

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

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TestAmerica Job ID: 580-79163-1

Client Project/Site: Portland Harbor Pre-Remedial Design  
Revision: 2

For:

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12/26/2018 12:53:17 PM

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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

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TestAmerica Job ID: 580-79163-1

**Job ID: 580-79163-1**

Laboratory: TestAmerica Seattle

Narrative

## CASE NARRATIVE

Client: AECOM

Project: Portland Harbor Pre-Remedial Design

Report Number: 580-79163-1

### **REVISION 2: DECEMBER 26, 2018**

This revision was required because PCB-1260 was integrated incorrectly for sample PDI-SC-S245-2to3.8 (580-79163-2). This sample has been properly integrated and the reports and EDD revised. Please note the additional PCB comments below in **BOLD** text.

### **REVISION 1: NOVEMBER 8, 2018**

This revision was required for the following: The 8270D SIM PAH data was missing the QC summary for batch 280319 and the Grain Size raw data was missing from the L4 report. In addition to these items, the PCB data was re-evaluated for the following samples for proper Aroclor identification: PDI-SC-S245-2to3.8 (580-79163-2), PDI-SC-S189-4to5.7 (580-79163-5), PDI-SC-S185-2to4 (580-79163-20), PDI-SC-S055-2to4 (580-79163-23), PDI-SC-S055-6to8 (580-79163-25), and PDI-SC-S024-0to2 (580-79163-26). Any narrative additions are indicated in bold type below.

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**

Thirty-five samples were received on 7/27/2018 2:35 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 0.7° C, 1.1° C, 1.2° C, 1.4° C, 1.8° C, 2.2° C and 4.2° 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.

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-S245-0to2 (580-79163-1), PDI-SC-S245-2to3.8 (580-79163-2), PDI-SC-S189-0to2 (580-79163-3), PDI-SC-S189-2to4 (580-79163-4), PDI-SC-S189-4to5.7 (580-79163-5), PDI-SC-S140-0to2 (580-79163-6), PDI-SC-S140-2to4 (580-79163-7), PDI-SC-S140-4to5.6 (580-79163-8), PDI-SC-S014-0to2 (580-79163-9), PDI-SC-S014-2to4 (580-79163-10), PDI-SC-S014-4to6 (580-79163-11), PDI-SC-S002-0to2 (580-79163-12), PDI-SC-S002-2to4 (580-79163-13), PDI-SC-S002-4to6.5 (580-79163-14), PDI-SC-S030-0to2 (580-79163-15), PDI-SC-S030-2to4 (580-79163-16), PDI-SC-S030-2to4D (580-79163-17), PDI-SC-S030-4to5.3 (580-79163-18), PDI-SC-S185-0to2 (580-79163-19), PDI-SC-S185-2to4 (580-79163-20), PDI-SC-S185-4to5.5 (580-79163-21), PDI-SC-S055-0to2 (580-79163-22), PDI-SC-S055-2to4 (580-79163-23), PDI-SC-S055-4to6 (580-79163-24), PDI-SC-S055-6to8 (580-79163-25), PDI-SC-S024-0to2 (580-79163-26), PDI-SC-S024-2to4 (580-79163-27), PDI-SC-S024-4to6 (580-79163-28),

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### Laboratory: TestAmerica Seattle (Continued)

**PDI-SC-S028-0to2 (580-79163-29), PDI-SC-S028-2to3.2 (580-79163-30), PDI-SC-S028-3.2to5.7 (580-79163-31) and PDI-SC-S028-3.2to5.7D (580-79163-32) were analyzed for semivolatile organic compounds - Selected Ion Mode (SIM) in accordance with SW846 8270D\_SIM.** The samples were prepared on 07/29/2018, 07/30/2018 and 08/07/2018 and analyzed on 08/01/2018, 08/02/2018, 08/03/2018 and 08/09/2018.

**Several analytes were detected in method blank MB 580-280319/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. This target analyte concentration was less than half the reporting limit (1/2RL) therefore, re-extraction and/or re-analysis of samples were not performed.**

**The method blank for preparation batch 580-280319 and analytical batch 580-280717 contained Phenanthrene above the reporting limit (RL).** The following samples were re-extracted and re-analyzed due to Phenanthrene hits in the MB of the original extraction. PDI-SC-S014-0to2 (580-79163-9), PDI-SC-S014-2to4 (580-79163-10), PDI-SC-S014-4to6 (580-79163-11), PDI-SC-S002-0to2 (580-79163-12) and PDI-SC-S002-2to4 (580-79163-13).

Several analytes were detected in method blank MB 580-280386/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and/or re-analysis of samples were not performed.

**The method blank for preparation batch 580-280386 contained 2-Methylnaphthalene and Naphthalene above the reporting limit (RL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed.** The following samples were re-extracted due to method blank contamination of 2-Methylnaphthalene and Naphthalene in the initial analysis. PDI-SC-S140-2to4 (580-79163-7), PDI-SC-S140-2to4 (580-79163-7[MS]) and PDI-SC-S140-2to4 (580-79163-7[MSD]).

Phenanthrene was detected in method blank MB 580-280419/1-A 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 were not performed.

2-Methylnaphthalene and Naphthalene were detected in method blank MB 580-281079/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

Naphthalene failed the recovery criteria low for the MS of sample PDI-SC-S140-2to4MS (580-79163-7) in batch 580-281217. The MSD and associated LCS recoveries met acceptance limits.

The continuing calibration verification (CCV) associated with batch 580-280719 recovered above the upper control limit for Indeno[1,2,3-cd]pyrene and Dibenz(a,h)anthracene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: PDI-RB-SS-180725 (580-79163-33), PDI-RB-SS-180726 (580-79163-34), PDI-RB-SS-180727 (580-79163-35), (CCVIS 580-280719/3), (LCS 580-280461/2-A), (LCS 580-280461/3-A) and (MB 580-280461/1-A).

The following samples were diluted due to the nature of the sample matrix or to bring the concentration of target analytes within the calibration range: PDI-SC-S245-0to2 (580-79163-1), PDI-SC-S245-2to3.8 (580-79163-2), PDI-SC-S189-0to2 (580-79163-3), PDI-SC-S189-2to4 (580-79163-4), PDI-SC-S189-4to5.7 (580-79163-5), PDI-SC-S140-0to2 (580-79163-6), PDI-SC-S140-4to5.6 (580-79163-8), PDI-SC-S014-0to2 (580-79163-9), PDI-SC-S014-2to4 (580-79163-10), PDI-SC-S014-4to6 (580-79163-11), PDI-SC-S002-0to2 (580-79163-12), PDI-SC-S002-2to4 (580-79163-13), PDI-SC-S002-4to6.5 (580-79163-14), PDI-SC-S002-4to6.5 (580-79163-14[MS]), PDI-SC-S002-4to6.5 (580-79163-14[MSD]), **PDI-SC-S030-0to2 (580-79163-15), PDI-SC-S030-2to4 (580-79163-16), PDI-SC-S030-2to4D (580-79163-17), PDI-SC-S030-4to5.3 (580-79163-18),** PDI-SC-S185-0to2 (580-79163-19), PDI-SC-S185-2to4 (580-79163-20), PDI-SC-S185-4to5.5 (580-79163-21), PDI-SC-S055-0to2 (580-79163-22), PDI-SC-S055-2to4 (580-79163-23), PDI-SC-S055-4to6 (580-79163-24), PDI-SC-S055-6to8 (580-79163-25), PDI-SC-S024-0to2 (580-79163-26), PDI-SC-S024-2to4 (580-79163-27), PDI-SC-S024-4to6 (580-79163-28), PDI-SC-S028-0to2 (580-79163-29), PDI-SC-S028-2to3.2 (580-79163-30),

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PDI-SC-S028-3.2to5.7 (580-79163-31) and PDI-SC-S028-3.2to5.7D (580-79163-32). 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) - RINSE BLANK**

**Samples PDI-RB-SS-180725 (580-79163-33), PDI-RB-SS-180726 (580-79163-34) and PDI-RB-SS-180727 (580-79163-35) were analyzed for semivolatile organic compounds - Selected Ion Mode (SIM) in accordance with 8270D SIM. The samples were prepared on 07/31/2018 and analyzed on 08/02/2018.**

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

### **POLYCHLORINATED BIPHENYLS (PCBS)**

**Samples PDI-SC-S245-0to2 (580-79163-1), PDI-SC-S245-2to3.8 (580-79163-2), PDI-SC-S189-0to2 (580-79163-3), PDI-SC-S189-2to4 (580-79163-4), PDI-SC-S189-4to5.7 (580-79163-5), PDI-SC-S140-0to2 (580-79163-6), PDI-SC-S140-2to4 (580-79163-7), PDI-SC-S140-4to5.6 (580-79163-8), PDI-SC-S014-0to2 (580-79163-9), PDI-SC-S014-2to4 (580-79163-10), PDI-SC-S014-4to6 (580-79163-11), PDI-SC-S002-0to2 (580-79163-12), PDI-SC-S002-2to4 (580-79163-13), PDI-SC-S002-4to6.5 (580-79163-14), PDI-SC-S030-0to2 (580-79163-15), PDI-SC-S030-2to4 (580-79163-16), PDI-SC-S030-2to4D (580-79163-17), PDI-SC-S030-4to5.3 (580-79163-18), PDI-SC-S185-0to2 (580-79163-19), PDI-SC-S185-2to4 (580-79163-20), PDI-SC-S185-4to5.5 (580-79163-21), PDI-SC-S055-0to2 (580-79163-22), PDI-SC-S055-2to4 (580-79163-23), PDI-SC-S055-4to6 (580-79163-24), PDI-SC-S055-6to8 (580-79163-25), PDI-SC-S024-0to2 (580-79163-26), PDI-SC-S024-2to4 (580-79163-27), PDI-SC-S024-4to6 (580-79163-28), PDI-SC-S028-0to2 (580-79163-29), PDI-SC-S028-2to3.2 (580-79163-30), PDI-SC-S028-3.2to5.7 (580-79163-31) and PDI-SC-S028-3.2to5.7D (580-79163-32) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA sw-846 method 8082A. The samples were prepared on 07/30/2018 and 07/31/2018 and analyzed on 08/04/2018 and 08/09/2018.**

Surrogate recovery for the following samples were outside control limits: PDI-SC-S245-0to2 (580-79163-1), PDI-SC-S245-2to3.8 (580-79163-2), PDI-SC-S189-0to2 (580-79163-3), PDI-SC-S189-2to4 (580-79163-4), PDI-SC-S189-4to5.7 (580-79163-5), PDI-SC-S140-0to2 (580-79163-6), PDI-SC-S140-2to4 (580-79163-7), PDI-SC-S140-2to4 (580-79163-7[MS]), PDI-SC-S140-2to4 (580-79163-7[MSD]), PDI-SC-S140-4to5.6 (580-79163-8), PDI-SC-S014-0to2 (580-79163-9), PDI-SC-S014-2to4 (580-79163-10), PDI-SC-S014-4to6 (580-79163-11), PDI-SC-S002-0to2 (580-79163-12), PDI-SC-S002-2to4 (580-79163-13), PDI-SC-S002-4to6.5 (580-79163-14), PDI-SC-S002-4to6.5 (580-79163-14[MS]), PDI-SC-S030-0to2 (580-79163-15), **PDI-SC-S030-2to4 (580-79163-16)**, PDI-SC-S030-2to4D (580-79163-17), PDI-SC-S030-4to5.3 (580-79163-18), PDI-SC-S185-0to2 (580-79163-19), PDI-SC-S185-2to4 (580-79163-20), PDI-SC-S185-4to5.5 (580-79163-21), PDI-SC-S055-0to2 (580-79163-22), PDI-SC-S055-2to4 (580-79163-23), PDI-SC-S055-4to6 (580-79163-24), PDI-SC-S055-6to8 (580-79163-25), PDI-SC-S024-0to2 (580-79163-26), PDI-SC-S024-2to4 (580-79163-27), PDI-SC-S024-4to6 (580-79163-28), PDI-SC-S028-0to2 (580-79163-29), PDI-SC-S028-2to3.2 (580-79163-30), PDI-SC-S028-3.2to5.7 (580-79163-31) and PDI-SC-S028-3.2to5.7D (580-79163-32). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis were not performed.

PCB-1016 failed the recovery criteria low for the MS of sample PDI-SC-S002-4to6.5MS (580-79163-14) in batch 580-280815. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

PCB-1016 failed the recovery criteria low for the MS of sample PDI-SC-S140-2to4MS (580-79163-7) in batch 580-280817. 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 580-280815 recovered low and outside the control limits for PCB-1248, PCB-1254, PCB-1016 and PCB-1260 on the confirmation column. Results are confirmed on both columns and reported from the passing column. The following samples are impacted: PDI-SC-S002-0to2 (580-79163-12), PDI-SC-S002-4to6.5 (580-79163-14), PDI-SC-S185-4to5.5 (580-79163-21), PDI-SC-S055-0to2 (580-79163-22), PDI-SC-S055-2to4 (580-79163-23), PDI-SC-S055-4to6 (580-79163-24), PDI-SC-S055-6to8 (580-79163-25), PDI-SC-S024-0to2 (580-79163-26), PDI-SC-S024-2to4 (580-79163-27), PDI-SC-S024-4to6 (580-79163-28), PDI-SC-S028-0to2 (580-79163-29), PDI-SC-S028-2to3.2 (580-79163-30), PDI-SC-S028-3.2to5.7 (580-79163-31), PDI-SC-S028-3.2to5.7D (580-79163-32), (CCV 580-280815/3), (CCV 580-280815/5) and (CCVIS 580-280815/6).

The continuing calibration verification (CCV) standard associated with batch 580-280815 recovered outside acceptance criteria for %D for surrogate DCB Decachlorobiphenyl. Since the %Rec is within the acceptance criteria for the surrogate in the CCV and associated

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samples, the data have been reported. The following sample is impacted: (CCVIS 580-280815/6).

The continuing calibration verification (CCV) associated with 580-280817 recovered low and outside the control limits for PCB-1248, PCB-1254, PCB-1016 and PCB-1260 on the confirmation column. Results are confirmed on both columns and reported from the passing column. The following samples are impacted: PDI-SC-S245-0to2 (580-79163-1), PDI-SC-S245-2to3.8 (580-79163-2), PDI-SC-S189-0to2 (580-79163-3), PDI-SC-S189-2to4 (580-79163-4), PDI-SC-S189-4to5.7 (580-79163-5), PDI-SC-S140-0to2 (580-79163-6), PDI-SC-S140-2to4 (580-79163-7), PDI-SC-S140-4to5.6 (580-79163-8), PDI-SC-S014-0to2 (580-79163-9), PDI-SC-S014-2to4 (580-79163-10), PDI-SC-S014-4to6 (580-79163-11), PDI-SC-S002-2to4 (580-79163-13), PDI-SC-S030-0to2 (580-79163-15), PDI-SC-S030-2to4 (580-79163-16), PDI-SC-S030-2to4D (580-79163-17), PDI-SC-S030-4to5.3 (580-79163-18), PDI-SC-S185-0to2 (580-79163-19), PDI-SC-S185-2to4 (580-79163-20), (CCV 580-280817/3), (CCV 580-280817/5) and (CCVIS 580-280817/6).

The continuing calibration verification (CCV) standard associated with batch 580-280817 recovered outside acceptance criteria for %D for surrogate DCB Decachlorobiphenyl on the confirmation column. Since the %Rec is within the acceptance criteria for the surrogate in the CCV and associated samples, the data have been reported. The following sample is impacted: (CCVIS 580-280817/6)

The continuing calibration verification (CCV) associated with 580-281264 recovered high and outside the control limits for PCB-1242 on one column. Results are confirmed on both columns and reported from the passing column. The following samples are impacted: PDI-SC-S245-0to2 (580-79163-1), PDI-SC-S030-2to4 (580-79163-16) and (CCV 580-281264/4).

The continuing calibration verification (CCV) associated with batch 580-281264 recovered above the upper control limit for PCB-1248 and PCB-1232. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: PDI-SC-S245-0to2 (580-79163-1), PDI-SC-S030-2to4 (580-79163-16), (CCV 580-281264/2) and (CCV 580-281264/3).

Internal standard (ISTD) response for the following sample exceeded the control limit on Column ZB-CLPesticides-2: (CCB 580-281264/7). As such, the sample results associated with this ISTD were reported from the other column, which met ISTD acceptance criteria.

The CCB failed for the surrogate. The CCV run before the CCB passes surrogate and all samples pass surrogate. After careful evaluation, the data is reported. (CCB 580-281264/7).

PCB-1260 Peak 2 has been removed from PDI-SC-S189-4to5.7 (580-79163-5) due to high bias. The SOP states only three peaks are needed to positively identify a PCB aroclor; therefore, the sample has been reported.

**The following samples had one or more peaks removed due to high or low bias towards the average: PDI-SC-S185-4to5.5 (580-79163-21), PDI-SC-S055-0to2 (580-79163-22), PDI-SC-S055-2to4 (580-79163-23), PDI-SC-S055-6to8 (580-79163-25) and PDI-SC-S024-0to2 (580-79163-26). The SOP states only three peaks are needed to positively identify a PCB aroclor, therefore the data has been reported.**

**The following sample(s) contained more than one Aroclor with insufficient separation to quantify individually. The PCBs present are quantified as the predominant Aroclor: PDI-SC-S245-2to3.8 (580-79163-2), PDI-SC-S189-2to4 (580-79163-4), PDI-SC-S189-4to5.7 (580-79163-5), PDI-SC-S185-2to4 (580-79163-20), PDI-SC-S185-4to5.5 (580-79163-21), PDI-SC-S055-0to2 (580-79163-22), PDI-SC-S055-2to4 (580-79163-23), PDI-SC-S055-6to8 (580-79163-25) and PDI-SC-S024-0to2 (580-79163-26).**

The %RPD between the primary and confirmation column / detector exceeded 40% for PCB-1254 for the following samples: PDI-SC-S189-0to2 (580-79163-3), PDI-SC-S185-0to2 (580-79163-19), PDI-SC-S024-2to4 (580-79163-27), PDI-SC-S024-4to6 (580-79163-28), PDI-SC-S028-0to2 (580-79163-29), PDI-SC-S028-2to3.2 (580-79163-30), PDI-SC-S028-3.2to5.7 (580-79163-31) and PDI-SC-S028-3.2to5.7D (580-79163-32). The higher values were reported in this case due to the low failing CCV on the column with the lower result.

The %RPD between the primary and confirmation column exceeded 40% for PCB-1260 for the following samples: PDI-SC-S245-2to3.8 (580-79163-2), PDI-SC-S189-2to4 (580-79163-4) and PDI-SC-S185-2to4 (580-79163-20). The primary column passes the CCV recovery; therefore the data has been reported from the passing column even though the passing column has the higher aroclor recoveries.

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The following sample appears to contain polychlorinated biphenyls (PCBs); however, due to weathering or other environmental processes, the PCBs in the sample do not closely match any of the laboratory's Aroclor standards used for instrument calibration: PDI-SC-S245-2to3.8 (580-79163-2). The sample(s) has been quantified and reported as Aroclor 1260. Due to the poor match with the Aroclor standard(s), there is increased qualitative and quantitative uncertainty associated with this result.

Samples PDI-SC-S245-0to2 (580-79163-1)[10X] and PDI-SC-S030-2to4 (580-79163-16)[10X] required dilution prior to analysis to bring the concentration of target analytes within the calibration range. The reporting limits have been adjusted accordingly.

The following samples required a copper clean-up to reduce matrix interferences caused by sulfur: DI-SC-S245-0to2 (580-79163-1) and PDI-SC-S030-2to4 (580-79163-16).

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

### POLYCHLORINATED BIPHENYLS (PCBS) - RINSE BLANK

Samples PDI-RB-SS-180725 (580-79163-33), PDI-RB-SS-180726 (580-79163-34) and PDI-RB-SS-180727 (580-79163-35) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA SW-846 Method 8082A. The samples were prepared on 07/31/2018 and analyzed on 08/03/2018.

Tetrachloro-m-xylene failed the surrogate recovery criteria low for PDI-RB-SS-180727 (580-79163-35). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis were not performed.

The continuing calibration verification (CCV) associated with 580-280814 recovered low and outside the control limits for PCB-1232, PCB-1248, PCB-1254, PCB-1016 and PCB-1260 on the confirmation column. Results are confirmed on both columns and reported from the passing column. The following samples are impacted: PDI-RB-SS-180725 (580-79163-33), PDI-RB-SS-180726 (580-79163-34), PDI-RB-SS-180727 (580-79163-35), (CCV 580-280814/3), (CCV 580-280814/4), (CCV 580-280814/5) and (CCVIS 580-280814/6).

The continuing calibration verification (CCV) standard associated with batch 580-280814 recovered outside acceptance criteria for %D for surrogate DCB Decachlorobiphenyl. Since the %Rec is within the acceptance criteria for the surrogate in the CCV and associated samples, the data have been reported. The following sample is impacted: (CCVIS 580-280814/6).

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

### TOTAL ORGANIC CARBON

Samples PDI-SC-S245-0to2 (580-79163-1), PDI-SC-S245-2to3.8 (580-79163-2), PDI-SC-S189-0to2 (580-79163-3), PDI-SC-S189-2to4 (580-79163-4), PDI-SC-S189-4to5.7 (580-79163-5), PDI-SC-S140-0to2 (580-79163-6), PDI-SC-S140-2to4 (580-79163-7), PDI-SC-S140-4to5.6 (580-79163-8), PDI-SC-S014-0to2 (580-79163-9), PDI-SC-S014-2to4 (580-79163-10), PDI-SC-S014-4to6 (580-79163-11), PDI-SC-S002-0to2 (580-79163-12), PDI-SC-S002-2to4 (580-79163-13), PDI-SC-S002-4to6.5 (580-79163-14), PDI-SC-S030-0to2 (580-79163-15), PDI-SC-S030-2to4 (580-79163-16), PDI-SC-S030-2to4D (580-79163-17), PDI-SC-S030-4to5.3 (580-79163-18), PDI-SC-S185-0to2 (580-79163-19), PDI-SC-S185-2to4 (580-79163-20), PDI-SC-S185-4to5.5 (580-79163-21), PDI-SC-S055-0to2 (580-79163-22), PDI-SC-S055-2to4 (580-79163-23), PDI-SC-S055-4to6 (580-79163-24), PDI-SC-S055-6to8 (580-79163-25), PDI-SC-S024-0to2 (580-79163-26), PDI-SC-S024-2to4 (580-79163-27), PDI-SC-S024-4to6 (580-79163-28), PDI-SC-S028-0to2 (580-79163-29), PDI-SC-S028-2to3.2 (580-79163-30), PDI-SC-S028-3.2to5.7 (580-79163-31) and PDI-SC-S028-3.2to5.7D (580-79163-32) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 08/03/2018 and 08/09/2018.

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

### TOTAL ORGANIC CARBON - RINSE BLANK

Samples PDI-RB-SS-180725 (580-79163-33), PDI-RB-SS-180726 (580-79163-34) and PDI-RB-SS-180727 (580-79163-35) were analyzed for total organic carbon in accordance with SM 5310B. The samples were analyzed on 08/01/2018.

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

### GRAIN SIZE

# Case Narrative

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

TestAmerica Job ID: 580-79163-1

## Job ID: 580-79163-1 (Continued)

### Laboratory: TestAmerica Seattle (Continued)

Samples PDI-SC-S245-0to2 (580-79163-1), PDI-SC-S245-2to3.8 (580-79163-2), PDI-SC-S189-0to2 (580-79163-3), PDI-SC-S189-2to4 (580-79163-4), PDI-SC-S189-4to5.7 (580-79163-5), PDI-SC-S140-0to2 (580-79163-6), PDI-SC-S140-2to4 (580-79163-7), PDI-SC-S140-4to5.6 (580-79163-8), PDI-SC-S014-0to2 (580-79163-9), PDI-SC-S014-2to4 (580-79163-10), PDI-SC-S014-4to6 (580-79163-11), PDI-SC-S002-0to2 (580-79163-12), PDI-SC-S002-2to4 (580-79163-13), PDI-SC-S002-4to6.5 (580-79163-14), PDI-SC-S030-0to2 (580-79163-15), PDI-SC-S030-2to4 (580-79163-16), PDI-SC-S030-4to5.3 (580-79163-18), PDI-SC-S185-0to2 (580-79163-19), PDI-SC-S185-2to4 (580-79163-20), PDI-SC-S185-4to5.5 (580-79163-21), PDI-SC-S055-0to2 (580-79163-22), PDI-SC-S055-2to4 (580-79163-23), PDI-SC-S055-4to6 (580-79163-24), PDI-SC-S055-6to8 (580-79163-25), PDI-SC-S024-0to2 (580-79163-26), PDI-SC-S024-2to4 (580-79163-27), PDI-SC-S024-4to6 (580-79163-28), PDI-SC-S028-0to2 (580-79163-29), PDI-SC-S028-2to3.2 (580-79163-30) and PDI-SC-S028-3.2to5.7 (580-79163-31) were analyzed for grain size in accordance with ASTM D7928/D6913. The samples were analyzed on 07/30/2018 and 07/31/2018.

Gravel and Silt exceeded the RPD limit for the duplicate of sample PDI-SC-S185-0to2DU (580-79163-19).

Coarse Sand and Gravel exceeded the RPD limit for the duplicate of sample PDI-SC-S245-0to2DU (580-79163-1).

