

Data Validation Report

Project: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
 Portland Harbor Superfund Site
 Subsurface Sediment – Nearshore Core Stations

Laboratory: TestAmerica Laboratories, Incorporated, Seattle, WA

Laboratory Group: 580-79163-1

Analyses/Method: Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs),
 Total Organic Carbon (TOC), Total Solids, and Grain Size

Validation Level: Stage 4

AECOM Project

Number: 60566335, Task #2.12

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Completed on: December 28, 2018

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File Name: 580-79163-1 DVR

SUMMARY

The data quality review of 32 subsurface sediment samples and three rinsate blanks collected between July 25 and July 27, 2018, has been completed. Samples were analyzed for PAHs by EPA Method 8270D modified by selected ion monitoring (SIM), PCBs by EPA Method 8082A, TOC by EPA Method 9060 (subsurface sediments) and Standard Method (SM) 5310B (water), total solids by American Society for Testing and Materials (ASTM) Method D-2216, moisture content at 70 degrees Celsius (°C), and grain size by ASTM Method D7928/D6913 by TestAmerica Laboratories, Incorporated (TA) located in Tacoma, Washington. The analyses were performed in general accordance with the methods specified in EPA's *Test Methods for Evaluating Solid Waste (SW-846)* and *Annual Book of ASTM Standards*, American Society for Testing & Materials (ASTM), Philadelphia, Pennsylvania. The laboratory provided level 2 and level 4 data packages containing sample results, and associated quality assurance (QA) and quality control (QC) data, preparation logs, and raw instrument outputs (where applicable). The following samples are associated with laboratory group 580-79163-1:

Sample ID	Laboratory ID
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 (field duplicate of PDI-SC-S030-2to4)	580-79163-17



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Sample ID	Laboratory ID
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
PDI-SC-S028-3.2to5.7D (field duplicate of PDI-SC-S028-3.2to5.7)	580-79163-32
PDI-RB-SS-180725 (rinsate blank)	580-79163-33
PDI-RB-SS-180726 (rinsate blank)	580-79163-34
PDI-RB-SS-180727 (rinsate blank)	580-79163-35

Data validation is based on method performance criteria and QC criteria documented in the *Quality Assurance Project Plan (QAPP)*, dated March 23, 2018, as amended. If data qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in the EPA documents *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*, January 2017, and *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*, January 2017. Data qualifiers assigned to results reported in this sample set are included in Table 1.

SAMPLE RECEIPT

Upon receipt by TA, the sample jar information was compared to the associated chain-of-custody (COC) and the cooler temperatures were recorded. The coolers were received at temperatures within the EPA-recommended limits of greater than 0°C and less than or equal to 6°C. Sample PDI-SC-S002-4to6.5 was submitted with containers for MS/MSD but was not marked on the COC for MS/MSD. AECOM instructed TA to analyze an MS/MSD. PDI-SC-S024-2to4 was submitted to TA with an incorrect sample time of 1750 on the COC and the correct time was 915. PDI-RB-SS-180727 was incorrectly marked as PDI-RB-SS-180726 on the COC. The rinsate blanks were marked for Atterberg limits rather than TOC on the COC. AECOM instructed TA to make the corrections noted above and to revise the COC.

ORGANIC ANALYSES

Samples were analyzed for PAHs and PCBs by the methods identified in the introduction to this report.

1. Holding Times – Acceptable



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2. Initial and Continuing Calibration Verifications – Acceptable except as noted below:

PAHs by Method 8270D-SIM – The percent differences (%Ds) for indeno[1,2,3-cd]pyrene (27.0%) and dibenz(a,h)anthracene (24.9%) exceeded the control limits of $\pm 20\%$ in the continuing calibration verification (CCV) associated with the analytical batch 280719. Indeno[1,2,3-cd]pyrene and dibenz(a,h)anthracene were not detected in the three rinsate blanks that were associated with this analytical batch; therefore, data were not qualified based on the CCV %Ds.

PCBs by Method 8082A – The %Ds for one or more peaks for the following analytes were outside the control limits of $\pm 20\%$ in the CCVs associated with the analytical batches listed below:

Analytical Batch	Analyte	Column 1 %D	Column 2 %D
280814	PCB-1232	high/low	low
	PCB-1248	ok	low
	PCB-1242	low	low
	PCB-1221	low	low
	PCB-1254	low	low
	PCB-1016	low	low
	PCB-1260	low	low
	Surr. DCB	low	low
280815	PCB-1232	high	low
	PCB-1248	low	low
	PCB-1242	ok	low
	PCB-1221	ok	low
	PCB-1254	ok	low
	PCB-1016	low	low
	PCB-1260	ok	low
	Surr. DCB	low	low
280817	PCB-1232	high	low
	PCB-1248	low	low
	PCB-1242	ok	low
	PCB-1221	ok	low
	PCB-1254	ok	low
	PCB-1016	low	low
	PCB-1260	ok	low
	Surr. DCB	ok	low
281264	PCB-1232	high	high
	PCB-1248	high	high/low
	PCB-1242	high	high
	PCB-1221	high	high/low
	PCB-1254	high	ok
	PCB-1016	high	high
	PCB-1260	ok	low

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Table notes:
 ok - acceptable
 Surr. DCB – surrogate decachlorobiphenyl
 Surr. TMX – surrogate tetrachloro-m-xylene

