

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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TestAmerica Job ID: 580-79202-1

Client Project/Site: Portland Harbor Pre-Remedial Design  
Revision: 1

For:

AECOM  
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Attn: Amy Dahl

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Authorized for release by:  
11/13/2018 4:09:33 PM

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



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# Case Narrative

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

TestAmerica Job ID: 580-79202-1

**Job ID: 580-79202-1**

**Laboratory: TestAmerica Seattle**

## Narrative

### CASE NARRATIVE

Client: AECOM

Project: Portland Harbor Pre-Remedial Design

Report Number: 580-79202-1

#### **REVISION 1: NOVEMBER 13, 2018**

This revision was required because it was discovered that the data was calculated using the TS @ 70C, rather than the normal solids @ 104C.

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**

Six samples were received on 7/30/2018 1:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8° C.

The following samples were activated by the client for all on hold analysis on 8/16/18: PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5) and PDI-SG-B486 (580-79202-6).

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.

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 (GC-MS)**

**Samples PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5) and PDI-SG-B486 (580-79202-6) were analyzed for semivolatile organic compounds (GC-MS) in accordance with 8270D.** The samples were prepared on 09/15/2018 and analyzed on 09/19/2018 and 09/20/2018.

All samples were frozen were preserved by freezing within holding time upon receipt in Sacramento on 7/31/18. The samples were not frozen at the Seattle location, so frozen volume was provided by the Sacramento lab to the Seattle lab on 9/10/18; received in Seattle on 9/11/18 and placed in the freezer upon receipt in Seattle. Samples were removed from the freezer on 9/12/2018 and prepped for analysis. Therefore the samples are in hold and H-flags have been removed for the following samples: PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5), and PDI-SG-B486 (580-79202-6).

Bis(2-ethylhexyl) phthalate was detected in method blank MB 580-284043/1-A at a level that was above the method detection limit but

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### Laboratory: TestAmerica Seattle (Continued)

below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples were not performed.

Internal standard (ISTD) response for the following method blank and laboratory control sample were outside of acceptance limits: (LCS 580-284043/2-A) and (MB 580-284043/1-A). The QC were not re-analyzed because neither the target analyte or surrogate refer to this internal standard.

The opening CCV for analytical batch 284395 was 3% above %D criteria for surrogate Terphenyl-d14. Since all samples and batch QC were well above 3% of the lower %R limit for this surrogate, the small bias has not causing any of the data to be artificially passing due to the instrument bias. Therefore the data is qualified and reported. PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5), PDI-SG-B486 (580-79202-6), (CCVIS 580-284395/3), and (MB 580-284043/1-A).

The opening CCV for analytical batch 284567 was 1% above %D criteria for surrogate Terphenyl-d14. Since all samples and batch QC were well above 1% %R for this surrogate, the small bias has not causing any of the data to be artificially passing due to the instrument bias. Therefore the data is qualified and reported. (CCVIS 580-284567/3)

The following samples were diluted due to the nature of the sample matrix: PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5), PDI-SG-B486 (580-79202-6), PDI-SG-B485 MS (580-79202-1 MS) and PDI-SG-B485 MSD (580-79202-1 MSD). 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.

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

**Samples PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5) and PDI-SG-B486 (580-79202-6) were analyzed for semivolatile organic compounds - Selected Ion Mode (SIM) in accordance with SW846 8270D\_SIM.** The samples were prepared on 09/15/2018 and analyzed on 09/18/2018.

All samples were frozen were preserved by freezing within holding time upon receipt in Sacramento on 7/31/18. The samples were not frozen at the Seattle location, so frozen volume was provided by the Sacramento lab to the Seattle lab on 9/10/18; received in Seattle on 9/11/18 and placed in the freezer upon receipt in Seattle. Samples were removed from the freezer on 9/12/2018 and prepped for analysis. Therefore the samples are in hold and H-flags have been removed for the following samples: PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5), and PDI-SG-B486 (580-79202-6).

The following samples were diluted due to the nature of the sample matrix: PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5), and PDI-SG-B486 (580-79202-6). 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.

### **ORGANOTINS BY GC/MS**

**Samples PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5) and PDI-SG-B486 (580-79202-6) were analyzed for organotins by GC/MS in accordance with the Krone Method.** The samples were prepared on 09/15/2018 and analyzed on 09/23/2018 and 09/24/2018.

All samples were frozen were preserved by freezing within holding time upon receipt in Sacramento on 7/31/18. The samples were not frozen at the Seattle location, so frozen volume was provided by the Sacramento lab to the Seattle lab on 9/10/18; received in Seattle on 9/11/18 and placed in the freezer upon receipt in Seattle. Samples were removed from the freezer on 9/13/2018 and prepped for analysis. Therefore the samples are in hold and H-flags have been removed for the following samples: PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5), and PDI-SG-B486 (580-79202-6).

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

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## Job ID: 580-79202-1 (Continued)

### Laboratory: TestAmerica Seattle (Continued)

#### DIESEL AND EXTENDED RANGE ORGANICS

Samples PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5) and PDI-SG-B486 (580-79202-6) were analyzed for diesel and extended range organics in accordance with Method NWTPH-Dx. The samples were prepared on 09/15/2018 and analyzed on 09/17/2018.

All samples were frozen were preserved by freezing within holding time upon receipt in Sacramento on 7/31/18. The samples were not frozen at the Seattle location, so frozen volume was provided by the Sacramento lab to the Seattle lab on 9/10/18; received in Seattle on 9/11/18 and placed in the freezer upon receipt in Seattle. Samples were removed from the freezer on 9/13/2018 and prepped for analysis. Therefore the samples are in hold and H-flags have been removed for the following samples: PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5), and PDI-SG-B486 (580-79202-6).

The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5), PDI-SG-B486 (580-79202-6) and (580-79202-A-3-C DU).

The %D of surrogate (o-Terphenyl) for CCV associated with batch 580-284139 was outside the upper control limits. All associated sample surrogate fell within acceptance criteria; therefore, the data have been reported. (CCV 580-284139/14), (CCV 580-284139/25) and (CCVRT 580-284139/3).

The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5), PDI-SG-B486 (580-79202-6) and (580-79202-G-6-E DU).

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

#### METALS (ICPMS)

Samples PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5) and PDI-SG-B486 (580-79202-6) were analyzed for Metals (ICPMS) in accordance with 6020A\_LL. The samples were prepared on 08/24/2018 and analyzed on 08/29/2018.

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

#### TOTAL MERCURY

Samples PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5) and PDI-SG-B486 (580-79202-6) were analyzed for total mercury in accordance with EPA SW-846 Method 7471A. The samples were prepared and analyzed on 08/27/2018.

The following samples were activated with only one day of holding time left. PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5) and PDI-SG-B486 (580-79202-6).

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

#### TOTAL ORGANIC CARBON

Samples PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5) and PDI-SG-B486 (580-79202-6) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 09/19/2018.

