TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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TestAmerica Job ID: 580-79670-3
Client Project/Site: Portland Harbor Pre-Remedial Design

For:
AECOM
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Suite 1600
Seattle, Washington 98101

Attn: Amy Dahl

M. Elaine Walker

Authorized for release by:
9/20/2018 3:46:51 PM

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Job ID: 580-79670-3

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE
Client: AECOM
Project: Portland Harbor Pre-Remedial Design
Report Number: 580-79670-3

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

One sample was received on 8/17/2018 3:30 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7º C.

A sample container was provided to be archived frozen at the TestAmerica Sacramento laboratory pending potential additional analyses.

This report contains results for PCB Congeners by Method 1668A, performed at TestAmerica Knoxville.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

POLYCHLORINATED BIPHENYLS CONGENERS (PCBS)

Sample PDI-SG-B307-BL1 (580-79670-1) was analyzed for polychlorinated biphenyls congeners (PCBs) in accordance with EPA Method 1668A. The sample was prepared on 09/11/2018 and analyzed on 09/19/2018.

Several analytes were detected in method blank MB 140-23484/16-B at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Ion abundance ratios are outside criteria for the Isotope Dilution Analyte (IDA) associated with the following samples: (LCS 140-23484/17-B) and (LCSD 140-23484/18-B).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Qualifiers

Dioxin

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.
C93	The compound co-eluted with PCB-93
C90	The compound co-eluted with PCB-90
C98	The compound co-eluted with PCB-98
C	The compound co-eluted with other compounds
C86	The compound co-eluted with PCB-86
B	Compound was found in the blank and sample.
C110	The compound co-eluted with PCB-110
C85	The compound co-eluted with PCB-85
C108	The compound co-eluted with PCB-108
C12	The compound co-eluted with PCB-12
G	The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference
C129	The compound co-eluted with PCB-129
C139	The compound co-eluted with PCB-139
C134	The compound co-eluted with PCB-134
C147	The compound co-eluted with PCB-147
C135	The compound co-eluted with PCB-135
C156	The compound co-eluted with PCB-156
C128	The compound co-eluted with PCB-128
C153	The compound co-eluted with PCB-153
C171	The compound co-eluted with PCB-171
C183	The compound co-eluted with PCB-183
C180	The compound co-eluted with PCB-180
C198	The compound co-eluted with PCB-198
C20	The compound co-eluted with PCB-20
C26	The compound co-eluted with PCB-26
C18	The compound co-eluted with PCB-18
C21	The compound co-eluted with PCB-21
C40	The compound co-eluted with PCB-40
C44	The compound co-eluted with PCB-44
C45	The compound co-eluted with PCB-45
C50	The compound co-eluted with PCB-50
C59	The compound co-eluted with PCB-59
C49	The compound co-eluted with PCB-49
C61	The compound co-eluted with PCB-61
C43	The compound co-eluted with PCB-43
C88	The compound co-eluted with PCB-88
C83	The compound co-eluted with PCB-83

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample ID: PDI-SG-B307-BL1
Date Collected: 08/16/18 16:06
Date Received: 08/17/18 15:30

Lab Sample ID: 580-79670-1
Matrix: Solid
Percent Solids: 61.6

Method: 1668A - Chlorinated Biphenyl Congeners (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1	0.0074	J q	0.0097	0.00023	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-2	0.012		0.0097	0.00026	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-3	0.0031	J q	0.0097	0.00029	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-4	0.042		0.019	0.0027	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-5	ND		0.0097	0.0021	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-6	0.0056	J q	0.0097	0.0018	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-7	ND		0.0097	0.0019	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-8	0.021		0.019	0.0017	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-9	ND		0.0097	0.0019	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-10	ND		0.0097	0.0020	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-11	0.050		0.019	0.0018	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-12	0.0044	J C	0.019	0.0018	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-13	0.0044	J C12	0.019	0.0018	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-14	ND		0.0097	0.0016	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-15	0.024		0.0097	0.0019	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-16	0.029		0.0097	0.00080	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-17	0.052		0.0097	0.00072	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-18	0.086	C	0.019	0.00063	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-19	0.050		0.0097	0.00088	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-20	0.13	C	0.019	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-21	0.051	C	0.019	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-22	0.033		0.0097	0.0015	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-23	ND		0.0097	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-24	0.0027	J q	0.0097	0.00060	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-25	0.0094	J	0.0097	0.0013	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-26	0.016	J C	0.019	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-27	0.012		0.0097	0.00052	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-28	0.13	C20	0.019	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-29	0.016	J C26	0.019	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-30	0.086	C18	0.019	0.00063	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-31	0.094		0.019	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-32	0.040		0.0097	0.00050	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-33	0.051	C21	0.019	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-34	ND		0.0097	0.0015	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-35	ND		0.0097	0.0015	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-36	ND		0.0097	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-37	0.044		0.0097	0.0015	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-38	ND		0.0097	0.0015	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-39	ND		0.0097	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-40	0.17	C	0.029	0.00057	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-41	0.17	C40	0.029	0.00057	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-42	0.078		0.0097	0.00057	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-43	0.019	C q	0.019	0.00053	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-44	0.53	C B	0.029	0.00050	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-45	0.11	C B	0.019	0.00059	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-46	0.028		0.0097	0.00072	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-47	0.53	B C44	0.029	0.00050	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-48	0.054		0.0097	0.00056	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-49	0.30	C	0.019	0.00046	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1

Client Sample ID: PDI-SG-B307-BL1
Date Collected: 08/16/18 16:06
Date Received: 08/17/18 15:30

