

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

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Tel: (253)922-2310

TestAmerica Job ID: 580-79329-5

Client Project/Site: Portland Harbor Pre-Remedial Design

For:

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Authorized for release by:  
11/2/2018 9:24:16 AM

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*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.*

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# Case Narrative

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

TestAmerica Job ID: 580-79329-5

**Job ID: 580-79329-5**

**Laboratory: TestAmerica Seattle**

## Narrative

### CASE NARRATIVE

Client: AECOM

Project: Portland Harbor Pre-Remedial Design

Report Number: 580-79329-5

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**

Forty-six samples were received on 8/3/2018 1:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 8 coolers at receipt time were 1.2° C, 1.7° C, 2.2° C, 2.3° C, 2.4° C, 3.1° C, 3.9° C and 4.6° C.

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

This report contains results of all analyses performed by TestAmerica Seattle.

The following samples were activated by the client on 9/24/18 for PCBs, PAHs, TOC and both TS methods. PDI-SC-S221-0to2 (580-79329-40), PDI-SC-S221-2to4 (580-79329-41), PDI-SC-S221-2to4 (580-79329-41[MS]), PDI-SC-S221-2to4 (580-79329-41[MSD]), PDI-SC-S221-4to6 (580-79329-42) and PDI-SC-S221-6to8.1 (580-79329-43). This report contains results for these samples only.

These samples were not initially frozen upon receipt in Seattle so Sacramento forwarded frozen volume on 9/26/18 and received/frozen in Seattle on 9/27/18.

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.

#### **SEMIVOLATILE ORGANIC COMPOUNDS - SELECTED ION MODE (SIM)**

**Samples PDI-SC-S221-0to2 (580-79329-40), PDI-SC-S221-2to4 (580-79329-41), PDI-SC-S221-4to6 (580-79329-42) and PDI-SC-S221-6to8.1 (580-79329-43) were analyzed for semivolatile organic compounds - Selected Ion Mode (SIM) in accordance with SW846 8270D\_SIM. The samples were prepared on 10/12/2018 and analyzed on 10/17/2018.**

Samples PDI-SC-S221-0to2 (580-79329-40), PDI-SC-S221-2to4 (580-79329-41), PDI-SC-S221-2to4 (580-79329-41[MS]), PDI-SC-S221-2to4 (580-79329-41[MSD]), PDI-SC-S221-4to6 (580-79329-42) and PDI-SC-S221-6to8.1 (580-79329-43) were frozen upon receipt and thawed prior to extraction. Samples were removed from freezer on 10/11/18 at 19:00 and thawed.

Anthracene failed the recovery criteria low for LCS 580-286335/2-A. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

Dibenz(a,h)anthracene failed the recovery criteria low for the MS of sample PDI-SC-S221-2to4MS (580-79329-41) in batch 580-286695. Several analytes failed the recovery criteria low for the MSD of sample PDI-SC-S221-2to4MSD (580-79329-41) in batch 580-286695.

# Case Narrative

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

TestAmerica Job ID: 580-79329-5

## Job ID: 580-79329-5 (Continued)

### Laboratory: TestAmerica Seattle (Continued)

Chrysene exceeded the RPD limit. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

The following samples were diluted due to the nature of the sample matrix: PDI-SC-S221-0to2 (580-79329-40), PDI-SC-S221-2to4 (580-79329-41), PDI-SC-S221-4to6 (580-79329-42) and PDI-SC-S221-6to8.1 (580-79329-43). Elevated reporting limits (RLs) are provided.

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

### POLYCHLORINATED BIPHENYLS (PCBS)

**Samples PDI-SC-S221-0to2 (580-79329-40), PDI-SC-S221-2to4 (580-79329-41), PDI-SC-S221-4to6 (580-79329-42) and PDI-SC-S221-6to8.1 (580-79329-43) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA sw-846 method 8082A.** The samples were prepared on 10/04/2018 and analyzed on 10/18/2018.

Tetrachloro-m-xylene and DCB Decachlorobiphenyl surrogate recoveries for the following samples were outside control limits: PDI-SC-S221-2to4MS (580-79329-41MS), PDI-SC-S221-2to4MSD (580-79329-41MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Tetrachloro-m-xylene failed the surrogate recovery criteria low for PDI-SC-S221-2to4 (580-79329-41) and PDI-SC-S221-4to6 (580-79329-42). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis were not performed.

Tetrachloro-m-xylene failed the surrogate recovery criteria low on the confirmation column for PDI-SC-S221-0to2 (580-79329-40). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis were not performed.

Tetrachloro-m-xylene failed the surrogate recovery criteria low on the confirmation column for MB 580-285674/1-A.

Tetrachloro-m-xylene failed the surrogate recovery criteria low on the confirmation column for LCS 580-287587/2-A and LCSD 580-287587/3-A. Re-analysis was performed with concurring results. The original analysis has been reported.

PCB-1016 and PCB-1260 failed the recovery criteria low for the MS of sample PDI-SC-S221-2to4MS (580-79329-41) in batch 580-287725. PCB-1016 and PCB-1260 failed the recovery criteria low for the MSD of sample PDI-SC-S221-2to4MSD (580-79329-41) in batch 580-287725. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

The continuing calibration verification (CCV) associated with 580-287725 recovered outside the control limits for PCB-1232 and PCB-1221 on one column. Results are confirmed on both columns and reported from the passing column. The following samples are impacted: (CCV 580-287725/3) and (CCV 580-287725/6).

The following samples required a copper clean-up to reduce matrix interferences caused by sulfur: PDI-SC-S221-0to2 (580-79329-40), PDI-SC-S221-2to4 (580-79329-41), PDI-SC-S221-2to4 (580-79329-41[MS]), PDI-SC-S221-2to4 (580-79329-41[MSD]), PDI-SC-S221-4to6 (580-79329-42) and PDI-SC-S221-6to8.1 (580-79329-43).

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

### TOTAL ORGANIC CARBON

**Samples PDI-SC-S221-0to2 (580-79329-40), PDI-SC-S221-2to4 (580-79329-41), PDI-SC-S221-4to6 (580-79329-42) and PDI-SC-S221-6to8.1 (580-79329-43) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060.** The samples were analyzed on 10/14/2018.

Samples PDI-SC-S221-0to2 (580-79329-40), PDI-SC-S221-2to4 (580-79329-41), PDI-SC-S221-4to6 (580-79329-42), and PDI-SC-S221-6to8.1 (580-79329-43) were frozen to preserve hold times. Therefore "H" flagged has been removed. Samples were removed from freezer on 10/11/18 at 19:00 and thawed.

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

# Case Narrative

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

TestAmerica Job ID: 580-79329-5

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## Job ID: 580-79329-5 (Continued)

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### Laboratory: TestAmerica Seattle (Continued)

#### PERCENT SOLIDS

Samples PDI-SC-S221-0to2 (580-79329-40), PDI-SC-S221-2to4 (580-79329-41), PDI-SC-S221-4to6 (580-79329-42) and PDI-SC-S221-6to8.1 (580-79329-43) were analyzed for percent solids in accordance with ASTM D2216. The samples were analyzed on 10/11/2018.

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

#### TOTAL SOLIDS @ 70C

Samples PDI-SC-S221-0to2 (580-79329-40), PDI-SC-S221-2to4 (580-79329-41), PDI-SC-S221-4to6 (580-79329-42) and PDI-SC-S221-6to8.1 (580-79329-43) were analyzed for Total Solids @ 70C. The samples were analyzed on 10/12/2018.

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: 580-79329-5

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits

### GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
F1	MS and/or MSD Recovery is outside acceptance limits.

### General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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
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: 580-79329-5

**Client Sample ID: PDI-SC-S221-0to2**

**Lab Sample ID: 580-79329-40**

Date Collected: 08/03/18 10:15

Matrix: Solid

Date Received: 08/03/18 13:45

Percent Solids: 43.8

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		110	9.7	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
Acenaphthene	ND		110	13	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
Acenaphthylene	ND		110	11	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
Anthracene	ND	*	110	13	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
<b>Benzo[a]anthracene</b>	<b>46</b>	<b>J</b>	110	16	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
<b>Benzo[a]pyrene</b>	<b>35</b>	<b>J</b>	110	8.6	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
<b>Benzo[b]fluoranthene</b>	<b>80</b>	<b>J</b>	110	13	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
<b>Benzo[g,h,i]perylene</b>	<b>45</b>	<b>J</b>	110	11	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
<b>Benzo[k]fluoranthene</b>	<b>27</b>	<b>J</b>	110	13	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
<b>Chrysene</b>	<b>78</b>	<b>J</b>	110	32	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
Dibenz(a,h)anthracene	ND		110	15	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
<b>Fluoranthene</b>	<b>150</b>		110	30	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
<b>Fluorene</b>	<b>15</b>	<b>J</b>	110	11	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
<b>Indeno[1,2,3-cd]pyrene</b>	<b>32</b>	<b>J</b>	110	13	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
Naphthalene	ND		110	17	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
<b>Phenanthrene</b>	<b>100</b>	<b>J</b>	110	15	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
<b>Pyrene</b>	<b>100</b>	<b>J</b>	110	21	ug/Kg	☼	10/12/18 10:39	10/17/18 10:53	50
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	83		57 - 120				10/12/18 10:39	10/17/18 10:53	50