Data were not qualified based on the surrogate %Ds. The above analytes were either not detected in the associated samples or reported from the passing column; therefore, data were not qualified based on the CCV %Ds with the following exceptions. The results for PCB-1232, PCB-1242, PCB-1221, PCB-1254, PCB-1016, and PCB-1260 in PDI-RB-SS-180725, PDI-RB-SS-180726, and PDI-RB-SS-180727; PCB-1254 in PDI-SC-S245-0to2 and PDI-SC-S030-2to4; and PCB-1016 and PCB-1248 in PDI-SC-S002-0to2, PDI-SC-S002-4to6.5, PDI-SC-S185-4to5.5, PDI-SC-S055-0to2, PDI-SC-S055-2to4, PDI-SC-S055-4to6, PDI-SC-S055-6to8, PDI-SC-S024-0to2, PDI-SC-S024-2to4, PDI-SC-S024-4to6, PDI-SC-S028-0to2, PDI-SC-S028-2to3.2, PDI-SC-S028-3.2to5.7, PDI-SC-S028-3.2to5.7D, PDI-SC-S245-0to2, PDI-SC-S245-2to3.8, PDI-SC-S189-0to2, PDI-SC-S189-2to4, PDI-SC-S189-4to5.7, PDI-SC-S140-0to2, PDI-SC-S140-2to4, PDI-SC-S140-4to5.6, PDI-SC-S014-0to2, PDI-SC-S014-2to4, PDI-SC-S014-4to6, PDI-SC-S002-2to4, PDI-SC-S030-0to2, PDI-SC-S030-2to4, PDI-SC-S030-2to4D, PDI-SC-S030-4to5.3, PDI-SC-S185-0to2, and PDI-SC-S185-2to4 were qualified as estimated and flagged 'J' or 'UJ' based on the CCV %Ds.

3. Blanks – Acceptable except as noted below:

General – Three rinsate blanks were submitted with this laboratory group. PAHs and PCBs were not detected in these rinsate blanks.

PAHs by Method 8270D-SIM – The following analytes were detected in the method blank at concentrations between the method detection limits (MDLs) and the reporting limits:

Prep Batch	Analyte	Result
280319	2-Methylnaphthalene	0.251 ug/kg
	Acenaphthylene	0.305 ug/kg
	Acenaphthene	0.171 ug/kg
	Anthracene	0.271 ug/kg
	Fluoranthene	0.346 ug/kg
	Fluorene	0.382 ug/kg
	Naphthalene	0.466 ug/kg
	Pyrene	0.210 ug/kg
280386	Anthracene	0.171 ug/kg
	Benzo[a]anthracene	0.354 ug/kg
	Chrysene	0.440 ug/kg
	Fluoranthene	0.351 ug/kg
	Benzo[b]fluoranthene	0.382 ug/kg
	Fluorene	0.102 ug/kg
	Benzo[k]fluoranthene	0.431 ug/kg
	Benzo[a]pyrene	0.384 ug/kg
	Indeno[1,2,3-cd]pyrene	0.346 ug/kg
	Phenanthrene	0.293 ug/kg
	Dibenz(a,h)anthracene	0.333 ug/kg
	Pyrene	0.352 ug/kg
	Benzo[g,h,i]perylene	0.337 ug/kg
280419	Phenanthrene	0.145 ug/kg
281079	2-Methylnaphthalene	0.142 ug/kg
	Naphthalene	0.263 ug/kg

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The results for benzo[a]anthracene, chrysene, fluoranthene, benzo[b]fluoranthene, benzo[a]pyrene, indeno[1,2,3-cd]pyrene, pyrene, and benzo[g,h,i]perylene associated with prep batch 280386; and 2-methylnaphthalene and naphthalene associated with prep batch 281079 were detected at concentrations significantly greater than the method blank detections; therefore, data were not qualified based on these method blank results. Fluorene and dibenz(a,h)anthracene in PDI-SC-S140-2to4 were detected at concentrations between the MDLs and the reporting limits; therefore, the results were qualified as not detected and flagged 'U' at the reporting limits.

2-Methylnaphthalene in PDI-SC-S014-0to2, PDI-SC-S014-2to4, PDI-SC-S014-4to6, PDI-SC-S002-0to2, PDI-SC-S002-2TO4, and PDI-SC-S030-0to2; acenaphthylene in PDI-SC-S014-0to2, PDI-SC-S030-0to2, and PDI-SC-S030-4to5.3; acenaphthene in PDI-SC-S140-4to5.6, PDI-SC-S002-0to2, and PDI-SC-S030-0to2; anthracene in PDI-SC-S014-0to2, PDI-SC-S002-0to2, PDI-SC-S002-2TO4, PDI-SC-S140-0to2, and PDI-SC-S140-2to4; fluoranthene in PDI-SC-S014-0to2, PDI-SC-S002-0to2, and PDI-SC-S002-2to4; fluorene in PDI-SC-S140-4to5.6, PDI-SC-S014-0to2, PDI-SC-S014-2to4, PDI-SC-S014-4to6, PDI-SC-S002-0to2, PDI-SC-S002-2to4, and PDI-SC-S030-0to2; naphthalene in PDI-SC-S014-0to2, PDI-SC-S014-2to4, PDI-SC-S014-4to6, PDI-SC-S002-0to2, and PDI-SC-S002-2to4; pyrene in PDI-SC-S014-0to2, PDI-SC-S014-2to4, PDI-SC-S002-0to2, and PDI-SC-S002-2to4; benzo[k]fluoranthene in PDI-SC-S245-2to3.8; phenanthrene in PDI-SC-S140-0to2, PDI-SC-S014-0to2, PDI-SC-S014-2to4, PDI-SC-S014-4to6, PDI-SC-S002-0to2, PDI-SC-S002-2to4, and PDI-SC-S002-4TO6.5; and dibenz(a,h)anthracene in PDI-SC-S245-2to3.8, PDI-SC-S189-0to2, PDI-SC-S189-2to4, PDI-SC-S189-4to5.7, and PDI-SC-S140-0to2 were detected between the MDL and reporting limit in samples that were diluted; therefore, the results were qualified as estimated and flagged 'J' based on the method blank results.

