



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


SVOC DATA PACKAGE

Client Project Information

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

ALSE Project Information

Project ID: FAR100
Contact: Breanne Dusureault
Submission ID(s): L2569163

Final Package Review by: 
Date Reviewed: 26-Apr-21

SVOC DATA PACKAGE

SECTION 1: PROJECT NARRATIVE

ALSE Project Information

 Project ID: FAR100
 Contact: Breanne Dusureault
 Submission ID(s): L2569163

Client Project Information

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

Analytical Method: PCB Congeners by EPA 1668C

ALS Sample ID	Client Sample Descriptions	Matrix	Date Sampled	Date Received	Temp/degrees C. on receipt	Date Extracted	Date Analyzed
L2550675-1	L2527465-6	PUF	18-Jan-21	21-Jan-21	2.0	n/a	n/a
L2561344-1	L2548709-1-1	PUF	23-Feb-21	25-Feb-21	5.6	n/a	n/a
L2569160-1	L2542414-6	PUF	18-Mar-21	22-Mar-21	19.7	n/a	n/a
L2569163-1	SITE 1 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	PUF	n/a	n/a	n/a	29-Mar-21	19-Apr-21
L2550675-2	L2516041-5	PUF	18-Jan-21	21-Jan-21	2.0	n/a	n/a
L2561344-2	L2548709-2-2	PUF	23-Feb-21	25-Feb-21	5.6	n/a	n/a
L2569160-2	L2542414-2	PUF	18-Mar-21	22-Mar-21	19.7	n/a	n/a
L2569163-2	SITE 2 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	PUF	n/a	n/a	n/a	29-Mar-21	19-Apr-21
L2550675-3	L2516041-4	PUF	18-Jan-21	21-Jan-21	2.0	n/a	n/a
L2561344-3	L2548709-2-3	PUF	23-Feb-21	25-Feb-21	5.6	n/a	n/a
L2569160-3	L2542414-3	PUF	18-Mar-21	22-Mar-21	19.7	n/a	n/a
L2569163-3	SITE 3 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	PUF	n/a	n/a	n/a	29-Mar-21	19-Apr-21
L2550675-4	L2516041-2	PUF	18-Jan-21	21-Jan-21	2.0	n/a	n/a
L2561344-4	L2548709-4-4	PUF	23-Feb-21	25-Feb-21	5.6	n/a	n/a
L2569160-4	L2542414-4	PUF	18-Mar-21	22-Mar-21	19.7	n/a	n/a
L2569163-4	SITE 4 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	PUF	n/a	n/a	n/a	29-Mar-21	19-Apr-21
L2550675-5	L2516041-3	PUF	18-Jan-21	21-Jan-21	2.0	n/a	n/a
L2561344-5	L2548709-3-5	PUF	23-Feb-21	25-Feb-21	5.6	n/a	n/a
L2569160-5	L2542414-5	PUF	18-Mar-21	22-Mar-21	19.7	n/a	n/a
L2569163-5	SITE 5 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	PUF	n/a	n/a	n/a	29-Mar-21	19-Apr-21
WG3507253-1	Method Blank	MEDIA	n/a	n/a	n/a	29-Mar-21	19-Apr-21
WG3507253-4	Method Blank	REAGENT	n/a	n/a	n/a	29-Mar-21	19-Apr-21
WG3507253-2	Laboratory Control Sample	MEDIA	n/a	n/a	n/a	29-Mar-21	19-Apr-21

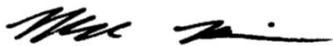
Comments and Notes:
a) Sample Integrity:

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

b) Instrumental Analysis:

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.



 Bradley Reimer
 GC/MS Laboratory Senior Technical Specialist

26-Apr-21

Date

SVOC DATA PACKAGE

SECTION 2: DATA SUMMARY REPORT



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

Certificate of Analysis

ALS Project Contact:	Breanne Dusureault	Client Name:	Farallon Consulting, L.L.C.
ALS Project ID:	FAR100	Client Address:	975 5th Avenue Northwest
ALS WO#:	L2569163		Issaquah
Date of Report	27-Apr-21		WA 98027
Date of Sample Receipt	22-Mar-21	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: _____


Bradley Reimer
GC/MS Laboratory Senior Technical Specialist

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 5 (WET SEASON - JAN, FEB, MAR)	SITE 2 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 3 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 4 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 5 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)
ALS Sample ID	L2569163-1	L2569163-2	L2569163-3	L2569163-4	L2569163-5
Sample Size	1	1	1	1	1
Sample size units	Puf	Puf	Puf	Puf	Puf
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	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21
Target Analytes	pg	pg	pg	pg	pg
PCB-001	140000	581000	137000	245000	460000
PCB-002	5880	20300	5200	8410	13700
PCB-003	23100	87600	20600	38700	69200
PCB-004	635000	2250000	667000	1570000	2380000
PCB-010	18100	70800	20900	50700	67600
PCB-009	38900	167000	40800	95600	151000
PCB-007	22500	87700	23700	53100	83000
PCB-006	98800	402000	103000	233000	357000
PCB-005	8620	26400	8580	12200	22600
PCB-008	449000	1680000	450000	999000	1580000
PCB-014	69.4	201	56.6	88.7	125
PCB-011	10400	13700	8040	11200	13700
PCB-012/013	12700	52900	12100	27500	45000
PCB-015	77400	269000	76800	181000	251000
PCB-019	75500	309000	86900	223000	328000
PCB-018/030	247000	1130000	274000	833000	1160000
PCB-017	126000	530000	141000	397000	579000
PCB-027	13700	61000	15700	45800	61600
PCB-024	3160	15400	3790	10600	15400
PCB-016	103000	426000	111000	321000	460000
PCB-032	58300	242000	64100	185000	263000
PCB-034	910	3450	978	2510	3310
PCB-023	393	1540	426	1030	1450
PCB-026/029	33900	137000	36000	95500	120000
PCB-025	15700	56700	16700	40000	54100
PCB-031	154000	616000	162000	468000	664000
PCB-020/028	161000	616000	170000	468000	700000
PCB-021/033	103000	396000	105000	299000	443000
PCB-022	56300	200000	56500	153000	232000
PCB-036	25.2	36.6	17.8	34.2	24.5
PCB-039	433	1860	438	1330	1460
PCB-038	66.5	273	64.3	176	183
PCB-035	1210	4350	1110	2850	3150
PCB-037	16200	52100	14600	38000	45100
PCB-054	874	3120	935	2270	3190
PCB-050/053	15800	69000	17300	46000	54000
PCB-045/051	21000	80900	22400	59700	71200
PCB-046	7000	25100	7200	18500	22800
PCB-052	111000	806000	123000	275000	332000
PCB-073	<1.6	<1.2	<1.6	<2.1	<2.2
PCB-043	4360	16900	4480	11700	14600
PCB-049/069	46200	249000	49000	118000	146000
PCB-048	18600	73100	19300	51900	64900
PCB-044/047/065	59000	327000	62100	153000	182000
PCB-059/062/075	5060	20600	5040	14500	17100
PCB-042	18900	68200	18500	46200	60700
PCB-040/041/071	33200	126000	32500	85100	106000
PCB-064	23000	105000	23100	58400	71100
PCB-072	169	902	180	512	641
PCB-068	112	399	<110	269	332
PCB-057	165	725	167	486	554
PCB-058	47.1	503	64.7	113	128
PCB-067	843	3740	862	2450	2740
PCB-063	1000	4560	1020	2580	3020
PCB-061/070/074/076	39000	259000	42200	92200	101000
PCB-066	16700	75100	16900	40000	43900
PCB-055	509	1530	440	1180	1280
PCB-056	7350	27700	7100	17500	18300
PCB-060	4360	14400	4200	10600	11000
PCB-080	<3.1	<4.4	<4.7	<4.1	<3.4
PCB-079	157	1630	199	287	289
PCB-078	11.1	68.6	12.1	20.0	15.3
PCB-081	33.7	105	32.5	75.7	68.5
PCB-077	582	2080	546	1360	1080
PCB-104	7.38	<46	<9.8	21.3	28.5
PCB-096	344	2620	388	920	1040
PCB-103	261	2370	309	513	668
PCB-094	172	1440	195	416	484
PCB-095	23200	305000	28900	47700	50500
PCB-093/098/100/102	1230	10200	1420	2810	3140

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Sample Analysis Summary Report

Sample Name	SITE 1 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 2 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 3 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 4 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 5 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)
ALS Sample ID	L2569163-1	L2569163-2	L2569163-3	L2569163-4	L2569163-5
Sample Size	1	1	1	1	1
Sample size units	Puf	Puf	Puf	Puf	Puf
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	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21
Target Analytes	pg	pg	pg	pg	pg
PCB-088/091	4240	41600	5120	8220	9500
PCB-084	7420	76700	8960	13400	15500
PCB-089	301	2150	327	643	748
PCB-121	<6.1	<1.4	<2.8	<1.7	<3.3
PCB-092	4680	50300	5710	7970	9190
PCB-090/101/113	24800	287000	30300	40900	47300
PCB-083/099	12600	120000	14400	20600	23400
PCB-112	<6.2	<1.4	<2.9	<1.8	<3.3
PCB-086/087/097/109/119/125	12800	132000	15700	22800	25000
PCB-085/110/115/116/117	22300	240000	27700	38500	43400
PCB-082	2400	20400	2930	4170	4990
PCB-111	<6.4	<1.5	<2.9	<1.8	<3.3
PCB-120	10.1	70.8	13.5	26.1	26.4
PCB-108/124	417	4060	540	756	820
PCB-107	649	5920	825	1170	1280
PCB-123	166	1420	211	288	314
PCB-106	<4.1	<3.3	<3.1	<3.3	<2.6
PCB-118	9960	93200	13300	18000	19400
PCB-122	118	926	132	215	216
PCB-114	239	2120	300	455	468
PCB-105	3120	28400	4260	6100	6070
PCB-127	13.3	121	19.3	21.0	26.0
PCB-126	<22	<51	<18	<26	<28
PCB-155	6.20	8.04	8.42	8.04	8.35
PCB-152	13.4	182	15.1	24.6	23.7
PCB-150	15.0	195	19.1	25.4	27.6
PCB-136	997	14400	1280	2060	1860
PCB-145	<5.8	83.4	<8.0	12.2	12.5
PCB-148	<6.6	77.4	9.93	11.5	14.2
PCB-135/151	2100	24200	2600	3930	3850
PCB-154	63.6	666	85.4	94.9	115
PCB-144	370	4450	464	681	685
PCB-147/149	4980	59100	6460	9430	9260
PCB-134/143	408	5380	553	804	796
PCB-139/140	158	2120	217	307	307
PCB-131	121	1580	160	231	228
PCB-142	<3.6	<11	<2.4	<2.6	<2.7
PCB-132	2660	29100	3550	5130	5210
PCB-133	89.9	871	114	146	165
PCB-165	5.18	28.3	6.39	8.70	7.16
PCB-146	791	7580	1070	1400	1490
PCB-161	<2.4	<2.0	<1.7	<1.8	<1.9
PCB-153/168	4750	43700	6450	8290	8920
PCB-141	976	8810	1200	1740	1670
PCB-130	364	3700	503	704	671
PCB-137/164	627	6390	892	1230	1180
PCB-129/138/163	5600	56700	8370	11400	11000
PCB-160	<2.3	<1.9	<1.6	<1.7	<1.7
PCB-158	467	5320	741	1030	921
PCB-128/166	847	8170	1350	1720	1800
PCB-159	13.3	75.5	18.9	26.4	22.5
PCB-162	11.8	101	17.9	23.6	23.8
PCB-167	140	1470	239	329	322
PCB-156/157	430	4630	801	1070	1030
PCB-169	<4.5	<14	<4.5	<6.0	<4.9
PCB-188	3.19	10.3	<3.3	<3.7	5.84
PCB-179	204	1460	258	399	384
PCB-184	3.75	9.92	4.62	4.79	<5.5
PCB-176	66.4	549	87.8	132	122
PCB-186	<0.83	<2.0	<0.91	<0.84	<0.71
PCB-178	98.3	487	130	167	175
PCB-175	24.5	141	33.6	39.9	43.7
PCB-187	495	2310	709	901	931
PCB-182	<5.3	25.5	6.14	6.27	<7.2
PCB-183	262	1600	393	505	532
PCB-185	<27	159	44.5	59.8	58.5
PCB-174	256	1780	421	572	553
PCB-177	155	1140	261	345	342
PCB-181	5.70	61.7	<8.2	13.3	<11
PCB-171/173	92.4	809	163	218	203
PCB-172	49.7	294	80.7	103	102

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Sample Analysis Summary Report

Sample Name	SITE 1 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 2 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 3 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 4 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 5 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)
ALS Sample ID	L2569163-1	L2569163-2	L2569163-3	L2569163-4	L2569163-5
Sample Size	1	1	1	1	1
Sample size units	Puf	Puf	Puf	Puf	Puf
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	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21
Target Analytes	P9	P9	P9	P9	P9
PCB-192	<4.3	<1.1	<1.0	<0.94	<0.80
PCB-180/193	525	3290	1020	1280	1270
PCB-191	18.9	75.7	20.9	27.5	25.0
PCB-170	216	1850	473	604	564
PCB-190	38.1	264	76.4	98.6	82.8
PCB-189	8.35	76.5	<19	26.1	25.2
PCB-202	74.3	175	104	126	145
PCB-201	37.5	90.7	49.9	60.5	69.7
PCB-204	<0.58	<0.49	<0.49	<0.38	<0.56
PCB-197	6.95	19.2	<9.8	11.3	13.9
PCB-200	15.9	52.0	23.4	30.4	30.3
PCB-198/199	122	390	211	262	259
PCB-196	<47	171	90.8	106	107
PCB-203	78.5	248	138	163	173
PCB-195	24.1	98.6	54.7	57.9	54.8
PCB-194	71.0	277	152	183	172
PCB-205	6.28	13.5	9.54	8.06	<7.9
PCB-208	20.5	51.1	28.9	40.1	37.3
PCB-207	10.2	25.9	14.9	19.9	17.6
PCB-206	49.1	167	81.4	106	92.8
PCB-209	11.5	29.6	16.6	21.6	31.8
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec
13C12-PCB-001	42	65	52	51	48
13C12-PCB-003	53	78	61	59	60
13C12-PCB-004	34	61	43	46	41
13C12-PCB-015	70	107	80	87	83
13C12-PCB-019	30	48	34	38	31
13C12-PCB-037	67	123	76	95	88
13C12-PCB-054	17	36	20	29	21
13C12-PCB-081	54	94	60	80	68
13C12-PCB-077	65	103	72	90	83
13C12-PCB-104	28	53	31	45	33
13C12-PCB-123	53	91	60	79	66
13C12-PCB-118	49	87	55	76	62
13C12-PCB-114	52	88	59	80	65
13C12-PCB-105	64	99	72	90	81
13C12-PCB-126	66	96	74	95	83
13C12-PCB-155	46	75	48	60	56
13C12-PCB-167	57	94	64	85	72
13C12-PCB-156/157	52	89	60	81	68
13C12-PCB-169	67	107	77	97	87
13C12-PCB-188	52	86	54	69	62
13C12-PCB-189	59	99	70	90	78
13C12-PCB-202	52	79	56	69	62
13C12-PCB-205	54	91	60	78	63
13C12-PCB-208	59	96	63	80	73
13C12-PCB-206	55	92	60	79	65
13C12-PCB-209	60	100	62	83	76
Field Spike Standards					
13C12-PCB-031	110	101	107	105	98
13C12-PCB-095	68	81	68	79	70
13C12-PCB-153	110	110	103	104	103
Cleanup Standards					
13C12-PCB-028	46	82	49	62	52
13C12-PCB-111	53	88	53	70	60
13C12-PCB-178	55	86	51	69	55

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Sample Analysis Summary Report

Sample Name	SITE 1 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 2 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 3 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 4 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	SITE 5 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)
ALS Sample ID	L2569163-1	L2569163-2	L2569163-3	L2569163-4	L2569163-5
Sample Size	1	1	1	1	1
Sample size units	Puf	Puf	Puf	Puf	Puf
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	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21	29-Mar-21
Target Analytes	pg	pg	pg	pg	pg
Homologue Group Totals					
Total MonoCB	169000	689000	163000	292000	543000
Total DiCB	1370000	5020000	1410000	3230000	4950000
Total TriCB	1170000	4800000	1260000	3580000	5130000
Total TetraCB	435000	2360000	459000	1110000	1330000
Total PentaCB	131000	1430000	162000	237000	264000
Total HexaCB	27000	289000	37200	51900	51600
Total HeptaCB	2560	16400	4210	5510	5440
Total OctaCB	484	1540	843	1010	1030
Total NonaCB	79.8	244	125	166	148
DecaCB	11.5	29.6	16.6	21.6	31.8
Total PCB	3310000	14600000	3500000	8520000	12300000
Toxic Equivalency - (WHO 2005)					
Lower Bound PCB TEQ	0.490	4.18	0.638	0.947	0.957
Mid Point PCB TEQ	2.83	9.70	2.57	3.73	3.90
Upper Bound PCB TEQ	2.83	9.70	2.57	3.73	3.90

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Quality Control Summary Report

Sample Name	Method Blank	Reagent Blank
ALS Sample ID	WG3507253-1	WG3507253-4
Sample Size	1	1
Sample size units	Puf	Puf
Percent Moisture	n/a	n/a
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	29-Mar-21	29-Mar-21
Target Analytes	pg	pg
PCB-001	<2.9	<5.2
PCB-002	<1.0	<1.6
PCB-003	2.59	3.19
PCB-004	<7.6	<9.1
PCB-010	<2.5	<2.8
PCB-009	<2.5	<6.7
PCB-007	<2.4	<2.6
PCB-006	<2.5	<2.8
PCB-005	<2.5	<2.7
PCB-008	<6.7	<9.0
PCB-014	<3.2	<2.6
PCB-011	33.5	40.9
PCB-012/013	<3.2	<2.6
PCB-015	<2.7	<2.2
PCB-019	<4.0	<3.3
PCB-018/030	2.15	<3.3
PCB-017	<1.4	<2.8
PCB-027	<0.98	<0.99
PCB-024	<0.99	<1.0
PCB-016	<1.7	<1.7
PCB-032	<0.95	1.87
PCB-034	<1.6	<1.3
PCB-023	<1.4	<1.2
PCB-026/029	<1.5	<1.2
PCB-025	<1.3	<1.1
PCB-031	5.00	6.46
PCB-020/028	5.48	9.17
PCB-021/033	<3.5	<5.3
PCB-022	<1.8	<2.7
PCB-036	<1.4	<1.1
PCB-039	<1.4	<1.2
PCB-038	<1.6	<1.3
PCB-035	<1.6	<1.3
PCB-037	2.20	2.48
PCB-054	<2.0	<1.5
PCB-050/053	<0.99	<0.75
PCB-045/051	<1.0	0.869
PCB-046	<1.2	<0.90
PCB-052	<2.2	3.36
PCB-073	<0.75	<0.57
PCB-043	<1.3	<1.0
PCB-049/069	<0.93	<1.6
PCB-048	<1.0	0.991
PCB-044/047/065	<2.6	<4.8
PCB-059/062/075	<0.78	<0.59
PCB-042	<1.2	<0.89
PCB-040/041/071	<1.1	<2.2
PCB-064	<0.80	1.87
PCB-072	<0.96	<1.1
PCB-068	<0.86	<0.95
PCB-057	<1.0	<1.1
PCB-058	<0.95	<1.1
PCB-067	<0.83	<0.92
PCB-063	<0.97	<1.1
PCB-061/070/074/076	<3.6	<4.0
PCB-066	<1.6	<3.1
PCB-055	<0.99	<1.1
PCB-056	<1.1	<1.9
PCB-060	<0.99	<1.1
PCB-080	<0.87	<0.96
PCB-079	<0.94	<1.0
PCB-078	<1.1	<1.2
PCB-081	<1.0	<1.1
PCB-077	<0.78	<0.86
PCB-104	<2.1	<1.7
PCB-096	<1.3	<1.1
PCB-103	<2.3	<1.8
PCB-094	<2.6	<2.0
PCB-095	<2.6	<2.0
PCB-093/098/100/102	<2.5	<1.9

ALS Life Sciences

Quality Control Summary Report

Sample Name	Method Blank	Reagent Blank
ALS Sample ID	WG3507253-1	WG3507253-4
Sample Size	1	1
Sample size units	Puf	Puf
Percent Moisture	n/a	n/a
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	29-Mar-21	29-Mar-21
Target Analytes	pg	pg
PCB-088/091	<2.6	<1.9
PCB-084	<2.9	<2.2
PCB-089	<2.9	<2.2
PCB-121	<1.8	<1.4
PCB-092	<2.8	<2.1
PCB-090/101/113	<2.3	<2.7
PCB-083/099	<2.7	<2.1
PCB-112	<1.9	<1.4
PCB-086/087/097/109/119/125	<2.3	<1.8
PCB-085/110/115/116/117	<2.2	4.47
PCB-082	<3.5	<2.6
PCB-111	<1.9	<1.5
PCB-120	<2.0	<1.5
PCB-108/124	<1.6	<1.5
PCB-107	<1.6	<1.5
PCB-123	<1.6	<1.5
PCB-106	<1.7	<1.5
PCB-118	<1.6	<1.5
PCB-122	<1.8	<1.6
PCB-114	<1.6	<1.5
PCB-105	<1.1	<1.0
PCB-127	<1.7	<1.6
PCB-126	<1.3	<1.2
PCB-155	<0.35	<0.37
PCB-152	<0.37	<0.40
PCB-150	<0.34	<0.37
PCB-136	<0.38	<0.41
PCB-145	<0.36	<0.40
PCB-148	<0.52	<0.56
PCB-135/151	<0.54	<0.59
PCB-154	<0.40	<0.44
PCB-144	<0.52	<0.57
PCB-147/149	<0.70	<1.2
PCB-134/143	<0.87	<0.71
PCB-139/140	<0.71	<0.58
PCB-131	<0.91	<0.74
PCB-142	<0.87	<0.72
PCB-132	<0.82	<0.67
PCB-133	<0.85	<0.70
PCB-165	<0.61	<0.50
PCB-146	<0.74	<0.60
PCB-161	<0.60	<0.49
PCB-153/168	1.41	<2.0
PCB-141	<0.79	<0.65
PCB-130	<0.97	<0.80
PCB-137/164	<0.69	<0.57
PCB-129/138/163	<1.4	2.24
PCB-160	<0.56	<0.46
PCB-158	<0.54	<0.44
PCB-128/166	<0.71	<0.58
PCB-159	<0.61	<0.50
PCB-162	<0.65	<0.50
PCB-167	<0.57	<0.50
PCB-156/157	<0.89	<0.73
PCB-169	<0.57	<0.46
PCB-188	<0.47	<0.43
PCB-179	<0.47	<0.43
PCB-184	<0.42	<0.39
PCB-176	<0.48	<0.44
PCB-186	<0.47	<0.43
PCB-178	<0.68	<0.63
PCB-175	<0.67	<0.61
PCB-187	<0.57	<0.52
PCB-182	<0.61	<0.56
PCB-183	<0.61	<0.56
PCB-185	<0.67	<0.62
PCB-174	<0.62	<0.57
PCB-177	<0.70	<0.65
PCB-181	<0.63	<0.58
PCB-171/173	<0.70	<0.65
PCB-172	<0.70	<0.64

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Quality Control Summary Report

Sample Name	Method Blank	Reagent Blank
ALS Sample ID	WG3507253-1	WG3507253-4
Sample Size	1	1
Sample size units	Puf	Puf
Percent Moisture	n/a	n/a
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	29-Mar-21	29-Mar-21
Target Analytes	pg	pg
PCB-192	<0.52	<0.48
PCB-180/193	<0.56	<0.51
PCB-191	<0.52	<0.48
PCB-170	<0.74	<0.68
PCB-190	<0.47	<0.43
PCB-189	<0.48	<0.49
PCB-202	<0.42	<0.43
PCB-201	<0.43	<0.43
PCB-204	<0.43	<0.43
PCB-197	<0.40	<0.39
PCB-200	<0.43	<0.43
PCB-198/199	<0.59	<0.59
PCB-196	<0.60	<0.60
PCB-203	<0.53	<0.52
PCB-195	<0.62	<0.61
PCB-194	<1.9	<2.6
PCB-205	<0.57	<0.54
PCB-208	<0.83	<0.63
PCB-207	<0.99	<0.75
PCB-206	<1.7	<1.3
PCB-209	<0.32	<0.25
Extraction Standards	% Rec	% Rec
13C12-PCB-001	41	37
13C12-PCB-003	65	64
13C12-PCB-004	28	27
13C12-PCB-015	81	78
13C12-PCB-019	21	20
13C12-PCB-037	93	91
13C12-PCB-054	17	17
13C12-PCB-081	74	69
13C12-PCB-077	101	94
13C12-PCB-104	26	26
13C12-PCB-123	72	65
13C12-PCB-118	64	57
13C12-PCB-114	67	61
13C12-PCB-105	102	92
13C12-PCB-126	99	89
13C12-PCB-155	67	64
13C12-PCB-167	86	81
13C12-PCB-156/157	76	73
13C12-PCB-169	106	101
13C12-PCB-188	81	77
13C12-PCB-189	91	87
13C12-PCB-202	86	79
13C12-PCB-205	84	80
13C12-PCB-208	101	97
13C12-PCB-206	87	83
13C12-PCB-209	100	97
Field Spike Standards		
13C12-PCB-031	NS	NS
13C12-PCB-095	NS	NS
13C12-PCB-153	NS	NS
Cleanup Standards		
13C12-PCB-028	48	47
13C12-PCB-111	66	64
13C12-PCB-178	67	65