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		4.5	0.76	ug/Kg	☼	10/27/18 10:57	10/30/18 15:23	1
PCB-1221	ND		4.5	2.1	ug/Kg	☼	10/27/18 10:57	10/30/18 15:23	1
PCB-1232	ND		4.5	1.1	ug/Kg	☼	10/27/18 10:57	10/30/18 15:23	1
PCB-1242	ND		4.5	1.1	ug/Kg	☼	10/27/18 10:57	10/30/18 15:23	1
PCB-1248	ND		4.5	0.36	ug/Kg	☼	10/27/18 10:57	10/30/18 15:23	1
PCB-1254	ND		4.5	1.8	ug/Kg	☼	10/27/18 10:57	10/30/18 15:23	1
<b>PCB-1260</b>	<b>4.9</b>		4.5	0.76	ug/Kg	☼	10/27/18 10:57	10/30/18 15:23	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
DCB Decachlorobiphenyl	64		54 - 142				10/27/18 10:57	10/30/18 15:23	1
DCB Decachlorobiphenyl	61		54 - 142				10/27/18 10:57	10/30/18 15:23	1
Tetrachloro-m-xylene	62		58 - 122				10/27/18 10:57	10/30/18 15:23	1
Tetrachloro-m-xylene	55	X	58 - 122				10/27/18 10:57	10/30/18 15:23	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>36000</b>		2000	44	mg/Kg			10/14/18 13:49	1
<b>Total Solids</b>	<b>43.8</b>	<b>H</b>	0.1	0.1	%			10/11/18 09:09	1
<b>Total Solids @ 70°C</b>	<b>47</b>	<b>H</b>	0.10	0.10	%			10/12/18 16:56	1

TestAmerica Seattle



# Client Sample Results

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

TestAmerica Job ID: 580-79329-5

**Client Sample ID: PDI-SC-S221-2to4**

**Lab Sample ID: 580-79329-41**

Date Collected: 08/03/18 10:20

Matrix: Solid

Date Received: 08/03/18 13:45

Percent Solids: 49.7

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND	F1	100	9.0	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
Acenaphthene	ND		100	12	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
<b>Acenaphthylene</b>	<b>14</b>	<b>J</b>	100	10	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
Anthracene	ND	*	100	12	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
<b>Benzo[a]anthracene</b>	<b>61</b>	<b>J</b>	100	15	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
<b>Benzo[a]pyrene</b>	<b>52</b>	<b>J F1</b>	100	8.0	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
<b>Benzo[b]fluoranthene</b>	<b>100</b>		100	12	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
<b>Benzo[g,h,i]perylene</b>	<b>50</b>	<b>J F1</b>	100	10	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
<b>Benzo[k]fluoranthene</b>	<b>47</b>	<b>J</b>	100	12	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
<b>Chrysene</b>	<b>77</b>	<b>J F2</b>	100	30	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
Dibenz(a,h)anthracene	ND	F1	100	14	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
<b>Fluoranthene</b>	<b>210</b>		100	28	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
<b>Fluorene</b>	<b>22</b>	<b>J</b>	100	10	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
<b>Indeno[1,2,3-cd]pyrene</b>	<b>48</b>	<b>J F1</b>	100	12	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
Naphthalene	ND	F1	100	16	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
<b>Phenanthrene</b>	<b>150</b>		100	14	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
<b>Pyrene</b>	<b>180</b>		100	19	ug/Kg	☼	10/12/18 10:39	10/17/18 11:18	50
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	79		57 - 120				10/12/18 10:39	10/17/18 11:18	50

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>PCB-1016</b>	<b>20</b>	<b>F1</b>	3.9	0.66	ug/Kg	☼	10/27/18 10:57	10/30/18 15:41	1
PCB-1221	ND		3.9	1.9	ug/Kg	☼	10/27/18 10:57	10/30/18 15:41	1
PCB-1232	ND		3.9	0.92	ug/Kg	☼	10/27/18 10:57	10/30/18 15:41	1
PCB-1242	ND		3.9	0.96	ug/Kg	☼	10/27/18 10:57	10/30/18 15:41	1
PCB-1248	ND		3.9	0.31	ug/Kg	☼	10/27/18 10:57	10/30/18 15:41	1
PCB-1254	ND		3.9	1.5	ug/Kg	☼	10/27/18 10:57	10/30/18 15:41	1
<b>PCB-1260</b>	<b>7.9</b>	<b>F1</b>	3.9	0.66	ug/Kg	☼	10/27/18 10:57	10/30/18 15:41	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
DCB Decachlorobiphenyl	62		54 - 142				10/27/18 10:57	10/30/18 15:41	1
DCB Decachlorobiphenyl	63		54 - 142				10/27/18 10:57	10/30/18 15:41	1
Tetrachloro-m-xylene	56	X	58 - 122				10/27/18 10:57	10/30/18 15:41	1
Tetrachloro-m-xylene	51	X	58 - 122				10/27/18 10:57	10/30/18 15:41	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>35000</b>		2000	44	mg/Kg			10/14/18 13:53	1
<b>Total Solids</b>	<b>49.7</b>	<b>H</b>	0.1	0.1	%			10/11/18 09:09	1
<b>Total Solids @ 70°C</b>	<b>50</b>	<b>H</b>	0.10	0.10	%			10/12/18 16:56	1

TestAmerica Seattle



# Client Sample Results

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

TestAmerica Job ID: 580-79329-5

**Client Sample ID: PDI-SC-S221-4to6**

**Lab Sample ID: 580-79329-42**

Date Collected: 08/03/18 10:25

Matrix: Solid

Date Received: 08/03/18 13:45

Percent Solids: 55.0

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	7.7	J	43	3.9	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Acenaphthene	6.8	J	43	5.2	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Acenaphthylene	6.1	J	43	4.3	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Anthracene	5.8	J*	43	5.2	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Benzo[a]anthracene	44		43	6.5	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Benzo[a]pyrene	36	J	43	3.4	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Benzo[b]fluoranthene	62		43	5.1	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Benzo[g,h,i]perylene	32	J	43	4.3	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Benzo[k]fluoranthene	23	J	43	5.2	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Chrysene	60		43	13	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Dibenz(a,h)anthracene	ND		43	6.2	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Fluoranthene	170		43	12	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Fluorene	22	J	43	4.3	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Indeno[1,2,3-cd]pyrene	29	J	43	5.2	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Naphthalene	8.4	J	43	6.9	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Phenanthrene	140		43	5.9	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25
Pyrene	160		43	8.3	ug/Kg	☼	10/12/18 10:39	10/17/18 12:33	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	88		57 - 120	10/12/18 10:39	10/17/18 12:33	25

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	23		3.5	0.59	ug/Kg	☼	10/27/18 10:57	10/30/18 16:33	1
PCB-1221	ND		3.5	1.6	ug/Kg	☼	10/27/18 10:57	10/30/18 16:33	1
PCB-1232	ND		3.5	0.82	ug/Kg	☼	10/27/18 10:57	10/30/18 16:33	1
PCB-1242	ND		3.5	0.85	ug/Kg	☼	10/27/18 10:57	10/30/18 16:33	1
PCB-1248	ND		3.5	0.28	ug/Kg	☼	10/27/18 10:57	10/30/18 16:33	1
PCB-1254	ND		3.5	1.4	ug/Kg	☼	10/27/18 10:57	10/30/18 16:33	1
PCB-1260	10		3.5	0.59	ug/Kg	☼	10/27/18 10:57	10/30/18 16:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	62		54 - 142	10/27/18 10:57	10/30/18 16:33	1
DCB Decachlorobiphenyl	69		54 - 142	10/27/18 10:57	10/30/18 16:33	1
Tetrachloro-m-xylene	55	X	58 - 122	10/27/18 10:57	10/30/18 16:33	1
Tetrachloro-m-xylene	51	X	58 - 122	10/27/18 10:57	10/30/18 16:33	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	27000		2000	44	mg/Kg			10/14/18 14:14	1
Total Solids	55.0	H	0.1	0.1	%			10/11/18 09:09	1
Total Solids @ 70°C	56	H	0.10	0.10	%			10/12/18 16:56	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79329-5

**Client Sample ID: PDI-SC-S221-6to8.1**

**Lab Sample ID: 580-79329-43**

Date Collected: 08/03/18 10:30

Matrix: Solid

Date Received: 08/03/18 13:45

Percent Solids: 55.2

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	10	J	18	1.6	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Acenaphthene	9.8	J	18	2.1	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Acenaphthylene	8.2	J	18	1.8	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Anthracene	2.9	J*	18	2.1	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Benzo[a]anthracene	35		18	2.7	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Benzo[a]pyrene	28		18	1.4	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Benzo[b]fluoranthene	51		18	2.1	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Benzo[g,h,i]perylene	26		18	1.8	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Benzo[k]fluoranthene	15	J	18	2.1	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Chrysene	44		18	5.3	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Dibenz(a,h)anthracene	3.0	J	18	2.5	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Fluoranthene	91		18	4.9	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Fluorene	15	J	18	1.8	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Indeno[1,2,3-cd]pyrene	25		18	2.1	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Naphthalene	ND		18	2.8	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Phenanthrene	94		18	2.4	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10
Pyrene	94		18	3.4	ug/Kg	☼	10/12/18 10:39	10/17/18 12:59	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	71		57 - 120	10/12/18 10:39	10/17/18 12:59	10