Lab Sample ID: 580-79670-1
Matrix: Solid
Percent Solids: 61.6

Method: 1668A - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-50	0.098	C	0.019	0.00055	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-51	0.11	C45 B	0.019	0.00059	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-52	0.95		0.0097	0.00056	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-53	0.098	C50	0.019	0.00055	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-54	0.0067	J q	0.0097	0.00011	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-55	0.0084	J q	0.0097	0.00041	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-56	0.11		0.0097	0.00041	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-57	ND		0.0097	0.00042	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-58	ND		0.0097	0.00042	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-59	0.032	C	0.029	0.00040	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-60	0.044	q	0.0097	0.00042	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-61	0.64	C B	0.039	0.00039	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-62	0.032	C59	0.029	0.00040	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-63	0.012		0.0097	0.00038	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-64	0.15		0.0097	0.00038	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-65	0.53	B C44	0.029	0.00050	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-66	0.27	B	0.0097	0.00039	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-67	0.0077	J	0.0097	0.00036	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-68	0.0058	J B	0.0097	0.00037	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-69	0.30	C49	0.019	0.00046	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-70	0.64	C61 B	0.039	0.00039	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-71	0.17	C40	0.029	0.00057	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-72	0.0057	J q	0.0097	0.00041	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-73	0.019	C43 q	0.019	0.00053	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-74	0.64	C61 B	0.039	0.00039	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-75	0.032	C59	0.029	0.00040	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-76	0.64	C61 B	0.039	0.00039	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-77	0.023	q	0.0097	0.00042	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-78	ND		0.0097	0.00042	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-79	0.0097		0.0097	0.00037	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-80	0.0021	J q	0.0097	0.00036	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-81	0.0024	J q	0.0097	0.00037	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-82	0.13		0.0097	0.00067	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-83	0.63	C	0.019	0.00061	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-84	0.37		0.0097	0.00067	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-85	0.18	C	0.029	0.00049	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-86	0.76	C	0.058	0.00050	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-87	0.76	C86	0.058	0.00050	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-88	0.21	C	0.019	0.00060	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-89	0.0092	J q	0.0097	0.00065	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-90	1.4	C	0.029	0.00051	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-91	0.21	C88	0.019	0.00060	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-92	0.27		0.0097	0.00057	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-93	0.021	C	0.019	0.00058	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-94	ND		0.0097	0.00065	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-95	1.6		0.0097	0.00063	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-96	0.013		0.0097	0.00049	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-97	0.76	C86	0.058	0.00050	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-98	0.034	C q	0.019	0.00056	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1

Client Sample ID: PDI-SG-B307-BL1
Date Collected: 08/16/18 16:06
Date Received: 08/17/18 15:30

Lab Sample ID: 580-79670-1
Matrix: Solid
Percent Solids: 61.6

Method: 1668A - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-99	0.63	C83	0.019	0.00061	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-100	0.021	C93	0.019	0.00058	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-101	1.4	C90	0.029	0.00051	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-102	0.034	C98 q	0.019	0.00056	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-103	0.021		0.0097	0.00058	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-104	ND		0.0097	0.00044	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-105	0.39		0.0097	0.0041	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-106	ND		0.0097	0.0043	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-107	0.075		0.0097	0.0046	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-108	0.057	C	0.019	0.0044	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-109	0.76	C86	0.058	0.00050	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-110	1.5	C B	0.019	0.00042	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-111	ND		0.0097	0.00041	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-112	ND		0.0097	0.00043	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-113	1.4	C90	0.029	0.00051	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-114	0.018	q	0.0097	0.0038	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-115	1.5	B C110	0.019	0.00042	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-116	0.18	C85	0.029	0.00049	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-117	0.18	C85	0.029	0.00049	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-118	1.1		0.0097	0.0041	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-119	0.76	C86	0.058	0.00050	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-120	0.0059	J q	0.0097	0.00041	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-121	ND		0.0097	0.00043	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-122	0.013	q	0.0097	0.0050	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-123	0.011	B q	0.0097	0.0046	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-124	0.057	C108	0.019	0.0044	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-125	0.76	C86	0.058	0.00050	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-126	0.032		0.0097	0.0045	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-127	ND		0.0097	0.0043	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-128	0.49	C	0.019	0.0070	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-129	3.6	C B	0.039	0.0072	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-130	0.20		0.0097	0.0095	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-131	0.028	q G	0.0099	0.0099	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-132	1.3		0.0097	0.0093	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-133	0.051		0.0097	0.0090	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-134	0.22	C	0.019	0.0094	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-135	0.92	C B	0.019	0.00097	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-136	0.40		0.0097	0.00070	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-137	0.13		0.0097	0.0081	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-138	3.6	B C129	0.039	0.0072	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-139	0.037	C q	0.019	0.0080	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-140	0.037	C139 q	0.019	0.0080	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-141	0.66	B	0.0097	0.0084	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-142	ND		0.0097	0.0090	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-143	0.22	C134	0.019	0.0094	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-144	0.11		0.0097	0.00088	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-145	0.0031	J q	0.0097	0.00066	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-146	0.55		0.0097	0.0079	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-147	3.8	C B	0.019	0.0091	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1

Client Sample ID: PDI-SG-B307-BL1
Date Collected: 08/16/18 16:06
Date Received: 08/17/18 15:30

