

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-79671-3

Client Project/Site: Portland Harbor Pre-Remedial Design

For:

AECOM
1111 Third Ave
Suite 1600
Seattle, Washington 98101

Attn: Amy Dahl

M. Elaine Walker

Authorized for release by:
9/24/2018 6:22:14 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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

Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions	4
Client Sample Results	6
QC Sample Results	11
Chronicle	19
Certification Summary	20
Sample Summary	21
Chain of Custody	22
Receipt Checklists	26
Isotope Dilution Summary	27



Case Narrative

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

TestAmerica Job ID: 580-79671-3

Job ID: 580-79671-3

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE

Client: AECOM

Project: Portland Harbor Pre-Remedial Design

Report Number: 580-79671-3

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 1.7° 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-S167 (580-79671-1) 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).

The following samples exhibited elevated noise or matrix interferences for one or more analytes causing elevation of the detection limit (EDL): PDI-SG-S167 (580-79671-1). The reporting limit (RL) for the affected analytes has been raised to be equal to the EDL, and a "G" qualifier applied.

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: 580-79671-3

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.
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
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.
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)

TestAmerica Seattle

Definitions/Glossary

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79671-3

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 Results

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

TestAmerica Job ID: 580-79671-3

Client Sample ID: PDI-SG-S167

Date Collected: 08/16/18 09:20

Date Received: 08/17/18 15:30

Lab Sample ID: 580-79671-1

Matrix: Solid

Percent Solids: 45.2

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1	0.0089	J	0.011	0.00048	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-2	0.0072	J q	0.011	0.00055	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-3	0.0057	J q	0.011	0.00060	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-4	0.041		0.022	0.0031	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-5	ND		0.011	0.0026	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-6	0.0081	J	0.011	0.0023	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-7	0.0025	J q	0.011	0.0023	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-8	0.026		0.022	0.0021	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-9	ND		0.011	0.0024	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-10	ND		0.011	0.0025	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-11	0.058		0.022	0.0022	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-12	0.0071	J q C	0.022	0.0023	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-13	0.0071	J q C12	0.022	0.0023	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-14	ND		0.011	0.0019	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-15	0.019		0.011	0.0025	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-16	0.015	q	0.011	0.0013	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-17	0.032		0.011	0.0011	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-18	0.037	C	0.022	0.00099	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-19	0.047		0.011	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-20	0.075	C	0.022	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-21	0.028	C	0.022	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-22	0.017		0.011	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-23	ND		0.011	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-24	ND		0.011	0.00095	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-25	0.0070	J q	0.011	0.0013	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-26	0.012	J C	0.022	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-27	0.0071	J	0.011	0.00082	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-28	0.075	C20	0.022	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-29	0.012	J C26	0.022	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-30	0.037	C18	0.022	0.00099	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-31	0.050		0.022	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-32	0.026		0.011	0.00078	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-33	0.028	C21	0.022	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-34	ND		0.011	0.0015	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-35	ND		0.011	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-36	ND		0.011	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-37	0.019		0.011	0.0014	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-38	ND		0.011	0.0015	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-39	ND		0.011	0.0013	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-40	0.060	C	0.033	0.00090	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-41	0.060	C40	0.033	0.00090	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-42	0.034		0.011	0.00090	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-43	0.0087	J q C	0.022	0.00084	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-44	0.23	C B	0.033	0.00079	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-45	0.050	C B	0.022	0.00094	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-46	0.0078	J q	0.011	0.0011	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-47	0.23	C44 B	0.033	0.00079	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-48	0.018		0.011	0.00089	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-49	0.15	C	0.022	0.00073	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79671-3