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	12		3.5	0.59	ug/Kg	☼	10/27/18 10:57	10/30/18 16:51	1
PCB-1221	ND		3.5	1.6	ug/Kg	☼	10/27/18 10:57	10/30/18 16:51	1
PCB-1232	ND		3.5	0.81	ug/Kg	☼	10/27/18 10:57	10/30/18 16:51	1
PCB-1242	ND		3.5	0.85	ug/Kg	☼	10/27/18 10:57	10/30/18 16:51	1
PCB-1248	ND		3.5	0.28	ug/Kg	☼	10/27/18 10:57	10/30/18 16:51	1
PCB-1254	ND		3.5	1.4	ug/Kg	☼	10/27/18 10:57	10/30/18 16:51	1
PCB-1260	9.3		3.5	0.59	ug/Kg	☼	10/27/18 10:57	10/30/18 16:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	67		54 - 142	10/27/18 10:57	10/30/18 16:51	1
DCB Decachlorobiphenyl	79		54 - 142	10/27/18 10:57	10/30/18 16:51	1
Tetrachloro-m-xylene	63		58 - 122	10/27/18 10:57	10/30/18 16:51	1
Tetrachloro-m-xylene	58		58 - 122	10/27/18 10:57	10/30/18 16:51	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	30000		2000	44	mg/Kg			10/14/18 17:27	1
Total Solids	55.2	H	0.1	0.1	%			10/11/18 09:09	1
Total Solids @ 70°C	57	H	0.10	0.10	%			10/12/18 16:56	1

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79329-5

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-286335/1-A**  
**Matrix: Solid**  
**Analysis Batch: 286695**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 286335**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		1.0	0.090	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Acenaphthene	ND		1.0	0.12	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Acenaphthylene	ND		1.0	0.10	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Anthracene	ND		1.0	0.12	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Benzo[a]anthracene	ND		1.0	0.15	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Benzo[a]pyrene	ND		1.0	0.080	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Benzo[b]fluoranthene	ND		1.0	0.12	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Benzo[g,h,i]perylene	ND		1.0	0.10	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Benzo[k]fluoranthene	ND		1.0	0.12	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Chrysene	ND		1.0	0.30	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Dibenz(a,h)anthracene	ND		1.0	0.14	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Fluoranthene	ND		1.0	0.28	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Fluorene	ND		1.0	0.10	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Indeno[1,2,3-cd]pyrene	ND		1.0	0.12	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Naphthalene	ND		1.0	0.16	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Phenanthrene	ND		1.0	0.14	ug/Kg		10/12/18 10:39	10/17/18 08:48	1
Pyrene	ND		1.0	0.19	ug/Kg		10/12/18 10:39	10/17/18 08:48	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	91		57 - 120	10/12/18 10:39	10/17/18 08:48	1

**Lab Sample ID: LCS 580-286335/2-A**  
**Matrix: Solid**  
**Analysis Batch: 286695**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 286335**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Rec. Limits
2-Methylnaphthalene	200	164		ug/Kg		82	68 - 120
Acenaphthene	200	156		ug/Kg		78	68 - 120
Acenaphthylene	200	151		ug/Kg		75	68 - 120
Anthracene	200	141	*	ug/Kg		71	73 - 125
Benzo[a]anthracene	200	178		ug/Kg		89	66 - 120
Benzo[a]pyrene	200	145		ug/Kg		72	72 - 124
Benzo[b]fluoranthene	200	193		ug/Kg		96	63 - 121
Benzo[g,h,i]perylene	200	164		ug/Kg		82	63 - 120
Benzo[k]fluoranthene	200	184		ug/Kg		92	63 - 123
Chrysene	200	182		ug/Kg		91	69 - 120
Dibenz(a,h)anthracene	200	170		ug/Kg		85	70 - 125
Fluoranthene	200	191		ug/Kg		95	74 - 125
Fluorene	200	178		ug/Kg		89	73 - 120
Indeno[1,2,3-cd]pyrene	200	183		ug/Kg		92	65 - 121
Naphthalene	200	158		ug/Kg		79	70 - 120
Phenanthrene	200	171		ug/Kg		86	73 - 120
Pyrene	200	190		ug/Kg		95	70 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	78		57 - 120

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79329-5

## Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: 580-79329-41 MS**

**Matrix: Solid**  
**Analysis Batch: 286695**

**Client Sample ID: PDI-SC-S221-2to4**

**Prep Type: Total/NA**  
**Prep Batch: 286335**

Analyte	Sample		Spike Added	MS MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
2-Methylnaphthalene	ND	F1	385	264		ug/Kg	☼	68	68 - 120
Acenaphthene	ND		385	319		ug/Kg	☼	83	68 - 120
Acenaphthylene	14	J	385	301		ug/Kg	☼	74	68 - 120
Anthracene	ND	*	385	304		ug/Kg	☼	79	73 - 125
Benzo[a]anthracene	61	J	385	414		ug/Kg	☼	92	66 - 120
Benzo[a]pyrene	52	J F1	385	337		ug/Kg	☼	74	72 - 124
Benzo[b]fluoranthene	100		385	396		ug/Kg	☼	77	63 - 121
Benzo[g,h,i]perylene	50	J F1	385	323		ug/Kg	☼	71	63 - 120
Benzo[k]fluoranthene	47	J	385	316		ug/Kg	☼	70	63 - 123
Chrysene	77	J F2	385	442		ug/Kg	☼	95	69 - 120
Dibenz(a,h)anthracene	ND	F1	385	228	F1	ug/Kg	☼	59	70 - 125
Fluoranthene	210		385	570		ug/Kg	☼	94	74 - 125
Fluorene	22	J	385	324		ug/Kg	☼	78	73 - 120
Indeno[1,2,3-cd]pyrene	48	J F1	385	321		ug/Kg	☼	71	65 - 121
Naphthalene	ND	F1	385	280		ug/Kg	☼	73	70 - 120
Phenanthrene	150		385	469		ug/Kg	☼	84	73 - 120
Pyrene	180		385	556		ug/Kg	☼	98	70 - 120

Surrogate	MS %Recovery	MS Qualifier	Limits
Terphenyl-d14	89		57 - 120

**Lab Sample ID: 580-79329-41 MSD**

**Matrix: Solid**  
**Analysis Batch: 286695**

**Client Sample ID: PDI-SC-S221-2to4**

**Prep Type: Total/NA**  
**Prep Batch: 286335**

Analyte	Sample		Spike Added	MSD MSD		Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
2-Methylnaphthalene	ND	F1	385	253	F1	ug/Kg	☼	66	68 - 120	4	12
Acenaphthene	ND		385	297		ug/Kg	☼	77	68 - 120	7	12
Acenaphthylene	14	J	385	281		ug/Kg	☼	69	68 - 120	7	12
Anthracene	ND	*	385	306		ug/Kg	☼	79	73 - 125	1	12
Benzo[a]anthracene	61	J	385	370		ug/Kg	☼	80	66 - 120	11	14
Benzo[a]pyrene	52	J F1	385	322	F1	ug/Kg	☼	70	72 - 124	5	12
Benzo[b]fluoranthene	100		385	370		ug/Kg	☼	70	63 - 121	7	10
Benzo[g,h,i]perylene	50	J F1	385	287	F1	ug/Kg	☼	62	63 - 120	12	14
Benzo[k]fluoranthene	47	J	385	335		ug/Kg	☼	75	63 - 123	6	15
Chrysene	77	J F2	385	364	F2	ug/Kg	☼	74	69 - 120	19	10
Dibenz(a,h)anthracene	ND	F1	385	230	F1	ug/Kg	☼	60	70 - 125	1	13
Fluoranthene	210		385	624		ug/Kg	☼	109	74 - 125	9	13
Fluorene	22	J	385	309		ug/Kg	☼	75	73 - 120	5	13
Indeno[1,2,3-cd]pyrene	48	J F1	385	290	F1	ug/Kg	☼	63	65 - 121	10	15
Naphthalene	ND	F1	385	250	F1	ug/Kg	☼	65	70 - 120	11	12
Phenanthrene	150		385	448		ug/Kg	☼	79	73 - 120	5	11
Pyrene	180		385	591		ug/Kg	☼	107	70 - 120	6	12

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Terphenyl-d14	87		57 - 120

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79329-5

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

**Lab Sample ID: MB 580-287587/1-A**  
**Matrix: Solid**  
**Analysis Batch: 287725**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 287587**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.0	0.34	ug/Kg		10/27/18 10:57	10/30/18 14:30	1
PCB-1221	ND		2.0	0.95	ug/Kg		10/27/18 10:57	10/30/18 14:30	1
PCB-1232	ND		2.0	0.47	ug/Kg		10/27/18 10:57	10/30/18 14:30	1
PCB-1242	ND		2.0	0.49	ug/Kg		10/27/18 10:57	10/30/18 14:30	1
PCB-1248	ND		2.0	0.16	ug/Kg		10/27/18 10:57	10/30/18 14:30	1
PCB-1254	ND		2.0	0.79	ug/Kg		10/27/18 10:57	10/30/18 14:30	1
PCB-1260	ND		2.0	0.34	ug/Kg		10/27/18 10:57	10/30/18 14:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	77		54 - 142	10/27/18 10:57	10/30/18 14:30	1
DCB Decachlorobiphenyl	74		54 - 142	10/27/18 10:57	10/30/18 14:30	1
Tetrachloro-m-xylene	58		58 - 122	10/27/18 10:57	10/30/18 14:30	1
Tetrachloro-m-xylene	51	X	58 - 122	10/27/18 10:57	10/30/18 14:30	1

**Lab Sample ID: LCS 580-287587/2-A**  
**Matrix: Solid**  
**Analysis Batch: 287725**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 287587**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	10.0	8.09		ug/Kg		81	64 - 120
PCB-1260	10.0	9.56		ug/Kg		96	63 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	80		54 - 142
DCB Decachlorobiphenyl	77		54 - 142
Tetrachloro-m-xylene	59		58 - 122
Tetrachloro-m-xylene	52	X	58 - 122

**Lab Sample ID: LCSD 580-287587/3-A**  
**Matrix: Solid**  
**Analysis Batch: 287725**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 287587**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
PCB-1016	10.0	8.41		ug/Kg		84	64 - 120	4	21
PCB-1260	10.0	9.71		ug/Kg		97	63 - 130	2	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl	74		54 - 142
DCB Decachlorobiphenyl	72		54 - 142
Tetrachloro-m-xylene	58		58 - 122
Tetrachloro-m-xylene	50	X	58 - 122