2-Methylnaphthalene (2.13 ug/kg) and naphthalene (1.40 ug/kg) were detected in the method blank associated with prep batch 280386 and phenanthrene (1.82 ug/kg) was detected in the method blank associated with prep batch 280319 at concentrations above the reporting limits. Naphthalene in PDI-SC-S140-0to2 was detected at a concentration between the MDL and the reporting limit; therefore, the result was qualified as not detected and flagged 'U' at the reporting limit. 2-Methylnaphthalene results for samples in batch 280386 and phenanthrene results for samples in batch 280319 were either not detected or detected at concentrations significantly greater than the method blank detections; therefore, data were not qualified based on these method blank results.

4. Surrogates – Acceptable except as noted below:

PCBs by EPA Method 8082A – The percent recoveries for decachlorobiphenyl and tetrachloro-m-xylene in the following samples were outside of the control limits as follows:

Sample	Surrogate	% Recovery	Control Limits
PDI-SC-S245-0to2	Tetrachloro-m-xylene	56%	58-122%
PDI-SC-S245-2to3.8	Decachlorobiphenyl	51%	54-142%
	Tetrachloro-m-xylene	51%	58-122%
PDI-SC-S189-0to2	Decachlorobiphenyl	47%	54-142%
	Tetrachloro-m-xylene	50%	58-122%
PDI-SC-S189-2to4	Decachlorobiphenyl	48%	54-142%
	Tetrachloro-m-xylene	51%	58-122%



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Sample	Surrogate	% Recovery	Control Limits
PDI-SC-S189-4to5.7	Decachlorobiphenyl	50%	54-142%
	Tetrachloro-m-xylene	52%	58-122%
PDI-SC-S140-0to2	Tetrachloro-m-xylene	42%	58-122%
PDI-SC-S140-2to4	Tetrachloro-m-xylene	36%	58-122%
MS (PDI-SC-S140-2to4)	Tetrachloro-m-xylene	46%	58-122%
MSD (PDI-SC-S140-2to4)	Tetrachloro-m-xylene	35%	58-122%
PDI-SC-S140-4to5.6	Decachlorobiphenyl	46%	54-142%
	Tetrachloro-m-xylene	47%	58-122%
PDI-SC-S014-0to2	Tetrachloro-m-xylene	51%	58-122%
PDI-SC-S014-2to4	Tetrachloro-m-xylene	39%	58-122%
PDI-SC-S014-4to6	Tetrachloro-m-xylene	43%	58-122%
PDI-SC-S002-0to2	Decachlorobiphenyl	49%	54-142%
	Tetrachloro-m-xylene	56%	58-122%
PDI-SC-S002-2to4	Tetrachloro-m-xylene	53%	58-122%
PDI-SC-S002-4to6.5	Decachlorobiphenyl	52%	54-142%
	Tetrachloro-m-xylene	52%	58-122%
MS (PDI-SC-S002-4to6.5)	Tetrachloro-m-xylene	57%	58-122%
PDI-SC-S030-0to2	Tetrachloro-m-xylene	55%	58-122%
PDI-SC-S030-2to4	Tetrachloro-m-xylene	46%	58-122%
PDI-SC-S030-2to4D	Decachlorobiphenyl	52%	54-142%
	Tetrachloro-m-xylene	47%	58-122%
PDI-SC-S030-4to5.3	Decachlorobiphenyl	49%	54-142%
	Tetrachloro-m-xylene	43%	58-122%
PDI-SC-S185-0to2	Tetrachloro-m-xylene	38%	58-122%
PDI-SC-S185-2to4	Tetrachloro-m-xylene	51%	58-122%
PDI-SC-S185-4to5.5	Tetrachloro-m-xylene	56%	58-122%
PDI-SC-S055-0to2	Decachlorobiphenyl	43%	54-142%
	Tetrachloro-m-xylene	53%	58-122%
PDI-SC-S055-2to4	Decachlorobiphenyl	44%	54-142%
	Tetrachloro-m-xylene	49%	58-122%
PDI-SC-S055-4to6	Decachlorobiphenyl	51%	54-142%
	Tetrachloro-m-xylene	47%	58-122%
PDI-SC-S055-6to8	Tetrachloro-m-xylene	57%	58-122%
PDI-SC-S024-0to2	Decachlorobiphenyl	50%	54-142%
	Tetrachloro-m-xylene	49%	58-122%
PDI-SC-S024-2to4	Decachlorobiphenyl	53%	54-142%
	Tetrachloro-m-xylene	44%	58-122%
PDI-SC-S024-4to6	Decachlorobiphenyl	51%	54-142%
	Tetrachloro-m-xylene	50%	58-122%
PDI-SC-S028-0to2	Decachlorobiphenyl	50%	54-142%
	Tetrachloro-m-xylene	53%	58-122%

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Sample	Surrogate	% Recovery	Control Limits
PDI-SC-S028-2to3.2	Decachlorobiphenyl	52%	54-142%
	Tetrachloro-m-xylene	50%	58-122%
PDI-SC-S028-3.2to5.7	Decachlorobiphenyl	53%	54-142%
	Tetrachloro-m-xylene	42%	58-122%
PDI-SC-S028-3.2to5.7D	Tetrachloro-m-xylene	42%	58-122%
PDI-RB-SS-180727	Tetrachloro-m-xylene	37%	40-120%