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

### PERCENT SOLIDS

Samples PDI-SC-S245-0to2 (580-79163-1), PDI-SC-S245-2to3.8 (580-79163-2), PDI-SC-S189-0to2 (580-79163-3), PDI-SC-S189-2to4 (580-79163-4), PDI-SC-S189-4to5.7 (580-79163-5), PDI-SC-S140-0to2 (580-79163-6), PDI-SC-S140-2to4 (580-79163-7), PDI-SC-S140-4to5.6 (580-79163-8), PDI-SC-S014-0to2 (580-79163-9), PDI-SC-S014-2to4 (580-79163-10), PDI-SC-S014-4to6 (580-79163-11), PDI-SC-S002-0to2 (580-79163-12), PDI-SC-S002-2to4 (580-79163-13), PDI-SC-S002-4to6.5 (580-79163-14), PDI-SC-S030-0to2 (580-79163-15), PDI-SC-S030-2to4 (580-79163-16), PDI-SC-S030-2to4D (580-79163-17), PDI-SC-S030-4to5.3 (580-79163-18), PDI-SC-S185-0to2 (580-79163-19), PDI-SC-S185-2to4 (580-79163-20), PDI-SC-S185-4to5.5 (580-79163-21), PDI-SC-S055-0to2 (580-79163-22), PDI-SC-S055-2to4 (580-79163-23), PDI-SC-S055-4to6 (580-79163-24), PDI-SC-S055-6to8 (580-79163-25), PDI-SC-S024-0to2 (580-79163-26), PDI-SC-S024-2to4 (580-79163-27), PDI-SC-S024-4to6 (580-79163-28), PDI-SC-S028-0to2 (580-79163-29), PDI-SC-S028-2to3.2 (580-79163-30), PDI-SC-S028-3.2to5.7 (580-79163-31) and PDI-SC-S028-3.2to5.7D (580-79163-32) were analyzed for percent solids in accordance with ASTM D2216. The samples were analyzed on 07/31/2018.

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

### TOTAL SOLIDS @ 70C

Samples PDI-SC-S245-0to2 (580-79163-1), PDI-SC-S245-2to3.8 (580-79163-2), PDI-SC-S189-0to2 (580-79163-3), PDI-SC-S189-2to4 (580-79163-4), PDI-SC-S189-4to5.7 (580-79163-5), PDI-SC-S140-0to2 (580-79163-6), PDI-SC-S140-2to4 (580-79163-7), PDI-SC-S140-4to5.6 (580-79163-8), PDI-SC-S014-0to2 (580-79163-9), PDI-SC-S014-2to4 (580-79163-10), PDI-SC-S014-4to6 (580-79163-11), PDI-SC-S002-0to2 (580-79163-12), PDI-SC-S002-2to4 (580-79163-13), PDI-SC-S002-4to6.5 (580-79163-14), PDI-SC-S030-0to2 (580-79163-15), PDI-SC-S030-2to4 (580-79163-16), PDI-SC-S030-2to4D (580-79163-17), PDI-SC-S030-4to5.3 (580-79163-18), PDI-SC-S185-0to2 (580-79163-19), PDI-SC-S185-2to4 (580-79163-20), PDI-SC-S185-4to5.5 (580-79163-21), PDI-SC-S055-0to2 (580-79163-22), PDI-SC-S055-2to4 (580-79163-23), PDI-SC-S055-4to6 (580-79163-24), PDI-SC-S055-6to8 (580-79163-25), PDI-SC-S024-0to2 (580-79163-26), PDI-SC-S024-2to4 (580-79163-27), PDI-SC-S024-4to6 (580-79163-28), PDI-SC-S028-0to2 (580-79163-29), PDI-SC-S028-2to3.2 (580-79163-30), PDI-SC-S028-3.2to5.7 (580-79163-31) and PDI-SC-S028-3.2to5.7D (580-79163-32) were analyzed for Total Solids @ 70C. The samples were analyzed on 07/30/2018, 07/31/2018 and 08/03/2018.

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: 580-79163-1

## Qualifiers

### GC/MS Semi VOA

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.
F1	MS and/or MSD Recovery is outside acceptance limits.

### GC Semi VOA

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

### General Chemistry

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.

### Geotechnical

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

## 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: 580-79163-1

**Client Sample ID: PDI-SC-S245-0to2**

**Lab Sample ID: 580-79163-1**

Date Collected: 07/25/18 12:20

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 72.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	25	B	14	1.2	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Acenaphthene	150		14	1.6	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Acenaphthylene	25		14	1.4	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Anthracene	73	B	14	1.6	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Benzo[a]anthracene	220	B	14	2.1	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Benzo[a]pyrene	140	B	14	1.1	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Benzo[b]fluoranthene	240	B	14	1.6	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Benzo[g,h,i]perylene	110	B	14	1.4	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Benzo[k]fluoranthene	75	B	14	1.6	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Chrysene	250	B	14	4.1	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Dibenz(a,h)anthracene	21	B	14	2.0	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Fluoranthene	550	B	14	3.8	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Fluorene	92	B	14	1.4	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Indeno[1,2,3-cd]pyrene	100	B	14	1.6	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Naphthalene	82	B	14	2.2	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Phenanthrene	410	B	14	1.9	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10
Pyrene	510	B	14	2.6	ug/Kg	☼	07/30/18 11:32	08/01/18 15:35	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	80		57 - 120	07/30/18 11:32	08/01/18 15:35	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.7	0.46	ug/Kg	☼	07/30/18 09:38	08/04/18 09:07	1
PCB-1221	ND		2.7	1.3	ug/Kg	☼	07/30/18 09:38	08/04/18 09:07	1
PCB-1232	ND		2.7	0.63	ug/Kg	☼	07/30/18 09:38	08/04/18 09:07	1
PCB-1242	ND		2.7	0.66	ug/Kg	☼	07/30/18 09:38	08/04/18 09:07	1
PCB-1248	ND		2.7	0.22	ug/Kg	☼	07/30/18 09:38	08/04/18 09:07	1
PCB-1260	ND		2.7	0.46	ug/Kg	☼	07/30/18 09:38	08/04/18 09:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	59		54 - 142	07/30/18 09:38	08/04/18 09:07	1
Tetrachloro-m-xylene	56	X	58 - 122	07/30/18 09:38	08/04/18 09:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1254	230		27	11	ug/Kg	☼	07/30/18 09:38	08/09/18 22:54	10

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	5000		2000	44	mg/Kg			08/03/18 15:27	1
Total Solids	72.9		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	76		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	4.3				%			07/30/18 11:54	1
Coarse Sand	1.3				%			07/30/18 11:54	1
Medium Sand	23.3				%			07/30/18 11:54	1
Fine Sand	51.6				%			07/30/18 11:54	1
Silt	15.9				%			07/30/18 11:54	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S245-0to2**

**Lab Sample ID: 580-79163-1**

**Date Collected: 07/25/18 12:20**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 72.9**

**Method: D7928/D6913 - ASTM D7928/D6913 (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	3.6				%			07/30/18 11:54	1

1

2

3

4

5

6

7

8

9

10

11

12

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S245-2to3.8**

**Lab Sample ID: 580-79163-2**

Date Collected: 07/25/18 12:25

Matrix: Solid

Date Received: 07/27/18 14:35

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	170	B	45	4.1	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Acenaphthene	110		45	5.4	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Acenaphthylene	120		45	4.5	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Anthracene	85	B	45	5.4	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Benzo[a]anthracene	80	B	45	6.9	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Benzo[a]pyrene	64	B	45	3.6	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Benzo[b]fluoranthene	96	B	45	5.3	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Benzo[g,h,i]perylene	66	B	45	4.5	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Benzo[k]fluoranthene	32	J B	45	5.4	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Chrysene	140	B	45	14	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Dibenz(a,h)anthracene	8.3	J B	45	6.5	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Fluoranthene	350	B	45	13	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Fluorene	94	B	45	4.5	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Indeno[1,2,3-cd]pyrene	53	B	45	5.4	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Naphthalene	380	B	45	7.2	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Phenanthrene	450	B	45	6.2	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25
Pyrene	410	B	45	8.8	ug/Kg	☼	07/30/18 11:32	08/01/18 16:00	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	67		57 - 120	07/30/18 11:32	08/01/18 16:00	25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		3.6	0.61	ug/Kg	☼	07/30/18 09:38	08/04/18 09:25	1
PCB-1221	ND		3.6	1.7	ug/Kg	☼	07/30/18 09:38	08/04/18 09:25	1
PCB-1232	ND		3.6	0.84	ug/Kg	☼	07/30/18 09:38	08/04/18 09:25	1
PCB-1242	ND		3.6	0.88	ug/Kg	☼	07/30/18 09:38	08/04/18 09:25	1
PCB-1248	ND		3.6	0.29	ug/Kg	☼	07/30/18 09:38	08/04/18 09:25	1
PCB-1254	ND		3.6	1.4	ug/Kg	☼	07/30/18 09:38	08/04/18 09:25	1
PCB-1260	12		3.6	0.61	ug/Kg	☼	07/30/18 09:38	08/04/18 09:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	51	X	54 - 142	07/30/18 09:38	08/04/18 09:25	1
Tetrachloro-m-xylene	51	X	58 - 122	07/30/18 09:38	08/04/18 09:25	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	57000		2000	44	mg/Kg			08/03/18 15:38	1
Total Solids	55.2		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	58		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.7				%			07/30/18 11:54	1
Coarse Sand	0.3				%			07/30/18 11:54	1
Medium Sand	1.1				%			07/30/18 11:54	1
Fine Sand	11.4				%			07/30/18 11:54	1
Silt	75.4				%			07/30/18 11:54	1
Clay	11.2				%			07/30/18 11:54	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S189-0to2**

**Lab Sample ID: 580-79163-3**

Date Collected: 07/25/18 11:00

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 65.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	86	B	15	1.3	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Acenaphthene	98		15	1.8	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Acenaphthylene	49		15	1.5	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Anthracene	72	B	15	1.8	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Benzo[a]anthracene	180	B	15	2.2	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Benzo[a]pyrene	73	B	15	1.2	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Benzo[b]fluoranthene	130	B	15	1.7	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Benzo[g,h,i]perylene	54	B	15	1.5	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Benzo[k]fluoranthene	40	B	15	1.8	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Chrysene	180	B	15	4.4	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Dibenz(a,h)anthracene	9.0	J B	15	2.1	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Fluoranthene	430	B	15	4.1	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Fluorene	57	B	15	1.5	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Indeno[1,2,3-cd]pyrene	46	B	15	1.8	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Naphthalene	240	B	15	2.4	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Phenanthrene	380	B	15	2.0	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10
Pyrene	470	B	15	2.9	ug/Kg	☼	07/30/18 11:32	08/01/18 16:26	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	70		57 - 120	07/30/18 11:32	08/01/18 16:26	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	39		2.9	0.50	ug/Kg	☼	07/30/18 09:38	08/04/18 09:43	1
PCB-1221	ND		2.9	1.4	ug/Kg	☼	07/30/18 09:38	08/04/18 09:43	1
PCB-1232	ND		2.9	0.69	ug/Kg	☼	07/30/18 09:38	08/04/18 09:43	1
PCB-1242	ND		2.9	0.72	ug/Kg	☼	07/30/18 09:38	08/04/18 09:43	1
PCB-1248	ND		2.9	0.24	ug/Kg	☼	07/30/18 09:38	08/04/18 09:43	1
PCB-1254	30		2.9	1.2	ug/Kg	☼	07/30/18 09:38	08/04/18 09:43	1
PCB-1260	ND		2.9	0.50	ug/Kg	☼	07/30/18 09:38	08/04/18 09:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	47	X	54 - 142	07/30/18 09:38	08/04/18 09:43	1
Tetrachloro-m-xylene	50	X	58 - 122	07/30/18 09:38	08/04/18 09:43	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	8200		2000	44	mg/Kg			08/03/18 15:44	1
Total Solids	65.9		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	71		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	4.4				%			07/30/18 11:54	1
Coarse Sand	0.6				%			07/30/18 11:54	1
Medium Sand	1.9				%			07/30/18 11:54	1
Fine Sand	61.9				%			07/30/18 11:54	1
Silt	27.6				%			07/30/18 11:54	1
Clay	3.7				%			07/30/18 11:54	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S189-2to4**

**Lab Sample ID: 580-79163-4**

Date Collected: 07/25/18 11:05

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 68.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	42	B	7.1	0.64	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Acenaphthene	59		7.1	0.85	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Acenaphthylene	26		7.1	0.71	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Anthracene	47	B	7.1	0.85	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Benzo[a]anthracene	76	B	7.1	1.1	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Benzo[a]pyrene	49	B	7.1	0.57	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Benzo[b]fluoranthene	67	B	7.1	0.84	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Benzo[g,h,i]perylene	46	B	7.1	0.71	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Benzo[k]fluoranthene	20	B	7.1	0.85	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Chrysene	74	B	7.1	2.1	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Dibenz(a,h)anthracene	4.9	J B	7.1	1.0	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Fluoranthene	200	B	7.1	2.0	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Fluorene	40	B	7.1	0.71	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Indeno[1,2,3-cd]pyrene	34	B	7.1	0.85	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Naphthalene	120	B	7.1	1.1	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Phenanthrene	220	B	7.1	0.98	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5
Pyrene	220	B	7.1	1.4	ug/Kg	☼	07/30/18 11:32	08/01/18 16:52	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	62		57 - 120	07/30/18 11:32	08/01/18 16:52	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.9	0.48	ug/Kg	☼	07/30/18 09:38	08/04/18 10:00	1
PCB-1221	ND		2.9	1.4	ug/Kg	☼	07/30/18 09:38	08/04/18 10:00	1
PCB-1232	ND		2.9	0.67	ug/Kg	☼	07/30/18 09:38	08/04/18 10:00	1
PCB-1242	ND		2.9	0.70	ug/Kg	☼	07/30/18 09:38	08/04/18 10:00	1
PCB-1248	ND		2.9	0.23	ug/Kg	☼	07/30/18 09:38	08/04/18 10:00	1
PCB-1254	ND		2.9	1.1	ug/Kg	☼	07/30/18 09:38	08/04/18 10:00	1
PCB-1260	3.7		2.9	0.48	ug/Kg	☼	07/30/18 09:38	08/04/18 10:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	48	X	54 - 142	07/30/18 09:38	08/04/18 10:00	1
Tetrachloro-m-xylene	51	X	58 - 122	07/30/18 09:38	08/04/18 10:00	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	4200		2000	44	mg/Kg			08/03/18 15:49	1
Total Solids	68.2		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	72		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/30/18 11:54	1
Coarse Sand	0.4				%			07/30/18 11:54	1
Medium Sand	0.5				%			07/30/18 11:54	1
Fine Sand	76.9				%			07/30/18 11:54	1
Silt	21.2				%			07/30/18 11:54	1
Clay	1.0				%			07/30/18 11:54	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S189-4to5.7**

**Lab Sample ID: 580-79163-5**

Date Collected: 07/25/18 11:10

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 69.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	47	B	14	1.3	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Acenaphthene	38		14	1.7	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Acenaphthylene	36		14	1.4	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Anthracene	44	B	14	1.7	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Benzo[a]anthracene	70	B	14	2.2	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Benzo[a]pyrene	55	B	14	1.1	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Benzo[b]fluoranthene	67	B	14	1.7	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Benzo[g,h,i]perylene	55	B	14	1.4	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Benzo[k]fluoranthene	22	B	14	1.7	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Chrysene	78	B	14	4.3	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Dibenz(a,h)anthracene	6.0	J B	14	2.1	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Fluoranthene	200	B	14	4.0	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Fluorene	31	B	14	1.4	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Indeno[1,2,3-cd]pyrene	39	B	14	1.7	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Naphthalene	120	B	14	2.3	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Phenanthrene	210	B	14	2.0	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10
Pyrene	260	B	14	2.8	ug/Kg	☼	07/30/18 11:32	08/01/18 17:18	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	85		57 - 120	07/30/18 11:32	08/01/18 17:18	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.8	0.48	ug/Kg	☼	07/30/18 09:38	08/04/18 10:18	1
PCB-1221	ND		2.8	1.3	ug/Kg	☼	07/30/18 09:38	08/04/18 10:18	1
PCB-1232	ND		2.8	0.67	ug/Kg	☼	07/30/18 09:38	08/04/18 10:18	1
PCB-1242	ND		2.8	0.69	ug/Kg	☼	07/30/18 09:38	08/04/18 10:18	1
PCB-1248	ND		2.8	0.23	ug/Kg	☼	07/30/18 09:38	08/04/18 10:18	1
PCB-1254	ND		2.8	1.1	ug/Kg	☼	07/30/18 09:38	08/04/18 10:18	1
PCB-1260	2.4	J	2.8	0.48	ug/Kg	☼	07/30/18 09:38	08/04/18 10:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	50	X	54 - 142	07/30/18 09:38	08/04/18 10:18	1
Tetrachloro-m-xylene	52	X	58 - 122	07/30/18 09:38	08/04/18 10:18	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	6900		2000	44	mg/Kg			08/03/18 15:54	1
Total Solids	69.0		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	71		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/30/18 11:54	1
Coarse Sand	0.0				%			07/30/18 11:54	1
Medium Sand	1.3				%			07/30/18 11:54	1
Fine Sand	58.2				%			07/30/18 11:54	1
Silt	36.7				%			07/30/18 11:54	1
Clay	3.8				%			07/30/18 11:54	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S140-0to2**

**Lab Sample ID: 580-79163-6**

Date Collected: 07/25/18 10:10

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 66.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		7.2	0.65	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
Acenaphthene	ND		7.2	0.87	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
<b>Acenaphthylene</b>	<b>4.7</b>	<b>J</b>	7.2	0.72	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
<b>Anthracene</b>	<b>1.6</b>	<b>J B</b>	7.2	0.87	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
<b>Benzo[a]anthracene</b>	<b>9.6</b>	<b>B</b>	7.2	1.1	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
<b>Benzo[a]pyrene</b>	<b>12</b>	<b>B</b>	7.2	0.58	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
<b>Benzo[b]fluoranthene</b>	<b>25</b>	<b>B</b>	7.2	0.86	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
<b>Benzo[g,h,i]perylene</b>	<b>21</b>	<b>B</b>	7.2	0.72	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
<b>Benzo[k]fluoranthene</b>	<b>8.7</b>	<b>B</b>	7.2	0.87	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
<b>Chrysene</b>	<b>25</b>	<b>B</b>	7.2	2.2	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
<b>Dibenz(a,h)anthracene</b>	<b>3.0</b>	<b>J B</b>	7.2	1.0	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
<b>Fluoranthene</b>	<b>18</b>	<b>B</b>	7.2	2.0	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
Fluorene	ND		7.2	0.72	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
<b>Indeno[1,2,3-cd]pyrene</b>	<b>18</b>	<b>B</b>	7.2	0.87	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
<b>Naphthalene</b>	<b>1.9</b>	<b>J B</b>	7.2	1.2	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
<b>Phenanthrene</b>	<b>5.1</b>	<b>J B</b>	7.2	1.0	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5
<b>Pyrene</b>	<b>19</b>	<b>B</b>	7.2	1.4	ug/Kg	☼	07/30/18 11:32	08/01/18 17:43	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	85		57 - 120	07/30/18 11:32	08/01/18 17:43	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		3.0	0.50	ug/Kg	☼	07/30/18 09:38	08/04/18 10:36	1
PCB-1221	ND		3.0	1.4	ug/Kg	☼	07/30/18 09:38	08/04/18 10:36	1
PCB-1232	ND		3.0	0.69	ug/Kg	☼	07/30/18 09:38	08/04/18 10:36	1
PCB-1242	ND		3.0	0.72	ug/Kg	☼	07/30/18 09:38	08/04/18 10:36	1
PCB-1248	ND		3.0	0.24	ug/Kg	☼	07/30/18 09:38	08/04/18 10:36	1
PCB-1254	ND		3.0	1.2	ug/Kg	☼	07/30/18 09:38	08/04/18 10:36	1
PCB-1260	ND		3.0	0.50	ug/Kg	☼	07/30/18 09:38	08/04/18 10:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	85		54 - 142	07/30/18 09:38	08/04/18 10:36	1
Tetrachloro-m-xylene	42	X	58 - 122	07/30/18 09:38	08/04/18 10:36	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>400</b>	<b>J</b>	2000	44	mg/Kg			08/03/18 15:58	1
<b>Total Solids</b>	<b>66.7</b>		0.1	0.1	%			07/31/18 09:39	1
<b>Total Solids @ 70°C</b>	<b>69</b>		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Gravel</b>	<b>0.0</b>				%			07/30/18 11:54	1
<b>Coarse Sand</b>	<b>0.0</b>				%			07/30/18 11:54	1
<b>Medium Sand</b>	<b>18.6</b>				%			07/30/18 11:54	1
<b>Fine Sand</b>	<b>68.6</b>				%			07/30/18 11:54	1
<b>Silt</b>	<b>10.0</b>				%			07/30/18 11:54	1
<b>Clay</b>	<b>2.9</b>				%			07/30/18 11:54	1

TestAmerica Seattle



# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S140-2to4**

**Lab Sample ID: 580-79163-7**

Date Collected: 07/25/18 10:05

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 69.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.51	J	1.4	0.17	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1
Acenaphthylene	1.5		1.4	0.14	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1
Anthracene	1.4	B	1.4	0.17	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1
Benzo[a]anthracene	7.5	B	1.4	0.21	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1
Benzo[a]pyrene	6.8	B	1.4	0.11	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1
Benzo[b]fluoranthene	10	B	1.4	0.17	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1
Benzo[g,h,i]perylene	7.9	B	1.4	0.14	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1
Benzo[k]fluoranthene	4.0	B	1.4	0.17	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1
Chrysene	11	B	1.4	0.42	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1
Dibenz(a,h)anthracene	0.93	J B	1.4	0.20	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1
Fluoranthene	16	B	1.4	0.39	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1
Fluorene	0.61	J B	1.4	0.14	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1
Indeno[1,2,3-cd]pyrene	6.2	B	1.4	0.17	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1
Phenanthrene	6.1	B	1.4	0.19	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1
Pyrene	19	B	1.4	0.27	ug/Kg	☼	07/30/18 11:32	08/01/18 13:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	78		57 - 120	07/30/18 11:32	08/01/18 13:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	24	B	1.4	0.13	ug/Kg	☼	08/07/18 16:51	08/09/18 11:42	1
Naphthalene	35	B F1	1.4	0.23	ug/Kg	☼	08/07/18 16:51	08/09/18 11:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	90		57 - 120	08/07/18 16:51	08/09/18 11:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND	F1	2.8	0.48	ug/Kg	☼	07/30/18 09:38	08/04/18 10:53	1
PCB-1221	ND		2.8	1.3	ug/Kg	☼	07/30/18 09:38	08/04/18 10:53	1
PCB-1232	ND		2.8	0.66	ug/Kg	☼	07/30/18 09:38	08/04/18 10:53	1
PCB-1242	ND		2.8	0.69	ug/Kg	☼	07/30/18 09:38	08/04/18 10:53	1
PCB-1248	ND		2.8	0.23	ug/Kg	☼	07/30/18 09:38	08/04/18 10:53	1
PCB-1254	ND		2.8	1.1	ug/Kg	☼	07/30/18 09:38	08/04/18 10:53	1
PCB-1260	ND		2.8	0.48	ug/Kg	☼	07/30/18 09:38	08/04/18 10:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	62		54 - 142	07/30/18 09:38	08/04/18 10:53	1
Tetrachloro-m-xylene	36	X	58 - 122	07/30/18 09:38	08/04/18 10:53	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	58	J	2000	44	mg/Kg			08/03/18 13:31	1
Total Solids	69.4		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	73		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/30/18 11:54	1
Coarse Sand	0.0				%			07/30/18 11:54	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S140-2to4**

**Lab Sample ID: 580-79163-7**

**Date Collected: 07/25/18 10:05**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 69.4**

**Method: D7928/D6913 - ASTM D7928/D6913 (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Medium Sand	6.0				%			07/30/18 11:54	1
Fine Sand	87.2				%			07/30/18 11:54	1
Silt	4.8				%			07/30/18 11:54	1
Clay	1.9				%			07/30/18 11:54	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S140-4to5.6**

**Lab Sample ID: 580-79163-8**

Date Collected: 07/25/18 10:10

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 67.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	15	B	14	1.3	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Acenaphthene	9.4	J B	14	1.7	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Acenaphthylene	33	B	14	1.4	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Anthracene	33	B	14	1.7	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Benzo[a]anthracene	75		14	2.1	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Benzo[a]pyrene	91		14	1.1	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Benzo[b]fluoranthene	110		14	1.6	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Benzo[g,h,i]perylene	110		14	1.4	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Benzo[k]fluoranthene	36		14	1.7	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Chrysene	100		14	4.2	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Dibenz(a,h)anthracene	8.9	J	14	2.0	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Fluoranthene	200	B	14	3.9	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Fluorene	11	J B	14	1.4	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Indeno[1,2,3-cd]pyrene	100		14	1.7	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Naphthalene	89	B	14	2.2	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Phenanthrene	150	B	14	1.9	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10
Pyrene	270	B	14	2.7	ug/Kg	☼	07/29/18 10:35	08/02/18 21:01	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	81		57 - 120	07/29/18 10:35	08/02/18 21:01	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.9	0.49	ug/Kg	☼	07/30/18 09:38	08/04/18 11:46	1
PCB-1221	ND		2.9	1.4	ug/Kg	☼	07/30/18 09:38	08/04/18 11:46	1
PCB-1232	ND		2.9	0.68	ug/Kg	☼	07/30/18 09:38	08/04/18 11:46	1
PCB-1242	ND		2.9	0.71	ug/Kg	☼	07/30/18 09:38	08/04/18 11:46	1
PCB-1248	ND		2.9	0.23	ug/Kg	☼	07/30/18 09:38	08/04/18 11:46	1
PCB-1254	ND		2.9	1.1	ug/Kg	☼	07/30/18 09:38	08/04/18 11:46	1
PCB-1260	ND		2.9	0.49	ug/Kg	☼	07/30/18 09:38	08/04/18 11:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	46	X	54 - 142	07/30/18 09:38	08/04/18 11:46	1
Tetrachloro-m-xylene	47	X	58 - 122	07/30/18 09:38	08/04/18 11:46	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	3900		2000	44	mg/Kg			08/03/18 16:04	1
Total Solids	67.1		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	69		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/30/18 11:54	1
Coarse Sand	0.1				%			07/30/18 11:54	1
Medium Sand	1.1				%			07/30/18 11:54	1
Fine Sand	30.8				%			07/30/18 11:54	1
Silt	62.9				%			07/30/18 11:54	1
Clay	5.2				%			07/30/18 11:54	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S014-0to2**

