1000
PCB-006								12.13	416000	17			1000
PCB-005								12.34	32400	18	M		1000
PCB-008								12.40	1740000	16	M		1000
PCB-014		13.26	149	10									
PCB-011								13.91	15600	70	M		1000
PCB-012/013								14.08	48600	70			1000
PCB-015								14.29	261000	65			1000
PCB-019								12.61	315000	22			1000
PCB-018/030								13.72	1300000	28			1000
PCB-017								13.97	608000	34			1000
PCB-027								14.09	80300	25			1000
PCB-024		14.05	25400	4.5									
PCB-016								14.25	472000	37	M		1000
PCB-032								14.54	283000	22			1000
PCB-034								15.24	3510	71			1000
PCB-023								15.33	1700	69			1000
PCB-026/029								15.51	156000	67			1000
PCB-025								15.64	59400	57			1000
PCB-031								15.82	683000	63			1000
PCB-020/028								16.00	721000	68			1000
PCB-021/033								16.13	432000	64			1000
PCB-022								16.37	231000	70			1000
PCB-036		17.06	41.8	8.6	M,J								
PCB-039		17.29	3120	8.4									100
PCB-038		17.59	618	8.4									100
PCB-035								18.01	4350	71			1000
PCB-037								18.24	62500	75			1000
PCB-054								14.46	3320	15			1000
PCB-050/053								15.67	95800	29			1000
PCB-045/051								16.07	129000	31			1000
PCB-046								16.25	36400	33			1000
PCB-052								16.99	416000	31			1000
PCB-073								NotFnd	<23	23	U		1000
PCB-043								17.13	21800	35			1000
PCB-049/069								17.26	204000	26			1000
PCB-048								17.43	99300	30			1000
PCB-044/047/065								17.55	297000	28			1000
PCB-059/062/075								17.73	30900	23			1000
PCB-042								17.85	71500	29			1000
PCB-040/041/071								18.11	156000	31			1000
PCB-064								18.24	105000	21			1000
PCB-072								18.63	815	57	J		1000
PCB-068								18.80	345	56	J		1000
PCB-057								19.03	897	61	J		1000
PCB-058								19.17	268	60	M,J		1000
PCB-067								19.26	4740	49			1000
PCB-063								19.41	4460	54			1000
PCB-061/070/074/076								19.59	164000	58			1000
PCB-066								19.76	65600	53			1000
PCB-055								19.86	2820	59			1000
PCB-056								20.14	29200	61			1000
PCB-060								20.26	19200	59			1000
PCB-080		NotFnd	<6.2	6.2	U								100
PCB-079		21.09	646	6.1									100
PCB-078		21.45	51.2	7.7	M,J								100
PCB-081	0.0003	21.65	210	8.1									100
PCB-077	0.0001	21.95	3120	8.0									100
PCB-104		17.40	<43	1.5	J,R	43							100
PCB-096		17.61	2390	1.4									100
PCB-103								18.75	840	39	J		1000
PCB-094								18.88	841	45	J		1000
PCB-095								19.12	88500	43	M		1000
PCB-093/098/100/102								19.30	6430	42	M		1000

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Sample Analysis Report

Sample Name	SITE 5 - COMPOSITE 3 (SEPTEMBER)	Sampling Date	n/a
ALS Sample ID	L2504188-5	Extraction Date	24-Sep-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-- 08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A13	5-201004A11
Run Date	03-Oct-20 20:39	04-Oct-20 21:25
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 251239-06	HRMS-5 SPB0ctyl 251239-06

Target Analytes	TEF (WHO 2005)				EMPC				EMPC			
	Ret. Time	Conc. pg	EDL pg	Flags	Ret. Time	Conc. pg	EDL pg	Flags	Ret. Time	Conc. pg	EDL pg	Flags
PCB-088/091					19.59	15000	43					1000
PCB-084					19.74	22500	44					1000
PCB-089		19.84	1290	10								
PCB-121		NotFnd	<7.0	7.0	U							100
PCB-092					20.34	12000	43					1000
PCB-090/101/113					20.65	64200	37					1000
PCB-083/099					20.96	34900	45					1000
PCB-112		20.88	129	6.5	M							100
PCB-086/087/097/109/119/125					21.30	39400	37	M				1000
PCB-085/110/115/116/117					21.71	61300	34	M				1000
PCB-082		21.76	5210	10								100
PCB-111		21.89	<12	6.8	J,R	12						100
PCB-120		22.12	60.8	6.3	J							100
PCB-108/124					22.90	1260	26					1000
PCB-107					23.03	1720	22	M				1000
PCB-123	0.00003				23.08	473	30	M,J				1000
PCB-106					NotFnd	<23	23	U				1000
PCB-118	0.00003				23.26	27700	25					1000
PCB-122					23.45	395	27	J				1000
PCB-114	0.00003				23.56	921	30	J				1000
PCB-105	0.00003				23.90	11700	31					1000
PCB-127		24.49	54.9	4.3	M,J							100
PCB-126	0.1	25.34	<62	5.7	J,R	62						100
PCB-155		20.37	<5.9	0.90	J,R	5.9						100
PCB-152		20.53	57.2	1.0	J							100
PCB-150		20.60	67.2	0.99	J							100
PCB-136		20.82	4980	1.0								100
PCB-145		20.96	26.2	1.0	J							100
PCB-148		21.69	24.5	1.4	M,J							100
PCB-135/151		22.03	8180	1.5								100
PCB-154		22.13	216	1.1								100
PCB-144		22.33	1280	1.4								100
PCB-147/149					22.66	19000	18					1000
PCB-134/143					22.79	1780	21					1000
PCB-139/140					22.96	629	18	J				1000
PCB-131		22.95	490	3.7								100
PCB-142		23.03	8.27	3.9	J							100
PCB-132		23.20	9000	3.8								100
PCB-133		23.39	258	3.4								100
PCB-165		NotFnd	<2.7	2.7	U							100
PCB-146		23.72	2450	2.9								100
PCB-161		NotFnd	<2.4	2.4	U							100
PCB-153/168					24.18	14100	15					1000
PCB-141					24.31	3090	18					1000
PCB-130					24.53	1240	22					1000
PCB-137/164					24.70	2210	16	M				1000
PCB-129/138/163					24.87	19800	19					1000
PCB-160		NotFnd	<2.5	2.5	U							100
PCB-158					25.06	1650	12					1000
PCB-128/166					25.54	2590	16					1000
PCB-159		25.85	95.0	2.4	M,J							100
PCB-162		25.99	47.7	2.6	J							100
PCB-167	0.00003	26.23	640	2.5								100
PCB-156/157	0.00003	26.85	2110	3.7								200
PCB-169	0.03	28.52	<17	3.2	M,J,R	17						100
PCB-188		23.36	13.9	1.2	J							100
PCB-179		23.56	1180	1.2								100
PCB-184		23.79	7.19	1.2	J							100
PCB-176		24.01	313	1.2								100
PCB-186		NotFnd	<1.3	1.3	U							100
PCB-178		24.92	388	1.7								100
PCB-175		25.24	89.1	1.6	J							100
PCB-187		25.38	2570	1.5								100
PCB-182		25.48	18.3	1.5	J							100
PCB-183		25.69	1130	1.6								100
PCB-185		25.77	138	1.8	M							100
PCB-174		25.85	1370	1.4	M							100
PCB-177		26.08	769	1.6								100
PCB-181		26.28	28.6	1.8	J							100
PCB-171/173		26.40	478	1.8								100
PCB-172		27.19	214	1.7								100

ALS Life Sciences

Sample Analysis Report

Sample Name SITE 5 - COMPOSITE 3 (SEPTEMBER)
 ALS Sample ID L2504188-5
 Analysis Method EPA 1668C
 Analysis Type Sample
 Sample Matrix PUF

Sampling Date n/a
 Extraction Date 24-Sep-20
 Sample Size 1 Sample
 Percent Moisture n/a
 Split Ratio 4

Approved:
 S. Jin
 --e-signature--
 08-Oct-2020

Run Information	Run 1	Run 2
Filename	5-201003A13	5-201004A11
Run Date	03-Oct-20 20:39	04-Oct-20 21:25
Final Volume	25 ul	25 uL
Dilution Factor	1	10
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)			Ret. Conc. EDL			EMPC			Ret. Conc. EDL			EMPC		
	Time	pg	pg	Time	pg	pg	Flags	pg	LQL	Time	pg	pg	Flags	pg	LQL
PCB-192		27.34	<1.5	1.5		U	0.82	100							
PCB-180/193		27.53	2800	1.5				100							
PCB-191		27.71	59.3	1.4		J		100							
PCB-170		28.20	1190	2.0				100							
PCB-190		28.48	219	1.4		M		100							
PCB-189	0.00003	29.79	58.2	1.9		J		100							
PCB-202		26.11	533	0.90				100							
PCB-201		26.58	205	0.86				100							
PCB-204		NotFnd	<0.90	0.90		U		100							
PCB-197		27.04	41.9	0.90		J		100							
PCB-200		27.13	135	0.84				100							
PCB-198/199		28.53	1140	1.3				100							
PCB-196		28.87	389	1.4				100							
PCB-203		28.96	716	1.3				100							
PCB-195		29.68	187	1.8				100							
PCB-194		30.88	591	1.8				100							
PCB-205		31.16	29.8	1.9		J		100							
PCB-208		29.53	196	4.9		M		100							
PCB-207		29.99	82.4	5.5		J		100							
PCB-206		32.20	534	8.5				100							
PCB-209		33.32	155	1.2				100							
Extraction Standards	pg	Time	% Rec	Limits					Time	% Rec	Limits				
13C12-PCB-001	4000								8.88	67	5-145				
13C12-PCB-003	4000								10.44	66	5-145				
13C12-PCB-004	4000	10.48	47	5-145											
13C12-PCB-015	4000	14.14	69	5-145											
13C12-PCB-019	4000	12.47	35	5-145											
13C12-PCB-037	4000	18.07	68	5-145											
13C12-PCB-054	4000								14.45	54	5-145				
13C12-PCB-081	4000	21.64	63	10-145											
13C12-PCB-077	4000	21.94	65	10-145											
13C12-PCB-104	4000	17.38	54	10-145											
13C12-PCB-123	4000	22.92	61	10-145											
13C12-PCB-118	4000	23.10	64	10-145											
13C12-PCB-114	4000	23.39	59	10-145											
13C12-PCB-105	4000	23.74	59	10-145											
13C12-PCB-126	4000	25.33	57	10-145											
13C12-PCB-155	4000	20.36	54	10-145											
13C12-PCB-167	4000	26.22	67	10-145											
13C12-PCB-156/157	8000	26.85	63	10-145											
13C12-PCB-169	4000	28.50	63	10-145											
13C12-PCB-188	4000	23.34	70	10-145											
13C12-PCB-189	4000	29.78	64	10-145											
13C12-PCB-202	4000	26.10	51	10-145											
13C12-PCB-205	4000	31.13	67	10-145											
13C12-PCB-208	4000	29.51	73	10-145											
13C12-PCB-206	4000	32.19	69	10-145											
13C12-PCB-209	4000	33.29	66	10-145											
Field Spike Standards															
13C12-PCB-031	24000	15.67	115	70-130											
13C12-PCB-095	24000	18.97	113	70-130											
13C12-PCB-153	24000	24.02	112	70-130											
Cleanup Standards															
13C12-PCB-028	4000	15.84	66	5-145											
13C12-PCB-111	4000	21.87	66	10-145											
13C12-PCB-178	4000	24.90	64	10-145											

ALS Life Sciences

Sample Analysis Report

Sample Name SITE 5 - COMPOSITE 3 (SEPTEMBER)
 ALS Sample ID L2504188-5
 Analysis Method EPA 1668C
 Analysis Type Sample
 Sample Matrix PUF

Sampling Date n/a
 Extraction Date 24-Sep-20
 Sample Size 1 Sample
 Percent Moisture n/a
 Split Ratio 4

Approved:
S. Jin
 --e-signature--
 08-Oct-2020

Run Information

Run 1

Filename 5-201003A13
 Run Date 03-Oct-20 20:39
 Final Volume 25 ul
 Dilution Factor 1
 Analysis Units pg
 Instrument - Column HRMS-5 SPBOctyl 251239-06

Run 2

Filename 5-201004A11
 Run Date 04-Oct-20 21:25
 Final Volume 25 uL
 Dilution Factor 10
 Analysis Units pg
 Instrument - Column HRMS-5 SPBOctyl 251239-06

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			pg	pg	Flags	pg							
Total MonoCB			470000	22	J	400							
Total DiCB			4970000	10	J	800							
Total TriCB			5440000	4.5	J	800							
Total TetraCB			1960000	6.1	J	1600							
Total PentaCB			399000	1.4	J	1600							
Total HexaCB			96000	0.90	J	1600							
Total HeptaCB			13000	1.2	J	800							
Total OctaCB			3970	0.84	J	800							
Total NonaCB			812	4.9	J	400							
DecaCB			155	1.2	J	400							
Total PCB			13400000		J	3200							

Toxic Equivalency - (WHO 2005)

Lower Bound PCB TEQ	1.68
Mid Point PCB TEQ	8.39
Upper Bound PCB TEQ	8.39

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

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',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',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	5-200219A02	19-Feb-2020 14:40
CS-2	5-200219A04	19-Feb-2020 16:17
CS-3	5-200219A01	19-Feb-2020 13:42
CS-4	5-200219A05	19-Feb-2020 16:57
CS-5	5-200219A06	19-Feb-2020 17:39

Approved:	S. Jin --e-signature-- 08-Oct-2020
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Target Analytes	Relative Response Factors					Mean	% RSD
	CS-1	CS-2	CS-3	CS-4	CS-5		
PCB-001	1.160	1.143	1.110	1.242		1.164	5%
PCB-003	1.177	1.184	1.115	1.270		1.187	5%
PCB-004	0.787	0.830	0.753	0.853	0.863	0.817	6%
PCB-015	0.925	0.946	0.926	1.036	1.030	0.973	6%
PCB-019	1.086	1.128	1.085	1.197	1.184	1.136	5%
PCB-037	0.970	0.992	0.933	1.039	1.042	0.995	5%
PCB-054	0.951	0.988	0.947	1.061	1.055	1.000	5%
PCB-081	1.058	1.096	1.066	1.166	1.158	1.109	5%
PCB-077	1.068	1.068	1.039	1.144	1.149	1.094	5%
PCB-104	1.041	1.078	1.032	1.159	1.145	1.091	5%
PCB-123	0.930	0.929	0.913	1.007	1.008	0.957	5%
PCB-118	0.956	1.025	1.000	1.096	1.094	1.034	6%
PCB-114	1.001	1.007	0.992	1.093	1.090	1.037	5%
PCB-105	0.958	0.990	0.967	1.068	1.072	1.011	5%
PCB-126	1.011	1.078	1.020	1.123	1.116	1.070	5%
PCB-155	0.928	1.007	0.949	1.042	1.029	0.991	5%
PCB-167	1.061	1.048	1.001	1.106	1.109	1.065	4%
PCB-156/157	1.058	1.088	1.035	1.127	1.136	1.089	4%
PCB-169	0.973	1.019	1.004	1.107	1.102	1.041	6%
PCB-188	0.866	0.925	0.882	0.968	0.958	0.920	5%
PCB-189	0.923	0.945	0.921	1.008	1.027	0.965	5%
PCB-202	1.047	1.052	0.979	1.080	1.081	1.048	4%
PCB-205	0.806	0.842	0.824	0.901	0.906	0.856	5%
PCB-208	1.220	1.278	1.209	1.337	1.332	1.275	5%
PCB-206	1.241	1.287	1.249	1.346	1.354	1.295	4%
PCB-209	0.832	0.870	0.833	0.925	0.911	0.874	5%
Extraction Standards							
13C12-PCB-001	0.870	0.900	0.901	0.912	0.911	0.899	2%
13C12-PCB-003	0.834	0.841	0.875	0.879	0.892	0.864	3%
13C12-PCB-004	0.640	0.641	0.649	0.650	0.643	0.645	1%
13C12-PCB-015	0.907	0.891	0.947	0.945	0.952	0.928	3%
13C12-PCB-019	0.517	0.526	0.521	0.519	0.514	0.519	1%
13C12-PCB-037	1.539	1.494	1.514	1.587	1.592	1.545	3%
13C12-PCB-054	1.347	1.334	1.309	1.348	1.319	1.331	1%
13C12-PCB-081	1.614	1.533	1.558	1.627	1.671	1.601	3%
13C12-PCB-077	1.621	1.536	1.553	1.634	1.664	1.602	3%
13C12-PCB-104	1.516	1.512	1.491	1.529	1.501	1.510	1%
13C12-PCB-123	1.503	1.477	1.450	1.532	1.546	1.502	3%
13C12-PCB-118	1.486	1.460	1.431	1.509	1.516	1.480	2%
13C12-PCB-114	1.440	1.404	1.384	1.452	1.451	1.426	2%
13C12-PCB-105	1.475	1.439	1.411	1.483	1.511	1.464	3%
13C12-PCB-126	1.387	1.314	1.305	1.411	1.444	1.372	4%
13C12-PCB-155	1.714	1.693	1.679	1.692	1.678	1.691	1%
13C12-PCB-167	1.202	1.181	1.155	1.224	1.204	1.193	2%
13C12-PCB-156/157	1.154	1.135	1.113	1.190	1.155	1.149	2%
13C12-PCB-169	1.135	1.101	1.075	1.157	1.159	1.125	3%
13C12-PCB-188	1.171	1.175	1.143	1.167	1.143	1.160	1%
13C12-PCB-189	0.938	0.932	0.890	0.973	0.957	0.938	3%
13C12-PCB-202	1.050	1.053	1.030	1.063	1.035	1.046	1%
13C12-PCB-205	1.355	1.334	1.363	1.372	1.347	1.354	1%
13C12-PCB-208	1.072	1.072	1.106	1.066	1.043	1.072	2%
13C12-PCB-206	0.733	0.722	0.747	0.743	0.732	0.735	1%
13C12-PCB-209	1.130	1.144	1.164	1.154	1.173	1.153	1%
Field Spike Standards							
13C12-PCB-031	1.271	1.287	1.330	1.268	1.249	1.281	2%
13C12-PCB-095	0.596	0.599	0.608	0.587	0.587	0.595	1%
13C12-PCB-153	0.902	0.917	0.951	0.894	0.901	0.913	3%
Cleanup Standards							
13C12-PCB-028	1.626	1.614	1.731	1.646	1.628	1.649	3%
13C12-PCB-111	1.173	1.149	1.207	1.171	1.173	1.175	2%
13C12-PCB-178	0.802	0.806	0.799	0.821	0.808	0.807	1%