MS – matrix spike

MSD – matrix spike duplicate

Data were not qualified based on surrogate recoveries in QC samples (MS and MSD). As one of the surrogate recoveries was acceptable for PDI-SC-S245-0to2, PDI-SC-S140-0to2, PDI-SC-S140-2to4, PDI-SC-S014-0to2, PDI-SC-S014-2to4, PDI-SC-S014-4to6, PDI-SC-S002-2to4, PDI-SC-S030-0to2, PDI-SC-S030-2to4, PDI-SC-S185-0to2, PDI-SC-S185-2to4, PDI-SC-S185-4to5.5, PDI-SC-S055-6to8, PDI-SC-S028-3.2to5.7D, and PDI-RB-SS-180727 data were not qualified based on these surrogate recoveries. The PCB results in PDI-SC-S245-2to3.8, PDI-SC-S189-0to2, PDI-SC-S189-2to4, PDI-SC-S189-4to5.7, PDI-SC-S140-4to5.6, PDI-SC-S002-0to2, PDI-SC-S002-4to6.5, PDI-SC-S030-2to4D, PDI-SC-S030-4to5.3, PDI-SC-S055-0to2, PDI-SC-S055-2to4, PDI-SC-S055-4to6, PDI-SC-S024-0to2, PDI-SC-S024-2to4, PDI-SC-S024-4to6, PDI-SC-S028-0to2, PDI-SC-S028-2to3.2, PDI-SC-S028-3.2to5.7 were qualified as estimated and flagged 'J' or 'UJ' based on the surrogate recoveries unless otherwise qualified for CCV exceedances described in Section 2.

5. Internal Standards – Acceptable except as noted below:

PCBs by EPA Method 8082A – The internal standard response in the continuing calibration blank associated with analytical batch 281264 was outside of the acceptance limit on one column. PCBs were not detected on either column; therefore, no data were qualified based on this internal standard response.

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) – Acceptable

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) – Acceptable except as noted below:

PAHs by Method 8270D-SIM – An MS/MSD was performed using PDI-SC-S002-4to6.5. Results were acceptable.

An MS/MSD was performed using PDI-SC-S140-2to4. The percent recovery for naphthalene in the MS (69%) was below the control limits of 70-120%. The percent recovery in the MSD and the relative percent difference (RPD) for the MS/MSD pair were acceptable; therefore, data were not qualified based on this MS recovery.

PCBs by EPA Method 8082A – MS/MSDs were performed using PDI-SC-S140-2to4 and PDI-SC-S002-4to6.5. The percent recoveries for PCB-1016 in the MS performed on both samples (61%) was below the control limits of 64-120%. The percent recoveries in the MSD and the RPD for the MS/MSD pair were acceptable; therefore, data were not qualified based on these MS recoveries.

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8. Field Duplicate – Acceptable except as noted below:

General – Field duplicates were submitted for PDI-SC-S030-2to4 and PDI-SC-S028-3.2to5.7 and identified as PDI-SC-S030-2to4D and PDI-SC-S028-3.2to5.7D, respectively. Results were comparable with the following exceptions.

PAHs by Method 8270D-SIM – The RPDs for the following analytes exceeded 50%:

Field Duplicate Pair	Analyte	RPD
PDI-SC-S030-2to4 / PDI-SC-S030-2to4D	2-Methylnaphthalene	77%
	Fluorene	53%
PDI-SC-S028-3.2to5.7 / PDI-SC-S028-3.2to5.7D	2-Methylnaphthalene	57%
	Acenaphthene	83%
	Acenaphthylene	55%
	Anthracene	54%
	Benzo[a]anthracene	86%
	Benzo[a]pyrene	56%
	Benzo[b]fluoranthene	58%
	Benzo[k]fluoranthene	53%
	Chrysene	80%
	Dibenz(a,h)anthracene	78%
	Fluoranthene	106%
	Fluorene	58%
	Phenanthrene	73%
Pyrene	98%	

The sample concentrations for 2-methylnaphthalene, fluorene, acenaphthene, acenaphthylene, anthracene, and dibenz(a,h)anthracene in the samples above were less than five times the reporting limits; therefore, data were not qualified based on the elevated field duplicate RPD. The results for benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, fluoranthene, phenanthrene, and pyrene in PDI-SC-S028-3.2to5.7 and PDI-SC-S028-3.2to5.7D were qualified as estimated and flagged 'J' based on the elevated field duplicate RPDs.

PCBs by EPA Method 8082A – The RPD for PCB-1254 in the PDI-SC-S030-2to4 field duplicate pair (51%) exceeded 50%. The results for PCB-1254 in PDI-SC-S030-2to4 and PDI-SC-S030-2to4D were qualified based on surrogate and CCV %Ds and were not qualified based on these field duplicate results.

9. Calculation Checks – Acceptable

A calculation check was performed for sample results on one sample per calibration. The review confirmed the final results were correct as reported.

10. Reporting Limits and Chromatographic Review – Acceptable except as noted below:

General – Chromatograms/spectra were reviewed to confirm target analytes were properly identified. The review confirmed target analytes were properly identified and reported by the laboratory.

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One or more results were flagged 'J' by the laboratory to indicate the reported concentrations were above the MDLs but below the reporting limits. Laboratory 'J'-flagged results are considered estimated. As the result is between the MDL and the reporting limit, there is a greater level of uncertainty associated with the numerical result.

PAHs by Method 8270D-SIM – The reporting limits for PAHs reported as not detected in several samples were raised because of the dilutions that were required due to the nature of the sample matrix or to bring target analytes within the calibration range of the instrument. The elevated RLs did not exceed the cleanup levels.