Client Sample ID: PDI-SG-S167

Lab Sample ID: 580-79671-1

Date Collected: 08/16/18 09:20

Matrix: Solid

Date Received: 08/17/18 15:30

Percent Solids: 45.2

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-50	0.051	C	0.022	0.00087	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-51	0.050	C45 B	0.022	0.00094	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-52	0.23		0.011	0.00089	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-53	0.051	C50	0.022	0.00087	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-54	0.0084	J q	0.011	0.00016	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-55	ND		0.011	0.00065	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-56	0.047		0.011	0.00065	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-57	ND		0.011	0.00066	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-58	0.0069	J	0.011	0.00067	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-59	0.012	J C	0.033	0.00063	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-60	0.017		0.011	0.00066	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-61	0.24	C B	0.044	0.00062	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-62	0.012	J C59	0.033	0.00063	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-63	0.0052	J q	0.011	0.00061	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-64	0.046		0.011	0.00060	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-65	0.23	C44 B	0.033	0.00079	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-66	0.14	B	0.011	0.00062	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-67	0.0045	J q	0.011	0.00057	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-68	0.0046	J q B	0.011	0.00059	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-69	0.15	C49	0.022	0.00073	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-70	0.24	C61 B	0.044	0.00062	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-71	0.060	C40	0.033	0.00090	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-72	0.0063	J	0.011	0.00065	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-73	0.0087	J q C43	0.022	0.00084	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-74	0.24	C61 B	0.044	0.00062	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-75	0.012	J C59	0.033	0.00063	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-76	0.24	C61 B	0.044	0.00062	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-77	0.010	J	0.011	0.00062	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-78	ND		0.011	0.00067	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-79	0.0035	J q	0.011	0.00058	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-80	ND		0.011	0.00057	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-81	ND		0.011	0.00062	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-82	0.045		0.011	0.0012	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-83	0.46	C	0.022	0.0011	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-84	0.096		0.011	0.0012	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-85	0.085	C	0.033	0.00090	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-86	0.44	C	0.065	0.00091	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-87	0.44	C86	0.065	0.00091	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-88	0.15	C	0.022	0.0011	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-89	ND		0.011	0.0012	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-90	2.4	C	0.033	0.00092	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-91	0.15	C88	0.022	0.0011	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-92	0.27		0.011	0.0010	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-93	0.055	C	0.022	0.0011	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-94	ND		0.011	0.0012	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-95	0.82		0.011	0.0011	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-96	ND		0.011	0.00090	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-97	0.44	C86	0.065	0.00091	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-98	0.018	J C	0.022	0.0010	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79671-3

Client Sample ID: PDI-SG-S167

Date Collected: 08/16/18 09:20

Date Received: 08/17/18 15:30

Lab Sample ID: 580-79671-1

Matrix: Solid

Percent Solids: 45.2

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-99	0.46	C83	0.022	0.0011	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-100	0.055	C93	0.022	0.0011	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-101	2.4	C90	0.033	0.00092	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-102	0.018	J C98	0.022	0.0010	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-103	0.023		0.011	0.0011	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-104	ND		0.011	0.00080	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-105	0.23		0.011	0.0038	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-106	ND		0.011	0.0038	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-107	0.053		0.011	0.0041	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-108	0.022	q C	0.022	0.0039	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-109	0.44	C86	0.065	0.00091	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-110	1.1	C B	0.022	0.00077	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-111	ND		0.011	0.00074	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-112	0.0033	J q	0.011	0.00078	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-113	2.4	C90	0.033	0.00092	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-114	0.016	q	0.011	0.0036	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-115	1.1	C110 B	0.022	0.00077	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-116	0.085	C85	0.033	0.00090	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-117	0.085	C85	0.033	0.00090	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-118	0.90		0.011	0.0035	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-119	0.44	C86	0.065	0.00091	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-120	ND		0.011	0.00075	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-121	ND		0.011	0.00077	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-122	ND		0.011	0.0044	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-123	0.011	B	0.011	0.0036	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-124	0.022	q C108	0.022	0.0039	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-125	0.44	C86	0.065	0.00091	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-126	ND		0.011	0.0042	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-127	ND		0.011	0.0038	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-128	1.4	C	0.022	0.018	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-129	19	C B	0.044	0.019	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-130	0.53	G	0.024	0.024	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-131	ND	G	0.025	0.025	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-132	4.9	G	0.024	0.024	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-133	0.21	G	0.023	0.023	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-134	0.78	G C	0.024	0.024	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-135	5.7	C B	0.022	0.0017	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-136	1.5		0.011	0.0012	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-137	0.11	G	0.021	0.021	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-138	19	C129 B	0.044	0.019	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-139	ND	C	0.022	0.021	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-140	ND	C139	0.022	0.021	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-141	6.4	G B	0.022	0.022	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-142	ND	G	0.023	0.023	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-143	0.78	G C134	0.024	0.024	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-144	0.82		0.011	0.0015	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-145	0.011		0.011	0.0012	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-146	2.9	G	0.020	0.020	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-147	20	G C B	0.023	0.023	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79671-3