All samples were frozen were preserved by freezing within holding time upon receipt in Sacramento on 7/31/18. The samples were not frozen at the Seattle location, so frozen volume was provided by the Sacramento lab to the Seattle lab on 9/10/18; received in Seattle on 9/11/18 and placed in the freezer upon receipt in Seattle. Samples were removed from the freezer on 9/12/2018 and prepped for analysis. Therefore the samples are in hold and H-flags have been removed for the following samples: PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5), and PDI-SG-B486 (580-79202-6).

## Case Narrative

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

TestAmerica Job ID: 580-79202-1

### Job ID: 580-79202-1 (Continued)

#### Laboratory: TestAmerica Seattle (Continued)

Total Organic Carbon - Duplicates was detected in method blank MB 580-284391/5 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

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

#### PERCENT SOLIDS

Samples PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5) and PDI-SG-B486 (580-79202-6) were analyzed for percent solids in accordance with ASTM D2216. The samples were analyzed on 08/24/2018 and 09/07/2018.

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

#### TOTAL SOLIDS @ 70C

Samples PDI-SG-B485 (580-79202-1), PDI-SG-B484 (580-79202-2), PDI-SG-B482 (580-79202-3), PDI-SG-B487 (580-79202-4), PDI-SG-B488 (580-79202-5) and PDI-SG-B486 (580-79202-6) were analyzed for Total Solids @ 70C. The samples were analyzed on 07/31/2018 and 08/02/2018.

No 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: 580-79202-1

## Qualifiers

### GC/MS Semi VOA

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.

### GC Semi VOA

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.

### Metals

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
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: 580-79202-1

**Client Sample ID: PDI-SG-B485**

**Date Collected: 07/27/18 12:45**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-1**

**Matrix: Solid**

**Percent Solids: 49.0**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		46	4.1	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Acenaphthene	ND		46	5.5	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Acenaphthylene	ND		46	4.6	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Anthracene	ND		46	5.5	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Benzo[a]anthracene	12	J	46	7.0	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Benzo[a]pyrene	13	J	46	3.7	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Benzo[b]fluoranthene	15	J	46	5.4	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Benzo[g,h,i]perylene	6.6	J	46	4.6	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Benzo[k]fluoranthene	ND		46	5.5	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Chrysene	18	J	46	14	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Dibenz(a,h)anthracene	ND		46	6.6	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Fluoranthene	66		46	13	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Fluorene	ND		46	4.6	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Indeno[1,2,3-cd]pyrene	ND		46	5.5	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Naphthalene	15	J	46	7.4	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Phenanthrene	27	J	46	6.4	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25
Pyrene	58		46	8.9	ug/Kg	☼	09/15/18 08:40	09/18/18 21:14	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	73		57 - 120	09/15/18 08:40	09/18/18 21:14	25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		1400	160	ug/Kg	☼	09/15/18 08:47	09/19/18 22:18	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	100		58 - 120	09/15/18 08:47	09/19/18 22:18	25

## Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		150	39	ug/Kg	☼	09/15/18 09:00	09/23/18 01:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Triphenyltin	48		10 - 113	09/15/18 09:00	09/23/18 01:54	1

## Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	61	J	100	25	mg/Kg	☼	09/15/18 08:55	09/17/18 21:09	1
Motor Oil (>C24-C36)	220		100	36	mg/Kg	☼	09/15/18 08:55	09/17/18 21:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	100		50 - 150	09/15/18 08:55	09/17/18 21:09	1

## Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.7		0.33	0.066	mg/Kg	☼	08/24/18 17:05	08/29/18 13:51	5
Cadmium	0.19	J	0.26	0.051	mg/Kg	☼	08/24/18 17:05	08/29/18 13:51	5
Copper	36		0.66	0.14	mg/Kg	☼	08/24/18 17:05	08/29/18 13:51	5
Lead	9.4		0.33	0.032	mg/Kg	☼	08/24/18 17:05	08/29/18 13:51	5
Zinc	99		3.3	1.1	mg/Kg	☼	08/24/18 17:05	08/29/18 13:51	5

TestAmerica Seattle



# Client Sample Results

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

TestAmerica Job ID: 580-79202-1

**Client Sample ID: PDI-SG-B485**

**Date Collected: 07/27/18 12:45**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-1**

**Matrix: Solid**

**Percent Solids: 49.0**

## Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.037	J H	0.057	0.017	mg/Kg	☼	08/27/18 12:59	08/27/18 15:34	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	23000	B	2000	44	mg/Kg	—		09/19/18 13:41	1
Total Solids	49.0		0.1	0.1	%			08/24/18 19:21	1
Total Solids @ 70°C	54		0.10	0.10	%			07/31/18 13:43	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79202-1

**Client Sample ID: PDI-SG-B484**

**Date Collected: 07/27/18 15:15**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-2**

**Matrix: Solid**

**Percent Solids: 52.9**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		42	3.8	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
Acenaphthene	ND		42	5.1	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
Acenaphthylene	ND		42	4.2	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
Anthracene	ND		42	5.1	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
<b>Benzo[a]anthracene</b>	<b>9.1</b>	<b>J</b>	42	6.4	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
Benzo[a]pyrene	ND		42	3.4	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
<b>Benzo[b]fluoranthene</b>	<b>11</b>	<b>J</b>	42	5.0	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
<b>Benzo[g,h,i]perylene</b>	<b>6.2</b>	<b>J</b>	42	4.2	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
Benzo[k]fluoranthene	ND		42	5.1	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
<b>Chrysene</b>	<b>14</b>	<b>J</b>	42	13	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
Dibenz(a,h)anthracene	ND		42	6.1	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
<b>Fluoranthene</b>	<b>24</b>	<b>J</b>	42	12	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
Fluorene	ND		42	4.2	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
<b>Indeno[1,2,3-cd]pyrene</b>	<b>9.3</b>	<b>J</b>	42	5.1	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
<b>Naphthalene</b>	<b>9.9</b>	<b>J</b>	42	6.7	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
<b>Phenanthrene</b>	<b>13</b>	<b>J</b>	42	5.8	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25
<b>Pyrene</b>	<b>22</b>	<b>J</b>	42	8.2	ug/Kg	✱	09/15/18 08:40	09/18/18 21:40	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	77		57 - 120	09/15/18 08:40	09/18/18 21:40	25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		1200	150	ug/Kg	✱	09/15/18 08:47	09/19/18 22:42	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	99		58 - 120	09/15/18 08:47	09/19/18 22:42	25

## Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		130	34	ug/Kg	✱	09/15/18 09:00	09/23/18 02:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Triphenyltin	54		10 - 113	09/15/18 09:00	09/23/18 02:20	1

## Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>#2 Diesel (C10-C24)</b>	<b>55</b>	<b>J</b>	89	22	mg/Kg	✱	09/15/18 08:55	09/17/18 21:31	1
<b>Motor Oil (&gt;C24-C36)</b>	<b>270</b>		89	31	mg/Kg	✱	09/15/18 08:55	09/17/18 21:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	108		50 - 150	09/15/18 08:55	09/17/18 21:31	1

## Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Arsenic</b>	<b>4.5</b>		0.35	0.069	mg/Kg	✱	08/24/18 17:05	08/29/18 14:22	5
<b>Cadmium</b>	<b>0.14</b>	<b>J</b>	0.28	0.053	mg/Kg	✱	08/24/18 17:05	08/29/18 14:22	5
<b>Copper</b>	<b>34</b>		0.69	0.15	mg/Kg	✱	08/24/18 17:05	08/29/18 14:22	5
<b>Lead</b>	<b>7.5</b>		0.35	0.033	mg/Kg	✱	08/24/18 17:05	08/29/18 14:22	5
<b>Zinc</b>	<b>89</b>		3.5	1.1	mg/Kg	✱	08/24/18 17:05	08/29/18 14:22	5

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79202-1

**Client Sample ID: PDI-SG-B484**

**Lab Sample ID: 580-79202-2**

**Date Collected: 07/27/18 15:15**

**Matrix: Solid**

**Date Received: 07/30/18 13:40**

**Percent Solids: 52.9**

## Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.032	J H	0.047	0.014	mg/Kg	☼	08/27/18 12:59	08/27/18 15:36	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	19000	B	2000	44	mg/Kg	—		09/19/18 13:45	1
Total Solids	52.9		0.1	0.1	%			08/24/18 19:21	1
Total Solids @ 70°C	54		0.10	0.10	%			07/31/18 13:43	1

# Client Sample Results

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

TestAmerica Job ID: 580-79202-1

**Client Sample ID: PDI-SG-B482**

**Date Collected: 07/27/18 14:18**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-3**

**Matrix: Solid**

**Percent Solids: 58.0**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		39	3.5	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Acenaphthene	ND		39	4.7	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Acenaphthylene	ND		39	3.9	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Anthracene	ND		39	4.7	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Benzo[a]anthracene	ND		39	6.0	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Benzo[a]pyrene	ND		39	3.2	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Benzo[b]fluoranthene	ND		39	4.6	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Benzo[g,h,i]perylene	ND		39	3.9	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Benzo[k]fluoranthene	ND		39	4.7	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Chrysene	ND		39	12	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Dibenz(a,h)anthracene	ND		39	5.7	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Fluoranthene	22	J	39	11	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Fluorene	ND		39	3.9	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Indeno[1,2,3-cd]pyrene	ND		39	4.7	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Naphthalene	10	J	39	6.3	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Phenanthrene	13	J	39	5.4	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25
Pyrene	19	J	39	7.6	ug/Kg	✱	09/15/18 08:40	09/18/18 22:06	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	71		57 - 120	09/15/18 08:40	09/18/18 22:06	25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		1100	130	ug/Kg	✱	09/15/18 08:47	09/19/18 23:07	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	101		58 - 120	09/15/18 08:47	09/19/18 23:07	25

## Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		130	33	ug/Kg	✱	09/15/18 09:00	09/23/18 02:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Triphenyltin	86		10 - 113	09/15/18 09:00	09/23/18 02:46	1

## Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	35	J	83	20	mg/Kg	✱	09/15/18 08:55	09/17/18 21:53	1
Motor Oil (>C24-C36)	160		83	29	mg/Kg	✱	09/15/18 08:55	09/17/18 21:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	106		50 - 150	09/15/18 08:55	09/17/18 21:53	1

## Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.9		0.31	0.062	mg/Kg	✱	08/24/18 17:05	08/29/18 14:26	5
Cadmium	0.14	J	0.25	0.047	mg/Kg	✱	08/24/18 17:05	08/29/18 14:26	5
Copper	29		0.62	0.14	mg/Kg	✱	08/24/18 17:05	08/29/18 14:26	5
Lead	7.9		0.31	0.030	mg/Kg	✱	08/24/18 17:05	08/29/18 14:26	5
Zinc	80		3.1	0.99	mg/Kg	✱	08/24/18 17:05	08/29/18 14:26	5

TestAmerica Seattle

# Client Sample Results

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79202-1

**Client Sample ID: PDI-SG-B482**

**Date Collected: 07/27/18 14:18**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-3**

**Matrix: Solid**

**Percent Solids: 58.0**

## Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.034	J H	0.036	0.011	mg/Kg	☼	08/27/18 12:59	08/27/18 15:38	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	14000	B	2000	44	mg/Kg	—		09/19/18 13:50	1
Total Solids	58.0		0.1	0.1	%			09/07/18 16:11	1
Total Solids @ 70°C	59		0.10	0.10	%			07/31/18 13:43	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79202-1

**Client Sample ID: PDI-SG-B487**

**Date Collected: 07/28/18 09:31**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-4**

**Matrix: Solid**

**Percent Solids: 53.3**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		43	3.8	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
Acenaphthene	ND		43	5.1	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
Acenaphthylene	ND		43	4.3	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
Anthracene	ND		43	5.1	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
Benzo[a]anthracene	ND		43	6.5	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
<b>Benzo[a]pyrene</b>	<b>8.6</b>	<b>J</b>	43	3.4	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
<b>Benzo[b]fluoranthene</b>	<b>6.2</b>	<b>J</b>	43	5.0	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
<b>Benzo[g,h,i]perylene</b>	<b>4.7</b>	<b>J</b>	43	4.3	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
Benzo[k]fluoranthene	ND		43	5.1	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
Chrysene	ND		43	13	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
Dibenz(a,h)anthracene	ND		43	6.2	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
Fluoranthene	ND		43	12	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
Fluorene	ND		43	4.3	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
<b>Indeno[1,2,3-cd]pyrene</b>	<b>8.9</b>	<b>J</b>	43	5.1	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
<b>Naphthalene</b>	<b>8.3</b>	<b>J</b>	43	6.8	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
<b>Phenanthrene</b>	<b>6.4</b>	<b>J</b>	43	5.9	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25
<b>Pyrene</b>	<b>10</b>	<b>J</b>	43	8.3	ug/Kg	✱	09/15/18 08:40	09/18/18 22:32	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	77		57 - 120	09/15/18 08:40	09/18/18 22:32	25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		1100	130	ug/Kg	✱	09/15/18 08:47	09/19/18 23:32	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	99		58 - 120	09/15/18 08:47	09/19/18 23:32	25

## Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		130	35	ug/Kg	✱	09/15/18 09:00	09/23/18 03:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Triphenyltin	69		10 - 113	09/15/18 09:00	09/23/18 03:11	1

## Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>#2 Diesel (C10-C24)</b>	<b>72</b>	<b>J</b>	90	22	mg/Kg	✱	09/15/18 08:55	09/17/18 22:15	1
<b>Motor Oil (&gt;C24-C36)</b>	<b>290</b>		90	32	mg/Kg	✱	09/15/18 08:55	09/17/18 22:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	102		50 - 150	09/15/18 08:55	09/17/18 22:15	1

## Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Arsenic</b>	<b>4.1</b>		0.29	0.058	mg/Kg	✱	08/24/18 17:05	08/29/18 14:29	5
<b>Cadmium</b>	<b>0.12</b>	<b>J</b>	0.23	0.044	mg/Kg	✱	08/24/18 17:05	08/29/18 14:29	5
<b>Copper</b>	<b>26</b>		0.58	0.13	mg/Kg	✱	08/24/18 17:05	08/29/18 14:29	5
<b>Lead</b>	<b>6.1</b>		0.29	0.028	mg/Kg	✱	08/24/18 17:05	08/29/18 14:29	5
<b>Zinc</b>	<b>83</b>		2.9	0.93	mg/Kg	✱	08/24/18 17:05	08/29/18 14:29	5

TestAmerica Seattle

# Client Sample Results

Client: AECOM

TestAmerica Job ID: 580-79202-1

Project/Site: Portland Harbor Pre-Remedial Design

**Client Sample ID: PDI-SG-B487**

**Lab Sample ID: 580-79202-4**

**Date Collected: 07/28/18 09:31**

**Matrix: Solid**

**Date Received: 07/30/18 13:40**

**Percent Solids: 53.3**

## Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.034	J H	0.040	0.012	mg/Kg	☼	08/27/18 12:59	08/27/18 15:40	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	22000	B	2000	44	mg/Kg	—		09/19/18 13:54	1
Total Solids	53.3		0.1	0.1	%			08/24/18 19:21	1
Total Solids @ 70°C	56		0.10	0.10	%			07/31/18 13:43	1

TestAmerica Seattle



# Client Sample Results

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

TestAmerica Job ID: 580-79202-1

**Client Sample ID: PDI-SG-B488**

**Date Collected: 07/28/18 10:32**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-5**

**Matrix: Solid**

**Percent Solids: 58.6**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		35	3.2	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
Acenaphthene	ND		35	4.2	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
Acenaphthylene	ND		35	3.5	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
Anthracene	ND		35	4.2	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
<b>Benzo[a]anthracene</b>	<b>6.2</b>	<b>J</b>	35	5.3	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
Benzo[a]pyrene	ND		35	2.8	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
<b>Benzo[b]fluoranthene</b>	<b>8.3</b>	<b>J</b>	35	4.1	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
Benzo[g,h,i]perylene	ND		35	3.5	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
Benzo[k]fluoranthene	ND		35	4.2	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
<b>Chrysene</b>	<b>25</b>	<b>J</b>	35	11	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
Dibenz(a,h)anthracene	ND		35	5.0	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
<b>Fluoranthene</b>	<b>17</b>	<b>J</b>	35	9.8	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
Fluorene	ND		35	3.5	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
Indeno[1,2,3-cd]pyrene	ND		35	4.2	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
<b>Naphthalene</b>	<b>9.5</b>	<b>J</b>	35	5.6	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
<b>Phenanthrene</b>	<b>10</b>	<b>J</b>	35	4.8	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25
<b>Pyrene</b>	<b>15</b>	<b>J</b>	35	6.8	ug/Kg	✱	09/15/18 08:40	09/18/18 22:57	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	70		57 - 120	09/15/18 08:40	09/18/18 22:57	25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		960	110	ug/Kg	✱	09/15/18 08:47	09/19/18 23:57	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	103		58 - 120	09/15/18 08:47	09/19/18 23:57	25

## Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		130	33	ug/Kg	✱	09/15/18 09:00	09/23/18 03:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Triphenyltin	68		10 - 113	09/15/18 09:00	09/23/18 03:37	1

## Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>#2 Diesel (C10-C24)</b>	<b>34</b>	<b>J</b>	73	18	mg/Kg	✱	09/15/18 08:55	09/17/18 22:37	1
<b>Motor Oil (&gt;C24-C36)</b>	<b>150</b>		73	25	mg/Kg	✱	09/15/18 08:55	09/17/18 22:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	98		50 - 150	09/15/18 08:55	09/17/18 22:37	1

## Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Arsenic</b>	<b>4.2</b>		0.26	0.052	mg/Kg	✱	08/24/18 17:05	08/29/18 14:33	5
<b>Cadmium</b>	<b>0.10</b>	<b>J</b>	0.21	0.040	mg/Kg	✱	08/24/18 17:05	08/29/18 14:33	5
<b>Copper</b>	<b>29</b>		0.52	0.11	mg/Kg	✱	08/24/18 17:05	08/29/18 14:33	5
<b>Lead</b>	<b>6.4</b>		0.26	0.025	mg/Kg	✱	08/24/18 17:05	08/29/18 14:33	5
<b>Zinc</b>	<b>80</b>		2.6	0.84	mg/Kg	✱	08/24/18 17:05	08/29/18 14:33	5

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79202-1

**Client Sample ID: PDI-SG-B488**

**Date Collected: 07/28/18 10:32**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-5**

**Matrix: Solid**

**Percent Solids: 58.6**

## Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.031	J H	0.038	0.011	mg/Kg	☼	08/27/18 12:59	08/27/18 15:42	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	16000	B	2000	44	mg/Kg	—		09/19/18 13:59	1
Total Solids	58.6		0.1	0.1	%			08/24/18 19:21	1
Total Solids @ 70°C	61		0.10	0.10	%			08/02/18 13:52	1

# Client Sample Results

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

TestAmerica Job ID: 580-79202-1

**Client Sample ID: PDI-SG-B486**

**Date Collected: 07/28/18 11:29**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-6**

**Matrix: Solid**

**Percent Solids: 49.4**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		46	4.1	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
Acenaphthene	ND		46	5.5	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
Acenaphthylene	ND		46	4.6	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
Anthracene	ND		46	5.5	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
<b>Benzo[a]anthracene</b>	<b>7.4</b>	<b>J</b>	46	7.0	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
Benzo[a]pyrene	ND		46	3.7	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
Benzo[b]fluoranthene	ND		46	5.4	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
Benzo[g,h,i]perylene	ND		46	4.6	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
Benzo[k]fluoranthene	ND		46	5.5	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
Chrysene	ND		46	14	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
Dibenz(a,h)anthracene	ND		46	6.6	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
<b>Fluoranthene</b>	<b>13</b>	<b>J</b>	46	13	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
Fluorene	ND		46	4.6	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
Indeno[1,2,3-cd]pyrene	ND		46	5.5	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
Naphthalene	ND		46	7.3	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
Phenanthrene	ND		46	6.3	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25
<b>Pyrene</b>	<b>13</b>	<b>J</b>	46	8.9	ug/Kg	✱	09/15/18 08:40	09/18/18 23:23	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	75		57 - 120	09/15/18 08:40	09/18/18 23:23	25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		1400	170	ug/Kg	✱	09/15/18 08:47	09/20/18 02:24	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	101		58 - 120	09/15/18 08:47	09/20/18 02:24	25