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Quality Control Summary Report

Sample Name	Method Blank	Reagent Blank
ALS Sample ID	WG3507253-1	WG3507253-4
Sample Size	1	1
Sample size units	Puf	Puf
Percent Moisture	n/a	n/a
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	29-Mar-21	29-Mar-21
Target Analytes	pg	pg
Homologue Group Totals		
Total MonoCB	5.49	9.99
Total DiCB	40.2	65.7
Total TriCB	20.1	34.1
Total TetraCB	10.0	24.7
Total PentaCB	<1.1	7.17
Total HexaCB	3.46	5.44
Total HeptaCB	<0.42	<0.39
Total OctaCB	1.90	2.60
Total NonaCB	<0.83	<0.63
DecaCB	<0.32	<0.25
Total PCB	81.2	150
Toxic Equivalency - (WHO 2005)		
Lower Bound PCB TEQ	0.00	0.00
Mid Point PCB TEQ	0.0739	0.0672
Upper Bound PCB TEQ	0.148	0.134

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Sample Analysis Summary Report

Sample Name	Laboratory Control Sample
ALS Sample ID	WG3507253-2
Sample Size	1
Sample size units	n/a
Percent Moisture	n/a
Sample Matrix	QC
Sampling Date	n/a
Extraction Date	29-Mar-21

Target Analytes	% Rec
PCB-001	105
PCB-003	101
PCB-004	111
PCB-015	107
PCB-019	109
PCB-037	107
PCB-054	111
PCB-081	99
PCB-077	97
PCB-104	100
PCB-123	101
PCB-118	101
PCB-114	96
PCB-105	96
PCB-126	98
PCB-155	105
PCB-167	99
PCB-156/157	99
PCB-169	102
PCB-188	104
PCB-189	105
PCB-202	108
PCB-205	102
PCB-208	96
PCB-206	97
PCB-209	106
Extraction Standards	% Rec
13C12-PCB-001	34
13C12-PCB-003	51
13C12-PCB-004	25
13C12-PCB-015	62
13C12-PCB-019	18
13C12-PCB-037	70
13C12-PCB-054	15
13C12-PCB-081	59
13C12-PCB-077	80
13C12-PCB-104	25
13C12-PCB-123	59
13C12-PCB-118	54
13C12-PCB-114	57
13C12-PCB-105	82
13C12-PCB-126	79
13C12-PCB-155	55
13C12-PCB-167	73
13C12-PCB-156/157	64
13C12-PCB-169	86
13C12-PCB-188	69
13C12-PCB-189	75
13C12-PCB-202	75
13C12-PCB-205	77
13C12-PCB-208	91
13C12-PCB-206	82
13C12-PCB-209	85
Field Spike Standards	
13C12-PCB-031	NS
13C12-PCB-095	NS
13C12-PCB-153	NS
Cleanup Standards	
13C12-PCB-028	46
13C12-PCB-111	65
13C12-PCB-178	73

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Sample Analysis Summary Report

Sample Name	CVS	CCV	CCV	CCV	CCV
ALS Sample ID	H5-20-RS1-1035	H5-21-CCV-301	H5-21-CCV-303	H5-21-CCV-305	H5-21-CCV-308
Sample Size	1	1	1	1	1
Sample size units	n/a	n/a	n/a	n/a	n/a
Percent Moisture	n/a	n/a	n/a	n/a	n/a
Sample Matrix	QC	QC	QC	QC	QC
Sampling Date	n/a	n/a	n/a	n/a	n/a
Extraction Date	n/a	n/a	n/a	n/a	n/a
Target Analytes	% Rec	% Rec	% Rec	% Rec	% Rec
PCB-001	104	96	96	96	98
PCB-003	101	93	92	95	88
PCB-004	107	96	99	99	100
PCB-015	109	99	102	98	100
PCB-019	111	98	104	105	101
PCB-037	107	98	99	99	101
PCB-054	108	98	102	105	102
PCB-081	103	98	98	98	100
PCB-077	103	99	97	98	100
PCB-104	98	101	104	105	104
PCB-123	104	98	99	98	100
PCB-118	103	102	103	103	104
PCB-114	104	95	95	95	96
PCB-105	101	96	97	97	98
PCB-126	101	99	99	97	100
PCB-155	100	102	104	107	105
PCB-167	100	96	99	100	101
PCB-156/157	103	98	99	99	100
PCB-169	106	98	100	101	102
PCB-188	103	103	106	106	106
PCB-189	103	100	101	101	103
PCB-202	105	102	104	104	105
PCB-205	99	104	105	105	104
PCB-208	98	98	99	100	98
PCB-206	95	98	98	101	99
PCB-209	105	92	93	93	94
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec
13C12-PCB-001	97	95	101	106	101
13C12-PCB-003	97	99	107	111	116
13C12-PCB-004	94	95	95	96	93
13C12-PCB-015	98	106	110	114	124
13C12-PCB-019	92	90	79	76	74
13C12-PCB-037	94	104	106	110	117
13C12-PCB-054	92	77	72	68	68
13C12-PCB-081	94	98	101	104	107
13C12-PCB-077	93	99	102	104	108
13C12-PCB-104	92	76	73	69	70
13C12-PCB-123	93	97	102	106	105
13C12-PCB-118	94	92	96	100	99
13C12-PCB-114	92	99	104	105	107
13C12-PCB-105	93	101	104	104	109
13C12-PCB-126	92	107	106	108	120
13C12-PCB-155	91	82	75	72	75
13C12-PCB-167	98	101	99	95	102
13C12-PCB-156/157	97	101	101	96	102
13C12-PCB-169	101	106	107	100	109
13C12-PCB-188	92	84	79	78	80
13C12-PCB-189	104	103	112	107	111
13C12-PCB-202	94	90	80	73	78
13C12-PCB-205	97	95	95	95	95
13C12-PCB-208	94	96	91	91	91
13C12-PCB-206	97	100	97	93	92
13C12-PCB-209	99	90	100	99	93
Field Spike Standards					
13C12-PCB-031	109	107	116	116	111
13C12-PCB-095	106	109	106	103	102
13C12-PCB-153	102	104	108	113	106
Cleanup Standards					
13C12-PCB-028	101	95	101	102	110
13C12-PCB-111	99	101	98	100	101
13C12-PCB-178	99	99	93	90	95

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Sample Analysis Report

Sample Name	SITE 1 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-1	Extraction Date	29-Mar-21	
Analysis Method	EPA 1668C	Sample Size	1	Puf
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved:
S. Jin
--e-signature--
22-Apr-2021

Run Information	Run 1	Run 2
Filename	5-210419A08	5-210420A03
Run Date	19-Apr-21 19:52	20-Apr-21 11:40
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	EMPC pg	LQL
PCB-001							8.97	140000	24		1500
PCB-002							10.37	5880	24		1500
PCB-003							10.49	23100	25		1500
PCB-004							10.63	635000	74		1500
PCB-010							10.75	18100	28		1500
PCB-009							11.90	38900	28		1500
PCB-007							12.01	22500	26		1500
PCB-006							12.16	98800	27		1500
PCB-005							12.37	8620	29	M	1500
PCB-008							12.43	449000	25	M	1500
PCB-014		13.40	69.4	8.1	J	100					
PCB-011		13.91	10400	8.3		100					
PCB-012/013		14.09	12700	8.1		100					
PCB-015							14.31	77400	67		1500
PCB-019							12.62	75500	38		1500
PCB-018/030							13.73	247000	36		1500
PCB-017							13.97	126000	42		1500
PCB-027							14.10	13700	32		1500
PCB-024							14.19	3160	31		1500
PCB-016							14.27	103000	50		1500
PCB-032							14.55	58300	29		1500
PCB-034		15.24	910	17		100					
PCB-023		15.33	393	15		100					
PCB-026/029		15.51	33900	15		100					
PCB-025		15.64	15700	14		100					
PCB-031							15.83	154000	68		1500
PCB-020/028							16.00	161000	68		1500
PCB-021/033							16.14	103000	72		1500
PCB-022							16.38	56300	70		1500
PCB-036		17.20	25.2	15	M,J	100					
PCB-039		17.42	433	15		100					
PCB-038		17.74	66.5	17	J	100					
PCB-035		18.00	1210	17		100					
PCB-037		18.23	16200	14		100					
PCB-054		14.48	874	1.5		100					
PCB-050/053		15.67	15800	2.0		100					
PCB-045/051		16.08	21000	2.1		100					
PCB-046		16.25	7000	2.4		100					
PCB-052							16.99	111000	33		1500
PCB-073		NotFnd	<1.6	1.6	U	100					
PCB-043		17.12	4360	2.8		100					
PCB-049/069		17.25	46200	1.9		100					
PCB-048		17.42	18600	2.1		100					
PCB-044/047/065		17.55	59000	2.0		100					
PCB-059/062/075		17.73	5060	1.6		100					
PCB-042		17.85	18900	2.4		100					
PCB-040/041/071		18.11	33200	2.2		100					
PCB-064		18.23	23000	1.7		100					
PCB-072		18.63	169	3.4		100					
PCB-068		18.79	112	3.0	M	100					
PCB-057		19.03	165	3.6		100					
PCB-058		19.16	47.1	3.4	M,J	100					
PCB-067		19.25	843	2.9		100					
PCB-063		19.39	1000	3.4		100					
PCB-061/070/074/076		19.58	39000	3.4		100					
PCB-066		19.76	16700	3.4		100					
PCB-055		19.87	509	3.5		100					
PCB-056		20.14	7350	3.7		100					
PCB-060		20.26	4360	3.5	M	100					
PCB-080		NotFnd	<3.1	3.1	U	100					
PCB-079		21.24	157	3.3	M	100					
PCB-078		21.59	11.1	3.8	M,J	100					
PCB-081	0.0003	21.80	33.7	3.6	J	100					
PCB-077	0.0001	22.10	582	3.0		100					
PCB-104		17.52	7.38	1.2	M,J	100					
PCB-096		17.76	344	0.96		100					
PCB-103		18.73	261	7.7		100					
PCB-094		18.88	172	8.7		100					
PCB-095		19.13	23200	8.6		100					
PCB-093/098/100/102		19.30	1230	8.2		100					

ALS Life Sciences

Sample Analysis Report

Sample Name	SITE 1 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-1	Extraction Date	29-Mar-21	Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1 Puf	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A08	5-210420A03
Run Date	19-Apr-21 19:52	20-Apr-21 11:40
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	EMPC pg	LQL
PCB-088/091		19.59	4240	8.4		100					
PCB-084		19.74	7420	9.5		100					
PCB-089		19.98	301	9.5		100					
PCB-121		20.10	<6.1	6.1	M,U	100					
PCB-092		20.33	4680	9.1		100					
PCB-090/101/113		20.64	24800	7.5		100					
PCB-083/099		20.95	12600	9.0		100					
PCB-112		NotFnd	<6.2	6.2	U	100					
PCB-086/087/097/109/119/125		21.30	12800	7.7	M	100					
PCB-085/110/115/116/117		21.72	22300	7.1	M	100					
PCB-082		21.92	2400	1.1	M	100					
PCB-111		NotFnd	<6.4	6.4	U	100					
PCB-120		22.25	10.1	6.4	M,J	100					
PCB-108/124		22.90	417	3.9		100					
PCB-107		23.02	649	3.9	M	100					
PCB-123	0.00003	23.07	166	4.4	M	100					
PCB-106		NotFnd	<4.1	4.1	U	100					
PCB-118	0.00003	23.26	9960	4.2		100					
PCB-122		23.45	118	4.4		100					
PCB-114	0.00003	23.55	239	4.1		100					
PCB-105	0.00003	23.91	3120	3.4		100					
PCB-127		24.65	13.3	4.2	J	100					
PCB-126	0.1	25.50	<22	3.7	M,J,R	22					
PCB-155		20.49	6.20	0.50	J	100					
PCB-152		20.67	13.4	0.54	J	100					
PCB-150		20.73	15.0	0.49	J	100					
PCB-136		20.97	997	0.55	M	100					
PCB-145		21.10	<5.8	0.53	M,J,R	5.8					
PCB-148		21.82	<6.6	0.75	M,J,R	6.6					
PCB-135/151		22.17	2100	0.78	M	100					
PCB-154		22.25	63.6	0.58	M,J	100					
PCB-144		22.46	370	0.75		100					
PCB-147/149		22.66	4980	2.9		100					
PCB-134/143		22.79	408	3.6		100					
PCB-139/140		22.96	158	2.9		100					
PCB-131		23.10	121	3.7		100					
PCB-142		NotFnd	<3.6	3.6	U	100					
PCB-132							23.36	2660	20		1500
PCB-133		23.53	89.9	3.5	J	100					
PCB-165		23.71	5.18	2.5	J	100					
PCB-146		23.87	791	3.0		100					
PCB-161		NotFnd	<2.4	2.4	U	100					
PCB-153/168		24.18	4750	2.6		100					
PCB-141		24.31	976	3.2		100					
PCB-130		24.53	364	4.0		100					
PCB-137/164		24.70	627	2.8	M	100					
PCB-129/138/163		24.87	5600	3.4		100					
PCB-160		NotFnd	<2.3	2.3	U	100					
PCB-158							25.07	467	13	J	1500
PCB-128/166		25.56	847	2.9		100					
PCB-159		25.99	13.3	2.5	M,J	100					
PCB-162		26.14	11.8	2.5	J	100					
PCB-167	0.00003	26.38	140	2.4		100					
PCB-156/157	0.00003	27.01	430	3.5		200					
PCB-169	0.03	28.66	<4.5	2.4	M,J,R	4.5					
PCB-188		23.49	3.19	0.83	M,J	100					
PCB-179		23.71	204	0.83		100					
PCB-184		23.94	3.75	0.75	J	100					
PCB-176		24.17	66.4	0.84	J	100					
PCB-186		NotFnd	<0.83	0.83	U	100					
PCB-178		25.06	98.3	1.2	J	100					
PCB-175		25.39	24.5	1.2	J	100					
PCB-187		25.52	495	1.0	M	100					
PCB-182		25.61	<5.3	1.1	M,J,R	5.3					
PCB-183		25.84	262	1.1		100					
PCB-185		25.93	<27	1.2	J,R	27					
PCB-174		26.00	256	1.1		100					
PCB-177		26.23	155	1.2		100					
PCB-181		26.43	5.70	1.1	J	100					
PCB-171/173		26.56	92.4	1.2	J	100					
PCB-172		27.35	49.7	1.2	J	100					

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Sample Analysis Report

Sample Name	SITE 1 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-1	Extraction Date	29-Mar-21	
Analysis Method	EPA 1668C	Sample Size	1	Puf
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved: <i>S. Jin</i> --e-signature-- 22-Apr-2021
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Run Information	Run 1	Run 2
Filename	5-210419A08	5-210420A03
Run Date	19-Apr-21 19:52	20-Apr-21 11:40
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-192		27.48	<4.3	0.93	J,R	4.3	100						
PCB-180/193		27.67	525	0.99			100						
PCB-191		27.87	18.9	0.92	M,J		100						
PCB-170		28.36	216	1.3			100						
PCB-190		28.64	38.1	0.83	J		100						
PCB-189	0.00003	29.95	8.35	1.0	J		100						
PCB-202		26.26	74.3	0.59	J		100						
PCB-201		26.73	37.5	0.59	J		100						
PCB-204		NotFnd	<0.58	0.58	U		100						
PCB-197		27.19	6.95	0.54	J		100						
PCB-200		27.29	15.9	0.58	J		100						
PCB-198/199		28.69	122	0.80			100						
PCB-196		29.01	<47	0.82	J,R	47	100						
PCB-203		29.12	78.5	0.71	J		100						
PCB-195		29.85	24.1	1.1	J		100						
PCB-194		31.05	71.0	1.0	J		100						
PCB-205		31.33	6.28	0.97	J		100						
PCB-208		29.68	20.5	1.1	J		100						
PCB-207		30.16	10.2	1.2	J		100						
PCB-206		32.39	49.1	2.0	M,J		100						
PCB-209		33.50	11.5	0.40	J		100						

Extraction Standards	pg	Time	% Rec	Limits	Time	% Rec	Limits
13C12-PCB-001	4000				8.95	42	5-145
13C12-PCB-003	4000				10.48	53	5-145
13C12-PCB-004	4000				10.63	34	5-145
13C12-PCB-015	4000	14.28	70	5-145			
13C12-PCB-019	4000				12.61	30	5-145 M
13C12-PCB-037	4000	18.22	67	5-145			
13C12-PCB-054	4000	14.46	17	5-145			
13C12-PCB-081	4000	21.79	54	10-145			
13C12-PCB-077	4000	22.09	65	10-145			
13C12-PCB-104	4000	17.50	28	10-145			
13C12-PCB-123	4000	23.07	53	10-145			
13C12-PCB-118	4000	23.24	49	10-145			
13C12-PCB-114	4000	23.55	52	10-145			
13C12-PCB-105	4000	23.90	64	10-145			
13C12-PCB-126	4000	25.49	66	10-145			
13C12-PCB-155	4000	20.49	46	10-145			
13C12-PCB-167	4000	26.37	57	10-145			
13C12-PCB-156/157	8000	27.01	52	10-145			
13C12-PCB-169	4000	28.66	67	10-145			
13C12-PCB-188	4000	23.48	52	10-145			
13C12-PCB-189	4000	29.93	59	10-145			
13C12-PCB-202	4000	26.25	52	10-145			
13C12-PCB-205	4000	31.31	54	10-145			
13C12-PCB-208	4000	29.67	59	10-145			
13C12-PCB-206	4000	32.37	55	10-145			
13C12-PCB-209	4000	33.48	60	10-145			

Field Spike Standards	pg	Time	% Rec	Limits
13C12-PCB-031	18000	15.81	110	70-130
13C12-PCB-095	18000	19.11	68	70-130
13C12-PCB-153	18000	24.17	110	70-130

Cleanup Standards	pg	Time	% Rec	Limits
13C12-PCB-028	4000	15.98	46	5-145
13C12-PCB-111	4000	22.01	53	10-145
13C12-PCB-178	4000	25.05	55	10-145

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Sample Analysis Report

Sample Name	SITE 1 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-1	Extraction Date	29-Mar-21	Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1 Puf	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A08	5-210420A03
Run Date	19-Apr-21 19:52	20-Apr-21 11:40
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
Homologue Group Totals													
Total MonoCB			169000	24	J	400							
Total DiCB			1370000	8.1	J	800							
Total TriCB			1170000	14	J	800							
Total TetraCB			435000	1.5	J	1600							
Total PentaCB			131000	0.96	J	1600							
Total HexaCB			27000	0.49	J	1600							
Total HeptaCB			2560	0.75	J	800							
Total OctaCB			484	0.54	J	800							
Total NonaCB			79.8	1.1	J	400							
DecaCB			11.5	0.40	J	400							
Total PCB			3310000		J	3200							
Toxic Equivalency - (WHO 2005)													
Lower Bound PCB TEQ			0.490										
Mid Point PCB TEQ			2.83										
Upper Bound PCB TEQ			2.83										

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 2 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-2	Extraction Date	29-Mar-21	Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1 Puf	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A09	5-210420A04
Run Date	19-Apr-21 20:34	20-Apr-21 12:22
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	Run 1						Run 2					
	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	EMPC pg	LQL	
PCB-001							8.95	581000	22		1500	
PCB-002							10.35	20300	21		1500	
PCB-003							10.48	87600	21		1500	
PCB-004							10.63	2250000	44		1500	
PCB-010							10.75	70800	18		1500	
PCB-009							11.90	167000	18		1500	
PCB-007							11.99	87700	17		1500	
PCB-006							12.15	402000	18		1500	
PCB-005							12.36	26400	19	M	1500	
PCB-008							12.43	1680000	16	M	1500	
PCB-014		13.40	201	9.9		100						
PCB-011		13.92	13700	10		100						
PCB-012/013		14.09	52900	9.8		100						
PCB-015							14.30	269000	49		1500	
PCB-019							12.62	309000	19		1500	
PCB-018/030							13.73	1130000	25		1500	
PCB-017							13.97	530000	30		1500	
PCB-027							14.10	61000	22		1500	
PCB-024							14.19	15400	22		1500	
PCB-016							14.26	426000	35		1500	
PCB-032							14.55	242000	21		1500	
PCB-034		15.24	3450	11		100						
PCB-023		15.34	1540	9.7		100						
PCB-026/029		15.51	137000	10		100						
PCB-025		15.64	56700	9.1		100						
PCB-031							15.82	616000	70		1500	
PCB-020/028							15.99	616000	70		1500	
PCB-021/033							16.13	396000	74		1500	
PCB-022							16.37	200000	73		1500	
PCB-036		17.20	36.6	9.4	M,J	100						
PCB-039		17.42	1860	9.5		100						
PCB-038		17.74	273	11		100						
PCB-035		17.99	4350	11		100						
PCB-037		18.23	52100	9.1		100						
PCB-054		14.48	3120	1.1		100						
PCB-050/053		15.67	69000	1.5		100						
PCB-045/051		16.08	80900	1.6		100						
PCB-046		16.26	25100	1.8		100						
PCB-052							16.98	806000	15		1500	
PCB-073		NotFnd	<1.2	1.2	U	100						
PCB-043		17.12	16900	2.1		100						
PCB-049/069							17.25	249000	13		1500	
PCB-048		17.42	73100	1.5		100						
PCB-044/047/065							17.55	327000	14		1500	
PCB-059/062/075		17.73	20600	1.2		100						
PCB-042		17.85	68200	1.8		100						
PCB-040/041/071		18.11	126000	1.6		100						
PCB-064		18.23	105000	1.2		100						
PCB-072		18.63	902	4.9		100						
PCB-068		18.79	399	4.4		100						
PCB-057		19.03	725	5.2		100						
PCB-058		19.16	503	4.9	M	100						
PCB-067		19.25	3740	4.3		100						
PCB-063		19.39	4560	4.9		100						
PCB-061/070/074/076							19.58	259000	41		1500	
PCB-066		19.75	75100	5.0		100						
PCB-055		19.87	1530	5.1		100						
PCB-056		20.13	27700	5.4		100						
PCB-060		20.26	14400	5.0	M	100						
PCB-080		NotFnd	<4.4	4.4	U	100						
PCB-079		21.24	1630	4.8		100						
PCB-078		21.59	68.6	5.6	M,J	100						
PCB-081	0.0003	21.78	105	5.0	M	100						
PCB-077	0.0001	22.10	2080	4.7		100						
PCB-104		17.52	<46	0.64	M,J,R	46						
PCB-096		17.76	2620	0.53		100						
PCB-103		18.73	2370	1.8		100						
PCB-094		18.88	1440	2.0		100						
PCB-095							19.13	305000	62		1500	
PCB-093/098/100/102		19.30	10200	1.9		100						

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Sample Analysis Report

Sample Name	SITE 2 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-2	Extraction Date	29-Mar-21	Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A09	5-210420A04
Run Date	19-Apr-21 20:34	20-Apr-21 12:22
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-088/091		19.59	41600	1.9			100						
PCB-084		19.74	76700	2.2			100						
PCB-089		19.99	2150	2.2			100						
PCB-121		NotFnd	<1.4	1.4	U		100						
PCB-092		20.33	50300	2.1			100						
PCB-090/101/113								20.63	287000	57			1500
PCB-083/099		20.95	120000	2.1			100						
PCB-112		NotFnd	<1.4	1.4	U		100						
PCB-086/087/097/109/119/125		21.30	132000	1.8	M		100						
PCB-085/110/115/116/117								21.72	240000	53	M		1500
PCB-082		21.92	20400	2.6	M		100						
PCB-111		NotFnd	<1.5	1.5	U		100						
PCB-120		22.25	70.8	1.5	M,J		100						
PCB-108/124		22.89	4060	3.2			100						
PCB-107		23.02	5920	3.1	M		100						
PCB-123	0.00003	23.07	1420	3.6	M		100						
PCB-106		NotFnd	<3.3	3.3	U		100						
PCB-118	0.00003	23.25	93200	3.3			100						
PCB-122		23.45	926	3.6			100						
PCB-114	0.00003	23.55	2120	3.5			100						
PCB-105	0.00003	23.90	28400	3.1			100						
PCB-127		24.64	121	3.4	M		100						
PCB-126	0.1	25.51	<51	3.7	M,J,R	51	100						
PCB-155		20.49	8.04	0.79	J		100						
PCB-152		20.67	182	0.92			100						
PCB-150		20.74	195	0.85			100						
PCB-136		20.97	14400	0.94			100						
PCB-145		21.11	83.4	0.90	J		100						
PCB-148		21.83	77.4	1.3	J		100						
PCB-135/151		22.17	24200	1.3	M		100						
PCB-154		22.25	666	1.0	M		100						
PCB-144		22.46	4450	1.3			100						
PCB-147/149		22.66	59100	2.4			100						
PCB-134/143		22.79	5380	3.0			100						
PCB-139/140		22.96	2120	2.4			100						
PCB-131		23.10	1580	3.1			100						
PCB-142		23.19	<11	3.0	J,R	11	100						
PCB-132								23.35	29100	16			1500
PCB-133		23.53	871	2.9			100						
PCB-165		23.72	28.3	2.1	J		100						
PCB-146		23.87	7580	2.5			100						
PCB-161		NotFnd	<2.0	2.0	U		100						
PCB-153/168		24.18	43700	2.2			100						
PCB-141		24.31	8810	2.7			100						
PCB-130		24.53	3700	3.3			100						
PCB-137/164		24.64	6390	2.4	M		100						
PCB-129/138/163		24.87	56700	2.9			100						
PCB-160		NotFnd	<1.9	1.9	U		100						
PCB-158								25.06	5320	11			1500
PCB-128/166		25.56	8170	2.4			100						
PCB-159		26.00	75.5	2.1	M,J		100						
PCB-162		26.14	101	2.1			100						
PCB-167	0.00003	26.38	1470	2.1			100						
PCB-156/157	0.00003	27.01	4630	3.0			200						
PCB-169	0.03	28.65	<14	2.1	M,J,R	14	100						
PCB-188		23.49	10.3	0.98	J		100						
PCB-179		23.71	1460	0.99			100						
PCB-184		23.94	9.92	0.89	J		100						
PCB-176		24.17	549	1.0			100						
PCB-186		24.42	<2.0	0.99	J,R	2.0	100						
PCB-178		25.06	487	1.4			100						
PCB-175		25.39	141	1.4			100						
PCB-187		25.52	2310	1.2			100						
PCB-182		25.62	25.5	1.3	J		100						
PCB-183		25.84	1600	1.3			100						
PCB-185		25.94	159	1.4	M		100						
PCB-174		26.00	1780	1.3	M		100						
PCB-177		26.23	1140	1.5			100						
PCB-181		26.43	61.7	1.3	J		100						
PCB-171/173		26.56	809	1.5			100						
PCB-172		27.35	294	1.5			100						