**Lab Sample ID: 580-79163-9**

Date Collected: 07/26/18 09:25

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 75.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>2-Methylnaphthalene</b>	<b>0.67</b>	<b>J B</b>	6.5	0.58	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
Acenaphthene	ND		6.5	0.78	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
<b>Acenaphthylene</b>	<b>1.9</b>	<b>J B</b>	6.5	0.65	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
<b>Anthracene</b>	<b>0.85</b>	<b>J B</b>	6.5	0.78	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
<b>Benzo[a]anthracene</b>	<b>2.4</b>	<b>J</b>	6.5	0.99	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
Benzo[a]pyrene	ND		6.5	0.52	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
<b>Benzo[b]fluoranthene</b>	<b>1.8</b>	<b>J</b>	6.5	0.77	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
<b>Benzo[g,h,i]perylene</b>	<b>0.69</b>	<b>J</b>	6.5	0.65	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
Benzo[k]fluoranthene	ND		6.5	0.78	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
<b>Chrysene</b>	<b>2.0</b>	<b>J</b>	6.5	1.9	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
Dibenz(a,h)anthracene	ND		6.5	0.94	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
<b>Fluoranthene</b>	<b>4.0</b>	<b>J B</b>	6.5	1.8	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
<b>Fluorene</b>	<b>1.2</b>	<b>J B</b>	6.5	0.65	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
<b>Indeno[1,2,3-cd]pyrene</b>	<b>1.6</b>	<b>J</b>	6.5	0.78	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
<b>Naphthalene</b>	<b>1.7</b>	<b>J B</b>	6.5	1.0	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5
<b>Pyrene</b>	<b>4.5</b>	<b>J B</b>	6.5	1.3	ug/Kg	☼	07/29/18 10:35	08/02/18 21:27	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	81		57 - 120	07/29/18 10:35	08/02/18 21:27	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Phenanthrene</b>	<b>3.3</b>	<b>J B</b>	6.5	0.89	ug/Kg	☼	07/30/18 11:32	08/01/18 18:35	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	86		57 - 120	07/30/18 11:32	08/01/18 18:35	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.6	0.44	ug/Kg	☼	07/30/18 09:38	08/04/18 12:04	1
PCB-1221	ND		2.6	1.2	ug/Kg	☼	07/30/18 09:38	08/04/18 12:04	1
PCB-1232	ND		2.6	0.61	ug/Kg	☼	07/30/18 09:38	08/04/18 12:04	1
PCB-1242	ND		2.6	0.64	ug/Kg	☼	07/30/18 09:38	08/04/18 12:04	1
PCB-1248	ND		2.6	0.21	ug/Kg	☼	07/30/18 09:38	08/04/18 12:04	1
PCB-1254	ND		2.6	1.0	ug/Kg	☼	07/30/18 09:38	08/04/18 12:04	1
PCB-1260	ND		2.6	0.44	ug/Kg	☼	07/30/18 09:38	08/04/18 12:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	54		54 - 142	07/30/18 09:38	08/04/18 12:04	1
Tetrachloro-m-xylene	51	X	58 - 122	07/30/18 09:38	08/04/18 12:04	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>6000</b>		2000	44	mg/Kg			08/03/18 16:08	1
<b>Total Solids</b>	<b>75.4</b>		0.1	0.1	%			07/31/18 09:39	1
<b>Total Solids @ 70°C</b>	<b>72</b>		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Gravel</b>	<b>2.5</b>				%			07/30/18 11:54	1
<b>Coarse Sand</b>	<b>0.4</b>				%			07/30/18 11:54	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S014-0to2**

**Lab Sample ID: 580-79163-9**

**Date Collected: 07/26/18 09:25**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 75.4**

**Method: D7928/D6913 - ASTM D7928/D6913 (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Medium Sand	1.6				%			07/30/18 11:54	1
Fine Sand	60.0				%			07/30/18 11:54	1
Silt	27.5				%			07/30/18 11:54	1
Clay	8.0				%			07/30/18 11:54	1

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S014-2to4**

**Lab Sample ID: 580-79163-10**

**Date Collected: 07/26/18 09:30**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 71.6**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>2-Methylnaphthalene</b>	<b>1.2</b>	<b>J B</b>	6.8	0.62	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
Acenaphthene	ND		6.8	0.82	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
Acenaphthylene	ND		6.8	0.68	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
Anthracene	ND		6.8	0.82	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
Benzo[a]anthracene	ND		6.8	1.0	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
Benzo[a]pyrene	ND		6.8	0.55	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
<b>Benzo[b]fluoranthene</b>	<b>0.98</b>	<b>J</b>	6.8	0.81	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
Benzo[g,h,i]perylene	ND		6.8	0.68	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
Benzo[k]fluoranthene	ND		6.8	0.82	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
Chrysene	ND		6.8	2.1	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
Dibenz(a,h)anthracene	ND		6.8	0.98	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
Fluoranthene	ND		6.8	1.9	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
<b>Fluorene</b>	<b>1.2</b>	<b>J B</b>	6.8	0.68	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
Indeno[1,2,3-cd]pyrene	ND		6.8	0.82	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
<b>Naphthalene</b>	<b>2.2</b>	<b>J B</b>	6.8	1.1	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5
<b>Pyrene</b>	<b>1.6</b>	<b>J B</b>	6.8	1.3	ug/Kg	☼	07/29/18 10:35	08/02/18 21:53	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	85		57 - 120	07/29/18 10:35	08/02/18 21:53	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Phenanthrene</b>	<b>4.0</b>	<b>J B</b>	6.8	0.94	ug/Kg	☼	07/30/18 11:32	08/01/18 19:01	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	86		57 - 120	07/30/18 11:32	08/01/18 19:01	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.7	0.45	ug/Kg	☼	07/30/18 09:38	08/04/18 12:22	1
PCB-1221	ND		2.7	1.3	ug/Kg	☼	07/30/18 09:38	08/04/18 12:22	1
PCB-1232	ND		2.7	0.62	ug/Kg	☼	07/30/18 09:38	08/04/18 12:22	1
PCB-1242	ND		2.7	0.65	ug/Kg	☼	07/30/18 09:38	08/04/18 12:22	1
PCB-1248	ND		2.7	0.21	ug/Kg	☼	07/30/18 09:38	08/04/18 12:22	1
PCB-1254	ND		2.7	1.1	ug/Kg	☼	07/30/18 09:38	08/04/18 12:22	1
PCB-1260	ND		2.7	0.45	ug/Kg	☼	07/30/18 09:38	08/04/18 12:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	61		54 - 142	07/30/18 09:38	08/04/18 12:22	1
Tetrachloro-m-xylene	39	X	58 - 122	07/30/18 09:38	08/04/18 12:22	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>6300</b>		2000	44	mg/Kg			08/03/18 16:13	1
<b>Total Solids</b>	<b>71.6</b>		0.1	0.1	%			07/31/18 09:39	1
<b>Total Solids @ 70°C</b>	<b>73</b>		0.10	0.10	%			07/30/18 15:48	1

**Method: D7928/D6913 - ASTM D7928/D6913**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Gravel</b>	<b>0.0</b>				%			07/30/18 11:54	1
<b>Coarse Sand</b>	<b>0.0</b>				%			07/30/18 11:54	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S014-2to4**

**Lab Sample ID: 580-79163-10**

**Date Collected: 07/26/18 09:30**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 71.6**

**Method: D7928/D6913 - ASTM D7928/D6913 (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Medium Sand	0.1				%			07/30/18 11:54	1
Fine Sand	51.8				%			07/30/18 11:54	1
Silt	40.6				%			07/30/18 11:54	1
Clay	7.5				%			07/30/18 11:54	1

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# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S014-4to6**

**Lab Sample ID: 580-79163-11**

**Date Collected: 07/26/18 09:35**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 71.2**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>2-Methylnaphthalene</b>	<b>0.93</b>	<b>J B</b>	6.8	0.61	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
Acenaphthene	ND		6.8	0.82	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
Acenaphthylene	ND		6.8	0.68	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
Anthracene	ND		6.8	0.82	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
Benzo[a]anthracene	ND		6.8	1.0	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
Benzo[a]pyrene	ND		6.8	0.55	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
Benzo[b]fluoranthene	ND		6.8	0.81	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
Benzo[g,h,i]perylene	ND		6.8	0.68	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
Benzo[k]fluoranthene	ND		6.8	0.82	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
Chrysene	ND		6.8	2.0	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
Dibenz(a,h)anthracene	ND		6.8	0.98	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
Fluoranthene	ND		6.8	1.9	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
<b>Fluorene</b>	<b>1.2</b>	<b>J B</b>	6.8	0.68	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
Indeno[1,2,3-cd]pyrene	ND		6.8	0.82	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
<b>Naphthalene</b>	<b>2.2</b>	<b>J B</b>	6.8	1.1	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5
Pyrene	ND		6.8	1.3	ug/Kg	☼	07/29/18 10:35	08/02/18 22:18	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	73		57 - 120	07/29/18 10:35	08/02/18 22:18	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Phenanthrene</b>	<b>3.0</b>	<b>J B</b>	6.9	0.95	ug/Kg	☼	07/30/18 11:32	08/01/18 19:26	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	82		57 - 120	07/30/18 11:32	08/01/18 19:26	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.7	0.46	ug/Kg	☼	07/30/18 09:38	08/04/18 12:40	1
PCB-1221	ND		2.7	1.3	ug/Kg	☼	07/30/18 09:38	08/04/18 12:40	1
PCB-1232	ND		2.7	0.64	ug/Kg	☼	07/30/18 09:38	08/04/18 12:40	1
PCB-1242	ND		2.7	0.67	ug/Kg	☼	07/30/18 09:38	08/04/18 12:40	1
PCB-1248	ND		2.7	0.22	ug/Kg	☼	07/30/18 09:38	08/04/18 12:40	1
PCB-1254	ND		2.7	1.1	ug/Kg	☼	07/30/18 09:38	08/04/18 12:40	1
PCB-1260	ND		2.7	0.46	ug/Kg	☼	07/30/18 09:38	08/04/18 12:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	54		54 - 142	07/30/18 09:38	08/04/18 12:40	1
Tetrachloro-m-xylene	43	X	58 - 122	07/30/18 09:38	08/04/18 12:40	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>6900</b>		2000	44	mg/Kg			08/03/18 16:18	1
<b>Total Solids</b>	<b>71.2</b>		0.1	0.1	%			07/31/18 09:39	1
<b>Total Solids @ 70°C</b>	<b>73</b>		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Gravel</b>	<b>0.0</b>				%			07/30/18 11:54	1
<b>Coarse Sand</b>	<b>0.0</b>				%			07/30/18 11:54	1

TestAmerica Seattle



# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S014-4to6**

**Lab Sample ID: 580-79163-11**

**Date Collected: 07/26/18 09:35**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 71.2**

**Method: D7928/D6913 - ASTM D7928/D6913 (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Medium Sand	0.0				%			07/30/18 11:54	1
Fine Sand	50.0				%			07/30/18 11:54	1
Silt	42.4				%			07/30/18 11:54	1
Clay	7.6				%			07/30/18 11:54	1

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S002-0to2**

**Lab Sample ID: 580-79163-12**

Date Collected: 07/26/18 10:30

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 65.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	1.3	J B	4.2	0.38	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Acenaphthene	1.2	J B	4.2	0.51	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Acenaphthylene	ND		4.2	0.42	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Anthracene	1.4	J B	4.2	0.51	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Benzo[a]anthracene	0.86	J	4.2	0.64	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Benzo[a]pyrene	ND		4.2	0.34	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Benzo[b]fluoranthene	1.1	J	4.2	0.50	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Benzo[g,h,i]perylene	0.76	J	4.2	0.42	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Benzo[k]fluoranthene	ND		4.2	0.51	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Chrysene	ND		4.2	1.3	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Dibenz(a,h)anthracene	ND		4.2	0.61	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Fluoranthene	2.6	J B	4.2	1.2	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Fluorene	1.4	J B	4.2	0.42	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Indeno[1,2,3-cd]pyrene	ND		4.2	0.51	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Naphthalene	2.0	J B	4.2	0.68	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3
Pyrene	3.2	J B	4.2	0.82	ug/Kg	☼	07/29/18 10:35	08/02/18 22:44	3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	96		57 - 120	07/29/18 10:35	08/02/18 22:44	3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	2.9	J B	7.4	1.0	ug/Kg	☼	07/30/18 11:32	08/01/18 19:52	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	80		57 - 120	07/30/18 11:32	08/01/18 19:52	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		3.0	0.52	ug/Kg	☼	07/31/18 09:55	08/04/18 02:22	1
PCB-1221	ND		3.0	1.4	ug/Kg	☼	07/31/18 09:55	08/04/18 02:22	1
PCB-1232	ND		3.0	0.71	ug/Kg	☼	07/31/18 09:55	08/04/18 02:22	1
PCB-1242	ND		3.0	0.74	ug/Kg	☼	07/31/18 09:55	08/04/18 02:22	1
PCB-1248	ND		3.0	0.24	ug/Kg	☼	07/31/18 09:55	08/04/18 02:22	1
PCB-1254	ND		3.0	1.2	ug/Kg	☼	07/31/18 09:55	08/04/18 02:22	1
PCB-1260	ND		3.0	0.52	ug/Kg	☼	07/31/18 09:55	08/04/18 02:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	49	X	54 - 142	07/31/18 09:55	08/04/18 02:22	1
Tetrachloro-m-xylene	56	X	58 - 122	07/31/18 09:55	08/04/18 02:22	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	6100		2000	44	mg/Kg			08/03/18 16:23	1
Total Solids	65.3		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	70		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/30/18 11:54	1
Coarse Sand	0.0				%			07/30/18 11:54	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S002-0to2**

**Lab Sample ID: 580-79163-12**

**Date Collected: 07/26/18 10:30**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 65.3**

**Method: D7928/D6913 - ASTM D7928/D6913 (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Medium Sand	0.0				%			07/30/18 11:54	1
Fine Sand	57.3				%			07/30/18 11:54	1
Silt	35.9				%			07/30/18 11:54	1
Clay	6.7				%			07/30/18 11:54	1

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S002-2to4**

**Lab Sample ID: 580-79163-13**

**Date Collected: 07/26/18 10:35**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 67.6**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>2-Methylnaphthalene</b>	<b>0.82</b>	<b>J B</b>	7.2	0.65	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
Acenaphthene	ND		7.2	0.87	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
Acenaphthylene	ND		7.2	0.72	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
<b>Anthracene</b>	<b>1.2</b>	<b>J B</b>	7.2	0.87	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
<b>Benzo[a]anthracene</b>	<b>1.4</b>	<b>J</b>	7.2	1.1	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
Benzo[a]pyrene	ND		7.2	0.58	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
<b>Benzo[b]fluoranthene</b>	<b>0.90</b>	<b>J</b>	7.2	0.85	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
Benzo[g,h,i]perylene	ND		7.2	0.72	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
Benzo[k]fluoranthene	ND		7.2	0.87	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
Chrysene	ND		7.2	2.2	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
Dibenz(a,h)anthracene	ND		7.2	1.0	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
<b>Fluoranthene</b>	<b>2.4</b>	<b>J B</b>	7.2	2.0	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
<b>Fluorene</b>	<b>1.3</b>	<b>J B</b>	7.2	0.72	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
Indeno[1,2,3-cd]pyrene	ND		7.2	0.87	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
<b>Naphthalene</b>	<b>2.4</b>	<b>J B</b>	7.2	1.2	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5
<b>Pyrene</b>	<b>2.3</b>	<b>J B</b>	7.2	1.4	ug/Kg	☼	07/29/18 10:35	08/02/18 23:10	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	83		57 - 120	07/29/18 10:35	08/02/18 23:10	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Phenanthrene</b>	<b>1.9</b>	<b>J B</b>	7.4	1.0	ug/Kg	☼	07/30/18 11:32	08/01/18 20:18	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	84		57 - 120	07/30/18 11:32	08/01/18 20:18	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.9	0.50	ug/Kg	☼	07/30/18 09:38	08/04/18 12:57	1
PCB-1221	ND		2.9	1.4	ug/Kg	☼	07/30/18 09:38	08/04/18 12:57	1
PCB-1232	ND		2.9	0.69	ug/Kg	☼	07/30/18 09:38	08/04/18 12:57	1
PCB-1242	ND		2.9	0.72	ug/Kg	☼	07/30/18 09:38	08/04/18 12:57	1
PCB-1248	ND		2.9	0.23	ug/Kg	☼	07/30/18 09:38	08/04/18 12:57	1
PCB-1254	ND		2.9	1.2	ug/Kg	☼	07/30/18 09:38	08/04/18 12:57	1
PCB-1260	ND		2.9	0.50	ug/Kg	☼	07/30/18 09:38	08/04/18 12:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	63		54 - 142	07/30/18 09:38	08/04/18 12:57	1
Tetrachloro-m-xylene	53	X	58 - 122	07/30/18 09:38	08/04/18 12:57	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>6100</b>		2000	44	mg/Kg			08/09/18 11:51	1
<b>Total Solids</b>	<b>67.6</b>		0.1	0.1	%			07/31/18 09:39	1
<b>Total Solids @ 70°C</b>	<b>70</b>		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Gravel</b>	<b>0.0</b>				%			07/30/18 11:54	1
<b>Coarse Sand</b>	<b>0.0</b>				%			07/30/18 11:54	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S002-2to4**

**Lab Sample ID: 580-79163-13**

**Date Collected: 07/26/18 10:35**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 67.6**

**Method: D7928/D6913 - ASTM D7928/D6913 (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Medium Sand	0.0				%			07/30/18 11:54	1
Fine Sand	49.5				%			07/30/18 11:54	1
Silt	44.5				%			07/30/18 11:54	1
Clay	5.9				%			07/30/18 11:54	1

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# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S002-4to6.5**

**Lab Sample ID: 580-79163-14**

**Date Collected: 07/26/18 10:40**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 68.4**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>2-Methylnaphthalene</b>	<b>1.5</b>	<b>J</b>	7.0	0.63	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
Acenaphthene	ND		7.0	0.84	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
Acenaphthylene	ND		7.0	0.70	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
<b>Anthracene</b>	<b>0.85</b>	<b>J</b>	7.0	0.84	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
<b>Benzo[a]anthracene</b>	<b>1.4</b>	<b>J</b>	7.0	1.1	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
Benzo[a]pyrene	ND		7.0	0.56	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
<b>Benzo[b]fluoranthene</b>	<b>1.8</b>	<b>J</b>	7.0	0.83	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
Benzo[g,h,i]perylene	ND		7.0	0.70	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
Benzo[k]fluoranthene	ND		7.0	0.84	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
Chrysene	ND		7.0	2.1	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
Dibenz(a,h)anthracene	ND		7.0	1.0	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
<b>Fluoranthene</b>	<b>2.1</b>	<b>J</b>	7.0	2.0	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
<b>Fluorene</b>	<b>1.2</b>	<b>J</b>	7.0	0.70	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
Indeno[1,2,3-cd]pyrene	ND		7.0	0.84	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
<b>Naphthalene</b>	<b>1.2</b>	<b>J</b>	7.0	1.1	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
<b>Phenanthrene</b>	<b>3.9</b>	<b>J B</b>	7.0	0.97	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
<b>Pyrene</b>	<b>2.0</b>	<b>J</b>	7.0	1.4	ug/Kg	☼	07/30/18 16:20	08/01/18 13:52	5
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	104		57 - 120				07/30/18 16:20	08/01/18 13:52	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND	F1	2.9	0.49	ug/Kg	☼	07/31/18 09:55	08/04/18 02:40	1
PCB-1221	ND		2.9	1.4	ug/Kg	☼	07/31/18 09:55	08/04/18 02:40	1
PCB-1232	ND		2.9	0.67	ug/Kg	☼	07/31/18 09:55	08/04/18 02:40	1
PCB-1242	ND		2.9	0.70	ug/Kg	☼	07/31/18 09:55	08/04/18 02:40	1
PCB-1248	ND		2.9	0.23	ug/Kg	☼	07/31/18 09:55	08/04/18 02:40	1
PCB-1254	ND		2.9	1.1	ug/Kg	☼	07/31/18 09:55	08/04/18 02:40	1
PCB-1260	ND		2.9	0.49	ug/Kg	☼	07/31/18 09:55	08/04/18 02:40	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	52	X	54 - 142				07/31/18 09:55	08/04/18 02:40	1
Tetrachloro-m-xylene	52	X	58 - 122				07/31/18 09:55	08/04/18 02:40	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>6300</b>		2000	44	mg/Kg			08/09/18 11:30	1
<b>Total Solids</b>	<b>68.4</b>		0.1	0.1	%			07/31/18 09:39	1
<b>Total Solids @ 70°C</b>	<b>71</b>		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Gravel</b>	<b>0.0</b>				%			07/30/18 11:54	1
<b>Coarse Sand</b>	<b>0.0</b>				%			07/30/18 11:54	1
<b>Medium Sand</b>	<b>0.0</b>				%			07/30/18 11:54	1
<b>Fine Sand</b>	<b>45.9</b>				%			07/30/18 11:54	1
<b>Silt</b>	<b>46.6</b>				%			07/30/18 11:54	1
<b>Clay</b>	<b>7.4</b>				%			07/30/18 11:54	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S030-0to2**

**Lab Sample ID: 580-79163-15**

Date Collected: 07/26/18 11:50

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 57.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	17	J B	42	3.8	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Acenaphthene	25	J B	42	5.1	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Acenaphthylene	23	J B	42	4.2	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Anthracene	44	B	42	5.1	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Benzo[a]anthracene	180		42	6.4	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Benzo[a]pyrene	210		42	3.4	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Benzo[b]fluoranthene	320		42	5.0	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Benzo[g,h,i]perylene	200		42	4.2	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Benzo[k]fluoranthene	110		42	5.1	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Chrysene	240		42	13	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Dibenz(a,h)anthracene	30	J	42	6.1	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Fluoranthene	360	B	42	12	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Fluorene	27	J B	42	4.2	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Indeno[1,2,3-cd]pyrene	220		42	5.1	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Naphthalene	42	B	42	6.7	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Phenanthrene	180	B	42	5.8	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25
Pyrene	450	B	42	8.2	ug/Kg	☼	07/29/18 10:35	08/02/18 23:36	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	80		57 - 120	07/29/18 10:35	08/02/18 23:36	25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		3.4	0.58	ug/Kg	☼	07/30/18 09:38	08/04/18 13:15	1
PCB-1221	ND		3.4	1.6	ug/Kg	☼	07/30/18 09:38	08/04/18 13:15	1
PCB-1232	ND		3.4	0.80	ug/Kg	☼	07/30/18 09:38	08/04/18 13:15	1
PCB-1242	ND		3.4	0.83	ug/Kg	☼	07/30/18 09:38	08/04/18 13:15	1
PCB-1248	ND		3.4	0.27	ug/Kg	☼	07/30/18 09:38	08/04/18 13:15	1
<b>PCB-1254</b>	<b>52</b>		3.4	1.3	ug/Kg	☼	07/30/18 09:38	08/04/18 13:15	1
PCB-1260	ND		3.4	0.58	ug/Kg	☼	07/30/18 09:38	08/04/18 13:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	55		54 - 142	07/30/18 09:38	08/04/18 13:15	1
Tetrachloro-m-xylene	55	X	58 - 122	07/30/18 09:38	08/04/18 13:15	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	13000		2000	44	mg/Kg			08/09/18 11:56	1
Total Solids	57.8		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	60		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	5.9				%			07/30/18 11:54	1
Coarse Sand	0.3				%			07/30/18 11:54	1
Medium Sand	0.9				%			07/30/18 11:54	1
Fine Sand	42.8				%			07/30/18 11:54	1
Silt	40.9				%			07/30/18 11:54	1
Clay	9.2				%			07/30/18 11:54	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S030-2to4**

**Lab Sample ID: 580-79163-16**

Date Collected: 07/26/18 11:55

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 57.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	53	B	40	3.6	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Acenaphthene	140	B	40	4.8	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Acenaphthylene	65	B	40	4.0	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Anthracene	160	B	40	4.8	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Benzo[a]anthracene	780		40	6.1	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Benzo[a]pyrene	810		40	3.2	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Benzo[b]fluoranthene	1200		40	4.7	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Benzo[g,h,i]perylene	890		40	4.0	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Benzo[k]fluoranthene	370		40	4.8	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Chrysene	970		40	12	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Dibenz(a,h)anthracene	110		40	5.8	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Fluoranthene	1500	B	40	11	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Fluorene	87	B	40	4.0	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Indeno[1,2,3-cd]pyrene	900		40	4.8	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Naphthalene	150	B	40	6.4	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Phenanthrene	920	B	40	5.5	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
Pyrene	2100	B	40	7.8	ug/Kg	☼	07/29/18 10:35	08/03/18 00:02	25
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	88		57 - 120				07/29/18 10:35	08/03/18 00:02	25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		3.4	0.59	ug/Kg	☼	07/30/18 09:38	08/04/18 13:33	1
PCB-1221	ND		3.4	1.6	ug/Kg	☼	07/30/18 09:38	08/04/18 13:33	1
PCB-1232	ND		3.4	0.81	ug/Kg	☼	07/30/18 09:38	08/04/18 13:33	1
PCB-1242	ND		3.4	0.84	ug/Kg	☼	07/30/18 09:38	08/04/18 13:33	1
PCB-1248	ND		3.4	0.28	ug/Kg	☼	07/30/18 09:38	08/04/18 13:33	1
PCB-1260	ND		3.4	0.59	ug/Kg	☼	07/30/18 09:38	08/04/18 13:33	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	54		54 - 142				07/30/18 09:38	08/04/18 13:33	1
Tetrachloro-m-xylene	46	X	58 - 122				07/30/18 09:38	08/04/18 13:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1254	270		34	14	ug/Kg	☼	07/30/18 09:38	08/09/18 23:11	10