## Method: Organotins - Organotins, PSEP (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		140	37	ug/Kg	✱	09/15/18 09:00	09/24/18 13:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Triphenyltin	43		10 - 113	09/15/18 09:00	09/24/18 13:29	1

## Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>#2 Diesel (C10-C24)</b>	<b>69</b>	<b>J</b>	94	23	mg/Kg	✱	09/15/18 08:55	09/17/18 22:59	1
<b>Motor Oil (&gt;C24-C36)</b>	<b>300</b>		94	33	mg/Kg	✱	09/15/18 08:55	09/17/18 22:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	100		50 - 150	09/15/18 08:55	09/17/18 22:59	1

## Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Arsenic</b>	<b>4.5</b>		0.38	0.076	mg/Kg	✱	08/24/18 17:05	08/29/18 14:36	5
<b>Cadmium</b>	<b>0.16</b>	<b>J</b>	0.30	0.058	mg/Kg	✱	08/24/18 17:05	08/29/18 14:36	5
<b>Copper</b>	<b>30</b>		0.76	0.17	mg/Kg	✱	08/24/18 17:05	08/29/18 14:36	5
<b>Lead</b>	<b>6.8</b>		0.38	0.036	mg/Kg	✱	08/24/18 17:05	08/29/18 14:36	5
<b>Zinc</b>	<b>87</b>		3.8	1.2	mg/Kg	✱	08/24/18 17:05	08/29/18 14:36	5

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79202-1

**Client Sample ID: PDI-SG-B486**

**Lab Sample ID: 580-79202-6**

**Date Collected: 07/28/18 11:29**

**Matrix: Solid**

**Date Received: 07/30/18 13:40**

**Percent Solids: 49.4**

## Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.038	H	0.037	0.011	mg/Kg	☼	08/27/18 12:59	08/27/18 15:45	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	26000	B	2000	44	mg/Kg	—		09/19/18 14:04	1
Total Solids	49.4		0.1	0.1	%			08/24/18 19:21	1
Total Solids @ 70°C	53		0.10	0.10	%			08/02/18 13:52	1

# QC Sample Results

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

TestAmerica Job ID: 580-79202-1

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

Lab Sample ID: MB 580-284043/1-A

Matrix: Solid

Analysis Batch: 284395

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 284043

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	3.89	J	30	3.6	ug/Kg	-	09/15/18 08:47	09/19/18 17:23	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	107		58 - 120				09/15/18 08:47	09/19/18 17:23	1

Lab Sample ID: LCS 580-284043/2-A

Matrix: Solid

Analysis Batch: 284567

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 284043

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bis(2-ethylhexyl) phthalate	50.0	46.4		ug/Kg	-	93	59 - 123
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Terphenyl-d14 (Surr)	113		58 - 120				

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

Lab Sample ID: MB 580-284042/1-A

Matrix: Solid

Analysis Batch: 284269

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 284042

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		1.0	0.090	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Acenaphthene	ND		1.0	0.12	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Acenaphthylene	ND		1.0	0.10	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Anthracene	ND		1.0	0.12	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Benzo[a]anthracene	ND		1.0	0.15	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Benzo[a]pyrene	ND		1.0	0.080	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Benzo[b]fluoranthene	ND		1.0	0.12	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Benzo[g,h,i]perylene	ND		1.0	0.10	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Benzo[k]fluoranthene	ND		1.0	0.12	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Chrysene	ND		1.0	0.30	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Dibenz(a,h)anthracene	ND		1.0	0.14	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Fluoranthene	ND		1.0	0.28	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Fluorene	ND		1.0	0.10	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Indeno[1,2,3-cd]pyrene	ND		1.0	0.12	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Naphthalene	ND		1.0	0.16	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Phenanthrene	ND		1.0	0.14	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Pyrene	ND		1.0	0.19	ug/Kg	-	09/15/18 08:40	09/18/18 16:04	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	88		57 - 120				09/15/18 08:40	09/18/18 16:04	1

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79202-1

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

Lab Sample ID: LCS 580-284042/2-A

Matrix: Solid

Analysis Batch: 284269

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 284042

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2-Methylnaphthalene	200	178		ug/Kg		89	68 - 120
Acenaphthene	200	178		ug/Kg		89	68 - 120
Acenaphthylene	200	187		ug/Kg		94	68 - 120
Anthracene	200	183		ug/Kg		92	73 - 125
Benzo[a]anthracene	200	189		ug/Kg		95	66 - 120
Benzo[a]pyrene	200	174		ug/Kg		87	72 - 124
Benzo[b]fluoranthene	200	192		ug/Kg		96	63 - 121
Benzo[g,h,i]perylene	200	199		ug/Kg		100	63 - 120
Benzo[k]fluoranthene	200	200		ug/Kg		100	63 - 123
Chrysene	200	176		ug/Kg		88	69 - 120
Dibenz(a,h)anthracene	200	194		ug/Kg		97	70 - 125
Fluoranthene	200	185		ug/Kg		92	74 - 125
Fluorene	200	181		ug/Kg		91	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	177		ug/Kg		88	73 - 120
Pyrene	200	182		ug/Kg		91	70 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	82		57 - 120

## Method: Organotins - Organotins, PSEP (GC/MS)

Lab Sample ID: MB 580-284045/1-A

Matrix: Solid

Analysis Batch: 284676

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 284045

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tributyltin	ND		75	20	ug/Kg		09/15/18 09:00	09/22/18 18:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tripentyltin	52		10 - 113	09/15/18 09:00	09/22/18 18:04	1

Lab Sample ID: LCS 580-284045/2-A

Matrix: Solid

Analysis Batch: 284676

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 284045

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Tributyltin	71.8	46.9	J	ug/Kg		65	14 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tripentyltin	64		10 - 113

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79202-1

## Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-284044/1-A

Matrix: Solid

Analysis Batch: 284139

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 284044

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg		09/15/18 08:55	09/17/18 16:24	1
Motor Oil (>C24-C36)	ND		50	18	mg/Kg		09/15/18 08:55	09/17/18 16:24	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	94		50 - 150				09/15/18 08:55	09/17/18 16:24	1

Lab Sample ID: LCS 580-284044/2-A

Matrix: Solid

Analysis Batch: 284139

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 284044

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
#2 Diesel (C10-C24)	500	555		mg/Kg		111	70 - 125		
Motor Oil (>C24-C36)	500	545		mg/Kg		109	70 - 129		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
o-Terphenyl	122		50 - 150						

Lab Sample ID: LCSD 580-284044/3-A

Matrix: Solid

Analysis Batch: 284139

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 284044

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	500	598		mg/Kg		120	70 - 125	8	16
Motor Oil (>C24-C36)	500	585		mg/Kg		117	70 - 129	7	16
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
o-Terphenyl	121		50 - 150						