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Sample Analysis Report

Sample Name	SITE 2 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-2	Extraction Date	29-Mar-21	Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1 Puf	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A09	5-210420A04
Run Date	19-Apr-21 20:34	20-Apr-21 12:22
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	EMPC pg	LQL
PCB-192		NotFnd	<1.1	1.1	U	100					
PCB-180/193		27.67	3290	1.2		100					
PCB-191		27.87	75.7	1.1	J	100					
PCB-170		28.36	1850	1.5		100					
PCB-190		28.64	264	0.98		100					
PCB-189	0.00003	29.95	76.5	0.71	J	100					
PCB-202		26.26	175	0.51		100					
PCB-201		26.73	90.7	0.49	J	100					
PCB-204		NotFnd	<0.49	0.49	U	100					
PCB-197		27.19	19.2	0.45	J	100					
PCB-200		27.29	52.0	0.49	J	100					
PCB-198/199		28.68	390	0.67		100					
PCB-196		29.01	171	0.69		100					
PCB-203		29.11	248	0.60		100					
PCB-195		29.85	98.6	0.78	J	100					
PCB-194		31.05	277	0.75		100					
PCB-205		31.33	13.5	0.68	M,J	100					
PCB-208		29.68	51.1	0.62	J	100					
PCB-207		30.16	25.9	0.71	J	100					
PCB-206		32.39	167	1.1		100					
PCB-209		33.51	29.6	0.31	J	100					

Extraction Standards	pg	Time	% Rec	Limits	Time	% Rec	Limits
13C12-PCB-001	4000				8.94	65	5-145
13C12-PCB-003	4000				10.47	78	5-145
13C12-PCB-004	4000				10.62	61	5-145
13C12-PCB-015	4000	14.29	107	5-145			
13C12-PCB-019	4000				12.61	48	5-145
13C12-PCB-037	4000	18.21	123	5-145			
13C12-PCB-054	4000	14.47	36	5-145			
13C12-PCB-081	4000	21.79	94	10-145			
13C12-PCB-077	4000	22.09	103	10-145			
13C12-PCB-104	4000	17.50	53	10-145			
13C12-PCB-123	4000	23.07	91	10-145			
13C12-PCB-118	4000	23.24	87	10-145			
13C12-PCB-114	4000	23.54	88	10-145			
13C12-PCB-105	4000	23.89	99	10-145			
13C12-PCB-126	4000	25.49	96	10-145			
13C12-PCB-155	4000	20.49	75	10-145			
13C12-PCB-167	4000	26.37	94	10-145			
13C12-PCB-156/157	8000	27.01	89	10-145			
13C12-PCB-169	4000	28.66	107	10-145			
13C12-PCB-188	4000	23.48	86	10-145			
13C12-PCB-189	4000	29.93	99	10-145			
13C12-PCB-202	4000	26.25	79	10-145			
13C12-PCB-205	4000	31.31	91	10-145			
13C12-PCB-208	4000	29.67	96	10-145			
13C12-PCB-206	4000	32.37	92	10-145			
13C12-PCB-209	4000	33.48	100	10-145			

Field Spike Standards	pg	Time	% Rec	Limits
13C12-PCB-031	18000	15.81	101	70-130
13C12-PCB-095	18000	19.11	81	70-130
13C12-PCB-153	18000	24.17	110	70-130

Cleanup Standards	pg	Time	% Rec	Limits
13C12-PCB-028	4000	15.98	82	5-145
13C12-PCB-111	4000	22.01	88	10-145
13C12-PCB-178	4000	25.05	86	10-145

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Sample Analysis Report

Sample Name	SITE 2 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-2	Extraction Date	29-Mar-21	Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1 Puf	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A09	5-210420A04
Run Date	19-Apr-21 20:34	20-Apr-21 12:22
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
Homologue Group Totals													
Total MonoCB			689000	21	J	400							
Total DiCB			5020000	9.8	J	800							
Total TriCB			4800000	9.1	J	800							
Total TetraCB			2360000	1.1	J	1600							
Total PentaCB			1430000	0.53	J	1600							
Total HexaCB			289000	0.79	J	1600							
Total HeptaCB			16400	0.71	J	800							
Total OctaCB			1540	0.45	J	800							
Total NonaCB			244	0.62	J	400							
DecaCB			29.6	0.31	J	400							
Total PCB			14600000		J	3200							
Toxic Equivalency - (WHO 2005)													
Lower Bound PCB TEQ			4.18										
Mid Point PCB TEQ			9.70										
Upper Bound PCB TEQ			9.70										

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

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Sample Analysis Report

Sample Name	SITE 3 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-3	Extraction Date	29-Mar-21	Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A10	5-210420A05
Run Date	19-Apr-21 21:16	20-Apr-21 13:04
Final Volume	25 uL	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256608-05	HRMS-5 SPB0ctyl 256608-05

Target Analytes	TEF (WHO 2005)					EMPC				
	Ret. Time	Conc. pg	EDL pg	Flags	LQL	Ret. Time	Conc. pg	EDL pg	Flags	LQL
PCB-001						8.97	137000	20		1500
PCB-002						10.37	5200	21		1500
PCB-003						10.49	20600	23		1500
PCB-004						10.63	667000	63		1500
PCB-010						10.75	20900	24		1500
PCB-009						11.90	40800	24		1500
PCB-007						12.01	23700	23		1500
PCB-006						12.16	103000	24		1500
PCB-005						12.37	8580	25	M	1500
PCB-008						12.43	450000	22	M	1500
PCB-014	13.40	56.6	9.5	J	100					
PCB-011	13.91	8040	9.7		100					
PCB-012/013	14.09	12100	9.4		100					
PCB-015						14.31	76800	57		1500
PCB-019						12.62	86900	36		1500
PCB-018/030						13.73	274000	19		1500
PCB-017						13.97	141000	22		1500
PCB-027						14.10	15700	17		1500
PCB-024						14.19	3790	17		1500
PCB-016						14.27	111000	26		1500
PCB-032						14.55	64100	16		1500
PCB-034	15.24	978	7.6		100					
PCB-023	15.33	426	6.8		100					
PCB-026/029	15.51	36000	7.0		100					
PCB-025	15.64	16700	6.4		100					
PCB-031						15.83	162000	75		1500
PCB-020/028						16.00	170000	75		1500
PCB-021/033						16.14	105000	79		1500
PCB-022						16.38	56500	78		1500
PCB-036	17.20	17.8	6.6	M,J	100					
PCB-039	17.42	438	6.7		100					
PCB-038	17.74	64.3	7.7	J	100					
PCB-035	18.00	1110	7.6		100					
PCB-037	18.23	14600	6.7		100					
PCB-054	14.48	935	2.5		100					
PCB-050/053	15.67	17300	2.1		100					
PCB-045/051	16.08	22400	2.2		100					
PCB-046	16.26	7200	2.6		100					
PCB-052						16.99	123000	22		1500
PCB-073	NotFnd	<1.6	1.6	U	100					
PCB-043	17.12	4480	2.9		100					
PCB-049/069	17.25	49000	2.0		100					
PCB-048	17.42	19300	2.2		100					
PCB-044/047/065	17.55	62100	2.1		100					
PCB-059/062/075	17.73	5040	1.7		100					
PCB-042	17.85	18500	2.5		100					
PCB-040/041/071	18.11	32500	2.3		100					
PCB-064	18.24	23100	1.7		100					
PCB-072	18.63	180	5.2		100					
PCB-068	18.79	<110	4.6	R	110					
PCB-057	19.03	167	5.5		100					
PCB-058	19.16	64.7	5.1	M,J	100					
PCB-067	19.26	862	4.5		100					
PCB-063	19.40	1020	5.2		100					
PCB-061/070/074/076	19.58	42200	5.2		100					
PCB-066	19.76	16900	5.2		100					
PCB-055	19.87	440	5.4		100					
PCB-056	20.14	7100	5.7		100					
PCB-060	20.26	4200	5.3		100					
PCB-080	NotFnd	<4.7	4.7	U	100					
PCB-079	21.24	199	5.1		100					
PCB-078	21.59	12.1	5.9	M,J	100					
PCB-081	0.0003	21.80	32.5	5.6	J					100
PCB-077	0.0001	22.10	546	4.6						100
PCB-104		17.51	<9.8	1.8	J,R	9.8				100
PCB-096		17.76	388	1.4						100
PCB-103		18.73	309	3.5						100
PCB-094		18.88	195	4.0						100
PCB-095		19.13	28900	4.0						100
PCB-093/098/100/102		19.30	1420	3.8						100

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Sample Analysis Report

Sample Name	SITE 3 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-3	Extraction Date	29-Mar-21	Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1 Puf	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A10	5-210420A05
Run Date	19-Apr-21 21:16	20-Apr-21 13:04
Final Volume	25 uL	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256608-05	HRMS-5 SPB0ctyl 256608-05

Target Analytes	Run 1						Run 2					
	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	
PCB-088/091		19.59	5120	3.9		100						
PCB-084		19.74	8960	4.4		100						
PCB-089		19.99	327	4.4		100						
PCB-121		NotFnd	<2.8	2.8	U	100						
PCB-092		20.34	5710	4.2		100						
PCB-090/101/113		20.64	30300	3.5		100						
PCB-083/099		20.95	14400	4.1		100						
PCB-112		NotFnd	<2.9	2.9	U	100						
PCB-086/087/097/109/119/125		21.30	15700	3.5	M	100						
PCB-085/110/115/116/117		21.72	27700	3.3	M	100						
PCB-082		21.92	2930	5.2	M	100						
PCB-111		NotFnd	<2.9	2.9	U	100						
PCB-120		22.25	13.5	2.9	M,J	100						
PCB-108/124		22.90	540	3.0		100						
PCB-107		23.02	825	3.0	M	100						
PCB-123	0.00003	23.07	211	3.3	M	100						
PCB-106		NotFnd	<3.1	3.1	U	100						
PCB-118	0.00003	23.26	13300	3.2		100						
PCB-122		23.45	132	3.4		100						
PCB-114	0.00003	23.56	300	3.2		100						
PCB-105	0.00003	23.91	4260	2.6		100						
PCB-127		24.65	19.3	3.2	M,J	100						
PCB-126	0.1	25.50	<18	2.9	M,J,R	18						
PCB-155		20.49	8.42	0.67	M,J	100						
PCB-152		20.68	15.1	0.67	J	100						
PCB-150		20.74	19.1	0.62	J	100						
PCB-136		20.97	1280	0.68	M	100						
PCB-145		21.11	<8.0	0.66	M,J,R	8.0						
PCB-148		21.83	9.93	0.94	J	100						
PCB-135/151		22.17	2600	0.97	M	100						
PCB-154		22.25	85.4	0.73	M,J	100						
PCB-144		22.46	464	0.94		100						
PCB-147/149		22.66	6460	2.0		100						
PCB-134/143		22.79	553	2.4		100						
PCB-139/140		22.96	217	2.0		100						
PCB-131		23.10	160	2.5		100						
PCB-142		NotFnd	<2.4	2.4	U	100						
PCB-132							23.36	3550	21		1500	
PCB-133		23.53	114	2.4		100						
PCB-165		23.72	6.39	1.7	J	100						
PCB-146		23.87	1070	2.0		100						
PCB-161		24.00	<1.7	1.7	U	1.4						
PCB-153/168		24.18	6450	1.8		100						
PCB-141		24.31	1200	2.2		100						
PCB-130		24.54	503	2.7		100						
PCB-137/164		24.70	892	1.9	M	100						
PCB-129/138/163		24.87	8370	2.3		100						
PCB-160		NotFnd	<1.6	1.6	U	100						
PCB-158							25.06	741	14	J	1500	
PCB-128/166		25.56	1350	2.0		100						
PCB-159		26.00	18.9	1.7	M,J	100						
PCB-162		26.14	17.9	1.7	J	100						
PCB-167	0.00003	26.39	239	1.6		100						
PCB-156/157	0.00003	27.01	801	2.4		200						
PCB-169	0.03	28.68	<4.5	1.6	J,R	4.5						
PCB-188		23.50	<3.3	0.97	J,R	3.3						
PCB-179		23.72	258	0.92		100						
PCB-184		23.94	4.62	0.83	J	100						
PCB-176		24.17	87.8	0.93	J	100						
PCB-186		NotFnd	<0.91	0.91	U	100						
PCB-178		25.06	130	1.3		100						
PCB-175		25.39	33.6	1.3	J	100						
PCB-187		25.53	709	1.1	M	100						
PCB-182		25.61	6.14	1.2	M,J	100						
PCB-183		25.84	393	1.2		100						
PCB-185		25.93	44.5	1.3	M,J	100						
PCB-174		26.00	421	1.2	M	100						
PCB-177		26.23	261	1.4		100						
PCB-181		26.43	<8.2	1.2	J,R	8.2						
PCB-171/173		26.56	163	1.4		100						
PCB-172		27.35	80.7	1.4	J	100						

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Sample Analysis Report

Sample Name	SITE 3 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-3	Extraction Date	29-Mar-21	Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1 Puf	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A10	5-210420A05
Run Date	19-Apr-21 21:16	20-Apr-21 13:04
Final Volume	25 uL	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256608-05	HRMS-5 SPB0ctyl 256608-05

Target Analytes	TEF (WHO 2005)						EMPC					
	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-192	NotFnd	<1.0	1.0		U	100						
PCB-180/193	27.68	1020	1.1			100						
PCB-191	27.87	20.9	1.0		J	100						
PCB-170	28.37	473	1.4			100						
PCB-190	28.64	76.4	0.91		J	100						
PCB-189	0.00003	29.95	<19	0.78	M,J,R	19						
PCB-202	26.27	104	0.52			100						
PCB-201	26.73	49.9	0.49		J	100						
PCB-204	NotFnd	<0.49	0.49		U	100						
PCB-197	27.19	<9.8	0.45		M,J,R	9.8						
PCB-200	27.30	23.4	0.49		M,J	100						
PCB-198/199	28.69	211	0.67			100						
PCB-196	29.01	90.8	0.69		J	100						
PCB-203	29.12	138	0.60			100						
PCB-195	29.85	54.7	0.67		J	100						
PCB-194	31.05	152	0.65			100						
PCB-205	31.31	9.54	0.57		M,J	100						
PCB-208	29.68	28.9	0.91		J	100						
PCB-207	30.16	14.9	1.0		J	100						
PCB-206	32.39	81.4	1.7		J	100						
PCB-209	33.50	16.6	0.40		J	100						

Extraction Standards	pg	Time	% Rec	Limits	Time	% Rec	Limits
13C12-PCB-001	4000				8.95	52	5-145
13C12-PCB-003	4000				10.48	61	5-145
13C12-PCB-004	4000				10.63	43	5-145
13C12-PCB-015	4000	14.28	80	5-145			
13C12-PCB-019	4000				12.61	34	5-145 M
13C12-PCB-037	4000	18.22	76	5-145			
13C12-PCB-054	4000	14.46	20	5-145			
13C12-PCB-081	4000	21.79	60	10-145			
13C12-PCB-077	4000	22.09	72	10-145			
13C12-PCB-104	4000	17.50	31	10-145			
13C12-PCB-123	4000	23.08	60	10-145			
13C12-PCB-118	4000	23.25	55	10-145			
13C12-PCB-114	4000	23.55	59	10-145			
13C12-PCB-105	4000	23.90	72	10-145			
13C12-PCB-126	4000	25.49	74	10-145			
13C12-PCB-155	4000	20.49	48	10-145			
13C12-PCB-167	4000	26.38	64	10-145			
13C12-PCB-156/157	8000	27.01	60	10-145			
13C12-PCB-169	4000	28.66	77	10-145			
13C12-PCB-188	4000	23.48	54	10-145			
13C12-PCB-189	4000	29.93	70	10-145			
13C12-PCB-202	4000	26.26	56	10-145			
13C12-PCB-205	4000	31.31	60	10-145			
13C12-PCB-208	4000	29.67	63	10-145			
13C12-PCB-206	4000	32.37	60	10-145			
13C12-PCB-209	4000	33.48	62	10-145			

Field Spike Standards	pg	Time	% Rec	Limits
13C12-PCB-031	18000	15.81	107	70-130
13C12-PCB-095	18000	19.11	68	70-130
13C12-PCB-153	18000	24.17	103	70-130

Cleanup Standards	pg	Time	% Rec	Limits
13C12-PCB-028	4000	15.98	49	5-145
13C12-PCB-111	4000	22.01	53	10-145
13C12-PCB-178	4000	25.05	51	10-145

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Sample Analysis Report

Sample Name	SITE 3 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-3	Extraction Date	29-Mar-21	Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1 Puf	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A10	5-210420A05
Run Date	19-Apr-21 21:16	20-Apr-21 13:04
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
Homologue Group Totals													
Total MonoCB			163000	20	J							400	
Total DiCB			1410000	9.4	J							800	
Total TriCB			1260000	6.4	J							800	
Total TetraCB			459000	1.6	J							1600	
Total PentaCB			162000	1.4	J							1600	
Total HexaCB			37200	0.62	J							1600	
Total HeptaCB			4210	0.78	J							800	
Total OctaCB			843	0.45	J							800	
Total NonaCB			125	0.91	J							400	
DecaCB			16.6	0.40	J							400	
Total PCB			3500000		J							3200	
Toxic Equivalency - (WHO 2005)													
Lower Bound PCB TEQ			0.638										
Mid Point PCB TEQ			2.57										
Upper Bound PCB TEQ			2.57										

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 4 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-4	Extraction Date	29-Mar-21	Approved: <i>S. Jin</i> --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1 Puf	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A11	5-210420A06
Run Date	19-Apr-21 21:58	20-Apr-21 13:46
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	EMPC pg	LQL
PCB-001							8.97	245000	23		1500
PCB-002							10.37	8410	24		1500
PCB-003							10.49	38700	25		1500
PCB-004							10.63	1570000	61		1500
PCB-010							10.75	50700	25		1500
PCB-009							11.90	95600	25		1500
PCB-007							12.01	53100	23		1500
PCB-006							12.16	233000	24		1500
PCB-005							12.36	12200	26	M	1500
PCB-008							12.43	999000	22	M	1500
PCB-014		13.40	88.7	14	J	100					
PCB-011		13.91	11200	14		100					
PCB-012/013							14.10	27500	72		1500
PCB-015							14.31	181000	68		1500
PCB-019							12.62	223000	31		1500
PCB-018/030							13.73	833000	41		1500
PCB-017							13.97	397000	48		1500
PCB-027							14.10	45800	36		1500
PCB-024							14.19	10600	35		1500
PCB-016							14.26	321000	56		1500
PCB-032							14.55	185000	33		1500
PCB-034		15.24	2510	4.4		100					
PCB-023		15.33	1030	3.9		100					
PCB-026/029		15.51	95500	4.1		100					
PCB-025		15.64	40000	3.7		100					
PCB-031							15.82	468000	70		1500
PCB-020/028							16.00	468000	70		1500
PCB-021/033							16.14	299000	74		1500
PCB-022							16.37	153000	72		1500
PCB-036		17.20	34.2	3.8	M,J	100					
PCB-039		17.42	1330	3.9		100					
PCB-038		17.73	176	4.4		100					
PCB-035		17.99	2850	4.4		100					
PCB-037		18.23	38000	3.8		100					
PCB-054		14.47	2270	1.3		100					
PCB-050/053		15.67	46000	2.8		100					
PCB-045/051		16.08	59700	2.9		100					
PCB-046		16.25	18500	3.4		100					
PCB-052							16.99	275000	31		1500
PCB-073		NotFnd	<2.1	2.1	U	100					
PCB-043		17.12	11700	3.8		100					
PCB-049/069		17.25	118000	2.7		100					
PCB-048		17.42	51900	2.9		100					
PCB-044/047/065		17.55	153000	2.8		100					
PCB-059/062/075		17.73	14500	2.2		100					
PCB-042		17.85	46200	3.3		100					
PCB-040/041/071		18.11	85100	3.0		100					
PCB-064		18.23	58400	2.3		100					
PCB-072		18.63	512	4.5		100					
PCB-068		18.79	269	4.0		100					
PCB-057		19.02	486	4.8		100					
PCB-058		19.16	113	4.5	M	100					
PCB-067		19.25	2450	3.9		100					
PCB-063		19.39	2580	4.6		100					
PCB-061/070/074/076		19.58	92200	4.6		100					
PCB-066		19.75	40000	4.6		100					
PCB-055		19.87	1180	4.7		100					
PCB-056		20.13	17500	5.0		100					
PCB-060		20.25	10600	4.6		100					
PCB-080		NotFnd	<4.1	4.1	U	100					
PCB-079		21.24	287	4.4		100					
PCB-078		21.59	20.0	5.1	M,J	100					
PCB-081	0.0003	21.80	75.7	4.7	J	100					
PCB-077	0.0001	22.10	1360	4.3		100					
PCB-104		17.51	21.3	1.3	M,J	100					
PCB-096		17.76	920	1.0		100					
PCB-103		18.73	513	2.2		100					
PCB-094		18.88	416	2.5		100					
PCB-095		19.12	47700	2.5		100					
PCB-093/098/100/102		19.29	2810	2.4		100					

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Sample Analysis Report

Sample Name	SITE 4 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-4	Extraction Date	29-Mar-21	Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1 Puf	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A11	5-210420A06
Run Date	19-Apr-21 21:58	20-Apr-21 13:46
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256608-05	HRMS-5 SPB0ctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-088/091		19.58	8220	2.4			100						
PCB-084		19.73	13400	2.7			100						
PCB-089		19.98	643	2.7			100						
PCB-121		20.10	<1.7	1.7	U	1.2	100						
PCB-092		20.33	7970	2.6			100						
PCB-090/101/113		20.63	40900	2.1			100						
PCB-083/099		20.95	20600	2.6			100						
PCB-112		NotFnd	<1.8	1.8		U	100						
PCB-086/087/097/109/119/125		21.30	22800	2.2		M	100						
PCB-085/110/115/116/117		21.72	38500	2.0		M	100						
PCB-082		21.91	4170	3.2		M	100						
PCB-111		NotFnd	<1.8	1.8		U	100						
PCB-120		22.26	26.1	1.8		M,J	100						
PCB-108/124		22.89	756	3.1			100						
PCB-107		23.02	1170	3.1		M	100						
PCB-123	0.00003	23.07	288	3.5		M	100						
PCB-106		NotFnd	<3.3	3.3		U	100						
PCB-118	0.00003	23.25	18000	3.2			100						
PCB-122		23.45	215	3.5			100						
PCB-114	0.00003	23.55	455	3.4			100						
PCB-105	0.00003	23.90	6100	3.0			100						
PCB-127		24.64	21.0	3.4		M,J	100						
PCB-126	0.1	25.50	<26	3.3		M,J,R	26						
PCB-155		20.49	8.04	0.80		M,J	100						
PCB-152		20.67	24.6	0.77		J	100						
PCB-150		20.73	25.4	0.71		J	100						
PCB-136		20.97	2060	0.79			100						
PCB-145		21.10	12.2	0.76		J	100						
PCB-148		21.82	11.5	1.1		J	100						
PCB-135/151		22.17	3930	1.1		M	100						
PCB-154		22.25	94.9	0.84		M,J	100						
PCB-144		22.46	681	1.1			100						
PCB-147/149		22.65	9430	2.1			100						
PCB-134/143		22.79	804	2.6			100						
PCB-139/140		22.96	307	2.1			100						
PCB-131		23.10	231	2.7			100						
PCB-142		NotFnd	<2.6	2.6		U	100						
PCB-132								23.36	5130	12			1500
PCB-133		23.53	146	2.5			100						
PCB-165		23.71	8.70	1.8		J	100						
PCB-146		23.85	1400	2.2			100						
PCB-161		NotFnd	<1.8	1.8		U	100						
PCB-153/168		24.18	8290	1.9			100						
PCB-141		24.31	1740	2.4			100						
PCB-130		24.53	704	2.9			100						
PCB-137/164		24.70	1230	2.1		M	100						
PCB-129/138/163		24.87	11400	2.5			100						
PCB-160		NotFnd	<1.7	1.7		U	100						
PCB-158								25.06	1030	8.1	J		1500
PCB-128/166		25.56	1720	2.1			100						
PCB-159		25.99	26.4	1.8		M,J	100						
PCB-162		26.14	23.6	1.8		J	100						
PCB-167	0.00003	26.38	329	1.7			100						
PCB-156/157	0.00003	27.00	1070	2.4			200						
PCB-169	0.03	28.68	<6.0	1.8		J,R	6.0						
PCB-188		23.49	<3.7	0.88		J,R	3.7						
PCB-179		23.71	399	0.84			100						
PCB-184		23.93	4.79	0.76		J	100						
PCB-176		24.16	132	0.85			100						
PCB-186		NotFnd	<0.84	0.84		U	100						
PCB-178		25.06	167	1.2			100						
PCB-175		25.39	39.9	1.2		J	100						
PCB-187		25.52	901	1.0		M	100						
PCB-182		25.61	6.27	1.1		M,J	100						
PCB-183		25.84	505	1.1			100						
PCB-185		25.94	59.8	1.2		M,J	100						
PCB-174		25.99	572	1.1		M	100						
PCB-177		26.23	345	1.3			100						
PCB-181		26.43	13.3	1.1		J	100						
PCB-171/173		26.55	218	1.3			100						
PCB-172		27.33	103	1.2			100						