ALS Life Sciences

Calibration Report

ALS Sample ID **H5-20-CS1-004**
 Analysis Method EPA 1668C
 Analysis Type Calibration

Filename 5-200219A02 Inst # HRMS-5 Column SPCOCTYL 65972-02A Run Date 19-Feb-2020 14:40

Approved: *S. Jin*
 --e-signature--
 08-Oct-2020

Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	8.85	3.29	1.00	3.99E+04	1.160
PCB-003	10.38	3.07	1.00	3.87E+04	1.177
PCB-004	10.55	1.43	1.00	1.99E+04	0.787
PCB-015	14.22	1.55	1.00	3.31E+04	0.925
PCB-019	12.55	1.13	1.00	2.22E+04	1.086
PCB-037	18.18	1.04	1.00	3.09E+04	0.970
PCB-054	14.41	0.84	1.00	2.65E+04	0.951
PCB-081	21.77	0.78	1.00	2.80E+04	1.058
PCB-077	22.06	0.79	1.00	2.84E+04	1.068
PCB-104	17.49	1.67	1.00	2.59E+04	1.041
PCB-123	23.08	1.64	1.00	2.30E+04	0.930
PCB-118	23.25	1.56	1.00	2.33E+04	0.956
PCB-114	23.55	1.56	1.00	2.37E+04	1.001
PCB-105	23.89	1.53	1.00	2.32E+04	0.958
PCB-126	25.48	1.67	1.00	2.30E+04	1.011
PCB-155	20.51	1.25	1.00	2.61E+04	0.928
PCB-167	26.41	1.11	1.00	2.67E+04	1.061
PCB-156/157	27.03	1.19	2.00	5.12E+04	1.058
PCB-169	28.69	1.17	1.00	2.32E+04	0.973
PCB-188	23.5	0.98	1.00	2.13E+04	0.866
PCB-189	29.98	1.01	1.00	1.82E+04	0.923
PCB-202	26.29	1.02	1.00	2.31E+04	1.047
PCB-205	31.38	0.94	1.00	1.40E+04	0.806
PCB-208	29.72	0.85	1.00	1.67E+04	1.220
PCB-206	32.47	0.79	1.00	1.16E+04	1.241
PCB-209	33.61	1.15	1.00	1.20E+04	0.832
Extraction Standards					
13C12-PCB-001	8.85	2.94	100.00	3.44E+06	0.870
13C12-PCB-003	10.38	2.87	100.00	3.29E+06	0.834
13C12-PCB-004	10.54	1.56	100.00	2.53E+06	0.640
13C12-PCB-015	14.21	1.63	100.00	3.58E+06	0.907
13C12-PCB-019	12.54	1.00	100.00	2.04E+06	0.517
13C12-PCB-037	18.17	1.03	100.00	3.18E+06	1.539
13C12-PCB-054	14.4	0.80	100.00	2.79E+06	1.347
13C12-PCB-081	21.76	0.82	100.00	2.65E+06	1.614
13C12-PCB-077	22.06	0.83	100.00	2.66E+06	1.621
13C12-PCB-104	17.48	1.56	100.00	2.49E+06	1.516
13C12-PCB-123	23.07	1.59	100.00	2.47E+06	1.503
13C12-PCB-118	23.24	1.59	100.00	2.44E+06	1.486
13C12-PCB-114	23.54	1.62	100.00	2.36E+06	1.440
13C12-PCB-105	23.88	1.61	100.00	2.42E+06	1.475
13C12-PCB-126	25.47	1.61	100.00	2.28E+06	1.387
13C12-PCB-155	20.5	1.26	100.00	2.81E+06	1.714
13C12-PCB-167	26.39	1.33	100.00	2.52E+06	1.202
13C12-PCB-156/157	27.02	1.33	200.00	4.84E+06	1.154
13C12-PCB-169	28.67	1.33	100.00	2.38E+06	1.135
13C12-PCB-188	23.5	1.05	100.00	2.46E+06	1.171
13C12-PCB-189	29.96	1.05	100.00	1.97E+06	0.938
13C12-PCB-202	26.28	0.91	100.00	2.20E+06	1.050
13C12-PCB-205	31.37	0.87	100.00	1.73E+06	1.355
13C12-PCB-208	29.71	0.78	100.00	1.37E+06	1.072
13C12-PCB-206	32.46	0.79	100.00	9.38E+05	0.733
13C12-PCB-209	33.6	1.17	100.00	1.45E+06	1.130
Field Spike Standards					
13C12-PCB-031	15.76	1.04	100.00	3.32E+06	1.271
13C12-PCB-095	19.08	1.62	100.00	1.45E+06	0.596
13C12-PCB-153	24.19	1.32	100.00	2.29E+06	0.902
Cleanup Standards					
13C12-PCB-028	15.94	1.04	100.00	3.36E+06	1.626
13C12-PCB-111	22.01	1.61	100.00	1.93E+06	1.173
13C12-PCB-178	25.07	1.05	100.00	1.68E+06	0.802
Injection Standards					
13C12-PCB-9	11.81	1.53	100.00	3.95E+06	-
13C12-PCB-52	16.94	0.84	100.00	2.07E+06	-
13C12-PCB-101	20.62	1.58	100.00	1.64E+06	-
13C12-PCB-138	24.85	1.33	100.00	2.10E+06	-
13C12-PCB-194	31.09	0.85	100.00	1.28E+06	-

ALS Life Sciences

Calibration Report

ALS Sample ID **H5-20-CS2-004**
 Analysis Method EPA 1668C
 Analysis Type Calibration

Filename 5-200219A04 Inst # HRMS-5 Column SPCOCTYL 65972-02A Run Date 19-Feb-2020 16:17

Approved: *S. Jin*
 --e-signature--
 08-Oct-2020

Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	8.87	3.00	5.00	1.76E+05	1.143
PCB-003	10.4	3.04	5.00	1.70E+05	1.184
PCB-004	10.56	1.49	5.00	9.12E+04	0.830
PCB-015	14.23	1.59	5.00	1.44E+05	0.946
PCB-019	12.55	1.06	5.00	1.02E+05	1.128
PCB-037	18.19	1.02	5.00	1.36E+05	0.992
PCB-054	14.42	0.79	5.00	1.21E+05	0.988
PCB-081	21.78	0.76	5.00	1.24E+05	1.096
PCB-077	22.07	0.73	5.00	1.21E+05	1.068
PCB-104	17.49	1.55	5.00	1.20E+05	1.078
PCB-123	23.09	1.56	5.00	1.01E+05	0.929
PCB-118	23.26	1.56	5.00	1.10E+05	1.025
PCB-114	23.56	1.59	5.00	1.04E+05	1.007
PCB-105	23.9	1.62	5.00	1.05E+05	0.990
PCB-126	25.5	1.62	5.00	1.04E+05	1.078
PCB-155	20.52	1.25	5.00	1.26E+05	1.007
PCB-167	26.41	1.17	5.00	1.14E+05	1.048
PCB-156/157	27.04	1.17	10.00	2.27E+05	1.088
PCB-169	28.7	1.16	5.00	1.03E+05	1.019
PCB-188	23.53	1.02	5.00	9.99E+04	0.925
PCB-189	29.99	1.04	5.00	8.10E+04	0.945
PCB-202	26.29	0.90	5.00	1.02E+05	1.052
PCB-205	31.4	0.94	5.00	6.46E+04	0.842
PCB-208	29.74	0.81	5.00	7.88E+04	1.278
PCB-206	32.49	0.81	5.00	5.35E+04	1.287
PCB-209	33.63	1.15	5.00	5.73E+04	0.870
Extraction Standards					
13C12-PCB-001	8.85	2.94	100.00	3.08E+06	0.900
13C12-PCB-003	10.38	2.88	100.00	2.88E+06	0.841
13C12-PCB-004	10.55	1.57	100.00	2.20E+06	0.641
13C12-PCB-015	14.22	1.66	100.00	3.05E+06	0.891
13C12-PCB-019	12.54	0.99	100.00	1.80E+06	0.526
13C12-PCB-037	18.17	1.05	100.00	2.75E+06	1.494
13C12-PCB-054	14.41	0.80	100.00	2.45E+06	1.334
13C12-PCB-081	21.77	0.82	100.00	2.26E+06	1.533
13C12-PCB-077	22.06	0.83	100.00	2.26E+06	1.536
13C12-PCB-104	17.49	1.59	100.00	2.23E+06	1.512
13C12-PCB-123	23.08	1.61	100.00	2.17E+06	1.477
13C12-PCB-118	23.25	1.61	100.00	2.15E+06	1.460
13C12-PCB-114	23.55	1.60	100.00	2.07E+06	1.404
13C12-PCB-105	23.89	1.63	100.00	2.12E+06	1.439
13C12-PCB-126	25.48	1.62	100.00	1.94E+06	1.314
13C12-PCB-155	20.5	1.25	100.00	2.49E+06	1.693
13C12-PCB-167	26.4	1.33	100.00	2.17E+06	1.181
13C12-PCB-156/157	27.03	1.34	200.00	4.17E+06	1.135
13C12-PCB-169	28.69	1.35	100.00	2.02E+06	1.101
13C12-PCB-188	23.5	1.05	100.00	2.16E+06	1.175
13C12-PCB-189	29.98	1.04	100.00	1.71E+06	0.932
13C12-PCB-202	26.28	0.90	100.00	1.94E+06	1.053
13C12-PCB-205	31.38	0.86	100.00	1.54E+06	1.334
13C12-PCB-208	29.72	0.80	100.00	1.23E+06	1.072
13C12-PCB-206	32.47	0.79	100.00	8.31E+05	0.722
13C12-PCB-209	33.61	1.17	100.00	1.32E+06	1.144
Field Spike Standards					
13C12-PCB-031	15.77	1.03	100.00	2.93E+06	1.287
13C12-PCB-095	19.09	1.62	100.00	1.29E+06	0.599
13C12-PCB-153	24.19	1.33	100.00	2.01E+06	0.917
Cleanup Standards					
13C12-PCB-028	15.94	1.03	100.00	2.97E+06	1.614
13C12-PCB-111	22.02	1.63	100.00	1.69E+06	1.149
13C12-PCB-178	25.07	1.06	100.00	1.48E+06	0.806
Injection Standards					
13C12-PCB-9	11.81	1.56	100.00	3.42E+06	-
13C12-PCB-52	16.95	0.85	100.00	1.84E+06	-
13C12-PCB-101	20.62	1.61	100.00	1.47E+06	-
13C12-PCB-138	24.87	1.31	100.00	1.84E+06	-
13C12-PCB-194	31.09	0.87	100.00	1.15E+06	-

ALS Life Sciences

Calibration Report

ALS Sample ID **H5-20-CS3-004**
 Analysis Method EPA 1668C
 Analysis Type Calibration

Filename 5-200219A01 Inst # HRMS-5 Column SPCOCTYL 65972-02A Run Date 19-Feb-2020 13:42

Approved: *S. Jin*
 --e-signature--
 08-Oct-2020

Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	8.91	3.04	50.00	1.27E+06	1.110
PCB-003	10.44	3.06	50.00	1.24E+06	1.115
PCB-004	10.59	1.48	50.00	6.21E+05	0.753
PCB-015	14.28	1.58	50.00	1.11E+06	0.926
PCB-019	12.6	1.06	50.00	7.18E+05	1.085
PCB-037	18.24	1.04	50.00	9.99E+05	0.933
PCB-054	14.46	0.80	50.00	8.76E+05	0.947
PCB-081	21.83	0.77	50.00	9.21E+05	1.066
PCB-077	22.13	0.76	50.00	8.94E+05	1.039
PCB-104	17.54	1.53	50.00	8.53E+05	1.032
PCB-123	23.14	1.57	50.00	7.34E+05	0.913
PCB-118	23.31	1.59	50.00	7.93E+05	1.000
PCB-114	23.61	1.58	50.00	7.61E+05	0.992
PCB-105	23.95	1.59	50.00	7.56E+05	0.967
PCB-126	25.54	1.60	50.00	7.38E+05	1.020
PCB-155	20.57	1.26	50.00	8.83E+05	0.949
PCB-167	26.47	1.16	50.00	8.08E+05	1.001
PCB-156/157	27.09	1.16	100.00	1.61E+06	1.035
PCB-169	28.76	1.18	50.00	7.54E+05	1.004
PCB-188	23.57	1.01	50.00	7.04E+05	0.882
PCB-189	30.05	1.04	50.00	5.73E+05	0.921
PCB-202	26.35	0.89	50.00	7.04E+05	0.979
PCB-205	31.45	0.92	50.00	4.53E+05	0.824
PCB-208	29.78	0.83	50.00	5.40E+05	1.209
PCB-206	32.54	0.82	50.00	3.77E+05	1.249
PCB-209	33.7	1.19	50.00	3.91E+05	0.833

Extraction Standards

13C12-PCB-001	8.9	2.98	100.00	2.29E+06	0.901
13C12-PCB-003	10.42	3.00	100.00	2.22E+06	0.875
13C12-PCB-004	10.59	1.57	100.00	1.65E+06	0.649
13C12-PCB-015	14.27	1.65	100.00	2.41E+06	0.947
13C12-PCB-019	12.6	0.99	100.00	1.32E+06	0.521
13C12-PCB-037	18.22	1.06	100.00	2.14E+06	1.514
13C12-PCB-054	14.45	0.80	100.00	1.85E+06	1.309
13C12-PCB-081	21.82	0.82	100.00	1.73E+06	1.558
13C12-PCB-077	22.12	0.83	100.00	1.72E+06	1.553
13C12-PCB-104	17.53	1.57	100.00	1.65E+06	1.491
13C12-PCB-123	23.13	1.60	100.00	1.61E+06	1.450
13C12-PCB-118	23.3	1.59	100.00	1.59E+06	1.431
13C12-PCB-114	23.6	1.62	100.00	1.53E+06	1.384
13C12-PCB-105	23.94	1.61	100.00	1.56E+06	1.411
13C12-PCB-126	25.53	1.61	100.00	1.45E+06	1.305
13C12-PCB-155	20.56	1.25	100.00	1.86E+06	1.679
13C12-PCB-167	26.45	1.35	100.00	1.61E+06	1.155
13C12-PCB-156/157	27.08	1.32	200.00	3.11E+06	1.113
13C12-PCB-169	28.75	1.32	100.00	1.50E+06	1.075
13C12-PCB-188	23.56	1.07	100.00	1.60E+06	1.143
13C12-PCB-189	30.03	1.06	100.00	1.24E+06	0.890
13C12-PCB-202	26.34	0.91	100.00	1.44E+06	1.030
13C12-PCB-205	31.44	0.86	100.00	1.10E+06	1.363
13C12-PCB-208	29.78	0.80	100.00	8.93E+05	1.106
13C12-PCB-206	32.53	0.80	100.00	6.03E+05	0.747
13C12-PCB-209	33.67	1.18	100.00	9.40E+05	1.164