Lab Sample ID: 580-79670-1
Matrix: Solid
Percent Solids: 61.6

Method: 1668A - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-148	0.0058	J q	0.0097	0.00093	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-149	3.8	B C147	0.019	0.0091	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-150	0.0052	J q	0.0097	0.00063	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-151	0.92	C135 B	0.019	0.00097	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-152	0.0037	J q	0.0097	0.00068	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-153	2.7	C B	0.019	0.0063	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-154	0.025	q	0.0097	0.00075	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-155	ND		0.0097	0.00064	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-156	0.31	C	0.019	0.0083	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-157	0.31	C156	0.019	0.0083	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-158	0.35	B	0.0097	0.0057	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-159	0.029		0.0097	0.0060	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-160	3.6	B C129	0.039	0.0072	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-161	ND		0.0097	0.0059	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-162	0.013	q	0.0097	0.0059	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-163	3.6	B C129	0.039	0.0072	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-164	0.26	B	0.0097	0.0063	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-165	ND		0.0097	0.0068	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-166	0.49	C128	0.019	0.0070	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-167	0.10		0.0097	0.0042	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-168	2.7	B C153	0.019	0.0063	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-169	ND		0.0097	0.0046	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-170	0.89		0.0097	0.0025	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-171	0.26	C B	0.019	0.0021	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-172	0.14		0.0097	0.0021	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-173	0.26	C171 B	0.019	0.0021	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-174	0.86	B	0.0097	0.0019	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-175	0.033		0.0097	0.0019	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-176	0.11		0.0097	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-177	0.49		0.0097	0.0020	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-178	0.17		0.0097	0.0020	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-179	0.39	B	0.0097	0.0015	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-180	1.7	C B	0.019	0.0016	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-181	0.0073	J q	0.0097	0.0019	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-182	0.011		0.0097	0.0018	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-183	0.63	C	0.019	0.0018	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-184	ND		0.0097	0.0015	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-185	0.63	C183	0.019	0.0018	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-186	ND		0.0097	0.0015	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-187	1.0	B	0.0097	0.0017	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-188	ND		0.0097	0.0012	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-189	0.029	B q	0.0097	0.0072	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-190	0.13	B	0.0097	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-191	0.028	q	0.0097	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-192	ND		0.0097	0.0016	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-193	1.7	C180 B	0.019	0.0016	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-194	0.44	G	0.0099	0.0099	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-195	0.17	G	0.011	0.011	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-196	0.17		0.0097	0.0021	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1

Client Sample ID: PDI-SG-B307-BL1
Date Collected: 08/16/18 16:06
Date Received: 08/17/18 15:30

Lab Sample ID: 580-79670-1
Matrix: Solid
Percent Solids: 61.6

Method: 1668A - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-197	**0.016**		0.0097	0.0016	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-198	**0.36**	**C**	0.019	0.0021	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-199	**0.36**	**C198**	0.019	0.0021	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-200	**0.036**		0.0097	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-201	**0.037**		0.0097	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-202	**0.087**		0.0097	0.0016	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-203	**0.22**		0.0097	0.0019	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-204	ND		0.0097	0.0016	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-205	ND		0.0097	0.0084	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-206	**0.63**		0.0097	0.0049	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-207	**0.048**	**B**	0.0097	0.0034	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-208	**0.25**		0.0097	0.0035	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1
PCB-209	**1.5**	**B**	0.0097	0.0030	ng/g	☼	09/11/18 11:15	09/19/18 14:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
PCB-1L	*68*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-3L	*69*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-4L	*77*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-15L	*79*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-19L	*87*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-37L	*83*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-54L	*74*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-77L	*61*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-81L	*66*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-104L	*95*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-105L	*90*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-114L	*92*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-118L	*81*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-123L	*76*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-126L	*87*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-155L	*81*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-156L	*71*	*C*	*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-157L	*71*	*C156*	*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-167L	*83*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-169L	*78*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-170L	*82*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-188L	*101*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-189L	*79*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-202L	*99*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-205L	*66*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-206L	*73*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-208L	*76*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-209L	*72*		*30 - 140*	*09/11/18 11:15*	*09/19/18 14:00*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
PCB-28L	*94*		*40 - 125*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-111L	*81*		*40 - 125*	*09/11/18 11:15*	*09/19/18 14:00*	*1*
PCB-178L	*104*		*40 - 125*	*09/11/18 11:15*	*09/19/18 14:00*	*1*

Method: 1668A - Chlorinated Biphenyl Congeners (HRGC/HRMS)

Lab Sample ID: MB 140-23484/16-B
Matrix: Solid
Analysis Batch: 23724

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23484

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1	ND		0.010	0.00014	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-2	ND		0.010	0.00017	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-3	ND		0.010	0.00018	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-4	ND		0.020	0.0060	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-5	ND		0.010	0.0053	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-6	ND		0.010	0.0046	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-7	ND		0.010	0.0048	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-8	ND		0.020	0.0043	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-9	ND		0.010	0.0049	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-10	ND		0.010	0.0052	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-11	ND		0.020	0.0045	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-12	ND	C	0.020	0.0047	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-13	ND	C12	0.020	0.0047	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-14	ND		0.010	0.0040	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-15	ND		0.010	0.0053	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-16	ND		0.010	0.00081	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-17	ND		0.010	0.00073	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-18	ND	C	0.020	0.00064	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-19	ND		0.010	0.00089	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-20	ND	C	0.020	0.00077	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-21	ND	C	0.020	0.00075	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-22	ND		0.010	0.00079	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-23	ND		0.010	0.00078	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-24	ND		0.010	0.00061	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-25	ND		0.010	0.00071	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-26	ND	C	0.020	0.00075	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-27	ND		0.010	0.00053	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-28	ND	C20	0.020	0.00077	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-29	ND	C26	0.020	0.00075	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-30	ND	C18	0.020	0.00064	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-31	ND		0.020	0.00075	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-32	ND		0.010	0.00051	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-33	ND	C21	0.020	0.00075	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-34	ND		0.010	0.00081	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-35	ND		0.010	0.00079	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-36	ND		0.010	0.00076	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-37	ND		0.010	0.00078	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-38	ND		0.010	0.00082	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-39	ND		0.010	0.00073	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-40	ND	C	0.030	0.00040	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-41	ND	C40	0.030	0.00040	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-42	ND		0.010	0.00040	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-43	ND	C	0.020	0.00037	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-44	0.00306	J C	0.030	0.00035	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-45	0.000855	J q C	0.020	0.00042	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-46	ND		0.010	0.00051	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-47	0.00306	J C44	0.030	0.00035	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-48	ND		0.010	0.00040	ng/g		09/11/18 11:15	09/19/18 02:22	1

Method: 1668A - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Lab Sample ID: MB 140-23484/16-B
Matrix: Solid
Analysis Batch: 23724

