

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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TestAmerica Job ID: 580-78854-9

Client Project/Site: Portland Harbor Pre-Remedial Design

For:

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Authorized for release by:
10/29/2018 2:16:08 PM

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Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

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

TestAmerica Job ID: 580-78854-9

Job ID: 580-78854-9

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE

Client: AECOM

Project: Portland Harbor Pre-Remedial Design

Report Number: 580-78854-9

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

Two samples were received on 7/16/2018 12:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.1° 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.

The following sample was activated for the remaining on hold analysis by the client on 10/11/18: PDI-SG-S266 (580-78854-2).

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-S266 (580-78854-2) was analyzed for polychlorinated biphenyls congeners (PCBs) in accordance with EPA Method 1668A. The sample was prepared on 10/19/2018 and analyzed on 10/27/2018.

Several analytes were detected in method blank MB 140-24629/19-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.

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

Definitions/Glossary

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

TestAmerica Job ID: 580-78854-9

Qualifiers

Dioxin

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
C93	The compound co-eluted with PCB-93
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.
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
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
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)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

TestAmerica Seattle

Definitions/Glossary

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-78854-9

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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 Results

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

TestAmerica Job ID: 580-78854-9

Client Sample ID: PDI-SG-S266

Date Collected: 07/13/18 12:10

Date Received: 07/16/18 12:50

Lab Sample ID: 580-78854-2

Matrix: Solid

Percent Solids: 68.9

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1	ND		0.0099	0.00014	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-2	0.0014	J B	0.0099	0.00017	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-3	ND		0.0099	0.00020	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-4	0.0018	J q	0.020	0.0017	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-5	ND		0.0099	0.0015	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-6	ND		0.0099	0.0013	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-7	ND		0.0099	0.0013	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-8	0.0022	J q	0.020	0.0012	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-9	ND		0.0099	0.0014	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-10	ND		0.0099	0.0014	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-11	0.017	J B q	0.020	0.0013	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-12	ND	C	0.020	0.0013	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-13	ND	C12	0.020	0.0013	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-14	ND		0.0099	0.0011	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-15	0.0039	J q	0.0099	0.0014	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-16	0.0019	J q	0.0099	0.00024	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-17	0.0026	J	0.0099	0.00021	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-18	0.0043	J C q	0.020	0.00019	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-19	ND		0.0099	0.00026	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-20	0.016	J C B	0.020	0.00040	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-21	0.0034	J C B q	0.020	0.00039	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-22	0.0040	J B	0.0099	0.00041	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-23	ND		0.0099	0.00040	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-24	ND		0.0099	0.00018	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-25	0.0012	J q	0.0099	0.00037	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-26	0.0018	J C B q	0.020	0.00039	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-27	0.00083	J q	0.0099	0.00015	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-28	0.016	J B C20	0.020	0.00040	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-29	0.0018	J C26 B q	0.020	0.00039	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-30	0.0043	J C18 q	0.020	0.00019	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-31	0.012	J	0.020	0.00039	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-32	0.0026	J B	0.0099	0.00015	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-33	0.0034	J B C21 q	0.020	0.00039	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-34	ND		0.0099	0.00042	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-35	ND		0.0099	0.00041	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-36	ND		0.0099	0.00039	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-37	0.0049	J	0.0099	0.00041	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-38	ND		0.0099	0.00042	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-39	ND		0.0099	0.00038	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-40	0.0072	J C	0.030	0.00090	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-41	0.0072	J C40	0.030	0.00090	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-42	0.0047	J q	0.0099	0.00090	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-43	ND	C	0.020	0.00085	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-44	0.023	J C B	0.030	0.00080	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-45	0.0033	J C q	0.020	0.00095	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-46	ND		0.0099	0.0011	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-47	0.023	J B C44	0.030	0.00080	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-48	0.0021	J q	0.0099	0.00090	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-49	0.014	J C	0.020	0.00074	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-78854-9