Client Sample ID: PDI-SG-S167

Date Collected: 08/16/18 09:20

Date Received: 08/17/18 15:30

Lab Sample ID: 580-79671-1

Matrix: Solid

Percent Solids: 45.2

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-148	ND		0.011	0.0016	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-149	20	G C147 B	0.023	0.023	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-150	0.0097	J q	0.011	0.0011	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-151	5.7	C135 B	0.022	0.0017	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-152	ND		0.011	0.0012	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-153	23	C B	0.022	0.016	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-154	0.078		0.011	0.0013	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-155	ND		0.011	0.0011	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-156	1.0	G C	0.026	0.026	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-157	1.0	G C156	0.026	0.026	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-158	1.8	G B	0.015	0.015	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-159	0.36	G	0.015	0.015	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-160	19	C129 B	0.044	0.019	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-161	ND	G	0.015	0.015	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-162	ND	G	0.015	0.015	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-163	19	C129 B	0.044	0.019	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-164	1.3	G B	0.016	0.016	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-165	ND	G	0.017	0.017	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-166	1.4	C128	0.022	0.018	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-167	0.37		0.011	0.0092	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-168	23	C153 B	0.022	0.016	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-169	ND	G	0.012	0.012	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-170	10		0.011	0.0044	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-171	2.9	C B	0.022	0.0037	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-172	1.6		0.011	0.0037	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-173	2.9	C171 B	0.022	0.0037	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-174	10	B	0.011	0.0035	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-175	0.41		0.011	0.0033	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-176	1.4		0.011	0.0025	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-177	5.8		0.011	0.0035	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-178	1.9		0.011	0.0036	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-179	4.1	B	0.011	0.0027	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-180	21	C B	0.022	0.0028	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-181	ND		0.011	0.0033	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-182	0.076	q	0.011	0.0032	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-183	7.8	C	0.022	0.0033	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-184	ND		0.011	0.0027	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-185	7.8	C183	0.022	0.0033	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-186	ND		0.011	0.0027	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-187	11	B	0.011	0.0031	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-188	ND		0.011	0.0022	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-189	0.31	B	0.011	0.0049	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-190	1.8	B	0.011	0.0024	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-191	0.43		0.011	0.0025	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-192	ND		0.011	0.0028	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-193	21	C180 B	0.022	0.0028	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-194	5.3		0.011	0.0098	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-195	2.8		0.011	0.011	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-196	2.0		0.011	0.0028	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79671-3