Lab Sample ID: 580-79202-6 DU

Matrix: Solid

Analysis Batch: 284139

Client Sample ID: PDI-SG-B486

Prep Type: Total/NA

Prep Batch: 284044

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
#2 Diesel (C10-C24)	69	J	52.4	J	mg/Kg	☼	28	35
Motor Oil (>C24-C36)	300		298		mg/Kg	☼	0.3	35
Surrogate	DU %Recovery	DU Qualifier	Limits					
o-Terphenyl	106		50 - 150					

## Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-282435/22-A

Matrix: Solid

Analysis Batch: 282840

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 282435

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.25	0.050	mg/Kg		08/24/18 17:07	08/29/18 13:40	5

TestAmerica Seattle



# QC Sample Results

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

TestAmerica Job ID: 580-79202-1

## Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 580-282435/22-A

Matrix: Solid

Analysis Batch: 282840

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 282435

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.20	0.039	mg/Kg		08/24/18 17:07	08/29/18 13:40	5
Copper	ND		0.50	0.11	mg/Kg		08/24/18 17:07	08/29/18 13:40	5
Lead	ND		0.25	0.024	mg/Kg		08/24/18 17:07	08/29/18 13:40	5
Zinc	ND		2.5	0.81	mg/Kg		08/24/18 17:07	08/29/18 13:40	5

Lab Sample ID: LCS 580-282435/23-A

Matrix: Solid

Analysis Batch: 282840

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 282435

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	200	202		mg/Kg		101	80 - 120
Cadmium	5.00	5.05		mg/Kg		101	80 - 120
Copper	25.0	26.4		mg/Kg		106	80 - 120
Lead	50.0	47.7		mg/Kg		95	80 - 120
Zinc	200	199		mg/Kg		99	80 - 120

Lab Sample ID: LCSD 580-282435/24-A

Matrix: Solid

Analysis Batch: 282840

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 282435

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Arsenic	200	203		mg/Kg		102	80 - 120	1	20
Cadmium	5.00	5.06		mg/Kg		101	80 - 120	0	20
Copper	25.0	26.0		mg/Kg		104	80 - 120	2	20
Lead	50.0	48.3		mg/Kg		97	80 - 120	1	20
Zinc	200	199		mg/Kg		100	80 - 120	0	20

Lab Sample ID: 580-79202-1 MS

Matrix: Solid

Analysis Batch: 282840

Client Sample ID: PDI-SG-B485

Prep Type: Total/NA

Prep Batch: 282435

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.7		272	302		mg/Kg	☼	109	80 - 120
Cadmium	0.19	J	6.80	7.70		mg/Kg	☼	110	80 - 120
Copper	36		34.0	76.2		mg/Kg	☼	118	80 - 120
Lead	9.4		68.0	81.6		mg/Kg	☼	106	80 - 120
Zinc	99		272	398		mg/Kg	☼	110	80 - 120

Lab Sample ID: 580-79202-1 MSD

Matrix: Solid

Analysis Batch: 282840

Client Sample ID: PDI-SG-B485

Prep Type: Total/NA

Prep Batch: 282435

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Arsenic	4.7		271	289		mg/Kg	☼	105	80 - 120	4	20
Cadmium	0.19	J	6.77	7.32		mg/Kg	☼	105	80 - 120	5	20
Copper	36		33.8	75.3		mg/Kg	☼	116	80 - 120	1	20
Lead	9.4		67.7	79.3		mg/Kg	☼	103	80 - 120	3	20
Zinc	99		271	388		mg/Kg	☼	107	80 - 120	2	20

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79202-1

## Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 580-79202-1 DU

Matrix: Solid

Analysis Batch: 282840

Client Sample ID: PDI-SG-B485

Prep Type: Total/NA

Prep Batch: 282435

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Arsenic	4.7		4.23		mg/Kg	⊗	10	20
Cadmium	0.19	J	0.167	J	mg/Kg	⊗	15	20
Copper	36		30.4		mg/Kg	⊗	16	20
Lead	9.4		8.22		mg/Kg	⊗	13	20
Zinc	99		83.1		mg/Kg	⊗	17	20

## Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 580-282546/18-A

Matrix: Solid

Analysis Batch: 282601

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 282546

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.030	0.0090	mg/Kg		08/27/18 12:59	08/27/18 14:57	1

Lab Sample ID: LCS 580-282546/19-A

Matrix: Solid

Analysis Batch: 282601

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 282546

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.167	0.177		mg/Kg		106	80 - 120

Lab Sample ID: LCSD 580-282546/20-A

Matrix: Solid

Analysis Batch: 282601

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 282546

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Mercury	0.167	0.183		mg/Kg		110	80 - 120	3	20

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

Lab Sample ID: MB 580-284391/5

Matrix: Solid

Analysis Batch: 284391

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	119	J	2000	44	mg/Kg			09/19/18 12:31	1

Lab Sample ID: LCS 580-284391/6

Matrix: Solid

Analysis Batch: 284391

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	4270	4310		mg/Kg		101	68 - 149

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79202-1

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

Lab Sample ID: LCSD 580-284391/7

Matrix: Solid

Analysis Batch: 284391

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	4270	3680		mg/Kg		86	68 - 149	16	32

## Method: D 2216 - Percent Moisture

Lab Sample ID: 580-79202-1 DU

Matrix: Solid

Analysis Batch: 282447

Client Sample ID: PDI-SG-B485

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Solids	49.0		49.3		%		0.6	20

# Lab Chronicle

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

TestAmerica Job ID: 580-79202-1

**Client Sample ID: PDI-SG-B485**

**Date Collected: 07/27/18 12:45**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-1**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284391	09/19/18 13:41	TTN	TAL SEA
Total/NA	Analysis	D 2216		1	282447	08/24/18 19:21	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA

**Client Sample ID: PDI-SG-B485**

**Date Collected: 07/27/18 12:45**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-1**

**Matrix: Solid**

**Percent Solids: 49.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284043	09/15/18 08:47	DB	TAL SEA
Total/NA	Analysis	8270D		25	284395	09/19/18 22:18	ERZ	TAL SEA
Total/NA	Prep	3546			284042	09/15/18 08:40	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	284269	09/18/18 21:14	W1T	TAL SEA
Total/NA	Prep	Organotin Prep			284045	09/15/18 09:00	KMS	TAL SEA
Total/NA	Analysis	Organotins		1	284676	09/23/18 01:54	ERZ	TAL SEA
Total/NA	Prep	3546			284044	09/15/18 08:55	BAH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284139	09/17/18 21:09	CJ	TAL SEA
Total/NA	Prep	3050B			282435	08/24/18 17:05	T1H	TAL SEA
Total/NA	Analysis	6020B		5	282840	08/29/18 13:51	FCW	TAL SEA
Total/NA	Prep	7471A			282546	08/27/18 12:59	JKM	TAL SEA
Total/NA	Analysis	7471A		1	282601	08/27/18 15:34	PAB	TAL SEA