Field Spike Standards

13C12-PCB-031	15.82	1.04	100.00	2.30E+06	1.330
13C12-PCB-095	19.13	1.64	100.00	9.70E+05	0.608
13C12-PCB-153	24.25	1.35	100.00	1.55E+06	0.951

Cleanup Standards

13C12-PCB-028	15.99	1.01	100.00	2.45E+06	1.731
13C12-PCB-111	22.07	1.64	100.00	1.34E+06	1.207
13C12-PCB-178	25.13	1.07	100.00	1.12E+06	0.799

Injection Standards

13C12-PCB-9	11.85	1.55	100.00	2.54E+06	-
13C12-PCB-52	17	0.85	100.00	1.41E+06	-
13C12-PCB-101	20.68	1.62	100.00	1.11E+06	-
13C12-PCB-138	24.92	1.33	100.00	1.40E+06	-
13C12-PCB-194	31.16	0.86	100.00	8.07E+05	-

ALS Life Sciences

Calibration Report

ALS Sample ID **H5-20-CS4-004**
 Analysis Method EPA 1668C
 Analysis Type Calibration

Filename 5-200219A05 Inst # HRMS-5 Column SPCOCTYL 65972-02A Run Date 19-Feb-2020 16:57

Approved: *S. Jin*
 --e-signature--
 08-Oct-2020

Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	8.87	3.05	400.00	1.61E+07	1.242
PCB-003	10.4	3.03	400.00	1.58E+07	1.270
PCB-004	10.56	1.47	400.00	7.86E+06	0.853
PCB-015	14.23	1.59	400.00	1.39E+07	1.036
PCB-019	12.55	1.05	400.00	8.81E+06	1.197
PCB-037	18.19	1.04	400.00	1.24E+07	1.039
PCB-054	14.43	0.79	400.00	1.08E+07	1.061
PCB-081	21.78	0.77	400.00	1.14E+07	1.166
PCB-077	22.08	0.77	400.00	1.12E+07	1.144
PCB-104	17.5	1.57	400.00	1.06E+07	1.159
PCB-123	23.09	1.58	400.00	9.27E+06	1.007
PCB-118	23.27	1.57	400.00	9.93E+06	1.096
PCB-114	23.56	1.56	400.00	9.53E+06	1.093
PCB-105	23.91	1.56	400.00	9.51E+06	1.068
PCB-126	25.5	1.57	400.00	9.52E+06	1.123
PCB-155	20.52	1.26	400.00	1.06E+07	1.042
PCB-167	26.43	1.18	400.00	1.03E+07	1.106
PCB-156/157	27.04	1.18	800.00	2.04E+07	1.127
PCB-169	28.71	1.18	400.00	9.73E+06	1.107
PCB-188	23.53	1.00	400.00	8.58E+06	0.968
PCB-189	30	1.03	400.00	7.45E+06	1.008
PCB-202	26.3	0.90	400.00	8.72E+06	1.080
PCB-205	31.4	0.93	400.00	5.90E+06	0.901
PCB-208	29.74	0.82	400.00	6.80E+06	1.337
PCB-206	32.5	0.82	400.00	4.77E+06	1.346
PCB-209	33.64	1.18	400.00	5.09E+06	0.925
Extraction Standards					
13C12-PCB-001	8.87	2.93	100.00	3.23E+06	0.912
13C12-PCB-003	10.38	2.91	100.00	3.12E+06	0.879
13C12-PCB-004	10.55	1.56	100.00	2.31E+06	0.650
13C12-PCB-015	14.22	1.65	100.00	3.35E+06	0.945
13C12-PCB-019	12.55	1.00	100.00	1.84E+06	0.519
13C12-PCB-037	18.18	1.05	100.00	2.98E+06	1.587
13C12-PCB-054	14.41	0.79	100.00	2.53E+06	1.348
13C12-PCB-081	21.77	0.82	100.00	2.44E+06	1.627
13C12-PCB-077	22.06	0.82	100.00	2.45E+06	1.634
13C12-PCB-104	17.49	1.57	100.00	2.30E+06	1.529
13C12-PCB-123	23.08	1.60	100.00	2.30E+06	1.532
13C12-PCB-118	23.26	1.61	100.00	2.27E+06	1.509
13C12-PCB-114	23.55	1.61	100.00	2.18E+06	1.452
13C12-PCB-105	23.9	1.61	100.00	2.23E+06	1.483
13C12-PCB-126	25.48	1.62	100.00	2.12E+06	1.411
13C12-PCB-155	20.51	1.24	100.00	2.54E+06	1.692
13C12-PCB-167	26.41	1.33	100.00	2.32E+06	1.224
13C12-PCB-156/157	27.03	1.32	200.00	4.52E+06	1.190
13C12-PCB-169	28.7	1.33	100.00	2.20E+06	1.157
13C12-PCB-188	23.51	1.04	100.00	2.22E+06	1.167
13C12-PCB-189	29.99	1.06	100.00	1.85E+06	0.973
13C12-PCB-202	26.29	0.91	100.00	2.02E+06	1.063
13C12-PCB-205	31.38	0.86	100.00	1.64E+06	1.372
13C12-PCB-208	29.72	0.79	100.00	1.27E+06	1.066
13C12-PCB-206	32.47	0.80	100.00	8.86E+05	0.743
13C12-PCB-209	33.61	1.19	100.00	1.38E+06	1.154
Field Spike Standards					
13C12-PCB-031	15.77	1.05	100.00	3.06E+06	1.268
13C12-PCB-095	19.1	1.63	100.00	1.33E+06	0.587
13C12-PCB-153	24.2	1.32	100.00	2.08E+06	0.894
Cleanup Standards					
13C12-PCB-028	15.95	1.04	100.00	3.09E+06	1.646
13C12-PCB-111	22.03	1.62	100.00	1.76E+06	1.171
13C12-PCB-178	25.08	1.06	100.00	1.56E+06	0.821
Injection Standards					
13C12-PCB-9	11.83	1.55	100.00	3.54E+06	-
13C12-PCB-52	16.95	0.85	100.00	1.88E+06	-
13C12-PCB-101	20.63	1.58	100.00	1.50E+06	-
13C12-PCB-138	24.88	1.34	100.00	1.90E+06	-
13C12-PCB-194	31.11	0.86	100.00	1.19E+06	-

ALS Life Sciences

Calibration Report

ALS Sample ID **H5-20-CS5-004**
 Analysis Method EPA 1668C
 Analysis Type Calibration

Filename 5-200219A06 Inst # HRMS-5 Column SPCOCTYL 65972-02A Run Date 19-Feb-2020 17:39

Approved: *S. Jin*
 --e-signature--
 08-Oct-2020

Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	0	0.00	2000.00	0.00E+00	0.000
PCB-003	0	0.00	2000.00	0.00E+00	0.000
PCB-004	10.55	1.47	2000.00	4.13E+07	0.863
PCB-015	14.22	1.52	2000.00	7.30E+07	1.030
PCB-019	12.55	1.05	2000.00	4.54E+07	1.184
PCB-037	18.18	1.05	2000.00	6.51E+07	1.042
PCB-054	14.42	0.79	2000.00	5.46E+07	1.055
PCB-081	21.78	0.77	2000.00	5.96E+07	1.158
PCB-077	22.07	0.77	2000.00	5.89E+07	1.149
PCB-104	17.49	1.56	2000.00	5.30E+07	1.145
PCB-123	23.09	1.57	2000.00	4.80E+07	1.008
PCB-118	23.26	1.56	2000.00	5.11E+07	1.094
PCB-114	23.56	1.56	2000.00	4.87E+07	1.090
PCB-105	23.9	1.56	2000.00	4.99E+07	1.072
PCB-126	25.5	1.58	2000.00	4.97E+07	1.116
PCB-155	20.52	1.26	2000.00	5.32E+07	1.029
PCB-167	26.41	1.18	2000.00	5.31E+07	1.109
PCB-156/157	27.04	1.19	4000.00	1.04E+08	1.136
PCB-169	28.7	1.19	2000.00	5.08E+07	1.102
PCB-188	23.53	1.00	2000.00	4.36E+07	0.958
PCB-189	29.99	1.04	2000.00	3.91E+07	1.027
PCB-202	26.3	0.90	2000.00	4.45E+07	1.081
PCB-205	31.4	0.92	2000.00	3.07E+07	0.906
PCB-208	29.74	0.82	2000.00	3.50E+07	1.332
PCB-206	32.49	0.82	2000.00	2.49E+07	1.354
PCB-209	33.64	1.18	2000.00	2.69E+07	0.911
Extraction Standards					
13C12-PCB-001	8.85	2.92	100.00	3.39E+06	0.911
13C12-PCB-003	10.38	2.88	100.00	3.32E+06	0.892
13C12-PCB-004	10.54	1.53	100.00	2.39E+06	0.643
13C12-PCB-015	14.21	1.64	100.00	3.55E+06	0.952
13C12-PCB-019	12.54	1.00	100.00	1.92E+06	0.514
13C12-PCB-037	18.17	1.05	100.00	3.12E+06	1.592
13C12-PCB-054	14.4	0.79	100.00	2.59E+06	1.319
13C12-PCB-081	21.76	0.82	100.00	2.57E+06	1.671
13C12-PCB-077	22.06	0.84	100.00	2.56E+06	1.664
13C12-PCB-104	17.49	1.55	100.00	2.31E+06	1.501
13C12-PCB-123	23.08	1.59	100.00	2.38E+06	1.546
13C12-PCB-118	23.25	1.60	100.00	2.34E+06	1.516
13C12-PCB-114	23.55	1.61	100.00	2.24E+06	1.451
13C12-PCB-105	23.89	1.61	100.00	2.33E+06	1.511
13C12-PCB-126	25.48	1.58	100.00	2.22E+06	1.444
13C12-PCB-155	20.5	1.24	100.00	2.58E+06	1.678
13C12-PCB-167	26.4	1.33	100.00	2.40E+06	1.204
13C12-PCB-156/157	27.03	1.32	200.00	4.60E+06	1.155
13C12-PCB-169	28.69	1.35	100.00	2.31E+06	1.159
13C12-PCB-188	23.5	1.06	100.00	2.27E+06	1.143
13C12-PCB-189	29.98	1.06	100.00	1.91E+06	0.957
13C12-PCB-202	26.28	0.91	100.00	2.06E+06	1.035
13C12-PCB-205	31.38	0.86	100.00	1.69E+06	1.347
13C12-PCB-208	29.72	0.79	100.00	1.31E+06	1.043
13C12-PCB-206	32.47	0.79	100.00	9.20E+05	0.732
13C12-PCB-209	33.61	1.19	100.00	1.48E+06	1.173
Field Spike Standards					
13C12-PCB-031	15.76	1.04	100.00	3.15E+06	1.249
13C12-PCB-095	19.09	1.62	100.00	1.36E+06	0.587
13C12-PCB-153	24.19	1.31	100.00	2.16E+06	0.901
Cleanup Standards					
13C12-PCB-028	15.94	1.03	100.00	3.19E+06	1.628
13C12-PCB-111	22.02	1.60	100.00	1.81E+06	1.173
13C12-PCB-178	25.07	1.07	100.00	1.61E+06	0.808
Injection Standards					
13C12-PCB-9	11.81	1.55	100.00	3.73E+06	-
13C12-PCB-52	16.94	0.85	100.00	1.96E+06	-
13C12-PCB-101	20.62	1.59	100.00	1.54E+06	-
13C12-PCB-138	24.87	1.32	100.00	1.99E+06	-
13C12-PCB-194	31.11	0.86	100.00	1.26E+06	-

ALS Life Sciences

Second Source Calibration Verification Report

Sample Name	CSV	Sampling Date	n/a
ALS Sample ID	H5-20-RS1-004	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--
08-Oct-2020

Run Information	Run 1
Filename	5-200219A07
Run Date	19-Feb-20 18:21
Final Volume	25 ul
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-5 SPB0ctyl 65972-02A

Target Analytes	pg/uL	Ret. Time	% Rec	Limits	Flags
PCB-001	50	8.87	109	75-125	
PCB-003	50	10.40	110	75-125	
PCB-004	50	10.56	111	75-125	
PCB-015	50	14.23	111	75-125	
PCB-019	50	12.55	114	75-125	
PCB-037	50	18.19	111	75-125	
PCB-054	50	14.42	112	75-125	
PCB-081	50	21.78	105	75-125	
PCB-077	50	22.08	105	75-125	
PCB-104	50	17.49	101	75-125	
PCB-123	50	23.09	106	75-125	
PCB-118	50	23.26	106	75-125	
PCB-114	50	23.56	109	75-125	
PCB-105	50	23.90	105	75-125	
PCB-126	50	25.50	105	75-125	
PCB-155	50	20.52	105	75-125	
PCB-167	50	26.43	105	75-125	
PCB-156/157	100	27.04	104	75-125	
PCB-169	50	28.71	107	75-125	
PCB-188	50	23.53	105	75-125	
PCB-189	50	29.99	110	75-125	
PCB-202	50	26.30	109	75-125	
PCB-205	50	31.40	104	75-125	
PCB-208	50	29.74	101	75-125	
PCB-206	50	32.49	102	75-125	
PCB-209	50	33.64	119	75-125	

Extraction Standards	pg/uL	Ret. Time	% Rec	Limits
13C12-PCB-001	100	8.87	99	50-145
13C12-PCB-003	100	10.38	100	50-145
13C12-PCB-004	100	10.55	99	50-145
13C12-PCB-015	100	14.22	101	50-145
13C12-PCB-019	100	12.55	101	50-145
13C12-PCB-037	100	18.17	102	50-145
13C12-PCB-054	100	14.41	100	50-145
13C12-PCB-081	100	21.77	102	50-145
13C12-PCB-077	100	22.06	101	50-145
13C12-PCB-104	100	17.49	100	50-145
13C12-PCB-123	100	23.08	102	50-145
13C12-PCB-118	100	23.25	102	50-145
13C12-PCB-114	100	23.55	101	50-145
13C12-PCB-105	100	23.89	101	50-145
13C12-PCB-126	100	25.48	103	50-145
13C12-PCB-155	100	20.51	99	50-145
13C12-PCB-167	100	26.40	101	50-145
13C12-PCB-156/157	200	27.03	102	50-145
13C12-PCB-169	100	28.70	103	50-145
13C12-PCB-188	100	23.51	99	50-145
13C12-PCB-189	100	29.98	103	50-145
13C12-PCB-202	100	26.29	100	50-145
13C12-PCB-205	100	31.38	100	50-145
13C12-PCB-208	100	29.72	99	50-145
13C12-PCB-206	100	32.47	100	50-145
13C12-PCB-209	100	33.61	99	50-145

Field Spike Standards	pg/uL	Ret. Time	% Rec	Limits
13C12-PCB-031	100	15.77	98	70-130
13C12-PCB-095	100	19.09	98	70-130
13C12-PCB-153	100	24.20	98	70-130

Cleanup Standards	pg/uL	Ret. Time	% Rec	Limits
13C12-PCB-028	100	15.94	99	65-135
13C12-PCB-111	100	22.03	99	75-125
13C12-PCB-178	100	25.08	100	75-125

ALS Life Sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H5-20-CCV-814	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--
 08-Oct-2020

Run Information		Run 1
Filename	5-201003A01	
Run Date	03-Oct-20 12:15	
Final Volume	25 ul	
Dilution Factor	1	
Analysis Units	%	
Instrument - Column	HRMS-5 SPB0ctyl 251239-06	

Target Analytes	pg/uL	Ret. Limits		
		Time	% Rec	Flags
PCB-001	50	8.84	90	75-125
PCB-003	50	10.37	92	75-125
PCB-004	50	10.52	117	75-125
PCB-015	50	14.20	100	75-125
PCB-019	50	12.53	119	75-125
PCB-037	50	18.13	98	75-125
PCB-054	50	14.37	120	75-125
PCB-081	50	21.70	103	75-125
PCB-077	50	21.99	99	75-125
PCB-104	50	17.43	117	75-125
PCB-123	50	22.98	105	75-125
PCB-118	50	23.15	104	75-125
PCB-114	50	23.45	109	75-125
PCB-105	50	23.80	111	75-125
PCB-126	50	25.39	105	75-125
PCB-155	50	20.42	115	75-125
PCB-167	50	26.28	106	75-125
PCB-156/157	100	26.91	109	75-125
PCB-169	50	28.57	112	75-125
PCB-188	50	23.39	112	75-125
PCB-189	50	29.83	98	75-125
PCB-202	50	26.16	113	75-125
PCB-205	50	31.20	112	75-125
PCB-208	50	29.57	100	75-125
PCB-206	50	32.26	99	75-125
PCB-209	50	33.38	104	75-125