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23484

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-49	ND	C	0.020	0.00032	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-50	ND	C	0.020	0.00039	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-51	0.000855	J q C45	0.020	0.00042	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-52	ND		0.010	0.00039	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-53	ND	C50	0.020	0.00039	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-54	ND		0.010	0.000031	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-55	ND		0.010	0.00029	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-56	ND		0.010	0.00029	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-57	ND		0.010	0.00029	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-58	ND		0.010	0.00030	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-59	ND	C	0.030	0.00028	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-60	ND		0.010	0.00030	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-61	0.00142	J q C	0.040	0.00028	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-62	ND	C59	0.030	0.00028	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-63	ND		0.010	0.00027	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-64	ND		0.010	0.00027	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-65	0.00306	J C44	0.030	0.00035	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-66	0.000752	J q	0.010	0.00028	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-67	ND		0.010	0.00025	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-68	0.00102	J	0.010	0.00026	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-69	ND	C49	0.020	0.00032	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-70	0.00142	J q C61	0.040	0.00028	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-71	ND	C40	0.030	0.00040	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-72	ND		0.010	0.00029	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-73	ND	C43	0.020	0.00037	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-74	0.00142	J q C61	0.040	0.00028	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-75	ND	C59	0.030	0.00028	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-76	0.00142	J q C61	0.040	0.00028	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-77	ND		0.010	0.00028	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-78	ND		0.010	0.00030	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-79	ND		0.010	0.00026	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-80	ND		0.010	0.00025	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-81	ND		0.010	0.00027	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-82	ND		0.010	0.00021	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-83	ND	C	0.020	0.00019	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-84	ND		0.010	0.00021	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-85	ND	C	0.030	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-86	ND	C	0.060	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-87	ND	C86	0.060	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-88	ND	C	0.020	0.00019	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-89	ND		0.010	0.00021	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-90	ND	C	0.030	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-91	ND	C88	0.020	0.00019	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-92	ND		0.010	0.00018	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-93	ND	C	0.020	0.00018	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-94	ND		0.010	0.00021	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-95	ND		0.010	0.00020	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-96	ND		0.010	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1

Method: 1668A - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Lab Sample ID: MB 140-23484/16-B
Matrix: Solid
Analysis Batch: 23724

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23484

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-97	ND	C86	0.060	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-98	ND	C	0.020	0.00018	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-99	ND	C83	0.020	0.00019	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-100	ND	C93	0.020	0.00018	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-101	ND	C90	0.030	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-102	ND	C98	0.020	0.00018	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-103	ND		0.010	0.00018	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-104	ND		0.010	0.00014	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-105	ND		0.010	0.00013	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-106	ND		0.010	0.00014	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-107	ND		0.010	0.00015	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-108	ND	C	0.020	0.00014	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-109	ND	C86	0.060	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-110	0.00185	J q C	0.020	0.00013	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-111	ND		0.010	0.00013	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-112	ND		0.010	0.00014	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-113	ND	C90	0.030	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-114	ND		0.010	0.00013	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-115	0.00185	J q C110	0.020	0.00013	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-116	ND	C85	0.030	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-117	ND	C85	0.030	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-118	ND		0.010	0.00013	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-119	ND	C86	0.060	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-120	ND		0.010	0.00013	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-121	ND		0.010	0.00014	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-122	ND		0.010	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-123	0.000861	J q	0.010	0.00013	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-124	ND	C108	0.020	0.00014	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-125	ND	C86	0.060	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-126	ND		0.010	0.00015	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-127	0.000945	J q	0.010	0.00014	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-128	ND	C	0.020	0.00037	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-129	0.00239	J q C	0.040	0.00038	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-130	ND		0.010	0.00050	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-131	ND		0.010	0.00052	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-132	ND		0.010	0.00049	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-133	ND		0.010	0.00048	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-134	ND	C	0.020	0.00050	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-135	0.000975	J q C	0.020	0.000069	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-136	ND		0.010	0.000050	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-137	ND		0.010	0.00043	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-138	0.00239	J q C129	0.040	0.00038	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-139	ND	C	0.020	0.00042	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-140	ND	C139	0.020	0.00042	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-141	0.000949	J q	0.010	0.00044	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-142	ND		0.010	0.00047	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-143	ND	C134	0.020	0.00050	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-144	ND		0.010	0.000062	ng/g		09/11/18 11:15	09/19/18 02:22	1

Method: 1668A - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Lab Sample ID: MB 140-23484/16-B
Matrix: Solid
Analysis Batch: 23724

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23484

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-145	ND		0.010	0.000047	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-146	ND		0.010	0.00042	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-147	0.00138	J q C	0.020	0.00048	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-148	ND		0.010	0.000067	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-149	0.00138	J q C147	0.020	0.00048	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-150	ND		0.010	0.000045	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-151	0.000975	J q C135	0.020	0.000069	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-152	ND		0.010	0.000049	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-153	0.00200	J q C	0.020	0.00033	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-154	ND		0.010	0.000054	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-155	ND		0.010	0.000045	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-156	ND	C	0.020	0.00042	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-157	ND	C156	0.020	0.00042	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-158	0.000590	J	0.010	0.00030	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-159	ND		0.010	0.00032	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-160	0.00239	J q C129	0.040	0.00038	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-161	ND		0.010	0.00031	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-162	ND		0.010	0.00031	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-163	0.00239	J q C129	0.040	0.00038	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-164	0.000744	J q	0.010	0.00033	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-165	ND		0.010	0.00036	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-166	ND	C128	0.020	0.00037	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-167	ND		0.010	0.00023	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-168	0.00200	J q C153	0.020	0.00033	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-169	ND		0.010	0.00024	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-170	ND		0.010	0.00014	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-171	0.00126	J C	0.020	0.00013	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-172	ND		0.010	0.00013	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-173	0.00126	J C171	0.020	0.00013	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-174	0.00175	J q	0.010	0.00012	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-175	ND		0.010	0.00012	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-176	ND		0.010	0.000088	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-177	ND		0.010	0.00012	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-178	ND		0.010	0.00013	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-179	0.000441	J q	0.010	0.000093	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-180	0.00219	J q C	0.020	0.000097	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-181	ND		0.010	0.00012	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-182	ND		0.010	0.00011	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-183	ND	C	0.020	0.00011	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-184	ND		0.010	0.000095	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-185	ND	C183	0.020	0.00011	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-186	ND		0.010	0.000093	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-187	0.000710	J q	0.010	0.00011	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-188	ND		0.010	0.000080	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-189	0.00200	J	0.010	0.00031	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-190	0.00127	J q	0.010	0.000084	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-191	ND		0.010	0.000088	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-192	ND		0.010	0.000098	ng/g		09/11/18 11:15	09/19/18 02:22	1