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Sample Analysis Report

Sample Name	SITE 4 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-4	Extraction Date	29-Mar-21	Approved: <i>S. Jin</i> --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1 Puf	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A11	5-210420A06
Run Date	19-Apr-21 21:58	20-Apr-21 13:46
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPB0ctyl 256608-05	HRMS-5 SPB0ctyl 256608-05

Target Analytes	TEF (WHO 2005)						EMPC					
	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-192	NotFnd	<0.94	0.94		U	100						
PCB-180/193	27.67	1280	1.0			100						
PCB-191	27.85	27.5	0.93		J	100						
PCB-170	28.36	604	1.3			100						
PCB-190	28.63	98.6	0.84		J	100						
PCB-189	0.00003	29.93	26.1	0.59	J	100						
PCB-202	26.26	126	0.41			100						
PCB-201	26.73	60.5	0.39		J	100						
PCB-204	NotFnd	<0.38	0.38		U	100						
PCB-197	27.19	11.3	0.36		J	100						
PCB-200	27.29	30.4	0.39		J	100						
PCB-198/199	28.68	262	0.53			100						
PCB-196	29.01	106	0.54			100						
PCB-203	29.11	163	0.47			100						
PCB-195	29.83	57.9	0.76		J	100						
PCB-194	31.05	183	0.73			100						
PCB-205	31.33	8.06	0.65		J	100						
PCB-208	29.68	40.1	0.93		J	100						
PCB-207	30.16	19.9	1.0		M,J	100						
PCB-206	32.37	106	1.6			100						
PCB-209	33.50	21.6	0.39		J	100						

Extraction Standards	pg	Time	% Rec	Limits	Time	% Rec	Limits
13C12-PCB-001	4000				8.95	51	5-145
13C12-PCB-003	4000				10.48	59	5-145
13C12-PCB-004	4000				10.62	46	5-145
13C12-PCB-015	4000	14.28	87	5-145			
13C12-PCB-019	4000				12.61	38	5-145 M
13C12-PCB-037	4000	18.21	95	5-145			
13C12-PCB-054	4000	14.46	29	5-145			
13C12-PCB-081	4000	21.79	80	10-145			
13C12-PCB-077	4000	22.09	90	10-145			
13C12-PCB-104	4000	17.50	45	10-145			
13C12-PCB-123	4000	23.07	79	10-145			
13C12-PCB-118	4000	23.24	76	10-145			
13C12-PCB-114	4000	23.54	80	10-145			
13C12-PCB-105	4000	23.89	90	10-145			
13C12-PCB-126	4000	25.49	95	10-145			
13C12-PCB-155	4000	20.49	60	10-145			
13C12-PCB-167	4000	26.37	85	10-145			
13C12-PCB-156/157	8000	27.01	81	10-145			
13C12-PCB-169	4000	28.66	97	10-145			
13C12-PCB-188	4000	23.48	69	10-145			
13C12-PCB-189	4000	29.93	90	10-145			
13C12-PCB-202	4000	26.25	69	10-145			
13C12-PCB-205	4000	31.30	78	10-145			
13C12-PCB-208	4000	29.67	80	10-145			
13C12-PCB-206	4000	32.36	79	10-145			
13C12-PCB-209	4000	33.48	83	10-145			

Field Spike Standards	pg	Time	% Rec	Limits
13C12-PCB-031	18000	15.81	105	70-130
13C12-PCB-095	18000	19.11	79	70-130
13C12-PCB-153	18000	24.17	104	70-130

Cleanup Standards	pg	Time	% Rec	Limits
13C12-PCB-028	4000	15.98	62	5-145
13C12-PCB-111	4000	22.00	70	10-145
13C12-PCB-178	4000	25.05	69	10-145

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Sample Analysis Report

Sample Name	SITE 4 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-4	Extraction Date	29-Mar-21	Approved: <i>S. Jin</i> --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1 Puf	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A11	5-210420A06
Run Date	19-Apr-21 21:58	20-Apr-21 13:46
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
Homologue Group Totals													
Total MonoCB			292000	23	J	400							
Total DiCB			3230000	14	J	800							
Total TriCB			3580000	3.7	J	800							
Total TetraCB			1110000	1.3	J	1600							
Total PentaCB			237000	1.0	J	1600							
Total HexaCB			51900	0.71	J	1600							
Total HeptaCB			5510	0.59	J	800							
Total OctaCB			1010	0.36	J	800							
Total NonaCB			166	0.93	J	400							
DecaCB			21.6	0.39	J	400							
Total PCB			8520000		J	3200							
Toxic Equivalency - (WHO 2005)													
Lower Bound PCB TEQ			0.947										
Mid Point PCB TEQ			3.73										
Upper Bound PCB TEQ			3.73										

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

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Sample Analysis Report

Sample Name	SITE 5 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-5	Extraction Date	29-Mar-21	
Analysis Method	EPA 1668C	Sample Size	1	Puf
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved:
S. Jin
--e-signature--
22-Apr-2021

Run Information	Run 1	Run 2
Filename	5-210419A12	5-210420A07
Run Date	19-Apr-21 22:41	20-Apr-21 14:28
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)						EMPC					
	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-001							8.95	460000	44			1500
PCB-002							10.35	13700	43			1500
PCB-003							10.48	69200	42			1500
PCB-004							10.63	2380000	100			1500
PCB-010							10.75	67600	38			1500
PCB-009							11.90	151000	38			1500
PCB-007							11.99	83000	35			1500
PCB-006							12.15	357000	37			1500
PCB-005							12.36	22600	40	M		1500
PCB-008							12.43	1580000	34	M		1500
PCB-014	13.40	125	9.2			100						
PCB-011	13.91	13700	9.4			100						
PCB-012/013	14.09	45000	9.1			100						
PCB-015							14.30	251000	95			1500
PCB-019							12.62	328000	55			1500
PCB-018/030							13.73	1160000	35			1500
PCB-017							13.97	579000	41			1500
PCB-027							14.10	61600	31			1500
PCB-024							14.19	15400	31			1500
PCB-016							14.26	460000	48			1500
PCB-032							14.55	263000	29			1500
PCB-034	15.24	3310	12			100						
PCB-023	15.33	1450	11			100						
PCB-026/029	15.51	120000	11			100						
PCB-025	15.64	54100	10			100						
PCB-031							15.82	664000	100			1500
PCB-020/028							15.99	700000	100			1500
PCB-021/033							16.13	443000	110			1500
PCB-022							16.37	232000	110			1500
PCB-036	17.20	24.5	11	M,J		100						
PCB-039	17.42	1460	11			100						
PCB-038	17.73	183	12			100						
PCB-035	17.99	3150	12			100						
PCB-037	18.23	45100	10			100						
PCB-054	14.48	3190	2.5			100						
PCB-050/053	15.67	54000	2.9			100						
PCB-045/051	16.08	71200	3.0			100						
PCB-046	16.25	22800	3.5			100						
PCB-052							16.99	332000	39			1500
PCB-073	NotFnd	<2.2	2.2	U		100						
PCB-043	17.12	14600	4.0			100						
PCB-049/069	17.25	146000	2.7			100						
PCB-048	17.42	64900	3.0			100						
PCB-044/047/065	17.55	182000	2.9			100						
PCB-059/062/075	17.73	17100	2.3			100						
PCB-042	17.85	60700	3.4			100						
PCB-040/041/071	18.11	106000	3.1			100						
PCB-064	18.23	71100	2.4			100						
PCB-072	18.63	641	3.7			100						
PCB-068	18.79	332	3.3			100						
PCB-057	19.03	554	4.0			100						
PCB-058	19.16	128	3.7	M		100						
PCB-067	19.25	2740	3.2			100						
PCB-063	19.39	3020	3.7			100						
PCB-061/070/074/076	19.58	101000	3.7			100						
PCB-066	19.75	43900	3.7			100						
PCB-055	19.87	1280	3.8			100						
PCB-056	20.13	18300	4.1			100						
PCB-060	20.26	11000	3.8			100						
PCB-080	NotFnd	<3.4	3.4	U		100						
PCB-079	21.24	289	3.7			100						
PCB-078	21.59	15.3	4.2	M,J		100						
PCB-081	0.0003	21.80	68.5	3.9	J	100						
PCB-077	0.0001	22.10	1080	3.3		100						
PCB-104	17.51	28.5	1.3	M,J		100						
PCB-096	17.76	1040	0.98			100						
PCB-103	18.73	668	4.0			100						
PCB-094	18.88	484	4.5			100						
PCB-095	19.13	50500	4.5			100						
PCB-093/098/100/102	19.30	3140	4.3			100						

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Sample Analysis Report

Sample Name	SITE 5 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-5	Extraction Date	29-Mar-21	
Analysis Method	EPA 1668C	Sample Size	1	Puf
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Approved:
S. Jin
--e-signature--
22-Apr-2021

Run Information	Run 1	Run 2
Filename	5-210419A12	5-210420A07
Run Date	19-Apr-21 22:41	20-Apr-21 14:28
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-088/091		19.58	9500	4.4			100						
PCB-084		19.74	15500	5.0			100						
PCB-089		19.99	748	5.0			100						
PCB-121		20.10	<3.3	3.2	J,R	3.3	100						
PCB-092		20.33	9190	4.8			100						
PCB-090/101/113		20.63	47300	3.9			100						
PCB-083/099		20.95	23400	4.7			100						
PCB-112		NotFnd	<3.3	3.3		U	100						
PCB-086/087/097/109/119/125		21.30	25000	4.0		M	100						
PCB-085/110/115/116/117		21.72	43400	3.7		M	100						
PCB-082		21.92	4990	5.9			100						
PCB-111		NotFnd	<3.3	3.3		U	100						
PCB-120		22.24	26.4	3.4	M,J		100						
PCB-108/124		22.90	820	2.5			100						
PCB-107		23.02	1280	2.5		M	100						
PCB-123	0.00003	23.07	314	2.8		M	100						
PCB-106		NotFnd	<2.6	2.6		U	100						
PCB-118	0.00003	23.25	19400	2.6			100						
PCB-122		23.45	216	2.8			100						
PCB-114	0.00003	23.55	468	2.7			100						
PCB-105	0.00003	23.90	6070	2.2			100						
PCB-127		24.64	26.0	2.7		J	100						
PCB-126	0.1	25.52	<28	2.4	M,J,R	28	100						
PCB-155		20.50	8.35	0.57		J	100						
PCB-152		20.67	23.7	0.59		J	100						
PCB-150		20.74	27.6	0.54		J	100						
PCB-136		20.97	1860	0.60			100						
PCB-145		21.10	12.5	0.58		J	100						
PCB-148		21.83	14.2	0.82	M,J		100						
PCB-135/151		22.17	3850	0.85		M	100						
PCB-154		22.25	115	0.64		M	100						
PCB-144		22.46	685	0.83			100						
PCB-147/149		22.66	9260	2.2			100						
PCB-134/143		22.79	796	2.7			100						
PCB-139/140		22.96	307	2.2			100						
PCB-131		23.10	228	2.8			100						
PCB-142		NotFnd	<2.7	2.7		U	100						
PCB-132								23.35	5210	23			1500
PCB-133		23.53	165	2.6			100						
PCB-165		23.72	7.16	1.9		J	100						
PCB-146		23.87	1490	2.3			100						
PCB-161		NotFnd	<1.9	1.9		U	100						
PCB-153/168		24.18	8920	2.0			100						
PCB-141		24.31	1670	2.5			100						
PCB-130		24.53	671	3.0			100						
PCB-137/164		24.70	1180	2.1		M	100						
PCB-129/138/163		24.87	11000	2.6			100						
PCB-160		NotFnd	<1.7	1.7		U	100						
PCB-158								25.06	921	15	J		1500
PCB-128/166		25.56	1800	2.2			100						
PCB-159		26.00	22.5	1.9		M,J	100						
PCB-162		26.14	23.8	1.9		J	100						
PCB-167	0.00003	26.38	322	1.9			100						
PCB-156/157	0.00003	27.01	1030	2.7			200						
PCB-169	0.03	28.65	<4.9	1.8	J,R	4.9	100						
PCB-188		23.50	5.84	0.74		J	100						
PCB-179		23.71	384	0.71			100						
PCB-184		23.94	<5.5	0.64	J,R	5.5	100						
PCB-176		24.17	122	0.72			100						
PCB-186		NotFnd	<0.71	0.71		U	100						
PCB-178		25.06	175	1.0			100						
PCB-175		25.39	43.7	1.0		J	100						
PCB-187		25.52	931	0.87			100						
PCB-182		25.62	<7.2	0.92	M,J,R	7.2	100						
PCB-183		25.84	532	0.92			100						
PCB-185		25.93	58.5	1.0	M,J		100						
PCB-174		26.00	553	0.95		M	100						
PCB-177		26.23	342	1.1			100						
PCB-181		26.43	<11	0.96	M,J,R	11	100						
PCB-171/173		26.56	203	1.1			100						
PCB-172		27.35	102	1.1			100						

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Sample Analysis Report

Sample Name	SITE 5 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-5	Extraction Date	29-Mar-21	Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1 Puf	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A12	5-210420A07
Run Date	19-Apr-21 22:41	20-Apr-21 14:28
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)						EMPC					
	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-192	NotFnd	<0.80	0.80		U	100						
PCB-180/193	27.67	1270	0.85			100						
PCB-191	27.87	25.0	0.79		J	100						
PCB-170	28.36	564	1.1			100						
PCB-190	28.63	82.8	0.71		J	100						
PCB-189	0.00003	29.93	25.2	0.69	J	100						
PCB-202	26.26	145	0.58			100						
PCB-201	26.73	69.7	0.57		J	100						
PCB-204	NotFnd	<0.56	0.56		U	100						
PCB-197	27.19	13.9	0.52		M,J	100						
PCB-200	27.29	30.3	0.56		M,J	100						
PCB-198/199	28.69	259	0.77			100						
PCB-196	29.01	107	0.79			100						
PCB-203	29.11	173	0.69			100						
PCB-195	29.85	54.8	0.65		J	100						
PCB-194	31.05	172	0.63			100						
PCB-205	31.33	<7.9	0.58		M,J,R	7.9						
PCB-208	29.68	37.3	0.96		J	100						
PCB-207	30.14	17.6	1.1		J	100						
PCB-206	32.39	92.8	1.9		J	100						
PCB-209	33.50	31.8	0.31		J	100						

Extraction Standards	pg	Time	% Rec	Limits	Time	% Rec	Limits
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13C12-PCB-001	4000				8.94	48	5-145
13C12-PCB-003	4000				10.48	60	5-145
13C12-PCB-004	4000				10.62	41	5-145
13C12-PCB-015	4000	14.28	83	5-145			
13C12-PCB-019	4000				12.60	31	5-145
13C12-PCB-037	4000	18.21	88	5-145			
13C12-PCB-054	4000	14.46	21	5-145			
13C12-PCB-081	4000	21.79	68	10-145			
13C12-PCB-077	4000	22.09	83	10-145			
13C12-PCB-104	4000	17.50	33	10-145			
13C12-PCB-123	4000	23.07	66	10-145			
13C12-PCB-118	4000	23.24	62	10-145			
13C12-PCB-114	4000	23.54	65	10-145			
13C12-PCB-105	4000	23.89	81	10-145			
13C12-PCB-126	4000	25.49	83	10-145			
13C12-PCB-155	4000	20.49	56	10-145			
13C12-PCB-167	4000	26.37	72	10-145			
13C12-PCB-156/157	8000	27.01	68	10-145			
13C12-PCB-169	4000	28.66	87	10-145			
13C12-PCB-188	4000	23.48	62	10-145			
13C12-PCB-189	4000	29.93	78	10-145			
13C12-PCB-202	4000	26.25	62	10-145			
13C12-PCB-205	4000	31.31	63	10-145			
13C12-PCB-208	4000	29.67	73	10-145			
13C12-PCB-206	4000	32.37	65	10-145			
13C12-PCB-209	4000	33.48	76	10-145			

Field Spike Standards				
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13C12-PCB-031	18000	15.81	98	70-130
13C12-PCB-095	18000	19.11	70	70-130
13C12-PCB-153	18000	24.17	103	70-130

Cleanup Standards				
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13C12-PCB-028	4000	15.98	52	5-145
13C12-PCB-111	4000	22.01	60	10-145
13C12-PCB-178	4000	25.05	55	10-145

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Sample Analysis Report

Sample Name	SITE 5 - COMPOSITE 5 (WET SEASON - JAN, FEB, MAR)	Sampling Date	n/a	
ALS Sample ID	L2569163-5	Extraction Date	29-Mar-21	Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1 Puf	
Analysis Type	Sample	Percent Moisture	n/a	
Sample Matrix	PUF	Split Ratio	4	

Run Information	Run 1	Run 2
Filename	5-210419A12	5-210420A07
Run Date	19-Apr-21 22:41	20-Apr-21 14:28
Final Volume	25 ul	25 uL
Dilution Factor	1	15
Analysis Units	pg	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
Homologue Group Totals													
Total MonoCB			543000	42	J	400							
Total DiCB			4950000	9.1	J	800							
Total TriCB			5130000	10	J	800							
Total TetraCB			1330000	2.2	J	1600							
Total PentaCB			264000	0.98	J	1600							
Total HexaCB			51600	0.54	J	1600							
Total HeptaCB			5440	0.64	J	800							
Total OctaCB			1030	0.52	J	800							
Total NonaCB			148	0.96	J	400							
DecaCB			31.8	0.31	J	400							
Total PCB			12300000		J	3200							
Toxic Equivalency - (WHO 2005)													
Lower Bound PCB TEQ			0.957										
Mid Point PCB TEQ			3.90										
Upper Bound PCB TEQ			3.90										

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'-TriCB	19	0.2	1	5	50	400	2000
3,4,4'-TriCB	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'-OxCB	202	0.2	1	5	50	400	2000
2,3,3',4,4',5,5',6-OxCB	205	0.2	1	5	50	400	2000
2,2',3,3',4,4',5,5',6-NoCB	206	0.2	1	5	50	400	2000
2,2',3,3',4,4',5,5',6,6'-NoCB	208	0.2	1	5	50	400	2000
DeCB 209	209	0.2	1	5	50	400	2000
Labeled Toxics/LOC/window-defining							
13C12-2-MoCB	1L	100	100	100	100	100	100
13C12-4-MoCB	3L	100	100	100	100	100	100
13C12-2,2'-DiCB	4L	100	100	100	100	100	100
13C12-4,4'-DiCB	15L	100	100	100	100	100	100
13C12-2,2',6'-TriCB	19L	100	100	100	100	100	100
13C12-3,4,4'-TriCB	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'-OxCB	202L	100	100	100	100	100	100
13C12-2,3,3',4,4',5,5',6-OxCB	205L	100	100	100	100	100	100
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	100	100	100	100	100	100
13C12-2,2',3,3',4,4',5,5',6,6'-NoCB	208L	100	100	100	100	100	100
13C12-DeCB 209L	209L	100	100	100	100	100	100
Labeled clean-up							
13C12-2,4,4'-TriCB	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',4,4',5,5'-PeCB	101L	100	100	100	100	100	100
13C12-2,2',3,3',4,4',5'-HxCB	138L	100	100	100	100	100	100
13C12-2,2',3,3',4,4',5,5'-OxCB	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',4,4',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',4,4',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',6-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

CI 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	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.

$$\text{RRF} = \frac{(A_{1t} + A_{2t}) C_s}{(A_{1s} + A_{2s}) C_t} \quad \text{Equ. 9.1}$$

Where,

$A_{1t} + A_{2t}$ = The areas of the two quantification ions for the target analyte

$A_{1s} + A_{2s}$ = 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.

$$\text{Amount in sample (pg)} = \frac{(A_{1n} + A_{2n}) Q_i}{(A_{1t} + A_{2t}) (\text{RRF}_{av})} \quad \text{Equ. 9.2}$$

$$\text{Concentration in sample (pg/g or pg/l)} = \frac{(A_{1n} + A_{2n}) Q_i}{(A_{1t} + A_{2t}) (\text{RRF}_{av}) (W_s)} \quad \text{Equ. 9.3}$$

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:

AAYYMMDDCC

Example:

SK111220MB

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

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

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

SVOC DATA PACKAGE

SECTION 4: CALIBRATION DATA

Including:

for Multi-Point Calibration(s)

- Multi-Point Calibration Tables
- Individual Quantitation Reports

for Continuing Calibration(s)

- Individual Quantitation Reports

ALS Life Sciences

Calibration Summary Report

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

Approved:	S. Jin --e-signature-- 22-Apr-2021
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Target Analytes	Relative Response Factors					Mean	% RSD
	CS-1	CS-2	CS-3	CS-4	CS-5		
PCB-001	1.081	1.118	1.192	1.206	1.122	1.144	5%
PCB-003	1.143	1.149	1.201	1.234	1.251	1.196	4%
PCB-004	0.842	0.905	0.893	0.897	0.916	0.891	3%
PCB-015	0.977	1.048	1.108	1.166	1.187	1.097	8%
PCB-019	1.050	1.149	1.197	1.208	1.211	1.163	6%
PCB-037	1.042	1.037	1.139	1.158	1.193	1.114	6%
PCB-054	1.002	1.031	1.085	1.106	1.115	1.068	5%
PCB-081	1.079	1.132	1.262	1.280	1.306	1.212	8%
PCB-077	1.012	1.066	1.229	1.239	1.261	1.161	10%
PCB-104	1.053	1.109	1.176	1.197	1.230	1.153	6%
PCB-123	0.979	1.055	1.145	1.148	1.182	1.102	8%
PCB-118	1.075	1.084	1.208	1.237	1.251	1.171	7%
PCB-114	1.176	1.173	1.254	1.281	1.265	1.230	4%
PCB-105	1.089	1.151	1.229	1.255	1.302	1.205	7%
PCB-126	1.058	1.115	1.258	1.283	1.345	1.212	10%
PCB-155	1.006	1.006	1.057	1.089	1.130	1.058	5%
PCB-167	0.985	1.057	1.147	1.163	1.166	1.104	7%
PCB-156/157	1.038	1.084	1.179	1.199	1.209	1.142	7%
PCB-169	0.915	1.054	1.145	1.167	1.176	1.091	10%
PCB-188	0.830	0.874	0.984	1.010	1.019	0.943	9%
PCB-189	0.925	0.957	1.032	1.056	1.075	1.009	6%
PCB-202	1.020	1.050	1.078	1.115	1.125	1.078	4%
PCB-205	0.875	0.843	0.939	0.958	0.962	0.915	6%
PCB-208	1.170	1.154	1.251	1.269	1.262	1.221	4%
PCB-206	1.173	1.174	1.212	1.240	1.253	1.210	3%
PCB-209	1.169	0.976	0.968	0.970	0.978	1.012	9%
Extraction Standards							
13C12-PCB-001	0.981	1.007	0.979	1.074	1.335	1.075	14%
13C12-PCB-003	0.893	0.889	0.882	0.937	1.178	0.956	13%
13C12-PCB-004	0.631	0.632	0.635	0.659	0.806	0.673	11%
13C12-PCB-015	0.736	0.782	0.771	0.833	1.076	0.840	16%
13C12-PCB-019	0.456	0.476	0.480	0.494	0.610	0.503	12%
13C12-PCB-037	1.311	1.289	1.277	1.467	1.908	1.450	18%
13C12-PCB-054	1.533	1.598	1.595	1.691	2.114	1.706	14%
13C12-PCB-081	1.437	1.430	1.433	1.530	1.916	1.549	14%
13C12-PCB-077	1.472	1.453	1.455	1.558	1.941	1.576	13%
13C12-PCB-104	1.797	1.815	1.904	1.928	2.271	1.943	10%
13C12-PCB-123	1.263	1.247	1.259	1.323	1.691	1.357	14%
13C12-PCB-118	1.322	1.314	1.329	1.382	1.773	1.424	14%
13C12-PCB-114	1.188	1.190	1.199	1.247	1.667	1.298	16%
13C12-PCB-105	1.193	1.201	1.219	1.254	1.557	1.285	12%
13C12-PCB-126	1.067	1.079	1.058	1.129	1.494	1.165	16%
13C12-PCB-155	1.684	1.727	1.753	1.813	2.252	1.846	13%
13C12-PCB-167	1.195	1.173	1.177	1.243	1.550	1.268	13%
13C12-PCB-156/157	1.122	1.105	1.118	1.197	1.570	1.222	16%
13C12-PCB-169	1.114	1.070	1.053	1.099	1.405	1.148	13%
13C12-PCB-188	1.386	1.361	1.397	1.461	1.833	1.488	13%
13C12-PCB-189	1.127	1.121	1.066	1.112	1.382	1.162	11%
13C12-PCB-202	1.064	1.051	1.098	1.118	1.418	1.150	13%
13C12-PCB-205	1.417	1.429	1.421	1.482	1.695	1.489	8%
13C12-PCB-208	1.127	1.118	1.136	1.162	1.393	1.187	10%
13C12-PCB-206	0.797	0.799	0.793	0.825	0.944	0.832	8%
13C12-PCB-209	1.292	1.272	1.267	1.319	1.486	1.327	7%
Field Spike Standards							
13C12-PCB-031	1.316	1.365	1.317	1.259	1.028	1.257	11%
13C12-PCB-095	0.689	0.692	0.676	0.645	0.493	0.639	13%
13C12-PCB-153	0.911	0.915	0.911	0.855	0.682	0.855	12%
Cleanup Standards							
13C12-PCB-028	1.735	1.765	1.711	1.778	1.829	1.764	3%
13C12-PCB-111	1.122	1.138	1.140	1.124	1.164	1.138	1%
13C12-PCB-178	0.833	0.841	0.843	0.830	0.834	0.836	1%