Extraction Standards		Time	% Rec	Limits
13C12-PCB-001	100	8.83	122	50-145
13C12-PCB-003	100	10.35	121	50-145
13C12-PCB-004	100	10.52	98	50-145
13C12-PCB-015	100	14.18	107	50-145
13C12-PCB-019	100	12.51	63	50-145
13C12-PCB-037	100	18.11	93	50-145
13C12-PCB-054	100	14.36	76	50-145
13C12-PCB-081	100	21.69	96	50-145
13C12-PCB-077	100	21.98	103	50-145
13C12-PCB-104	100	17.42	85	50-145
13C12-PCB-123	100	22.97	90	50-145
13C12-PCB-118	100	23.14	99	50-145
13C12-PCB-114	100	23.44	92	50-145
13C12-PCB-105	100	23.79	91	50-145
13C12-PCB-126	100	25.38	91	50-145
13C12-PCB-155	100	20.40	80	50-145
13C12-PCB-167	100	26.27	102	50-145
13C12-PCB-156/157	200	26.90	98	50-145
13C12-PCB-169	100	28.55	93	50-145
13C12-PCB-188	100	23.38	98	50-145
13C12-PCB-189	100	29.82	99	50-145
13C12-PCB-202	100	26.15	77	50-145
13C12-PCB-205	100	31.19	103	50-145
13C12-PCB-208	100	29.55	108	50-145
13C12-PCB-206	100	32.25	100	50-145
13C12-PCB-209	100	33.35	103	50-145

Field Spike Standards		Time	% Rec	Limits
13C12-PCB-031	100	15.71	122	70-130
13C12-PCB-095	100	19.01	110	70-130
13C12-PCB-153	100	24.07	112	70-130

Cleanup Standards		Time	% Rec	Limits
13C12-PCB-028	100	15.89	104	65-135
13C12-PCB-111	100	21.92	105	75-125
13C12-PCB-178	100	24.95	94	75-125

ALS Life Sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H5-20-CCV-816	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--
08-Oct-2020

Run Information	Run 1
Filename	5-201003A14
Run Date	03-Oct-20 21:21
Final Volume	25 ul
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-5 SPBOctyl 251239-06

Target Analytes	pg/uL	Ret. Time	% Rec	Limits	Flags
PCB-001	50	8.80	91	75-125	
PCB-003	50	10.33	94	75-125	
PCB-004	50	10.49	122	75-125	
PCB-015	50	14.15	105	75-125	
PCB-019	50	12.48	121	75-125	
PCB-037	50	18.08	101	75-125	
PCB-054	50	14.32	122	75-125	
PCB-081	50	21.64	104	75-125	
PCB-077	50	21.95	99	75-125	
PCB-104	50	17.38	119	75-125	
PCB-123	50	22.93	107	75-125	
PCB-118	50	23.10	106	75-125	
PCB-114	50	23.41	110	75-125	
PCB-105	50	23.74	112	75-125	
PCB-126	50	25.33	107	75-125	
PCB-155	50	20.36	118	75-125	
PCB-167	50	26.23	107	75-125	
PCB-156/157	100	26.85	109	75-125	
PCB-169	50	28.50	111	75-125	
PCB-188	50	23.34	113	75-125	
PCB-189	50	29.78	98	75-125	
PCB-202	50	26.10	115	75-125	
PCB-205	50	31.14	113	75-125	
PCB-208	50	29.51	99	75-125	
PCB-206	50	32.19	98	75-125	
PCB-209	50	33.31	105	75-125	

Extraction Standards		Time	% Rec	Limits
13C12-PCB-001	100	8.80	128	50-145
13C12-PCB-003	100	10.31	126	50-145
13C12-PCB-004	100	10.48	99	50-145
13C12-PCB-015	100	14.14	111	50-145
13C12-PCB-019	100	12.47	61	50-145
13C12-PCB-037	100	18.07	97	50-145
13C12-PCB-054	100	14.31	75	50-145
13C12-PCB-081	100	21.63	99	50-145
13C12-PCB-077	100	21.93	109	50-145
13C12-PCB-104	100	17.37	82	50-145
13C12-PCB-123	100	22.92	93	50-145
13C12-PCB-118	100	23.09	104	50-145
13C12-PCB-114	100	23.39	96	50-145
13C12-PCB-105	100	23.73	95	50-145
13C12-PCB-126	100	25.31	96	50-145
13C12-PCB-155	100	20.35	78	50-145
13C12-PCB-167	100	26.22	104	50-145
13C12-PCB-156/157	200	26.84	100	50-145
13C12-PCB-169	100	28.49	95	50-145
13C12-PCB-188	100	23.33	98	50-145
13C12-PCB-189	100	29.76	102	50-145
13C12-PCB-202	100	26.09	74	50-145
13C12-PCB-205	100	31.13	104	50-145
13C12-PCB-208	100	29.50	109	50-145
13C12-PCB-206	100	32.18	102	50-145
13C12-PCB-209	100	33.28	104	50-145

Field Spike Standards				
13C12-PCB-031	100	15.67	123	70-130
13C12-PCB-095	100	18.96	105	70-130
13C12-PCB-153	100	24.02	114	70-130

Cleanup Standards				
13C12-PCB-028	100	15.84	108	65-135
13C12-PCB-111	100	21.87	107	75-125
13C12-PCB-178	100	24.89	94	75-125

ALS Life Sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a
ALS Sample ID	H5-20-CCV-819	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--
08-Oct-2020

Run Information	Run 1
Filename	5-201004A01
Run Date	04-Oct-20 14:25
Final Volume	25 ul
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-5 SPB0ctyl 251239-06

Target Analytes	pg/uL	Ret. Time	% Rec	Limits	Flags
PCB-001	50	8.91	89	75-125	
PCB-003	50	10.44	90	75-125	
PCB-004	50	10.61	120	75-125	
PCB-015	50	14.29	98	75-125	
PCB-019	50	12.61	117	75-125	
PCB-037	50	18.23	96	75-125	
PCB-054	50	14.46	121	75-125	
PCB-081	50	21.80	102	75-125	
PCB-077	50	22.09	98	75-125	
PCB-104	50	17.52	116	75-125	
PCB-123	50	23.08	104	75-125	
PCB-118	50	23.25	103	75-125	
PCB-114	50	23.55	106	75-125	
PCB-105	50	23.90	107	75-125	
PCB-126	50	25.48	106	75-125	
PCB-155	50	20.51	119	75-125	
PCB-167	50	26.38	104	75-125	
PCB-156/157	100	27.01	107	75-125	
PCB-169	50	28.66	108	75-125	
PCB-188	50	23.49	112	75-125	
PCB-189	50	29.93	97	75-125	
PCB-202	50	26.26	114	75-125	
PCB-205	50	31.31	114	75-125	
PCB-208	50	29.67	100	75-125	
PCB-206	50	32.39	98	75-125	
PCB-209	50	33.51	103	75-125	

Extraction Standards		Time	% Rec	Limits
13C12-PCB-001	100	8.90	127	50-145
13C12-PCB-003	100	10.44	123	50-145
13C12-PCB-004	100	10.59	99	50-145
13C12-PCB-015	100	14.27	99	50-145
13C12-PCB-019	100	12.60	62	50-145
13C12-PCB-037	100	18.22	85	50-145
13C12-PCB-054	100	14.44	76	50-145
13C12-PCB-081	100	21.79	92	50-145
13C12-PCB-077	100	22.08	100	50-145
13C12-PCB-104	100	17.50	90	50-145
13C12-PCB-123	100	23.07	86	50-145
13C12-PCB-118	100	23.24	96	50-145
13C12-PCB-114	100	23.54	91	50-145
13C12-PCB-105	100	23.89	89	50-145
13C12-PCB-126	100	25.47	85	50-145
13C12-PCB-155	100	20.49	80	50-145
13C12-PCB-167	100	26.37	106	50-145
13C12-PCB-156/157	200	26.99	101	50-145
13C12-PCB-169	100	28.65	93	50-145
13C12-PCB-188	100	23.48	102	50-145
13C12-PCB-189	100	29.92	94	50-145
13C12-PCB-202	100	26.25	79	50-145
13C12-PCB-205	100	31.30	103	50-145
13C12-PCB-208	100	29.65	112	50-145
13C12-PCB-206	100	32.37	105	50-145
13C12-PCB-209	100	33.50	103	50-145

Field Spike Standards				
13C12-PCB-031	100	15.81	127	70-130
13C12-PCB-095	100	19.11	113	70-130
13C12-PCB-153	100	24.17	114	70-130

Cleanup Standards				
13C12-PCB-028	100	15.98	103	65-135
13C12-PCB-111	100	22.01	106	75-125
13C12-PCB-178	100	25.05	97	75-125

ALS Life Sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a
ALS Sample ID	H5-20-CCV-821	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--
08-Oct-2020

Run Information	Run 1
Filename	5-201004A17
Run Date	05-Oct-20 01:38
Final Volume	25 ul
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-5 SPB0ctyl 251239-06

Target Analytes	pg/uL	Ret. Time	% Rec	Limits	Flags
PCB-001	50	8.91	87	75-125	
PCB-003	50	10.45	87	75-125	
PCB-004	50	10.61	117	75-125	
PCB-015	50	14.29	94	75-125	
PCB-019	50	12.61	122	75-125	
PCB-037	50	18.24	95	75-125	
PCB-054	50	14.46	122	75-125	
PCB-081	50	21.80	101	75-125	
PCB-077	50	22.10	98	75-125	
PCB-104	50	17.52	118	75-125	
PCB-123	50	23.09	103	75-125	
PCB-118	50	23.26	102	75-125	
PCB-114	50	23.55	106	75-125	
PCB-105	50	23.90	109	75-125	
PCB-126	50	25.48	104	75-125	
PCB-155	50	20.51	118	75-125	
PCB-167	50	26.38	105	75-125	
PCB-156/157	100	27.01	106	75-125	
PCB-169	50	28.66	107	75-125	
PCB-188	50	23.50	114	75-125	
PCB-189	50	29.93	97	75-125	
PCB-202	50	26.26	115	75-125	
PCB-205	50	31.31	112	75-125	
PCB-208	50	29.67	99	75-125	
PCB-206	50	32.39	99	75-125	
PCB-209	50	33.52	101	75-125	

Extraction Standards		Time	% Rec	Limits
13C12-PCB-001	100	8.91	123	50-145
13C12-PCB-003	100	10.44	119	50-145
13C12-PCB-004	100	10.61	99	50-145
13C12-PCB-015	100	14.28	104	50-145
13C12-PCB-019	100	12.60	59	50-145
13C12-PCB-037	100	18.22	86	50-145
13C12-PCB-054	100	14.45	75	50-145
13C12-PCB-081	100	21.79	93	50-145
13C12-PCB-077	100	22.08	102	50-145
13C12-PCB-104	100	17.51	84	50-145
13C12-PCB-123	100	23.08	87	50-145
13C12-PCB-118	100	23.25	98	50-145
13C12-PCB-114	100	23.54	90	50-145
13C12-PCB-105	100	23.89	89	50-145
13C12-PCB-126	100	25.47	90	50-145
13C12-PCB-155	100	20.50	80	50-145
13C12-PCB-167	100	26.37	104	50-145
13C12-PCB-156/157	200	26.99	100	50-145
13C12-PCB-169	100	28.65	98	50-145
13C12-PCB-188	100	23.49	99	50-145
13C12-PCB-189	100	29.92	97	50-145
13C12-PCB-202	100	26.25	76	50-145
13C12-PCB-205	100	31.30	104	50-145
13C12-PCB-208	100	29.65	107	50-145
13C12-PCB-206	100	32.37	107	50-145
13C12-PCB-209	100	33.50	100	50-145

Field Spike Standards				
13C12-PCB-031	100	15.81	125	70-130
13C12-PCB-095	100	19.12	111	70-130
13C12-PCB-153	100	24.17	112	70-130

Cleanup Standards				
13C12-PCB-028	100	15.99	102	65-135
13C12-PCB-111	100	22.02	109	75-125
13C12-PCB-178	100	25.05	97	75-125

167	13C-PCB-111	2611996.1	1.599	NO	21.92	106.964	20.011	1.175	107	7104	5608	32159134	19795874	4527.2	3529.7	1607037	1004969	1.0676	21.88	21.95	3-Oct-20	12:56:54	H5-20-WDM-815	1
168	13C-PCB-178	1656010.8	1.04	NO	24.95	95.2264	18.205	0.807	95.2	5650	4763	17223818	16432676	3048.6	3450.1	9469817	909291	1.0083	24.92	24.99	3-Oct-20	12:56:54	H5-20-WDM-815	1
169	13C-PCB-1	5157951.8	3.019	NO	8.83	123.7169	21.67	0.859	123.7	2846	14965	8396456	28002272	29502	1871.2	3874641	1283311	0.7499	8.79	8.86	3-Oct-20	12:56:54	H5-20-WDM-815	1
170	13C-PCB-3	4820569.1	2.986	NO	10.35	120.3084	20.915	0.864	120.3	2846	14965	7530472	25280632	26538.9	1689.3	3811305	1029264	0.8797	10.32	10.39	3-Oct-20	12:56:54	H5-20-WDM-815	1
171	13C-PCB-4	2911922.4	1.592	NO	10.52	97.349	20.31	0.645	97.3	10636	2644	36325192	22636216	3415.4	8562.7	1788569	1123354	0.894	10.49	10.56	3-Oct-20	12:56:54	H5-20-WDM-815	1
172	13C-PCB-15	4636376.4	1.587	NO	14.18	107.7313	21.279	0.928	107.7	22379	7340	60514624	38003532	2716.2	5177.7	2943894	1752462	1.2045	14.14	14.21	3-Oct-20	12:56:54	H5-20-WDM-815	1
173	13C-PCB-19	1521652.3	1.079	NO	12.51	63.22072	19.395	0.519	63.2	13195	11058	15319840	14285000	1161	1290	7899027	731749.6	1.0631	12.48	12.55	3-Oct-20	12:56:54	H5-20-WDM-815	1
174	13C-PCB-37	3837808.8	1.051	NO	18.11	92.3836	18.463	1.545	92.4	26104	11186	36317088	34510308	1391.3	3085.2	1966970	1870839	1.0731	18.08	18.14	3-Oct-20	12:56:54	H5-20-WDM-815	1
175	13C-PCB-54	2602933.3	0.808	NO	14.36	72.91074	22.472	1.331	72.9	5428	4542	26198902	32249330	4826.8	6947.3	1165872	1443461	0.8509	14.33	14.39	3-Oct-20	12:56:54	H5-20-WDM-815	1
176	13C-PCB-81	3271805	0.795	NO	21.68	98.3944	18.498	1.6	98.4	6081	4848	26802576	33822028	4407.8	6979.3	1448579	1822826	1.0559	21.64	21.71	3-Oct-20	12:56:54	H5-20-WDM-815	1
177	13C-PCB-77	3451826.5	0.792	NO	21.98	103.6787	17.313	1.602	103.7	6081	4848	26405966	33470878	4342.5	6904.8	1562550	1928576	1.0707	21.95	22.02	3-Oct-20	12:56:54	H5-20-WDM-815	1
178	13C-PCB-104	2623196.5	1.579	NO	17.41	83.59048	20.262	1.51	83.6	3369	2398	32543278	20822130	8650.7	8652.5	1606102	1017095	1.0313	17.37	17.44	3-Oct-20	12:56:54	H5-20-WDM-815	1
179	13C-PCB-123	2977861.1	1.565	NO	22.97	92.19404	18.685	1.502	92.2	4881	3813	32725058	20944164	6704.9	5483	1751432	118429	1.1188	22.94	23	3-Oct-20	12:56:54	H5-20-WDM-815	1
180	13C-PCB-118	3004828.9	1.571	NO	23.14	97.69244	17.919	1.48	97.7	4881	3813	32900424	20733744	6740.8	5443.1	1836098	1188731	1.1271	23.11	23.17	3-Oct-20	12:56:54	H5-20-WDM-815	1
181	13C-PCB-114	2712185.6	1.56	NO	23.44	91.51722	18.101	1.426	91.5	4881	3813	29919330	18678100	6130	4886.7	1652896	1059290	0.9473	23.41	23.48	3-Oct-20	12:56:54	H5-20-WDM-815	1
182	13C-PCB-105	2768399.9	1.56	NO	23.78	90.6607	17.738	1.464	90.7	4881	3813	29812738	18872960	6198.2	4949.8	1607148	1077652	0.9808	23.75	23.81	3-Oct-20	12:56:54	H5-20-WDM-815	1
183	13C-PCB-126	2580803.6	1.61	NO	25.38	90.51151	17.029	1.372	90.5	4881	3813	27109518	17081498	5554.4	4474.7	1591924	988879.9	1.0254	25.34	25.41	3-Oct-20	12:56:54	H5-20-WDM-815	1
184	13C-PCB-155	2837324.9	1.274	NO	20.4	80.73622	20.778	1.691	80.7	3991	5422	33031556	25807376	9197.6	4769.8	1589771	1247554	0.9937	20.37	20.43	3-Oct-20	12:56:54	H5-20-WDM-815	1
185	13C-PCB-167	2906458.4	1.281	NO	26.27	103.8733	18.656	1.193	103.9	5096	4405	3046272	23721672	5976.1	5385.8	1632541	1273918	1.0515	26.24	26.3	3-Oct-20	12:56:54	H5-20-WDM-815	1
186	13C-PCB-156157	5368950.8	1.304	NO	26.9	193.4736	13.765	1.149	96.7	5096	4405	41820556	32048794	8206	7276.3	3038147	2330804	1.0869	26.86	26.93	3-Oct-20	12:56:54	H5-20-WDM-815	1
187	13C-PCB-169	2573667.8	1.309	NO	28.55	94.72233	18.779	1.125	94.7	5096	4405	24484472	18944026	4804.3	4301	1459239	1114429	1.1538	28.52	28.59	3-Oct-20	12:56:54	H5-20-WDM-815	1
188	13C-PCB-198	2747123.4	1.061	NO	23.38	98.05564	18.999	1.16	98.1	5650	4763	26870996	25503894	4756.1	5353.9	1414341	1332762	0.9448	23.35	23.41	3-Oct-20	12:56:54	H5-20-WDM-815	1
189	13C-PCB-189	2214836.6	1.049	NO	29.82	97.76677	17.453	0.938	97.8	2236	2253	19791354	18684942	8650.2	8283.8	1133977	1080860	0.9648	29.79	29.85	3-Oct-20	12:56:54	H5-20-WDM-815	1
190	13C-PCB-202	1940849.8	0.906	NO	26.15	76.82878	18.113	1.046	76.8	2594	2421	16712650	18390286	6441.6	7596.9	922674.4	1018175	1.0566	26.12	26.18	3-Oct-20	12:56:54	H5-20-WDM-815	1
191	13C-PCB-205	1885833.6	0.899	NO	31.19	101.4517	16.158	1.354	101.5	2376	2191	14428434	16206719	6072.4	7396.3	892980	992833.6	1.009	31.15	31.22	3-Oct-20	12:56:54	H5-20-WDM-815	1
192	13C-PCB-208	1565077.2	0.926	NO	29.55	108.4958	17.624	1.072	108.4	2113	1999	12345991	15418237	5843.8	7710.6	700334.9	865442.3	0.9562	29.52	29.59	3-Oct-20	12:56:54	H5-20-WDM-815	1
193	13C-PCB-206	1003863.7	0.813	NO	32.25	99.4804	14.973	1.735	99.5	2113	1999	6714140	8286710	3190.8	4144.7	450216.8	553646.9	1.0433	32.21	32.28	3-Oct-20	12:56:54	H5-20-WDM-815	1
194	13C-PCB-209	1592338.5	1.187	NO	33.35	100.596	13.56	1.153	100.6	565	432	11718918	9918929	20743.5	22936.2	864204.4	728134.1	1.079	33.32	33.38	3-Oct-20	12:56:54	H5-20-WDM-815	1
195	13C-PCB-9	4637550	1.588	NO	11.77	100	19.499	46375.5	100	10636	2644	55489604	35013488	5217	3244.6	2845579	1791971	0.4756	11.74	11.8	3-Oct-20	12:56:54	H5-20-WDM-815	1
196	13C-PCB-82	2688809	0.831	NO	16.88	100	20.729	26888.09	100	6237	5730	25297960	30689530	4056.2	5352.7	1220374	1468435	0.682	16.84	16.91	3-Oct-20	12:56:54	H5-20-WDM-815	1
197	13C-PCB-101	2078246.5	1.63	NO	20.53	100	20.472	20782.47	100	7104	5608	26388718	16290096	3712	2904.6	1288008	780238.4	0.8296	20.5	20.56	3-Oct-20	12:56:54	H5-20-WDM-815	1
198	13C-PCB-138	2415169.4	1.302	NO	24.75	100	18.558	24151.69	100	5096	4405	25347868	19605648	4973.7	4451.3	1365553	1049316	0	24.71	24.78	3-Oct-20	12:56:54	H5-20-WDM-815	1
199	13C-PCB-194	1372656.8	0.887	NO	30.91	100	16.473	13726.7	100	2376	2191	10628159	12128553	4473	5535.1	645176.4	727880.4	1.2489	30.87	30.94	3-Oct-20	12:56:54	H5-20-WDM-815	1