Client Sample ID: PDI-SG-S266

Lab Sample ID: 580-78854-2

Date Collected: 07/13/18 12:10

Matrix: Solid

Date Received: 07/16/18 12:50

Percent Solids: 68.9

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-50	0.0028	J C	0.020	0.00087	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-51	0.0033	J C45 q	0.020	0.00095	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-52	0.024		0.0099	0.00089	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-53	0.0028	J C50	0.020	0.00087	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-54	ND		0.0099	0.000025	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-55	ND		0.0099	0.00066	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-56	0.0061	J q	0.0099	0.00066	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-57	ND		0.0099	0.00067	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-58	ND		0.0099	0.00068	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-59	0.0018	J C	0.030	0.00064	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-60	0.0034	J	0.0099	0.00067	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-61	0.036	J C	0.040	0.00063	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-62	0.0018	J C59	0.030	0.00064	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-63	ND		0.0099	0.00061	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-64	0.0078	J	0.0099	0.00060	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-65	0.023	J B C44	0.030	0.00080	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-66	0.023		0.0099	0.00062	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-67	ND		0.0099	0.00058	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-68	ND		0.0099	0.00059	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-69	0.014	J C49	0.020	0.00074	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-70	0.036	J C61	0.040	0.00063	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-71	0.0072	J C40	0.030	0.00090	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-72	ND		0.0099	0.00065	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-73	ND	C43	0.020	0.00085	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-74	0.036	J C61	0.040	0.00063	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-75	0.0018	J C59	0.030	0.00064	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-76	0.036	J C61	0.040	0.00063	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-77	0.0035	J	0.0099	0.00064	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-78	ND		0.0099	0.00067	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-79	ND		0.0099	0.00058	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-80	ND		0.0099	0.00057	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-81	ND		0.0099	0.00061	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-82	0.0038	J	0.0099	0.00038	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-83	0.023	C	0.020	0.00035	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-84	0.0073	J	0.0099	0.00038	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-85	0.0088	J C B	0.030	0.00028	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-86	0.021	J C B	0.059	0.00028	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-87	0.021	J B C86	0.059	0.00028	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-88	0.0059	J C B	0.020	0.00034	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-89	ND		0.0099	0.00037	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-90	0.035	C B	0.030	0.00029	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-91	0.0059	J C88 B	0.020	0.00034	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-92	0.0069	J B	0.0099	0.00033	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-93	0.00083	J C B q	0.020	0.00033	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-94	ND		0.0099	0.00037	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-95	0.024	B	0.0099	0.00036	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-96	ND		0.0099	0.00028	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-97	0.021	J B C86	0.059	0.00028	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-98	0.00097	J C q	0.020	0.00032	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-78854-9

Client Sample ID: PDI-SG-S266

Lab Sample ID: 580-78854-2

Date Collected: 07/13/18 12:10

Matrix: Solid

Date Received: 07/16/18 12:50

Percent Solids: 68.9

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-99	0.023	C83	0.020	0.00035	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-100	0.00083	J C93 B q	0.020	0.00033	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-101	0.035	B C90	0.030	0.00029	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-102	0.00097	J C98 q	0.020	0.00032	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-103	ND		0.0099	0.00033	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-104	ND		0.0099	0.00025	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-105	0.014	B q	0.0099	0.00079	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-106	ND		0.0099	0.00080	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-107	0.0039	J	0.0099	0.00086	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-108	0.0016	J C B q	0.020	0.00082	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-109	0.021	J B C86	0.059	0.00028	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-110	0.041	C B	0.020	0.00024	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-111	ND		0.0099	0.00023	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-112	ND		0.0099	0.00024	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-113	0.035	B C90	0.030	0.00029	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-114	ND		0.0099	0.00074	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-115	0.041	B C110	0.020	0.00024	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-116	0.0088	J C85 B	0.030	0.00028	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-117	0.0088	J C85 B	0.030	0.00028	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-118	0.037	B	0.0099	0.00075	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-119	0.021	J B C86	0.059	0.00028	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-120	ND		0.0099	0.00024	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-121	ND		0.0099	0.00024	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-122	ND		0.0099	0.00093	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-123	0.0012	J B	0.0099	0.00079	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-124	0.0016	J B q C108	0.020	0.00082	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-125	0.021	J B C86	0.059	0.00028	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-126	ND		0.0099	0.00084	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-127	ND		0.0099	0.00080	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-128	0.011	J C	0.020	0.0012	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-129	0.069	C B	0.040	0.0012	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-130	0.0049	J	0.0099	0.0016	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-131	ND		0.0099	0.0017	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-132	0.014	B	0.0099	0.0016	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-133	ND		0.0099	0.0016	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-134	ND	C	0.020	0.0016	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-135	0.015	J C B	0.020	0.00020	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-136	0.0039	J B	0.0099	0.00014	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-137	0.0017	J q	0.0099	0.0014	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-138	0.069	B C129	0.040	0.0012	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-139	ND	C	0.020	0.0014	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-140	ND	C139	0.020	0.0014	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-141	0.0091	J B q	0.0099	0.0015	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-142	ND		0.0099	0.0016	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-143	ND	C134	0.020	0.0016	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-144	0.0015	J	0.0099	0.00018	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-145	ND		0.0099	0.00014	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-146	0.011	B	0.0099	0.0014	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-147	0.040	C B	0.020	0.0016	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-78854-9