ALS Life Sciences

Calibration Report

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

Filename 5-201202A03 Inst # HRMS-5 Column SPBOctyl 256001-01 Run Date 02-Dec-2020 11:14

Approved: *S. Jin*
 --e-signature--
 22-Apr-2021

Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	8.95	3.27	1.00	2.29E+04	1.081
PCB-003	10.48	3.32	1.00	2.21E+04	1.143
PCB-004	10.63	1.71	1.00	1.15E+04	0.842
PCB-015	14.32	1.50	1.00	1.55E+04	0.977
PCB-019	12.62	1.06	1.00	1.04E+04	1.050
PCB-037	18.24	1.15	1.00	1.14E+04	1.042
PCB-054	14.46	0.81	1.00	1.28E+04	1.002
PCB-081	21.81	0.83	1.00	8.50E+03	1.079
PCB-077	22.11	0.71	1.00	8.17E+03	1.012
PCB-104	17.5	1.49	1.00	1.04E+04	1.053
PCB-123	23.08	1.78	1.00	6.78E+03	0.979
PCB-118	23.25	1.46	1.00	7.79E+03	1.075
PCB-114	23.55	1.49	1.00	7.67E+03	1.176
PCB-105	23.91	1.53	1.00	7.13E+03	1.089
PCB-126	25.51	1.64	1.00	6.19E+03	1.058
PCB-155	20.48	1.24	1.00	9.29E+03	1.006
PCB-167	26.38	1.20	1.00	6.07E+03	0.985
PCB-156/157	27.02	1.17	2.00	1.20E+04	1.038
PCB-169	28.69	1.19	1.00	5.26E+03	0.915
PCB-188	23.48	1.01	1.00	5.94E+03	0.830
PCB-189	29.95	1.13	1.00	5.38E+03	0.925
PCB-202	26.26	0.86	1.00	5.60E+03	1.020
PCB-205	31.33	0.86	1.00	4.37E+03	0.875
PCB-208	29.67	0.87	1.00	4.64E+03	1.170
PCB-206	32.37	0.70	1.00	3.29E+03	1.173
PCB-209	33.5	1.21	1.00	5.32E+03	1.169

Extraction Standards

13C12-PCB-001	8.95	3.01	100.00	2.12E+06	0.981
13C12-PCB-003	10.47	3.05	100.00	1.93E+06	0.893
13C12-PCB-004	10.62	1.59	100.00	1.37E+06	0.631
13C12-PCB-015	14.3	1.63	100.00	1.59E+06	0.736
13C12-PCB-019	12.61	1.03	100.00	9.86E+05	0.456
13C12-PCB-037	18.24	1.06	100.00	1.10E+06	1.311
13C12-PCB-054	14.45	0.78	100.00	1.28E+06	1.533
13C12-PCB-081	21.8	0.80	100.00	7.88E+05	1.437
13C12-PCB-077	22.1	0.81	100.00	8.07E+05	1.472
13C12-PCB-104	17.49	1.57	100.00	9.86E+05	1.797
13C12-PCB-123	23.07	1.58	100.00	6.93E+05	1.263
13C12-PCB-118	23.24	1.65	100.00	7.25E+05	1.322
13C12-PCB-114	23.54	1.67	100.00	6.52E+05	1.188
13C12-PCB-105	23.9	1.66	100.00	6.54E+05	1.193
13C12-PCB-126	25.5	1.65	100.00	5.85E+05	1.067
13C12-PCB-155	20.48	1.24	100.00	9.24E+05	1.684
13C12-PCB-167	26.37	1.29	100.00	6.16E+05	1.195
13C12-PCB-156/157	27.01	1.31	200.00	1.16E+06	1.122
13C12-PCB-169	28.67	1.30	100.00	5.75E+05	1.114
13C12-PCB-188	23.47	1.04	100.00	7.15E+05	1.386
13C12-PCB-189	29.92	1.07	100.00	5.82E+05	1.127
13C12-PCB-202	26.23	0.89	100.00	5.49E+05	1.064
13C12-PCB-205	31.3	0.89	100.00	4.99E+05	1.417
13C12-PCB-208	29.65	0.79	100.00	3.97E+05	1.127
13C12-PCB-206	32.36	0.81	100.00	2.81E+05	0.797
13C12-PCB-209	33.48	1.21	100.00	4.55E+05	1.292

Field Spike Standards

13C12-PCB-031	15.81	1.05	100.00	1.37E+06	1.316
13C12-PCB-095	19.1	1.61	100.00	5.26E+05	0.689
13C12-PCB-153	24.16	1.31	100.00	6.14E+05	0.911

Cleanup Standards

13C12-PCB-028	15.98	1.06	100.00	1.45E+06	1.735
13C12-PCB-111	22	1.62	100.00	6.15E+05	1.122
13C12-PCB-178	25.04	1.04	100.00	4.30E+05	0.833

Injection Standards

13C12-PCB-9	11.88	1.56	100.00	2.16E+06	-
13C12-PCB-52	16.97	0.82	100.00	8.36E+05	-
13C12-PCB-101	20.61	1.64	100.00	5.49E+05	-
13C12-PCB-138	24.84	1.32	100.00	5.16E+05	-
13C12-PCB-194	31.02	0.89	100.00	3.52E+05	-

ALS Life Sciences

Calibration Report

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

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

Approved: *S. Jin*
 --e-signature--
 22-Apr-2021

Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	8.97	3.23	5.00	1.14E+05	1.118
PCB-003	10.49	3.32	5.00	1.03E+05	1.149
PCB-004	10.65	1.26	5.00	5.78E+04	0.905
PCB-015	14.32	1.58	5.00	8.30E+04	1.048
PCB-019	12.64	1.07	5.00	5.53E+04	1.149
PCB-037	18.27	1.08	5.00	5.48E+04	1.037
PCB-054	14.49	0.80	5.00	6.76E+04	1.031
PCB-081	21.83	0.80	5.00	4.42E+04	1.132
PCB-077	22.13	0.79	5.00	4.23E+04	1.066
PCB-104	17.52	1.61	5.00	5.50E+04	1.109
PCB-123	23.1	1.64	5.00	3.59E+04	1.055
PCB-118	23.27	1.68	5.00	3.89E+04	1.084
PCB-114	23.58	1.58	5.00	3.81E+04	1.173
PCB-105	23.93	1.64	5.00	3.78E+04	1.151
PCB-126	25.52	1.63	5.00	3.29E+04	1.115
PCB-155	20.5	1.22	5.00	4.75E+04	1.006
PCB-167	26.4	1.19	5.00	3.27E+04	1.057
PCB-156/157	27.03	1.19	10.00	6.32E+04	1.084
PCB-169	28.7	1.18	5.00	2.98E+04	1.054
PCB-188	23.5	1.04	5.00	3.14E+04	0.874
PCB-189	29.96	1.00	5.00	2.83E+04	0.957
PCB-202	26.27	0.85	5.00	2.91E+04	1.050
PCB-205	31.34	0.93	5.00	2.16E+04	0.843
PCB-208	29.68	0.79	5.00	2.31E+04	1.154
PCB-206	32.4	0.82	5.00	1.68E+04	1.174
PCB-209	33.53	1.18	5.00	2.22E+04	0.976

Extraction Standards

13C12-PCB-001	8.97	3.01	100.00	2.04E+06	1.007
13C12-PCB-003	10.49	3.07	100.00	1.80E+06	0.889
13C12-PCB-004	10.63	1.58	100.00	1.28E+06	0.632
13C12-PCB-015	14.32	1.61	100.00	1.58E+06	0.782
13C12-PCB-019	12.62	1.04	100.00	9.63E+05	0.476
13C12-PCB-037	18.26	1.06	100.00	1.06E+06	1.289
13C12-PCB-054	14.47	0.79	100.00	1.31E+06	1.598
13C12-PCB-081	21.82	0.80	100.00	7.81E+05	1.430
13C12-PCB-077	22.12	0.80	100.00	7.94E+05	1.453
13C12-PCB-104	17.51	1.58	100.00	9.92E+05	1.815
13C12-PCB-123	23.09	1.58	100.00	6.81E+05	1.247
13C12-PCB-118	23.26	1.59	100.00	7.18E+05	1.314
13C12-PCB-114	23.56	1.58	100.00	6.50E+05	1.190
13C12-PCB-105	23.91	1.61	100.00	6.56E+05	1.201
13C12-PCB-126	25.52	1.64	100.00	5.90E+05	1.079
13C12-PCB-155	20.49	1.24	100.00	9.44E+05	1.727
13C12-PCB-167	26.39	1.30	100.00	6.19E+05	1.173
13C12-PCB-156/157	27.02	1.29	200.00	1.17E+06	1.105
13C12-PCB-169	28.69	1.33	100.00	5.65E+05	1.070
13C12-PCB-188	23.49	1.03	100.00	7.19E+05	1.361
13C12-PCB-189	29.95	1.06	100.00	5.92E+05	1.121
13C12-PCB-202	26.26	0.91	100.00	5.55E+05	1.051
13C12-PCB-205	31.33	0.88	100.00	5.11E+05	1.429
13C12-PCB-208	29.67	0.80	100.00	4.00E+05	1.118
13C12-PCB-206	32.39	0.80	100.00	2.86E+05	0.799
13C12-PCB-209	33.5	1.21	100.00	4.55E+05	1.272

Field Spike Standards

13C12-PCB-031	15.83	1.07	100.00	1.38E+06	1.365
13C12-PCB-095	19.13	1.62	100.00	5.26E+05	0.692
13C12-PCB-153	24.18	1.29	100.00	6.20E+05	0.915

Cleanup Standards

13C12-PCB-028	16	1.04	100.00	1.45E+06	1.765
13C12-PCB-111	22.02	1.65	100.00	6.22E+05	1.138
13C12-PCB-178	25.06	1.04	100.00	4.44E+05	0.841

Injection Standards

13C12-PCB-9	11.9	1.55	100.00	2.02E+06	-
13C12-PCB-52	16.99	0.82	100.00	8.21E+05	-
13C12-PCB-101	20.64	1.63	100.00	5.46E+05	-
13C12-PCB-138	24.87	1.31	100.00	5.28E+05	-
13C12-PCB-194	31.05	0.88	100.00	3.58E+05	-

ALS Life Sciences

Calibration Report

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

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

Approved: *S. Jin*
 --e-signature--
 22-Apr-2021

Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	8.97	3.24	50.00	1.18E+06	1.192
PCB-003	10.49	3.25	50.00	1.08E+06	1.201
PCB-004	10.65	1.46	50.00	5.76E+05	0.893
PCB-015	14.32	1.55	50.00	8.66E+05	1.108
PCB-019	12.64	1.06	50.00	5.83E+05	1.197
PCB-037	18.26	1.06	50.00	5.88E+05	1.139
PCB-054	14.48	0.80	50.00	7.00E+05	1.085
PCB-081	21.83	0.79	50.00	4.64E+05	1.262
PCB-077	22.13	0.79	50.00	4.59E+05	1.229
PCB-104	17.52	1.56	50.00	5.75E+05	1.176
PCB-123	23.1	1.57	50.00	3.70E+05	1.145
PCB-118	23.27	1.61	50.00	4.12E+05	1.208
PCB-114	23.58	1.61	50.00	3.86E+05	1.254
PCB-105	23.93	1.61	50.00	3.85E+05	1.229
PCB-126	25.52	1.57	50.00	3.42E+05	1.258
PCB-155	20.5	1.25	50.00	4.76E+05	1.057
PCB-167	26.4	1.24	50.00	3.31E+05	1.147
PCB-156/157	27.03	1.23	100.00	6.46E+05	1.179
PCB-169	28.7	1.24	50.00	2.96E+05	1.145
PCB-188	23.5	1.02	50.00	3.37E+05	0.984
PCB-189	29.95	1.03	50.00	2.70E+05	1.032
PCB-202	26.27	0.90	50.00	2.90E+05	1.078
PCB-205	31.34	0.92	50.00	2.11E+05	0.939
PCB-208	29.68	0.81	50.00	2.25E+05	1.251
PCB-206	32.4	0.80	50.00	1.52E+05	1.212
PCB-209	33.53	1.21	50.00	1.94E+05	0.968

Extraction Standards

13C12-PCB-001	8.95	3.06	100.00	1.99E+06	0.979
13C12-PCB-003	10.48	3.01	100.00	1.79E+06	0.882
13C12-PCB-004	10.63	1.57	100.00	1.29E+06	0.635
13C12-PCB-015	14.32	1.66	100.00	1.56E+06	0.771
13C12-PCB-019	12.62	1.06	100.00	9.74E+05	0.480
13C12-PCB-037	18.25	1.09	100.00	1.03E+06	1.277
13C12-PCB-054	14.47	0.80	100.00	1.29E+06	1.595
13C12-PCB-081	21.82	0.83	100.00	7.36E+05	1.433
13C12-PCB-077	22.12	0.80	100.00	7.47E+05	1.455
13C12-PCB-104	17.51	1.55	100.00	9.77E+05	1.904
13C12-PCB-123	23.09	1.65	100.00	6.47E+05	1.259
13C12-PCB-118	23.26	1.63	100.00	6.83E+05	1.329
13C12-PCB-114	23.56	1.65	100.00	6.16E+05	1.199
13C12-PCB-105	23.91	1.64	100.00	6.26E+05	1.219
13C12-PCB-126	25.51	1.59	100.00	5.43E+05	1.058
13C12-PCB-155	20.49	1.24	100.00	9.00E+05	1.753
13C12-PCB-167	26.39	1.31	100.00	5.77E+05	1.177
13C12-PCB-156/157	27.02	1.31	200.00	1.10E+06	1.118
13C12-PCB-169	28.69	1.31	100.00	5.17E+05	1.053
13C12-PCB-188	23.49	1.03	100.00	6.85E+05	1.397
13C12-PCB-189	29.95	1.07	100.00	5.23E+05	1.066
13C12-PCB-202	26.26	0.90	100.00	5.39E+05	1.098
13C12-PCB-205	31.33	0.88	100.00	4.50E+05	1.421
13C12-PCB-208	29.67	0.80	100.00	3.60E+05	1.136
13C12-PCB-206	32.39	0.78	100.00	2.51E+05	0.793
13C12-PCB-209	33.5	1.21	100.00	4.01E+05	1.267

Field Spike Standards

13C12-PCB-031	15.83	1.08	100.00	1.32E+06	1.317
13C12-PCB-095	19.13	1.61	100.00	4.94E+05	0.676
13C12-PCB-153	24.18	1.30	100.00	5.79E+05	0.911

Cleanup Standards

13C12-PCB-028	16	1.05	100.00	1.38E+06	1.711
13C12-PCB-111	22.02	1.64	100.00	5.85E+05	1.140
13C12-PCB-178	25.06	1.03	100.00	4.14E+05	0.843

Injection Standards

13C12-PCB-9	11.9	1.55	100.00	2.03E+06	-
13C12-PCB-52	16.99	0.82	100.00	8.09E+05	-
13C12-PCB-101	20.64	1.64	100.00	5.13E+05	-
13C12-PCB-138	24.87	1.29	100.00	4.90E+05	-
13C12-PCB-194	31.05	0.86	100.00	3.17E+05	-

ALS Life Sciences

Calibration Report

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

Filename 5-201202A07	Inst # HRMS-5	Column SPB0ctyl 256001-01	Run Date 02-Dec-2020 12:39	Approved: <i>S. Jin</i> --e-signature-- 22-Apr-2021
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Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	8.95	3.24	400.00	1.04E+07	1.206
PCB-003	10.47	3.25	400.00	9.32E+06	1.234
PCB-004	10.63	1.49	400.00	4.77E+06	0.897
PCB-015	14.3	1.56	400.00	7.84E+06	1.166
PCB-019	12.62	1.05	400.00	4.81E+06	1.208
PCB-037	18.23	1.06	400.00	5.36E+06	1.158
PCB-054	14.47	0.79	400.00	5.90E+06	1.106
PCB-081	21.8	0.79	400.00	4.07E+06	1.280
PCB-077	22.1	0.79	400.00	4.02E+06	1.239
PCB-104	17.51	1.55	400.00	4.80E+06	1.197
PCB-123	23.08	1.57	400.00	3.16E+06	1.148
PCB-118	23.25	1.58	400.00	3.55E+06	1.237
PCB-114	23.55	1.57	400.00	3.32E+06	1.281
PCB-105	23.91	1.56	400.00	3.27E+06	1.255
PCB-126	25.5	1.59	400.00	3.01E+06	1.283
PCB-155	20.49	1.25	400.00	4.11E+06	1.089
PCB-167	26.38	1.22	400.00	2.77E+06	1.163
PCB-156/157	27.02	1.24	800.00	5.51E+06	1.199
PCB-169	28.67	1.23	400.00	2.46E+06	1.167
PCB-188	23.49	1.02	400.00	2.83E+06	1.010
PCB-189	29.95	1.03	400.00	2.25E+06	1.056
PCB-202	26.26	0.89	400.00	2.39E+06	1.115
PCB-205	31.33	0.90	400.00	1.75E+06	0.958
PCB-208	29.68	0.81	400.00	1.81E+06	1.269
PCB-206	32.4	0.81	400.00	1.26E+06	1.240
PCB-209	33.51	1.19	400.00	1.57E+06	0.970

Extraction Standards

13C12-PCB-001	8.94	2.99	100.00	2.17E+06	1.074
13C12-PCB-003	10.47	3.05	100.00	1.89E+06	0.937
13C12-PCB-004	10.62	1.58	100.00	1.33E+06	0.659
13C12-PCB-015	14.29	1.59	100.00	1.68E+06	0.833
13C12-PCB-019	12.61	1.04	100.00	9.96E+05	0.494
13C12-PCB-037	18.22	1.08	100.00	1.16E+06	1.467
13C12-PCB-054	14.45	0.79	100.00	1.33E+06	1.691
13C12-PCB-081	21.79	0.82	100.00	7.95E+05	1.530
13C12-PCB-077	22.09	0.81	100.00	8.10E+05	1.558
13C12-PCB-104	17.49	1.57	100.00	1.00E+06	1.928
13C12-PCB-123	23.07	1.59	100.00	6.88E+05	1.323
13C12-PCB-118	23.24	1.62	100.00	7.19E+05	1.382
13C12-PCB-114	23.54	1.64	100.00	6.49E+05	1.247
13C12-PCB-105	23.9	1.64	100.00	6.52E+05	1.254
13C12-PCB-126	25.48	1.64	100.00	5.87E+05	1.129
13C12-PCB-155	20.48	1.25	100.00	9.43E+05	1.813
13C12-PCB-167	26.37	1.31	100.00	5.96E+05	1.243
13C12-PCB-156/157	27.01	1.31	200.00	1.15E+06	1.197
13C12-PCB-169	28.67	1.31	100.00	5.27E+05	1.099
13C12-PCB-188	23.48	1.03	100.00	7.01E+05	1.461
13C12-PCB-189	29.93	1.06	100.00	5.34E+05	1.112
13C12-PCB-202	26.25	0.90	100.00	5.36E+05	1.118
13C12-PCB-205	31.31	0.88	100.00	4.56E+05	1.482
13C12-PCB-208	29.67	0.80	100.00	3.57E+05	1.162
13C12-PCB-206	32.37	0.79	100.00	2.54E+05	0.825
13C12-PCB-209	33.5	1.21	100.00	4.06E+05	1.319

Field Spike Standards

13C12-PCB-031	15.81	1.06	100.00	1.35E+06	1.259
13C12-PCB-095	19.11	1.61	100.00	4.93E+05	0.645
13C12-PCB-153	24.17	1.30	100.00	5.65E+05	0.855

Cleanup Standards

13C12-PCB-028	15.99	1.05	100.00	1.40E+06	1.778
13C12-PCB-111	22	1.63	100.00	5.85E+05	1.124
13C12-PCB-178	25.05	1.02	100.00	3.98E+05	0.830

Injection Standards

13C12-PCB-9	11.88	1.56	100.00	2.02E+06	-
13C12-PCB-52	16.97	0.83	100.00	7.89E+05	-
13C12-PCB-101	20.62	1.62	100.00	5.20E+05	-
13C12-PCB-138	24.86	1.26	100.00	4.80E+05	-
13C12-PCB-194	31.03	0.87	100.00	3.08E+05	-

ALS Life Sciences

Calibration Report

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

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

Approved: *S. Jin*
 --e-signature--
 22-Apr-2021

Target Analytes	Ret. Time	Ion Ratio	Concentration ng/mL	Response	RRF
PCB-001	8.95	2.91	2000.00	5.31E+07	1.122
PCB-003	10.47	3.15	2000.00	5.23E+07	1.251
PCB-004	10.63	1.50	2000.00	2.62E+07	0.916
PCB-015	14.29	1.57	2000.00	4.52E+07	1.187
PCB-019	12.62	1.05	2000.00	2.62E+07	1.211
PCB-037	18.23	1.06	2000.00	3.18E+07	1.193
PCB-054	14.47	0.78	2000.00	3.29E+07	1.115
PCB-081	21.8	0.78	2000.00	2.48E+07	1.306
PCB-077	22.1	0.79	2000.00	2.43E+07	1.261
PCB-104	17.51	1.55	2000.00	2.77E+07	1.230
PCB-123	23.08	1.58	2000.00	1.98E+07	1.182
PCB-118	23.25	1.57	2000.00	2.20E+07	1.251
PCB-114	23.55	1.56	2000.00	2.09E+07	1.265
PCB-105	23.91	1.56	2000.00	2.01E+07	1.302
PCB-126	25.5	1.58	2000.00	1.99E+07	1.345
PCB-155	20.49	1.26	2000.00	2.52E+07	1.130
PCB-167	26.39	1.22	2000.00	1.75E+07	1.166
PCB-156/157	27.02	1.22	4000.00	3.68E+07	1.209
PCB-169	28.67	1.23	2000.00	1.60E+07	1.176
PCB-188	23.49	1.01	2000.00	1.81E+07	1.019
PCB-189	29.95	1.05	2000.00	1.44E+07	1.075
PCB-202	26.27	0.88	2000.00	1.55E+07	1.125
PCB-205	31.34	0.91	2000.00	1.10E+07	0.962
PCB-208	29.68	0.80	2000.00	1.19E+07	1.262
PCB-206	32.4	0.80	2000.00	7.99E+06	1.253
PCB-209	33.53	1.18	2000.00	9.81E+06	0.978

Extraction Standards

13C12-PCB-001	8.94	3.03	100.00	2.36E+06	1.335
13C12-PCB-003	10.47	2.99	100.00	2.09E+06	1.178
13C12-PCB-004	10.62	1.58	100.00	1.43E+06	0.806
13C12-PCB-015	14.28	1.64	100.00	1.91E+06	1.076
13C12-PCB-019	12.61	1.03	100.00	1.08E+06	0.610
13C12-PCB-037	18.22	1.07	100.00	1.33E+06	1.908
13C12-PCB-054	14.46	0.79	100.00	1.48E+06	2.114
13C12-PCB-081	21.79	0.82	100.00	9.50E+05	1.916
13C12-PCB-077	22.08	0.83	100.00	9.62E+05	1.941
13C12-PCB-104	17.5	1.54	100.00	1.13E+06	2.271
13C12-PCB-123	23.08	1.57	100.00	8.38E+05	1.691
13C12-PCB-118	23.25	1.61	100.00	8.79E+05	1.773
13C12-PCB-114	23.55	1.63	100.00	8.27E+05	1.667
13C12-PCB-105	23.9	1.62	100.00	7.72E+05	1.557
13C12-PCB-126	25.48	1.61	100.00	7.41E+05	1.494
13C12-PCB-155	20.48	1.24	100.00	1.12E+06	2.252
13C12-PCB-167	26.38	1.30	100.00	7.51E+05	1.550
13C12-PCB-156/157	27.01	1.31	200.00	1.52E+06	1.570
13C12-PCB-169	28.66	1.30	100.00	6.81E+05	1.405
13C12-PCB-188	23.48	1.02	100.00	8.89E+05	1.833
13C12-PCB-189	29.93	1.06	100.00	6.70E+05	1.382
13C12-PCB-202	26.26	0.90	100.00	6.88E+05	1.418
13C12-PCB-205	31.31	0.88	100.00	5.72E+05	1.695
13C12-PCB-208	29.67	0.80	100.00	4.70E+05	1.393
13C12-PCB-206	32.39	0.80	100.00	3.19E+05	0.944
13C12-PCB-209	33.5	1.20	100.00	5.01E+05	1.486

Field Spike Standards

13C12-PCB-031	15.82	1.07	100.00	1.24E+06	1.028
13C12-PCB-095	19.12	1.63	100.00	4.53E+05	0.493
13C12-PCB-153	24.17	1.32	100.00	5.64E+05	0.682

Cleanup Standards

13C12-PCB-028	15.99	1.06	100.00	1.28E+06	1.829
13C12-PCB-111	22.01	1.63	100.00	5.77E+05	1.164
13C12-PCB-178	25.05	1.04	100.00	4.05E+05	0.834

Injection Standards

13C12-PCB-9	11.88	1.57	100.00	1.77E+06	-
13C12-PCB-52	16.98	0.83	100.00	6.98E+05	-
13C12-PCB-101	20.62	1.61	100.00	4.96E+05	-
13C12-PCB-138	24.86	1.30	100.00	4.85E+05	-
13C12-PCB-194	31.03	0.88	100.00	3.38E+05	-

Daily Single Point 209 Congener Calibration Report

Sample Name: 5-210420A01 Sample ID: H5-21-WDM-306

Table with 34 columns: Target Analyte, #HOM, Resp, Ra, Ral=YE RT, Conc., H/A, IAL, ICRF, User RF, %Rec, Mod.Date, Mod.Con, Noise 1, Noise 2, Ion1 HT, Ion2 HT, Ion1 s/n, Ion2 s/n, Ion1 Area, Ion2 Area, RRT, RT, CL, UCL, Acc.Date, Acc.Time. The table lists calibration data for various congeners (e.g., PCB-1, PCB-2, etc.) across multiple runs (e.g., 1, 2, 3, 4, 5, etc.).