# QC Sample Results

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

TestAmerica Job ID: 580-79329-5

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

**Lab Sample ID: 580-79329-41 MS**

**Matrix: Solid**  
**Analysis Batch: 287725**

**Client Sample ID: PDI-SC-S221-2to4**

**Prep Type: Total/NA**  
**Prep Batch: 287587**

Analyte	Sample		Spike Added	MS MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
PCB-1016	20	F1	19.5	26.9	F1	ug/Kg	☼	38	64 - 120
PCB-1260	7.9	F1	19.5	18.0	F1	ug/Kg	☼	52	63 - 130
Surrogate		MS MS		Limits					
		%Recovery	Qualifier						
DCB Decachlorobiphenyl		52	X	54 - 142					
DCB Decachlorobiphenyl		67		54 - 142					
Tetrachloro-m-xylene		45	X	58 - 122					
Tetrachloro-m-xylene		52	X	58 - 122					

**Lab Sample ID: 580-79329-41 MSD**

**Matrix: Solid**  
**Analysis Batch: 287725**

**Client Sample ID: PDI-SC-S221-2to4**

**Prep Type: Total/NA**  
**Prep Batch: 287587**

Analyte	Sample		Spike Added	MSD MSD		Unit	D	%Rec	Limits	RPD	
	Result	Qualifier		Result	Qualifier					RPD	Limit
PCB-1016	20	F1	19.4	23.3	F1	ug/Kg	☼	19	64 - 120	14	21
PCB-1260	7.9	F1	19.4	15.1	F1	ug/Kg	☼	37	63 - 130	18	25
Surrogate		MSD MSD		Limits							
		%Recovery	Qualifier								
DCB Decachlorobiphenyl		49	X	54 - 142							
DCB Decachlorobiphenyl		69		54 - 142							
Tetrachloro-m-xylene		42	X	58 - 122							
Tetrachloro-m-xylene		53	X	58 - 122							

## Method: 9060\_PSEP - TOC (Puget Sound)

**Lab Sample ID: MB 580-286515/5**

**Matrix: Solid**  
**Analysis Batch: 286515**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Organic Carbon - Duplicates	ND		2000	44	mg/Kg			10/14/18 13:28	1

**Lab Sample ID: LCS 580-286515/6**

**Matrix: Solid**  
**Analysis Batch: 286515**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Total Organic Carbon - Duplicates	4270	4300		mg/Kg		101	68 - 149

**Lab Sample ID: LCSD 580-286515/7**

**Matrix: Solid**  
**Analysis Batch: 286515**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
		Result	Qualifier						
Total Organic Carbon - Duplicates	4270	3350		mg/Kg		79	68 - 149	25	32

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79329-5

## Method: 9060\_PSEP - TOC (Puget Sound) (Continued)

**Lab Sample ID: 580-79329-41 MS**

**Matrix: Solid**  
**Analysis Batch: 286515**

**Client Sample ID: PDI-SC-S221-2to4**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	35000		120000	141000		mg/Kg		88	68 - 149

**Lab Sample ID: 580-79329-41 MSD**

**Matrix: Solid**  
**Analysis Batch: 286515**

**Client Sample ID: PDI-SC-S221-2to4**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	35000		120000	167000		mg/Kg		110	68 - 149	17	32

**Lab Sample ID: 580-79329-41 DU**

**Matrix: Solid**  
**Analysis Batch: 286515**

**Client Sample ID: PDI-SC-S221-2to4**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon - Duplicates	35000		35400		mg/Kg		0.2	50

**Lab Sample ID: 580-79329-41 TRL**

**Matrix: Solid**  
**Analysis Batch: 286515**

**Client Sample ID: PDI-SC-S221-2to4**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	TRL Result	TRL Qualifier	Unit	D	RSD	RSD Limit
Total Organic Carbon - Duplicates	35000		35800		mg/Kg		0.7	20



# Lab Chronicle

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

TestAmerica Job ID: 580-79329-5

**Client Sample ID: PDI-SC-S221-0to2**

**Lab Sample ID: 580-79329-40**

**Date Collected: 08/03/18 10:15**

**Matrix: Solid**

**Date Received: 08/03/18 13:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	286515	10/14/18 13:49	A1K	TAL SEA
Total/NA	Analysis	D 2216		1	286202	10/11/18 09:09	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	286405	10/12/18 16:56	BAH	TAL SEA

**Client Sample ID: PDI-SC-S221-0to2**

**Lab Sample ID: 580-79329-40**

**Date Collected: 08/03/18 10:15**

**Matrix: Solid**

**Date Received: 08/03/18 13:45**

**Percent Solids: 43.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			286335	10/12/18 10:39	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		50	286695	10/17/18 10:53	CJ	TAL SEA
Total/NA	Prep	3550B			287587	10/27/18 10:57	KMS	TAL SEA
Total/NA	Analysis	8082A		1	287725	10/30/18 15:23	CJB	TAL SEA

**Client Sample ID: PDI-SC-S221-2to4**

**Lab Sample ID: 580-79329-41**

**Date Collected: 08/03/18 10:20**

**Matrix: Solid**

**Date Received: 08/03/18 13:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	286515	10/14/18 13:53	A1K	TAL SEA
Total/NA	Analysis	D 2216		1	286202	10/11/18 09:09	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	286405	10/12/18 16:56	BAH	TAL SEA

**Client Sample ID: PDI-SC-S221-2to4**

**Lab Sample ID: 580-79329-41**

**Date Collected: 08/03/18 10:20**

**Matrix: Solid**

**Date Received: 08/03/18 13:45**

**Percent Solids: 49.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			286335	10/12/18 10:39	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		50	286695	10/17/18 11:18	CJ	TAL SEA
Total/NA	Prep	3550B			287587	10/27/18 10:57	KMS	TAL SEA
Total/NA	Analysis	8082A		1	287725	10/30/18 15:41	CJB	TAL SEA

**Client Sample ID: PDI-SC-S221-4to6**

**Lab Sample ID: 580-79329-42**

**Date Collected: 08/03/18 10:25**

**Matrix: Solid**

**Date Received: 08/03/18 13:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	286515	10/14/18 14:14	A1K	TAL SEA
Total/NA	Analysis	D 2216		1	286202	10/11/18 09:09	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	286405	10/12/18 16:56	BAH	TAL SEA

TestAmerica Seattle

# Lab Chronicle

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

TestAmerica Job ID: 580-79329-5

**Client Sample ID: PDI-SC-S221-4to6**

**Lab Sample ID: 580-79329-42**

**Date Collected: 08/03/18 10:25**

**Matrix: Solid**

**Date Received: 08/03/18 13:45**

**Percent Solids: 55.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			286335	10/12/18 10:39	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	286695	10/17/18 12:33	CJ	TAL SEA
Total/NA	Prep	3550B			287587	10/27/18 10:57	KMS	TAL SEA
Total/NA	Analysis	8082A		1	287725	10/30/18 16:33	CJB	TAL SEA

**Client Sample ID: PDI-SC-S221-6to8.1**

**Lab Sample ID: 580-79329-43**

**Date Collected: 08/03/18 10:30**

**Matrix: Solid**

**Date Received: 08/03/18 13:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	286515	10/14/18 17:27	A1K	TAL SEA
Total/NA	Analysis	D 2216		1	286202	10/11/18 09:09	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	286405	10/12/18 16:56	BAH	TAL SEA

**Client Sample ID: PDI-SC-S221-6to8.1**

**Lab Sample ID: 580-79329-43**

**Date Collected: 08/03/18 10:30**

**Matrix: Solid**

**Date Received: 08/03/18 13:45**

**Percent Solids: 55.2**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			286335	10/12/18 10:39	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		10	286695	10/17/18 12:59	CJ	TAL SEA
Total/NA	Prep	3550B			287587	10/27/18 10:57	KMS	TAL SEA
Total/NA	Analysis	8082A		1	287725	10/30/18 16:51	CJB	TAL SEA

**Laboratory References:**

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: AECOM

TestAmerica Job ID: 580-79329-5

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	11-05-19
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

# Sample Summary

Client: AECOM

TestAmerica Job ID: 580-79329-5

Project/Site: Portland Harbor Pre-Remedial Design

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79329-40	PDI-SC-S221-0to2	Solid	08/03/18 10:15	08/03/18 13:45
580-79329-41	PDI-SC-S221-2to4	Solid	08/03/18 10:20	08/03/18 13:45
580-79329-42	PDI-SC-S221-4to6	Solid	08/03/18 10:25	08/03/18 13:45
580-79329-43	PDI-SC-S221-6to8.1	Solid	08/03/18 10:30	08/03/18 13:45

- 1
- 2
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- 5
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- 8
- 9
- 10
- 11

# SUBSURFACE SEDIMENT CHAIN OF CUSTODY

**TestAmerica-Seattle**  
5755-8th-Street-East  
Tacoma, WA 98424-1317  
Ph: 253-922-2310 Fax: 253-922-5047

**Client Contact**  
AECOM  
1111 3rd Ave Suite 1600  
Seattle, WA 98101  
Phone: (206) 438-2700 Fax: 1-(866) 495-5288  
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling

Portland, OR  
Project #: 60566335 Study: Subsurface Sediment  
Sample Type:

**Project Contact:** Amy Dahl / Chelsea Cook  
Tel: (206) 438-2261 / (206) 438-2010  
**Analysis Turnaround Time**  
Calendar (C) or Work Days (W) W  
 21 days  
 Other \_\_\_\_\_