Client Sample ID: PDI-SG-S266

Lab Sample ID: 580-78854-2

Date Collected: 07/13/18 12:10

Matrix: Solid

Date Received: 07/16/18 12:50

Percent Solids: 68.9

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-148	ND		0.0099	0.00019	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-149	0.040	B C147	0.020	0.0016	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-150	ND		0.0099	0.00013	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-151	0.015	J C135 B	0.020	0.00020	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-152	ND		0.0099	0.00014	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-153	0.049	C B	0.020	0.0011	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-154	ND		0.0099	0.00015	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-155	ND		0.0099	0.00013	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-156	0.0068	J C B	0.020	0.0014	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-157	0.0068	J C156 B	0.020	0.0014	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-158	0.0054	J q	0.0099	0.00098	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-159	ND		0.0099	0.0010	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-160	0.069	B C129	0.040	0.0012	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-161	ND		0.0099	0.0010	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-162	ND		0.0099	0.0010	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-163	0.069	B C129	0.040	0.0012	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-164	0.0042	J B	0.0099	0.0011	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-165	ND		0.0099	0.0012	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-166	0.011	J C128	0.020	0.0012	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-167	0.0033	J B	0.0099	0.00081	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-168	0.049	B C153	0.020	0.0011	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-169	ND		0.0099	0.00076	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-170	0.019	B	0.0099	0.0011	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-171	0.0050	J C B q	0.020	0.0010	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-172	0.0042	J q	0.0099	0.0010	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-173	0.0050	J C171 B q	0.020	0.0010	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-174	0.018	B	0.0099	0.00095	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-175	ND		0.0099	0.00092	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-176	0.0021	J	0.0099	0.00069	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-177	0.011	B	0.0099	0.00097	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-178	0.0050	J B	0.0099	0.00099	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-179	0.0075	J B	0.0099	0.00073	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-180	0.040	C B	0.020	0.00077	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-181	ND		0.0099	0.00091	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-182	ND		0.0099	0.00088	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-183	0.012	J C B	0.020	0.00090	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-184	ND		0.0099	0.00075	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-185	0.012	J B C183	0.020	0.00090	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-186	ND		0.0099	0.00073	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-187	0.025	B	0.0099	0.00085	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-188	ND		0.0099	0.00065	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-189	ND		0.0099	0.0012	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-190	0.0039	J B q	0.0099	0.00066	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-191	ND		0.0099	0.00069	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-192	ND		0.0099	0.00077	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-193	0.040	C180 B	0.020	0.00077	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-194	0.0095	J B q	0.0099	0.0011	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-195	0.0065	J	0.0099	0.0012	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-196	0.0043	J B	0.0099	0.00030	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-78854-9

Client Sample ID: PDI-SG-S266

Lab Sample ID: 580-78854-2

Date Collected: 07/13/18 12:10

Matrix: Solid

Date Received: 07/16/18 12:50

Percent Solids: 68.9

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-197	ND		0.0099	0.00023	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-198	0.011	J C	0.020	0.00030	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-199	0.011	J C198	0.020	0.00030	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-200	ND		0.0099	0.00020	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-201	0.0010	J	0.0099	0.00021	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-202	0.0022	J q	0.0099	0.00023	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-203	0.0079	J B	0.0099	0.00027	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-204	ND		0.0099	0.00023	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-205	ND		0.0099	0.00094	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-206	0.0082	J q	0.0099	0.0016	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-207	ND		0.0099	0.0012	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-208	0.0028	J q	0.0099	0.0012	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
PCB-209	0.014	q	0.0099	0.00037	ng/g	☼	10/19/18 12:00	10/27/18 06:24	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
PCB-1L	65		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-3L	63		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-4L	81		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-15L	81		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-19L	91		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-37L	89		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-54L	76		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-77L	88		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-81L	87		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-104L	83		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-105L	91		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-114L	93		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-118L	91		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-123L	89		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-126L	89		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-155L	92		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-156L	91	C	30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-157L	91	C156	30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-167L	90		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-169L	95		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-170L	90		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-188L	92		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-189L	81		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-202L	112		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-205L	77		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-206L	90		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-208L	94		30 - 140				10/19/18 12:00	10/27/18 06:24	1
PCB-209L	91		30 - 140				10/19/18 12:00	10/27/18 06:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
PCB-28L	94		40 - 125				10/19/18 12:00	10/27/18 06:24	1
PCB-111L	89		40 - 125				10/19/18 12:00	10/27/18 06:24	1
PCB-178L	97		40 - 125				10/19/18 12:00	10/27/18 06:24	1