**Client Sample ID: PDI-SG-B484**

**Date Collected: 07/27/18 15:15**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-2**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284391	09/19/18 13:45	TTN	TAL SEA
Total/NA	Analysis	D 2216		1	282447	08/24/18 19:21	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA

**Client Sample ID: PDI-SG-B484**

**Date Collected: 07/27/18 15:15**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-2**

**Matrix: Solid**

**Percent Solids: 52.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284043	09/15/18 08:47	DB	TAL SEA
Total/NA	Analysis	8270D		25	284395	09/19/18 22:42	ERZ	TAL SEA
Total/NA	Prep	3546			284042	09/15/18 08:40	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	284269	09/18/18 21:40	W1T	TAL SEA
Total/NA	Prep	Organotin Prep			284045	09/15/18 09:00	KMS	TAL SEA
Total/NA	Analysis	Organotins		1	284676	09/23/18 02:20	ERZ	TAL SEA

TestAmerica Seattle

# Lab Chronicle

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

TestAmerica Job ID: 580-79202-1

**Client Sample ID: PDI-SG-B484**

**Date Collected: 07/27/18 15:15**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-2**

**Matrix: Solid**

**Percent Solids: 52.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			284044	09/15/18 08:55	BAH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284139	09/17/18 21:31	CJ	TAL SEA
Total/NA	Prep	3050B			282435	08/24/18 17:05	T1H	TAL SEA
Total/NA	Analysis	6020B		5	282840	08/29/18 14:22	FCW	TAL SEA
Total/NA	Prep	7471A			282546	08/27/18 12:59	JKM	TAL SEA
Total/NA	Analysis	7471A		1	282601	08/27/18 15:36	PAB	TAL SEA

**Client Sample ID: PDI-SG-B482**

**Date Collected: 07/27/18 14:18**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-3**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284391	09/19/18 13:50	TTN	TAL SEA
Total/NA	Analysis	D 2216		1	283499	09/07/18 16:11	JCM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA

**Client Sample ID: PDI-SG-B482**

**Date Collected: 07/27/18 14:18**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-3**

**Matrix: Solid**

**Percent Solids: 58.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284043	09/15/18 08:47	DB	TAL SEA
Total/NA	Analysis	8270D		25	284395	09/19/18 23:07	ERZ	TAL SEA
Total/NA	Prep	3546			284042	09/15/18 08:40	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	284269	09/18/18 22:06	W1T	TAL SEA
Total/NA	Prep	Organotin Prep			284045	09/15/18 09:00	KMS	TAL SEA
Total/NA	Analysis	Organotins		1	284676	09/23/18 02:46	ERZ	TAL SEA
Total/NA	Prep	3546			284044	09/15/18 08:55	BAH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284139	09/17/18 21:53	CJ	TAL SEA
Total/NA	Prep	3050B			282435	08/24/18 17:05	T1H	TAL SEA
Total/NA	Analysis	6020B		5	282840	08/29/18 14:26	FCW	TAL SEA
Total/NA	Prep	7471A			282546	08/27/18 12:59	JKM	TAL SEA
Total/NA	Analysis	7471A		1	282601	08/27/18 15:38	PAB	TAL SEA

**Client Sample ID: PDI-SG-B487**

**Date Collected: 07/28/18 09:31**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-4**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284391	09/19/18 13:54	TTN	TAL SEA
Total/NA	Analysis	D 2216		1	282447	08/24/18 19:21	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA

TestAmerica Seattle

# Lab Chronicle

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

TestAmerica Job ID: 580-79202-1

**Client Sample ID: PDI-SG-B487**

**Lab Sample ID: 580-79202-4**

**Date Collected: 07/28/18 09:31**

**Matrix: Solid**

**Date Received: 07/30/18 13:40**

**Percent Solids: 53.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284043	09/15/18 08:47	DB	TAL SEA
Total/NA	Analysis	8270D		25	284395	09/19/18 23:32	ERZ	TAL SEA
Total/NA	Prep	3546			284042	09/15/18 08:40	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	284269	09/18/18 22:32	W1T	TAL SEA
Total/NA	Prep	Organotin Prep			284045	09/15/18 09:00	KMS	TAL SEA
Total/NA	Analysis	Organotins		1	284676	09/23/18 03:11	ERZ	TAL SEA
Total/NA	Prep	3546			284044	09/15/18 08:55	BAH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284139	09/17/18 22:15	CJ	TAL SEA
Total/NA	Prep	3050B			282435	08/24/18 17:05	T1H	TAL SEA
Total/NA	Analysis	6020B		5	282840	08/29/18 14:29	FCW	TAL SEA
Total/NA	Prep	7471A			282546	08/27/18 12:59	JKM	TAL SEA
Total/NA	Analysis	7471A		1	282601	08/27/18 15:40	PAB	TAL SEA

**Client Sample ID: PDI-SG-B488**

**Lab Sample ID: 580-79202-5**

**Date Collected: 07/28/18 10:32**

**Matrix: Solid**

**Date Received: 07/30/18 13:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284391	09/19/18 13:59	TTN	TAL SEA
Total/NA	Analysis	D 2216		1	282447	08/24/18 19:21	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281038	08/02/18 13:52	HJM	TAL SEA

**Client Sample ID: PDI-SG-B488**

**Lab Sample ID: 580-79202-5**

**Date Collected: 07/28/18 10:32**

**Matrix: Solid**

**Date Received: 07/30/18 13:40**

**Percent Solids: 58.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284043	09/15/18 08:47	DB	TAL SEA
Total/NA	Analysis	8270D		25	284395	09/19/18 23:57	ERZ	TAL SEA
Total/NA	Prep	3546			284042	09/15/18 08:40	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	284269	09/18/18 22:57	W1T	TAL SEA
Total/NA	Prep	Organotin Prep			284045	09/15/18 09:00	KMS	TAL SEA
Total/NA	Analysis	Organotins		1	284676	09/23/18 03:37	ERZ	TAL SEA
Total/NA	Prep	3546			284044	09/15/18 08:55	BAH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284139	09/17/18 22:37	CJ	TAL SEA
Total/NA	Prep	3050B			282435	08/24/18 17:05	T1H	TAL SEA
Total/NA	Analysis	6020B		5	282840	08/29/18 14:33	FCW	TAL SEA
Total/NA	Prep	7471A			282546	08/27/18 12:59	JKM	TAL SEA
Total/NA	Analysis	7471A		1	282601	08/27/18 15:42	PAB	TAL SEA

TestAmerica Seattle

# Lab Chronicle

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

TestAmerica Job ID: 580-79202-1

**Client Sample ID: PDI-SG-B486**

**Date Collected: 07/28/18 11:29**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-6**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	284391	09/19/18 14:04	TTN	TAL SEA
Total/NA	Analysis	D 2216		1	282447	08/24/18 19:21	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281038	08/02/18 13:52	HJM	TAL SEA