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	18000		2000	44	mg/Kg			08/09/18 12:02	1
Total Solids	57.6		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	60		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/30/18 11:54	1
Coarse Sand	0.3				%			07/30/18 11:54	1
Medium Sand	0.8				%			07/30/18 11:54	1
Fine Sand	28.0				%			07/30/18 11:54	1
Silt	54.3				%			07/30/18 11:54	1

TestAmerica Seattle



# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S030-2to4**

**Lab Sample ID: 580-79163-16**

**Date Collected: 07/26/18 11:55**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 57.6**

**Method: D7928/D6913 - ASTM D7928/D6913 (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	16.7				%			07/30/18 11:54	1

1

2

3

4

5

6

7

8

9

10

11

12

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S030-2to4D**

**Lab Sample ID: 580-79163-17**

Date Collected: 07/26/18 11:55

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 59.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	120	B	81	7.3	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Acenaphthene	160	B	81	9.7	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Acenaphthylene	85	B	81	8.1	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Anthracene	220	B	81	9.7	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Benzo[a]anthracene	830		81	12	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Benzo[a]pyrene	940		81	6.5	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Benzo[b]fluoranthene	1400		81	9.5	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Benzo[g,h,i]perylene	1000		81	8.1	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Benzo[k]fluoranthene	440		81	9.7	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Chrysene	1000		81	24	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Dibenz(a,h)anthracene	120		81	12	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Fluoranthene	1900	B	81	23	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Fluorene	150	B	81	8.1	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Indeno[1,2,3-cd]pyrene	1100		81	9.7	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Naphthalene	170	B	81	13	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Phenanthrene	1200	B	81	11	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50
Pyrene	2500	B	81	16	ug/Kg	☼	07/29/18 10:35	08/03/18 00:28	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	83		57 - 120	07/29/18 10:35	08/03/18 00:28	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		3.3	0.56	ug/Kg	☼	07/30/18 09:38	08/04/18 13:50	1
PCB-1221	ND		3.3	1.6	ug/Kg	☼	07/30/18 09:38	08/04/18 13:50	1
PCB-1232	ND		3.3	0.78	ug/Kg	☼	07/30/18 09:38	08/04/18 13:50	1
PCB-1242	ND		3.3	0.81	ug/Kg	☼	07/30/18 09:38	08/04/18 13:50	1
PCB-1248	ND		3.3	0.27	ug/Kg	☼	07/30/18 09:38	08/04/18 13:50	1
<b>PCB-1254</b>	<b>160</b>		3.3	1.3	ug/Kg	☼	07/30/18 09:38	08/04/18 13:50	1
PCB-1260	ND		3.3	0.56	ug/Kg	☼	07/30/18 09:38	08/04/18 13:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	52	X	54 - 142	07/30/18 09:38	08/04/18 13:50	1
Tetrachloro-m-xylene	47	X	58 - 122	07/30/18 09:38	08/04/18 13:50	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	20000		2000	44	mg/Kg			08/09/18 12:07	1
Total Solids	59.1		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	59	H	0.10	0.10	%			08/03/18 11:22	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S030-4to5.3**

**Lab Sample ID: 580-79163-18**

Date Collected: 07/26/18 12:00

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 67.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	41	B	35	3.2	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Acenaphthene	57	B	35	4.2	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Acenaphthylene	33	J B	35	3.5	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Anthracene	82	B	35	4.2	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Benzo[a]anthracene	310		35	5.4	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Benzo[a]pyrene	360		35	2.8	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Benzo[b]fluoranthene	550		35	4.2	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Benzo[g,h,i]perylene	400		35	3.5	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Benzo[k]fluoranthene	170		35	4.2	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Chrysene	390		35	11	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Dibenz(a,h)anthracene	58		35	5.1	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Fluoranthene	570	B	35	9.9	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Fluorene	41	B	35	3.5	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Indeno[1,2,3-cd]pyrene	420		35	4.2	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Naphthalene	69	B	35	5.6	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Phenanthrene	300	B	35	4.9	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
Pyrene	860	B	35	6.8	ug/Kg	☼	07/29/18 10:35	08/03/18 00:53	25
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	80		57 - 120				07/29/18 10:35	08/03/18 00:53	25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.8	0.47	ug/Kg	☼	07/30/18 09:38	08/04/18 14:08	1
PCB-1221	ND		2.8	1.3	ug/Kg	☼	07/30/18 09:38	08/04/18 14:08	1
PCB-1232	ND		2.8	0.65	ug/Kg	☼	07/30/18 09:38	08/04/18 14:08	1
PCB-1242	ND		2.8	0.68	ug/Kg	☼	07/30/18 09:38	08/04/18 14:08	1
PCB-1248	ND		2.8	0.22	ug/Kg	☼	07/30/18 09:38	08/04/18 14:08	1
<b>PCB-1254</b>	<b>91</b>		2.8	1.1	ug/Kg	☼	07/30/18 09:38	08/04/18 14:08	1
PCB-1260	ND		2.8	0.47	ug/Kg	☼	07/30/18 09:38	08/04/18 14:08	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	49	X	54 - 142				07/30/18 09:38	08/04/18 14:08	1
Tetrachloro-m-xylene	43	X	58 - 122				07/30/18 09:38	08/04/18 14:08	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	9900		2000	44	mg/Kg			08/09/18 12:13	1
Total Solids	67.7		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	69		0.10	0.10	%			07/30/18 15:48	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/30/18 11:54	1
Coarse Sand	0.1				%			07/30/18 11:54	1
Medium Sand	0.3				%			07/30/18 11:54	1
Fine Sand	34.2				%			07/30/18 11:54	1
Silt	55.3				%			07/30/18 11:54	1
Clay	10.2				%			07/30/18 11:54	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S185-0to2**

**Lab Sample ID: 580-79163-19**

Date Collected: 07/26/18 15:50

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 79.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	3.9	J	12	1.1	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Acenaphthene	3.3	J	12	1.5	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Acenaphthylene	3.4	J	12	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Anthracene	5.9	J	12	1.5	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Benzo[a]anthracene	13		12	1.9	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Benzo[a]pyrene	11	J	12	0.99	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Benzo[b]fluoranthene	19		12	1.5	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Benzo[g,h,i]perylene	9.5	J	12	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Benzo[k]fluoranthene	8.3	J	12	1.5	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Chrysene	19		12	3.7	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Dibenz(a,h)anthracene	4.4	J	12	1.8	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Fluoranthene	36		12	3.5	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Fluorene	4.5	J	12	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Indeno[1,2,3-cd]pyrene	12		12	1.5	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Naphthalene	8.6	J	12	2.0	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Phenanthrene	23	B	12	1.7	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10
Pyrene	43		12	2.4	ug/Kg	☼	07/30/18 16:20	08/01/18 15:05	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	106		57 - 120	07/30/18 16:20	08/01/18 15:05	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.5	0.43	ug/Kg	☼	07/30/18 09:38	08/04/18 14:26	1
PCB-1221	ND		2.5	1.2	ug/Kg	☼	07/30/18 09:38	08/04/18 14:26	1
PCB-1232	ND		2.5	0.59	ug/Kg	☼	07/30/18 09:38	08/04/18 14:26	1
PCB-1242	ND		2.5	0.62	ug/Kg	☼	07/30/18 09:38	08/04/18 14:26	1
PCB-1248	ND		2.5	0.20	ug/Kg	☼	07/30/18 09:38	08/04/18 14:26	1
PCB-1254	2.0	J	2.5	1.0	ug/Kg	☼	07/30/18 09:38	08/04/18 14:26	1
PCB-1260	ND		2.5	0.43	ug/Kg	☼	07/30/18 09:38	08/04/18 14:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	54		54 - 142	07/30/18 09:38	08/04/18 14:26	1
Tetrachloro-m-xylene	38	X	58 - 122	07/30/18 09:38	08/04/18 14:26	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	1100	J	2000	44	mg/Kg			08/09/18 12:18	1
Total Solids	79.0		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	81		0.10	0.10	%			07/31/18 13:43	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	3.7				%			07/31/18 13:43	1
Coarse Sand	2.9				%			07/31/18 13:43	1
Medium Sand	30.6				%			07/31/18 13:43	1
Fine Sand	54.9				%			07/31/18 13:43	1
Silt	6.3				%			07/31/18 13:43	1
Clay	1.6				%			07/31/18 13:43	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S185-2to4**

**Lab Sample ID: 580-79163-20**

Date Collected: 07/26/18 15:55

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 79.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>2-Methylnaphthalene</b>	<b>1.5</b>	<b>J</b>	12	1.1	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
Acenaphthene	ND		12	1.5	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Acenaphthylene</b>	<b>2.4</b>	<b>J</b>	12	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Anthracene</b>	<b>6.7</b>	<b>J</b>	12	1.5	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Benzo[a]anthracene</b>	<b>7.1</b>	<b>J</b>	12	1.9	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Benzo[a]pyrene</b>	<b>6.1</b>	<b>J</b>	12	0.98	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Benzo[b]fluoranthene</b>	<b>8.2</b>	<b>J</b>	12	1.4	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Benzo[g,h,i]perylene</b>	<b>5.6</b>	<b>J</b>	12	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Benzo[k]fluoranthene</b>	<b>2.6</b>	<b>J</b>	12	1.5	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Chrysene</b>	<b>7.6</b>	<b>J</b>	12	3.7	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Dibenz(a,h)anthracene</b>	<b>3.7</b>	<b>J</b>	12	1.8	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Fluoranthene</b>	<b>16</b>		12	3.4	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Fluorene</b>	<b>1.4</b>	<b>J</b>	12	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Indeno[1,2,3-cd]pyrene</b>	<b>6.0</b>	<b>J</b>	12	1.5	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Naphthalene</b>	<b>5.7</b>	<b>J</b>	12	2.0	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Phenanthrene</b>	<b>14</b>	<b>B</b>	12	1.7	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10
<b>Pyrene</b>	<b>25</b>		12	2.4	ug/Kg	☼	07/30/18 16:20	08/01/18 15:29	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	104		57 - 120	07/30/18 16:20	08/01/18 15:29	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.4	0.41	ug/Kg	☼	07/30/18 09:38	08/04/18 14:44	1
PCB-1221	ND		2.4	1.1	ug/Kg	☼	07/30/18 09:38	08/04/18 14:44	1
PCB-1232	ND		2.4	0.57	ug/Kg	☼	07/30/18 09:38	08/04/18 14:44	1
PCB-1242	ND		2.4	0.59	ug/Kg	☼	07/30/18 09:38	08/04/18 14:44	1
PCB-1248	ND		2.4	0.19	ug/Kg	☼	07/30/18 09:38	08/04/18 14:44	1
PCB-1254	ND		2.4	0.95	ug/Kg	☼	07/30/18 09:38	08/04/18 14:44	1
<b>PCB-1260</b>	<b>2.5</b>		2.4	0.41	ug/Kg	☼	07/30/18 09:38	08/04/18 14:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	55		54 - 142	07/30/18 09:38	08/04/18 14:44	1
Tetrachloro-m-xylene	51	X	58 - 122	07/30/18 09:38	08/04/18 14:44	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon - Duplicates</b>	<b>2500</b>		2000	44	mg/Kg			08/09/18 12:23	1
<b>Total Solids</b>	<b>79.4</b>		0.1	0.1	%			07/31/18 09:39	1
<b>Total Solids @ 70°C</b>	<b>80</b>		0.10	0.10	%			07/31/18 13:43	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Gravel</b>	<b>6.4</b>				%			07/31/18 13:43	1
<b>Coarse Sand</b>	<b>3.0</b>				%			07/31/18 13:43	1
<b>Medium Sand</b>	<b>28.0</b>				%			07/31/18 13:43	1
<b>Fine Sand</b>	<b>35.6</b>				%			07/31/18 13:43	1
<b>Silt</b>	<b>22.1</b>				%			07/31/18 13:43	1
<b>Clay</b>	<b>4.9</b>				%			07/31/18 13:43	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S185-4to5.5**

**Lab Sample ID: 580-79163-21**

Date Collected: 07/26/18 16:00

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 75.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	1.8	J	12	1.1	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Acenaphthene	200		12	1.4	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Acenaphthylene	13		12	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Anthracene	420		12	1.4	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Benzo[a]anthracene	250		12	1.8	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Benzo[a]pyrene	68		12	0.96	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Benzo[b]fluoranthene	200		12	1.4	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Benzo[g,h,i]perylene	29		12	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Benzo[k]fluoranthene	58		12	1.4	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Chrysene	250		12	3.6	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Dibenz(a,h)anthracene	12		12	1.7	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Fluoranthene	1700		12	3.4	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Fluorene	190		12	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Indeno[1,2,3-cd]pyrene	50		12	1.4	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Naphthalene	4.3	J	12	1.9	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Phenanthrene	2200	B	12	1.7	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
Pyrene	1100		12	2.3	ug/Kg	☼	07/30/18 16:20	08/01/18 15:53	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	103		57 - 120				07/30/18 16:20	08/01/18 15:53	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.6	0.45	ug/Kg	☼	07/31/18 09:55	08/04/18 03:33	1
PCB-1221	ND		2.6	1.2	ug/Kg	☼	07/31/18 09:55	08/04/18 03:33	1
PCB-1232	ND		2.6	0.62	ug/Kg	☼	07/31/18 09:55	08/04/18 03:33	1
PCB-1242	ND		2.6	0.64	ug/Kg	☼	07/31/18 09:55	08/04/18 03:33	1
PCB-1248	ND		2.6	0.21	ug/Kg	☼	07/31/18 09:55	08/04/18 03:33	1
PCB-1254	ND		2.6	1.0	ug/Kg	☼	07/31/18 09:55	08/04/18 03:33	1
<b>PCB-1260</b>	<b>2.1</b>	<b>J</b>	2.6	0.45	ug/Kg	☼	07/31/18 09:55	08/04/18 03:33	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				07/31/18 09:55	08/04/18 03:33	1
Tetrachloro-m-xylene	56	X	58 - 122				07/31/18 09:55	08/04/18 03:33	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	3900		2000	44	mg/Kg			08/09/18 14:44	1
Total Solids	75.6		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	79		0.10	0.10	%			07/31/18 13:43	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/31/18 13:43	1
Coarse Sand	1.3				%			07/31/18 13:43	1
Medium Sand	24.9				%			07/31/18 13:43	1
Fine Sand	31.4				%			07/31/18 13:43	1
Silt	35.8				%			07/31/18 13:43	1
Clay	6.5				%			07/31/18 13:43	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S055-0to2**

**Lab Sample ID: 580-79163-22**

Date Collected: 07/26/18 17:45

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 51.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	65		48	4.3	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Acenaphthene	870		48	5.7	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Acenaphthylene	24	J	48	4.8	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Anthracene	1000		48	5.7	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Benzo[a]anthracene	6500		48	7.2	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Benzo[a]pyrene	8200		48	3.8	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Benzo[b]fluoranthene	11000		48	5.6	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Benzo[g,h,i]perylene	5800		48	4.8	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Benzo[k]fluoranthene	3400		48	5.7	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Chrysene	6700		48	14	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Dibenz(a,h)anthracene	1600		48	6.9	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Fluoranthene	10000		48	13	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Fluorene	380		48	4.8	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Indeno[1,2,3-cd]pyrene	6800		48	5.7	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Naphthalene	180		48	7.6	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Phenanthrene	3800	B	48	6.6	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25
Pyrene	9700		48	9.2	ug/Kg	☼	07/30/18 16:20	08/01/18 16:17	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	102		57 - 120	07/30/18 16:20	08/01/18 16:17	25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		3.8	0.64	ug/Kg	☼	07/31/18 09:55	08/04/18 03:50	1
PCB-1221	ND		3.8	1.8	ug/Kg	☼	07/31/18 09:55	08/04/18 03:50	1
PCB-1232	ND		3.8	0.89	ug/Kg	☼	07/31/18 09:55	08/04/18 03:50	1
PCB-1242	ND		3.8	0.92	ug/Kg	☼	07/31/18 09:55	08/04/18 03:50	1
PCB-1248	ND		3.8	0.30	ug/Kg	☼	07/31/18 09:55	08/04/18 03:50	1
PCB-1254	ND		3.8	1.5	ug/Kg	☼	07/31/18 09:55	08/04/18 03:50	1
PCB-1260	4.6		3.8	0.64	ug/Kg	☼	07/31/18 09:55	08/04/18 03:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	43	X	54 - 142	07/31/18 09:55	08/04/18 03:50	1
Tetrachloro-m-xylene	53	X	58 - 122	07/31/18 09:55	08/04/18 03:50	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	20000		2000	44	mg/Kg			08/09/18 12:27	1
Total Solids	51.5		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	52		0.10	0.10	%			07/31/18 13:43	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/31/18 13:43	1
Coarse Sand	0.0				%			07/31/18 13:43	1
Medium Sand	0.2				%			07/31/18 13:43	1
Fine Sand	19.5				%			07/31/18 13:43	1
Silt	66.4				%			07/31/18 13:43	1
Clay	13.9				%			07/31/18 13:43	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S055-2to4**

**Lab Sample ID: 580-79163-23**

Date Collected: 07/26/18 17:50

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 54.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	230		85	7.7	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Acenaphthene	3300		85	10	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Acenaphthylene	39	J	85	8.5	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Anthracene	3000		85	10	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Benzo[a]anthracene	21000		85	13	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Benzo[a]pyrene	27000		85	6.8	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Benzo[b]fluoranthene	34000		85	10	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Benzo[g,h,i]perylene	19000		85	8.5	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Benzo[k]fluoranthene	12000		85	10	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Chrysene	21000		85	26	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Dibenz(a,h)anthracene	5600		85	12	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Fluoranthene	32000		85	24	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Fluorene	1200		85	8.5	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Indeno[1,2,3-cd]pyrene	20000		85	10	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Naphthalene	610		85	14	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Phenanthrene	12000	B	85	12	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50
Pyrene	30000		85	17	ug/Kg	☼	07/30/18 16:20	08/01/18 16:42	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	93		57 - 120	07/30/18 16:20	08/01/18 16:42	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		3.6	0.62	ug/Kg	☼	07/31/18 09:55	08/04/18 04:08	1
PCB-1221	ND		3.6	1.7	ug/Kg	☼	07/31/18 09:55	08/04/18 04:08	1
PCB-1232	ND		3.6	0.86	ug/Kg	☼	07/31/18 09:55	08/04/18 04:08	1
PCB-1242	ND		3.6	0.89	ug/Kg	☼	07/31/18 09:55	08/04/18 04:08	1
PCB-1248	ND		3.6	0.29	ug/Kg	☼	07/31/18 09:55	08/04/18 04:08	1
PCB-1254	ND		3.6	1.4	ug/Kg	☼	07/31/18 09:55	08/04/18 04:08	1
PCB-1260	6.7		3.6	0.62	ug/Kg	☼	07/31/18 09:55	08/04/18 04:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	44	X	54 - 142	07/31/18 09:55	08/04/18 04:08	1
Tetrachloro-m-xylene	49	X	58 - 122	07/31/18 09:55	08/04/18 04:08	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	26000		2000	44	mg/Kg			08/09/18 12:33	1
Total Solids	54.8		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	57		0.10	0.10	%			07/31/18 13:43	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/31/18 13:43	1
Coarse Sand	0.1				%			07/31/18 13:43	1
Medium Sand	0.6				%			07/31/18 13:43	1
Fine Sand	24.9				%			07/31/18 13:43	1
Silt	60.6				%			07/31/18 13:43	1
Clay	13.7				%			07/31/18 13:43	1

TestAmerica Seattle



# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S055-4to6**

**Lab Sample ID: 580-79163-24**

Date Collected: 07/26/18 17:55

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 64.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	230		39	3.5	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Acenaphthene	290		39	4.6	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Acenaphthylene	74		39	3.9	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Anthracene	210		39	4.6	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Benzo[a]anthracene	510		39	5.9	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Benzo[a]pyrene	420		39	3.1	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Benzo[b]fluoranthene	600		39	4.5	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Benzo[g,h,i]perylene	340		39	3.9	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Benzo[k]fluoranthene	160		39	4.6	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Chrysene	570		39	12	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Dibenz(a,h)anthracene	98		39	5.5	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Fluoranthene	1300		39	11	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Fluorene	320		39	3.9	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Indeno[1,2,3-cd]pyrene	430		39	4.6	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Naphthalene	450		39	6.2	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Phenanthrene	1000	B	39	5.3	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25
Pyrene	1300		39	7.5	ug/Kg	☼	07/30/18 16:20	08/01/18 17:06	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	93		57 - 120	07/30/18 16:20	08/01/18 17:06	25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		3.0	0.51	ug/Kg	☼	07/31/18 09:55	08/04/18 04:26	1
PCB-1221	ND		3.0	1.4	ug/Kg	☼	07/31/18 09:55	08/04/18 04:26	1
PCB-1232	ND		3.0	0.70	ug/Kg	☼	07/31/18 09:55	08/04/18 04:26	1
PCB-1242	ND		3.0	0.73	ug/Kg	☼	07/31/18 09:55	08/04/18 04:26	1
PCB-1248	ND		3.0	0.24	ug/Kg	☼	07/31/18 09:55	08/04/18 04:26	1
PCB-1254	ND		3.0	1.2	ug/Kg	☼	07/31/18 09:55	08/04/18 04:26	1
PCB-1260	22		3.0	0.51	ug/Kg	☼	07/31/18 09:55	08/04/18 04:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	51	X	54 - 142	07/31/18 09:55	08/04/18 04:26	1
Tetrachloro-m-xylene	47	X	58 - 122	07/31/18 09:55	08/04/18 04:26	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	23000		2000	44	mg/Kg			08/09/18 12:45	1
Total Solids	64.0		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	65		0.10	0.10	%			07/31/18 13:43	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	1.0				%			07/31/18 13:43	1
Coarse Sand	0.2				%			07/31/18 13:43	1
Medium Sand	0.8				%			07/31/18 13:43	1
Fine Sand	32.0				%			07/31/18 13:43	1
Silt	52.0				%			07/31/18 13:43	1
Clay	14.0				%			07/31/18 13:43	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S055-6to8**

**Lab Sample ID: 580-79163-25**

Date Collected: 07/26/18 18:00

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 65.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	200		15	1.3	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Acenaphthene	290		15	1.8	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Acenaphthylene	49		15	1.5	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Anthracene	180		15	1.8	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Benzo[a]anthracene	380		15	2.2	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Benzo[a]pyrene	290		15	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Benzo[b]fluoranthene	330		15	1.7	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Benzo[g,h,i]perylene	240		15	1.5	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Benzo[k]fluoranthene	130		15	1.8	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Chrysene	390		15	4.4	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Dibenz(a,h)anthracene	55		15	2.1	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Fluoranthene	1300		15	4.1	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Fluorene	280		15	1.5	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Indeno[1,2,3-cd]pyrene	270		15	1.8	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Naphthalene	370		15	2.3	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Phenanthrene	1300	B	15	2.0	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10
Pyrene	1400		15	2.8	ug/Kg	☼	07/30/18 16:20	08/01/18 17:30	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	89		57 - 120	07/30/18 16:20	08/01/18 17:30	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		3.0	0.51	ug/Kg	☼	07/31/18 09:55	08/04/18 04:43	1
PCB-1221	ND		3.0	1.4	ug/Kg	☼	07/31/18 09:55	08/04/18 04:43	1
PCB-1232	ND		3.0	0.71	ug/Kg	☼	07/31/18 09:55	08/04/18 04:43	1
PCB-1242	ND		3.0	0.74	ug/Kg	☼	07/31/18 09:55	08/04/18 04:43	1
PCB-1248	ND		3.0	0.24	ug/Kg	☼	07/31/18 09:55	08/04/18 04:43	1
PCB-1254	ND		3.0	1.2	ug/Kg	☼	07/31/18 09:55	08/04/18 04:43	1
PCB-1260	5.3		3.0	0.51	ug/Kg	☼	07/31/18 09:55	08/04/18 04:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	54		54 - 142	07/31/18 09:55	08/04/18 04:43	1
Tetrachloro-m-xylene	57	X	58 - 122	07/31/18 09:55	08/04/18 04:43	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	15000		2000	44	mg/Kg			08/09/18 12:51	1
Total Solids	65.6		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	68		0.10	0.10	%			07/31/18 13:43	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/31/18 13:43	1
Coarse Sand	0.1				%			07/31/18 13:43	1
Medium Sand	4.4				%			07/31/18 13:43	1
Fine Sand	34.3				%			07/31/18 13:43	1
Silt	51.7				%			07/31/18 13:43	1
Clay	9.5				%			07/31/18 13:43	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S024-0to2**