**Site Contact:** Jennifer Ray / Michaela McCoog  
**Laboratory Contact:** Elaine Walker  
Date: 8/3/18  
Carrier: Courier

COC No: 1 of 4 pages



Archives	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 1603	Atterberg Limits ASTM D4318
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Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction			Sample Specific Notes:
							P/CD/Fs 1613B	AG	AG	
PDI-SC-S144 - 0 to 2	8/1/2018	11:50	SC		ED	4	X	X	X	
PDI-SC-S144 - 2 to 4	8/1/2018	11:55	SC		ED	4	X	X	X	
PDI-SC-S144 - 4 to 6	8/1/2018	12:00	SC		ED	4	X	X	X	
PDI-SC-S144 - 6 to 8	8/1/2018	12:05	SC		ED	4	X	X	X	
PDI-SC-S144 - 8 to 10	8/1/2018	12:10	SC		ED	4	X	X	X	
PDI-SC-S144 - 10 to 12.1	8/1/2018	12:15	SC		ED	4	X	X	X	
PDI-SC-S086 - 0 to 2	8/2/2018	9:20	SC		ED	3	X	X	X	
PDI-SC-S086 - 0 to 2D	8/2/2018	9:20	SC		ED	3	X	X	X	
PDI-SC-S086 - 2 to 3.3	8/2/2018	9:25	SC		ED	4	X	X	X	
PDI-SC-S218 - 0 to 2	8/2/2018	11:20	SC		ED	4	X	X	X	
PDI-SC-S218 - 2 to 4.5	8/2/2018	11:25	SC		ED	4	X	X	X	
PDI-SC-S218 - 4.5 to 6	8/2/2018	11:30	SC		ED	4	X	X	X	

Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column  
Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid  
Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)

**Sample Disposal**  
 Return To Client     Disposal By Lab     Archive For 12 Months

Special Instructions/QC Requirements & Comments: **Separate reports for each lab**

Relinquished by: <i>[Signature]</i>	Company: AECOM	Date/Time: 8/13/18 13:05	Received by: <i>[Signature]</i>	Company: M.E.	Date/Time: 8/5/18 1305
Relinquished by: <i>[Signature]</i>	Company: M.E.	Date/Time: 8/3/18 1345	Received by: <i>[Signature]</i>	Company: APOK	Date/Time: 8/5/18 1345
Relinquished by: <i>[Signature]</i>	Company: M.E.	Date/Time: 8/3/18 1345	Received by: <i>[Signature]</i>	Company: APOK	Date/Time: 8/5/18 1345

1.2, 2.3, 4.6, 5.1, 1.7, 2.4, 2.2, 3.9





# SUBSURFACE SEDIMENT CHAIN OF CUSTODY

**TestAmerica-Seattle**  
 5755-8th-Street-East  
 Tacoma, WA 98424-1317  
 Ph: 253-922-2310 Fax: 253-922-5047

**Client Contact**  
 AECOM  
 1111 3rd Ave Suite 1600  
 Seattle, WA 98101

Project Contact: Amy Dahl / Chelsey Cook  
 Tel: (206) 438-2261 / (206) 438-2010  
 Analysis Turnaround Time  
 Calendar (C) or Work Days (W) W  
 21 days  
 Other

Project Contact: Jennifer Ray / Michaela McCoog  
 Laboratory Contact: Elaine Walker  
 Date: 8/3/18  
 Carrier: Courier  
 COC No: 1 of 4 pages

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Sample Specific Notes:										
							Fraction	PCDFs 1613B	Archive	Grain size ASTM D928/D6913							
PDI-SC-S172 - 2 to 4	8/2/2018	17:55	SC		ED	4		X	X	X							
PDI-SC-S172 - 2 to 4D	8/2/2018	17:55	SC		ED	4		X	X	X							
PDI-SC-S172 - 4 to 6	8/2/2018	18:00	SC		ED	4		X	X	X							
PDI-SC-S172 - 6 to 8, 1	8/2/2018	18:05	SC		ED	5		X	X	X							
PDI-SC-S178 - 0 to 2	8/2/2018	15:55	SC		ED	5		X	X	X							
PDI-SC-S178 - 2 to 3.7	8/2/2018	16:00	SC		ED	4		X	X	X							
PDI-SC-S178 - 3.7 to 4.7	8/2/2018	16:05	SC		ED	4		X	X	X							
PDI-SC-S178 - 4.7 to 6.7	8/2/2018	16:10	SC		ED	4		X	X	X							
PDI-SC-S178 - 6.7 to 8.7	8/2/2018	16:15	SC		ED	4		X	X	X							
PDI-SC-S178 - 8.7 to 10.7	8/2/2018	16:20	SC		ED	4		X	X	X							
PDI-SC-S178 - 10.7 to 12.7	8/2/2018	16:25	SC		ED	4		X	X	X							
PDI-SC-S178 - 12.7 to 14	8/2/2018	16:30	SC		ED	4		X	X	X							

**Container Type:** WMG-Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Colu  
**Preservative:** HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid  
**Fraction:** D = Dissolved, PRT = Particulate, T = Total (unfiltered)

Return To Client  Disposal By Lab  Archive For 12 Months

**Special Instructions/QC Requirements & Comments: Separate reports for each lab**

Relinquished by: <i>RAE</i>	Company: AECOM	Date/Time: 8/3/18 13:05	Received by: <i>[Signature]</i>	Company: M-E	Date/Time: 8/3/18 1305
Relinquished by: <i>[Signature]</i>	Company: M-E	Date/Time: 8/3/18 1345	Received by: <i>[Signature]</i>	Company: FABOK	Date/Time: 8/3/18 1345
Relinquished by: _____	Company: _____	Date/Time: _____	Received by: _____	Company: _____	Date/Time: _____

**SUBSURFACE SEDIMENT  
CHAIN OF CUSTODY**

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 Ph: 253-922-2310 Fax: 253-922-5047	Client Contact Project Contact: Amy Dahl / Chealsey Cook Tel: (206) 438-2261 / (206) 438-2010 Analysis Turnaround Time Calendar (C) or Work Days (W) <u>W</u> 21 days <input checked="" type="checkbox"/> <input type="checkbox"/> Other	Site Contact: Jennifer Ray / Michaela McCoog Laboratory Contact: Elaine-Walker Date: 8/3/18 Carrier: Courier COC No: 1 of 4 pages																																																																																												
AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60560335 Study: Subsurface Sediment Sample Type:	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Sample Identification</th> <th>Sample Date</th> <th>Sample Time</th> <th>Matrix</th> <th>QC Sample</th> <th>Sampler's Initials</th> <th>Total No. of Cont.</th> </tr> </thead> <tbody> <tr><td>PDI-SC-S083 - 0 to 1.6</td><td>8/1/2018</td><td>17:30</td><td>SC</td><td></td><td>ED</td><td>4</td></tr> <tr><td>PDI-SC-S083 - 1.6 to 3.5</td><td>8/1/2018</td><td>17:35</td><td>SC</td><td></td><td>ED</td><td>4</td></tr> <tr><td>PDI-SC-S083 - 3.5 to 5.0</td><td>8/1/2018</td><td>17:40</td><td>SC</td><td></td><td>ED</td><td>4</td></tr> <tr><td>PDI-SC-S083 - 5 to 6.6</td><td>8/1/2018</td><td>17:45</td><td>SC</td><td></td><td>ED</td><td>4</td></tr> <tr><td>PDI-SC-S032 - 0 to 2</td><td>8/1/2018</td><td>15:40</td><td>SC</td><td></td><td>ED</td><td>4</td></tr> <tr><td>PDI-SC-S032 - 2 to 4</td><td>8/1/2018</td><td>15:45</td><td>SC</td><td></td><td>ED</td><td>4</td></tr> <tr><td>PDI-SC-S032 - 4 to 6</td><td>8/1/2018</td><td>15:50</td><td>SC</td><td></td><td>ED</td><td>4</td></tr> <tr><td>PDI-SC-S032 - 6 to 8</td><td>8/1/2018</td><td>15:55</td><td>SC</td><td></td><td>ED</td><td>4</td></tr> <tr><td>PDI-SC-S032 - 8 to 10</td><td>8/1/2018</td><td>16:00</td><td>SC</td><td>REMOVED</td><td>ED</td><td>6</td></tr> <tr><td>PDI-SC-S032 - 10 to 12</td><td>8/1/2018</td><td>16:05</td><td>SC</td><td></td><td>ED</td><td>4</td></tr> <tr><td>PDI-SC-S032 - 12 to 14</td><td>8/1/2018</td><td>16:10</td><td>SC</td><td></td><td>ED</td><td>4</td></tr> <tr><td>PDI-SC-S172 - 0 to 2</td><td>8/2/2018</td><td>17:50</td><td>SC</td><td></td><td>ED</td><td>4</td></tr> </tbody> </table>			Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	PDI-SC-S083 - 0 to 1.6	8/1/2018	17:30	SC		ED	4	PDI-SC-S083 - 1.6 to 3.5	8/1/2018	17:35	SC		ED	4	PDI-SC-S083 - 3.5 to 5.0	8/1/2018	17:40	SC		ED	4	PDI-SC-S083 - 5 to 6.6	8/1/2018	17:45	SC		ED	4	PDI-SC-S032 - 0 to 2	8/1/2018	15:40	SC		ED	4	PDI-SC-S032 - 2 to 4	8/1/2018	15:45	SC		ED	4	PDI-SC-S032 - 4 to 6	8/1/2018	15:50	SC		ED	4	PDI-SC-S032 - 6 to 8	8/1/2018	15:55	SC		ED	4	PDI-SC-S032 - 8 to 10	8/1/2018	16:00	SC	REMOVED	ED	6	PDI-SC-S032 - 10 to 12	8/1/2018	16:05	SC		ED	4	PDI-SC-S032 - 12 to 14	8/1/2018	16:10	SC		ED	4	PDI-SC-S172 - 0 to 2	8/2/2018	17:50	SC		ED	4
Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.																																																																																								
PDI-SC-S083 - 0 to 1.6	8/1/2018	17:30	SC		ED	4																																																																																								
PDI-SC-S083 - 1.6 to 3.5	8/1/2018	17:35	SC		ED	4																																																																																								
PDI-SC-S083 - 3.5 to 5.0	8/1/2018	17:40	SC		ED	4																																																																																								
PDI-SC-S083 - 5 to 6.6	8/1/2018	17:45	SC		ED	4																																																																																								
PDI-SC-S032 - 0 to 2	8/1/2018	15:40	SC		ED	4																																																																																								
PDI-SC-S032 - 2 to 4	8/1/2018	15:45	SC		ED	4																																																																																								
PDI-SC-S032 - 4 to 6	8/1/2018	15:50	SC		ED	4																																																																																								
PDI-SC-S032 - 6 to 8	8/1/2018	15:55	SC		ED	4																																																																																								
PDI-SC-S032 - 8 to 10	8/1/2018	16:00	SC	REMOVED	ED	6																																																																																								
PDI-SC-S032 - 10 to 12	8/1/2018	16:05	SC		ED	4																																																																																								
PDI-SC-S032 - 12 to 14	8/1/2018	16:10	SC		ED	4																																																																																								
PDI-SC-S172 - 0 to 2	8/2/2018	17:50	SC		ED	4																																																																																								
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Colour Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)																																																																																														
Sample Disposal <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Dispose By Lab <input checked="" type="checkbox"/> Ship For 12 Months																																																																																														
Relinquished by: <i>RDJ</i>	Company: AECOM	Date/Time: 8/3/18 13:05	Received by: <i>[Signature]</i>	Company: M.E.	Date/Time: 8/3/18 13:05																																																																																									
Relinquished by: <i>Aminia M</i>	Company: M.E.	Date/Time: 8/3/18 13:45	Received by: <i>[Signature]</i>	Company: APOK	Date/Time: 8/5/18 13:05																																																																																									
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:																																																																																									