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-78854-9

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

Lab Sample ID: MB 140-24629/19-B

Matrix: Solid

Analysis Batch: 24861

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 24629

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1	0.000606	J	0.010	0.000060	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-2	0.00128	J q	0.010	0.000071	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-3	0.000613	J q	0.010	0.000080	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-4	ND		0.020	0.0017	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-5	ND		0.010	0.0016	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-6	ND		0.010	0.0014	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-7	ND		0.010	0.0014	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-8	ND		0.020	0.0013	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-9	ND		0.010	0.0014	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-10	ND		0.010	0.0015	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-11	0.00243	J q	0.020	0.0013	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-12	ND	C	0.020	0.0014	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-13	ND	C12	0.020	0.0014	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-14	ND		0.010	0.0012	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-15	ND		0.010	0.0016	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-16	ND		0.010	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-17	ND		0.010	0.00017	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-18	ND	C	0.020	0.00015	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-19	ND		0.010	0.00021	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-20	0.00122	J C	0.020	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-21	0.00113	J C	0.020	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-22	0.000247	J q	0.010	0.00020	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-23	0.000383	J q	0.010	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-24	ND		0.010	0.00014	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-25	ND		0.010	0.00018	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-26	0.000265	J C q	0.020	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-27	ND		0.010	0.00012	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-28	0.00122	J C20	0.020	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-29	0.000265	J C26 q	0.020	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-30	ND	C18	0.020	0.00015	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-31	ND		0.020	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-32	0.000948	J q	0.010	0.00012	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-33	0.00113	J C21	0.020	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-34	ND		0.010	0.00020	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-35	ND		0.010	0.00020	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-36	ND		0.010	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-37	ND		0.010	0.00020	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-38	ND		0.010	0.00020	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-39	ND		0.010	0.00018	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-40	ND	C	0.030	0.00070	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-41	ND	C40	0.030	0.00070	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-42	ND		0.010	0.00070	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-43	ND	C	0.020	0.00066	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-44	0.00911	J C	0.030	0.00062	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-45	ND	C	0.020	0.00074	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-46	ND		0.010	0.00089	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-47	0.00911	J C44	0.030	0.00062	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-48	ND		0.010	0.00070	ng/g		10/19/18 12:00	10/27/18 04:21	1

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-78854-9

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

Lab Sample ID: MB 140-24629/19-B

Matrix: Solid

Analysis Batch: 24861

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 24629

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-49	ND	C	0.020	0.00057	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-50	ND	C	0.020	0.00068	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-51	ND	C45	0.020	0.00074	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-52	ND		0.010	0.00070	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-53	ND	C50	0.020	0.00068	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-54	ND		0.010	0.000032	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-55	ND		0.010	0.00051	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-56	ND		0.010	0.00051	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-57	ND		0.010	0.00052	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-58	ND		0.010	0.00053	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-59	ND	C	0.030	0.00050	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-60	ND		0.010	0.00052	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-61	ND	C	0.040	0.00049	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-62	ND	C59	0.030	0.00050	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-63	ND		0.010	0.00048	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-64	ND		0.010	0.00047	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-65	0.00911	J C44	0.030	0.00062	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-66	ND		0.010	0.00049	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-67	ND		0.010	0.00045	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-68	0.000779	J q	0.010	0.00046	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-69	ND	C49	0.020	0.00057	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-70	ND	C61	0.040	0.00049	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-71	ND	C40	0.030	0.00070	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-72	ND		0.010	0.00051	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-73	ND	C43	0.020	0.00066	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-74	ND	C61	0.040	0.00049	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-75	ND	C59	0.030	0.00050	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-76	ND	C61	0.040	0.00049	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-77	ND		0.010	0.00051	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-78	ND		0.010	0.00053	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-79	ND		0.010	0.00046	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-80	ND		0.010	0.00045	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-81	ND		0.010	0.00047	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-82	ND		0.010	0.00012	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-83	ND	C	0.020	0.00011	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-84	ND		0.010	0.00012	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-85	0.000912	J C q	0.030	0.000091	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-86	0.00270	J C q	0.060	0.000092	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-87	0.00270	J C86 q	0.060	0.000092	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-88	0.000694	J C q	0.020	0.00011	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-89	ND		0.010	0.00012	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-90	0.00350	J C	0.030	0.000093	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-91	0.000694	J C88 q	0.020	0.00011	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-92	0.000785	J	0.010	0.00011	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-93	0.000778	J C q	0.020	0.00011	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-94	ND		0.010	0.00012	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-95	0.00156	J q	0.010	0.00012	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-96	ND		0.010	0.000091	ng/g		10/19/18 12:00	10/27/18 04:21	1

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-78854-9

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

Lab Sample ID: MB 140-24629/19-B

Matrix: Solid

Analysis Batch: 24861

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 24629

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-97	0.00270	J C86 q	0.060	0.000092	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-98	ND	C	0.020	0.00010	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-99	ND	C83	0.020	0.00011	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-100	0.000778	J C93 q	0.020	0.00011	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-101	0.00350	J C90	0.030	0.000093	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-102	ND	C98	0.020	0.00010	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-103	ND		0.010	0.00011	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-104	ND		0.010	0.000081	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-105	0.000701	J q	0.010	0.00018	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-106	ND		0.010	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-107	ND		0.010	0.00021	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-108	0.000343	J C q	0.020	0.00020	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-109	0.00270	J C86 q	0.060	0.000092	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-110	0.00175	J C	0.020	0.000077	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-111	ND		0.010	0.000075	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-112	ND		0.010	0.000079	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-113	0.00350	J C90	0.030	0.000093	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-114	ND		0.010	0.00018	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-115	0.00175	J C110	0.020	0.000077	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-116	0.000912	J C85 q	0.030	0.000091	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-117	0.000912	J C85 q	0.030	0.000091	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-118	0.00102	J q	0.010	0.00018	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-119	0.00270	J C86 q	0.060	0.000092	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-120	ND		0.010	0.000076	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-121	ND		0.010	0.000078	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-122	ND		0.010	0.00022	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-123	0.000519	J q	0.010	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-124	0.000343	J q C108	0.020	0.00020	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-125	0.00270	J C86 q	0.060	0.000092	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-126	0.000458	J q	0.010	0.00021	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-127	ND		0.010	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-128	ND	C	0.020	0.00015	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-129	0.00414	J C q	0.040	0.00015	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-130	ND		0.010	0.00020	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-131	ND		0.010	0.00021	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-132	0.00115	J q	0.010	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-133	ND		0.010	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-134	0.000876	J C	0.020	0.00020	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-135	0.000849	J C q	0.020	0.000060	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-136	0.000675	J q	0.010	0.000044	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-137	ND		0.010	0.00017	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-138	0.00414	J C129 q	0.040	0.00015	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-139	ND	C	0.020	0.00017	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-140	ND	C139	0.020	0.00017	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-141	0.00116	J q	0.010	0.00018	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-142	ND		0.010	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-143	0.000876	J C134	0.020	0.00020	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-144	ND		0.010	0.000055	ng/g		10/19/18 12:00	10/27/18 04:21	1