**Lab Sample ID: 580-79163-26**

Date Collected: 07/27/18 09:10

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 57.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	21	J	42	3.8	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Acenaphthene	14	J	42	5.0	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Acenaphthylene	16	J	42	4.2	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Anthracene	33	J	42	5.0	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Benzo[a]anthracene	110		42	6.3	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Benzo[a]pyrene	150		42	3.3	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Benzo[b]fluoranthene	200		42	4.9	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Benzo[g,h,i]perylene	140		42	4.2	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Benzo[k]fluoranthene	87		42	5.0	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Chrysene	140		42	13	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Dibenz(a,h)anthracene	28	J	42	6.0	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Fluoranthene	180		42	12	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Fluorene	13	J	42	4.2	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Indeno[1,2,3-cd]pyrene	170		42	5.0	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Naphthalene	39	J	42	6.7	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Phenanthrene	110	B	42	5.8	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25
Pyrene	270		42	8.1	ug/Kg	☼	07/30/18 16:20	08/01/18 17:55	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	88		57 - 120	07/30/18 16:20	08/01/18 17:55	25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		3.4	0.57	ug/Kg	☼	07/31/18 09:55	08/04/18 05:01	1
PCB-1221	ND		3.4	1.6	ug/Kg	☼	07/31/18 09:55	08/04/18 05:01	1
PCB-1232	ND		3.4	0.79	ug/Kg	☼	07/31/18 09:55	08/04/18 05:01	1
PCB-1242	ND		3.4	0.82	ug/Kg	☼	07/31/18 09:55	08/04/18 05:01	1
PCB-1248	ND		3.4	0.27	ug/Kg	☼	07/31/18 09:55	08/04/18 05:01	1
PCB-1254	ND		3.4	1.3	ug/Kg	☼	07/31/18 09:55	08/04/18 05:01	1
PCB-1260	6.4		3.4	0.57	ug/Kg	☼	07/31/18 09:55	08/04/18 05:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	50	X	54 - 142	07/31/18 09:55	08/04/18 05:01	1
Tetrachloro-m-xylene	49	X	58 - 122	07/31/18 09:55	08/04/18 05:01	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	12000		2000	44	mg/Kg			08/09/18 12:56	1
Total Solids	57.8		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	61		0.10	0.10	%			07/31/18 13:43	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/31/18 13:43	1
Coarse Sand	0.1				%			07/31/18 13:43	1
Medium Sand	8.5				%			07/31/18 13:43	1
Fine Sand	50.7				%			07/31/18 13:43	1
Silt	29.8				%			07/31/18 13:43	1
Clay	10.9				%			07/31/18 13:43	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S024-2to4**

**Lab Sample ID: 580-79163-27**

Date Collected: 07/27/18 09:15

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 73.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	19		13	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Acenaphthene	16		13	1.6	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Acenaphthylene	36		13	1.3	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Anthracene	48		13	1.6	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Benzo[a]anthracene	170		13	2.0	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Benzo[a]pyrene	240		13	1.1	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Benzo[b]fluoranthene	300		13	1.6	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Benzo[g,h,i]perylene	230		13	1.3	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Benzo[k]fluoranthene	82		13	1.6	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Chrysene	200		13	4.0	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Dibenz(a,h)anthracene	48		13	1.9	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Fluoranthene	210		13	3.7	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Fluorene	20		13	1.3	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Indeno[1,2,3-cd]pyrene	270		13	1.6	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Naphthalene	60		13	2.1	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Phenanthrene	120	B	13	1.8	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10
Pyrene	380		13	2.6	ug/Kg	☼	07/30/18 16:20	08/01/18 18:19	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	82		57 - 120	07/30/18 16:20	08/01/18 18:19	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.7	0.46	ug/Kg	☼	07/31/18 09:55	08/04/18 05:18	1
PCB-1221	ND		2.7	1.3	ug/Kg	☼	07/31/18 09:55	08/04/18 05:18	1
PCB-1232	ND		2.7	0.63	ug/Kg	☼	07/31/18 09:55	08/04/18 05:18	1
PCB-1242	ND		2.7	0.66	ug/Kg	☼	07/31/18 09:55	08/04/18 05:18	1
PCB-1248	ND		2.7	0.22	ug/Kg	☼	07/31/18 09:55	08/04/18 05:18	1
PCB-1254	12		2.7	1.1	ug/Kg	☼	07/31/18 09:55	08/04/18 05:18	1
PCB-1260	ND		2.7	0.46	ug/Kg	☼	07/31/18 09:55	08/04/18 05:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	53	X	54 - 142	07/31/18 09:55	08/04/18 05:18	1
Tetrachloro-m-xylene	44	X	58 - 122	07/31/18 09:55	08/04/18 05:18	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	5500		2000	44	mg/Kg			08/09/18 13:02	1
Total Solids	73.9		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	76		0.10	0.10	%			07/31/18 13:43	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	6.8				%			07/31/18 13:43	1
Coarse Sand	0.1				%			07/31/18 13:43	1
Medium Sand	12.1				%			07/31/18 13:43	1
Fine Sand	66.9				%			07/31/18 13:43	1
Silt	9.9				%			07/31/18 13:43	1
Clay	4.3				%			07/31/18 13:43	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S024-4to6**

**Lab Sample ID: 580-79163-28**

Date Collected: 07/27/18 09:20

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 78.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	19		12	1.1	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Acenaphthene	8.4	J	12	1.4	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Acenaphthylene	8.7	J	12	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Anthracene	28		12	1.4	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Benzo[a]anthracene	85		12	1.8	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Benzo[a]pyrene	91		12	0.95	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Benzo[b]fluoranthene	120		12	1.4	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Benzo[g,h,i]perylene	73		12	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Benzo[k]fluoranthene	36		12	1.4	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Chrysene	110		12	3.5	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Dibenz(a,h)anthracene	13		12	1.7	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Fluoranthene	100		12	3.3	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Fluorene	12		12	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Indeno[1,2,3-cd]pyrene	96		12	1.4	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Naphthalene	47		12	1.9	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Phenanthrene	71	B	12	1.6	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10
Pyrene	200		12	2.3	ug/Kg	☼	07/30/18 16:20	08/01/18 18:43	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	93		57 - 120	07/30/18 16:20	08/01/18 18:43	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.5	0.43	ug/Kg	☼	07/31/18 09:55	08/04/18 05:36	1
PCB-1221	ND		2.5	1.2	ug/Kg	☼	07/31/18 09:55	08/04/18 05:36	1
PCB-1232	ND		2.5	0.59	ug/Kg	☼	07/31/18 09:55	08/04/18 05:36	1
PCB-1242	ND		2.5	0.62	ug/Kg	☼	07/31/18 09:55	08/04/18 05:36	1
PCB-1248	ND		2.5	0.20	ug/Kg	☼	07/31/18 09:55	08/04/18 05:36	1
PCB-1254	7.7		2.5	1.0	ug/Kg	☼	07/31/18 09:55	08/04/18 05:36	1
PCB-1260	ND		2.5	0.43	ug/Kg	☼	07/31/18 09:55	08/04/18 05:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	51	X	54 - 142	07/31/18 09:55	08/04/18 05:36	1
Tetrachloro-m-xylene	50	X	58 - 122	07/31/18 09:55	08/04/18 05:36	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	3400		2000	44	mg/Kg			08/09/18 13:07	1
Total Solids	78.8		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	79		0.10	0.10	%			07/31/18 13:43	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/31/18 13:43	1
Coarse Sand	0.3				%			07/31/18 13:43	1
Medium Sand	17.8				%			07/31/18 13:43	1
Fine Sand	69.5				%			07/31/18 13:43	1
Silt	9.0				%			07/31/18 13:43	1
Clay	3.4				%			07/31/18 13:43	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S028-0to2**

**Lab Sample ID: 580-79163-29**

Date Collected: 07/27/18 10:10

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 63.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	13	J	16	1.4	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Acenaphthene	7.3	J	16	1.9	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Acenaphthylene	6.2	J	16	1.6	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Anthracene	20		16	1.9	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Benzo[a]anthracene	47		16	2.4	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Benzo[a]pyrene	64		16	1.3	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Benzo[b]fluoranthene	92		16	1.9	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Benzo[g,h,i]perylene	65		16	1.6	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Benzo[k]fluoranthene	31		16	1.9	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Chrysene	61		16	4.7	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Dibenz(a,h)anthracene	12	J	16	2.3	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Fluoranthene	72		16	4.4	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Fluorene	6.9	J	16	1.6	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Indeno[1,2,3-cd]pyrene	83		16	1.9	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Naphthalene	24		16	2.5	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Phenanthrene	57	B	16	2.2	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
Pyrene	110		16	3.0	ug/Kg	☼	07/30/18 16:20	08/01/18 19:08	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	76		57 - 120				07/30/18 16:20	08/01/18 19:08	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		3.0	0.51	ug/Kg	☼	07/31/18 09:55	08/04/18 05:54	1
PCB-1221	ND		3.0	1.4	ug/Kg	☼	07/31/18 09:55	08/04/18 05:54	1
PCB-1232	ND		3.0	0.71	ug/Kg	☼	07/31/18 09:55	08/04/18 05:54	1
PCB-1242	ND		3.0	0.74	ug/Kg	☼	07/31/18 09:55	08/04/18 05:54	1
PCB-1248	ND		3.0	0.24	ug/Kg	☼	07/31/18 09:55	08/04/18 05:54	1
<b>PCB-1254</b>	<b>5.1</b>		3.0	1.2	ug/Kg	☼	07/31/18 09:55	08/04/18 05:54	1
PCB-1260	ND		3.0	0.51	ug/Kg	☼	07/31/18 09:55	08/04/18 05:54	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	50	X	54 - 142				07/31/18 09:55	08/04/18 05:54	1
Tetrachloro-m-xylene	53	X	58 - 122				07/31/18 09:55	08/04/18 05:54	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	27000		2000	44	mg/Kg			08/09/18 13:11	1
Total Solids	63.1		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	64		0.10	0.10	%			07/31/18 13:43	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.3				%			07/31/18 13:43	1
Coarse Sand	0.4				%			07/31/18 13:43	1
Medium Sand	7.0				%			07/31/18 13:43	1
Fine Sand	63.5				%			07/31/18 13:43	1
Silt	24.8				%			07/31/18 13:43	1
Clay	4.1				%			07/31/18 13:43	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S028-2to3.2**

**Lab Sample ID: 580-79163-30**

Date Collected: 07/27/18 10:15

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 78.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	2.2	J	6.0	0.54	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Acenaphthene	2.0	J	6.0	0.73	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Acenaphthylene	1.3	J	6.0	0.60	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Anthracene	3.8	J	6.0	0.73	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Benzo[a]anthracene	9.6		6.0	0.92	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Benzo[a]pyrene	9.4		6.0	0.48	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Benzo[b]fluoranthene	16		6.0	0.71	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Benzo[g,h,i]perylene	9.3		6.0	0.60	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Benzo[k]fluoranthene	5.2	J	6.0	0.73	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Chrysene	14		6.0	1.8	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Dibenz(a,h)anthracene	2.7	J	6.0	0.87	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Fluoranthene	14		6.0	1.7	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Fluorene	1.2	J	6.0	0.60	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Indeno[1,2,3-cd]pyrene	12		6.0	0.73	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Naphthalene	5.4	J	6.0	0.97	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Phenanthrene	14	B	6.0	0.83	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5
Pyrene	29		6.0	1.2	ug/Kg	☼	07/30/18 16:20	08/01/18 19:32	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	90		57 - 120	07/30/18 16:20	08/01/18 19:32	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.5	0.42	ug/Kg	☼	07/31/18 09:55	08/04/18 06:11	1
PCB-1221	ND		2.5	1.2	ug/Kg	☼	07/31/18 09:55	08/04/18 06:11	1
PCB-1232	ND		2.5	0.58	ug/Kg	☼	07/31/18 09:55	08/04/18 06:11	1
PCB-1242	ND		2.5	0.60	ug/Kg	☼	07/31/18 09:55	08/04/18 06:11	1
PCB-1248	ND		2.5	0.20	ug/Kg	☼	07/31/18 09:55	08/04/18 06:11	1
PCB-1254	3.0		2.5	0.97	ug/Kg	☼	07/31/18 09:55	08/04/18 06:11	1
PCB-1260	ND		2.5	0.42	ug/Kg	☼	07/31/18 09:55	08/04/18 06:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	52	X	54 - 142	07/31/18 09:55	08/04/18 06:11	1
Tetrachloro-m-xylene	50	X	58 - 122	07/31/18 09:55	08/04/18 06:11	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	1800	J	2000	44	mg/Kg			08/09/18 13:17	1
Total Solids	78.2		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	81		0.10	0.10	%			07/31/18 13:43	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/31/18 13:43	1
Coarse Sand	0.1				%			07/31/18 13:43	1
Medium Sand	12.9				%			07/31/18 13:43	1
Fine Sand	73.4				%			07/31/18 13:43	1
Silt	10.3				%			07/31/18 13:43	1
Clay	3.2				%			07/31/18 13:43	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S028-3.2to5.7**

**Lab Sample ID: 580-79163-31**

Date Collected: 07/27/18 10:20

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 70.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	4.4	J	6.9	0.62	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Acenaphthene	2.1	J	6.9	0.83	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Acenaphthylene	4.2	J	6.9	0.69	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Anthracene	15		6.9	0.83	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Benzo[a]anthracene	44		6.9	1.1	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Benzo[a]pyrene	55		6.9	0.55	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Benzo[b]fluoranthene	66		6.9	0.82	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Benzo[g,h,i]perylene	48		6.9	0.69	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Benzo[k]fluoranthene	21		6.9	0.83	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Chrysene	56		6.9	2.1	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Dibenz(a,h)anthracene	9.2		6.9	1.0	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Fluoranthene	49		6.9	1.9	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Fluorene	4.0	J	6.9	0.69	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Indeno[1,2,3-cd]pyrene	60		6.9	0.83	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Naphthalene	19		6.9	1.1	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Phenanthrene	34	B	6.9	0.96	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5
Pyrene	120		6.9	1.3	ug/Kg	☼	07/30/18 16:20	08/01/18 19:56	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	85		57 - 120	07/30/18 16:20	08/01/18 19:56	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.8	0.48	ug/Kg	☼	07/31/18 09:55	08/04/18 06:29	1
PCB-1221	ND		2.8	1.3	ug/Kg	☼	07/31/18 09:55	08/04/18 06:29	1
PCB-1232	ND		2.8	0.67	ug/Kg	☼	07/31/18 09:55	08/04/18 06:29	1
PCB-1242	ND		2.8	0.69	ug/Kg	☼	07/31/18 09:55	08/04/18 06:29	1
PCB-1248	ND		2.8	0.23	ug/Kg	☼	07/31/18 09:55	08/04/18 06:29	1
PCB-1254	4.2		2.8	1.1	ug/Kg	☼	07/31/18 09:55	08/04/18 06:29	1
PCB-1260	ND		2.8	0.48	ug/Kg	☼	07/31/18 09:55	08/04/18 06:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	53	X	54 - 142	07/31/18 09:55	08/04/18 06:29	1
Tetrachloro-m-xylene	42	X	58 - 122	07/31/18 09:55	08/04/18 06:29	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	4900		2000	44	mg/Kg			08/09/18 13:21	1
Total Solids	70.6		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	73		0.10	0.10	%			07/31/18 13:43	1

## Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.6				%			07/31/18 13:43	1
Coarse Sand	0.4				%			07/31/18 13:43	1
Medium Sand	4.9				%			07/31/18 13:43	1
Fine Sand	49.9				%			07/31/18 13:43	1
Silt	35.3				%			07/31/18 13:43	1
Clay	9.0				%			07/31/18 13:43	1

TestAmerica Seattle



# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S028-3.2to5.7D**

**Lab Sample ID: 580-79163-32**

Date Collected: 07/27/18 10:20

Matrix: Solid

Date Received: 07/27/18 14:35

Percent Solids: 70.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	7.9		6.8	0.61	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Acenaphthene	5.1	J	6.8	0.82	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Acenaphthylene	7.4		6.8	0.68	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Anthracene	26		6.8	0.82	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Benzo[a]anthracene	110		6.8	1.0	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Benzo[a]pyrene	98		6.8	0.54	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Benzo[b]fluoranthene	120		6.8	0.80	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Benzo[g,h,i]perylene	75		6.8	0.68	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Benzo[k]fluoranthene	36		6.8	0.82	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Chrysene	130		6.8	2.0	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Dibenz(a,h)anthracene	21		6.8	0.98	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Fluoranthene	160		6.8	1.9	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Fluorene	7.3		6.8	0.68	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Indeno[1,2,3-cd]pyrene	100		6.8	0.82	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Naphthalene	27		6.8	1.1	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Phenanthrene	73	B	6.8	0.94	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
Pyrene	350		6.8	1.3	ug/Kg	☼	07/30/18 16:20	08/01/18 20:20	5
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	86		57 - 120				07/30/18 16:20	08/01/18 20:20	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.7	0.46	ug/Kg	☼	07/31/18 09:55	08/04/18 06:46	1
PCB-1221	ND		2.7	1.3	ug/Kg	☼	07/31/18 09:55	08/04/18 06:46	1
PCB-1232	ND		2.7	0.64	ug/Kg	☼	07/31/18 09:55	08/04/18 06:46	1
PCB-1242	ND		2.7	0.66	ug/Kg	☼	07/31/18 09:55	08/04/18 06:46	1
PCB-1248	ND		2.7	0.22	ug/Kg	☼	07/31/18 09:55	08/04/18 06:46	1
<b>PCB-1254</b>	<b>5.6</b>		2.7	1.1	ug/Kg	☼	07/31/18 09:55	08/04/18 06:46	1
PCB-1260	ND		2.7	0.46	ug/Kg	☼	07/31/18 09:55	08/04/18 06:46	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	54		54 - 142				07/31/18 09:55	08/04/18 06:46	1
Tetrachloro-m-xylene	42	X	58 - 122				07/31/18 09:55	08/04/18 06:46	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	5300		2000	44	mg/Kg			08/09/18 13:27	1
Total Solids	70.7		0.1	0.1	%			07/31/18 09:39	1
Total Solids @ 70°C	72		0.10	0.10	%			08/03/18 11:22	1

TestAmerica Seattle

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-RB-SS-180725**

**Lab Sample ID: 580-79163-33**

**Date Collected: 07/25/18 14:30**

**Matrix: Water**

**Date Received: 07/27/18 14:35**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.10	0.019	ug/L		07/31/18 11:01	08/02/18 20:11	1
2-Methylnaphthalene	ND		0.10	0.021	ug/L		07/31/18 11:01	08/02/18 20:11	1
Acenaphthylene	ND		0.21	0.045	ug/L		07/31/18 11:01	08/02/18 20:11	1
Acenaphthene	ND		0.10	0.0062	ug/L		07/31/18 11:01	08/02/18 20:11	1
Fluorene	ND		0.10	0.013	ug/L		07/31/18 11:01	08/02/18 20:11	1
Phenanthrene	ND		0.10	0.020	ug/L		07/31/18 11:01	08/02/18 20:11	1
Anthracene	ND		0.10	0.0072	ug/L		07/31/18 11:01	08/02/18 20:11	1
Fluoranthene	ND		0.10	0.013	ug/L		07/31/18 11:01	08/02/18 20:11	1
Pyrene	ND		0.10	0.0093	ug/L		07/31/18 11:01	08/02/18 20:11	1
Benzo[a]anthracene	ND		0.10	0.0062	ug/L		07/31/18 11:01	08/02/18 20:11	1
Chrysene	ND		0.10	0.0062	ug/L		07/31/18 11:01	08/02/18 20:11	1
Benzo[b]fluoranthene	ND		0.10	0.0062	ug/L		07/31/18 11:01	08/02/18 20:11	1
Benzo[k]fluoranthene	ND		0.10	0.013	ug/L		07/31/18 11:01	08/02/18 20:11	1
Benzo[a]pyrene	ND		0.10	0.036	ug/L		07/31/18 11:01	08/02/18 20:11	1
Indeno[1,2,3-cd]pyrene	ND		0.10	0.0062	ug/L		07/31/18 11:01	08/02/18 20:11	1
Dibenz(a,h)anthracene	ND		0.10	0.0062	ug/L		07/31/18 11:01	08/02/18 20:11	1
Benzo[g,h,i]perylene	ND		0.21	0.078	ug/L		07/31/18 11:01	08/02/18 20:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	86		54 - 120	07/31/18 11:01	08/02/18 20:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.45	0.062	ug/L		07/31/18 13:19	08/03/18 22:16	1
PCB-1221	ND		0.45	0.076	ug/L		07/31/18 13:19	08/03/18 22:16	1
PCB-1232	ND		0.45	0.064	ug/L		07/31/18 13:19	08/03/18 22:16	1
PCB-1242	ND		0.45	0.060	ug/L		07/31/18 13:19	08/03/18 22:16	1
PCB-1248	ND		0.45	0.053	ug/L		07/31/18 13:19	08/03/18 22:16	1
PCB-1254	ND		0.45	0.076	ug/L		07/31/18 13:19	08/03/18 22:16	1
PCB-1260	ND		0.45	0.062	ug/L		07/31/18 13:19	08/03/18 22:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	46		38 - 140	07/31/18 13:19	08/03/18 22:16	1
Tetrachloro-m-xylene	67		40 - 120	07/31/18 13:19	08/03/18 22:16	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.28	J	1.0	0.19	mg/L			08/01/18 12:43	1

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-RB-SS-180726**

**Lab Sample ID: 580-79163-34**

**Date Collected: 07/26/18 15:00**

**Matrix: Water**

**Date Received: 07/27/18 14:35**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.096	0.017	ug/L		07/31/18 11:01	08/02/18 20:33	1
2-Methylnaphthalene	ND		0.096	0.019	ug/L		07/31/18 11:01	08/02/18 20:33	1
Acenaphthylene	ND		0.19	0.042	ug/L		07/31/18 11:01	08/02/18 20:33	1
Acenaphthene	ND		0.096	0.0057	ug/L		07/31/18 11:01	08/02/18 20:33	1
Fluorene	ND		0.096	0.012	ug/L		07/31/18 11:01	08/02/18 20:33	1
Phenanthrene	ND		0.096	0.018	ug/L		07/31/18 11:01	08/02/18 20:33	1
Anthracene	ND		0.096	0.0067	ug/L		07/31/18 11:01	08/02/18 20:33	1
Fluoranthene	ND		0.096	0.012	ug/L		07/31/18 11:01	08/02/18 20:33	1
Pyrene	ND		0.096	0.0086	ug/L		07/31/18 11:01	08/02/18 20:33	1
Benzo[a]anthracene	ND		0.096	0.0057	ug/L		07/31/18 11:01	08/02/18 20:33	1
Chrysene	ND		0.096	0.0057	ug/L		07/31/18 11:01	08/02/18 20:33	1
Benzo[b]fluoranthene	ND		0.096	0.0057	ug/L		07/31/18 11:01	08/02/18 20:33	1
Benzo[k]fluoranthene	ND		0.096	0.012	ug/L		07/31/18 11:01	08/02/18 20:33	1
Benzo[a]pyrene	ND		0.096	0.033	ug/L		07/31/18 11:01	08/02/18 20:33	1
Indeno[1,2,3-cd]pyrene	ND		0.096	0.0057	ug/L		07/31/18 11:01	08/02/18 20:33	1
Dibenz(a,h)anthracene	ND		0.096	0.0057	ug/L		07/31/18 11:01	08/02/18 20:33	1
Benzo[g,h,i]perylene	ND		0.19	0.073	ug/L		07/31/18 11:01	08/02/18 20:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	81		54 - 120	07/31/18 11:01	08/02/18 20:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.43	0.058	ug/L		07/31/18 13:19	08/03/18 22:33	1
PCB-1221	ND		0.43	0.072	ug/L		07/31/18 13:19	08/03/18 22:33	1
PCB-1232	ND		0.43	0.060	ug/L		07/31/18 13:19	08/03/18 22:33	1
PCB-1242	ND		0.43	0.056	ug/L		07/31/18 13:19	08/03/18 22:33	1
PCB-1248	ND		0.43	0.050	ug/L		07/31/18 13:19	08/03/18 22:33	1
PCB-1254	ND		0.43	0.072	ug/L		07/31/18 13:19	08/03/18 22:33	1
PCB-1260	ND		0.43	0.058	ug/L		07/31/18 13:19	08/03/18 22:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	50		38 - 140	07/31/18 13:19	08/03/18 22:33	1
Tetrachloro-m-xylene	61		40 - 120	07/31/18 13:19	08/03/18 22:33	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			08/01/18 12:43	1

# Client Sample Results

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-RB-SS-180727**

**Lab Sample ID: 580-79163-35**

**Date Collected: 07/27/18 09:45**

**Matrix: Water**

**Date Received: 07/27/18 14:35**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.096	0.017	ug/L		07/31/18 11:01	08/02/18 20:55	1
2-Methylnaphthalene	ND		0.096	0.019	ug/L		07/31/18 11:01	08/02/18 20:55	1
Acenaphthylene	ND		0.19	0.042	ug/L		07/31/18 11:01	08/02/18 20:55	1
Acenaphthene	ND		0.096	0.0058	ug/L		07/31/18 11:01	08/02/18 20:55	1
Fluorene	ND		0.096	0.013	ug/L		07/31/18 11:01	08/02/18 20:55	1
Phenanthrene	ND		0.096	0.018	ug/L		07/31/18 11:01	08/02/18 20:55	1
Anthracene	ND		0.096	0.0067	ug/L		07/31/18 11:01	08/02/18 20:55	1
Fluoranthene	ND		0.096	0.013	ug/L		07/31/18 11:01	08/02/18 20:55	1
Pyrene	ND		0.096	0.0087	ug/L		07/31/18 11:01	08/02/18 20:55	1
Benzo[a]anthracene	ND		0.096	0.0058	ug/L		07/31/18 11:01	08/02/18 20:55	1
Chrysene	ND		0.096	0.0058	ug/L		07/31/18 11:01	08/02/18 20:55	1
Benzo[b]fluoranthene	ND		0.096	0.0058	ug/L		07/31/18 11:01	08/02/18 20:55	1
Benzo[k]fluoranthene	ND		0.096	0.013	ug/L		07/31/18 11:01	08/02/18 20:55	1
Benzo[a]pyrene	ND		0.096	0.034	ug/L		07/31/18 11:01	08/02/18 20:55	1
Indeno[1,2,3-cd]pyrene	ND		0.096	0.0058	ug/L		07/31/18 11:01	08/02/18 20:55	1
Dibenz(a,h)anthracene	ND		0.096	0.0058	ug/L		07/31/18 11:01	08/02/18 20:55	1
Benzo[g,h,i]perylene	ND		0.19	0.073	ug/L		07/31/18 11:01	08/02/18 20:55	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	77		54 - 120				07/31/18 11:01	08/02/18 20:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.43	0.058	ug/L		07/31/18 13:19	08/03/18 22:51	1
PCB-1221	ND		0.43	0.071	ug/L		07/31/18 13:19	08/03/18 22:51	1
PCB-1232	ND		0.43	0.060	ug/L		07/31/18 13:19	08/03/18 22:51	1
PCB-1242	ND		0.43	0.056	ug/L		07/31/18 13:19	08/03/18 22:51	1
PCB-1248	ND		0.43	0.049	ug/L		07/31/18 13:19	08/03/18 22:51	1
PCB-1254	ND		0.43	0.071	ug/L		07/31/18 13:19	08/03/18 22:51	1
PCB-1260	ND		0.43	0.058	ug/L		07/31/18 13:19	08/03/18 22:51	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	44		38 - 140				07/31/18 13:19	08/03/18 22:51	1
Tetrachloro-m-xylene	37	X	40 - 120				07/31/18 13:19	08/03/18 22:51	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			08/01/18 12:43	1