11. Other Items of Note:

PCBs by EPA Method 8082A – The RPD between the primary and confirmation column exceeded 40% for Aroclor 1254 in PDI-SC-S189-0to2, PDI-SC-S185-0to2, PDI-SC-S024-2to4, PDI-SC-S024-4to6, PDI-SC-S028-0to2, PDI-SC-S028-2to3.2, PDI-SC-S028-3.2to5.7, and PDI-SC-S028-3.2to5.7D and Aroclor 1260 in PDI-SC-S189-2to4 and PDI-SC-S185-2to4. Aroclor 1254 and Aroclor 1260 in all samples above were qualified based on surrogate recoveries and were not qualified for confirmation column RPD except as follows. Aroclor 1254 in PDI-SC-S185-0to2 and PDI-SC-S028-3.2to5.7D and Aroclor 1260 in PDI-SC-S185-2to4 were qualified 'J' based on the confirmation column RPD.

The laboratory noted that PDI-SC-S245-2to3.8, PDI-SC-S189-2to4, PDI-SC-S189-4to5.7, PDI-SC-S185-2to4, PDI-SC-S185-4to5.5, PDI-SC-S055-0to2, PDI-SC-S055-2to4, PDI-SC-S055-6to8, and PDI-SC-S024-0to2 contained more than one Aroclor with insufficient separation to be able to quantify individually. The PCBs present are quantified as the predominant Aroclor. The results for PCB-1260 in PDI-SC-S185-4to5.5 and PDI-SC-S055-6to8 were qualified as estimated and flagged 'J' based on this identification issue, all others were qualified based on other QC issues.

The laboratory noted that PDI-SC-S245-0to2 and PDI-SC-S030-2to4 required a copper clean-up to reduce matrix interferences caused by sulfur.

CONVENTIONAL ANALYSES

Samples were analyzed for TOC and total solids by the methods identified in the introduction to this report.

1. Holding Times – Acceptable except as noted below:

Moisture Content at 70°C – The 7-day holding time indicated for total solids in the QAPP was exceeded for PDI-SC-S030-2to4D by 1 day due to an oversight by the laboratory. No data qualifiers were assigned based on the holding time exceedance.

2. Initial and Continuing Calibrations – Acceptable

3. Blanks – Acceptable where applicable, except as noted below:

TOC by EPA Method 9060 – Three rinsate blanks were submitted with this laboratory group. TOC was detected in PDI-RB-SS-180725 (0.28 mg/L) at a concentration between the reporting limit and MDL. Data were not qualified based on rinsate blank results.

4. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) - Acceptable

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5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) – Acceptable

TOC by Method 9060 – MS/MSDs were performed using PDI-SC-S140-2to4 and PDI-SC-S002-4to6.5. Results were acceptable.

6. Field Duplicate – Acceptable

Field duplicates were submitted for PDI-SC-S030-2to4 and PDI-SC-S028-3.2to5.7 and identified as PDI-SC-S030-2to4D and PDI-SC-S028-3.2to5.7D, respectively. Results were comparable.

7. Laboratory Replicate – Acceptable

TOC by Method 9060 – Laboratory duplicates and triplicates were performed using PDI-SC-S140-2to4 and PDI-SC-S002-4to6.5. Results were comparable.

Total Solids by Method D2216 – A laboratory duplicate was performed using PDI-SC-S245-0to2. Results were comparable.

Moisture Content at 70°C – Laboratory duplicates were performed using PDI-SC-S245-0to2 and PDI-SC-S185-0to2. Results were comparable.

8. Calculation Checks – Acceptable

A calculation check was performed for sample results on one sample per calibration, where applicable. The review confirmed the final results were correct as reported.

9. Reporting Limits – Acceptable

TOC by Method 9060 – One or more results in multiple samples were reported at concentrations between the reporting limits and the MDLs and were flagged 'J' by the laboratory. As described above, laboratory 'J'-flagged results are considered estimated results.

GRAIN SIZE ANALYSES

Samples were analyzed for grain size by the methods identified in the introduction to this report. The data were reviewed to confirm that the required grain size fractions identified in the QAPP were reported for each sample.

1. Laboratory Duplicate – Acceptable

The laboratory performed duplicate analysis at a rate of 1 per 20 samples per their internal requirements. A laboratory duplicate was performed on PDI-SC-S245-0to2. Results were comparable.

A laboratory duplicate was performed on PDI-SC-S185-0to2. The result for the silt fraction for sample PDI-SC-S185-0to2 was assigned an 'L' qualifier to indicate that the grain size fraction was greater than 5 percent of the total combined fractions and the RPD for duplicate analysis on the sample fraction was greater than 20%.



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Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Subsurface Sediment – Nearshore Core Stations
TA Lab Group: 580-79163-1

OVERALL ASSESSMENT OF DATA

The data reported in this laboratory group, as qualified, is considered usable for meeting project objectives. The completeness for laboratory group 580-79163-1 is 100%.

Table 1
QA/QC Data Summary Review
Portland Harbor
Subsurface Sediment - Nearshore Stations
TestAmerica Laboratory Group: 580-79163-1

Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
PDI-SC-S245-0TO2	580-79163-1	SW8082A	Aroclor 1016	2.7 U	ug/kg	2.7 UJ	c
PDI-SC-S245-0TO2	580-79163-1	SW8082A	Aroclor 1248	2.7 U	ug/kg	2.7 UJ	c
PDI-SC-S245-0TO2	580-79163-1	SW8082A	Aroclor 1254	230	ug/kg	230 J	c
PDI-SC-S245-2TO3.8	580-79163-2	SW8082A	Aroclor 1016	3.6 U	ug/kg	3.6 UJ	c
PDI-SC-S245-2TO3.8	580-79163-2	SW8082A	Aroclor 1221	3.6 U	ug/kg	3.6 UJ	s
PDI-SC-S245-2TO3.8	580-79163-2	SW8082A	Aroclor 1232	3.6 U	ug/kg	3.6 UJ	s
PDI-SC-S245-2TO3.8	580-79163-2	SW8082A	Aroclor 1242	3.6 U	ug/kg	3.6 UJ	s
PDI-SC-S245-2TO3.8	580-79163-2	SW8082A	Aroclor 1248	3.6 U	ug/kg	3.6 UJ	c
PDI-SC-S245-2TO3.8	580-79163-2	SW8082A	Aroclor 1254	3.6 U	ug/kg	3.6 UJ	s
PDI-SC-S245-2TO3.8	580-79163-2	SW8082A	Aroclor 1260	12	ug/kg	12 J	s
PDI-SC-S245-2TO3.8	580-79163-2	SW8270DSIM	Benzo(k)fluoranthene	32 J	ug/kg	32 J	bl
PDI-SC-S245-2TO3.8	580-79163-2	SW8270DSIM	Dibenz(a,h)anthracene	8.3 J	ug/kg	8.3 J	bl
PDI-SC-S189-0TO2	580-79163-3	SW8082A	Aroclor 1016	39	ug/kg	39 J	c
PDI-SC-S189-0TO2	580-79163-3	SW8082A	Aroclor 1221	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S189-0TO2	580-79163-3	SW8082A	Aroclor 1232	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S189-0TO2	580-79163-3	SW8082A	Aroclor 1242	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S189-0TO2	580-79163-3	SW8082A	Aroclor 1248	2.9 U	ug/kg	2.9 UJ	c
PDI-SC-S189-0TO2	580-79163-3	SW8082A	Aroclor 1254	30	ug/kg	30 J	s
PDI-SC-S189-0TO2	580-79163-3	SW8082A	Aroclor 1260	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S189-0TO2	580-79163-3	SW8270DSIM	Dibenz(a,h)anthracene	9.0 J	ug/kg	9.0 J	bl
PDI-SC-S189-2TO4	580-79163-4	SW8082A	Aroclor 1016	2.9 U	ug/kg	2.9 UJ	c
PDI-SC-S189-2TO4	580-79163-4	SW8082A	Aroclor 1221	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S189-2TO4	580-79163-4	SW8082A	Aroclor 1232	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S189-2TO4	580-79163-4	SW8082A	Aroclor 1242	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S189-2TO4	580-79163-4	SW8082A	Aroclor 1248	2.9 U	ug/kg	2.9 UJ	c
PDI-SC-S189-2TO4	580-79163-4	SW8082A	Aroclor 1254	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S189-2TO4	580-79163-4	SW8082A	Aroclor 1260	3.7	ug/kg	3.7 J	s
PDI-SC-S189-2TO4	580-79163-4	SW8270DSIM	Dibenz(a,h)anthracene	4.9 J	ug/kg	4.9 J	bl
PDI-SC-S189-4TO5.7	580-79163-5	SW8082A	Aroclor 1016	2.8 U	ug/kg	2.8 UJ	c
PDI-SC-S189-4TO5.7	580-79163-5	SW8082A	Aroclor 1221	2.8 U	ug/kg	2.8 UJ	s
PDI-SC-S189-4TO5.7	580-79163-5	SW8082A	Aroclor 1232	2.8 U	ug/kg	2.8 UJ	s
PDI-SC-S189-4TO5.7	580-79163-5	SW8082A	Aroclor 1242	2.8 U	ug/kg	2.8 UJ	s
PDI-SC-S189-4TO5.7	580-79163-5	SW8082A	Aroclor 1248	2.8 U	ug/kg	2.8 UJ	c
PDI-SC-S189-4TO5.7	580-79163-5	SW8082A	Aroclor 1254	2.8 U	ug/kg	2.8 UJ	s
PDI-SC-S189-4TO5.7	580-79163-5	SW8082A	Aroclor 1260	2.4 J	ug/kg	2.4 J	s
PDI-SC-S189-4TO5.7	580-79163-5	SW8270DSIM	Dibenz(a,h)anthracene	6.0 J	ug/kg	6.0 J	bl
PDI-SC-S140-0TO2	580-79163-6	SW8082A	Aroclor 1016	3.0 U	ug/kg	3.0 UJ	c
PDI-SC-S140-0TO2	580-79163-6	SW8082A	Aroclor 1248	3.0 U	ug/kg	3.0 UJ	c
PDI-SC-S140-0TO2	580-79163-6	SW8270DSIM	Anthracene	1.6 J	ug/kg	1.6 J	bl
PDI-SC-S140-0TO2	580-79163-6	SW8270DSIM	Dibenz(a,h)anthracene	3.0 J	ug/kg	3.0 J	bl
PDI-SC-S140-0TO2	580-79163-6	SW8270DSIM	Naphthalene	1.9 J	ug/kg	7.2 U	bl
PDI-SC-S140-0TO2	580-79163-6	SW8270DSIM	Phenanthrene	5.1 J	ug/kg	5.1 J	bl
PDI-SC-S140-2TO4	580-79163-7	SW8082A	Aroclor 1016	2.8 U	ug/kg	2.8 UJ	c
PDI-SC-S140-2TO4	580-79163-7	SW8082A	Aroclor 1248	2.8 U	ug/kg	2.8 UJ	c
PDI-SC-S140-2TO4	580-79163-7	SW8270DSIM	Anthracene	1.4	ug/kg	1.4 J	bl
PDI-SC-S140-2TO4	580-79163-7	SW8270DSIM	Dibenz(a,h)anthracene	0.93 J	ug/kg	1.4 U	bl
PDI-SC-S140-2TO4	580-79163-7	SW8270DSIM	Fluorene	0.61 J	ug/kg	1.4 U	bl
PDI-SC-S140-4TO5.6	580-79163-8	SW8082A	Aroclor 1016	2.9 U	ug/kg	2.9 UJ	c
PDI-SC-S140-4TO5.6	580-79163-8	SW8082A	Aroclor 1221	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S140-4TO5.6	580-79163-8	SW8082A	Aroclor 1232	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S140-4TO5.6	580-79163-8	SW8082A	Aroclor 1242	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S140-4TO5.6	580-79163-8	SW8082A	Aroclor 1248	2.9 U	ug/kg	2.9 UJ	c
PDI-SC-S140-4TO5.6	580-79163-8	SW8082A	Aroclor 1254	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S140-4TO5.6	580-79163-8	SW8082A	Aroclor 1260	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S140-4TO5.6	580-79163-8	SW8270DSIM	Acenaphthene	9.4 J	ug/kg	9.4 J	bl
PDI-SC-S140-4TO5.6	580-79163-8	SW8270DSIM	Fluorene	11 J	ug/kg	11 J	bl
PDI-SC-S014-0TO2	580-79163-9	SW8082A	Aroclor 1016	2.6 U	ug/kg	2.6 UJ	c
PDI-SC-S014-0TO2	580-79163-9	SW8082A	Aroclor 1248	2.6 U	ug/kg	2.6 UJ	c
PDI-SC-S014-0TO2	580-79163-9	SW8270DSIM	2-Methylnaphthalene	0.67 J	ug/kg	0.67 J	bl