ALS Life Sciences

Continuing Calibration Report

Sample Name CVS
 ALS Sample ID H5-20-RS1-1035
 Analysis Method EPA 1668C
 Analysis Type CCV
 Sample Matrix QC

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

Approved:
 S. Jin
 --e-signature--
 22-Apr-2021

Run Information **Run 1**
 Filename 5-201202A09
 Run Date 02-Dec-20 14:03
 Final Volume 25 ul
 Dilution Factor 1
 Analysis Units %
 Instrument - Column HRMS-5 SPBOctyl 256001-01

Target Analytes	pg/uL	Ret.		Limits		Flags
		Time	% Rec			
PCB-001	50	8.97	104	75-125		
PCB-003	50	10.49	101	75-125		
PCB-004	50	10.65	107	75-125		
PCB-015	50	14.32	109	75-125		
PCB-019	50	12.64	111	75-125		
PCB-037	50	18.27	107	75-125		
PCB-054	50	14.49	108	75-125		
PCB-081	50	21.83	103	75-125		
PCB-077	50	22.13	103	75-125		
PCB-104	50	17.52	98	75-125		
PCB-123	50	23.10	104	75-125		
PCB-118	50	23.27	103	75-125		
PCB-114	50	23.58	104	75-125		
PCB-105	50	23.93	101	75-125		
PCB-126	50	25.52	101	75-125		
PCB-155	50	20.51	100	75-125		
PCB-167	50	26.40	100	75-125		
PCB-156/157	100	27.04	103	75-125		
PCB-169	50	28.70	106	75-125		
PCB-188	50	23.50	103	75-125		
PCB-189	50	29.96	103	75-125		
PCB-202	50	26.28	105	75-125		
PCB-205	50	31.34	99	75-125		
PCB-208	50	29.69	98	75-125		
PCB-206	50	32.41	95	75-125		
PCB-209	50	33.53	105	75-125		
Extraction Standards						
		Time	% Rec	Limits		
13C12-PCB-001	100	8.97	97	50-145		
13C12-PCB-003	100	10.48	97	50-145		
13C12-PCB-004	100	10.63	94	50-145		
13C12-PCB-015	100	14.32	98	50-145		
13C12-PCB-019	100	12.62	92	50-145		
13C12-PCB-037	100	18.25	94	50-145		
13C12-PCB-054	100	14.47	92	50-145		
13C12-PCB-081	100	21.82	94	50-145		
13C12-PCB-077	100	22.12	93	50-145		
13C12-PCB-104	100	17.51	92	50-145		
13C12-PCB-123	100	23.09	93	50-145		
13C12-PCB-118	100	23.26	94	50-145		
13C12-PCB-114	100	23.56	92	50-145		
13C12-PCB-105	100	23.91	93	50-145		
13C12-PCB-126	100	25.52	92	50-145		
13C12-PCB-155	100	20.49	91	50-145		
13C12-PCB-167	100	26.39	98	50-145		
13C12-PCB-156/157	200	27.03	97	50-145		
13C12-PCB-169	100	28.69	101	50-145		
13C12-PCB-188	100	23.49	92	50-145		
13C12-PCB-189	100	29.95	104	50-145		
13C12-PCB-202	100	26.26	94	50-145		
13C12-PCB-205	100	31.33	97	50-145		
13C12-PCB-208	100	29.68	94	50-145		
13C12-PCB-206	100	32.40	97	50-145		
13C12-PCB-209	100	33.51	99	50-145		
Field Spike Standards						
13C12-PCB-031	100	15.83	109	70-130		
13C12-PCB-095	100	19.13	106	70-130		
13C12-PCB-153	100	24.18	102	70-130		
Cleanup Standards						
13C12-PCB-028	100	16.00	101	65-135		
13C12-PCB-111	100	22.02	99	75-125		
13C12-PCB-178	100	25.06	99	75-125		

ALS Life Sciences

Continuing Calibration Report

Sample Name CCV
 ALS Sample ID H5-21-CCV-301
 Analysis Method EPA 1668C
 Analysis Type CCV
 Sample Matrix QC

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

Approved:
 S. Jin
 --e-signature--
 22-Apr-2021

Run Information **Run 1**
 Filename 5-210419A02
 Run Date 19-Apr-21 15:41
 Final Volume 25 ul
 Dilution Factor 1
 Analysis Units %
 Instrument - Column HRMS-5 SPBOctyl 256608-05

Target Analytes	pg/uL	Ret.		Limits	
		Time	% Rec		Flags
PCB-001	50	8.99	96	75-125	
PCB-003	50	10.49	93	75-125	
PCB-004	50	10.66	96	75-125	
PCB-015	50	14.30	99	75-125	
PCB-019	50	12.64	98	75-125	
PCB-037	50	18.23	98	75-125	
PCB-054	50	14.48	98	75-125	
PCB-081	50	21.80	98	75-125	
PCB-077	50	22.10	99	75-125	
PCB-104	50	17.51	101	75-125	
PCB-123	50	23.08	98	75-125	
PCB-118	50	23.25	102	75-125	
PCB-114	50	23.55	95	75-125	
PCB-105	50	23.90	96	75-125	
PCB-126	50	25.50	99	75-125	
PCB-155	50	20.49	102	75-125	
PCB-167	50	26.38	96	75-125	
PCB-156/157	100	27.02	98	75-125	
PCB-169	50	28.66	98	75-125	
PCB-188	50	23.49	103	75-125	
PCB-189	50	29.93	100	75-125	
PCB-202	50	26.26	102	75-125	
PCB-205	50	31.31	104	75-125	
PCB-208	50	29.68	98	75-125	
PCB-206	50	32.37	98	75-125	
PCB-209	50	33.50	92	75-125	
Extraction Standards					
		Time	% Rec	Limits	
13C12-PCB-001	100	8.98	95	50-145	
13C12-PCB-003	100	10.49	99	50-145	
13C12-PCB-004	100	10.65	95	50-145	
13C12-PCB-015	100	14.29	106	50-145	
13C12-PCB-019	100	12.62	90	50-145	
13C12-PCB-037	100	18.22	104	50-145	
13C12-PCB-054	100	14.47	77	50-145	
13C12-PCB-081	100	21.79	98	50-145	
13C12-PCB-077	100	22.09	99	50-145	
13C12-PCB-104	100	17.50	76	50-145	
13C12-PCB-123	100	23.07	97	50-145	
13C12-PCB-118	100	23.24	92	50-145	
13C12-PCB-114	100	23.54	99	50-145	
13C12-PCB-105	100	23.89	101	50-145	
13C12-PCB-126	100	25.49	107	50-145	
13C12-PCB-155	100	20.49	82	50-145	
13C12-PCB-167	100	26.37	101	50-145	
13C12-PCB-156/157	200	27.01	101	50-145	
13C12-PCB-169	100	28.66	106	50-145	
13C12-PCB-188	100	23.48	84	50-145	
13C12-PCB-189	100	29.92	103	50-145	
13C12-PCB-202	100	26.25	90	50-145	
13C12-PCB-205	100	31.30	95	50-145	
13C12-PCB-208	100	29.67	96	50-145	
13C12-PCB-206	100	32.36	100	50-145	
13C12-PCB-209	100	33.47	90	50-145	
Field Spike Standards					
13C12-PCB-031	100	15.81	107	70-130	
13C12-PCB-095	100	19.11	109	70-130	
13C12-PCB-153	100	24.17	104	70-130	
Cleanup Standards					
13C12-PCB-028	100	15.99	95	65-135	
13C12-PCB-111	100	22.00	101	75-125	
13C12-PCB-178	100	25.05	99	75-125	

ALS Life Sciences

Continuing Calibration Report

Sample Name CCV
 ALS Sample ID H5-21-CCV-303
 Analysis Method EPA 1668C
 Analysis Type CCV
 Sample Matrix QC

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

Approved:
 S. Jin
 --e-signature--
 22-Apr-2021

Run Information **Run 1**
 Filename 5-210419A13
 Run Date 19-Apr-21 23:23
 Final Volume 25 ul
 Dilution Factor 1
 Analysis Units %
 Instrument - Column HRMS-5 SPBOctyl 256608-05

Target Analytes	pg/uL	Ret.		Limits	
		Time	% Rec		Flags
PCB-001	50	8.99	96	75-125	
PCB-003	50	10.49	92	75-125	
PCB-004	50	10.66	99	75-125	
PCB-015	50	14.30	102	75-125	
PCB-019	50	12.64	104	75-125	
PCB-037	50	18.23	99	75-125	
PCB-054	50	14.48	102	75-125	
PCB-081	50	21.80	98	75-125	
PCB-077	50	22.10	97	75-125	
PCB-104	50	17.51	104	75-125	
PCB-123	50	23.08	99	75-125	
PCB-118	50	23.25	103	75-125	
PCB-114	50	23.55	95	75-125	
PCB-105	50	23.90	97	75-125	
PCB-126	50	25.50	99	75-125	
PCB-155	50	20.49	104	75-125	
PCB-167	50	26.38	99	75-125	
PCB-156/157	100	27.02	99	75-125	
PCB-169	50	28.68	100	75-125	
PCB-188	50	23.49	106	75-125	
PCB-189	50	29.93	101	75-125	
PCB-202	50	26.26	104	75-125	
PCB-205	50	31.33	105	75-125	
PCB-208	50	29.68	99	75-125	
PCB-206	50	32.39	98	75-125	
PCB-209	50	33.50	93	75-125	
Extraction Standards					
		Time	% Rec	Limits	
13C12-PCB-001	100	8.98	101	50-145	
13C12-PCB-003	100	10.48	107	50-145	
13C12-PCB-004	100	10.65	95	50-145	
13C12-PCB-015	100	14.29	110	50-145	
13C12-PCB-019	100	12.62	79	50-145	
13C12-PCB-037	100	18.22	106	50-145	
13C12-PCB-054	100	14.46	72	50-145	
13C12-PCB-081	100	21.79	101	50-145	
13C12-PCB-077	100	22.09	102	50-145	
13C12-PCB-104	100	17.50	73	50-145	
13C12-PCB-123	100	23.07	102	50-145	
13C12-PCB-118	100	23.24	96	50-145	
13C12-PCB-114	100	23.54	104	50-145	
13C12-PCB-105	100	23.89	104	50-145	
13C12-PCB-126	100	25.49	106	50-145	
13C12-PCB-155	100	20.48	75	50-145	
13C12-PCB-167	100	26.37	99	50-145	
13C12-PCB-156/157	200	27.01	101	50-145	
13C12-PCB-169	100	28.66	107	50-145	
13C12-PCB-188	100	23.48	79	50-145	
13C12-PCB-189	100	29.92	112	50-145	
13C12-PCB-202	100	26.25	80	50-145	
13C12-PCB-205	100	31.30	95	50-145	
13C12-PCB-208	100	29.67	91	50-145	
13C12-PCB-206	100	32.36	97	50-145	
13C12-PCB-209	100	33.48	100	50-145	
Field Spike Standards					
13C12-PCB-031	100	15.81	116	70-130	
13C12-PCB-095	100	19.11	106	70-130	
13C12-PCB-153	100	24.17	108	70-130	
Cleanup Standards					
13C12-PCB-028	100	15.98	101	65-135	
13C12-PCB-111	100	22.00	98	75-125	
13C12-PCB-178	100	25.05	93	75-125	

ALS Life Sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a
ALS Sample ID	H5-21-CCV-305	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-- 22-Apr-2021

Run Information		Run 1
Filename		5-210419A27
Run Date		20-Apr-21 09:23
Final Volume		25 ul
Dilution Factor		1
Analysis Units		%
Instrument - Column		HRMS-5 SPBOctyl 256608-05

Target Analytes	pg/uL	Ret. Limits		
		Time	% Rec	Flags
PCB-001	50	8.99	96	75-125
PCB-003	50	10.49	95	75-125
PCB-004	50	10.65	99	75-125
PCB-015	50	14.30	98	75-125
PCB-019	50	12.62	105	75-125
PCB-037	50	18.23	99	75-125
PCB-054	50	14.47	105	75-125
PCB-081	50	21.79	98	75-125
PCB-077	50	22.09	98	75-125
PCB-104	50	17.51	105	75-125
PCB-123	50	23.08	98	75-125
PCB-118	50	23.25	103	75-125
PCB-114	50	23.55	95	75-125
PCB-105	50	23.90	97	75-125
PCB-126	50	25.49	97	75-125
PCB-155	50	20.49	107	75-125
PCB-167	50	26.38	100	75-125
PCB-156/157	100	27.01	99	75-125
PCB-169	50	28.66	101	75-125
PCB-188	50	23.48	106	75-125
PCB-189	50	29.93	101	75-125
PCB-202	50	26.26	104	75-125
PCB-205	50	31.31	105	75-125
PCB-208	50	29.67	100	75-125
PCB-206	50	32.37	101	75-125
PCB-209	50	33.50	93	75-125

Extraction Standards		Time	% Rec	Limits
13C12-PCB-001	100	8.98	106	50-145
13C12-PCB-003	100	10.48	111	50-145
13C12-PCB-004	100	10.65	96	50-145
13C12-PCB-015	100	14.29	114	50-145
13C12-PCB-019	100	12.62	76	50-145
13C12-PCB-037	100	18.21	110	50-145
13C12-PCB-054	100	14.46	68	50-145
13C12-PCB-081	100	21.78	104	50-145
13C12-PCB-077	100	22.09	104	50-145
13C12-PCB-104	100	17.49	69	50-145
13C12-PCB-123	100	23.07	106	50-145
13C12-PCB-118	100	23.24	100	50-145
13C12-PCB-114	100	23.54	105	50-145
13C12-PCB-105	100	23.89	104	50-145
13C12-PCB-126	100	25.47	108	50-145
13C12-PCB-155	100	20.48	72	50-145
13C12-PCB-167	100	26.37	95	50-145
13C12-PCB-156/157	200	27.00	96	50-145
13C12-PCB-169	100	28.65	100	50-145
13C12-PCB-188	100	23.47	78	50-145
13C12-PCB-189	100	29.92	107	50-145
13C12-PCB-202	100	26.25	73	50-145
13C12-PCB-205	100	31.30	95	50-145
13C12-PCB-208	100	29.65	91	50-145
13C12-PCB-206	100	32.36	93	50-145
13C12-PCB-209	100	33.47	99	50-145

Field Spike Standards		Time	% Rec	Limits
13C12-PCB-031	100	15.81	116	70-130
13C12-PCB-095	100	19.11	103	70-130
13C12-PCB-153	100	24.16	113	70-130

Cleanup Standards		Time	% Rec	Limits
13C12-PCB-028	100	15.98	102	65-135
13C12-PCB-111	100	22.00	100	75-125
13C12-PCB-178	100	25.04	90	75-125

ALS Life Sciences

Continuing Calibration Report

Sample Name CCV
 ALS Sample ID H5-21-CCV-308
 Analysis Method EPA 1668C
 Analysis Type CCV
 Sample Matrix QC

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

Approved:
 S. Jin
 --e-signature--
 22-Apr-2021

Run Information **Run 1**
 Filename 5-210420A15
 Run Date 21-Apr-21 06:23
 Final Volume 25 ul
 Dilution Factor 1
 Analysis Units %
 Instrument - Column HRMS-5 SPBOctyl 256608-05

Target Analytes	pg/uL	Ret.		Limits	
		Time	% Rec		Flags
PCB-001	50	8.99	98	75-125	
PCB-003	50	10.49	88	75-125	
PCB-004	50	10.66	100	75-125	
PCB-015	50	14.31	100	75-125	
PCB-019	50	12.64	101	75-125	
PCB-037	50	18.23	101	75-125	
PCB-054	50	14.49	102	75-125	
PCB-081	50	21.79	100	75-125	
PCB-077	50	22.09	100	75-125	
PCB-104	50	17.51	104	75-125	
PCB-123	50	23.07	100	75-125	
PCB-118	50	23.25	104	75-125	
PCB-114	50	23.54	96	75-125	
PCB-105	50	23.90	98	75-125	
PCB-126	50	25.49	100	75-125	
PCB-155	50	20.49	105	75-125	
PCB-167	50	26.37	101	75-125	
PCB-156/157	100	27.01	100	75-125	
PCB-169	50	28.65	102	75-125	
PCB-188	50	23.47	106	75-125	
PCB-189	50	29.92	103	75-125	
PCB-202	50	26.25	105	75-125	
PCB-205	50	31.30	104	75-125	
PCB-208	50	29.65	98	75-125	
PCB-206	50	32.35	99	75-125	
PCB-209	50	33.45	94	75-125	
Extraction Standards					
		Time	% Rec	Limits	
13C12-PCB-001	100	8.98	101	50-145	
13C12-PCB-003	100	10.48	116	50-145	
13C12-PCB-004	100	10.65	93	50-145	
13C12-PCB-015	100	14.29	124	50-145	
13C12-PCB-019	100	12.62	74	50-145	
13C12-PCB-037	100	18.22	117	50-145	
13C12-PCB-054	100	14.47	68	50-145	
13C12-PCB-081	100	21.78	107	50-145	
13C12-PCB-077	100	22.09	108	50-145	
13C12-PCB-104	100	17.50	70	50-145	
13C12-PCB-123	100	23.06	105	50-145	
13C12-PCB-118	100	23.23	99	50-145	
13C12-PCB-114	100	23.53	107	50-145	
13C12-PCB-105	100	23.89	109	50-145	
13C12-PCB-126	100	25.47	120	50-145	
13C12-PCB-155	100	20.47	75	50-145	
13C12-PCB-167	100	26.36	102	50-145	
13C12-PCB-156/157	200	27.00	102	50-145	
13C12-PCB-169	100	28.64	109	50-145	
13C12-PCB-188	100	23.45	80	50-145	
13C12-PCB-189	100	29.90	111	50-145	
13C12-PCB-202	100	26.22	78	50-145	
13C12-PCB-205	100	31.28	95	50-145	
13C12-PCB-208	100	29.64	91	50-145	
13C12-PCB-206	100	32.33	92	50-145	
13C12-PCB-209	100	33.42	93	50-145	
Field Spike Standards					
13C12-PCB-031	100	15.81	111	70-130	
13C12-PCB-095	100	19.11	102	70-130	
13C12-PCB-153	100	24.14	106	70-130	
Cleanup Standards					
13C12-PCB-028	100	15.98	110	65-135	
13C12-PCB-111	100	21.99	101	75-125	
13C12-PCB-178	100	25.04	95	75-125	

SVOC DATA PACKAGE

SECTION 5: QC SAMPLE DATA

Including:

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

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a		
ALS Sample ID	WG3507253-1	Extraction Date	29-Mar-21		Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1	Puf	
Analysis Type	Blank	Percent Moisture	n/a		
Sample Matrix	QC	Split Ratio	4		

Run Information	Run 1
Filename	5-210419A06
Run Date	19-Apr-21 18:28
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPB0ctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-001		8.97	<2.9	1.1	J,R	2.9	100
PCB-002		NotFnd	<1.0	1.0	U		100
PCB-003		10.48	2.59	0.90	J		100
PCB-004		NotFnd	<7.6	7.6	U		100
PCB-010		NotFnd	<2.5	2.5	U		100
PCB-009		NotFnd	<2.5	2.5	U		100
PCB-007		NotFnd	<2.4	2.4	U		100
PCB-006		NotFnd	<2.5	2.5	U		100
PCB-005		NotFnd	<2.5	2.5	U		100
PCB-008		12.44	<6.7	2.4	J,R	6.7	100
PCB-014		NotFnd	<3.2	3.2	U		100
PCB-011		13.93	33.5	3.3	J		100
PCB-012/013		NotFnd	<3.2	3.2	U		100
PCB-015		NotFnd	<2.7	2.7	U		100
PCB-019		NotFnd	<4.0	4.0	U		100
PCB-018/030		13.73	2.15	1.2	M,J		100
PCB-017		NotFnd	<1.4	1.4	U		100
PCB-027		NotFnd	<0.98	0.98	U		100
PCB-024		NotFnd	<0.99	0.99	U		100
PCB-016		NotFnd	<1.7	1.7	U		100
PCB-032		NotFnd	<0.95	0.95	U		100
PCB-034		NotFnd	<1.6	1.6	U		100
PCB-023		NotFnd	<1.4	1.4	U		100
PCB-026/029		NotFnd	<1.5	1.5	U		100
PCB-025		NotFnd	<1.3	1.3	U		100
PCB-031		15.83	5.00	1.4	J		100
PCB-020/028		16.00	5.48	1.4	J		100
PCB-021/033		16.14	<3.5	1.5	J,R	3.5	100
PCB-022		16.39	<1.8	1.5	J,R	1.8	100
PCB-036		NotFnd	<1.4	1.4	U		100
PCB-039		NotFnd	<1.4	1.4	U		100
PCB-038		NotFnd	<1.6	1.6	U		100
PCB-035		NotFnd	<1.6	1.6	U		100
PCB-037		18.25	2.20	1.3	M,J		100
PCB-054		NotFnd	<2.0	2.0	U		100
PCB-050/053		NotFnd	<0.99	0.99	U		100
PCB-045/051		NotFnd	<1.0	1.0	U		100
PCB-046		NotFnd	<1.2	1.2	U		100
PCB-052		16.99	<2.2	1.0	M,J,R	2.2	100
PCB-073		NotFnd	<0.75	0.75	U		100
PCB-043		NotFnd	<1.3	1.3	U		100
PCB-049/069		NotFnd	<0.93	0.93	U		100
PCB-048		NotFnd	<1.0	1.0	U		100
PCB-044/047/065		17.56	<2.6	0.98	J,R	2.6	100
PCB-059/062/075		NotFnd	<0.78	0.78	U		100
PCB-042		NotFnd	<1.2	1.2	U		100
PCB-040/041/071		NotFnd	<1.1	1.1	U		100
PCB-064		NotFnd	<0.80	0.80	U		100
PCB-072		NotFnd	<0.96	0.96	U		100
PCB-068		NotFnd	<0.86	0.86	U		100
PCB-057		NotFnd	<1.0	1.0	U		100
PCB-058		NotFnd	<0.95	0.95	U		100
PCB-067		NotFnd	<0.83	0.83	U		100
PCB-063		NotFnd	<0.97	0.97	U		100
PCB-061/070/074/076		19.62	<3.6	0.97	M,J,R	3.6	100
PCB-066		19.79	<1.6	0.97	M,J,R	1.6	100
PCB-055		NotFnd	<0.99	0.99	U		100
PCB-056		NotFnd	<1.1	1.1	U		100
PCB-060		NotFnd	<0.99	0.99	U		100
PCB-080		NotFnd	<0.87	0.87	U		100
PCB-079		NotFnd	<0.94	0.94	M,U		100
PCB-078		NotFnd	<1.1	1.1	U		100
PCB-081	0.0003	NotFnd	<1.0	1.0	U		100
PCB-077	0.0001	NotFnd	<0.78	0.78	U		100
PCB-104		NotFnd	<2.1	2.1	U		100
PCB-096		NotFnd	<1.3	1.3	U		100
PCB-103		NotFnd	<2.3	2.3	U		100
PCB-094		NotFnd	<2.6	2.6	U		100
PCB-095		NotFnd	<2.6	2.6	U		100
PCB-093/098/100/102		NotFnd	<2.5	2.5	U		100