Special Instructions/QC Requirements & Comments: Separate reports for each lab





# SUBSURFACE SEDIMENT CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 Ph: 253-922-2310 Fax: 253-922-5047		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010 Analysis Turnaround Time Calendar (C) or Work Days (W) W <input checked="" type="checkbox"/> 21 days <input type="checkbox"/> Other		Site Contact: Jennifer Ray / Michaela McCoig Laboratory Contact: Elaine-Walker Date: 8/3/18 Carrier: Courier COC No: 1 of 4 pages														
Client Contact AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010 Analysis Turnaround Time Calendar (C) or Work Days (W) W <input checked="" type="checkbox"/> 21 days <input type="checkbox"/> Other		Site Contact: Jennifer Ray / Michaela McCoig Laboratory Contact: Elaine-Walker Date: 8/3/18 Carrier: Courier COC No: 1 of 4 pages														
Project #: 60566335 Study: Subsurface Sediment Sample Type:		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010 Analysis Turnaround Time Calendar (C) or Work Days (W) W <input checked="" type="checkbox"/> 21 days <input type="checkbox"/> Other		Site Contact: Jennifer Ray / Michaela McCoig Laboratory Contact: Elaine-Walker Date: 8/3/18 Carrier: Courier COC No: 1 of 4 pages														
Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 906G, 160.3	Afterberg Limits ASTM D4318	WC-PC6A	WC-PAHs	WC-DIF	WC-TDC	Sample Specific Notes:	
PDI-SC-S218 - 6 to 8	8/2/2018	11:35	SC	MS/MSD	ED	7		X	X	X	X	X						
PDI-SC-S218 - 8 to 10	8/2/2018	11:40	SC		ED	4		X	X	X	X	X						
PDI-SC-S228 - 0 to 2.3	8/3/2018	9:20	SC		ED	4		X	X	X	X	X						
PDI-SC-S221 - 0 to 2	8/3/2018	10:15	SC		ED	4		X	X	X	X	X						
PDI-SC-S221 - 2 to 4	8/3/2018	10:20	SC	MS/MSD	ED	6		X	X	X	X	X						
PDI-SC-S221 - 4 to 6	8/3/2018	10:25	SC		ED	4		X	X	X	X	X						
PDI-SC-S221 - 6 to 8.1	8/3/2018	10:30	SC		ED	4		X	X	X	X	X						
PDI-SC-S221 - 8.1 to 10	8/1/18	13:55	SC		ED	7		X	X	X	X	X						
PDI-SC-S221 - 10 to 12	8/1/18	16:45	SC		ED	7		X	X	X	X	X						
PDI-SC-S221 - 12 to 14	8/2/18	09:50	SC		ED	7		X	X	X	X	X						
PDI-SC-S221 - 14 to 16			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 16 to 18			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 18 to 20			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 20 to 22			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 22 to 24			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 24 to 26			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 26 to 28			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 28 to 30			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 30 to 32			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 32 to 34			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 34 to 36			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 36 to 38			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 38 to 40			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 40 to 42			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 42 to 44			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 44 to 46			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 46 to 48			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 48 to 50			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 50 to 52			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 52 to 54			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 54 to 56			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 56 to 58			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 58 to 60			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 60 to 62			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 62 to 64			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 64 to 66			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 66 to 68			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 68 to 70			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 70 to 72			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 72 to 74			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 74 to 76			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 76 to 78			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 78 to 80			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 80 to 82			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 82 to 84			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 84 to 86			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 86 to 88			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 88 to 90			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 90 to 92			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 92 to 94			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 94 to 96			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 96 to 98			SC		ED			X	X	X	X	X						
PDI-SC-S221 - 98 to 100			SC		ED			X	X	X	X	X						
Container Type: WIMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, PC=Resin Container Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)																		
Special Instructions/QC Requirements & Comments: Separate reports for each lab																		
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:	Returned To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:	Returned To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:	Returned To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:	Return To Client:



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

**SUBSURFACE SEDIMENT  
 CHAIN OF CUSTODY**

**Project Contact:** Amy Dahl / Chelsey Cook  
**Site Contact:** Jennifer Ray / Michaela McCoog  
**Date:** 8/3/18  
**COC No:** 1

**Tel:** (206) 438-2261 / (206) 438-2010  
**Laboratory Contact:** Elaine-Walker  
**Carrier:** Courier  
 1 of 4 pages

**Analysis Turnaround Time**  
 Calendar ( C ) or Work Days ( W ) W \_\_\_\_\_  
 21 days  
 Other \_\_\_\_\_

**Barcode:** 580-79329 Chain of Custody

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270B-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S144 - 0 to 2	8/1/2018	11:50	SC		ED	4		x	x	x	x		
PDI-SC-S144 - 2 to 4	8/1/2018	11:55	SC		ED	4		x	x	x	x		
PDI-SC-S144 - 4 to 6	8/1/2018	12:00	SC		ED	4		x	x	x	x		
PDI-SC-S144 - 6 to 8	8/1/2018	12:05	SC		ED	4		x	x	x	x		
PDI-SC-S144 - 8 to 10	8/1/2018	12:10	SC		ED	4		x	x	x	x		
PDI-SC-S144 - 10 to 12.1	8/1/2018	12:15	SC		ED	4		x	x	x	x		
PDI-SC-S086 - 0 to 2	8/2/2018	9:20	SC		ED	5		x	x	x	x		
PDI-SC-S086 - 0 to 2D	8/2/2018	9:20	SC		ED	3		x	x		x		
PDI-SC-S086 - 2 to 3.3	8/2/2018	9:25	SC		ED	4		x	x	x	x		
PDI-SC-S218 - 0 to 2	8/2/2018	11:20	SC		ED	4		x	x	x	x		
PDI-SC-S218 - 2 to 4.5	8/2/2018	11:25	SC		ED	4		x	x	x	x		
PDI-SC-S218 - 4.5 to 6	8/2/2018	11:30	SC		ED	4		x	x	x	x		

**Container Type:** WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Color  
**Preservative:** HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid  
**Fraction:** D = Dissolved, PRT = Particulate, T = Total (unfiltered)

**Sample Disposal**  
 Return To Client  Disposal By Lab  Archive For 12 Months

**Special Instructions/QC Requirements & Comments:** Separate reports for each lab

1, 2, 2.3, 4, 6, 3.1, 1.7, 2.4, 2.2, 3.9

Relinquished by: <i>[Signature]</i>	Company: AECOM	Date/Time: 8/3/18 13:05	Received by: <i>[Signature]</i>	Company: M.E.	Date/Time: 8/3/18 1305
Relinquished by: <i>[Signature]</i>	Company: M.E.	Date/Time: 8/3/18 1345	Received by: <i>[Signature]</i>	Company: TAPOL	Date/Time: 8/5/18 1345
Relinquished by: <i>[Signature]</i>	Company: TAPOL	Date/Time: 8/3/18 1700	Received by: <i>[Signature]</i>	Company: SEA DA	Date/Time: 8/4/18 1020

IR5 = 0.8/0.8 w/c.s. IR5 = 0.1/0.1 w/c.s.  
 IR5 = 1.2/1.2 w/c.s. IR5 = 0.4/0.4 w/c.s.