INSTRUMENT 209 PCB CALIBRATION REPORT

Table with columns: Target Analyte, #Ihom, Resp, Ra, Rfai+YRES, RT, Conc., H/A, Ical, RfZ, User, UR, RF, 1.364, 93.9, Mod.Date, Comment, Code, Comments, Noise 1, Noise 2, Ion1, Ion2, Ion3, Ion4, Ion5, Ion6, Ion7, Ion8, Ion9, Ion10, Ion11, Ion12, Ion13, Ion14, Ion15, Ion16, Ion17, Ion18, Ion19, Ion20, RT, LCL, UR, LCL, UR, Acq.Date, Acq.Time, ID, Sgl, Size

167	13C-PCB-111	2814287.6	1.605	NO	22.02	105.5487	19.316	1.175	105.5	8602	7425	33494246	20595572	3893.9	2774	1733994	1080094	1.0668	21.99	22.05	4-Oct-20	15:06:42	H5-20-WDM-820	1
168	13C-PCB-178	1963246	1.045	NO	25.06	96.77358	18.614	0.807	96.8	4730	5238	18724414	17718566	3958.4	3383	1005943	9623027	1.0083	25.03	25.09	4-Oct-20	15:06:42	H5-20-WDM-820	1
169	13C-PCB-1	6194855.5	2.978	NO	8.91	125.8003	21.562	0.899	125.8	2525	13275	8998408	33552022	39606.5	2527.2	4637808	1557248	0.7508	8.88	8.94	4-Oct-20	15:06:42	H5-20-WDM-820	1
170	13C-PCB-3	5760925.4	2.989	NO	10.44	121.7275	20.51	0.864	121.7	2525	13275	8853612	29727008	35066.8	2239.2	4316700	1444226	0.8795	10.4	10.47	4-Oct-20	15:06:42	H5-20-WDM-820	1
171	13C-PCB-4	3418295.3	1.625	NO	10.61	96.75114	20.829	0.645	96.8	13039	4080	44076832	26928452	3380.4	8600.3	2116110	1302155	0.8937	10.57	10.64	4-Oct-20	15:06:42	H5-20-WDM-820	1
172	13C-PCB-15	5334771.1	1.587	NO	14.29	104.9489	20.328	0.928	104.9	15932	4950	6853216	42411128	4175.5	897.2	3272836	2901936	1.2038	14.25	14.32	4-Oct-20	15:06:42	H5-20-WDM-820	1
173	13C-PCB-19	1637823.7	1.069	NO	12.6	57.61159	19.205	0.519	57.6	11314	6995	16248824	15286665	1436.2	2280.3	846070.3	791753.4	1.0614	12.56	12.63	4-Oct-20	15:06:42	H5-20-WDM-820	1
174	13C-PCB-37	4145885	1.046	NO	18.22	88.83948	18.165	1.545	88.8	29048	10335	38488640	36889000	1372.3	3548.9	2120074	2028811	1.0726	18.19	18.25	4-Oct-20	15:06:42	H5-20-WDM-820	1
175	13C-PCB-54	2932464.5	0.809	NO	14.46	72.94104	22.401	1.331	72.9	4570	4283	2939162	36039180	6427.1	8408.3	1311048	1621416	0.8515	14.43	14.5	4-Oct-20	15:06:42	H5-20-WDM-820	1
176	13C-PCB-81	3423765.4	0.796	NO	21.79	94.30548	17.728	1.6	94.3	5776	4636	26900618	33690608	4657.7	7268.8	1517422	1906343	1.0556	21.76	21.82	4-Oct-20	15:06:42	H5-20-WDM-820	1
177	13C-PCB-77	3619775.5	0.805	NO	22.09	99.57998	16.997	1.602	99.6	5776	4636	27445898	34418380	4752.1	7424.6	1614746	2005930	1.0703	22.06	22.13	4-Oct-20	15:06:42	H5-20-WDM-820	1
178	13C-PCB-104	2850576.8	1.602	NO	17.51	84.20412	20.662	1.51	84.2	2902	1087	3699404	22937698	12645.6	2104.5	1776220	1108857	1.0311	17.48	17.55	4-Oct-20	15:06:42	H5-20-WDM-820	1
179	13C-PCB-123	2981266.9	1.564	NO	23.08	87.47498	18.031	1.502	87.5	4350	5448	32789778	21121442	7538.4	3877.2	1818562	1162715	1.1181	23.05	23.11	4-Oct-20	15:06:42	H5-20-WDM-820	1
180	13C-PCB-118	3175694.9	1.574	NO	23.25	94.5649	17.051	1.48	94.6	4350	5448	33109636	21128452	7612	3878.5	1941761	1233934	1.1263	23.21	23.28	4-Oct-20	15:06:42	H5-20-WDM-820	1
181	13C-PCB-114	2848579.8	1.583	NO	23.55	86.0363	17.172	1.426	88	4350	5448	29977690	18941468	6891.9	3477.1	1745722	1102858	0.9475	23.52	23.58	4-Oct-20	15:06:42	H5-20-WDM-820	1
182	13C-PCB-105	2959987	1.592	NO	23.9	86.0946	17.187	1.464	86.1	4350	5448	30192450	18878462	6941.3	3465.9	1750700	1103287	0.9816	23.87	23.93	4-Oct-20	15:06:42	H5-20-WDM-820	1
183	13C-PCB-126	2628610.8	1.59	NO	26.48	84.4355	17	1.372	84.4	4350	5448	27434704	17277064	6307.3	3171.5	1613791	1014820	1.0253	25.45	25.52	4-Oct-20	15:06:42	H5-20-WDM-820	1
184	13C-PCB-155	3038688.1	1.27	NO	20.51	79.19458	20.569	1.691	79.2	5078	3125	34867188	27773732	6885.8	8887.5	1700000	1338959	0.9937	20.48	20.55	4-Oct-20	15:06:42	H5-20-WDM-820	1
185	13C-PCB-167	3013237	1.31	NO	26.38	103.2238	18.136	1.193	103.2	6506	7044	30994170	23754310	4763.7	3372.2	1790906	1304231	1.0513	26.34	26.41	4-Oct-20	15:06:42	H5-20-WDM-820	1
186	13C-PCB-156/157	5517313.5	1.306	NO	27.01	190.5397	13.734	1.149	95.3	6506	7044	42008960	32994432	6594.9	4663.9	3124376	2392938	1.0865	26.97	27.04	4-Oct-20	15:06:42	H5-20-WDM-820	1
187	13C-PCB-169	2458932.3	1.27	NO	28.66	86.65997	17.038	1.125	86.7	6506	7044	23415136	18241640	3588.8	2589.6	1374323	1082609	1.1531	28.63	28.7	4-Oct-20	15:06:42	H5-20-WDM-820	1
188	13C-PCB-188	2923296.5	1.052	NO	23.49	99.99833	18.825	1.16	100	4730	5238	28217862	26846876	5965.3	5185.2	1489962	1424305	0.9451	23.46	23.52	4-Oct-20	15:06:42	H5-20-WDM-820	1
189	13C-PCB-189	2075616.6	1.06	NO	29.93	87.80559	17.175	0.938	87.8	4329	2642	18346132	17389154	4238.2	6580.7	1068188	1007429	0.9645	29.9	29.96	4-Oct-20	15:06:42	H5-20-WDM-820	1
190	13C-PCB-202	1989387.8	0.914	NO	26.26	75.46848	18.807	1.046	75.5	1887	2121	17896058	19571144	9468.5	9225.7	950131.1	1039250	1.0564	26.22	26.29	4-Oct-20	15:06:42	H5-20-WDM-820	1
191	13C-PCB-205	1791109.5	0.889	NO	31.31	102.1632	15.365	1.354	102.2	3379	3968	12850716	14652897	3832.6	3693	842885.4	948224.1	1.009	31.28	31.35	4-Oct-20	15:06:42	H5-20-WDM-820	1
192	13C-PCB-208	1546812.5	0.901	NO	29.67	111.4238	17.469	1.072	111.4	1746	2195	12020055	15324468	6892.9	6899	68972.6	85839.9	0.9569	29.63	29.7	4-Oct-20	15:06:42	H5-20-WDM-820	1
193	13C-PCB-206	962263.7	0.799	NO	32.4	101.1109	14.195	0.735	101.1	1746	2195	6067689	7614137	3474.5	3468.6	427450.1	534813.6	1.0441	32.37	32.43	4-Oct-20	15:06:42	H5-20-WDM-820	1
194	13C-PCB-209	1469186.9	1.18	NO	33.52	98.40992	13.553	1.153	98.4	664	376	1077290	8988074	16229.2	23907.2	796208.4	673978.4	1.0803	33.49	33.56	4-Oct-20	15:06:42	H5-20-WDM-820	1
195	13C-PCB-9	5477595.3	1.622	NO	11.87	100	20.15	54775.95	100	13039	4080	6827612	42589716	5236.4	10439.5	3388448	2089150	0.7775	11.83	11.9	4-Oct-20	15:06:42	H5-20-WDM-820	1
196	13C-PCB-82	3020527.4	0.829	NO	16.99	100	20.113	30205.27	100	6784	8408	27535116	33024694	4058.9	3927.9	1368898	1651539	0.8834	16.95	17.02	4-Oct-20	15:06:42	H5-20-WDM-820	1
197	13C-PCB-101	2289065.7	1.568	NO	20.64	100	20.237	22890.66	100	8602	7425	28036878	17432434	3259.4	2347.9	1385396	883699.4	0.8305	20.61	20.68	4-Oct-20	15:06:42	H5-20-WDM-820	1
198	13C-PCB-138	2520125.3	1.286	NO	24.86	100	18.238	25201.25	100	6506	7044	25855052	20180396	3973.8	2835.5	1417618	1102508	0	24.82	24.89	4-Oct-20	15:06:42	H5-20-WDM-820	1
199	13C-PCB-194	1284818.3	0.887	NO	31.03	100	16.087	12848.18	100	3379	3968	978465	11010705	2898.8	2775.1	609456.1	686362.3	1.2485	31	31.07	4-Oct-20	15:06:42	H5-20-WDM-820	1



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

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
ALS Sample ID
Analysis Method
Analysis Type
Sample Matrix