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-78854-9

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

Lab Sample ID: MB 140-24629/19-B

Matrix: Solid

Analysis Batch: 24861

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 24629

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-145	ND		0.010	0.000041	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-146	0.000987	J	0.010	0.00017	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-147	0.00307	J C q	0.020	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-148	ND		0.010	0.000058	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-149	0.00307	J C147 q	0.020	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-150	ND		0.010	0.000040	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-151	0.000849	J C135 q	0.020	0.000060	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-152	ND		0.010	0.000043	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-153	0.00325	J C q	0.020	0.00013	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-154	0.000563	J q	0.010	0.000047	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-155	ND		0.010	0.000040	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-156	0.000508	J C q	0.020	0.00017	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-157	0.000508	J C156 q	0.020	0.00017	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-158	ND		0.010	0.00012	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-159	0.000525	J	0.010	0.00013	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-160	0.00414	J C129 q	0.040	0.00015	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-161	ND		0.010	0.00012	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-162	ND		0.010	0.00012	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-163	0.00414	J C129 q	0.040	0.00015	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-164	0.000501	J q	0.010	0.00013	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-165	ND		0.010	0.00014	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-166	ND	C128	0.020	0.00015	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-167	0.000490	J q	0.010	0.000095	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-168	0.00325	J C153 q	0.020	0.00013	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-169	ND		0.010	0.000092	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-170	0.00119	J q	0.010	0.00019	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-171	0.00110	J C	0.020	0.00018	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-172	ND		0.010	0.00018	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-173	0.00110	J C171	0.020	0.00018	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-174	0.00191	J q	0.010	0.00017	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-175	ND		0.010	0.00017	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-176	ND		0.010	0.00013	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-177	0.00132	J q	0.010	0.00018	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-178	0.000554	J q	0.010	0.00018	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-179	0.000825	J q	0.010	0.00013	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-180	0.00379	J C q	0.020	0.00014	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-181	ND		0.010	0.00017	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-182	ND		0.010	0.00016	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-183	0.00189	J C	0.020	0.00016	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-184	ND		0.010	0.00014	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-185	0.00189	J C183	0.020	0.00016	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-186	ND		0.010	0.00013	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-187	0.00176	J q	0.010	0.00015	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-188	ND		0.010	0.00012	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-189	ND		0.010	0.00023	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-190	0.000654	J q	0.010	0.00012	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-191	ND		0.010	0.00012	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-192	0.000360	J q	0.010	0.00014	ng/g		10/19/18 12:00	10/27/18 04:21	1

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-78854-9

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

Lab Sample ID: MB 140-24629/19-B

Matrix: Solid

Analysis Batch: 24861

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 24629

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-193	0.00379	J C180 q	0.020	0.00014	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-194	0.000963	J q	0.010	0.00033	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-195	ND		0.010	0.00037	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-196	0.000932	J q	0.010	0.000046	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-197	ND		0.010	0.000036	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-198	ND	C	0.020	0.000047	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-199	ND	C198	0.020	0.000047	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-200	ND		0.010	0.000032	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-201	ND		0.010	0.000032	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-202	ND		0.010	0.000036	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-203	0.000496	J q	0.010	0.000042	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-204	ND		0.010	0.000036	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-205	ND		0.010	0.00028	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-206	ND		0.010	0.0010	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-207	ND		0.010	0.00074	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-208	ND		0.010	0.00077	ng/g		10/19/18 12:00	10/27/18 04:21	1
PCB-209	ND		0.010	0.00021	ng/g		10/19/18 12:00	10/27/18 04:21	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
PCB-1L	61		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-3L	60		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-4L	76		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-15L	69		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-19L	82		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-37L	79		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-54L	71		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-77L	77		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-81L	76		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-104L	77		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-105L	87		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-114L	83		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-118L	84		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-123L	81		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-126L	80		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-155L	85		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-156L	82	C	30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-157L	82	C156	30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-167L	84		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-169L	90		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-170L	83		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-188L	83		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-189L	72		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-202L	103		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-205L	72		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-206L	86		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-208L	83		30 - 140	10/19/18 12:00	10/27/18 04:21	1
PCB-209L	92		30 - 140	10/19/18 12:00	10/27/18 04:21	1