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 Tacoma, WA 98424-1317  
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## SUBSURFACE SEDIMENT CHAIN OF CUSTODY

<b>Client Contact</b>	Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010	Site Contact: Jennifer Ray / Michaela McCoog	Date: 8/3/18	COC No: 1												
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	Analysis Turnaround Time Calendar (C) or Work Days (W) W	Laboratory Contact: Elaine-Walker	Carrier: Courier	2 of 4 pages												
Portland, OR Project #: 60566335 Study: Subsurface Sediment	<input checked="" type="checkbox"/> 21 days <input type="checkbox"/> Other _____	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">Fraction</td> <td style="width: 5%;">PCDD/Fs 1613B</td> <td style="width: 5%;">Archive</td> <td style="width: 5%;">Grain size ASTM D928/D913</td> <td style="width: 5%;">PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160,3</td> <td style="width: 5%;">Alterberg Limits ASTM D4318</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>			Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D928/D913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160,3	Alterberg Limits ASTM D4318						
Fraction	PCDD/Fs 1613B				Archive	Grain size ASTM D928/D913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160,3	Alterberg Limits ASTM D4318								
Sample Type:																

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D928/D913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160,3	Alterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S172 - 2 to 4	8/2/2018	17:55	SC		ED	4		X	X	X	X		
PDI-SC-S172 - 2 to 4D	8/2/2018	17:55	SC		ED	3		X	X	X	X		
PDI-SC-S172 - 4 to 6	8/2/2018	18:00	SC		ED	4		X	X	X	X		
PDI-SC-S172 - 6 to 8.4	8/2/2018	18:05	SC		ED	4		X	X	X	X		
PDI-SC-S178 - 0 to 2	8/2/2018	15:55	SC		ED	5		X	X	X	X		
PDI-SC-S178 - 2 to 3.7	8/2/2018	16:00	SC		ED	4		X	X	X	X		
PDI-SC-S178 - 3.7 to 4.7	8/2/2018	16:05	SC		ED	4		X	X	X	X		
PDI-SC-S178 - 4.7 to 6.7	8/2/2018	16:10	SC		ED	4		X	X	X	X		
PDI-SC-S178 - 6.7 to 8.7	8/2/2018	16:15	SC		ED	4		X	X	X	X		
PDI-SC-S178 - 8.7 to 10.7	8/2/2018	16:20	SC		ED	4		X	X	X	X		
PDI-SC-S178 - 10.7 to 12.7	8/2/2018	16:25	SC		ED	4		X	X	X	X		
PDI-SC-S178 - 12.7 to 14	8/2/2018	16:30	SC		ED	4		X	X	X	X		

Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column  
 Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid  
 Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)

Sample Disposal:  Return To Client  Ship By Lab  Archive For 12 Months

Special Instructions/QC Requirements & Comments: **Separate reports for each lab**

Relinquished by: <i>RA</i>	Company: AECOM	Date/Time: 8/3/18 13:05	Received by: <i>Jennifer Ray</i>	Company: M-E	Date/Time: 8/3/18 13:05
Relinquished by: <i>Jennifer Ray</i>	Company: M-E	Date/Time: 8/3/18 13:45	Received by: <i>[Signature]</i>	Company: TAPAK	Date/Time: 8/3/18 13:45
Relinquished by: <i>[Signature]</i>	Company: TAPAK	Date/Time: 8/3/18 17:00	Received by: <i>[Signature]</i>	Company: SEA TA	Date/Time: 8/4/18 10:20



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**SUBSURFACE SEDIMENT  
 CHAIN OF CUSTODY**

<b>Client Contact</b>	Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010	Site Contact: Jennifer Ray / Michaela McCoog Laboratory Contact: Elaine-Walker	Date: 8/3/18	COC No: 1 3 of 4 pages
AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1-(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Subsurface Sediment Sample Type:	Analysis Turnaround Time Calendar (C) or Work Days (W) W <input checked="" type="checkbox"/> 21 days <input type="checkbox"/> Other _____			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archie	Grain size ASTM D7528/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Alterberg Limits ASTM D4318												Sample Specific Notes:	
PDI-SC-S083 - 0 to 1.6	8/1/2018	17:30	SC		ED	4		x	x	x	x														
PDI-SC-S083 - 1.6 to 3.5	8/1/2018	17:35	SC		ED	4		x	x	x	x														
PDI-SC-S083 - 3.5 to 5.0	8/1/2018	17:40	SC		ED	4		x	x	x	x														
PDI-SC-S083 - 5 to 6.6	8/1/2018	17:45	SC		ED	4		x	x	x	x														
PDI-SC-S032 - 0 to 2	8/1/2018	15:40	SC		ED	4		x	x	x	x														
PDI-SC-S032 - 2 to 4	8/1/2018	15:45	SC		ED	4		x	x	x	x														
PDI-SC-S032 - 4 to 6	8/1/2018	15:50	SC		ED	4		x	x	x	x														
PDI-SC-S032 - 6 to 8	8/1/2018	15:55	SC		ED	4		x	x	x	x														
PDI-SC-S032 - 8 to 10	8/1/2018	16:00	SC	MSWD	ED	6		x	x	x	x														
PDI-SC-S032 - 10 to 12	8/1/2018	16:05	SC		ED	4		x	x	x	x														
PDI-SC-S032 - 12 to 14	8/1/2018	16:10	SC		ED	4		x	x	x	x														
PDI-SC-S172 - 0 to 2	8/2/2018	17:50	SC		ED	4		x	x	x	x														

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

Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid  
 Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)

Sample Disposal:  Return To Client  Dispose By Lab  Archive For 12 Months

Special Instructions/QC Requirements & Comments: **Separate reports for each lab**

Relinquished by: <i>RT</i>	Company: <i>AECom</i>	Date/Time: <i>8/3/18 13:05</i>	Received by: <i>Justin M...</i>	Company: <i>M-E</i>	Date/Time: <i>8/3/18 13:05</i>
Relinquished by: <i>Justin M...</i>	Company: <i>M-E</i>	Date/Time: <i>8/3/18 13:45</i>	Received by: <i>Justin M...</i>	Company: <i>TAPOK</i>	Date/Time: <i>8/3/18 13:45</i>
Relinquished by: <i>Justin M...</i>	Company: <i>TAPOK</i>	Date/Time: <i>8/3/18 17:00</i>	Received by: <i>B. Green</i>	Company: <i>SEA TA</i>	Date/Time: <i>8/14/18 10:20</i>

TestAmerica-Seattle  
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 Ph: 253-922-2310 Fax: 253-922-5047

**SUBSURFACE SEDIMENT  
 CHAIN OF CUSTODY**

<b>Client Contact</b>	<b>Project Contact: Amy Dahl / Chelsey Cook</b>	<b>Site Contact: Jennifer Ray / Michaela McCoog</b>	<b>Date: 8/3/18</b>	<b>COC No: 1</b>
AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101	<b>Tel: (206) 438-2261 / (206) 438-2010</b>	<b>Laboratory Contact: Elaine-Walker</b>	<b>Carrier: Courier</b>	<b>4 of 4 pages</b>
Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	<b>Analysis Turnaround Time</b> Calendar ( C ) or Work Days ( W ) W			
Portland, OR	<input checked="" type="checkbox"/> 21 days			
Project #: 60566335 Study: Subsurface Sediment	<input type="checkbox"/> Other _____			
Sample Type:				

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D9613	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Asterberg Limits ASTM D4318	WR-PCBA	WR-PAHs	WR-DIF	WR-TOC	Sample Specific Notes:
PDI-SC-S218 - 6 to 8	8/2/2018	11:35	SC	MS/MSD	ED	7		x	x	x	x	x					
PDI-SC-S218 - 8 to 10	8/2/2018	11:40	SC		ED	4		x	x	x	x						
PDI-SC-S228 - 0 to 2.3	8/3/2018	9:20	SC		ED	4		x	x	x	x						
PDI-SC-S221 - 0 to 2	8/3/2018	10:15	SC		ED	4		x	x	x	x						
PDI-SC-S221 - 2 to 4	8/3/2018	10:20	SC	MS/MSD	ED	6		x	x	x	x						On hold
PDI-SC-S221 - 4 to 6	8/3/2018	10:25	SC		ED	4		x	x	x	x						↓
PDI-SC-S221 - 6 to 8.1	8/3/2018	10:30	SC		ED	4		x	x	x	x						Per Account
PDI-RB-SS - 180801	8/1/18	13:55	SC		ED	7		x	x	x	x		x	x	x	x	
PDI-RB-SS - 180802	8/1/18	16:45	SC		ED	7		x	x	x	x		x	x	x	x	
PDI-RB-SS - 180802	8/2/18	09:50	SC		ED	7		x	x	x	x		x	x	x	x	
to			SC		ED			x	x	x	x						
to			SC		ED			x	x	x	x						

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

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

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


Sample Disposal:  Return To Client  Disposal By Lab  Archive For 12 Months

Special Instructions/QC Requirements & Comments: **Separate reports for each lab**

Relinquished by: <i>[Signature]</i>	Company: AECOM	Date/Time: 8/2/18 1305	Received by: <i>[Signature]</i>	Company: M.E.	Date/Time: 8/3/18 1305
Relinquished by: <i>[Signature]</i>	Company: M.E.	Date/Time: 8/3/18 1345	Received by: <i>[Signature]</i>	Company: TAPOR	Date/Time: 8/3/18 1345
Relinquished by: <i>[Signature]</i>	Company: TAPOR	Date/Time: 8/3/18 1700	Received by: <i>[Signature]</i>	Company: SRA TA	Date/Time: 8/14/18 1020