Method: 1668A - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Lab Sample ID: MB 140-23484/16-B
Matrix: Solid
Analysis Batch: 23724

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23484

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-193	0.00219	J q C180	0.020	0.000097	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-194	ND		0.010	0.00032	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-195	ND		0.010	0.00035	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-196	ND		0.010	0.000040	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-197	ND		0.010	0.000031	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-198	ND	C	0.020	0.000041	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-199	ND	C198	0.020	0.000041	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-200	ND		0.010	0.000027	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-201	ND		0.010	0.000028	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-202	ND		0.010	0.000031	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-203	ND		0.010	0.000036	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-204	ND		0.010	0.000031	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-205	0.00208	J q	0.010	0.00027	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-206	ND		0.010	0.00022	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-207	0.000491	J q	0.010	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-208	ND		0.010	0.00016	ng/g		09/11/18 11:15	09/19/18 02:22	1
PCB-209	0.00214	J q	0.010	0.000014	ng/g		09/11/18 11:15	09/19/18 02:22	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
PCB-1L	*77*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-3L	*71*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-4L	*76*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-15L	*75*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-19L	*82*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-37L	*81*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-54L	*75*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-77L	*80*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-81L	*81*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-104L	*77*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-105L	*88*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-114L	*88*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-118L	*85*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-123L	*79*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-126L	*82*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-155L	*81*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-156L	*87*	*C*	*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-157L	*87*	*C156*	*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-167L	*86*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-169L	*90*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-170L	*84*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-188L	*89*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-189L	*71*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-202L	*96*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-205L	*73*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-206L	*82*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-208L	*82*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*
PCB-209L	*88*		*30 - 140*	*09/11/18 11:15*	*09/19/18 02:22*	*1*

Method: 1668A - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Lab Sample ID: MB 140-23484/16-B
Matrix: Solid
Analysis Batch: 23724

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23484

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
PCB-28L	94		40 - 125	09/11/18 11:15	09/19/18 02:22	1
PCB-111L	91		40 - 125	09/11/18 11:15	09/19/18 02:22	1
PCB-178L	98		40 - 125	09/11/18 11:15	09/19/18 02:22	1

Lab Sample ID: LCS 140-23484/17-B
Matrix: Solid
Analysis Batch: 23724

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23484

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1	0.500	0.441		ng/g		88	50 - 150
PCB-3	0.500	0.452		ng/g		90	50 - 150
PCB-4	0.500	0.532		ng/g		106	50 - 150
PCB-15	0.500	0.579		ng/g		116	50 - 150
PCB-19	0.500	0.559		ng/g		112	50 - 150
PCB-37	0.500	0.507		ng/g		101	50 - 150
PCB-54	0.500	0.571		ng/g		114	50 - 150
PCB-77	0.500	0.533		ng/g		107	50 - 150
PCB-81	0.500	0.516		ng/g		103	50 - 150
PCB-104	0.500	0.577		ng/g		115	50 - 150
PCB-105	0.500	0.549		ng/g		110	50 - 150
PCB-114	0.500	0.580		ng/g		116	50 - 150
PCB-118	0.500	0.547		ng/g		109	50 - 150
PCB-123	0.500	0.593		ng/g		119	50 - 150
PCB-126	0.500	0.555		ng/g		111	50 - 150
PCB-155	0.500	0.581		ng/g		116	50 - 150
PCB-156	1.00	1.10	C	ng/g		110	50 - 150
PCB-157	1.00	1.10	C156	ng/g		110	50 - 150
PCB-167	0.500	0.567		ng/g		113	50 - 150
PCB-169	0.500	0.494		ng/g		99	50 - 150
PCB-188	0.500	0.565		ng/g		113	50 - 150
PCB-189	0.500	0.548		ng/g		110	50 - 150
PCB-202	0.500	0.501		ng/g		100	50 - 150
PCB-205	0.500	0.626		ng/g		125	50 - 150
PCB-206	0.500	0.523		ng/g		105	50 - 150
PCB-208	0.500	0.566		ng/g		113	50 - 150
PCB-209	0.500	0.552		ng/g		110	50 - 150

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
PCB-1L	80		30 - 140
PCB-3L	74		30 - 140
PCB-4L	78		30 - 140
PCB-15L	82		30 - 140
PCB-19L	96		30 - 140
PCB-37L	91		30 - 140
PCB-54L	67	q	30 - 140
PCB-77L	82		30 - 140
PCB-81L	81		30 - 140
PCB-104L	84		30 - 140

Method: 1668A - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 140-23484/17-B
Matrix: Solid
Analysis Batch: 23724

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23484

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
PCB-105L	87		30 - 140
PCB-114L	83		30 - 140
PCB-118L	83		30 - 140
PCB-123L	83		30 - 140
PCB-126L	83		30 - 140
PCB-155L	86		30 - 140
PCB-156L	89	C	30 - 140
PCB-157L	89	C156	30 - 140
PCB-167L	88		30 - 140
PCB-169L	95		30 - 140
PCB-170L	82		30 - 140
PCB-188L	84		30 - 140
PCB-189L	79		30 - 140
PCB-202L	92		30 - 140
PCB-205L	75		30 - 140
PCB-206L	89		30 - 140
PCB-208L	84		30 - 140
PCB-209L	89		30 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
PCB-28L	96		40 - 125
PCB-111L	91		40 - 125
PCB-178L	93		40 - 125