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-78854-9

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

Lab Sample ID: MB 140-24629/19-B

Matrix: Solid

Analysis Batch: 24861

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 24629

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
PCB-28L	88		40 - 125	10/19/18 12:00	10/27/18 04:21	1
PCB-111L	86		40 - 125	10/19/18 12:00	10/27/18 04:21	1
PCB-178L	93		40 - 125	10/19/18 12:00	10/27/18 04:21	1

Lab Sample ID: LCS 140-24629/20-B

Matrix: Solid

Analysis Batch: 24861

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 24629

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1	0.500	0.440		ng/g		88	50 - 150
PCB-3	0.500	0.446		ng/g		89	50 - 150
PCB-4	0.500	0.504		ng/g		101	50 - 150
PCB-15	0.500	0.531		ng/g		106	50 - 150
PCB-19	0.500	0.606		ng/g		121	50 - 150
PCB-37	0.500	0.542		ng/g		108	50 - 150
PCB-54	0.500	0.572		ng/g		114	50 - 150
PCB-77	0.500	0.521		ng/g		104	50 - 150
PCB-81	0.500	0.485		ng/g		97	50 - 150
PCB-104	0.500	0.546		ng/g		109	50 - 150
PCB-105	0.500	0.541		ng/g		108	50 - 150
PCB-114	0.500	0.586		ng/g		117	50 - 150
PCB-118	0.500	0.574		ng/g		115	50 - 150
PCB-123	0.500	0.618		ng/g		124	50 - 150
PCB-126	0.500	0.590		ng/g		118	50 - 150
PCB-155	0.500	0.558		ng/g		112	50 - 150
PCB-156	1.00	1.11	C	ng/g		111	50 - 150
PCB-157	1.00	1.11	C156	ng/g		111	50 - 150
PCB-167	0.500	0.562		ng/g		112	50 - 150
PCB-169	0.500	0.504		ng/g		101	50 - 150
PCB-188	0.500	0.552		ng/g		110	50 - 150
PCB-189	0.500	0.559		ng/g		112	50 - 150
PCB-202	0.500	0.504		ng/g		101	50 - 150
PCB-205	0.500	0.604		ng/g		121	50 - 150
PCB-206	0.500	0.525		ng/g		105	50 - 150
PCB-208	0.500	0.553		ng/g		111	50 - 150
PCB-209	0.500	0.566		ng/g		113	50 - 150

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
PCB-1L	62		30 - 140
PCB-3L	61		30 - 140
PCB-4L	75		30 - 140
PCB-15L	71		30 - 140
PCB-19L	81		30 - 140
PCB-37L	80		30 - 140
PCB-54L	68		30 - 140
PCB-77L	80		30 - 140
PCB-81L	80		30 - 140
PCB-104L	75		30 - 140

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-78854-9

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

Lab Sample ID: LCS 140-24629/20-B

Matrix: Solid

Analysis Batch: 24861

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 24629

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
PCB-105L	90		30 - 140
PCB-114L	84		30 - 140
PCB-118L	84		30 - 140
PCB-123L	82		30 - 140
PCB-126L	82		30 - 140
PCB-155L	83		30 - 140
PCB-156L	84	C	30 - 140
PCB-157L	84	C156	30 - 140
PCB-167L	84		30 - 140
PCB-169L	91		30 - 140
PCB-170L	83		30 - 140
PCB-188L	84		30 - 140
PCB-189L	75		30 - 140
PCB-202L	103		30 - 140
PCB-205L	72		30 - 140
PCB-206L	87		30 - 140
PCB-208L	85		30 - 140
PCB-209L	92		30 - 140

<i>Surrogate</i>	<i>%Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
PCB-28L	93		40 - 125
PCB-111L	88		40 - 125
PCB-178L	95		40 - 125

Lab Sample ID: LCSD 140-24629/21-B

Matrix: Solid

Analysis Batch: 24861

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 24629

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>Limit</i>
PCB-1	0.500	0.426		ng/g		85	50 - 150	3	50
PCB-3	0.500	0.452		ng/g		90	50 - 150	1	50
PCB-4	0.500	0.490		ng/g		98	50 - 150	3	50
PCB-15	0.500	0.557		ng/g		111	50 - 150	5	50
PCB-19	0.500	0.561		ng/g		112	50 - 150	8	50
PCB-37	0.500	0.521		ng/g		104	50 - 150	4	50
PCB-54	0.500	0.578		ng/g		116	50 - 150	1	50
PCB-77	0.500	0.523		ng/g		105	50 - 150	0	50
PCB-81	0.500	0.483		ng/g		97	50 - 150	0	50
PCB-104	0.500	0.545		ng/g		109	50 - 150	0	50
PCB-105	0.500	0.543		ng/g		109	50 - 150	0	50
PCB-114	0.500	0.579		ng/g		116	50 - 150	1	50
PCB-118	0.500	0.551		ng/g		110	50 - 150	4	50
PCB-123	0.500	0.599		ng/g		120	50 - 150	3	50
PCB-126	0.500	0.584		ng/g		117	50 - 150	1	50
PCB-155	0.500	0.525		ng/g		105	50 - 150	6	50
PCB-156	1.00	1.09	C	ng/g		109	50 - 150	2	50
PCB-157	1.00	1.09	C156	ng/g		109	50 - 150	2	50
PCB-167	0.500	0.554		ng/g		111	50 - 150	1	50