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a			Approved: S. Jin --e-signature-- 22-Apr-2021
ALS Sample ID	WG3507253-1	Extraction Date	29-Mar-21			
Analysis Method	EPA 1668C	Sample Size	1	Puf		
Analysis Type	Blank	Percent Moisture	n/a			
Sample Matrix	QC	Split Ratio	4			

Run Information		Run 1	
Filename	5-210419A06	Run Date	19-Apr-21 18:28
Final Volume	25 ul	Dilution Factor	1
Analysis Units	pg	Instrument - Column	HRMS-5 SPB0ctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-088/091		NotFnd	<2.6	2.6	U		100
PCB-084		NotFnd	<2.9	2.9	U		100
PCB-089		NotFnd	<2.9	2.9	U		100
PCB-121		NotFnd	<1.8	1.8	U		100
PCB-092		NotFnd	<2.8	2.8	U		100
PCB-090/101/113		NotFnd	<2.3	2.3	U		100
PCB-083/099		NotFnd	<2.7	2.7	U		100
PCB-112		NotFnd	<1.9	1.9	U		100
PCB-086/087/097/109/119/125		NotFnd	<2.3	2.3	U		100
PCB-085/110/115/116/117		NotFnd	<2.2	2.2	U		100
PCB-082		NotFnd	<3.5	3.5	U		100
PCB-111		NotFnd	<1.9	1.9	U		100
PCB-120		NotFnd	<2.0	2.0	U		100
PCB-108/124		NotFnd	<1.6	1.6	U		100
PCB-107		NotFnd	<1.6	1.6	U		100
PCB-123	0.00003	NotFnd	<1.6	1.6	U		100
PCB-106		NotFnd	<1.7	1.7	U		100
PCB-118	0.00003	NotFnd	<1.6	1.6	U		100
PCB-122		NotFnd	<1.8	1.8	U		100
PCB-114	0.00003	NotFnd	<1.6	1.6	U		100
PCB-105	0.00003	NotFnd	<1.1	1.1	U		100
PCB-127		NotFnd	<1.7	1.7	U		100
PCB-126	0.1	NotFnd	<1.3	1.3	U		100
PCB-155		NotFnd	<0.35	0.35	U		100
PCB-152		NotFnd	<0.37	0.37	U		100
PCB-150		NotFnd	<0.34	0.34	U		100
PCB-136		NotFnd	<0.38	0.38	U		100
PCB-145		NotFnd	<0.36	0.36	U		100
PCB-148		NotFnd	<0.52	0.52	U		100
PCB-135/151		NotFnd	<0.54	0.54	U		100
PCB-154		NotFnd	<0.40	0.40	U		100
PCB-144		NotFnd	<0.52	0.52	U		100
PCB-147/149		NotFnd	<0.70	0.70	U		100
PCB-134/143		NotFnd	<0.87	0.87	U		100
PCB-139/140		NotFnd	<0.71	0.71	U		100
PCB-131		NotFnd	<0.91	0.91	U		100
PCB-142		NotFnd	<0.87	0.87	U		100
PCB-132		NotFnd	<0.82	0.82	U		100
PCB-133		NotFnd	<0.85	0.85	U		100
PCB-165		NotFnd	<0.61	0.61	U		100
PCB-146		NotFnd	<0.74	0.74	U		100
PCB-161		NotFnd	<0.60	0.60	U		100
PCB-153/168		24.19	1.41	0.63	J		100
PCB-141		NotFnd	<0.79	0.79	U		100
PCB-130		NotFnd	<0.97	0.97	U		100
PCB-137/164		NotFnd	<0.69	0.69	U		100
PCB-129/138/163		24.86	<1.4	0.84	J,R	1.4	100
PCB-160		NotFnd	<0.56	0.56	U		100
PCB-158		NotFnd	<0.54	0.54	U		100
PCB-128/166		NotFnd	<0.71	0.71	U		100
PCB-159		NotFnd	<0.61	0.61	U		100
PCB-162		26.14	<0.65	0.61	J,R	0.65	100
PCB-167	0.00003	NotFnd	<0.57	0.57	U		100
PCB-156/157	0.00003	NotFnd	<0.89	0.89	U		200
PCB-169	0.03	NotFnd	<0.57	0.57	U		100
PCB-188		NotFnd	<0.47	0.47	U		100
PCB-179		NotFnd	<0.47	0.47	U		100
PCB-184		NotFnd	<0.42	0.42	U		100
PCB-176		NotFnd	<0.48	0.48	U		100
PCB-186		NotFnd	<0.47	0.47	U		100
PCB-178		NotFnd	<0.68	0.68	U		100
PCB-175		NotFnd	<0.67	0.67	U		100
PCB-187		NotFnd	<0.57	0.57	U		100
PCB-182		NotFnd	<0.61	0.61	U		100
PCB-183		NotFnd	<0.61	0.61	U		100
PCB-185		NotFnd	<0.67	0.67	U		100
PCB-174		NotFnd	<0.62	0.62	U		100
PCB-177		NotFnd	<0.70	0.70	U		100
PCB-181		NotFnd	<0.63	0.63	U		100
PCB-171/173		NotFnd	<0.70	0.70	U		100
PCB-172		NotFnd	<0.70	0.70	U		100

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a		
ALS Sample ID	WG3507253-1	Extraction Date	29-Mar-21		
Analysis Method	EPA 1668C	Sample Size	1	Puf	
Analysis Type	Blank	Percent Moisture	n/a		Approved: S. Jin --e-signature-- 22-Apr-2021
Sample Matrix	QC	Split Ratio	4		

Run Information	Run 1
Filename	5-210419A06
Run Date	19-Apr-21 18:28
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-192		NotFnd	<0.52	0.52	U		100
PCB-180/193		NotFnd	<0.56	0.56	U		100
PCB-191		NotFnd	<0.52	0.52	U		100
PCB-170		NotFnd	<0.74	0.74	U		100
PCB-190		NotFnd	<0.47	0.47	U		100
PCB-189	0.00003	NotFnd	<0.48	0.48	U		100
PCB-202		NotFnd	<0.42	0.42	U		100
PCB-201		NotFnd	<0.43	0.43	U		100
PCB-204		NotFnd	<0.43	0.43	U		100
PCB-197		NotFnd	<0.40	0.40	U		100
PCB-200		NotFnd	<0.43	0.43	U		100
PCB-198/199		NotFnd	<0.59	0.59	U		100
PCB-196		NotFnd	<0.60	0.60	U		100
PCB-203		NotFnd	<0.53	0.53	U		100
PCB-195		NotFnd	<0.62	0.62	U		100
PCB-194		31.05	<1.9	0.60	J,R	1.9	100
PCB-205		NotFnd	<0.57	0.57	U		100
PCB-208		NotFnd	<0.83	0.83	U		100
PCB-207		NotFnd	<0.99	0.99	U		100
PCB-206		NotFnd	<1.7	1.7	U		100
PCB-209		NotFnd	<0.32	0.32	U		100
Extraction Standards	pg	Time	% Rec	Limits			
13C12-PCB-001	4000	8.95	41	5-145			
13C12-PCB-003	4000	10.48	65	5-145			
13C12-PCB-004	4000	10.63	28	5-145			
13C12-PCB-015	4000	14.30	81	5-145			
13C12-PCB-019	4000	12.62	21	5-145			
13C12-PCB-037	4000	18.23	93	5-145			
13C12-PCB-054	4000	14.46	17	5-145			
13C12-PCB-081	4000	21.80	74	10-145			
13C12-PCB-077	4000	22.10	101	10-145			
13C12-PCB-104	4000	17.50	26	10-145			
13C12-PCB-123	4000	23.08	72	10-145			
13C12-PCB-118	4000	23.25	64	10-145			
13C12-PCB-114	4000	23.55	67	10-145			
13C12-PCB-105	4000	23.90	102	10-145			
13C12-PCB-126	4000	25.50	99	10-145			
13C12-PCB-155	4000	20.49	67	10-145			
13C12-PCB-167	4000	26.38	86	10-145			
13C12-PCB-156/157	8000	27.02	76	10-145			
13C12-PCB-169	4000	28.66	106	10-145			
13C12-PCB-188	4000	23.48	81	10-145			
13C12-PCB-189	4000	29.93	91	10-145			
13C12-PCB-202	4000	26.26	86	10-145			
13C12-PCB-205	4000	31.31	84	10-145			
13C12-PCB-208	4000	29.67	101	10-145			
13C12-PCB-206	4000	32.37	87	10-145			
13C12-PCB-209	4000	33.48	100	10-145			
Field Spike Standards							
13C12-PCB-031			NS	70-130			
13C12-PCB-095			NS	70-130			
13C12-PCB-153			NS	70-130			
Cleanup Standards							
13C12-PCB-028	4000	15.99	48	5-145			
13C12-PCB-111	4000	22.01	66	10-145			
13C12-PCB-178	4000	25.06	67	10-145			

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Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a			Approved: <i>S. Jin</i> --e-signature-- 22-Apr-2021
ALS Sample ID	WG3507253-1	Extraction Date	29-Mar-21			
Analysis Method	EPA 1668C	Sample Size	1	Puf		
Analysis Type	Blank	Percent Moisture	n/a			
Sample Matrix	QC	Split Ratio	4			

Run Information	Run 1
Filename	5-210419A06
Run Date	19-Apr-21 18:28
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
Homologue Group Totals							
Total MonoCB			5.49	0.90	J		400
Total DiCB			40.2	2.4	J		800
Total TriCB			20.1	0.95	J		800
Total TetraCB			10.0	0.75	J		1600
Total PentaCB			<1.1	1.1	U		1600
Total HexaCB			3.46	0.34	J		1600
Total HeptaCB			<0.42	0.42	U		800
Total OctaCB			1.90	0.40	J		800
Total NonaCB			<0.83	0.83	U		400
DecaCB			<0.32	0.32	U		400
Total PCB			81.2		J		3200
Toxic Equivalency - (WHO 2005)							
Lower Bound PCB TEQ			0.00				
Mid Point PCB TEQ			0.0739				
Upper Bound PCB TEQ			0.148				

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

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Reagent Blank	Sampling Date	n/a		
ALS Sample ID	WG3507253-4	Extraction Date	29-Mar-21		
Analysis Method	EPA 1668C	Sample Size	1	Puf	Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Type	Blank	Percent Moisture	n/a		
Sample Matrix	QC	Split Ratio	4		

Run Information	Run 1
Filename	5-210419A07
Run Date	19-Apr-21 19:10
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPB0ctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-001		8.97	<5.2	0.90	J,R	5.2	100
PCB-002		10.35	<1.6	0.75	J,R	1.6	100
PCB-003		10.48	3.19	0.64	J		100
PCB-004		10.65	<9.1	8.5	J,R	9.1	100
PCB-010		NotFnd	<2.8	2.8	U		100
PCB-009		11.88	<6.7	2.8	J,R	6.7	100
PCB-007		NotFnd	<2.6	2.6	U		100
PCB-006		NotFnd	<2.8	2.8	U		100
PCB-005		NotFnd	<2.7	2.7	U		100
PCB-008		12.43	<9.0	2.7	M,J,R	9.0	100
PCB-014		NotFnd	<2.6	2.6	U		100
PCB-011		13.93	40.9	2.7	J		100
PCB-012/013		NotFnd	<2.6	2.6	U		100
PCB-015		NotFnd	<2.2	2.2	U		100
PCB-019		NotFnd	<3.3	3.3	U		100
PCB-018/030		13.74	<3.3	1.2	J,R	3.3	100
PCB-017		13.97	<2.8	1.4	J,R	2.8	100
PCB-027		14.10	<0.99	0.99	U	0.55	100
PCB-024		NotFnd	<1.0	1.0	U		100
PCB-016		NotFnd	<1.7	1.7	U		100
PCB-032		14.56	1.87	0.96	J		100
PCB-034		NotFnd	<1.3	1.3	U		100
PCB-023		NotFnd	<1.2	1.2	U		100
PCB-026/029		NotFnd	<1.2	1.2	U		100
PCB-025		15.65	<1.1	1.1	U	0.76	100
PCB-031		15.84	6.46	1.2	J		100
PCB-020/028		16.00	9.17	1.2	J		100
PCB-021/033		16.15	<5.3	1.2	J,R	5.3	100
PCB-022		16.38	<2.7	1.2	J,R	2.7	100
PCB-036		NotFnd	<1.1	1.1	U		100
PCB-039		NotFnd	<1.2	1.2	U		100
PCB-038		NotFnd	<1.3	1.3	U		100
PCB-035		NotFnd	<1.3	1.3	U		100
PCB-037		18.24	2.48	1.1	M,J		100
PCB-054		NotFnd	<1.5	1.5	U		100
PCB-050/053		NotFnd	<0.75	0.75	U		100
PCB-045/051		16.09	0.869	0.78	J		100
PCB-046		NotFnd	<0.90	0.90	U		100
PCB-052		16.99	3.36	0.79	J		100
PCB-073		NotFnd	<0.57	0.57	U		100
PCB-043		NotFnd	<1.0	1.0	U		100
PCB-049/069		17.26	<1.6	0.71	J,R	1.6	100
PCB-048		17.44	0.991	0.77	J		100
PCB-044/047/065		17.56	<4.8	0.74	M,J,R	4.8	100
PCB-059/062/075		NotFnd	<0.59	0.59	U		100
PCB-042		NotFnd	<0.89	0.89	U		100
PCB-040/041/071		18.14	<2.2	0.81	M,J,R	2.2	100
PCB-064		18.25	1.87	0.61	M,J		100
PCB-072		NotFnd	<1.1	1.1	U		100
PCB-068		NotFnd	<0.95	0.95	U		100
PCB-057		NotFnd	<1.1	1.1	U		100
PCB-058		NotFnd	<1.1	1.1	U		100
PCB-067		NotFnd	<0.92	0.92	U		100
PCB-063		NotFnd	<1.1	1.1	U		100
PCB-061/070/074/076		19.59	<4.0	1.1	J,R	4.0	100
PCB-066		19.75	<3.1	1.1	J,R	3.1	100
PCB-055		NotFnd	<1.1	1.1	U		100
PCB-056		20.14	<1.9	1.2	M,J,R	1.9	100
PCB-060		NotFnd	<1.1	1.1	U		100
PCB-080		NotFnd	<0.96	0.96	U		100
PCB-079		NotFnd	<1.0	1.0	U		100
PCB-078		NotFnd	<1.2	1.2	U		100
PCB-081	0.0003	NotFnd	<1.1	1.1	U		100
PCB-077	0.0001	NotFnd	<0.86	0.86	U		100
PCB-104		NotFnd	<1.7	1.7	U		100
PCB-096		NotFnd	<1.1	1.1	U		100
PCB-103		NotFnd	<1.8	1.8	U		100
PCB-094		NotFnd	<2.0	2.0	U		100
PCB-095		NotFnd	<2.0	2.0	U		100
PCB-093/098/100/102		NotFnd	<1.9	1.9	U		100

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Reagent Blank	Sampling Date	n/a		
ALS Sample ID	WG3507253-4	Extraction Date	29-Mar-21		
Analysis Method	EPA 1668C	Sample Size	1	Puf	
Analysis Type	Blank	Percent Moisture	n/a		Approved: S. Jin --e-signature-- 22-Apr-2021
Sample Matrix	QC	Split Ratio	4		

Run Information		Run 1	
Filename	5-210419A07	Run Date	19-Apr-21 19:10
Final Volume	25 ul	Dilution Factor	1
Analysis Units	pg	Instrument - Column	HRMS-5 SPB0ctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-088/091		NotFnd	<1.9	1.9	U		100
PCB-084		NotFnd	<2.2	2.2	U		100
PCB-089		NotFnd	<2.2	2.2	U		100
PCB-121		NotFnd	<1.4	1.4	U		100
PCB-092		NotFnd	<2.1	2.1	U		100
PCB-090/101/113		20.63	<2.7	1.7	J,R	2.7	100
PCB-083/099		NotFnd	<2.1	2.1	U		100
PCB-112		NotFnd	<1.4	1.4	U		100
PCB-086/087/097/109/119/125		NotFnd	<1.8	1.8	U		100
PCB-085/110/115/116/117		21.72	4.47	1.6	M,J		100
PCB-082		NotFnd	<2.6	2.6	U		100
PCB-111		NotFnd	<1.5	1.5	U		100
PCB-120		NotFnd	<1.5	1.5	U		100
PCB-108/124		NotFnd	<1.5	1.5	U		100
PCB-107		NotFnd	<1.5	1.5	U		100
PCB-123	0.00003	NotFnd	<1.5	1.5	U		100
PCB-106		NotFnd	<1.5	1.5	U		100
PCB-118	0.00003	NotFnd	<1.5	1.5	U		100
PCB-122		NotFnd	<1.6	1.6	U		100
PCB-114	0.00003	NotFnd	<1.5	1.5	U		100
PCB-105	0.00003	NotFnd	<1.0	1.0	U		100
PCB-127		NotFnd	<1.6	1.6	U		100
PCB-126	0.1	NotFnd	<1.2	1.2	U		100
PCB-155		NotFnd	<0.37	0.37	U		100
PCB-152		NotFnd	<0.40	0.40	U		100
PCB-150		NotFnd	<0.37	0.37	U		100
PCB-136		NotFnd	<0.41	0.41	U		100
PCB-145		NotFnd	<0.40	0.40	U		100
PCB-148		NotFnd	<0.56	0.56	U		100
PCB-135/151		NotFnd	<0.59	0.59	U		100
PCB-154		NotFnd	<0.44	0.44	U		100
PCB-144		NotFnd	<0.57	0.57	U		100
PCB-147/149		22.66	<1.2	0.58	J,R	1.2	100
PCB-134/143		NotFnd	<0.71	0.71	U		100
PCB-139/140		NotFnd	<0.58	0.58	U		100
PCB-131		NotFnd	<0.74	0.74	U		100
PCB-142		NotFnd	<0.72	0.72	U		100
PCB-132		NotFnd	<0.67	0.67	U		100
PCB-133		NotFnd	<0.70	0.70	U		100
PCB-165		NotFnd	<0.50	0.50	U		100
PCB-146		NotFnd	<0.60	0.60	U		100
PCB-161		NotFnd	<0.49	0.49	U		100
PCB-153/168		24.18	<2.0	0.52	J,R	2.0	100
PCB-141		NotFnd	<0.65	0.65	U		100
PCB-130		NotFnd	<0.80	0.80	U		100
PCB-137/164		NotFnd	<0.57	0.57	U		100
PCB-129/138/163		24.87	2.24	0.69	J		100
PCB-160		NotFnd	<0.46	0.46	U		100
PCB-158		NotFnd	<0.44	0.44	U		100
PCB-128/166		NotFnd	<0.58	0.58	U		100
PCB-159		NotFnd	<0.50	0.50	U		100
PCB-162		NotFnd	<0.50	0.50	U		100
PCB-167	0.00003	NotFnd	<0.50	0.50	U		100
PCB-156/157	0.00003	NotFnd	<0.73	0.73	U		200
PCB-169	0.03	NotFnd	<0.46	0.46	U		100
PCB-188		NotFnd	<0.43	0.43	U		100
PCB-179		NotFnd	<0.43	0.43	U		100
PCB-184		NotFnd	<0.39	0.39	U		100
PCB-176		NotFnd	<0.44	0.44	U		100
PCB-186		NotFnd	<0.43	0.43	U		100
PCB-178		NotFnd	<0.63	0.63	U		100
PCB-175		NotFnd	<0.61	0.61	U		100
PCB-187		NotFnd	<0.52	0.52	U		100
PCB-182		NotFnd	<0.56	0.56	U		100
PCB-183		NotFnd	<0.56	0.56	U		100
PCB-185		NotFnd	<0.62	0.62	U		100
PCB-174		NotFnd	<0.57	0.57	U		100
PCB-177		NotFnd	<0.65	0.65	U		100
PCB-181		NotFnd	<0.58	0.58	U		100
PCB-171/173		NotFnd	<0.65	0.65	U		100
PCB-172		NotFnd	<0.64	0.64	U		100

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name
ALS Sample ID
Analysis Method
Analysis Type
Sample Matrix

Reagent Blank
WG3507253-4
EPA 1668C
Blank
QC

Sampling Date
Extraction Date
Sample Size
Percent Moisture
Split Ratio

n/a
29-Mar-21
1
n/a
4

Approved:
S. Jin
--e-signature--
22-Apr-2021

Run Information

Run 1

Filename: 5-210419A07
Run Date: 19-Apr-21 19:10
Final Volume: 25 ul
Dilution Factor: 1
Analysis Units: pg
Instrument - Column: HRMS-5 SPB0ctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg	Flags	EMPC pg	LQL
PCB-192		NotFnd	<0.48	0.48	U		100
PCB-180/193		NotFnd	<0.51	0.51	U		100
PCB-191		NotFnd	<0.48	0.48	U		100
PCB-170		NotFnd	<0.68	0.68	U		100
PCB-190		NotFnd	<0.43	0.43	U		100
PCB-189	0.00003	NotFnd	<0.49	0.49	U		100
PCB-202		NotFnd	<0.43	0.43	U		100
PCB-201		NotFnd	<0.43	0.43	U		100
PCB-204		NotFnd	<0.43	0.43	U		100
PCB-197		NotFnd	<0.39	0.39	U		100
PCB-200		NotFnd	<0.43	0.43	U		100
PCB-198/199		NotFnd	<0.59	0.59	U		100
PCB-196		NotFnd	<0.60	0.60	U		100
PCB-203		NotFnd	<0.52	0.52	U		100
PCB-195		NotFnd	<0.61	0.61	U		100
PCB-194		31.05	<2.6	0.58	J,R	2.6	100
PCB-205		NotFnd	<0.54	0.54	U		100
PCB-208		NotFnd	<0.63	0.63	U		100
PCB-207		NotFnd	<0.75	0.75	U		100
PCB-206		NotFnd	<1.3	1.3	U		100
PCB-209		NotFnd	<0.25	0.25	U		100

Extraction Standards

	pg	Time	% Rec	Limits
13C12-PCB-001	4000	8.95	37	5-145
13C12-PCB-003	4000	10.48	64	5-145
13C12-PCB-004	4000	10.63	27	5-145
13C12-PCB-015	4000	14.30	78	5-145
13C12-PCB-019	4000	12.62	20	5-145
13C12-PCB-037	4000	18.23	91	5-145
13C12-PCB-054	4000	14.47	17	5-145
13C12-PCB-081	4000	21.80	69	10-145
13C12-PCB-077	4000	22.09	94	10-145
13C12-PCB-104	4000	17.50	26	10-145
13C12-PCB-123	4000	23.08	65	10-145
13C12-PCB-118	4000	23.25	57	10-145
13C12-PCB-114	4000	23.55	61	10-145
13C12-PCB-105	4000	23.90	92	10-145
13C12-PCB-126	4000	25.49	89	10-145
13C12-PCB-155	4000	20.49	64	10-145
13C12-PCB-167	4000	26.38	81	10-145
13C12-PCB-156/157	8000	27.01	73	10-145
13C12-PCB-169	4000	28.66	101	10-145
13C12-PCB-188	4000	23.48	77	10-145
13C12-PCB-189	4000	29.93	87	10-145
13C12-PCB-202	4000	26.26	79	10-145
13C12-PCB-205	4000	31.31	80	10-145
13C12-PCB-208	4000	29.67	97	10-145
13C12-PCB-206	4000	32.37	83	10-145
13C12-PCB-209	4000	33.48	97	10-145

Field Spike Standards

13C12-PCB-031			NS	70-130	
13C12-PCB-095			NS	70-130	R
13C12-PCB-153			NS	70-130	

Cleanup Standards

13C12-PCB-028	4000	15.99	47	5-145
13C12-PCB-111	4000	22.01	64	10-145
13C12-PCB-178	4000	25.05	65	10-145

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	Reagent Blank	Sampling Date	n/a		
ALS Sample ID	WG3507253-4	Extraction Date	29-Mar-21		Approved: S. Jin --e-signature-- 22-Apr-2021
Analysis Method	EPA 1668C	Sample Size	1	Puf	
Analysis Type	Blank	Percent Moisture	n/a		
Sample Matrix	QC	Split Ratio	4		

Run Information	Run 1
Filename	5-210419A07
Run Date	19-Apr-21 19:10
Final Volume	25 ul
Dilution Factor	1
Analysis Units	pg
Instrument - Column	HRMS-5 SPBOctyl 256608-05