Lab Sample ID: LCSD 140-23484/18-B
Matrix: Solid
Analysis Batch: 23724

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23484

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1			0.500	0.413		ng/g		83	50 - 150	7	50
PCB-3			0.500	0.444		ng/g		89	50 - 150	2	50
PCB-4			0.500	0.525		ng/g		105	50 - 150	1	50
PCB-15			0.500	0.586		ng/g		117	50 - 150	1	50
PCB-19			0.500	0.608		ng/g		122	50 - 150	8	50
PCB-37			0.500	0.509		ng/g		102	50 - 150	0	50
PCB-54			0.500	0.525		ng/g		105	50 - 150	8	50
PCB-77			0.500	0.533		ng/g		107	50 - 150	0	50
PCB-81			0.500	0.507		ng/g		101	50 - 150	2	50
PCB-104			0.500	0.569		ng/g		114	50 - 150	1	50
PCB-105			0.500	0.538		ng/g		108	50 - 150	2	50
PCB-114			0.500	0.545		ng/g		109	50 - 150	6	50
PCB-118			0.500	0.510		ng/g		102	50 - 150	7	50
PCB-123			0.500	0.548		ng/g		110	50 - 150	8	50
PCB-126			0.500	0.562		ng/g		112	50 - 150	1	50
PCB-155			0.500	0.560		ng/g		112	50 - 150	4	50
PCB-156			1.00	1.12	C	ng/g		112	50 - 150	2	50
PCB-157			1.00	1.12	C156	ng/g		112	50 - 150	2	50
PCB-167			0.500	0.574		ng/g		115	50 - 150	1	50

Method: 1668A - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 140-23484/18-B
Matrix: Solid
Analysis Batch: 23724

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23484

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-169			0.500	0.501		ng/g		100	50 - 150	1	50
PCB-188			0.500	0.538		ng/g		108	50 - 150	5	50
PCB-189			0.500	0.508		ng/g		102	50 - 150	8	50
PCB-202			0.500	0.520		ng/g		104	50 - 150	4	50
PCB-205			0.500	0.601		ng/g		120	50 - 150	4	50
PCB-206			0.500	0.506		ng/g		101	50 - 150	3	50
PCB-208			0.500	0.554		ng/g		111	50 - 150	2	50
PCB-209			0.500	0.576		ng/g		115	50 - 150	4	50

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
PCB-1L	*80*		*30 - 140*
PCB-3L	*75*		*30 - 140*
PCB-4L	*79*		*30 - 140*
PCB-15L	*77*		*30 - 140*
PCB-19L	*82*	*q*	*30 - 140*
PCB-37L	*82*		*30 - 140*
PCB-54L	*77*		*30 - 140*
PCB-77L	*82*		*30 - 140*
PCB-81L	*81*		*30 - 140*
PCB-104L	*78*		*30 - 140*
PCB-105L	*89*		*30 - 140*
PCB-114L	*84*		*30 - 140*
PCB-118L	*79*		*30 - 140*
PCB-123L	*84*		*30 - 140*
PCB-126L	*84*		*30 - 140*
PCB-155L	*82*		*30 - 140*
PCB-156L	*86*	*C*	*30 - 140*
PCB-157L	*86*	*C156*	*30 - 140*
PCB-167L	*86*		*30 - 140*
PCB-169L	*92*		*30 - 140*
PCB-170L	*84*		*30 - 140*
PCB-188L	*89*		*30 - 140*
PCB-189L	*64*		*30 - 140*
PCB-202L	*96*		*30 - 140*
PCB-205L	*74*		*30 - 140*
PCB-206L	*88*		*30 - 140*
PCB-208L	*82*		*30 - 140*
PCB-209L	*88*		*30 - 140*

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
PCB-28L	*93*		*40 - 125*
PCB-111L	*92*		*40 - 125*
PCB-178L	*96*		*40 - 125*

Lab Chronicle

Client: AECOM
Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79670-3

Client Sample ID: PDI-SG-B307-BL1
Date Collected: 08/16/18 16:06
Date Received: 08/17/18 15:30

Lab Sample ID: 580-79670-1
Matrix: Solid
Percent Solids: 61.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			23484	09/11/18 11:15	CLI	TAL KNX
Total/NA	Cleanup	Split			23561	09/12/18 17:30	SMM	TAL KNX
Total/NA	Analysis	1668A		1	23741	09/19/18 14:00	JMN	TAL KNX

Laboratory References:

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: AECOM
TestAmerica Job ID: 580-79670-3
Project/Site: Portland Harbor Pre-Remedial Design

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-19
ANAB	DoD ELAP		L2236	01-19-19
ANAB	ISO/IEC 17025		L2236	01-19-19
California	State Program	9	2901	11-05-18
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-18
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-19