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-78854-9

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

Lab Sample ID: LCSD 140-24629/21-B

Matrix: Solid

Analysis Batch: 24861

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 24629

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-169	0.500	0.494		ng/g		99	50 - 150	2	50
PCB-188	0.500	0.545		ng/g		109	50 - 150	1	50
PCB-189	0.500	0.554		ng/g		111	50 - 150	1	50
PCB-202	0.500	0.499		ng/g		100	50 - 150	1	50
PCB-205	0.500	0.599		ng/g		120	50 - 150	1	50
PCB-206	0.500	0.512		ng/g		102	50 - 150	2	50
PCB-208	0.500	0.552		ng/g		110	50 - 150	0	50
PCB-209	0.500	0.567		ng/g		113	50 - 150	0	50

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
PCB-1L	64		30 - 140
PCB-3L	60		30 - 140
PCB-4L	77		30 - 140
PCB-15L	69		30 - 140
PCB-19L	84		30 - 140
PCB-37L	79		30 - 140
PCB-54L	66		30 - 140
PCB-77L	78		30 - 140
PCB-81L	78		30 - 140
PCB-104L	76		30 - 140
PCB-105L	93		30 - 140
PCB-114L	88		30 - 140
PCB-118L	87		30 - 140
PCB-123L	86		30 - 140
PCB-126L	86		30 - 140
PCB-155L	87		30 - 140
PCB-156L	86	C	30 - 140
PCB-157L	86	C156	30 - 140
PCB-167L	84		30 - 140
PCB-169L	91		30 - 140
PCB-170L	85		30 - 140
PCB-188L	85		30 - 140
PCB-189L	77		30 - 140
PCB-202L	105		30 - 140
PCB-205L	75		30 - 140
PCB-206L	91		30 - 140
PCB-208L	87		30 - 140
PCB-209L	95		30 - 140

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
PCB-28L	88		40 - 125
PCB-111L	87		40 - 125
PCB-178L	97		40 - 125

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-78854-9

Client Sample ID: PDI-SG-S266

Date Collected: 07/13/18 12:10

Date Received: 07/16/18 12:50

Lab Sample ID: 580-78854-2

Matrix: Solid

Percent Solids: 68.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			24629	10/19/18 12:00	CLI	TAL KNX
Total/NA	Cleanup	Split			24711	10/23/18 08:50	EBS	TAL KNX
Total/NA	Analysis	1668A		1	24861	10/27/18 06:24	PMP	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: 580-78854-9

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 (VW/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	07-31-19
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

TestAmerica Seattle

Sample Summary

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-78854-9

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-78854-2	PDI-SG-S266	Solid	07/13/18 12:10	07/16/18 12:50

1

2

3

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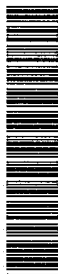
11

12

SURFACE SEDIMENT CHAIN OF CUSTODY											
TestAmerica-Seattle				Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010				Site Contact: Jennifer Ray Laboratory Contact: Elaine Walker		7/16/2018	
Client Contact				Analysis Turnaround Time				Carrier: Courier		COC No. 1 of 1 pages	
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: D/U				Calendar (C) or Work Days (W) 21 days ☐ Other: ASAP							
Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction					
7/13/2018	14:50	SS		LS	8	PCB Congeners 1668A	H	PCB Congeners 1668A	H	PCB Congeners 1668A	WQ - PCB Congeners 1668A
7/13/2018	12:10	SS		LS		TPH Diesel, Metals, Mercury NWTPH-Dx, 6020B, 7471A	H	TPH Diesel, Metals, Mercury NWTPH-Dx, 6020B, 7471A	H	TPH Diesel, Metals, Mercury NWTPH-Dx, 6020B, 7471A	WQ - PAHs 8270-SIM
						Grain size ASTM D7928/D6913	H	Grain size ASTM D7928/D6913	H	Grain size ASTM D7928/D6913	WQ - Total Organic Carbon SM5310B
						Total organic carbon, Total solids 9060 (104C & 70C)	H	Total organic carbon, Total solids 9060 (104C & 70C)	H	Total organic carbon, Total solids 9060 (104C & 70C)	WQ - BEHP EPA 8270D-LL
						Archive Archive -20 C	H	Archive Archive -20 C	H	Archive Archive -20 C	WQ - Tributyltin Krone/Unger
						PAHs, BEHP, Tributyltin, 8270-SIM, 8270-LL, Kron/Unger	H	PAHs, BEHP, Tributyltin, 8270-SIM, 8270-LL, Kron/Unger	H	PAHs, BEHP, Tributyltin, 8270-SIM, 8270-LL, Kron/Unger	
						Afterberg Limits ASTM D4318	H	Afterberg Limits ASTM D4318	H	Afterberg Limits ASTM D4318	
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 ☒ Archive For 12 Months					
						Special Instructions/QC Requirements & Comments: Separate reports for each lab. x* - Analyze for grain size, metals (6020B analytes only), Mn, and TOC (9060 @ 104C & 70C) ASAP. H - Hold analyses pending further instruction.					
						Relinquished by: <i>[Signature]</i> Date/Time: 7/16/18 12:10 Company: AECOM					
						Relinquished by: <i>[Signature]</i> Date/Time: 7/16/18 12:50 Company: M.E.					
						Relinquished by: <i>[Signature]</i> Date/Time: 7/16/18 12:50 Company: AECOM					