Method Blank
WG3406765-1
EPA 1668C
Blank
MEDIA

Sampling Date
Extraction Date
Sample Size
Percent Moisture
Split Ratio

n/a
24-Sep-20
1
n/a
4

Sample

Approved:
S. Jin
--e-signature--
08-Oct-2020

Run Information

Run 1

Filename: 5-201004A05
Run Date: 04-Oct-20 17:12
Final Volume: 25 ul
Dilution Factor: 1
Analysis Units: pg
Instrument - Column: HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC Flags	pg	LQL
PCB-001		NotFnd	<2.8	2.8	U		100
PCB-002		NotFnd	<3.3	3.3	U		100
PCB-003		NotFnd	<3.6	3.6	U		100
PCB-004		NotFnd	<11	11	U		100
PCB-010		NotFnd	<5.8	5.8	U		100
PCB-009		NotFnd	<5.7	5.7	U		100
PCB-007		NotFnd	<5.8	5.8	U		100
PCB-006		NotFnd	<5.8	5.8	U		100
PCB-005		NotFnd	<6.4	6.4	U		100
PCB-008		NotFnd	<5.6	5.6	U		100
PCB-014		NotFnd	<6.2	6.2	U		100
PCB-011		13.95	28.2	6.5	M,J		100
PCB-012/013		NotFnd	<6.4	6.4	U		100
PCB-015		NotFnd	<7.7	7.7	U		100
PCB-019		NotFnd	<5.1	5.1	U		100
PCB-018/030		13.74	<8.1	4.4	J,R	8.1	100
PCB-017		13.98	<5.2	5.2	M,U		100
PCB-027		NotFnd	<3.8	3.8	U		100
PCB-024		NotFnd	<4.0	4.0	U		100
PCB-016		14.27	<5.7	5.7	U	3.8	100
PCB-032		NotFnd	<3.5	3.5	M,U		100
PCB-034		NotFnd	<5.6	5.6	U		100
PCB-023		NotFnd	<5.4	5.4	U		100
PCB-026/029		NotFnd	<5.2	5.2	U		100
PCB-025		NotFnd	<4.5	4.5	U		100
PCB-031		15.91	<4.9	4.9	U	1.7	100
PCB-020/028		16.04	<19	5.3	J,R	19	100
PCB-021/033		16.16	<11	5.0	M,J,R	11	100
PCB-022		16.41	<6.7	5.5	J,R	6.7	100
PCB-036		NotFnd	<4.9	4.9	U		100
PCB-039		NotFnd	<5.3	5.3	U		100
PCB-038		NotFnd	<5.4	5.4	U		100
PCB-035		NotFnd	<5.6	5.6	U		100
PCB-037		18.28	<7.3	7.3	M,U		100
PCB-054		NotFnd	<3.8	3.8	U		100
PCB-050/053		NotFnd	<5.0	5.0	U		100
PCB-045/051		NotFnd	<5.3	5.3	U		100
PCB-046		NotFnd	<5.7	5.7	U		100
PCB-052		17.01	18.6	5.3	M,J		100
PCB-073		NotFnd	<4.0	4.0	U		100
PCB-043		NotFnd	<5.9	5.9	U		100
PCB-049/069		17.29	<6.6	4.4	M,J,R	6.6	100
PCB-048		17.45	<5.4	5.1	J,R	5.4	100
PCB-044/047/065		17.58	<16	4.8	M,J,R	16	100
PCB-059/062/075		NotFnd	<3.9	3.9	U		100
PCB-042		NotFnd	<4.9	4.9	U		100
PCB-040/041/071		18.14	<6.4	5.3	J,R	6.4	100
PCB-064		NotFnd	<3.6	3.6	U		100
PCB-072		NotFnd	<7.4	7.4	U		100
PCB-068		NotFnd	<7.2	7.2	U		100
PCB-057		NotFnd	<7.8	7.8	U		100
PCB-058		NotFnd	<7.7	7.7	U		100
PCB-067		NotFnd	<6.3	6.3	U		100
PCB-063		NotFnd	<6.9	6.9	U		100
PCB-061/070/074/076		19.62	22.0	7.4	M,J		100
PCB-066		19.80	<6.8	6.8	M,U	6.0	100
PCB-055		NotFnd	<7.6	7.6	U		100
PCB-056		NotFnd	<7.8	7.8	U		100
PCB-060		NotFnd	<7.5	7.5	U		100
PCB-080		NotFnd	<6.5	6.5	U		100
PCB-079		NotFnd	<6.3	6.3	U		100
PCB-078		NotFnd	<8.1	8.1	U		100
PCB-081	0.0003	NotFnd	<9.1	9.1	U		100
PCB-077	0.0001	NotFnd	<9.5	9.5	U		100
PCB-104		NotFnd	<1.3	1.3	U		100
PCB-096		NotFnd	<1.3	1.3	U		100
PCB-103		NotFnd	<3.4	3.4	U		100
PCB-094		NotFnd	<3.9	3.9	U		100
PCB-095		19.17	<12	3.7	J,R	12	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	WG3406765-1	Extraction Date	24-Sep-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--
08-Oct-2020

Run Information		Run 1	
Filename	5-201004A05		
Run Date	04-Oct-20 17:12		
Final Volume	25 ul		
Dilution Factor	1		
Analysis Units	pg		
Instrument - Column	HRMS-5 SPBOctyl 251239-06		

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC Flags	LQL
PCB-088/091		NotFnd	<3.7	3.7	U	100
PCB-084		19.74	<3.9	3.9	U	3.1 100
PCB-089		NotFnd	<4.0	4.0	U	100
PCB-121		NotFnd	<2.7	2.7	U	100
PCB-092		NotFnd	<3.7	3.7	U	100
PCB-090/101/113		20.67	14.0	3.2	J	100
PCB-083/099		20.97	<3.9	3.9	U	2.6 100
PCB-112		NotFnd	<2.5	2.5	U	100
PCB-086/087/097/109/119/125		21.32	10.4	3.2	M,J	100
PCB-085/110/115/116/117		21.74	15.0	2.9	M,J	100
PCB-082		NotFnd	<4.1	4.1	U	100
PCB-111		NotFnd	<2.6	2.6	U	100
PCB-120		NotFnd	<2.5	2.5	U	100
PCB-108/124		NotFnd	<2.1	2.1	U	100
PCB-107		NotFnd	<1.7	1.7	U	100
PCB-123	0.00003	NotFnd	<2.5	2.5	U	100
PCB-106		NotFnd	<1.9	1.9	U	100
PCB-118	0.00003	23.27	<7.5	2.1	M,J,R	7.5 100
PCB-122		NotFnd	<2.2	2.2	U	100
PCB-114	0.00003	NotFnd	<2.4	2.4	U	100
PCB-105	0.00003	23.93	<5.4	2.4	J,R	5.4 100
PCB-127		NotFnd	<2.0	2.0	U	100
PCB-126	0.1	NotFnd	<2.5	2.5	U	100
PCB-155		NotFnd	<1.3	1.3	U	100
PCB-152		NotFnd	<1.2	1.2	U	100
PCB-150		NotFnd	<1.2	1.2	U	100
PCB-136		20.97	<2.2	1.2	J,R	2.2 100
PCB-145		NotFnd	<1.2	1.2	U	100
PCB-148		NotFnd	<1.6	1.6	U	100
PCB-135/151		NotFnd	<1.8	1.8	U	100
PCB-154		NotFnd	<1.3	1.3	U	100
PCB-144		NotFnd	<1.6	1.6	U	100
PCB-147/149		22.67	8.15	2.4	J	100
PCB-134/143		NotFnd	<2.7	2.7	U	100
PCB-139/140		NotFnd	<2.3	2.3	U	100
PCB-131		NotFnd	<2.6	2.6	U	100
PCB-142		NotFnd	<2.6	2.6	U	100
PCB-132		23.37	<2.6	2.6	U	1.9 100
PCB-133		NotFnd	<2.4	2.4	U	100
PCB-165		NotFnd	<2.0	2.0	U	100
PCB-146		NotFnd	<2.2	2.2	U	100
PCB-161		NotFnd	<1.7	1.7	U	100
PCB-153/168		24.20	<2.8	1.9	J,R	2.8 100
PCB-141		NotFnd	<2.3	2.3	U	100
PCB-130		NotFnd	<2.8	2.8	U	100
PCB-137/164		NotFnd	<2.1	2.1	U	100
PCB-129/138/163		24.89	7.86	2.4	M,J	100
PCB-160		NotFnd	<1.8	1.8	U	100
PCB-158		NotFnd	<1.5	1.5	U	100
PCB-128/166		NotFnd	<2.1	2.1	U	100
PCB-159		NotFnd	<1.8	1.8	U	100
PCB-162		NotFnd	<2.0	2.0	U	100
PCB-167	0.00003	NotFnd	<2.0	2.0	U	100
PCB-156/157	0.00003	NotFnd	<2.8	2.8	U	200
PCB-169	0.03	NotFnd	<2.3	2.3	U	100
PCB-188		NotFnd	<1.8	1.8	U	100
PCB-179		NotFnd	<1.6	1.6	U	100
PCB-184		NotFnd	<1.6	1.6	U	100
PCB-176		NotFnd	<1.6	1.6	U	100
PCB-186		NotFnd	<1.7	1.7	U	100
PCB-178		NotFnd	<2.3	2.3	U	100
PCB-175		NotFnd	<2.2	2.2	U	100
PCB-187		NotFnd	<2.1	2.1	U	100
PCB-182		NotFnd	<2.0	2.0	U	100
PCB-183		NotFnd	<2.1	2.1	U	100
PCB-185		NotFnd	<2.4	2.4	U	100
PCB-174		NotFnd	<2.1	2.1	U	100
PCB-177		NotFnd	<2.2	2.2	U	100
PCB-181		NotFnd	<2.4	2.4	U	100
PCB-171/173		NotFnd	<2.5	2.5	U	100
PCB-172		NotFnd	<2.4	2.4	U	100

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a		
ALS Sample ID	WG3406765-1	Extraction Date	24-Sep-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-- 08-Oct-2020

Run Information	Run 1
Filename	5-201004A05
Run Date	04-Oct-20 17:12
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC Flags	LQL
PCB-192		NotFnd	<2.1	2.1	U	100
PCB-180/193		NotFnd	<2.0	2.0	U	100
PCB-191		NotFnd	<1.9	1.9	U	100
PCB-170		NotFnd	<2.8	2.8	U	100
PCB-190		NotFnd	<1.8	1.8	U	100
PCB-189	0.00003	NotFnd	<2.1	2.1	U	100
PCB-202		NotFnd	<1.4	1.4	U	100
PCB-201		NotFnd	<1.3	1.3	U	100
PCB-204		NotFnd	<1.4	1.4	U	100
PCB-197		NotFnd	<1.3	1.3	U	100
PCB-200		NotFnd	<1.3	1.3	U	100
PCB-198/199		NotFnd	<2.1	2.1	U	100
PCB-196		NotFnd	<2.1	2.1	U	100
PCB-203		NotFnd	<2.0	2.0	U	100
PCB-195		NotFnd	<2.4	2.4	U	100
PCB-194		NotFnd	<2.4	2.4	U	100
PCB-205		NotFnd	<2.4	2.4	U	100
PCB-208		NotFnd	<7.8	7.8	U	100
PCB-207		NotFnd	<9.0	9.0	U	100
PCB-206		NotFnd	<14	14	U	100
PCB-209		NotFnd	<1.7	1.7	U	100
Extraction Standards						
	pg	Time	% Rec	Limits		
13C12-PCB-001	4000	8.91	56	5-145		
13C12-PCB-003	4000	10.47	52	5-145		
13C12-PCB-004	4000	10.61	50	5-145		
13C12-PCB-015	4000	14.31	58	5-145		
13C12-PCB-019	4000	12.61	38	5-145		
13C12-PCB-037	4000	18.28	49	5-145		
13C12-PCB-054	4000	14.47	46	5-145		
13C12-PCB-081	4000	21.83	58	10-145		
13C12-PCB-077	4000	22.13	61	10-145		
13C12-PCB-104	4000	17.53	56	10-145		
13C12-PCB-123	4000	23.10	60	10-145		
13C12-PCB-118	4000	23.27	68	10-145		
13C12-PCB-114	4000	23.56	62	10-145		
13C12-PCB-105	4000	23.91	61	10-145		
13C12-PCB-126	4000	25.51	62	10-145		
13C12-PCB-155	4000	20.52	56	10-145		
13C12-PCB-167	4000	26.39	72	10-145		
13C12-PCB-156/157	8000	27.02	70	10-145		
13C12-PCB-169	4000	28.67	74	10-145	M,R	
13C12-PCB-188	4000	23.50	73	10-145		
13C12-PCB-189	4000	29.93	76	10-145		
13C12-PCB-202	4000	26.26	60	10-145		
13C12-PCB-205	4000	31.33	73	10-145		
13C12-PCB-208	4000	29.67	77	10-145		
13C12-PCB-206	4000	32.40	74	10-145		
13C12-PCB-209	4000	33.52	74	10-145		
Field Spike Standards						
13C12-PCB-031	0			NS		
13C12-PCB-095	0			NS		
13C12-PCB-153	0			NS		
Cleanup Standards						
13C12-PCB-028	4000	16.01	47	5-145		
13C12-PCB-111	4000	22.04	58	10-145		
13C12-PCB-178	4000	25.06	62	10-145		

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a	
ALS Sample ID	WG3406765-4	Extraction Date	24-Sep-20	Approved: <i>S. Jin</i> --e-signature-- 08-Oct-2020
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	5-201004A06
Run Date	04-Oct-20 17:55
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC Flags	pg	LQL
PCB-001		8.92	<2.0	0.75	J,R	2.0	100
PCB-002		NotFnd	<0.85	0.85	U		100
PCB-003		10.47	3.16	0.86	M,J		100
PCB-004		10.62	8.07	3.0	J		100
PCB-010		NotFnd	<1.4	1.4	U		100
PCB-009		NotFnd	<1.4	1.4	U		100
PCB-007		NotFnd	<1.4	1.4	U		100
PCB-006		NotFnd	<1.4	1.4	U		100
PCB-005		NotFnd	<1.5	1.5	U		100
PCB-008		12.43	10.6	1.3	M,J		100
PCB-014		NotFnd	<2.2	2.2	U		100
PCB-011		13.94	<24	2.3	J,R	24	100
PCB-012/013		NotFnd	<2.2	2.2	U		100
PCB-015		14.31	<6.8	2.3	M,J,R	6.8	100
PCB-019		NotFnd	<2.0	2.0	U		100
PCB-018/030		13.73	10.4	1.2	M,J		100
PCB-017		13.98	4.54	1.4	M,J		100
PCB-027		14.11	<1.0	1.0	U	0.63	100
PCB-024		NotFnd	<1.1	1.1	U		100
PCB-016		14.27	<3.7	1.5	M,J,R	3.7	100
PCB-032		14.55	3.51	0.93	M,J		100
PCB-034		NotFnd	<1.7	1.7	U		100
PCB-023		NotFnd	<1.6	1.6	U		100
PCB-026/029		15.52	2.58	1.6	M,J		100
PCB-025		NotFnd	<1.4	1.4	U		100
PCB-031		15.84	13.8	1.5	J		100
PCB-020/028		16.02	17.1	1.6	M,J		100
PCB-021/033		16.15	10.2	1.5	M,J		100
PCB-022		16.39	8.58	1.7	J		100
PCB-036		NotFnd	<1.5	1.5	U		100
PCB-039		NotFnd	<1.6	1.6	U		100
PCB-038		NotFnd	<1.7	1.7	U		100
PCB-035		NotFnd	<1.7	1.7	U		100
PCB-037		18.25	<5.8	2.0	J,R	5.8	100
PCB-054		NotFnd	<1.5	1.5	U		100
PCB-050/053		15.68	<2.1	2.1	U	1.6	100
PCB-045/051		16.11	<2.2	2.2	J,R	2.2	100
PCB-046		NotFnd	<2.4	2.4	U		100
PCB-052		17.01	<16	2.2	J,R	16	100
PCB-073		NotFnd	<1.6	1.6	U		100
PCB-043		NotFnd	<2.5	2.5	U		100
PCB-049/069		17.28	7.17	1.8	J		100
PCB-048		17.44	<2.1	2.1	U	2.0	100
PCB-044/047/065		17.57	18.7	2.0	J		100
PCB-059/062/075		NotFnd	<1.6	1.6	U		100
PCB-042		17.87	4.09	2.0	J		100
PCB-040/041/071		18.14	8.68	2.2	M,J		100
PCB-064		18.25	6.54	1.5	J		100
PCB-072		NotFnd	<2.5	2.5	U		100
PCB-068		NotFnd	<2.5	2.5	U		100
PCB-057		NotFnd	<2.7	2.7	U		100
PCB-058		NotFnd	<2.6	2.6	U		100
PCB-067		NotFnd	<2.1	2.1	U		100
PCB-063		NotFnd	<2.4	2.4	U		100
PCB-061/070/074/076		19.60	18.6	2.5	J		100
PCB-066		19.79	4.52	2.3	M,J		100
PCB-055		NotFnd	<2.6	2.6	U		100
PCB-056		20.15	<2.7	2.7	U	1.2	100
PCB-060		NotFnd	<2.6	2.6	U		100
PCB-080		NotFnd	<2.2	2.2	U		100
PCB-079		NotFnd	<2.2	2.2	U		100
PCB-078		NotFnd	<2.8	2.8	U		100
PCB-081	0.0003	NotFnd	<2.8	2.8	U		100
PCB-077	0.0001	NotFnd	<2.9	2.9	U		100
PCB-104		NotFnd	<0.57	0.57	U		100
PCB-096		NotFnd	<0.48	0.48	U		100
PCB-103		NotFnd	<1.3	1.3	U		100
PCB-094		NotFnd	<1.5	1.5	U		100
PCB-095		19.14	<13	1.4	M,J,R	13	100
PCB-093/098/100/102		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	WG3406765-4	Extraction Date	24-Sep-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--
08-Oct-2020