Table 1
QA/QC Data Summary Review
Portland Harbor
Subsurface Sediment - Nearshore Stations
TestAmerica Laboratory Group: 580-79163-1

Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
PDI-SC-S014-0TO2	580-79163-9	SW8270DSIM	Acenaphthylene	1.9 J	ug/kg	1.9 J	bl
PDI-SC-S014-0TO2	580-79163-9	SW8270DSIM	Anthracene	0.85 J	ug/kg	0.85 J	bl
PDI-SC-S014-0TO2	580-79163-9	SW8270DSIM	Fluoranthene	4.0 J	ug/kg	4.0 J	bl
PDI-SC-S014-0TO2	580-79163-9	SW8270DSIM	Fluorene	1.2 J	ug/kg	1.2 J	bl
PDI-SC-S014-0TO2	580-79163-9	SW8270DSIM	Naphthalene	1.7 J	ug/kg	1.7 J	bl
PDI-SC-S014-0TO2	580-79163-9	SW8270DSIM	Phenanthrene	3.3 J	ug/kg	3.3 J	bl
PDI-SC-S014-0TO2	580-79163-9	SW8270DSIM	Pyrene	4.5 J	ug/kg	4.5 J	bl
PDI-SC-S014-2TO4	580-79163-10	SW8082A	Aroclor 1016	2.7 U	ug/kg	2.7 UJ	c
PDI-SC-S014-2TO4	580-79163-10	SW8082A	Aroclor 1248	2.7 U	ug/kg	2.7 UJ	c
PDI-SC-S014-2TO4	580-79163-10	SW8270DSIM	2-Methylnaphthalene	1.2 J	ug/kg	1.2 J	bl
PDI-SC-S014-2TO4	580-79163-10	SW8270DSIM	Fluorene	1.2 J	ug/kg	1.2 J	bl
PDI-SC-S014-2TO4	580-79163-10	SW8270DSIM	Naphthalene	2.2 J	ug/kg	2.2 J	bl
PDI-SC-S014-2TO4	580-79163-10	SW8270DSIM	Phenanthrene	4.0 J	ug/kg	4.0 J	bl
PDI-SC-S014-2TO4	580-79163-10	SW8270DSIM	Pyrene	1.6 J	ug/kg	1.6 J	bl
PDI-SC-S014-4TO6	580-79163-11	SW8082A	Aroclor 1016	2.7 U	ug/kg	2.7 UJ	c
PDI-SC-S014-4TO6	580-79163-11	SW8082A	Aroclor 1248	2.7 U	ug/kg	2.7 UJ	c
PDI-SC-S014-4TO6	580-79163-11	SW8270DSIM	2-Methylnaphthalene	0.93 J	ug/kg	0.93 J	bl
PDI-SC-S014-4TO6	580-79163-11	SW8270DSIM	Fluorene	1.2 J	ug/kg	1.2 J	bl
PDI-SC-S014-4TO6	580-79163-11	SW8270DSIM	Naphthalene	2.2 J	ug/kg	2.2 J	bl
PDI-SC-S014-4TO6	580-79163-11	SW8270DSIM	Phenanthrene	3.0 J	ug/kg	3.0 J	bl
PDI-SC-S002-0TO2	580-79163-12	SW8082A	Aroclor 1016	3.0 U	ug/kg	3.0 UJ	c
PDI-SC-S002-0TO2	580-79163-12	SW8082A	Aroclor 1221	3.0 U	ug/kg	3.0 UJ	s
PDI-SC-S002-0TO2	580-79163-12	SW8082A	Aroclor 1232	3.0 U	ug/kg	3.0 UJ	s
PDI-SC-S002-0TO2	580-79163-12	SW8082A	Aroclor 1242	3.0 U	ug/kg	3.0 UJ	s
PDI-SC-S002-0TO2	580-79163-12	SW8082A	Aroclor 1248	3.0 U	ug/kg	3.0 UJ	c
PDI-SC-S002-0TO2	580-79163-12	SW8082A	Aroclor 1254	3.0 U	ug/kg	3.0 UJ	s
PDI-SC-S002-0TO2	580-79163-12	SW8082A	Aroclor 1260	3.0 U	ug/kg	3.0 UJ	s
PDI-SC-S002-0TO2	580-79163-12	SW8270DSIM	2-Methylnaphthalene	1.3 J	ug/kg	1.3 J	bl
PDI-SC-S002-0TO2	580-79163-12	SW8270DSIM	Acenaphthene	1.2 J	ug/kg	1.2 J	bl
PDI-SC-S002-0TO2	580-79163-12	SW8270DSIM	Anthracene	1.4 J	ug/kg	1.4 J	bl
PDI-SC-S002-0TO2	580-79163-12	SW8270DSIM	Fluoranthene	2.6 J	ug/kg	2.6 J	bl
PDI-SC-S002-0TO2	580-79163-12	SW8270DSIM	Fluorene	1.4 J	ug/kg	1.4 J	bl
PDI-SC-S002-0TO2	580-79163-12	SW8270DSIM	Naphthalene	2.0 J	ug/kg	2.0 J	bl
PDI-SC-S002-0TO2	580-79163-12	SW8270DSIM	Phenanthrene	2.9 J	ug/kg	2.9 J	bl