Testarica

THE LEADER IN ENVIRONMENTAL TESTING

[illegible]

Log In Number:

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
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 : <u>5661</u> Correction factor: <u>0.0</u>	/			☐ 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	Labeling Verified by: _____ Date: _____
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	pH test strip lot number: _____
13. Is the matrix of the samples noted?	/			☐ COC Incorrect/Incomplete	
14. Was COC relinquished? (Signed/Dated/Timed)	/			☐ COC Incorrect/Incomplete	Box 16A: pH Preservation Box 18A: Residual Chlorine
15. Were samples received within holding time?	/			☐ Holding Time - Receipt	Preservative: _____
16. Were samples received with correct chemical preservative (excluding Encore)?	/		/	☐ pH Adjusted, pH Included (See box 16A) ☐ Incorrect Preservative	Lot Number: _____ Exp Date: _____ Analyst: _____ Date: _____ Time: _____
17. Were VOA samples received without headspace?			/	☐ Headspace (VOA only) ☐ Residual Chlorine	
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number: _____			/		
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	
Project #: _____ PM Instructions: _____					

Sample Receiving Associate: *[Signature]* Date: 7-17-18

QA026R30.doc, 080916

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-78854-9

Login Number: 78854

List Source: TestAmerica Seattle

List Number: 1

Creator: O'Connell, Jason I

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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 $<6\text{mm}$ (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: 580-78854-9

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

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PCB1L (30-140)	PCB3L (30-140)	PCB4L (30-140)	PCB15L (30-140)	PCB19L (30-140)	PCB37L (30-140)	PCB54L (30-140)	PCB77L (30-140)
580-78854-2	PDI-SG-S266	65	63	81	81	91	89	76	88
LCS 140-24629/20-B	Lab Control Sample	62	61	75	71	81	80	68	80
LCSD 140-24629/21-B	Lab Control Sample Dup	64	60	77	69	84	79	66	78
MB 140-24629/19-B	Method Blank	61	60	76	69	82	79	71	77

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PCB81L (30-140)	PCB104L (30-140)	PCB105L (30-140)	P114L (30-140)	PCB118L (30-140)	PCB123L (30-140)	PCB126L (30-140)	PCB155L (30-140)
580-78854-2	PDI-SG-S266	87	83	91	93	91	89	89	92
LCS 140-24629/20-B	Lab Control Sample	80	75	90	84	84	82	82	83
LCSD 140-24629/21-B	Lab Control Sample Dup	78	76	93	88	87	86	86	87
MB 140-24629/19-B	Method Blank	76	77	87	83	84	81	80	85

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PCB156L (30-140)	PCB157L (30-140)	PCB167L (30-140)	PCB169L (30-140)	PCB170L (30-140)	PCB188L (30-140)	PCB189L (30-140)	PCB202L (30-140)
580-78854-2	PDI-SG-S266	91 C	91 C156	90	95	90	92	81	112
LCS 140-24629/20-B	Lab Control Sample	84 C	84 C156	84	91	83	84	75	103
LCSD 140-24629/21-B	Lab Control Sample Dup	86 C	86 C156	84	91	85	85	77	105
MB 140-24629/19-B	Method Blank	82 C	82 C156	84	90	83	83	72	103

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PCB205L (30-140)	PCB206L (30-140)	PCB208L (30-140)	PCB209L (30-140)
580-78854-2	PDI-SG-S266	77	90	94	91
LCS 140-24629/20-B	Lab Control Sample	72	87	85	92
LCSD 140-24629/21-B	Lab Control Sample Dup	75	91	87	95
MB 140-24629/19-B	Method Blank	72	86	83	92

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

TestAmerica Seattle

Isotope Dilution Summary

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-78854-9

PCB189L = PCB-189L

PCB202L = PCB-202L

PCB205L = PCB-205L

PCB206L = PCB-206L

PCB208L = PCB-208L

PCB209L = PCB-209L

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