*Ruses*

**SUBSURFACE SEDIMENT  
CHAIN OF CUSTODY**

TestAmerica-Seattle 5755-9th-Street-East Tacoma, WA 98424-1317 PH: 253-922-2310 Fax: 253-922-5047		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010 Analysis Turnaround Time		Site Contact: Jennifer Ray / Michaela McCoog Date: 8/3/18 Carrier: Courier		COC No: 1 of 4 pages	
Client Contact 11111 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		Calendar (C) or Work Days (W) _ W <input checked="" type="checkbox"/> 21 days <input type="checkbox"/> Other		Laboratory Contact: Elaine-Walker 580-79329 Chain of Custody			
Portland, OR Project #: 60566335 Study: Subsurface Sediment		Sample Type:		Aterberg Limits ASTM D4318 Total Solids 8082A, 8270D-S1M, 9060, 160.3 PCB Aroclors, PAHs, Total Organic Carbon Grain size ASTM D7928/D6913		Sample Specific Notes:	
Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction
PDI-SC-S144 - 0 to 2	8/1/2018	11:50	SC		ED	4	Archive FCDBs/ 1613B
PDI-SC-S144 - 2 to 4	8/1/2018	11:55	SC		ED	4	
PDI-SC-S144 - 4 to 6	8/1/2018	12:00	SC		ED	4	
PDI-SC-S144 - 6 to 8	8/1/2018	12:05	SC		ED	4	
PDI-SC-S144 - 8 to 10	8/1/2018	12:10	SC		ED	4	
PDI-SC-S144 - 10 to 12.1	8/1/2018	12:15	SC		ED	4	
PDI-SC-S086 - 0 to 2	8/2/2018	9:20	SC		ED	4	
PDI-SC-S086 - 0 to 2D	8/2/2018	9:20	SC		ED	3	
PDI-SC-S086 - 2 to 3.3	8/2/2018	9:25	SC		ED	4	
PDI-SC-S218 - 0 to 2	8/2/2018	11:20	SC		ED	4	
PDI-SC-S218 - 2 to 4.5	8/2/2018	11:25	SC		ED	4	
PDI-SC-S218 - 4.5 to 6	8/2/2018	11:30	SC		ED	4	
Container Type: WMG=Wide Mouth Glass Jar, P-HDPE, PP-Polypropylene, AG=amber glass, G=glass, RC=Resin Collu Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid Fraction: D = Dissolved, PRT = Particulates, T = Total (unfiltered)							
Sample Disposal <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Ship For 12 Months				Sample By Lab <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Client			

1.2, 2.3, 4.6, 3.1, 1.7, 2.4, 2.2, 3.9

IR5 = 0.8/0.8 w/c.s. IR5 = 0.1/0.1 w/c.s.  
 IR5 = 1.2/1.2 w/c.s. IR5 = 0.4/0.4 w/c.s.

Relinquished by: *Ruse* Date/Time: 8/3/18 13:05 Company: *ACOR*

Relinquished by: *Michaela McCoog* Date/Time: 8/3/18 1345 Company: *M.E.*

Relinquished by: *Elaine Walker* Date/Time: 8/3/18 1700 Company: *TAROK*

Company: *M.E.* Date/Time: 8/3/18 1005  
 Company: *TAROK* Date/Time: 8/3/18 1345  
 Company: *SEA TA* Date/Time: 8/4/18 1020

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# SUBSURFACE SEDIMENT CHAIN OF CUSTODY

**TestAmerica-Seattle**  
5755-8th-Street-East  
Tacoma, WA 98424-1317  
Ph: 253-922-2310 Fax: 253-922-5047

**Client Contact**  
AECOM  
1111 3rd Ave Suite 1600  
Seattle, WA 98101

Project Contact: Amy Dahl / Chelsey Cook  
Tel: (206) 438-2261 / (206) 438-2010  
Analysis Turnaround Time  
Calendar (C) or Work Days (W) W  
 21 days  
 Other

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: Subsurface Sediment  
Sample Type:

Site Contact: Jennifer Ray / Michaela McCaug  
Laboratory Contact: Elaine Walker  
Date: 8/3/18  
Carrier: Courier  
COC No: 1 of 4 pages

PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SM, 9060, 1603  
Grain size ASTM D7928/D6913  
Archive  
PCDRs 1613B  
Fracton

Atterberg Limits ASTM D4318  
Sample Specific Notes:

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.
PDI-SC-S172 - 2 to 4	8/2/2018	17:55	SC		ED	4
PDI-SC-S172 - 2 to 4D	8/2/2018	17:55	SC		ED	4
PDI-SC-S172 - 4 to 6	8/2/2018	18:00	SC		ED	4
PDI-SC-S172 - 6 to 8.1	8/2/2018	18:05	SC		ED	4
PDI-SC-S178 - 0 to 2	8/2/2018	15:55	SC		ED	6
PDI-SC-S178 - 2 to 3.7	8/2/2018	16:00	SC		ED	4
PDI-SC-S178 - 3.7 to 4.7	8/2/2018	16:05	SC		ED	4
PDI-SC-S178 - 4.7 to 6.7	8/2/2018	16:10	SC		ED	4
PDI-SC-S178 - 6.7 to 8.7	8/2/2018	16:15	SC		ED	4
PDI-SC-S178 - 8.7 to 10.7	8/2/2018	16:20	SC		ED	4
PDI-SC-S178 - 10.7 to 12.7	8/2/2018	16:25	SC		ED	4
PDI-SC-S178 - 12.7 to 14	8/2/2018	16:30	SC		ED	4

Container Type: WIMG-Wide Mouth Glass Jar, P-HDPE, PP-Polypropylene, AG-amber glass, G-glass, RC-Resin Collu  
Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid  
Fracton: D = Dissolved, PRT = Particulate, T = Total (unfiltered)

Sample Disposal  
 Return To Client  
 X Ship For 12 Months

Special Instructions/QC Requirements & Comments: **Separate reports for each lab**

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
<i>[Signature]</i>	AECOM	8/3/18 13:05	<i>[Signature]</i>	M-E	8/3/18 13:05
<i>[Signature]</i>	M-E	8/3/18 13:15	<i>[Signature]</i>	LABOR	8/3/18 13:15
<i>[Signature]</i>	LABOR	8/3/18 17:00	<i>[Signature]</i>	SEA TA	8/4/18 10:20

Per Account 8/7/18 KR





# SUBSURFACE SEDIMENT CHAIN OF CUSTODY

**TestAmerica-Seattle**  
 5755-8th-Street-East  
 Tacoma, WA 98424-1317  
 Ph: 253-922-2310 Fax: 253-922-5047

**Client Contact**  
 AECOM  
 1111 3rd Ave Suite 1600  
 Seattle, WA 98101  
 Phone: (206) 438-2700 Fax: 1-(866) 495-5288  
 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling

Portland, OR  
 Project #: 60566335 Study: Subsurface Sediment

Sample Type:

**Project Contact:** Amy Dahl / Chelsey Cook  
 Tel: (206) 438-2261 / (206) 438-2010  
 Analysis Turnaround Time  
 Calendar (C) or Work Days (W) W  
 21 days  
 Other

**Site Contact:** Jennifer Ray / Michaela McCoog  
 Laboratory Contact: Elaine-Walker  
 Date: 8/3/18  
 Carrier: Courier

COC No: 1  
 3 of 4 pages

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fracton	Archive	Grain Size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 1603	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S083 - 0 to 1.6	8/1/2018	17:30	SC		ED	4		X	X	X		
PDI-SC-S083 - 1.6 to 3.5	8/1/2018	17:35	SC		ED	4		X	X	X		
PDI-SC-S083 - 3.5 to 5.0	8/1/2018	17:40	SC		ED	4		X	X	X		
PDI-SC-S083 - 5 to 6.6	8/1/2018	17:45	SC		ED	4		X	X	X		
PDI-SC-S032 - 0 to 2	8/1/2018	15:40	SC		ED	4		X	X	X		
PDI-SC-S032 - 2 to 4	8/1/2018	15:45	SC		ED	4		X	X	X		
PDI-SC-S032 - 4 to 6	8/1/2018	15:50	SC		ED	4		X	X	X		
PDI-SC-S032 - 6 to 8	8/1/2018	15:55	SC		ED	4		X	X	X		
PDI-SC-S032 - 8 to 10	8/1/2018	16:00	SC	15:50SD	ED	6		X	X	X		
PDI-SC-S032 - 10 to 12	8/1/2018	16:05	SC		ED	4		X	X	X		
PDI-SC-S032 - 12 to 14	8/1/2018	16:10	SC		ED	4		X	X	X		
PDI-SC-S172 - 0 to 2	8/2/2018	17:50	SC		ED	4		X	X	X		

**Container Type:** WMG-Wide Mouth Glass Jar, P-HDPE, PP-Polypropylene, AG-amber glass, G-glass, RC-Resin Column  
**Preservative:** HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid  
**Fraction:** D = Dissolved, PFI = Particulate, T = Total (unfiltered)

**Sample Disposal**  
 Return To Client  Dispose By Lab  Ship For 12 Months

**Relinquished by:** R-27  
 Company: AECOM  
 Date/Time: 8/3/18 13:05

**Relinquished by:** Amy Dahl  
 Company: M-E  
 Date/Time: 8/3/18 13:45

**Relinquished by:** [Signature]  
 Company: AK-ROL  
 Date/Time: 8/3/18 17:02

**Received by:** [Signature]  
 Company: M-E  
 Date/Time: 8/3/18 13:05

**Received by:** [Signature]  
 Company: AK-ROL  
 Date/Time: 8/3/18 13:05

**Received by:** B-Guer  
 Company: SEA-TR  
 Date/Time: 8/14/18 10:20

Special Instructions/QC Requirements & Comments: Separate reports for each lab





# Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-79329-5

**Login Number: 79329**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: O'Connell, Jason I**

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