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79163-1

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

**Lab Sample ID: MB 580-280319/1-A**  
**Matrix: Solid**  
**Analysis Batch: 280717**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 280319**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	0.251	J	1.0	0.090	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Acenaphthylene	0.305	J	1.0	0.10	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Acenaphthene	0.171	J	1.0	0.12	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Anthracene	0.271	J	1.0	0.12	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Benzo[a]anthracene	ND		1.0	0.15	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Chrysene	ND		1.0	0.30	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Fluoranthene	0.346	J	1.0	0.28	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Benzo[b]fluoranthene	ND		1.0	0.12	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Fluorene	0.382	J	1.0	0.10	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Benzo[k]fluoranthene	ND		1.0	0.12	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Benzo[a]pyrene	ND		1.0	0.080	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Naphthalene	0.466	J	1.0	0.16	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Indeno[1,2,3-cd]pyrene	ND		1.0	0.12	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Phenanthrene	1.82		1.0	0.14	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Dibenz(a,h)anthracene	ND		1.0	0.14	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Pyrene	0.210	J	1.0	0.19	ug/Kg		07/29/18 10:35	08/02/18 17:10	1
Benzo[g,h,i]perylene	ND		1.0	0.10	ug/Kg		07/29/18 10:35	08/02/18 17:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	101		57 - 120	07/29/18 10:35	08/02/18 17:10	1

**Lab Sample ID: LCS 580-280319/2-A**  
**Matrix: Solid**  
**Analysis Batch: 280717**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 280319**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Rec. Limits
2-Methylnaphthalene	200	194		ug/Kg		97	68 - 120
Acenaphthylene	200	171		ug/Kg		86	68 - 120
Acenaphthene	200	182		ug/Kg		91	68 - 120
Anthracene	200	200		ug/Kg		100	73 - 125
Benzo[a]anthracene	200	207		ug/Kg		104	66 - 120
Chrysene	200	186		ug/Kg		93	69 - 120
Fluoranthene	200	194		ug/Kg		97	74 - 125
Benzo[b]fluoranthene	200	180		ug/Kg		90	63 - 121
Fluorene	200	189		ug/Kg		94	73 - 120
Benzo[k]fluoranthene	200	193		ug/Kg		96	63 - 123
Benzo[a]pyrene	200	181		ug/Kg		91	72 - 124
Naphthalene	200	172		ug/Kg		86	70 - 120
Indeno[1,2,3-cd]pyrene	200	188		ug/Kg		94	65 - 121
Phenanthrene	200	187		ug/Kg		93	73 - 120
Dibenz(a,h)anthracene	200	196		ug/Kg		98	70 - 125
Pyrene	200	196		ug/Kg		98	70 - 120
Benzo[g,h,i]perylene	200	198		ug/Kg		99	63 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	98		57 - 120

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79163-1

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

**Lab Sample ID: MB 580-280386/1-A**  
**Matrix: Solid**  
**Analysis Batch: 280580**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 280386**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	2.13		1.0	0.090	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Acenaphthylene	ND		1.0	0.10	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Acenaphthene	ND		1.0	0.12	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Anthracene	0.171	J	1.0	0.12	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Benzo[a]anthracene	0.354	J	1.0	0.15	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Chrysene	0.440	J	1.0	0.30	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Fluoranthene	0.351	J	1.0	0.28	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Benzo[b]fluoranthene	0.382	J	1.0	0.12	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Fluorene	0.102	J	1.0	0.10	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Benzo[k]fluoranthene	0.431	J	1.0	0.12	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Benzo[a]pyrene	0.384	J	1.0	0.080	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Naphthalene	1.40		1.0	0.16	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Indeno[1,2,3-cd]pyrene	0.346	J	1.0	0.12	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Phenanthrene	0.293	J	1.0	0.14	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Dibenz(a,h)anthracene	0.333	J	1.0	0.14	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Pyrene	0.352	J	1.0	0.19	ug/Kg		07/30/18 11:32	08/01/18 12:10	1
Benzo[g,h,i]perylene	0.337	J	1.0	0.10	ug/Kg		07/30/18 11:32	08/01/18 12:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	91		57 - 120	07/30/18 11:32	08/01/18 12:10	1

**Lab Sample ID: LCS 580-280386/2-A**  
**Matrix: Solid**  
**Analysis Batch: 280580**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 280386**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Rec. Limits
2-Methylnaphthalene	200	200		ug/Kg		100	68 - 120
Acenaphthylene	200	189		ug/Kg		94	68 - 120
Acenaphthene	200	196		ug/Kg		98	68 - 120
Anthracene	200	215		ug/Kg		107	73 - 125
Benzo[a]anthracene	200	230		ug/Kg		115	66 - 120
Chrysene	200	216		ug/Kg		108	69 - 120
Fluoranthene	200	217		ug/Kg		109	74 - 125
Benzo[b]fluoranthene	200	236		ug/Kg		118	63 - 121
Fluorene	200	208		ug/Kg		104	73 - 120
Benzo[k]fluoranthene	200	232		ug/Kg		116	63 - 123
Benzo[a]pyrene	200	222		ug/Kg		111	72 - 124
Naphthalene	200	176		ug/Kg		88	70 - 120
Indeno[1,2,3-cd]pyrene	200	207		ug/Kg		103	65 - 121
Phenanthrene	200	200		ug/Kg		100	73 - 120
Dibenz(a,h)anthracene	200	223		ug/Kg		111	70 - 125
Pyrene	200	212		ug/Kg		106	70 - 120
Benzo[g,h,i]perylene	200	235		ug/Kg		117	63 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	81		57 - 120

TestAmerica Seattle



# QC Sample Results

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

TestAmerica Job ID: 580-79163-1

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

**Lab Sample ID: MB 580-280419/1-A**  
**Matrix: Solid**  
**Analysis Batch: 280579**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 280419**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		1.0	0.090	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Acenaphthylene	ND		1.0	0.10	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Acenaphthene	ND		1.0	0.12	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Anthracene	ND		1.0	0.12	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Benzo[a]anthracene	ND		1.0	0.15	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Chrysene	ND		1.0	0.30	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Fluoranthene	ND		1.0	0.28	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Benzo[b]fluoranthene	ND		1.0	0.12	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Fluorene	ND		1.0	0.10	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Benzo[k]fluoranthene	ND		1.0	0.12	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Benzo[a]pyrene	ND		1.0	0.080	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Naphthalene	ND		1.0	0.16	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Indeno[1,2,3-cd]pyrene	ND		1.0	0.12	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Phenanthrene	0.145	J	1.0	0.14	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Dibenz(a,h)anthracene	ND		1.0	0.14	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Pyrene	ND		1.0	0.19	ug/Kg		07/30/18 16:20	08/01/18 13:04	1
Benzo[g,h,i]perylene	ND		1.0	0.10	ug/Kg		07/30/18 16:20	08/01/18 13:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	113		57 - 120	07/30/18 16:20	08/01/18 13:04	1

**Lab Sample ID: LCS 580-280419/2-A**  
**Matrix: Solid**  
**Analysis Batch: 280579**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 280419**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Rec. Limits
2-Methylnaphthalene	200	188		ug/Kg		94	68 - 120
Acenaphthylene	200	198		ug/Kg		99	68 - 120
Acenaphthene	200	184		ug/Kg		92	68 - 120
Anthracene	200	210		ug/Kg		105	73 - 125
Benzo[a]anthracene	200	228		ug/Kg		114	66 - 120
Chrysene	200	216		ug/Kg		108	69 - 120
Fluoranthene	200	234		ug/Kg		117	74 - 125
Benzo[b]fluoranthene	200	233		ug/Kg		117	63 - 121
Fluorene	200	196		ug/Kg		98	73 - 120
Benzo[k]fluoranthene	200	221		ug/Kg		111	63 - 123
Benzo[a]pyrene	200	227		ug/Kg		114	72 - 124
Naphthalene	200	175		ug/Kg		88	70 - 120
Indeno[1,2,3-cd]pyrene	200	205		ug/Kg		103	65 - 121
Phenanthrene	200	187		ug/Kg		94	73 - 120
Dibenz(a,h)anthracene	200	213		ug/Kg		107	70 - 125
Pyrene	200	229		ug/Kg		114	70 - 120
Benzo[g,h,i]perylene	200	213		ug/Kg		106	63 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	105		57 - 120

TestAmerica Seattle



# QC Sample Results

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

TestAmerica Job ID: 580-79163-1

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

**Lab Sample ID: 580-79163-14 MS**

**Matrix: Solid**  
**Analysis Batch: 280579**

**Client Sample ID: PDI-SC-S002-4to6.5**

**Prep Type: Total/NA**  
**Prep Batch: 280419**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier		Added	Result				
2-Methylnaphthalene	1.5	J	280	230		ug/Kg	☼	82	68 - 120
Acenaphthene	ND		280	230		ug/Kg	☼	82	68 - 120
Acenaphthylene	ND		280	233		ug/Kg	☼	83	68 - 120
Anthracene	0.85	J	280	272		ug/Kg	☼	97	73 - 125
Benzo[a]anthracene	1.4	J	280	281		ug/Kg	☼	100	66 - 120
Benzo[a]pyrene	ND		280	263		ug/Kg	☼	94	72 - 124
Benzo[b]fluoranthene	1.8	J	280	272		ug/Kg	☼	97	63 - 121
Benzo[g,h,i]perylene	ND		280	244		ug/Kg	☼	87	63 - 120
Benzo[k]fluoranthene	ND		280	265		ug/Kg	☼	95	63 - 123
Chrysene	ND		280	276		ug/Kg	☼	99	69 - 120
Dibenz(a,h)anthracene	ND		280	271		ug/Kg	☼	97	70 - 125
Fluoranthene	2.1	J	280	295		ug/Kg	☼	105	74 - 125
Fluorene	1.2	J	280	247		ug/Kg	☼	88	73 - 120
Indeno[1,2,3-cd]pyrene	ND		280	319		ug/Kg	☼	114	65 - 121
Naphthalene	1.2	J	280	221		ug/Kg	☼	79	70 - 120
Phenanthrene	3.9	J B	280	241		ug/Kg	☼	85	73 - 120
Pyrene	2.0	J	280	292		ug/Kg	☼	104	70 - 120

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
Terphenyl-d14	95		57 - 120

**Lab Sample ID: 580-79163-14 MSD**

**Matrix: Solid**  
**Analysis Batch: 280579**

**Client Sample ID: PDI-SC-S002-4to6.5**

**Prep Type: Total/NA**  
**Prep Batch: 280419**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Added	Result						
2-Methylnaphthalene	1.5	J	269	217		ug/Kg	☼	80	68 - 120	6	12
Acenaphthene	ND		269	227		ug/Kg	☼	84	68 - 120	1	12
Acenaphthylene	ND		269	233		ug/Kg	☼	87	68 - 120	0	12
Anthracene	0.85	J	269	256		ug/Kg	☼	95	73 - 125	6	12
Benzo[a]anthracene	1.4	J	269	269		ug/Kg	☼	99	66 - 120	5	14
Benzo[a]pyrene	ND		269	253		ug/Kg	☼	94	72 - 124	4	12
Benzo[b]fluoranthene	1.8	J	269	261		ug/Kg	☼	96	63 - 121	4	10
Benzo[g,h,i]perylene	ND		269	231		ug/Kg	☼	86	63 - 120	6	14
Benzo[k]fluoranthene	ND		269	255		ug/Kg	☼	95	63 - 123	4	15
Chrysene	ND		269	263		ug/Kg	☼	97	69 - 120	5	10
Dibenz(a,h)anthracene	ND		269	257		ug/Kg	☼	96	70 - 125	5	13
Fluoranthene	2.1	J	269	286		ug/Kg	☼	105	74 - 125	3	13
Fluorene	1.2	J	269	245		ug/Kg	☼	91	73 - 120	1	13
Indeno[1,2,3-cd]pyrene	ND		269	300		ug/Kg	☼	111	65 - 121	6	15
Naphthalene	1.2	J	269	211		ug/Kg	☼	78	70 - 120	5	12
Phenanthrene	3.9	J B	269	236		ug/Kg	☼	86	73 - 120	2	11
Pyrene	2.0	J	269	284		ug/Kg	☼	105	70 - 120	3	12

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
Terphenyl-d14	94		57 - 120

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79163-1

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

**Lab Sample ID: MB 580-280461/1-A**  
**Matrix: Water**  
**Analysis Batch: 280719**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 280461**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		0.10	0.020	ug/L		07/31/18 11:01	08/02/18 19:04	1
Acenaphthylene	ND		0.20	0.044	ug/L		07/31/18 11:01	08/02/18 19:04	1
Acenaphthene	ND		0.10	0.0060	ug/L		07/31/18 11:01	08/02/18 19:04	1
Anthracene	ND		0.10	0.0070	ug/L		07/31/18 11:01	08/02/18 19:04	1
Benzo[a]anthracene	ND		0.10	0.0060	ug/L		07/31/18 11:01	08/02/18 19:04	1
Chrysene	ND		0.10	0.0060	ug/L		07/31/18 11:01	08/02/18 19:04	1
Fluoranthene	ND		0.10	0.013	ug/L		07/31/18 11:01	08/02/18 19:04	1
Benzo[b]fluoranthene	ND		0.10	0.0060	ug/L		07/31/18 11:01	08/02/18 19:04	1
Fluorene	ND		0.10	0.013	ug/L		07/31/18 11:01	08/02/18 19:04	1
Benzo[k]fluoranthene	ND		0.10	0.013	ug/L		07/31/18 11:01	08/02/18 19:04	1
Benzo[a]pyrene	ND		0.10	0.035	ug/L		07/31/18 11:01	08/02/18 19:04	1
Naphthalene	ND		0.10	0.018	ug/L		07/31/18 11:01	08/02/18 19:04	1
Indeno[1,2,3-cd]pyrene	ND		0.10	0.0060	ug/L		07/31/18 11:01	08/02/18 19:04	1
Phenanthrene	ND		0.10	0.019	ug/L		07/31/18 11:01	08/02/18 19:04	1
Dibenz(a,h)anthracene	ND		0.10	0.0060	ug/L		07/31/18 11:01	08/02/18 19:04	1
Pyrene	ND		0.10	0.0090	ug/L		07/31/18 11:01	08/02/18 19:04	1
Benzo[g,h,i]perylene	ND		0.20	0.076	ug/L		07/31/18 11:01	08/02/18 19:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	80		54 - 120	07/31/18 11:01	08/02/18 19:04	1

**Lab Sample ID: LCS 580-280461/2-A**  
**Matrix: Water**  
**Analysis Batch: 280719**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 280461**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2-Methylnaphthalene	2.00	1.43		ug/L		71	53 - 120
Acenaphthylene	2.00	1.45		ug/L		72	33 - 130
Acenaphthene	2.00	1.49		ug/L		74	64 - 120
Anthracene	2.00	1.46		ug/L		73	46 - 127
Benzo[a]anthracene	2.00	1.75		ug/L		87	70 - 120
Chrysene	2.00	1.95		ug/L		97	65 - 120
Fluoranthene	2.00	1.66		ug/L		83	72 - 120
Benzo[b]fluoranthene	2.00	2.03		ug/L		101	57 - 132
Fluorene	2.00	1.57		ug/L		79	67 - 120
Benzo[k]fluoranthene	2.00	1.88		ug/L		94	61 - 132
Benzo[a]pyrene	2.00	1.64		ug/L		82	23 - 141
Naphthalene	2.00	1.41		ug/L		70	58 - 120
Indeno[1,2,3-cd]pyrene	2.00	2.29		ug/L		115	53 - 133
Phenanthrene	2.00	1.58		ug/L		79	69 - 120
Dibenz(a,h)anthracene	2.00	2.25		ug/L		112	57 - 132
Pyrene	2.00	1.62		ug/L		81	57 - 133
Benzo[g,h,i]perylene	2.00	1.97		ug/L		99	52 - 129

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	77		54 - 120

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79163-1

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

**Lab Sample ID: LCSD 580-280461/3-A**  
**Matrix: Water**  
**Analysis Batch: 280719**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 280461**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
2-Methylnaphthalene	2.00	1.54		ug/L		77	53 - 120	7	23
Acenaphthylene	2.00	1.54		ug/L		77	33 - 130	6	34
Acenaphthene	2.00	1.54		ug/L		77	64 - 120	4	20
Anthracene	2.00	1.56		ug/L		78	46 - 127	7	19
Benzo[a]anthracene	2.00	1.85		ug/L		93	70 - 120	6	17
Chrysene	2.00	2.04		ug/L		102	65 - 120	5	19
Fluoranthene	2.00	1.74		ug/L		87	72 - 120	5	21
Benzo[b]fluoranthene	2.00	1.94		ug/L		97	57 - 132	4	25
Fluorene	2.00	1.66		ug/L		83	67 - 120	6	20
Benzo[k]fluoranthene	2.00	2.19		ug/L		110	61 - 132	16	22
Benzo[a]pyrene	2.00	1.81		ug/L		90	23 - 141	9	35
Naphthalene	2.00	1.51		ug/L		76	58 - 120	7	23
Indeno[1,2,3-cd]pyrene	2.00	2.40		ug/L		120	53 - 133	5	25
Phenanthrene	2.00	1.67		ug/L		83	69 - 120	6	21
Dibenz(a,h)anthracene	2.00	2.38		ug/L		119	57 - 132	6	24
Pyrene	2.00	1.69		ug/L		84	57 - 133	4	21
Benzo[g,h,i]perylene	2.00	2.12		ug/L		106	52 - 129	7	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	80		54 - 120

**Lab Sample ID: MB 580-281079/1-A**  
**Matrix: Solid**  
**Analysis Batch: 281217**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 281079**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	0.142	J	1.0	0.090	ug/Kg		08/07/18 16:51	08/09/18 10:50	1
Naphthalene	0.263	J	1.0	0.16	ug/Kg		08/07/18 16:51	08/09/18 10:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	106		57 - 120	08/07/18 16:51	08/09/18 10:50	1

**Lab Sample ID: LCS 580-281079/2-A**  
**Matrix: Solid**  
**Analysis Batch: 281217**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 281079**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2-Methylnaphthalene	200	210		ug/Kg		105	68 - 120
Naphthalene	200	185		ug/Kg		92	70 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	95		57 - 120

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79163-1

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

**Lab Sample ID: 580-79163-7 MS**

**Matrix: Solid**  
**Analysis Batch: 281217**

**Client Sample ID: PDI-SC-S140-2to4**

**Prep Type: Total/NA**  
**Prep Batch: 281079**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
2-Methylnaphthalene - RE	24	B	287	267		ug/Kg	☼	85	68 - 120
Naphthalene - RE	35	B F1	287	232	F1	ug/Kg	☼	69	70 - 120
<b>MS MS</b>									
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14 - RE	72		57 - 120						

**Lab Sample ID: 580-79163-7 MSD**

**Matrix: Solid**  
**Analysis Batch: 281217**

**Client Sample ID: PDI-SC-S140-2to4**

**Prep Type: Total/NA**  
**Prep Batch: 281079**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	RPD Limit
	Result	Qualifier		Result	Qualifier						
2-Methylnaphthalene - RE	24	B	285	284		ug/Kg	☼	92	68 - 120	6	12
Naphthalene - RE	35	B F1	285	247		ug/Kg	☼	74	70 - 120	6	12
<b>MSD MSD</b>											
Surrogate	%Recovery	Qualifier	Limits								
Terphenyl-d14 - RE	69		57 - 120								

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

**Lab Sample ID: MB 580-280364/1-A**

**Matrix: Solid**  
**Analysis Batch: 280815**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**  
**Prep Batch: 280364**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
PCB-1016	ND		2.0	0.34	ug/Kg		07/30/18 09:38	08/04/18 01:12	1
PCB-1221	ND		2.0	0.95	ug/Kg		07/30/18 09:38	08/04/18 01:12	1
PCB-1232	ND		2.0	0.47	ug/Kg		07/30/18 09:38	08/04/18 01:12	1
PCB-1242	ND		2.0	0.49	ug/Kg		07/30/18 09:38	08/04/18 01:12	1
PCB-1248	ND		2.0	0.16	ug/Kg		07/30/18 09:38	08/04/18 01:12	1
PCB-1254	ND		2.0	0.79	ug/Kg		07/30/18 09:38	08/04/18 01:12	1
PCB-1260	ND		2.0	0.34	ug/Kg		07/30/18 09:38	08/04/18 01:12	1
<b>MB MB</b>									
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
DCB Decachlorobiphenyl	73		54 - 142	07/30/18 09:38	08/04/18 01:12	1			
Tetrachloro-m-xylene	68		58 - 122	07/30/18 09:38	08/04/18 01:12	1			

**Lab Sample ID: LCS 580-280364/2-A**

**Matrix: Solid**  
**Analysis Batch: 280815**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**  
**Prep Batch: 280364**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
PCB-1016	10.0	7.30		ug/Kg		73	64 - 120
PCB-1260	10.0	6.92		ug/Kg		69	63 - 130
<b>LCS LCS</b>							
Surrogate	%Recovery	Qualifier	Limits				
DCB Decachlorobiphenyl	68		54 - 142				

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79163-1

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

**Lab Sample ID: LCS 580-280364/2-A**  
**Matrix: Solid**  
**Analysis Batch: 280815**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 280364**

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
Tetrachloro-m-xylene	64		58 - 122

**Lab Sample ID: 580-79163-7 MS**  
**Matrix: Solid**  
**Analysis Batch: 280817**

**Client Sample ID: PDI-SC-S140-2to4**  
**Prep Type: Total/NA**  
**Prep Batch: 280364**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec.	
				Result	Qualifier				Limits	Limits
PCB-1016	ND	F1	14.2	8.66	F1	ug/Kg	☼	61	64 - 120	
PCB-1260	ND		14.2	11.4		ug/Kg	☼	80	63 - 130	
Surrogate	%Recovery	Qualifier	Limits	MS						
DCB Decachlorobiphenyl	68		54 - 142							
Tetrachloro-m-xylene	46	X	58 - 122							

**Lab Sample ID: 580-79163-7 MSD**  
**Matrix: Solid**  
**Analysis Batch: 280817**

**Client Sample ID: PDI-SC-S140-2to4**  
**Prep Type: Total/NA**  
**Prep Batch: 280364**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec.		RPD	
				Result	Qualifier				Limits	RPD	Limit	
PCB-1016	ND	F1	13.6	9.89		ug/Kg	☼	73	64 - 120	13	21	
PCB-1260	ND		13.6	11.3		ug/Kg	☼	83	63 - 130	1	25	
Surrogate	%Recovery	Qualifier	Limits	MSD								
DCB Decachlorobiphenyl	68		54 - 142									
Tetrachloro-m-xylene	35	X	58 - 122									

**Lab Sample ID: MB 580-280451/1-A**  
**Matrix: Solid**  
**Analysis Batch: 280815**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 280451**

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac		
	Result	Qualifier									
PCB-1016	ND		2.0	0.34	ug/Kg		07/31/18 09:55	08/04/18 01:47	1		
PCB-1221	ND		2.0	0.95	ug/Kg		07/31/18 09:55	08/04/18 01:47	1		
PCB-1232	ND		2.0	0.47	ug/Kg		07/31/18 09:55	08/04/18 01:47	1		
PCB-1242	ND		2.0	0.49	ug/Kg		07/31/18 09:55	08/04/18 01:47	1		
PCB-1248	ND		2.0	0.16	ug/Kg		07/31/18 09:55	08/04/18 01:47	1		
PCB-1254	ND		2.0	0.79	ug/Kg		07/31/18 09:55	08/04/18 01:47	1		
PCB-1260	ND		2.0	0.34	ug/Kg		07/31/18 09:55	08/04/18 01:47	1		
Surrogate	%Recovery	Qualifier	Limits			Prepared		Analyzed		Dil Fac	
DCB Decachlorobiphenyl	75		54 - 142			07/31/18 09:55	08/04/18 01:47	08/04/18 01:47	08/04/18 01:47	1	1
Tetrachloro-m-xylene	74		58 - 122			07/31/18 09:55	08/04/18 01:47	08/04/18 01:47	08/04/18 01:47	1	1

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79163-1

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

**Lab Sample ID: LCS 580-280451/2-A**  
**Matrix: Solid**  
**Analysis Batch: 280815**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 280451**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	10.0	8.54		ug/Kg		85	64 - 120
PCB-1260	10.0	7.01		ug/Kg		70	63 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	70		54 - 142
Tetrachloro-m-xylene	61		58 - 122

**Lab Sample ID: 580-79163-14 MS**  
**Matrix: Solid**  
**Analysis Batch: 280815**

**Client Sample ID: PDI-SC-S002-4to6.5**  
**Prep Type: Total/NA**  
**Prep Batch: 280451**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
PCB-1016	ND	F1	14.2	8.61	F1	ug/Kg	☼	61	64 - 120
PCB-1260	ND		14.2	9.74		ug/Kg	☼	69	63 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
DCB Decachlorobiphenyl	61		54 - 142
Tetrachloro-m-xylene	57	X	58 - 122

**Lab Sample ID: 580-79163-14 MSD**  
**Matrix: Solid**  
**Analysis Batch: 280815**

**Client Sample ID: PDI-SC-S002-4to6.5**  
**Prep Type: Total/NA**  
**Prep Batch: 280451**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
PCB-1016	ND	F1	14.3	9.47		ug/Kg	☼	66	64 - 120	9	21
PCB-1260	ND		14.3	9.83		ug/Kg	☼	69	63 - 130	1	25