Client Sample ID: PDI-SG-S167

Lab Sample ID: 580-79671-1

Date Collected: 08/16/18 09:20

Matrix: Solid

Date Received: 08/17/18 15:30

Percent Solids: 45.2

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-197	0.19		0.011	0.0021	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-198	3.7	C	0.022	0.0028	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-199	3.7	C198	0.022	0.0028	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-200	0.50		0.011	0.0019	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-201	0.45		0.011	0.0019	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-202	0.70		0.011	0.0022	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-203	2.5		0.011	0.0025	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-204	ND		0.011	0.0021	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-205	0.30	B	0.011	0.0083	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-206	0.89		0.011	0.0056	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-207	0.10	B	0.011	0.0030	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-208	0.16		0.011	0.0026	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1
PCB-209	0.064	B	0.011	0.0027	ng/g	☼	09/11/18 11:15	09/19/18 15:02	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
PCB-1L	64		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-3L	65		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-4L	77		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-15L	75		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-19L	86		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-37L	85		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-54L	72		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-77L	74		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-81L	72		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-104L	82		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-105L	92		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-114L	91		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-118L	95		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-123L	94		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-126L	85		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-155L	80		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-156L	57	C	30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-157L	57	C156	30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-167L	80		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-169L	72		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-170L	82		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-188L	99		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-189L	88		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-202L	103		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-205L	71		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-206L	87		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-208L	77		30 - 140	09/11/18 11:15	09/19/18 15:02	1
PCB-209L	77		30 - 140	09/11/18 11:15	09/19/18 15:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
PCB-28L	96		40 - 125	09/11/18 11:15	09/19/18 15:02	1
PCB-111L	84		40 - 125	09/11/18 11:15	09/19/18 15:02	1
PCB-178L	103		40 - 125	09/11/18 11:15	09/19/18 15:02	1

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79671-3

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

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79671-3

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

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79671-3

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

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79671-3

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

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79671-3

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

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79671-3

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

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79671-3

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		Limits
	%Recovery	Qualifier	
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		Limits
	%Recovery	Qualifier	
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.		RPD	Limit
							Limits	RPD		
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

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79671-3

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

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-79671-3

Client Sample ID: PDI-SG-S167

Date Collected: 08/16/18 09:20

Date Received: 08/17/18 15:30

Lab Sample ID: 580-79671-1

Matrix: Solid

Percent Solids: 45.2

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 15:02	JMN	TAL KNX

Laboratory References:

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 580-79671-3

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	07-31-18 *
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.

TestAmerica Seattle

Sample Summary

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79671-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79671-1	PDI-SG-S167	Solid	08/16/18 09:20	08/17/18 15:30

1

2

3

4

5

6

7

8

9

10

11

12

THE LEADER IN ENVIRONMENTAL TESTING



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	CUSTODY SEALS INTACT
2. Were ambient air containers received intact?			/	☐ Checked in lab	RECEIVED AT 11:03/010410
3. The coolers/containers custody seal if present, is it intact?	/			☐ Yes ☐ NA	Box 8-22-18
4. Is the cooler temperature within limits? (> freezing temp. of water to 6°C, VOST: 10°C) Thermometer ID : <u>SL68</u> Correction factor: <u>-0.1°C</u>	/			☐ Cooler Out of Temp, Client Contacted, Proceed/Cancel ☐ Cooler Out of Temp, Same Day Receipt	COOLERS BOX 4423 0750 9755 PO
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	Labeling Verified by: _____ Date: _____
11. Is the client and project name/# identified?	/			☐ COC Incorrect/Incomplete	pH test strip lot number: _____
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	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: _____
17. Were VOA samples received without headspace?			/	☐ Headspace (VOA only)	Exp Date: _____
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number: _____			/	☐ Residual Chlorine	Analyst: _____
19. For 1613B water samples is pH<9?			/	☐ If no, lab will adjust	Date: _____
20. For rad samples was sample activity info. Provided?			/	☐ Project missing info	Time: _____
Project #: _____ PM Instructions: _____					

QA026R30.doc, 080916

Date: 8-22-18

Sample Receiving Associate: *[Signature]*

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-79671-3

Login Number: 79671

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: 580-79671-3

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)
580-79671-1	PDI-SG-S167	64	65	77	75	86	85	72	74
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)

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)
580-79671-1	PDI-SG-S167	72	82	92	91	95	94	85	80
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)

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)
580-79671-1	PDI-SG-S167	57 C	57 C156	80	72	82	99	88	103
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)

Lab Sample ID	Client Sample ID	PCB205L (30-140)	PCB206L (30-140)	PCB208L (30-140)	PCB209L (30-140)
580-79671-1	PDI-SG-S167	71	87	77	77
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

TestAmerica Seattle

Isotope Dilution Summary

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79671-3

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

1

2

3

4

5

6

7

8

9

10

11

12