Laboratory: TestAmerica Knoxville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
	AFCEE		N/A	
ANAB	DoD ELAP		L2311	02-13-19
Arkansas DEQ	State Program	6	88-0688	06-16-19
California	State Program	9	2423	06-30-19
Colorado	State Program	8	TN00009	02-28-19
Connecticut	State Program	1	PH-0223	09-30-19
Florida	NELAP	4	E87177	06-30-19
Georgia	State Program	4	906	04-13-20
Hawaii	State Program	9	N/A	04-13-19
Kansas	NELAP	7	E-10349	10-31-18
Kentucky (DW)	State Program	4	90101	12-31-18
Louisiana	NELAP	6	83979	06-30-19
Louisiana (DW)	NELAP	6	LA160005	12-31-18
Maryland	State Program	3	277	03-31-19
Michigan	State Program	5	9933	04-13-20
Nevada	State Program	9	TN00009	07-31-19
New Jersey	NELAP	2	TN001	06-30-19
New York	NELAP	2	10781	03-31-19
North Carolina (DW)	State Program	4	21705	07-31-19
North Carolina (WW/SW)	State Program	4	64	12-31-18
Ohio VAP	State Program	5	CL0059	08-28-20
Oklahoma	State Program	6	9415	08-31-19
Oregon	NELAP	10	TNI0189	01-01-19
Pennsylvania	NELAP	3	68-00576	12-31-18
Tennessee	State Program	4	2014	04-13-20
Texas	NELAP	6	T104704380-16-9	08-31-19
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-16-00262	08-20-19
Utah	NELAP	8	TN00009	07-31-18 *
Virginia	NELAP	3	460176	09-14-19
Washington	State Program	10	C593	01-19-19
West Virginia (DW)	State Program	3	9955C	12-31-18
West Virginia DEP	State Program	3	345	04-30-19
Wisconsin	State Program	5	998044300	08-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: AECOM
Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79670-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79670-1	PDI-SG-B307-BL1	Solid	08/16/18 16:06	08/17/18 15:30

SURFACE SEDIMENT
CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 **Ph: 253-922-2310 Fax: 253-922-5047**	**Project Contact: Amy Dahl / Chelsey Cook** **Tel: (206) 438-2261 / (206) 438-2010**	**Site Contact: Jennifer Ray** **Laboratory Contact: Elaine-Walker**	**Date:8/17/18** **Carrier: Courier**	COC No: 1 1 of 1 COCs

Client Contact

AECOM
1111 3rd Ave Suite 1600
Seattle, WA 98101
Phone: (206) 438-2700 Fax: 1+(866) 495-5288
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Portland, OR
Project #: 60566335 Study: Surface Sediment
Sample Type: SRS

Analysis Turnaround Time

Calendar (C) or Work Days (W) _____

[x] 21 days

[ ] Other _____

580-79670 Chain of Custody

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congeners 1668A	PCDD/Fs 1613B	TPH Diesel, Metals, Mercury NWTPH-Dx, 6020B, 7471A	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060 (104C & 70C)	Archive Archive -20 C	PAHs, BEHP, Tributyltin, 8270-SIM, 8270-LL, Kron/Unger	Sample Specific Notes:
PDI-SG-B307-BL1	8/16/18	16:06	SS		MM	7		x	x	x	x	x	x	x	

Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column

Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid

Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)

Sample Disposal

[ ] Return To Client [X] Disposal By Lab [X] Archive For 12 Months

Special Instructions/QC Requirements & Comments:

Separate reports for each lab.

1.7

Relinquished by:	Company: AECOM	Date/Time: 1500 8/17/18	Received by:	Company: M.E.	Date/Time: 8/17/18 1500
Relinquished by:	Company: M.E.	Date/Time: 8/17/18 1530	Received by:	Company: 8/17/18 1530	Date/Time: TAPOR
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

SURFACE SEDIMENT
CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 **Ph: 253-922-2310 Fax: 253-922-5047**	**Project Contact: Amy Dahl / Chelsey Cook** **Tel: (206) 438-2261 / (206) 438-2010**	**Site Contact: Jennifer Ray** **Laboratory Contact: Elaine-Walker**	**Date:8/17/18** **Carrier: Courier**	COC No: 1 1 of 1 COCs

Client Contact	**Analysis Turnaround Time**
AECOM	Calendar (C) or Work Days (W)
1111 3rd Ave Suite 1600	
Seattle, WA 98101	[x] 21 days
Phone: (206) 438-2700 Fax: 1+(866) 495-5288	[ ] Other
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	
Portland, OR	
Project #: 60566335 Study: **Surface Sediment**	
Sample Type: **SRS**	

580-79670 Chain of Custody

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congeners 1668A	PCDD/Fs 1613B	TPH Diesel, Metals, Mercury NWTPH-Dx, 6020B, 7471A	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060 (104C & 70C)	Archive Archive -20 C	PAHs, BEHP, Tributyltin, 8270-SIM, 8270-LL, Kron/Unger	Sample Specific Notes:
PDI-SG-B307-BL1	8/16/18	16:06	SS		MM	7 0		x	x	x	x	x	x	x	

Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column

Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid

Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)

Sample Disposal

[ ] Return To Client [X] Disposal By Lab [X] Archive For **12** Months

Special Instructions/QC Requirements & Comments:

Separate reports for each lab.

1.7

Relinquished by:	Company: AECOM	Date/Time: 1500 8/17/18	Received by:	Company: M.E	Date/Time: 8/17/18 1500
Relinquished by:	Company: M.E.	Date/Time: 8/17/18 1530	Received by:	Company: 8/17/18 1530	Date/Time: TAPOR
Relinquished by:	Company: TAPOR	Date/Time: 8/17/18 1800	Received by: B. Zuer	Company: SEA TD	Date/Time: 8.18.18 0950

E125 = 1.6/1.6 w/C.S.

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Walker, Elaine M	Carrier Tracking No(s):	COC No: 580-58323.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-79670-3
Address: 5815 Middlebrook Pike, ,	Due Date Requested: 9/6/2018			
City: Knoxville	TAT Requested (days):			
State, Zip: TN, 37921				
Phone: 865-291-3000(Tel) 865-584-4315(Fax)	PO #:			
Email:	WO #:			
Project Name: Portland Harbor Pre-Remedial Design	Project #: 58012120			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1668A/1668_P_Sox (MOD) 209 PCBs plus Totals	Screen_1668/Screen_PCB_P_S	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PDI-SG-B307-BL1 (580-79670-1)	8/16/18	16:06 Pacific		Solid			X	X	1	

580-79670 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	8/21/18 8:10	TAEK		8-22-18 09:45	TAEK
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 09/20/2016

Loc: 580
79670

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Log In Number:

Review Items	Yes	No	NA	If No, what was the problem?
1. Are the shipping containers intact?	✓			☐ Containers, Broken
2. Were ambient air containers received intact?			✓	☐ Checked in lab
3. The coolers/containers custody seal if present, is it intact?	✓			☐ Yes ☐ NA
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID : SC68 Correction factor: +0.1°C	✓			☐ Cooler Out of Temp, Client Contacted, Proceed/Cancel ☐ Cooler Out of Temp, Same Day Receipt
5. Were all of the sample containers received intact?	✓			☐ Containers, Broken
6. Were samples received in appropriate containers?	✓			☐ Containers, Improper; Client Contacted; Proceed/Cancel
7. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ COC & Samples Do Not Match ☐ COC Incorrect/Incomplete ☐ COC Not Received
8. Were all of the samples listed on the COC received?	✓			☐ Sample Received, Not on COC ☐ Sample on COC, Not Received
9. Is the date/time of sample collection noted?	✓			☐ COC; No Date/Time; Client Contacted
10. Was the sampler identified on the COC?			✓	☐ Sampler Not Listed on COC
11. Is the client and project name/# identified?	✓			☐ COC Incorrect/Incomplete
12. Are tests/parameters listed for each sample?	✓			☐ COC No tests on COC
13. Is the matrix of the samples noted?	✓			☐ COC Incorrect/Incomplete
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ COC Incorrect/Incomplete
15. Were samples received within holding time?	✓			☐ Holding Time - Receipt
16. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ pH Adjusted, pH Included (See box 16A) ☐ Incorrect Preservative
17. Were VOA samples received without headspace?			✓	☐ Headspace (VOA only)
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:			✓	☐ Residual Chlorine
19. For 1613B water samples is pH<9?			✓	☐ If no, lab will adjust
20. For rad samples was sample activity info. Provided?				☐ Project missing info

Comments/Actions Taken

CUSTODY SEALS INTACT
RECEIVED AT AT 0.3/0.4°C
DKD 8-22-18
COOLER ID# 4423025097555 PD

Labeling Verified by: **Date:**

pH test strip lot number:

Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative:	
Lot Number:	
Exp Date:	
Analyst:	
Date:	
Time:	

Project #: _____ PM Instructions: _____

Sample Receiving Associate: _____ Date: 8-22-18

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9/20/2018

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-79670-3

Login Number: 79670
List Number: 1
Creator: O'Connell, Jason I

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: AECOM
Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79670-3

Method: 1668A - Chlorinated Biphenyl Congeners (HRGC/HRMS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PCB1L	PCB3L	PCB4L	PCB15L	PCB19L	PCB37L	PCB54L	PCB77L
Lab Sample ID	Client Sample ID	(30-140)	(30-140)	(30-140)	(30-140)	(30-140)	(30-140)	(30-140)	(30-140)
580-79670-1	PDI-SG-B307-BL1	68	69	77	79	87	83	74	61
LCS 140-23484/17-B	Lab Control Sample	80	74	78	82	96	91	67 q	82
LCSD 140-23484/18-B	Lab Control Sample Dup	80	75	79	77	82 q	82	77	82
MB 140-23484/16-B	Method Blank	77	71	76	75	82	81	75	80

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PCB81L	PCB104L	PCB105L	P114L	PCB118L	PCB123L	PCB126L	PCB155L
Lab Sample ID	Client Sample ID	(30-140)	(30-140)	(30-140)	(30-140)	(30-140)	(30-140)	(30-140)	(30-140)
580-79670-1	PDI-SG-B307-BL1	66	95	90	92	81	76	87	81
LCS 140-23484/17-B	Lab Control Sample	81	84	87	83	83	83	83	86
LCSD 140-23484/18-B	Lab Control Sample Dup	81	78	89	84	79	84	84	82
MB 140-23484/16-B	Method Blank	81	77	88	88	85	79	82	81

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PCB156L	PCB157L	PCB167L	PCB169L	PCB170L	PCB188L	PCB189L	PCB202L
Lab Sample ID	Client Sample ID	(30-140)	(30-140)	(30-140)	(30-140)	(30-140)	(30-140)	(30-140)	(30-140)
580-79670-1	PDI-SG-B307-BL1	71 C	71 C156	83	78	82	101	79	99
LCS 140-23484/17-B	Lab Control Sample	89 C	89 C156	88	95	82	84	79	92
LCSD 140-23484/18-B	Lab Control Sample Dup	86 C	86 C156	86	92	84	89	64	96
MB 140-23484/16-B	Method Blank	87 C	87 C156	86	90	84	89	71	96

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PCB205L	PCB206L	PCB208L	PCB209L				
Lab Sample ID	Client Sample ID	(30-140)	(30-140)	(30-140)	(30-140)				
580-79670-1	PDI-SG-B307-BL1	66	73	76	72				
LCS 140-23484/17-B	Lab Control Sample	75	89	84	89				
LCSD 140-23484/18-B	Lab Control Sample Dup	74	88	82	88				
MB 140-23484/16-B	Method Blank	73	82	82	88				

Surrogate Legend

PCB1L = PCB-1L
PCB3L = PCB-3L
PCB4L = PCB-4L
PCB15L = PCB-15L
PCB19L = PCB-19L
PCB37L = PCB-37L
PCB54L = PCB-54L
PCB77L = PCB-77L
PCB81L = PCB-81L
PCB104L = PCB-104L
PCB105L = PCB-105L
P114L = PCB-114L
PCB118L = PCB-118L
PCB123L = PCB-123L
PCB126L = PCB-126L
PCB155L = PCB-155L
PCB156L = PCB-156L
PCB157L = PCB-157L
PCB167L = PCB-167L
PCB169L = PCB-169L
PCB170L = PCB-170L
PCB188L = PCB-188L

Isotope Dilution Summary

Client: AECOM
Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79670-3

PCB189L = PCB-189L
PCB202L = PCB-202L
PCB205L = PCB-205L
PCB206L = PCB-206L
PCB208L = PCB-208L
PCB209L = PCB-209L