Run Information	Run 1
Filename	5-201004A06
Run Date	04-Oct-20 17:55
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC Flags	pg	LQL
PCB-088/091		19.61	2.14	1.4	J		100
PCB-084		19.74	4.32	1.4	J		100
PCB-089		NotFnd	<1.5	1.5	U		100
PCB-121		NotFnd	<1.0	1.0	U		100
PCB-092		20.35	<2.5	1.4	J,R	2.5	100
PCB-090/101/113		20.67	<12	1.2	M,J,R	12	100
PCB-083/099		20.97	6.25	1.5	J		100
PCB-112		NotFnd	<0.94	0.94	U		100
PCB-086/087/097/109/119/125		21.33	11.1	1.2	M,J		100
PCB-085/110/115/116/117		21.73	16.4	1.1	M,J		100
PCB-082		21.92	<1.6	1.6	U		100
PCB-111		NotFnd	<0.99	0.99	U		100
PCB-120		NotFnd	<0.95	0.95	U		100
PCB-108/124		NotFnd	<0.95	0.95	U		100
PCB-107		NotFnd	<0.79	0.79	U		100
PCB-123	0.00003	NotFnd	<1.0	1.0	U		100
PCB-106		NotFnd	<0.84	0.84	U		100
PCB-118	0.00003	23.27	<7.9	0.92	M,J,R	7.9	100
PCB-122		NotFnd	<0.98	0.98	U		100
PCB-114	0.00003	NotFnd	<1.1	1.1	U		100
PCB-105	0.00003	23.93	5.00	1.0	J		100
PCB-127		NotFnd	<0.90	0.90	U		100
PCB-126	0.1	NotFnd	<1.1	1.1	U		100
PCB-155		NotFnd	<0.49	0.49	U		100
PCB-152		NotFnd	<0.43	0.43	U		100
PCB-150		NotFnd	<0.44	0.44	U		100
PCB-136		20.98	<1.6	0.44	J,R	1.6	100
PCB-145		NotFnd	<0.44	0.44	U		100
PCB-148		NotFnd	<0.60	0.60	U		100
PCB-135/151		22.19	3.56	0.64	M,J		100
PCB-154		NotFnd	<0.48	0.48	U		100
PCB-144		NotFnd	<0.59	0.59	U		100
PCB-147/149		22.67	6.96	0.78	J		100
PCB-134/143		NotFnd	<0.88	0.88	U		100
PCB-139/140		NotFnd	<0.77	0.77	U		100
PCB-131		NotFnd	<0.88	0.88	U		100
PCB-142		NotFnd	<0.87	0.87	U		100
PCB-132		23.36	3.59	0.87	J		100
PCB-133		NotFnd	<0.81	0.81	U		100
PCB-165		NotFnd	<0.66	0.66	U		100
PCB-146		23.88	<0.72	0.72	U	0.59	100
PCB-161		NotFnd	<0.58	0.58	U		100
PCB-153/168		24.19	5.93	0.64	J		100
PCB-141		24.34	<0.84	0.76	J,R	0.84	100
PCB-130		NotFnd	<0.93	0.93	U		100
PCB-137/164		NotFnd	<0.68	0.68	U		100
PCB-129/138/163		24.88	8.47	0.81	M,J		100
PCB-160		NotFnd	<0.60	0.60	U		100
PCB-158		25.06	<0.91	0.49	J,R	0.91	100
PCB-128/166		NotFnd	<0.70	0.70	U		100
PCB-159		NotFnd	<0.59	0.59	U		100
PCB-162		NotFnd	<0.65	0.65	U		100
PCB-167	0.00003	NotFnd	<0.64	0.64	U		100
PCB-156/157	0.00003	27.01	1.70	0.89	M,J		200
PCB-169	0.03	NotFnd	<0.78	0.78	U		100
PCB-188		NotFnd	<0.78	0.78	U		100
PCB-179		23.72	0.716	0.67	J		100
PCB-184		NotFnd	<0.66	0.66	U		100
PCB-176		NotFnd	<0.69	0.69	U		100
PCB-186		NotFnd	<0.70	0.70	U		100
PCB-178		NotFnd	<0.96	0.96	U		100
PCB-175		NotFnd	<0.94	0.94	U		100
PCB-187		25.54	0.886	0.88	J		100
PCB-182		NotFnd	<0.86	0.86	U		100
PCB-183		NotFnd	<0.88	0.88	U		100
PCB-185		NotFnd	<1.0	1.0	U		100
PCB-174		NotFnd	<0.89	0.89	U		100
PCB-177		NotFnd	<0.95	0.95	U		100
PCB-181		NotFnd	<1.0	1.0	U		100
PCB-171/173		NotFnd	<1.0	1.0	U		100
PCB-172		NotFnd	<1.0	1.0	U		100

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name
ALS Sample ID
Analysis Method
Analysis Type
Sample Matrix

Method Blank
WG3406765-4
EPA 1668C
Blank
REAGENT

Sampling Date
Extraction Date
Sample Size
Percent Moisture
Split Ratio

n/a
24-Sep-20
1
n/a
4

Sample

Approved:
S. Jin
--e-signature--
08-Oct-2020

Run Information

Run 1

Filename: 5-201004A06
Run Date: 04-Oct-20 17:55
Final Volume: 25 ul
Dilution Factor: 1
Analysis Units: pg
Instrument - Column: HRMS-5 SPBOctyl 251239-06

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC Flags	EMPC pg	LQL
PCB-192		NotFnd	<0.91	0.91	U		100
PCB-180/193		27.71	<1.3	0.86	J,R	1.3	100
PCB-191		NotFnd	<0.78	0.78	U		100
PCB-170		NotFnd	<1.2	1.2	U		100
PCB-190		NotFnd	<0.77	0.77	U		100
PCB-189	0.00003	NotFnd	<0.84	0.84	U		100
PCB-202		NotFnd	<0.56	0.56	U		100
PCB-201		NotFnd	<0.51	0.51	U		100
PCB-204		NotFnd	<0.54	0.54	U		100
PCB-197		NotFnd	<0.53	0.53	U		100
PCB-200		NotFnd	<0.51	0.51	U		100
PCB-198/199		NotFnd	<0.83	0.83	U		100
PCB-196		NotFnd	<0.84	0.84	U		100
PCB-203		NotFnd	<0.80	0.80	U		100
PCB-195		NotFnd	<0.97	0.97	U		100
PCB-194		31.06	<2.4	0.96	M,J,R	2.4	100
PCB-205		NotFnd	<0.98	0.98	U		100
PCB-208		NotFnd	<3.1	3.1	U		100
PCB-207		NotFnd	<3.6	3.6	U		100
PCB-206		NotFnd	<5.9	5.9	U		100
PCB-209		NotFnd	<0.79	0.79	U		100

Extraction Standards

	pg	Time	% Rec	Limits
13C12-PCB-001	4000	8.91	54	5-145
13C12-PCB-003	4000	10.45	50	5-145
13C12-PCB-004	4000	10.61	44	5-145
13C12-PCB-015	4000	14.30	51	5-145
13C12-PCB-019	4000	12.61	28	5-145
13C12-PCB-037	4000	18.24	49	5-145
13C12-PCB-054	4000	14.47	38	5-145
13C12-PCB-081	4000	21.81	59	10-145
13C12-PCB-077	4000	22.11	63	10-145
13C12-PCB-104	4000	17.52	48	10-145
13C12-PCB-123	4000	23.09	61	10-145
13C12-PCB-118	4000	23.26	66	10-145
13C12-PCB-114	4000	23.56	61	10-145
13C12-PCB-105	4000	23.90	62	10-145
13C12-PCB-126	4000	25.50	62	10-145
13C12-PCB-155	4000	20.51	50	10-145
13C12-PCB-167	4000	26.39	78	10-145
13C12-PCB-156/157	8000	27.02	75	10-145
13C12-PCB-169	4000	28.66	75	10-145
13C12-PCB-188	4000	23.50	73	10-145
13C12-PCB-189	4000	29.93	74	10-145
13C12-PCB-202	4000	26.26	59	10-145
13C12-PCB-205	4000	31.33	82	10-145
13C12-PCB-208	4000	29.67	90	10-145
13C12-PCB-206	4000	32.40	83	10-145
13C12-PCB-209	4000	33.52	80	10-145

Field Spike Standards

13C12-PCB-031	0		NS	
13C12-PCB-095	0		NS	
13C12-PCB-153	0		NS	

Cleanup Standards

13C12-PCB-028	4000	16.00	47	5-145
13C12-PCB-111	4000	22.03	65	10-145
13C12-PCB-178	4000	25.06	71	10-145

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a	
ALS Sample ID	WG3406765-4	Extraction Date	24-Sep-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-- 08-Oct-2020

Run Information	Run 1	
Filename	5-201004A06	
Run Date	04-Oct-20 17:55	
Final Volume	25 ul	
Dilution Factor	1	
Analysis Units	pg	
Instrument - Column	HRMS-5 SPBOctyl 251239-06	

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
Homologue Group Totals			pg	pg	Flags	pg	LQL
Total MonoCB			5.16	0.75	J		400
Total DiCB			49.5	1.3	J		800
Total TriCB			80.2	0.93	J		800
Total TetraCB			84.3	1.5	J		1600
Total PentaCB			80.6	0.48	J		1600
Total HexaCB			33.6	0.43	J		1600
Total HeptaCB			2.90	0.66	J		800
Total OctaCB			2.40	0.51	J		800
Total NonaCB			<3.1	3.1	U		400
DecaCB			<0.79	0.79	U		400
Total PCB			339		J		3200
Toxic Equivalency - (WHO 2005)							
Lower Bound PCB TEQ			0.000201				
Mid Point PCB TEQ			0.0678				
Upper Bound PCB TEQ			0.135				

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
NS	Indicates that this standard has not been added.

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name Laboratory Control Sample
 ALS Sample ID WG3406765-2
 Analysis Method EPA 1668C
 Analysis Type LCS
 Sample Matrix QC

Sampling Date n/a
 Extraction Date 24-Sep-20
 Sample Size 1 n/a
 Percent Moisture n/a
 Split Ratio 4

Approved:
 S. Jin
 ---e-signature---
 08-Oct-2020

Run Information **Run 1**
 Filename 5-201003A04
 Run Date 03-Oct-20 14:21
 Final Volume 25 ul
 Dilution Factor 1
 Analysis Units % Rec
 Instrument - Column HRMS-5 SPBOctyl 251239-06

Target Analytes	pg	Ret. Time	% Rec	Limits	Flags
PCB-001	2000	8.83	91	60-135	
PCB-003	2000	10.35	89	60-135	
PCB-004	2000	10.52	124	60-135	
PCB-015	2000	14.20	100	60-135	
PCB-019	2000	12.51	125	60-135	
PCB-037	2000	18.13	98	60-135	
PCB-054	2000	14.37	125	60-135	
PCB-081	2000	21.70	96	60-135	
PCB-077	2000	22.00	89	60-135	
PCB-104	2000	17.43	108	60-135	
PCB-123	2000	22.98	100	60-135	
PCB-118	2000	23.15	99	60-135	
PCB-114	2000	23.45	104	60-135	
PCB-105	2000	23.79	103	60-135	
PCB-126	2000	25.38	100	60-135	
PCB-155	2000	20.41	112	60-135	
PCB-167	2000	26.28	101	60-135	
PCB-156/157	4000	26.90	102	60-135	
PCB-169	2000	28.55	104	60-135	
PCB-188	2000	23.39	105	60-135	
PCB-189	2000	29.82	94	60-135	
PCB-202	2000	26.15	115	60-135	
PCB-205	2000	31.20	103	60-135	
PCB-208	2000	29.55	90	60-135	
PCB-206	2000	32.25	90	60-135	
PCB-209	2000	33.36	109	60-135	
Extraction Standards					
		Time	% Rec	Limits	
13C12-PCB-001	4000	8.81	70	15-145	
13C12-PCB-003	4000	10.35	65	15-145	
13C12-PCB-004	4000	10.51	57	15-145	
13C12-PCB-015	4000	14.19	68	15-145	
13C12-PCB-019	4000	12.50	36	15-145	
13C12-PCB-037	4000	18.12	63	15-145	
13C12-PCB-054	4000	14.36	47	15-145	
13C12-PCB-081	4000	21.69	70	40-145	
13C12-PCB-077	4000	21.98	75	40-145	
13C12-PCB-104	4000	17.41	54	40-145	
13C12-PCB-123	4000	22.97	68	40-145	
13C12-PCB-118	4000	23.14	75	40-145	
13C12-PCB-114	4000	23.44	69	40-145	
13C12-PCB-105	4000	23.78	69	40-145	
13C12-PCB-126	4000	25.38	68	40-145	
13C12-PCB-155	4000	20.40	53	40-145	
13C12-PCB-167	4000	26.27	82	40-145	
13C12-PCB-156/157	8000	26.89	79	40-145	
13C12-PCB-169	4000	28.54	80	40-145	
13C12-PCB-188	4000	23.38	75	40-145	
13C12-PCB-189	4000	29.81	76	40-145	
13C12-PCB-202	4000	26.14	58	40-145	
13C12-PCB-205	4000	31.17	83	40-145	
13C12-PCB-208	4000	29.54	90	40-145	
13C12-PCB-206	4000	32.23	79	40-145	
13C12-PCB-209	4000	33.34	81	40-145	
Field Spike Standards					
13C12-PCB-031	0			NS	
13C12-PCB-095	0			NS	
13C12-PCB-153	0			NS	
Cleanup Standards					
13C12-PCB-028	4000	15.89	59	15-145	
13C12-PCB-111	4000	21.92	68	40-145	
13C12-PCB-178	4000	24.94	69	40-145	

NS Indicates that this standard has not been added.

SVOC DATA PACKAGE

SECTION 6: INTERNAL RECORDS

Including:

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

Extraction Workup Sheet

Batch ID:	WG3406765	Analysis:	DX/PCB - PUFs
-----------	-----------	-----------	---------------

Prep procedure BU-TM-1110 Overall HR Prep

Analyst:	Date:
----------	-------

Jackson Peag

24-Sep-2020

SUBSAMPLING		
Sample I.D.	Client I.D.	Wet Sub-sample (g)
WG3406765-1	Method Blank	L2483549-21
WG3406765-2	Laboratory Control Sample	L2483549-22
WG3406765-3	Extraction and Injection STD.	---
WG3406765-4	Method Blank (Reagent Blank)	Glass Vori Sodium Sulfate
L2504188-1	SITE 1 - COMPOSITE 3 (SEPTEMBER)	L2483549-17, 18, 20
L2504188-2	SITE 2 - COMPOSITE 3 (SEPTEMBER)	L2483549-1, 8, 10, 19
L2504188-3	SITE 3 - COMPOSITE 3 (SEPTEMBER)	L2483549-14, 15, 16, 18
L2504188-4	SITE 4 - COMPOSITE 3 (SEPTEMBER)	L2483549-2, 5, 9, 12
L2504188-5	SITE 5 - COMPOSITE 3 (SEPTEMBER)	L2483549-3, 6, 11, 4
	4 PUFs per sample. Use glasswool + sodium sulfate in soxhlet	

BATCH TRACKING	
	Date/Time/Initials
21 Subsampling:	24-Sep-2020 9:00PM JP
22 Client Labels Checked:	JP
Balance ID:	---
Samples Spiked:	JP
13 Soxhlet Start Time:	24-Sep-20 9:30PM JP
Soxhlets Reflux Properly:	JP
Soxhlet End Time:	25-Sep-2020 2:00pm MK
Rotovap Reduction + temp check:	01-Oct-2020 AP
Archive portion:	01-Oct-2020 AP
Acid Column + temp check:	01-Oct-2020 AP
Copper treat:	1-Oct-2020 NB
Solvent exchange:	01-Oct-2020 NB
Alumina Column + temp check:	1-Oct-2020 NB
Split:	1-Oct-2020 NB
Carbon column + temp check:	2-Oct-2020 DS
Microvial:	1-Oct-2020 NB

DX 2-CC+70 kg

Batch ID:

WG3406765

DX Extraction Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG3406765-1	40	✓
WG3406765-2	40	✓
WG3406765-3	40	✓
WG3406765-4	40	✓
L2504188-1	40	✓
L2504188-2	40	✓
L2504188-3	40	✓
L2504188-4	40	✓
L2504188-5	40	✓

Syringe ID: 320

Standard: M23-ES#2- 0405

Spike Date: 24-Sept-20

Spike Witnessing

Chemist's Initials
Chemist: JP

Witness's Initials
Witness: Bm

Witness's Initials
Correct Syringe Obtained: Bm

Witness's Initials
Correct Standard Obtained: Bm

Witness's Initials
Correct Technique Followed: Bm

PCB Extraction Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG3406765-1	40	✓
WG3406765-2	40	✓
WG3406765-3	40	✓
WG3406765-4	40	✓
L2504188-1	40	✓
L2504188-2	40	✓
L2504188-3	40	✓
L2504188-4	40	✓
L2504188-5	40	✓

Syringe ID: 382

Standard: 1668A-ES#2- 0644

Spike Date: 24-Sept-20

Spike Witnessing

Chemist's Initials
Chemist: JP

Witness's Initials
Witness: Bm

Witness's Initials
Correct Syringe Obtained: Bm

Witness's Initials
Correct Standard Obtained: Bm

Witness's Initials
Correct Technique Followed: Bm

Batch ID: WG3406765

DX Native Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG3406765-2	40	<input checked="" type="checkbox"/>
WG3406765-3	40	<input checked="" type="checkbox"/>

Syringe ID:

322

Standard:

1613B-NS#3-028A

Date &

Initials:

24-sept-20 JP

PCB Native Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG3406765-2	40	<input checked="" type="checkbox"/>
WG3406765-3	40	<input checked="" type="checkbox"/>

Syringe ID:

394

Standard:

1668A-NS#1-039E

Date &

Initials:

24-sept-20 JP

Batch ID: WG3406765

DX Cleanup Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG3406765-1	20	✓
WG3406765-2	20	✓
WG3406765-3	20	N/A
WG3406765-4	20	✓
L2504188-1	20	✓
L2504188-2	20	✓
L2504188-3	20	✓
L2504188-4	20	✓
L2504188-5	20	✓

Syringe ID: 357

Standard: M23-CL#1- 036B

Date & Initials: 01-Oct-2020 AP

Correct Syringe Obtained: Witness's Initials AP

Correct Standard Obtained: Witness's Initials AP

Correct Technique Followed: Witness's Initials AP

PCB Cleanup Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG3406765-1	20	✓
WG3406765-2	20	✓
WG3406765-3	20	N/A
WG3406765-4	20	✓
L2504188-1	20	✓
L2504188-2	20	✓
L2504188-3	20	✓
L2504188-4	20	✓
L2504188-5	20	✓

Syringe ID: 378

Standard: 1668A-CL#2- 0366

Date & Initials: 01-Oct-2020 AP

Correct Syringe Obtained: Witness's Initials AP

Correct Standard Obtained: Witness's Initials AP

Correct Technique Followed: Witness's Initials AP

DX Injection Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG3406765-1	10 20	✓
WG3406765-2	10 20	✓
WG3406765-3	10 20	✓
WG3406765-4	10 20	✓
L2504188-1	10 20	✓
L2504188-2	10 20	✓
L2504188-3	10 20	✓
L2504188-4	10 20	✓
L2504188-5	10 20	✓

NB 1-Oct-2020

Syringe ID: 365 39218

Standard: 1613B-IS#1- 01

Date & Initials: 1613BIS#1-0840
1-Oct-2020 NB
2-Oct-20 18

Correct Syringe Obtained: Witness's Initials
NB

Correct Standard Obtained: Witness's Initials
NB

Correct Technique Followed: Witness's Initials
NB

* Analytical results indicate that the IS was spiked with 20 ul instead of 10ul. Prep analyst has attested this is highly likely.