Surrogate	MSD %Recovery	MSD Qualifier	Limits
DCB Decachlorobiphenyl	64		54 - 142
Tetrachloro-m-xylene	60		58 - 122

**Lab Sample ID: MB 580-280483/1-A**  
**Matrix: Water**  
**Analysis Batch: 280814**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 280483**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.45	0.061	ug/L		07/31/18 13:19	08/03/18 21:05	1
PCB-1221	ND		0.45	0.075	ug/L		07/31/18 13:19	08/03/18 21:05	1
PCB-1232	ND		0.45	0.063	ug/L		07/31/18 13:19	08/03/18 21:05	1
PCB-1242	ND		0.45	0.059	ug/L		07/31/18 13:19	08/03/18 21:05	1
PCB-1248	ND		0.45	0.052	ug/L		07/31/18 13:19	08/03/18 21:05	1
PCB-1254	ND		0.45	0.075	ug/L		07/31/18 13:19	08/03/18 21:05	1
PCB-1260	ND		0.45	0.061	ug/L		07/31/18 13:19	08/03/18 21:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	63		38 - 140	07/31/18 13:19	08/03/18 21:05	1
Tetrachloro-m-xylene	75		40 - 120	07/31/18 13:19	08/03/18 21:05	1

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79163-1

**Lab Sample ID: LCS 580-280483/2-A**  
**Matrix: Water**  
**Analysis Batch: 280814**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 280483**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	1.00	0.734		ug/L		73	50 - 121
PCB-1260	1.00	0.714		ug/L		71	55 - 132
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
DCB Decachlorobiphenyl	67		38 - 140				
Tetrachloro-m-xylene	77		40 - 120				

**Lab Sample ID: LCSD 580-280483/3-A**  
**Matrix: Water**  
**Analysis Batch: 280814**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 280483**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
PCB-1016	1.00	0.736		ug/L		74	50 - 121	0	25
PCB-1260	1.00	0.758		ug/L		76	55 - 132	6	22
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
DCB Decachlorobiphenyl	70		38 - 140						
Tetrachloro-m-xylene	78		40 - 120						

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

**Lab Sample ID: MB 580-280879/3**  
**Matrix: Solid**  
**Analysis Batch: 280879**

**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	ND		2000	44	mg/Kg			08/03/18 13:24	1

**Lab Sample ID: LCS 580-280879/4**  
**Matrix: Solid**  
**Analysis Batch: 280879**

**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	4150		mg/Kg		97	68 - 149

**Lab Sample ID: LCSD 580-280879/5**  
**Matrix: Solid**  
**Analysis Batch: 280879**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Total Organic Carbon - Duplicates	4270	4200		mg/Kg		98	68 - 149	1	32

**Lab Sample ID: 580-79163-7 MS**  
**Matrix: Solid**  
**Analysis Batch: 280879**

**Client Sample ID: PDI-SC-S140-2to4**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	58	J	120000	122000		mg/Kg		101	68 - 149

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79163-1

**Lab Sample ID: 580-79163-7 MSD**  
**Matrix: Solid**  
**Analysis Batch: 280879**

**Client Sample ID: PDI-SC-S140-2to4**  
**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	58	J	120000	106000		mg/Kg		88	68 - 149	14	32

**Lab Sample ID: 580-79163-7 DU**  
**Matrix: Solid**  
**Analysis Batch: 280879**

**Client Sample ID: PDI-SC-S140-2to4**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon - Duplicates	58	J	ND		mg/Kg		NC	50

**Lab Sample ID: 580-79163-7 TRL**  
**Matrix: Solid**  
**Analysis Batch: 280879**

**Client Sample ID: PDI-SC-S140-2to4**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	TRL Result	TRL Qualifier	Unit	D	RSD	RSD Limit
Total Organic Carbon - Duplicates	58	J	117	J	mg/Kg		NC	20

**Lab Sample ID: MB 580-281236/3**  
**Matrix: Solid**  
**Analysis Batch: 281236**

**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	ND		2000	44	mg/Kg			08/09/18 11:23	1

**Lab Sample ID: LCS 580-281236/4**  
**Matrix: Solid**  
**Analysis Batch: 281236**

**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	3990		mg/Kg		94	68 - 149

**Lab Sample ID: LCSD 580-281236/5**  
**Matrix: Solid**  
**Analysis Batch: 281236**

**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	4190		mg/Kg		98	68 - 149	5	32

**Lab Sample ID: 580-79163-14 MS**  
**Matrix: Solid**  
**Analysis Batch: 281236**

**Client Sample ID: PDI-SC-S002-4to6.5**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	6300		120000	118000		mg/Kg		93	68 - 149

TestAmerica Seattle



# QC Sample Results

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

TestAmerica Job ID: 580-79163-1

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

**Lab Sample ID: 580-79163-14 MSD**

**Matrix: Solid**  
**Analysis Batch: 281236**

**Client Sample ID: PDI-SC-S002-4to6.5**

**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	6300		120000	120000		mg/Kg		95	68 - 149	2	32

**Lab Sample ID: 580-79163-14 DU**

**Matrix: Solid**  
**Analysis Batch: 281236**

**Client Sample ID: PDI-SC-S002-4to6.5**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon - Duplicates	6300		6670		mg/Kg		6	50

**Lab Sample ID: 580-79163-14 TRL**

**Matrix: Solid**  
**Analysis Batch: 281236**

**Client Sample ID: PDI-SC-S002-4to6.5**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	TRL Result	TRL Qualifier	Unit	D	RSD	RSD Limit
Total Organic Carbon - Duplicates	6300		6500		mg/Kg		3	20

**Lab Sample ID: MB 580-281250/3**

**Matrix: Solid**  
**Analysis Batch: 281250**

**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	ND		2000	44	mg/Kg			08/09/18 13:55	1

**Lab Sample ID: LCS 580-281250/4**

**Matrix: Solid**  
**Analysis Batch: 281250**

**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	4300		mg/Kg		101	68 - 149

**Lab Sample ID: LCSD 580-281250/5**

**Matrix: Solid**  
**Analysis Batch: 281250**

**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	4110		mg/Kg		96	68 - 149	5	32

## Method: D 2216 - Percent Moisture

**Lab Sample ID: 580-79163-1 DU**

**Matrix: Solid**  
**Analysis Batch: 280446**

**Client Sample ID: PDI-SC-S245-0to2**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Solids	72.9		73.4		%		0.7	20

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79163-1

## Method: Moisture 70C - Percent Moisture, 70 C

**Lab Sample ID: 580-79163-1 DU**  
**Matrix: Solid**  
**Analysis Batch: 280932**

**Client Sample ID: PDI-SC-S245-0to2**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Solids @ 70°C	76		77		%		2	20

**Lab Sample ID: 580-79163-19 DU**  
**Matrix: Solid**  
**Analysis Batch: 281117**

**Client Sample ID: PDI-SC-S185-0to2**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Solids @ 70°C	81		83		%		2	20

## Method: SM 5310B - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 580-280673/3**  
**Matrix: Water**  
**Analysis Batch: 280673**

**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	ND		1.0	0.19	mg/L			08/01/18 12:43	1

**Lab Sample ID: LCS 580-280673/4**  
**Matrix: Water**  
**Analysis Batch: 280673**

**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	10.0	9.52		mg/L		95	85 - 115

## Method: D7928/D6913 - ASTM D7928/D6913

**Lab Sample ID: 580-79163-1 DU**  
**Matrix: Solid**  
**Analysis Batch: 280393**

**Client Sample ID: PDI-SC-S245-0to2**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Gravel	4.3		6.0	F3	%		33	20
Coarse Sand	1.3		1.7	F3	%		27	20
Medium Sand	23.3		21.9		%		6	20
Fine Sand	51.6		49.0		%		5	20
Silt	15.9		17.9		%		12	20
Clay	3.6		3.5		%		3	20

**Lab Sample ID: 580-79163-19 DU**  
**Matrix: Solid**  
**Analysis Batch: 280487**

**Client Sample ID: PDI-SC-S185-0to2**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Gravel	3.7		0.0	F3	%		200	20
Coarse Sand	2.9		3.1		%		7	20
Medium Sand	30.6		29.7		%		3	20
Fine Sand	54.9		54.6		%		0.5	20
Silt	6.3		11.0	F3	%		54	20

TestAmerica Seattle

# QC Sample Results

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

TestAmerica Job ID: 580-79163-1

## Method: D7928/D6913 - ASTM D7928/D6913 (Continued)

Lab Sample ID: 580-79163-19 DU  
Matrix: Solid  
Analysis Batch: 280487

Client Sample ID: PDI-SC-S185-0to2  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Clay	1.6		1.6		%		0	20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S245-0to2**

**Date Collected: 07/25/18 12:20**

**Date Received: 07/27/18 14:35**

**Lab Sample ID: 580-79163-1**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	280879	08/03/18 15:27	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

**Client Sample ID: PDI-SC-S245-0to2**

**Date Collected: 07/25/18 12:20**

**Date Received: 07/27/18 14:35**

**Lab Sample ID: 580-79163-1**

**Matrix: Solid**

**Percent Solids: 72.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280386	07/30/18 11:32		TAL SEA
Total/NA	Analysis	8270D SIM		10	280580	08/01/18 15:35	T1W	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 09:07	TL1	TAL SEA
Total/NA	Prep	3550B	DL		280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A	DL	10	281264	08/09/18 22:54	TL1	TAL SEA

**Client Sample ID: PDI-SC-S245-2to3.8**

**Date Collected: 07/25/18 12:25**

**Date Received: 07/27/18 14:35**

**Lab Sample ID: 580-79163-2**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	280879	08/03/18 15:38	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

**Client Sample ID: PDI-SC-S245-2to3.8**

**Date Collected: 07/25/18 12:25**

**Date Received: 07/27/18 14:35**

**Lab Sample ID: 580-79163-2**

**Matrix: Solid**

**Percent Solids: 55.2**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280386	07/30/18 11:32		TAL SEA
Total/NA	Analysis	8270D SIM		25	280580	08/01/18 16:00	T1W	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 09:25	TL1	TAL SEA

TestAmerica Seattle

# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S189-0to2**

**Lab Sample ID: 580-79163-3**

**Date Collected: 07/25/18 11:00**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	280879	08/03/18 15:44	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

**Client Sample ID: PDI-SC-S189-0to2**

**Lab Sample ID: 580-79163-3**

**Date Collected: 07/25/18 11:00**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 65.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280386	07/30/18 11:32		TAL SEA
Total/NA	Analysis	8270D SIM		10	280580	08/01/18 16:26	T1W	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 09:43	TL1	TAL SEA

**Client Sample ID: PDI-SC-S189-2to4**

**Lab Sample ID: 580-79163-4**

**Date Collected: 07/25/18 11:05**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	280879	08/03/18 15:49	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

**Client Sample ID: PDI-SC-S189-2to4**

**Lab Sample ID: 580-79163-4**

**Date Collected: 07/25/18 11:05**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 68.2**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280386	07/30/18 11:32		TAL SEA
Total/NA	Analysis	8270D SIM		5	280580	08/01/18 16:52	T1W	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 10:00	TL1	TAL SEA

**Client Sample ID: PDI-SC-S189-4to5.7**

**Lab Sample ID: 580-79163-5**

**Date Collected: 07/25/18 11:10**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	280879	08/03/18 15:54	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA

TestAmerica Seattle

# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S189-4to5.7**

**Lab Sample ID: 580-79163-5**

**Date Collected: 07/25/18 11:10**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

**Client Sample ID: PDI-SC-S189-4to5.7**

**Lab Sample ID: 580-79163-5**

**Date Collected: 07/25/18 11:10**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 69.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280386	07/30/18 11:32		TAL SEA
Total/NA	Analysis	8270D SIM		10	280580	08/01/18 17:18	T1W	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 10:18	TL1	TAL SEA

**Client Sample ID: PDI-SC-S140-0to2**

**Lab Sample ID: 580-79163-6**

**Date Collected: 07/25/18 10:10**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	280879	08/03/18 15:58	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

**Client Sample ID: PDI-SC-S140-0to2**

**Lab Sample ID: 580-79163-6**

**Date Collected: 07/25/18 10:10**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 66.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280386	07/30/18 11:32		TAL SEA
Total/NA	Analysis	8270D SIM		5	280580	08/01/18 17:43	T1W	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 10:36	TL1	TAL SEA

**Client Sample ID: PDI-SC-S140-2to4**

**Lab Sample ID: 580-79163-7**

**Date Collected: 07/25/18 10:05**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	280879	08/03/18 13:31	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

TestAmerica Seattle

# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S140-2to4**

**Lab Sample ID: 580-79163-7**

**Date Collected: 07/25/18 10:05**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 69.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280386	07/30/18 11:32		TAL SEA
Total/NA	Analysis	8270D SIM		1	280580	08/01/18 13:01	T1W	TAL SEA
Total/NA	Prep	3546	RE		281079	08/07/18 16:51	BAH	TAL SEA
Total/NA	Analysis	8270D SIM	RE	1	281217	08/09/18 11:42	T1W	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 10:53	TL1	TAL SEA

**Client Sample ID: PDI-SC-S140-4to5.6**

**Lab Sample ID: 580-79163-8**

**Date Collected: 07/25/18 10:10**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	280879	08/03/18 16:04	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

**Client Sample ID: PDI-SC-S140-4to5.6**

**Lab Sample ID: 580-79163-8**

**Date Collected: 07/25/18 10:10**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 67.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280319	07/29/18 10:35	KMS	TAL SEA
Total/NA	Analysis	8270D SIM		10	280717	08/02/18 21:01	CJ	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 11:46	TL1	TAL SEA

**Client Sample ID: PDI-SC-S014-0to2**

**Lab Sample ID: 580-79163-9**

**Date Collected: 07/26/18 09:25**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	280879	08/03/18 16:08	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S014-0to2**

**Lab Sample ID: 580-79163-9**

**Date Collected: 07/26/18 09:25**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 75.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546	RE		280386	07/30/18 11:32		TAL SEA
Total/NA	Analysis	8270D SIM	RE	5	280580	08/01/18 18:35	T1W	TAL SEA
Total/NA	Prep	3546			280319	07/29/18 10:35	KMS	TAL SEA
Total/NA	Analysis	8270D SIM		5	280717	08/02/18 21:27	CJ	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 12:04	TL1	TAL SEA

**Client Sample ID: PDI-SC-S014-2to4**

**Lab Sample ID: 580-79163-10**

**Date Collected: 07/26/18 09:30**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	280879	08/03/18 16:13	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

**Client Sample ID: PDI-SC-S014-2to4**

**Lab Sample ID: 580-79163-10**

**Date Collected: 07/26/18 09:30**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 71.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546	RE		280386	07/30/18 11:32		TAL SEA
Total/NA	Analysis	8270D SIM	RE	5	280580	08/01/18 19:01	T1W	TAL SEA
Total/NA	Prep	3546			280319	07/29/18 10:35	KMS	TAL SEA
Total/NA	Analysis	8270D SIM		5	280717	08/02/18 21:53	CJ	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 12:22	TL1	TAL SEA

**Client Sample ID: PDI-SC-S014-4to6**

**Lab Sample ID: 580-79163-11**

**Date Collected: 07/26/18 09:35**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	280879	08/03/18 16:18	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA



# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S014-4to6**

**Lab Sample ID: 580-79163-11**

**Date Collected: 07/26/18 09:35**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 71.2**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546	RE		280386	07/30/18 11:32		TAL SEA
Total/NA	Analysis	8270D SIM	RE	5	280580	08/01/18 19:26	T1W	TAL SEA
Total/NA	Prep	3546			280319	07/29/18 10:35	KMS	TAL SEA
Total/NA	Analysis	8270D SIM		5	280717	08/02/18 22:18	CJ	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 12:40	TL1	TAL SEA

**Client Sample ID: PDI-SC-S002-0to2**

**Lab Sample ID: 580-79163-12**

**Date Collected: 07/26/18 10:30**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	280879	08/03/18 16:23	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

**Client Sample ID: PDI-SC-S002-0to2**

**Lab Sample ID: 580-79163-12**

**Date Collected: 07/26/18 10:30**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 65.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546	RE		280386	07/30/18 11:32		TAL SEA
Total/NA	Analysis	8270D SIM	RE	5	280580	08/01/18 19:52	T1W	TAL SEA
Total/NA	Prep	3546			280319	07/29/18 10:35	KMS	TAL SEA
Total/NA	Analysis	8270D SIM		3	280717	08/02/18 22:44	CJ	TAL SEA
Total/NA	Prep	3550B			280451	07/31/18 09:55	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280815	08/04/18 02:22	TL1	TAL SEA

**Client Sample ID: PDI-SC-S002-2to4**

**Lab Sample ID: 580-79163-13**

**Date Collected: 07/26/18 10:35**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 11:51	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S002-2to4**

**Lab Sample ID: 580-79163-13**

**Date Collected: 07/26/18 10:35**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 67.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546	RE		280386	07/30/18 11:32		TAL SEA
Total/NA	Analysis	8270D SIM	RE	5	280580	08/01/18 20:18	T1W	TAL SEA
Total/NA	Prep	3546			280319	07/29/18 10:35	KMS	TAL SEA
Total/NA	Analysis	8270D SIM		5	280717	08/02/18 23:10	CJ	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 12:57	TL1	TAL SEA

**Client Sample ID: PDI-SC-S002-4to6.5**

**Lab Sample ID: 580-79163-14**

**Date Collected: 07/26/18 10:40**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 11:30	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

**Client Sample ID: PDI-SC-S002-4to6.5**

**Lab Sample ID: 580-79163-14**

**Date Collected: 07/26/18 10:40**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 68.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		5	280579	08/01/18 13:52	T1W	TAL SEA
Total/NA	Prep	3550B			280451	07/31/18 09:55	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280815	08/04/18 02:40	TL1	TAL SEA

**Client Sample ID: PDI-SC-S030-0to2**

**Lab Sample ID: 580-79163-15**

**Date Collected: 07/26/18 11:50**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 11:56	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S030-0to2**

**Lab Sample ID: 580-79163-15**

**Date Collected: 07/26/18 11:50**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 57.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280319	07/29/18 10:35	KMS	TAL SEA
Total/NA	Analysis	8270D SIM		25	280717	08/02/18 23:36	CJ	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 13:15	TL1	TAL SEA

**Client Sample ID: PDI-SC-S030-2to4**

**Lab Sample ID: 580-79163-16**

**Date Collected: 07/26/18 11:55**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 12:02	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

**Client Sample ID: PDI-SC-S030-2to4**

**Lab Sample ID: 580-79163-16**

**Date Collected: 07/26/18 11:55**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 57.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280319	07/29/18 10:35	KMS	TAL SEA
Total/NA	Analysis	8270D SIM		25	280717	08/03/18 00:02	CJ	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 13:33	TL1	TAL SEA
Total/NA	Prep	3550B	DL		280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A	DL	10	281264	08/09/18 23:11	TL1	TAL SEA

**Client Sample ID: PDI-SC-S030-2to4D**

**Lab Sample ID: 580-79163-17**

**Date Collected: 07/26/18 11:55**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 12:07	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280778	08/03/18 11:22	HJM	TAL SEA

**Client Sample ID: PDI-SC-S030-2to4D**

**Lab Sample ID: 580-79163-17**

**Date Collected: 07/26/18 11:55**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 59.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280319	07/29/18 10:35	KMS	TAL SEA

TestAmerica Seattle

# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S030-2to4D**

**Lab Sample ID: 580-79163-17**

**Date Collected: 07/26/18 11:55**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 59.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270D SIM		50	280717	08/03/18 00:28	CJ	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 13:50	TL1	TAL SEA

**Client Sample ID: PDI-SC-S030-4to5.3**

**Lab Sample ID: 580-79163-18**

**Date Collected: 07/26/18 12:00**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 12:13	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280932	07/30/18 15:48	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280393	07/30/18 11:54	HJM	TAL SEA

**Client Sample ID: PDI-SC-S030-4to5.3**

**Lab Sample ID: 580-79163-18**

**Date Collected: 07/26/18 12:00**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 67.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280319	07/29/18 10:35	KMS	TAL SEA
Total/NA	Analysis	8270D SIM		25	280717	08/03/18 00:53	CJ	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 14:08	TL1	TAL SEA

**Client Sample ID: PDI-SC-S185-0to2**

**Lab Sample ID: 580-79163-19**

**Date Collected: 07/26/18 15:50**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 12:18	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280487	07/31/18 13:43	JKM	TAL SEA

**Client Sample ID: PDI-SC-S185-0to2**

**Lab Sample ID: 580-79163-19**

**Date Collected: 07/26/18 15:50**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 79.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		10	280579	08/01/18 15:05	T1W	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA

TestAmerica Seattle

# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S185-0to2**

**Lab Sample ID: 580-79163-19**

**Date Collected: 07/26/18 15:50**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 79.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8082A		1	280817	08/04/18 14:26	TL1	TAL SEA

**Client Sample ID: PDI-SC-S185-2to4**

**Lab Sample ID: 580-79163-20**

**Date Collected: 07/26/18 15:55**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 12:23	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280487	07/31/18 13:43	JKM	TAL SEA

**Client Sample ID: PDI-SC-S185-2to4**

**Lab Sample ID: 580-79163-20**

**Date Collected: 07/26/18 15:55**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 79.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		10	280579	08/01/18 15:29	T1W	TAL SEA
Total/NA	Prep	3550B			280364	07/30/18 09:38	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280817	08/04/18 14:44	TL1	TAL SEA

**Client Sample ID: PDI-SC-S185-4to5.5**

**Lab Sample ID: 580-79163-21**

**Date Collected: 07/26/18 16:00**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281250	08/09/18 14:44	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280487	07/31/18 13:43	JKM	TAL SEA

**Client Sample ID: PDI-SC-S185-4to5.5**

**Lab Sample ID: 580-79163-21**

**Date Collected: 07/26/18 16:00**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 75.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		10	280579	08/01/18 15:53	T1W	TAL SEA
Total/NA	Prep	3550B			280451	07/31/18 09:55	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280815	08/04/18 03:33	TL1	TAL SEA

TestAmerica Seattle

# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S055-0to2**

**Lab Sample ID: 580-79163-22**

**Date Collected: 07/26/18 17:45**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 12:27	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280487	07/31/18 13:43	JKM	TAL SEA

**Client Sample ID: PDI-SC-S055-0to2**

**Lab Sample ID: 580-79163-22**

**Date Collected: 07/26/18 17:45**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 51.5**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		25	280579	08/01/18 16:17	T1W	TAL SEA
Total/NA	Prep	3550B			280451	07/31/18 09:55	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280815	08/04/18 03:50	TL1	TAL SEA

**Client Sample ID: PDI-SC-S055-2to4**

**Lab Sample ID: 580-79163-23**

**Date Collected: 07/26/18 17:50**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 12:33	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280487	07/31/18 13:43	JKM	TAL SEA

**Client Sample ID: PDI-SC-S055-2to4**

**Lab Sample ID: 580-79163-23**

**Date Collected: 07/26/18 17:50**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 54.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		50	280579	08/01/18 16:42	T1W	TAL SEA
Total/NA	Prep	3550B			280451	07/31/18 09:55	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280815	08/04/18 04:08	TL1	TAL SEA

**Client Sample ID: PDI-SC-S055-4to6**

**Lab Sample ID: 580-79163-24**

**Date Collected: 07/26/18 17:55**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 12:45	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA

TestAmerica Seattle

# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S055-4to6**

**Lab Sample ID: 580-79163-24**

**Date Collected: 07/26/18 17:55**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280487	07/31/18 13:43	JKM	TAL SEA

**Client Sample ID: PDI-SC-S055-4to6**

**Lab Sample ID: 580-79163-24**

**Date Collected: 07/26/18 17:55**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 64.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		25	280579	08/01/18 17:06	T1W	TAL SEA
Total/NA	Prep	3550B			280451	07/31/18 09:55	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280815	08/04/18 04:26	TL1	TAL SEA

**Client Sample ID: PDI-SC-S055-6to8**

**Lab Sample ID: 580-79163-25**

**Date Collected: 07/26/18 18:00**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 12:51	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280487	07/31/18 13:43	JKM	TAL SEA

**Client Sample ID: PDI-SC-S055-6to8**

**Lab Sample ID: 580-79163-25**

**Date Collected: 07/26/18 18:00**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 65.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		10	280579	08/01/18 17:30	T1W	TAL SEA
Total/NA	Prep	3550B			280451	07/31/18 09:55	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280815	08/04/18 04:43	TL1	TAL SEA

**Client Sample ID: PDI-SC-S024-0to2**

**Lab Sample ID: 580-79163-26**

**Date Collected: 07/27/18 09:10**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 12:56	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280487	07/31/18 13:43	JKM	TAL SEA

TestAmerica Seattle

# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S024-0to2**

**Lab Sample ID: 580-79163-26**

**Date Collected: 07/27/18 09:10**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 57.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		25	280579	08/01/18 17:55	T1W	TAL SEA
Total/NA	Prep	3550B			280451	07/31/18 09:55	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280815	08/04/18 05:01	TL1	TAL SEA

**Client Sample ID: PDI-SC-S024-2to4**

**Lab Sample ID: 580-79163-27**

**Date Collected: 07/27/18 09:15**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 13:02	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280487	07/31/18 13:43	JKM	TAL SEA

**Client Sample ID: PDI-SC-S024-2to4**

**Lab Sample ID: 580-79163-27**

**Date Collected: 07/27/18 09:15**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 73.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		10	280579	08/01/18 18:19	T1W	TAL SEA
Total/NA	Prep	3550B			280451	07/31/18 09:55	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280815	08/04/18 05:18	TL1	TAL SEA

**Client Sample ID: PDI-SC-S024-4to6**

**Lab Sample ID: 580-79163-28**

**Date Collected: 07/27/18 09:20**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 13:07	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280487	07/31/18 13:43	JKM	TAL SEA