Target Analytes	TEF (WHO 2005)	Ret. Time	Conc. pg	EDL pg Flags	EMPC pg	LQL
Homologue Group Totals						
Total MonoCB			9.99	0.64 J	400	
Total DiCB			65.7	2.2 J	800	
Total TriCB			34.1	0.96 J	800	
Total TetraCB			24.7	0.57 J	1600	
Total PentaCB			7.17	1.0 J	1600	
Total HexaCB			5.44	0.37 J	1600	
Total HeptaCB			<0.39	0.39 U	800	
Total OctaCB			2.60	0.39 J	800	
Total NonaCB			<0.63	0.63 U	400	
DecaCB			<0.25	0.25 U	400	
Total PCB			150	J	3200	
Toxic Equivalency - (WHO 2005)						
Lower Bound PCB TEQ			0.00			
Mid Point PCB TEQ			0.0672			
Upper Bound PCB TEQ			0.134			

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

ALS Life Sciences

Laboratory Control Sample Analysis Report

Sample Name	Laboratory Control Sample	Sampling Date	n/a	
ALS Sample ID	WG3507253-2	Extraction Date	29-Mar-21	
Analysis Method	EPA 1668C	Sample Size	1	n/a
Analysis Type	LCS	Percent Moisture	n/a	
Sample Matrix	QC	Split Ratio	4	

Approved:
S. Jin
--e-signature--
22-Apr-2021

Run Information		Run 1	
Filename	5-210419A04	Run Date	19-Apr-21 17:03
Final Volume	25 ul	Dilution Factor	1
Analysis Units	% Rec	Instrument - Column	HRMS-5 SPB0ctyl 256608-05

Target Analytes	pg	Ret. Time	% Rec	Limits	Flags
PCB-001	2000	8.97	105	60-135	
PCB-003	2000	10.49	101	60-135	
PCB-004	2000	10.65	111	60-135	
PCB-015	2000	14.31	107	60-135	
PCB-019	2000	12.64	109	60-135	
PCB-037	2000	18.25	107	60-135	
PCB-054	2000	14.49	111	60-135	
PCB-081	2000	21.82	99	60-135	
PCB-077	2000	22.12	97	60-135	
PCB-104	2000	17.53	100	60-135	
PCB-123	2000	23.10	101	60-135	
PCB-118	2000	23.27	101	60-135	
PCB-114	2000	23.58	96	60-135	
PCB-105	2000	23.93	96	60-135	
PCB-126	2000	25.51	98	60-135	
PCB-155	2000	20.51	105	60-135	
PCB-167	2000	26.39	99	60-135	
PCB-156/157	4000	27.03	99	60-135	
PCB-169	2000	28.69	102	60-135	
PCB-188	2000	23.50	104	60-135	
PCB-189	2000	29.95	105	60-135	
PCB-202	2000	26.27	108	60-135	
PCB-205	2000	31.34	102	60-135	
PCB-208	2000	29.70	96	60-135	
PCB-206	2000	32.40	97	60-135	
PCB-209	2000	33.51	106	60-135	
Extraction Standards					
		Time	% Rec	Limits	
13C12-PCB-001	4000	8.97	34	15-145	
13C12-PCB-003	4000	10.48	51	15-145	
13C12-PCB-004	4000	10.63	25	15-145	
13C12-PCB-015	4000	14.31	62	15-145	
13C12-PCB-019	4000	12.62	18	15-145	
13C12-PCB-037	4000	18.24	70	15-145	
13C12-PCB-054	4000	14.48	15	15-145	
13C12-PCB-081	4000	21.81	59	40-145	
13C12-PCB-077	4000	22.10	80	40-145	
13C12-PCB-104	4000	17.51	25	40-145	
13C12-PCB-123	4000	23.08	59	40-145	
13C12-PCB-118	4000	23.26	54	40-145	
13C12-PCB-114	4000	23.56	57	40-145	
13C12-PCB-105	4000	23.91	82	40-145	
13C12-PCB-126	4000	25.50	79	40-145	
13C12-PCB-155	4000	20.49	55	40-145	
13C12-PCB-167	4000	26.38	73	40-145	
13C12-PCB-156/157	8000	27.02	64	40-145	
13C12-PCB-169	4000	28.68	86	40-145	
13C12-PCB-188	4000	23.49	69	40-145	
13C12-PCB-189	4000	29.95	75	40-145	
13C12-PCB-202	4000	26.26	75	40-145	
13C12-PCB-205	4000	31.33	77	40-145	
13C12-PCB-208	4000	29.68	91	40-145	
13C12-PCB-206	4000	32.39	82	40-145	
13C12-PCB-209	4000	33.50	85	40-145	
Field Spike Standards					
13C12-PCB-031			NS	70-130	
13C12-PCB-095			NS	70-130	
13C12-PCB-153			NS	70-130	
Cleanup Standards					
13C12-PCB-028	4000	16.00	46	15-145	
13C12-PCB-111	4000	22.02	65	40-145	
13C12-PCB-178	4000	25.06	73	40-145	

NS Indicates that this compound was not added.



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SVOC DATA PACKAGE

SECTION 6: INTERNAL RECORDS

Including:

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

Batch ID: WG3507253

DX Extraction Standard:

(Checkmark)

Table with columns: Sample I.D., Volume (ul), Spiked. Rows include WG3507253-1 to WG3507253-4 and L2569163-1 to L2569163-5.

Syringe ID:

402

Standard:

M23-ES#2-043C

Spike Date:

29-Mar-2021

Spike Witnessing

Chemist: AR

Witness: mc

Correct Syringe Obtained: mc

Correct Standard Obtained: mc

Correct Technique Followed: mc

PCB Extraction Standard:

(Checkmark)

Table with columns: Sample I.D., Volume (ul), Spiked. Rows include WG3507253-1 to WG3507253-4 and L2569163-1 to L2569163-5.

Syringe ID:

382

Standard:

1668A-ES#2-071I

Spike Date:

29-Mar-2021

Spike Witnessing

Chemist: AR

Witness: mc

Correct Syringe Obtained: mc

Correct Standard Obtained: mc

Correct Technique Followed: mc

Batch ID: WG3507253

Batch ID: WG3507253

DX Native Standard: (Checkmark) **Spiked**

Sample I.D.	Volume (ul)	Spiked
WG3507253-2	40	<input checked="" type="checkbox"/>
WG3507253-3	40	<input checked="" type="checkbox"/>

Syringe ID: 322
 Standard: 1613B-NS#3-0313
 Date & Initials: 29-Mar-21 AR

PCB Native Standard: (Checkmark) **Spiked**

Sample I.D.	Volume (ul)	Spiked
WG3507253-2	40	<input checked="" type="checkbox"/>
WG3507253-3	40	<input checked="" type="checkbox"/>

Syringe ID: 394
 Standard: 1668A-NS#1-041E
 Date & Initials: 29-Mar-21 AR

DX Cleanup Standard: (Checkmark) **Spiked**

Sample I.D.	Volume (ul)	Spiked
WG3507253-1	20	<input checked="" type="checkbox"/>
WG3507253-2	20	<input checked="" type="checkbox"/>
WG3507253-3	N/A	N/A
WG3507253-4	20	<input checked="" type="checkbox"/>
L2569163-1	20	<input checked="" type="checkbox"/>
L2569163-2	20	<input checked="" type="checkbox"/>
L2569163-3	20	<input checked="" type="checkbox"/>
L2569163-4	20	<input checked="" type="checkbox"/>
L2569163-5	20	<input checked="" type="checkbox"/>

Syringe ID: 357
 Standard: M23-CL#1-038D
 Date & Initials: 16-Apr-21 ACB

Correct Syringe Obtained: [ACB] Chemist's Initials
 Correct Standard Obtained: [ACB] Chemist's Initials
 Correct Technique Followed: [ACB] Chemist's Initials

PCB Cleanup Standard: (Checkmark) **Spiked**

Sample I.D.	Volume (ul)	Spiked
WG3507253-1	20	<input checked="" type="checkbox"/>
WG3507253-2	20	<input checked="" type="checkbox"/>
WG3507253-3	N/A	N/A
WG3507253-4	20	<input checked="" type="checkbox"/>
L2569163-1	20	<input checked="" type="checkbox"/>
L2569163-2	20	<input checked="" type="checkbox"/>
L2569163-3	20	<input checked="" type="checkbox"/>
L2569163-4	20	<input checked="" type="checkbox"/>
L2569163-5	20	<input checked="" type="checkbox"/>

WG3507253 PREP
 3-OCT-18 / MSM RS
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Syringe ID: 378
 Standard: 1668A-CL#2-039G
 Date & Initials: 16-Apr-21 ACB

Correct Syringe Obtained: [ACB] Chemist's Initials
 Correct Standard Obtained: [ACB] Chemist's Initials
 Correct Technique Followed: [ACB] Chemist's Initials

Batch ID: WG3507253

DX Injection Standard: (Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG3507253-1	10	✓
WG3507253-2	10	✓
WG3507253-3	10	✓
WG3507253-4	10	✓
L2569163-1	10	✓
L2569163-2	10	✓
L2569163-3	10	✓
L2569163-4	10	✓
L2569163-5	10	✓
	10	
	10	
	10	
	10	
	10	
	10	
	10	
	10	

Syringe ID: 392

Standard: 1613B-IS#1-088B

Date & Initials: 20 Apr 2021 NB

Correct Syringe Obtained: Chemist's Initials

Correct Standard Obtained: Chemist's Initials

Correct Technique Followed: Chemist's Initials

PCB Injection Standard: (Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG3507253-1	5	✓
WG3507253-2	5	✓
WG3507253-3	5	✓
WG3507253-4	5	✓
L2569163-1	5	✓
L2569163-2	5	✓
L2569163-3	5	✓
L2569163-4	5	✓
L2569163-5	5	✓
	5	
	5	
	5	
	5	
	5	
	5	
	5	
	5	
	5	

Syringe ID: 365

Standard: 1668A-IS#2-015E

Date & Initials: 19-Apr-2021 AP

Correct Syringe Obtained: Chemist's Initials

Correct Standard Obtained: Chemist's Initials

Correct Technique Followed: Chemist's Initials

Batch ID: WG3507253

Reagent Lot Numbers:

Reagent	Lot#	Manufacturer
Acetone	105971	
Hexane	105963	
DCM	106037	
Toluene	106110	
Nonane	ORG-WAKONON- 058	
1:1 DCM:HEX	ORG-DH2- 654	
Sodium Sulphate	ORG-SSU- 2573, 2568	
Acid Silica	ORG-ASI- 9838, 9840, 9839, 9841	
Neutral Silica	ORG-NSI- 2541, 2546, 2540	
Alumina	ORG-ALU- 503	
1% Deactivated Silica	ORG-2%DAS-	
Chromacarb	ORG-CC- 244	
Batch ID:	WG3507253	

corn oil 026-CO-077

Procedure:

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

Extraction:

- For MB and LCS you **must** use blank media - if not available see your Team Lead
- Place a layer of pre-cleaned glasswool in to the bottom of the soxhlet body.
- Add ~1cm Sodium Sulphate.
- Place PUF in soxhlet
- Spike with Extraction Standard (plus Native for LCS and ENI).
- Soxhlet extract in DCM for 16 hours (check with team lead or supervisor) approved by Brad Reimer

Rotovap:

- Rotovap down to approx 2mL
- Transfer to a calibrated c-tube (marked at 1ml and 2ml) with 3x2ml hexane
- Mix well then quantitatively spilt the extract **1/2 DX/PCB 1/2 Archive**

Batch ID: WG3507253

DX/PCB:

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

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

Micro-Vial:**PCB:**

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

DX:

- Solvent Exchange to Hexane (Reduce to Just Dry then bulk back up to 1ml Hexane) ✓
- ChromaCarb: - 4cm of well-packed chroma-carb. ✓
 - Pre-elute Carbon with 5ml Hexane ✓
 - Transfer with 3x1ml Hexane ✓
 - F1 = **10ml** 1:1 DCM:Hexane (Archive) ✓
 - After dripping has stopped Invert Column.
 - F2 = 14ml Toluene (DX and PCB)

- After the column has stopped dripping reduce the **F2** portion down to ~1/2ml.
- Vortex well, then transfer to a micro-vial without rinses.
- Blow the micro-vial down to just-dry.
- Spike with Injection Standard, Cap the micro-vial, and Vortex. **FV=10ul**

Batch ID: WG3507253

Comments:

NOTE: Label and Save All Columns including Acid Silica Columns

Approval of Deviation from Standard Method

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

WG3507253		Prep Analyst:		
PUF - M23/1668A (HR)		Date:		
	Very Good	meets Method Req	Some Outliers	Very Poor
MB				
LCS				
DUP				
ES rec				

L2569163-1 → (L2569160-1 → L2542414-6
L2550675-1 → L2527465-6
L2561344-1 → L2548709-1)

L2569163-2 → (L2569160-2 → L2542414-2
L2561344-2 → L2548709-5
L2550675-2 → L2516041-5)

L2569163-3 (L2569160-3 → L2542414-3
L2561344-3 → L2548709-2
L2550675-3 → L2516041-4)

L2569163-4 (L2561344-4 → L2548709-4
L2569160-4 → L2542414-4
L2550675-4 → L2516041-2)

L2569163-5 (L2569160-5 → L2542414-5
L2561344-5 → L2548709-3
L2550675-5 → L2516041-3)

ALS Life Sciences

Sample Calculation Report

CS3 RRF Check

Approved:	<i>S. Jin</i> --e-signature-- 22-Apr-2021
-----------	---

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

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

Calculated Value	Value from TargetLynx
------------------	-----------------------

=	1.21	1.21
---	------	------

Calculation of PCB-118 amount in L2569163-4

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

$$\text{pg} = \frac{2705546}{513229.9} \times \frac{4000}{1.17 * 1.00} = 18000 \quad 18000$$

Calculation of 13C12-PCB-118 Recovery in L2569163-4

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

$$\% \text{ Recovery} = \frac{513229.9}{951444.7} \times \frac{8000 * 100}{1.42 * 4000} = 76 \quad 76 \%$$

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:

★ REVISED ★



Chain of Custody (COC) / Analytical Request Form



L2550675-COFC

umber: 17 - 792311

Page | of |

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Canada Toll Free: 1 800 668 9878

Report To Contact and company name below will appear on the final report Company: <u>Farallon Consulting</u> Contact: <u>Amber Bailey</u> Phone: <u>246-735-6178</u> Street: <u>975 5th Ave NW</u> City/Province: <u>Innanah, WA</u> Postal Code: <u>98027</u>		Report Format / Distribution Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) Quality Control (QC) Report with Report <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>mobile@farallonconsulting.com</u> Email 2: <u>sp@farallonconsulting.com</u> Email 3:		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply) Regular (R) <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply Priority (Business Days) <table border="1"> <tr> <td>4 day (P4-20%) <input type="checkbox"/></td> <td>1 Business day (E - 100%) <input type="checkbox"/></td> </tr> <tr> <td>3 day (P3-25%) <input type="checkbox"/></td> <td>Same Day, Weekend or Statutory holiday (E2 - 200% (Laboratory opening fees may apply)) <input type="checkbox"/></td> </tr> <tr> <td>2 day (P2-50%) <input type="checkbox"/></td> <td></td> </tr> </table> Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm For tests that can not be performed according to the service level selected, you will be contacted.		4 day (P4-20%) <input type="checkbox"/>	1 Business day (E - 100%) <input type="checkbox"/>	3 day (P3-25%) <input type="checkbox"/>	Same Day, Weekend or Statutory holiday (E2 - 200% (Laboratory opening fees may apply)) <input type="checkbox"/>	2 day (P2-50%) <input type="checkbox"/>																											
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2 day (P2-50%) <input type="checkbox"/>																																					
Invoice To Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Copy of Invoice with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Invoice Distribution Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>APA@farallonconsulting.com</u> Email 2:		Analysis Request Indicates Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below <table border="1"> <tr> <th rowspan="2">NUMBER OF CONTAINERS</th> <th colspan="2"></th> <th rowspan="2">SAMPLES ON HOLD</th> <th rowspan="2">SUSPECTED HAZARD (see Special Instructions)</th> </tr> <tr> <td>F</td> <td>P</td> </tr> <tr> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		NUMBER OF CONTAINERS			SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)	F	P	1					2					3					4					5				
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Project Information ALS Account # / Quote #: _____ Job #: _____ PO / AFE: _____ LSD: _____		Oil and Gas Required Fields (client use) AFE/Cost Center: _____ PO#: _____ Major/Minor Code: _____ Routing Code: _____ Requisitioner: _____ Location: _____		ALS Lab Work Order # (lab use only): _____ ALS Contact: _____ Sampler: _____																																	
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)																														
1	L25274105-10	18-Jan-21	1330	Air	1	X	X																														
2	L25216041-5				1	X	X																														
3	L25216041-4		1428		1	X	X																														
4	L25216041-2		1437		1	X	X																														
5	L25216041-3		1447		1	X	X																														

Drinking Water (DW) Samples (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input type="checkbox"/> NO Are samples for human consumption/ use? <input type="checkbox"/> YES <input type="checkbox"/> NO		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only) <u>Hold samples for composite.</u>		SAMPLE CONDITION AS RECEIVED (lab use only) Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Ice Packs <input checked="" type="checkbox"/> Ice Cubes <input type="checkbox"/> Custody seal intact Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Cooling Initiated <input checked="" type="checkbox"/> INITIAL COOLER TEMPERATURES °C: 2.0°C FINAL COOLER TEMPERATURES °C:			
SHIPMENT RELEASE (client use) Released by: <u>[Signature]</u> Date: <u>1/20/21</u> Time: <u>12:00</u>		INITIAL SHIPMENT RECEPTION (lab use only) Received by: <u>ARROW BURTON</u> Date: <u>21-JAN-2021</u> Time: <u>17:05</u>		FINAL SHIPMENT RECEPTION (lab use only) Received by: _____ Date: _____ Time: _____			

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



L2561344-COFC

Composite WO: L2569163

COC Number: 17 - 792312

Page of

Canada Toll Free: 1 800 668 9878

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Report To Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)																																																																																						
Company: <u>Favalon Consulting</u>		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)		Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply																																																																																						
Contact: <u>Amber Bailey</u>		Quality Control (QC) Report with Report <input type="checkbox"/> YES <input type="checkbox"/> NO		4 day [P4-20%] <input type="checkbox"/>		1 Business day [E - 100%] <input type="checkbox"/>																																																																																				
Phone: <u>206 735 6178</u>		<input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked		3 day [P3-25%] <input type="checkbox"/>		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] <input type="checkbox"/>																																																																																				
Company address below will appear on the final report		Select Distribution: <input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		2 day [P2-50%] <input type="checkbox"/>																																																																																						
Street: <u>975 5th AVE NW</u>		Email 1 or Fax: <u>abailley@favalonconsulting.com</u>		Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm																																																																																						
City/Province: <u>Issaquah, WA</u>		Email 2: <u>SpaHanson@favalonconsulting.com</u>		For tests that can not be performed according to the service level selected, you will be contacted.																																																																																						
Postal Code: <u>98027</u>		Email 3:		Analysis Request																																																																																						
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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		<table border="1"> <tr> <td rowspan="5">NUMBER OF CONTAINERS</td> <td rowspan="5">PCBS method 1168</td> <td rowspan="5">DIOXINS method 8890A</td> <td colspan="16"></td> </tr> <tr><td colspan="16"></td></tr> <tr><td colspan="16"></td></tr> <tr><td colspan="16"></td></tr> <tr><td colspan="16"></td></tr> </table>				NUMBER OF CONTAINERS	PCBS method 1168	DIOXINS method 8890A																																																																																
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Company: <u>APC Favalon Consulting.com</u>		Email 1 or Fax: <u>APC Favalon Consulting.com</u>		<table border="1"> <tr> <td rowspan="3">SAMPLES ON HOLD</td> <td colspan="16">SUSPECTED HAZARD (see Special Instructions)</td> </tr> <tr><td colspan="16"></td></tr> <tr><td colspan="16"></td></tr> </table>				SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)																																																																																	
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ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type																																																																																						
1	L2548709-1-1	2/23/21	1137	Air	-	-	-																																																																																			
2	L2548709-5-2		1408		-	-	-																																																																																			
3	L2548709-2-3		1350		-	-	-																																																																																			
4	L2548709-4-4		1337		-	-	-																																																																																			
5	L2548709-3-5		1324		-	-	-																																																																																			
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)		SAMPLE CONDITION AS RECEIVED (lab use only)																																																																																						
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input type="checkbox"/> NO		<u>Hold samples for composite</u>		Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																																																																																						
Are samples for human consumption/ use? <input type="checkbox"/> YES <input type="checkbox"/> NO				Ice Packs <input checked="" type="checkbox"/> Ice Cubes <input type="checkbox"/> Custody seal intact Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																																																																																						
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SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)																																																																																						
Released by: <u>Amber Bailey</u>	Date: <u>2/23/21</u>	Time: <u>1640</u>	Received by: <u>ARRAN BROWN</u>	Date: <u>25-FEB-2021</u>	Time: <u>10:15</u>	Received by:	Date:																																																																																			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

ALS Canada Ltd.

WHITE - LABORATORY COPY YELLOW - CLIENT COPY
L2569163 PCB DPKG 210427

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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

Canada Toll Free: 1 800 668 9878



L2569160-COFC



L2569163-COFC

Composite WO: L2569163

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Report To		Report Format / Distribution			Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)																
Company: <i>Farallon Consulting</i>		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)			Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply																
Contact: <i>Amber Bailey</i>		Quality Control (QC) Report with Report <input type="checkbox"/> YES <input type="checkbox"/> NO			PRIORITY (Business Days) 4 day [P4-20%] <input type="checkbox"/> 3 day [P3-25%] <input type="checkbox"/> 2 day [P2-50%] <input type="checkbox"/>				EMERGENCY 1 Business day [E - 100%] <input type="checkbox"/> Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] <input type="checkbox"/>												
Phone: <i>206-735-6178</i>		<input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked											Date and Time Required for all E&P TATs: _____ dd-mmm-yy hh:mm								
Company address below will appear on the final report		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			For tests that can not be performed according to the service level selected, you will be contacted.																
Street: <i>975 5th Ave. NW</i>		Email 1 or Fax: <i>abailey@farallonconsulting.com</i>			Analysis Request																
City/Province: <i>Issaquah, WA</i>		Email 2: <i>spatterson@farallonconsulting.com</i>			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																
Postal Code: <i>98027</i>		Email 3: _____																			
Invoice To: Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			NUMBER OF CONTAINERS <i>PCBS EPA Method 1631 Dioxins EPA Method 8290A</i>																
Copy of Invoice with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Email 1 or Fax: <i>AP@farallonconsulting.com</i>																			
Company: _____		Email 2: _____			SAMPLES ON HOLD <small>SUSPECTED HAZARD (see Special Instructions)</small>																
Contact: <i>AP@farallonconsulting.com</i>		Email 3: _____																			
Project Information		Oil and Gas Required Fields (client use)																			
ALS Account # / Quote #:		AFE/Cost Center:		PO#																	
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LSD:		ALS Contact:		Sampler:																	
ALS Lab Work Order # (lab use only):		Date		Time		Sample Type															
ALS Sample # (lab use only)		Sample Identification and/or Coordinates (This description will appear on the report)		(dd-mmm-yy)		(hh:mm)															
<i>1</i>		<i>L2542414 - 6</i>		<i>18-Mar-21</i>		<i>0954</i>		<i>Air</i>													
<i>2</i>		<i>L2542414 - 2</i>		<i>I</i>		<i>1023</i>		<i>I</i>													
<i>3</i>		<i>L2542414 - 3</i>		<i>I</i>		<i>1046</i>		<i>I</i>													
<i>4</i>		<i>L2542414 - 4</i>		<i>I</i>		<i>1054</i>		<i>I</i>													
<i>5</i>		<i>L2542414 - 5</i>		<i>I</i>		<i>1111</i>		<i>I</i>													
Drinking Water (DW) Samples ¹ (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		<i>Analyze samples - composite samples submitted on 1/18/21, 2/23/21, and 3/18/21.</i>			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"/>																
					INITIAL COOLER TEMPERATURES °C						FINAL COOLER TEMPERATURES °C										
					<i>19.7°C</i>																
SHIPMENT RELEASE (client use)				INITIAL SHIPMENT RECEPTION (lab use only)				FINAL SHIPMENT RECEPTION (lab use only)													
Released by: <i>[Signature]</i>		Date: <i>3/19/21</i>		Time: <i>1300</i>		Received by: <i>ARRON BULTON</i>		Date: <i>22-March-2021</i>		Time: <i>12:45</i>		Received by: _____		Date: _____		Time: _____					

Sample Receiving Log

Date/Time Received	Client ID	Number/Description of Containers	Temp. on Receipt*	Condition of Samples, Courier & Tracking Information	Receiver's Initials	Date/Time Login Completed	Submission ID	Sample ID Range
21-JAN-2024 17:05	FARALLON	5 x PUFs	2.0°C	Good FedEx 7726 5156 8845	NB	22-JAN-2024 10:30	L2850875	-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
25 FEB 2024 15:15	FARALLON	5 x PUFs	5.6°C	Good Fedex 7725 5235 1958	NY	26 FEB 2024 9:45	L2561344	-15

*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
22-mar-2024 12:45	FARALLON	5 x PUFs	19.7°C	Good FedEx 7728 8650 5869	Mz	22-mar-2024 15:40	L2569160 L2569163	-1-5 -1-5

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

Other (specify):