13-Oct-20

PCB Injection Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG3406765-1	5	✓
WG3406765-2	5	✓
WG3406765-3	5	✓
WG3406765-4	5	✓
L2504188-1	5	✓
L2504188-2	5	✓
L2504188-3	5	✓
L2504188-4	5	✓
L2504188-5	5	✓

Syringe ID: 365

Standard: 1668A-IS#2- 013A

Date & Initials: 1-Oct-2020 NB

Correct Syringe Obtained: Chemist's Initials
NB

Correct Standard Obtained: Chemist's Initials
NB

Correct Technique Followed: Chemist's Initials
NB

Batch ID:	WG3406765
-----------	-----------

Reagent Lot Numbers:

Reagent	Lot#	Comment
Acetone	105484	
Hexane	1155157	
DCM	105733	
Toluene	115703	
Nonane	ORG-NON- 655	
1:1 DCM:HEX	ORG-DH2- 648	
Sodium Sulphate	ORG-SSU- 2370, 2373	
Acid Silica	ORG-ASI- 9770	
Neutral Silica	ORG-NSI- 2399	
Alumina	ORG-ALU- 476	
Chromacarb	ORG-CC- 278	
Copper	ORG-CU- -	
Sand	ORG-SAND- -	
Corn oil	ORG-CO- 071	
Thimbles		

Procedure:

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

Extraction:

- For MB and LCS you **must** include blank media - if not available see your Team Lead
- In a soxhlet that contains glasswool (sonicated in DCM) and Sodium Sulphate
- Place the filter (if there is a filter present) and the PUF into the soxhlet body.
- Spike Extraction and Native standards
- Soxhlet extract in DCM for 16 hours
- Roto-vap down to ~2ml. Transfer to a c-tube with 3x2ml Hexane rinses.
- Reduce to 2mL. Split 1/2 **Archive**, 1/2 **DX/PCB**. Spike DX/PCB portion with Cleanup Standards
- Acid Silica column
- Elute to 50ml with Hexane.
- Perform copper treatment before solvent exchange

DX/PCB

- Reduce to **50uL**, bulk up with 1mL of Hexane
- **Perform Alumina Column:**
 - Pre-elute the Alumina Column with 7ml Hexane
 - Place F1 c-tube under the column, then load the sample with 3x 1ml Hexane Rinses
 - F1 1mL of Hexane
 - F2 (DX/PCB) 14ml 1:1 DCM:Hexane

- Blow down to 2ml

-Split 1/2 PCB and 1/2 DX**PCB:**

- Vortex **very** well.
- Transfer every last drop to a micro-vial (no rinses).
- Blow down to the mark. (Micro-vial should contain 20ul Nonane, and the level should be marked.)
- Spike PCB Injection Standard. Cap and Vortex **FV = 25ul**

DX:

- Carbon Column: - 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)

- 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**

Approval of Deviation from Standard Method

(Batch Writer): _____

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

Comments:

- Label and save all columns.

ALS Life sciences

Sample Calculation Report

CS3 RRF Check

Approved:

S. Jin
--e-signature--
08-Oct-2020

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

$$\text{RRF} = \frac{792506.10}{1585710.30} \times \frac{100}{50}$$

Calculated Value

Value from TargetLynx

$$= 1.000 \quad 1.000$$

Calculation of PCB-118 amount in L2504188-4

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

$$\text{pg} = \frac{6308797}{1150317.9} \times \frac{4000}{1.03 * 1.00} = 21200 \quad 21200$$

Calculation of 13C12-PCB-118 Recovery in L2504188-4

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

$$\% \text{ Recovery} = \frac{1150317.9}{1671513} \times \frac{8000 * 100}{1.48 * 4000} = 93 \quad 93 \quad \%$$

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 - 792152

L2494490-GOFC

Page 1 of 1

Composite WO: L2504188

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Canada Toll Free: 1 800 668 9878

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:	Farallon Consulting	Select Report Format:	<input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL EDD (DIGITAL)		Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply																																																																							
Contact:	Amber Bailey	Quality Control (QC) Report with Report	YES NO		PRIORITY (Business Days)	4 day [P4-20%]	<input type="checkbox"/>	EMERGENCY	1 Business day [E - 100%]	<input type="checkbox"/>																																																																		
Phone:	206-735-6178	<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)]	<input type="checkbox"/>																																																																		
Company address below will appear on the final report		Select Distribution:	<input checked="" type="checkbox"/> EMAIL MAIL FAX			2 day [P2-50%]	<input type="checkbox"/>																																																																					
Street:	975 5th AVE NW	Email 1 or Fax:	abailey@farallonconsulting.com		Date and Time Required for all E&P TATs:		dd-mmm-yy hh:mm																																																																					
City/Province:	Issaquah WA	Email 2:			For tests that can not be performed according to the service level selected, you will be contacted.																																																																							
Postal Code:	98059	Email 3:			Analysis Request																																																																							
Invoice To		Invoice Distribution			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																																																																							
Same as Report To	<input checked="" type="checkbox"/> YES NO	Select Invoice Distribution:	<input checked="" type="checkbox"/> EMAIL MAIL FAX																																																																									
Copy of Invoice with Report		<input checked="" type="checkbox"/> YES NO				<table border="1"> <tr> <td rowspan="10">NUMBER OF CONTAINERS</td> <td rowspan="10">EPA Method 1163 PCBs</td> <td rowspan="10">EPA Method 8290A Dioxins</td> <td colspan="6"></td> <td rowspan="10">SAMPLES ON HOLD</td> <td rowspan="10">SUSPECTED HAZARD (see Special Instructions)</td> </tr> <tr><td colspan="6"></td></tr> <tr><td colspan="6"></td></tr> <tr><td colspan="6"></td></tr> <tr><td colspan="6"></td></tr> <tr><td colspan="6"></td></tr> <tr><td colspan="6"></td></tr> <tr><td colspan="6"></td></tr> <tr><td colspan="6"></td></tr> <tr><td colspan="6"></td></tr> </table>						NUMBER OF CONTAINERS	EPA Method 1163 PCBs	EPA Method 8290A Dioxins							SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)																																																						
NUMBER OF CONTAINERS	EPA Method 1163 PCBs	EPA Method 8290A Dioxins													SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)																																																												
Company:		Email 1 or Fax:		AP@farallonconsulting.com																																																																								
Contact:		Email 2:		abailey@farallonconsulting.com																																																																								
Project Information		Oil and Gas Required Fields (client use)																																																																										
ALS Account # / Quote #:		AFE/Cost Center:		PO#:																																																																								
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PO / AFE:		Requisitioner:		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	L2483549-13-1	25-8-20	0855	Air	1	X	X				X																																																																	
2	L2483549-1-2		0915		1	X	X				X																																																																	
3	L2483549-14-3		0933		1	X	X				X																																																																	
4	L2483549-12-4		0944		1	X	X				X																																																																	
5	L2483549-11-5		0955		1	X	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		Please hold samples for monthly composite			Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																																																																							
Are samples for human consumption/ use? YES NO					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			FINAL COOLER TEMPERATURES °C																																																																				
					5.2°C																																																																							
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)																																																																							
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:																																																																	
Mack	8/25/2020	11:27	BARBARA	28-Aug-2020	12:20																																																																							

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Chain of Custody (COC) / Analytical Request Form



COC Number: 17 - 792250

L2497813-GOFC

Page 1 of 1

Composite WO: L2504188

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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:	Farallon Consulting	Select Report Format:	<input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL EDD (DIGITAL)		Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply															
Contact:	Amber Bailey	Quality Control (QC) Report with Report	[] YES NO		PRIORITY (Business Days)	4 day [P4-20%] <input type="checkbox"/>		EMERGENCY	1 Business day [E - 100%] <input type="checkbox"/>											
Phone:	206-735-6178	<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)] <input type="checkbox"/>											
Company address below will appear on the final report		Select Distribution:	<input checked="" type="checkbox"/> EMAIL MAIL FAX			2 day [P2-50%] <input type="checkbox"/>														
Street:	975 5th AVE NW	Email 1 or Fax:	ab Bailey@farallonconsulting.com		Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm															
City/Province:	Issaquah, WA	Email 2:			For tests that can not be performed according to the service level selected, you will be contacted.															
Postal Code:	98059	Email 3:			Analysis Request															
Invoice To		Invoice Distribution			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below															
Same as Report To	<input checked="" type="checkbox"/> YES NO	Select Invoice Distribution:	<input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX																	
Copy of Invoice with Report		Email 1 or Fax: APE farallonconsulting.com			NUMBER OF CONTAINERS	PCB'S EPA Method 116.9 Dioxins EPA Method 8290A					SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)								
Company:		Email 2: ab Bailey@farallonconsulting.com																		
Project Information		Oil and Gas Required Fields (client use)																		
ALS Account # / Quote #:		AFE/Cost Center:	PO#																	
Job #:		Major/Minor Code:	Routing Code:																	
PO / AFE:		Requisitioner:																		
LSD:		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																
1	L2483549-20-1	01-Sep-20	0854	Air	1	X	X													X
2	L2483549-19-2		0914		1	X	X													X
3	L2483549-18-3		0954		1	X	X													X
4	L2483549-5-4		1010		1	X	X													X
5	L2483549-4-5		1027		1	X	X													X
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		Please hold samples for L2483549-19-2 monthly composite. L2483549-19-2 glass is broken at top.			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		FINAL COOLER TEMPERATURES °C					
Are samples for human consumption/ use? <input type="checkbox"/> YES <input type="checkbox"/> NO					5.5°C															
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)															
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:												
M. Bailey	9/11/2020	12:14	AMANDA BURTON	2-Sept-2020	12:20															

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



COC Number: 17-792248

L2501323-COFC

Page 1 of 1

Composite WO: L2504188

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Canada Toll Free: 1 800 668 9878

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:	Farallon Consulting	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										
Contact:	Amber Bailey	Quality Control (QC) Report with Report	<input type="checkbox"/> YES <input type="checkbox"/> NO	PRIORITY (Business Days)	4 day [P4-20%]	<input type="checkbox"/>	EMERGENCY	1 Business day [E - 100%]		<input type="checkbox"/>				
Phone:	206-735-6178	<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)]		<input type="checkbox"/>				
Company address below will appear on the final report		Select Distribution:	<input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX	Date and Time Required for all E&P TATs:		dd-mmm-yy hh:mm								
Street:	975 5th Ave NW	Email 1 or Fax:	abailey@farallonconsulting.com	For tests that can not be performed according to the service level selected, you will be contacted.										
City/Province:	Issaquah, WA	Email 2:		Analysis Request										
Postal Code:	98059	Email 3:		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below										
Invoice To	Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Invoice Distribution			NUMBER OF CONTAINERS						SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)		
	Copy of Invoice with Report <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											
Company:		Email 1 or Fax:	APE farallonconsulting.com											
Contact:		Email 2:	abailey@farallonconsulting.com											
Project Information		Oil and Gas Required Fields (client use)												
ALS Account # / Quote #:		AFE/Cost Center:	PO#											
Job #:		Major/Minor Code:	Routing Code:											
PO / AFE:		Requisitioner:												
LSD:		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										
1	L2483549 - 17 - 1	09-Sep-20	0909	Air	-	X	X						X	
2	L2483549 - 10 - 2		0917		-	X	X						X	
3	L2483549 - 16 - 3		0953		-	X	X						X	
4	L2483549 - 9 - 4		1007		-	X	X						X	
5	L2483549 - 6 - 5		1039		-	X	X						X	
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		Please hold samples for monthly composite.			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"/>									
					Cooling Initiated <input checked="" type="checkbox"/>									
					INITIAL COOLER TEMPERATURES °C									
					4.8°C									
					FINAL COOLER TEMPERATURES °C									
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)									
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:			
Mick Oja	9/9/2020	1220	ARRON BURTON	10-Sept-2020	11:30									

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JUNE 2019 FRONT

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



Chain of Custody (COC) / Analytical Request Form



COC Number: 17-792249

L2504187-COFC

Page of Composite WO: L2504188

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Canada Toll Free: 1 800 668 9878

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: Carallon Consulting		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												
Contact: Amber Bailey		Quality Control (QC) Report with Report <input type="checkbox"/> YES <input type="checkbox"/> NO			PRIORITY (Business Days)	4 day [P4-20%] <input type="checkbox"/>			EMERGENCY	1 Business day [E - 100%] <input type="checkbox"/>							
Phone: 206 735 6178		<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)] <input type="checkbox"/>							
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: 975 5th AVE NW		Email 1 or Fax: abailey@carallonconsulting.com			Date and Time Required for all E&P TATs:			dd-mmm-yy hh:mm									
City/Province: Issaquah WA		Email 2:			For tests that can not be performed according to the service level selected, you will be contacted.												
Postal Code: 98059		Email 3:			Analysis Request												
Invoice To: Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Invoice Distribution			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below												
Copy of Invoice with Report <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			NUMBER OF CONTAINERS EPA Method PCBS EPA Method Dioxins 8290A	SAMPLES ON HOLD SUSPECTED HAZARD (see Special Instructions)											
Company: AP@CarallonConsulting.com		Email 1 or Fax: AP@CarallonConsulting.com															
Contact: Accounts Payable		Email 2:															
Project Information		Oil and Gas Required Fields (client use)															
ALS Account # / Quote #:		AFE/Cost Center:		PO#:													
Job #:		Major/Minor Code:		Routing Code:													
PO / AFE:		Requisitioner:		Location:													
LSD:		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				
1	L2483549 - 7 - 1	9/15/20	0954	Air								1	X	X			
2	L2483549 - 8 - 2		1326		1	X	X										
3	L2483549 - 15 - 3		1215		1	X	X										
4	L2483549 - 2 - 4		1237		1	X	X										
5	L2483549 - 3 - 5		1259		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		Please composites all 4 of the last sets of samples.			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"/>						
					Cooling Initiated <input checked="" type="checkbox"/>												
					INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C									
					7.0°C												
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)												
Released by: [Signature]		Date: 9/15/2020		Time:		Received by: ARRAN BUCKTON		Date: 16-Sept-20		Time: 16:10							

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JUNE 2018 FROTT

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
26-Aug-2026 12:20	FARALLON	5 x PUFs	5.9°C	Good Fedex 7712 2334 4966	RF	26-Aug-2026 15:45	L2494490	-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
2-Sept-2020 12:20	FARROW	5 x PUFs	5.5°C	Good Fedex 7712 2340 2388	Mg	2-Sept-2020 16:20	L2497813	-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
10-Sept-2020 11:30	FARALLON	5 x PUFs	4.8°C	Good FedEx 7712 2343 9683	Mg	10-Sept-2020 15:20	L2501323	-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-Sept-2020 16:10	FARALLON	5 x PUFFS	7.0°C	Good Fedex 7714 6815 2639	NOJ	17-Sept-2020 9:25	L2504187 L2504188	-1-5 -1-5

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