**Client Sample ID: PDI-SC-S024-4to6**

**Lab Sample ID: 580-79163-28**

**Date Collected: 07/27/18 09:20**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 78.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		10	280579	08/01/18 18:43	T1W	TAL SEA

TestAmerica Seattle



# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S024-4to6**

**Lab Sample ID: 580-79163-28**

**Date Collected: 07/27/18 09:20**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 78.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550B			280451	07/31/18 09:55	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280815	08/04/18 05:36	TL1	TAL SEA

**Client Sample ID: PDI-SC-S028-0to2**

**Lab Sample ID: 580-79163-29**

**Date Collected: 07/27/18 10:10**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 13:11	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280487	07/31/18 13:43	JKM	TAL SEA

**Client Sample ID: PDI-SC-S028-0to2**

**Lab Sample ID: 580-79163-29**

**Date Collected: 07/27/18 10:10**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 63.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		10	280579	08/01/18 19:08	T1W	TAL SEA
Total/NA	Prep	3550B			280451	07/31/18 09:55	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280815	08/04/18 05:54	TL1	TAL SEA

**Client Sample ID: PDI-SC-S028-2to3.2**

**Lab Sample ID: 580-79163-30**

**Date Collected: 07/27/18 10:15**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 13:17	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280487	07/31/18 13:43	JKM	TAL SEA

**Client Sample ID: PDI-SC-S028-2to3.2**

**Lab Sample ID: 580-79163-30**

**Date Collected: 07/27/18 10:15**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 78.2**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		5	280579	08/01/18 19:32	T1W	TAL SEA
Total/NA	Prep	3550B			280451	07/31/18 09:55	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280815	08/04/18 06:11	TL1	TAL SEA

TestAmerica Seattle

# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-SC-S028-3.2to5.7**

**Lab Sample ID: 580-79163-31**

**Date Collected: 07/27/18 10:20**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 13:21	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	281117	07/31/18 13:43	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	280487	07/31/18 13:43	JKM	TAL SEA

**Client Sample ID: PDI-SC-S028-3.2to5.7**

**Lab Sample ID: 580-79163-31**

**Date Collected: 07/27/18 10:20**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 70.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		5	280579	08/01/18 19:56	T1W	TAL SEA
Total/NA	Prep	3550B			280451	07/31/18 09:55	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280815	08/04/18 06:29	TL1	TAL SEA

**Client Sample ID: PDI-SC-S028-3.2to5.7D**

**Lab Sample ID: 580-79163-32**

**Date Collected: 07/27/18 10:20**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	281236	08/09/18 13:27	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	280446	07/31/18 09:39	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280778	08/03/18 11:22	HJM	TAL SEA

**Client Sample ID: PDI-SC-S028-3.2to5.7D**

**Lab Sample ID: 580-79163-32**

**Date Collected: 07/27/18 10:20**

**Matrix: Solid**

**Date Received: 07/27/18 14:35**

**Percent Solids: 70.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280419	07/30/18 16:20	SPS	TAL SEA
Total/NA	Analysis	8270D SIM		5	280579	08/01/18 20:20	T1W	TAL SEA
Total/NA	Prep	3550B			280451	07/31/18 09:55	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280815	08/04/18 06:46	TL1	TAL SEA

**Client Sample ID: PDI-RB-SS-180725**

**Lab Sample ID: 580-79163-33**

**Date Collected: 07/25/18 14:30**

**Matrix: Water**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			280461	07/31/18 11:01	JSM	TAL SEA
Total/NA	Analysis	8270D SIM		1	280719	08/02/18 20:11	W1T	TAL SEA
Total/NA	Prep	3510C			280483	07/31/18 13:19	JCM	TAL SEA

TestAmerica Seattle

# Lab Chronicle

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

TestAmerica Job ID: 580-79163-1

**Client Sample ID: PDI-RB-SS-180725**

**Lab Sample ID: 580-79163-33**

**Date Collected: 07/25/18 14:30**

**Matrix: Water**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8082A		1	280814	08/03/18 22:16	TL1	TAL SEA
Total/NA	Analysis	SM 5310B		1	280673	08/01/18 12:43	ASJ	TAL SEA

**Client Sample ID: PDI-RB-SS-180726**

**Lab Sample ID: 580-79163-34**

**Date Collected: 07/26/18 15:00**

**Matrix: Water**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			280461	07/31/18 11:01	JSM	TAL SEA
Total/NA	Analysis	8270D SIM		1	280719	08/02/18 20:33	W1T	TAL SEA
Total/NA	Prep	3510C			280483	07/31/18 13:19	JCM	TAL SEA
Total/NA	Analysis	8082A		1	280814	08/03/18 22:33	TL1	TAL SEA
Total/NA	Analysis	SM 5310B		1	280673	08/01/18 12:43	ASJ	TAL SEA

**Client Sample ID: PDI-RB-SS-180727**

**Lab Sample ID: 580-79163-35**

**Date Collected: 07/27/18 09:45**

**Matrix: Water**

**Date Received: 07/27/18 14:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			280461	07/31/18 11:01	JSM	TAL SEA
Total/NA	Analysis	8270D SIM		1	280719	08/02/18 20:55	W1T	TAL SEA
Total/NA	Prep	3510C			280483	07/31/18 13:19	JCM	TAL SEA
Total/NA	Analysis	8082A		1	280814	08/03/18 22:51	TL1	TAL SEA
Total/NA	Analysis	SM 5310B		1	280673	08/01/18 12:43	ASJ	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: 580-79163-1

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	11-05-19
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: 580-79163-1

Project/Site: Portland Harbor Pre-Remedial Design

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79163-1	PDI-SC-S245-0to2	Solid	07/25/18 12:20	07/27/18 14:35
580-79163-2	PDI-SC-S245-2to3.8	Solid	07/25/18 12:25	07/27/18 14:35
580-79163-3	PDI-SC-S189-0to2	Solid	07/25/18 11:00	07/27/18 14:35
580-79163-4	PDI-SC-S189-2to4	Solid	07/25/18 11:05	07/27/18 14:35
580-79163-5	PDI-SC-S189-4to5.7	Solid	07/25/18 11:10	07/27/18 14:35
580-79163-6	PDI-SC-S140-0to2	Solid	07/25/18 10:10	07/27/18 14:35
580-79163-7	PDI-SC-S140-2to4	Solid	07/25/18 10:05	07/27/18 14:35
580-79163-8	PDI-SC-S140-4to5.6	Solid	07/25/18 10:10	07/27/18 14:35
580-79163-9	PDI-SC-S014-0to2	Solid	07/26/18 09:25	07/27/18 14:35
580-79163-10	PDI-SC-S014-2to4	Solid	07/26/18 09:30	07/27/18 14:35
580-79163-11	PDI-SC-S014-4to6	Solid	07/26/18 09:35	07/27/18 14:35
580-79163-12	PDI-SC-S002-0to2	Solid	07/26/18 10:30	07/27/18 14:35
580-79163-13	PDI-SC-S002-2to4	Solid	07/26/18 10:35	07/27/18 14:35
580-79163-14	PDI-SC-S002-4to6.5	Solid	07/26/18 10:40	07/27/18 14:35
580-79163-15	PDI-SC-S030-0to2	Solid	07/26/18 11:50	07/27/18 14:35
580-79163-16	PDI-SC-S030-2to4	Solid	07/26/18 11:55	07/27/18 14:35
580-79163-17	PDI-SC-S030-2to4D	Solid	07/26/18 11:55	07/27/18 14:35
580-79163-18	PDI-SC-S030-4to5.3	Solid	07/26/18 12:00	07/27/18 14:35
580-79163-19	PDI-SC-S185-0to2	Solid	07/26/18 15:50	07/27/18 14:35
580-79163-20	PDI-SC-S185-2to4	Solid	07/26/18 15:55	07/27/18 14:35
580-79163-21	PDI-SC-S185-4to5.5	Solid	07/26/18 16:00	07/27/18 14:35
580-79163-22	PDI-SC-S055-0to2	Solid	07/26/18 17:45	07/27/18 14:35
580-79163-23	PDI-SC-S055-2to4	Solid	07/26/18 17:50	07/27/18 14:35
580-79163-24	PDI-SC-S055-4to6	Solid	07/26/18 17:55	07/27/18 14:35
580-79163-25	PDI-SC-S055-6to8	Solid	07/26/18 18:00	07/27/18 14:35
580-79163-26	PDI-SC-S024-0to2	Solid	07/27/18 09:10	07/27/18 14:35
580-79163-27	PDI-SC-S024-2to4	Solid	07/27/18 09:15	07/27/18 14:35
580-79163-28	PDI-SC-S024-4to6	Solid	07/27/18 09:20	07/27/18 14:35
580-79163-29	PDI-SC-S028-0to2	Solid	07/27/18 10:10	07/27/18 14:35
580-79163-30	PDI-SC-S028-2to3.2	Solid	07/27/18 10:15	07/27/18 14:35
580-79163-31	PDI-SC-S028-3.2to5.7	Solid	07/27/18 10:20	07/27/18 14:35
580-79163-32	PDI-SC-S028-3.2to5.7D	Solid	07/27/18 10:20	07/27/18 14:35
580-79163-33	PDI-RB-SS-180725	Water	07/25/18 14:30	07/27/18 14:35
580-79163-34	PDI-RB-SS-180726	Water	07/26/18 15:00	07/27/18 14:35
580-79163-35	PDI-RB-SS-180727	Water	07/27/18 09:45	07/27/18 14:35

**SUBSURFACE SEDIMENT  
CHAIN OF CUSTODY**

4America-Seattle  
55-8th-Street-East  
oma, WA 98424-1317  
: 253-922-2310 Fax: 253-922-5047

Client Contact  
11.3rd Ave Suite 1600  
ttle, WA 98101  
one: (206) 438-2700 Fax: 1+(866) 495-5288  
ject Name: Portland Harbor Pre-Remedial Design  
estigation and Baseline Sampling

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: 7/27/18  
Carrier: Courier

COC No. 1 of 2 pages



580-79163 Chain of Custody

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction				Sample Specific Notes	
							PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 1603		Atterberg Limits ASTM D4318
PDI-SC-S245 - 0 to 2	7/25/2018	12:20	SC		JJS	4	X	X	X			
PDI-SC-S245 - 2 to 3.8	7/25/2018	12:25	SC		JJS	4	X	X	X			
PDI-SC-S189 - 0 to 2	7/25/2018	11:00	SC		↓	4	X	X	X			
PDI-SC-S189 - 2 to 4	7/25/2018	11:05	SC		JJS	4	X	X	X			
PDI-SC-S189 - 4 to 5.7	7/25/2018	11:10	SC		JJS	4	X	X	X			
PDI-SC-S140 - 0 to 2	7/25/2018	10:10	SC		↓	4	X	X	X			
PDI-SC-S140 - 2 to 4	7/25/2018	10:05	SC	MS/MSD	↓	6	X	X	X			
PDI-SC-S140 - 4 to 5.6	7/25/2018	10:10	SC		↓	4	X	X	X			
PDI-SC-S014 - 0 to 2	7/26/2018	9:25	SC		JJS	4	X	X	X			
PDI-SC-S014 - 2 to 4	7/26/2018	9:30	SC		JJS	4	X	X	X			
PDI-SC-S014 - 4 to 6	7/26/2018	9:35	SC		JJS	4	X	X	X			
PDI-SC-S002 - 0 to 2	7/26/2018	10:30	SC		JJS	4	X	X	X			

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

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

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

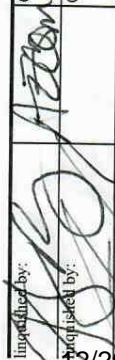
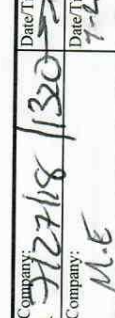
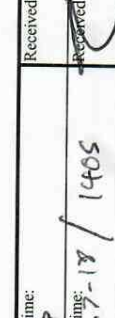
202, 402, 108, 102, 101, 0.7, 104

Requested by:	Date/Time: 7/27/18 / 1320	Company: M.E.	Received by:	Date/Time: 7/27/18 / 1320	Company: M.E.
Requested by:	Date/Time: 7/27/18 / 1405	Company: M.E.	Received by:	Date/Time: 7/27/18 / 1405	Company: TAPOR
Requested by:	Date/Time: 7/27/18 / 1405	Company: M.E.	Received by:	Date/Time: 7/27/18 / 1405	Company: TAPOR



# SUBSURFACE SEDIMENT CHAIN OF CUSTODY

<b>Client Contact</b> 55-8th-Street-East Tacoma, WA 98424-1317 Tel: 253-922-2310 Fax: 253-922-5047	<b>Project Contact:</b> Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010 Analysis Turnaround Time Calendar (C) or Work Days (W) <u>W</u>	<b>Site Contact:</b> Jennifer Ray / Michaela McCoog Laboratory Contact: Elaine-Walker Date: 7/27/18 Carrier: Courier COC No: 1 2 of 3 pages											
Calendar (C) or Work Days (W) <u>W</u> 21 days <input checked="" type="checkbox"/> Other													
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Location: <u>Portland, OR</u> Project #: 60566335 Study: <u>Subsurface Sediment</u> Sample Type:													
Sample Identification													
Sample ID	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archeive	Grain Size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 1603	Afterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S002 - 30 to 34	7/26/2018	10:35	SC		SS	4		X	X	X	X		
PDI-SC-S002 - 4 to 6.5	7/26/2018	10:40	SC		SS	4		X	X	X	X		
PDI-SC-S030 - 0 to 2	7/26/2018	11:50	SC			4		X	X	X	X		
PDI-SC-S030 - 2 to 4	7/26/2018	11:55	SC			4		X	X	X	X		
PDI-SC-S030 - 2 to 4D	7/26/2018	11:55	SC			3		X	X	X	X		
PDI-SC-S030 - 4 to 5.3	7/26/2018	12:00	SC			4		X	X	X	X		
PDI-SC-S185 - 0 to 2	7/26/2018	15:50	SC			4		X	X	X	X		
PDI-SC-S185 - 2 to 4	7/26/2018	15:55	SC			4		X	X	X	X		
PDI-SC-S185 - 4 to 5.5	7/26/2018	16:00	SC			4		X	X	X	X		
PDI-SC-S055 - 0 to 2	7/26/2018	17:45	SC			4		X	X	X	X		
PDI-SC-S055 - 2 to 4	7/26/2018	17:50	SC			4		X	X	X	X		
PDI-SC-S055 - 4 to 6	7/26/2018	17:55	SC			4		X	X	X	X		
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Collu ervative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid ution: 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													


Inspected by: 	Date/Time: 7-27-18 / 1320	Company: M.E	Date/Time: 7-27-18 / 1320
Requested by: 	Date/Time: 7-27-18 / 1405	Company: M.E	Date/Time: 7-27-18 / 1405
Requested by: 	Date/Time:	Company: M.E	Date/Time:





stAmerica-Seattle  
 55-8th-Street-East  
 oona, WA 98424-1317  
 : 253-922-2310 Fax: 253-922-5047

## 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: 7/27/18 Carrier: Courier	COC No. 1 1 of 2 pages
<b>Address</b> 11 3rd Ave Suite 1600 ntle, WA 98101	<b>Analysis Turnaround Time</b> Calendar ( C ) or Work Days (W) W			
one: (206) 438-2700 Fax: 1+(866) 495-5288 ject Name: Portland Harbor Pre-Remedial Design estigation and Baseline Sampling	<input checked="" type="checkbox"/> 21 days  <input type="checkbox"/> Other _____			
rtland, OR ject #: 60566335 Study: Subsurface Sediment mple Type:	 580-79163 Chain of Custody			

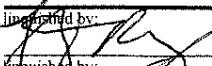

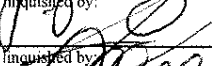



Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Eraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7528/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S245 - 0 to 2	7/25/2018	12:20	SC		JS	4		X	X	X	X		
PDI-SC-S245 - 2 to 3.8	7/25/2018	12:25	SC		JS	4		X	X	X	X		
PDI-SC-S189 - 0 to 2	7/25/2018	11:00	SC		T	4		X	X	X	X		
PDI-SC-S189 - 2 to 4	7/25/2018	11:05	SC		T	4		X	X	X	X		
PDI-SC-S189 - 4 to 5.7	7/25/2018	11:10	SC		JS	4		X	X	X	X		
PDI-SC-S140 - 0 to 2	7/25/2018	10:10	SC		↓	4		X	X	X	X		
PDI-SC-S140 - 2 to 4	7/25/2018	10:05	SC	MS/MSD	↓	6		X	X	X	X		
PDI-SC-S140 - 4 to 5.6	7/25/2018	10:10	SC		↓	4		X	X	X	X		
PDI-SC-S014 - 0 to 2	7/26/2018	9:25	SC		JS	4		X	X	X	X		
PDI-SC-S014 - 2 to 4	7/26/2018	9:30	SC		JS	4		X	X	X	X		
PDI-SC-S014 - 4 to 6	7/26/2018	9:35	SC		JS	4		X	X	X	X		
PDI-SC-S002 - 0 to 2	7/26/2018	10:30	SC		JS	4		X	X	X	X		
							AG	AG	WMG	WMG	AG		

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

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

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

202, 402, 108, 102, 101, 007, 104

Inquired by: 	Company: <b>Helom</b>	Date/Time: 7/27/18/1320	Received by: 	Company: <b>ME</b>	Date/Time: 7-27-18/1320
Inquired by: 	Company: <b>M.E</b>	Date/Time: 7-27-18/1405	Received by: 	Company: <b>TAPOR</b>	Date/Time: 7/27/18 1405
Inquired by: 	Company: <b>TAPOR</b>	Date/Time: 7/27/18 1605	Received by: 	Company: <b>SEA TR</b>	Date/Time: 7/28/18 1130

stAmerica-Seattle  
 55-8th-Street-East  
 ooma, WA 98424-1317  
 : 253-922-2310 Fax: 253-922-5047

**Client Contact**  
 11 3rd Ave Suite 1600  
 ttle, WA 98101  
 one: (206) 438-2700 Fax: 1+(866) 495-5288  
 ject Name: Portland Harbor Pre-Remedial Design  
 estigation and Baseline Sampling

rtland, OR  
 ject #: 60566335 Study: Subsurface Sediment  
 mple Type:

## SUBSURFACE SEDIMENT CHAIN OF CUSTODY

<b>Project Contact:</b> Amy Dahl / Chelsey Cook	<b>Site Contact:</b> Jennifer Ray / Michaela McCoog	<b>Date:</b> 7/27/18	<b>COC No:</b> 1
<b>Tel:</b> (206) 438-2261 / (206) 438-2010	<b>Laboratory Contact:</b> Elaine-Walker	<b>Carrier:</b> Courier	2 of 3 pages
<b>Analysis Turnaround Time</b>			
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 1617B	Aroclor	Grain size ASTM D7528/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Afterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S002 - 2 to 2.4	7/26/2018	10:35	SC		JS	4		x	x	x	x		
PDI-SC-S002 - 4 to 6.5	7/26/2018	10:40	SC		MS/MSD JJ	4		x	x	x	x		
PDI-SC-S030 - 0 to 2	7/26/2018	11:50	SC		50 7/27/18	4		x	x	x	x		
PDI-SC-S030 - 2 to 4	7/26/2018	11:55	SC		↓ Per <i>Ascan</i>	4		x	x	x	x		
PDI-SC-S030 - 2 to 4D	7/26/2018	11:55	SC			4		x	x		x		
PDI-SC-S030 - 4 to 5.3	7/26/2018	12:00	SC			4		x	x	x	x		
PDI-SC-S185 - 0 to 2	7/26/2018	15:50	SC			4		x	x	x	x		
PDI-SC-S185 - 2 to 4	7/26/2018	15:55	SC			4		x	x	x	x		
PDI-SC-S185 - 4 to 5.5	7/26/2018	16:00	SC			4		x	x	x	x		
PDI-SC-S055 - 0 to 2	7/26/2018	17:45	SC			4		x	x	x	x		
PDI-SC-S055 - 2 to 4	7/26/2018	<del>17:55</del>	SC			4		x	x	x	x		
PDI-SC-S055 - 4 to 6	7/26/2018	17:55	SC			4		x	x	x	x		

Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Container  
 Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid  
 Action: 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**

Acquired by: <i>[Signature]</i>	Company: <i>Ascan</i>	Date/Time: 7/27/18 1130	Received by: <i>[Signature]</i>	Company: <i>M.E</i>	Date/Time: 7-27-18/1320
Acquired by: <i>[Signature]</i>	Company: <i>M.E</i>	Date/Time: 7-27-18/1405	Received by: <i>[Signature]</i>	Company: <i>TAPOR</i>	Date/Time: 7/27/18 1405
Acquired by: <i>[Signature]</i>	Company: <i>TAPOR</i>	Date/Time: 7/27/18 1645	Received by: <i>[Signature]</i>	Company: <i>SEA TA</i>	Date/Time: 7/28/18 1130

IR5 = 1.6/1.6 w/c.s.

stAmerica-Seattle  
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 ocoma, WA 98424-1317  
 : 253-922-2310 Fax: 253-922-5047

Client Contact  
 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  
 Date: 7/27/18  
 Laboratory Contact: Elaine-Walker  
 Carrier: Courier

COC No: 1  
 3 of 3 pages

Sample Identification

## SUBSURFACE SEDIMENT CHAIN OF CUSTODY

Client Contact 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 McCoog Date: 7/27/18 Laboratory Contact: Elaine-Walker Carrier: Courier	COC No: 1 3 of 3 pages	
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Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7528/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	PcB	DIF	PATA	TOC	Sample Specific Notes:	
PDI-SC-S055 - 6 to 8	7/26/2018	18:00	SC			4		X	X	X	X							
PDI-SC-S024 - 0 to 2	7/27/2018	9:10	SC		AP	4		X	X	X	X							
PDI-SC-S024 - 2 to 4	7/27/2018	15:30	SC		AP	4		X	X	X	X							
PDI-SC-S024 - 4 to 6	7/27/2018	9:20	SC		AP	4		X	X	X	X							
PDI-SC-S028 - 0 to 2	7/27/2018	10:10	SC			4		X	X	X	X							
PDI-SC-S028 - 2 to 3.2	7/27/2018	10:15	SC			4		X	X	X	X							
PDI-SC-S028 - 3.2 to 5.7	7/27/2018	10:20	SC			4		X	X	X	X							
PDI-SC-S028 - 3.2 to 5.7D	7/27/2018	10:20	SC			3		X	X		X							
PDI-RB-SS-180725	7/27/18	1430	W		MM	7						X	X	X	X	X		
PDI-ILB-SS-180726	7/26/18	1500	W		SS	7						X	X	X	X	X		
PDI-RB-SS-180726	7/27/18	0945	W		AP	7						X	X	X	X	X		
27 So 7/27/18 Per Account JO 7/27/18 Per Account																		

Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Container  
 Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid  
 Action: 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

Released by: Company:	Date/Time: 7/27/18 / 1320	Received by: Company: M.E	Date/Time: 7-27-18 / 1320
Released by: Company: M.E	Date/Time: 7-27-18 / 1405	Received by: Company: T. AROR	Date/Time: 7/27/18 1405
Released by: Company: T. AROR	Date/Time: 7/27/18 1645	Received by: B. Gauer Company: SEA TA	Date/Time: 7/28/18 1130

IR5 = 1.6 / 1.6 W/L.S.

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-79163-1

**Login Number: 79163**

**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	

## Walker, M Elaine

---

**From:** Dahl, Amy <amy.dahl@aecom.com>  
**Sent:** Friday, July 27, 2018 4:34 PM  
**To:** Walker, M Elaine; O'Connell, Jason I.  
**Cc:** Ray, Jennifer  
**Subject:** FW: 79163 PDX Harbor COC page 3  
**Attachments:** scan.pdf

**Importance:** High

---

### ~~External Email~~

Hi Elaine and Jason, see responses below.

Thank you,

**Amy Dahl, PhD**  
Chemist, Environment, Pacific Northwest  
D +1-206-438-2261  
[amy.dahl@aecom.com](mailto:amy.dahl@aecom.com)

**AECOM**  
1111 Third Avenue, Suite 1600  
Seattle, WA 98101, United States  
T +1-206-438-2700  
[aecom.com](http://aecom.com)

---

**From:** Walker, M Elaine [<mailto:M.Elaine.Walker@testamericainc.com>]  
**Sent:** Friday, July 27, 2018 4:11 PM  
**To:** Dahl, Amy; Ray, Jennifer  
**Subject:** FW: 79163 PDX Harbor COC page 3  
**Importance:** High

Hi Amy / Jennifer,

Can you clarify the items below for the attached COC please?

Thanks,  
**M. ELAINE WALKER**  
Project Manager

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTING

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Tacoma, WA 98424  
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**From:** O'Connell, Jason I.  
**Sent:** Friday, July 27, 2018 3:50 PM  
**To:** Walker, M Elaine  
**Cc:** Presley, Kim  
**Subject:** Fw: 79163 PDX Harbor COC page 3  
**Importance:** High

Sample#14 PDI-SC-S002-4to6.5 had containers for MS/MSD, but not marked on COC please run MS/MSD on this one  
Sample #27 PDI-SC-S024-2to4 has a sample time 1750 on 7/27/18...should this be 7/26/18? No, the cross off is in error. The correct time is 915, date is 7/27/18.  
Sample #35 PDI-RB-SS-180726 is labeled PDI-RB-SS-180727 on the containers, I assume the containers are correct? Yes, this should be PDI-RB-SS-180727  
Samples #33-35 (Rinsate Blanks) were marked for Attenberg Limits and not TOC...can I assume they meant to mark TOC instead? Yes, TOC should be run, not Atterberg Limits.

**JASON O'CONNELL**  
Service Center Supervisor

TestAmerica  
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Beaverton, OR 97008  
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**From:** O'Connell, Jason I.  
**Sent:** Friday, July 27, 2018 3:23 PM  
**To:** O'Connell, Jason I.  
**Subject:**