**Client Sample ID: PDI-SG-B486**

**Date Collected: 07/28/18 11:29**

**Date Received: 07/30/18 13:40**

**Lab Sample ID: 580-79202-6**

**Matrix: Solid**

**Percent Solids: 49.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			284043	09/15/18 08:47	DB	TAL SEA
Total/NA	Analysis	8270D		25	284395	09/20/18 02:24	ERZ	TAL SEA
Total/NA	Prep	3546			284042	09/15/18 08:40	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		25	284269	09/18/18 23:23	W1T	TAL SEA
Total/NA	Prep	Organotin Prep			284045	09/15/18 09:00	KMS	TAL SEA
Total/NA	Analysis	Organotins		1	284742	09/24/18 13:29	ERZ	TAL SEA
Total/NA	Prep	3546			284044	09/15/18 08:55	BAH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	284139	09/17/18 22:59	CJ	TAL SEA
Total/NA	Prep	3050B			282435	08/24/18 17:05	T1H	TAL SEA
Total/NA	Analysis	6020B		5	282840	08/29/18 14:36	FCW	TAL SEA
Total/NA	Prep	7471A			282546	08/27/18 12:59	JKM	TAL SEA
Total/NA	Analysis	7471A		1	282601	08/27/18 15:45	PAB	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: 580-79202-1

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



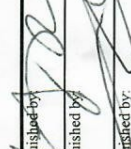
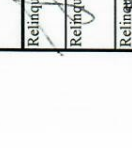
# Sample Summary


Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79202-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79202-1	PDI-SG-B485	Solid	07/27/18 12:45	07/30/18 13:40
580-79202-2	PDI-SG-B484	Solid	07/27/18 15:15	07/30/18 13:40
580-79202-3	PDI-SG-B482	Solid	07/27/18 14:18	07/30/18 13:40
580-79202-4	PDI-SG-B487	Solid	07/28/18 09:31	07/30/18 13:40
580-79202-5	PDI-SG-B488	Solid	07/28/18 10:32	07/30/18 13:40
580-79202-6	PDI-SG-B486	Solid	07/28/18 11:29	07/30/18 13:40

SURFACE SEDIMENT CHAIN OF CUSTODY														
<b>TestAmerica-Seattle</b> 5755-8th-Street-East Tacoma, WA 98424-1317 <b>Ph: 253-922-2310</b> <b>Fax: 253-922-5047</b>		<b>Client Contact</b> 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		<b>Project Contact: Amy Dahl / Chelsey Cook</b> Tel: (206) 438-2261 / (206) 438-2010 Analysis Turnaround Time <input type="checkbox"/> 21 days <input checked="" type="checkbox"/> Other ASAP		<b>Site Contact: Jennifer Ray</b> Laboratory Contact: Elaine Walker Tel: (206) 438-2261 / (206) 438-2010		<b>Carrier: Courier</b> COC No: 1 of 1 pages						
Sample Type:	D/U	Study:	Surface Sediment	Project #:	60566335									
Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Fraction	PCB Congeners 1668A	PCDD's 1613B	TPH Diesel, Metals, Mercury NWTPH-DX	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060 (104C & 70C)	Archive Archive -20 C	PAHs, BEHP, Tributyltin, 8270-SIM, 8270-L, Kron/Linger	Sample Specific Notes:
PDI-SG-B485	7/27/2018	12:45	SS		LS		H	H	H	H	H	H	H	
PDI-SG-B484	7/27/2018	15:15	SS		MM		H	H	H	H	H	H	H	
PDI-SG-B482	7/27/2018	14:18	SS		MM		H	H	H	H	H	H	H	
PDI-SG-B487	7/28/2018	9:31	SS		MT		H	H	H	H	H	H	H	
PDI-SG-B488	7/28/2018	10:32	SS		MT		H	H	H	H	H	H	H	
PDI-SG-B486	7/28/2018	11:29	SS		MT		H	H	H	H	H	H	H	
 580-79202 Chain of Custody														
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)														
Special Instructions/QC Requirements & Comments: Analyze samples for grain size ASAP, Hold (H) remaining analyses pending further instruction. Separate reports for each lab.														
Relinquished by:	 Company: AECOM				Date/Time: 7/30/18 / 1305				Company: M.E.		Date/Time: 7-30-18 / 1305			
Relinquished by:	 Company: M.E.				Date/Time: 7-30-18 / 1340				Company: LAPOR		Date/Time: 7-30-18 / 1340			
Relinquished by:	 Company:				Date/Time:				Company:		Date/Time:			

TestAmerica-Seattle		SURFACE SEDIMENT CHAIN OF CUSTODY										7/30/2018		COC No: 1		
5755-8th-Street-East Tacoma, WA 98424-1317 Ph: 253-922-2310 Fax: 253-922-5047		Client Contact		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010		Site Contact: Jennifer Ray		Laboratory Contact: Elaine-Walker		Carrier: Courier		1 of 1 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: Surface Sediment Sample Type: D/U		Analysis Turnaround Time Calendar (C) or Work Days (W) <input type="checkbox"/> 21 days <input checked="" type="checkbox"/> Other ASAP														
Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congeners 168A	PCDD/Fs 1613B	TPH Dissolved Metals, Mercury NWTPH-DX 6020B, 7471A	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060 (104C & 70C)	Archive Archive -20 C	PAHs, BHP, Tributylin, 8270-SIM, 8270-LL, Kona/Unger	Sample Specific Notes:	
PDI-SG-B485	7/27/2018	12:45	SS		LS	8		H	H	H	x	H	H	H	H	
PDI-SG-B484	7/27/2018	15:15	SS		MM	7		H	H	H	x	H	H	H		
PDI-SG-B482	7/27/2018	14:18	SS		MM	187		H	H	H	x	H	H	H	H	
PDI-SG-B487	7/28/2018	9:31	SS		MT	8		H	H	H	x	H	H	H	H	
PDI-SG-B488	7/28/2018	10:32	SS		MT	8		H	H	H	x	H	H	H	H	
PDI-SG-B486	7/28/2018	11:29	SS		MT	8		H	H	H	x	H	H	H	H	
 580-79202 Chain of Custody																
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)																
Special Instructions/QC Requirements & Comments: Analyze samples for grain size ASAP. Hold (H) remaining analyses pending further instruction. Separate reports for each lab.																
Sample Disposal <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input checked="" type="checkbox"/> Archive For 12 Months																
Relinquished by: <i>[Signature]</i> Company: AECOM Date/Time: 7/30/18/1305 Received by: <i>[Signature]</i> Company: M.E Date/Time: 7-30-18/1305 Relinquished by: <i>[Signature]</i> Company: M.E Date/Time: 7-30-18/1340 Received by: <i>[Signature]</i> Company: TAPOR Date/Time: 7/30/18/1340 Relinquished by: <i>[Signature]</i> Company: TAPOR Date/Time: 7/30/18/1700 Received by: <i>[Signature]</i> Company: SRH TA Date/Time: 7/31/18/0930																

IKS = 1.4/1.4 w/c.s.

## Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-79202-1

Login Number: 79202

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	