PDI-SC-S002-0TO2	580-79163-12	SW8270DSIM	Pyrene	3.2 J	ug/kg	3.2 J	bl
PDI-SC-S002-2TO4	580-79163-13	SW8082A	Aroclor 1016	2.9 U	ug/kg	2.9 UJ	c
PDI-SC-S002-2TO4	580-79163-13	SW8082A	Aroclor 1248	2.9 U	ug/kg	2.9 UJ	c
PDI-SC-S002-2TO4	580-79163-13	SW8270DSIM	2-Methylnaphthalene	0.82 J	ug/kg	0.82 J	bl
PDI-SC-S002-2TO4	580-79163-13	SW8270DSIM	Anthracene	1.2 J	ug/kg	1.2 J	bl
PDI-SC-S002-2TO4	580-79163-13	SW8270DSIM	Fluoranthene	2.4 J	ug/kg	2.4 J	bl
PDI-SC-S002-2TO4	580-79163-13	SW8270DSIM	Fluorene	1.3 J	ug/kg	1.3 J	bl
PDI-SC-S002-2TO4	580-79163-13	SW8270DSIM	Naphthalene	2.4 J	ug/kg	2.4 J	bl
PDI-SC-S002-2TO4	580-79163-13	SW8270DSIM	Phenanthrene	1.9 J	ug/kg	1.9 J	bl
PDI-SC-S002-2TO4	580-79163-13	SW8270DSIM	Pyrene	2.3 J	ug/kg	2.3 J	bl
PDI-SC-S002-4TO6.5	580-79163-14	SW8082A	Aroclor 1016	2.9 U	ug/kg	2.9 UJ	c
PDI-SC-S002-4TO6.5	580-79163-14	SW8082A	Aroclor 1221	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S002-4TO6.5	580-79163-14	SW8082A	Aroclor 1232	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S002-4TO6.5	580-79163-14	SW8082A	Aroclor 1242	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S002-4TO6.5	580-79163-14	SW8082A	Aroclor 1248	2.9 U	ug/kg	2.9 UJ	c
PDI-SC-S002-4TO6.5	580-79163-14	SW8082A	Aroclor 1254	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S002-4TO6.5	580-79163-14	SW8082A	Aroclor 1260	2.9 U	ug/kg	2.9 UJ	s
PDI-SC-S002-4TO6.5	580-79163-14	SW8270DSIM	Phenanthrene	3.9 J	ug/kg	3.9 J	bl
PDI-SC-S030-0TO2	580-79163-15	SW8082A	Aroclor 1016	3.4 U	ug/kg	3.4 UJ	c
PDI-SC-S030-0TO2	580-79163-15	SW8082A	Aroclor 1248	3.4 U	ug/kg	3.4 UJ	c
PDI-SC-S030-0TO2	580-79163-15	SW8270DSIM	2-Methylnaphthalene	17 J	ug/kg	17 J	bl
PDI-SC-S030-0TO2	580-79163-15	SW8270DSIM	Acenaphthene	25 J	ug/kg	25 J	bl
PDI-SC-S030-0TO2	580-79163-15	SW8270DSIM	Acenaphthylene	23 J	ug/kg	23 J	bl
PDI-SC-S030-0TO2	580-79163-15	SW8270DSIM	Fluorene	27 J	ug/kg	27 J	bl
PDI-SC-S030-2TO4	580-79163-16	SW8082A	Aroclor 1016	3.4 U	ug/kg	3.4 UJ	c

Table 1
QA/QC Data Summary Review
Portland Harbor
Subsurface Sediment - Nearshore Stations
TestAmerica Laboratory Group: 580-79163-1

Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
PDI-SC-S030-2TO4	580-79163-16	SW8082A	Aroclor 1248	3.4 U	ug/kg	3.4 UJ	c
PDI-SC-S030-2TO4	580-79163-16	SW8082A	Aroclor 1254	270	ug/kg	270 J	c
PDI-SC-S030-2TO4D	580-79163-17	SW8082A	Aroclor 1016	3.3 U	ug/kg	3.3 UJ	c
PDI-SC-S030-2TO4D	580-79163-17	SW8082A	Aroclor 1221	3.3 U	ug/kg	3.3 UJ	s
PDI-SC-S030-2TO4D	580-79163-17	SW8082A	Aroclor 1232	3.3 U	ug/kg	3.3 UJ	s
PDI-SC-S030-2TO4D	580-79163-17	SW8082A	Aroclor 1242	3.3 U	ug/kg	3.3 UJ	s
PDI-SC-S030-2TO4D	580-79163-17	SW8082A	Aroclor 1248	3.3 U	ug/kg	3.3 UJ	c
PDI-SC-S030-2TO4D	580-79163-17	SW8082A	Aroclor 1254	160	ug/kg	160 J	s
PDI-SC-S030-2TO4D	580-79163-17	SW8082A	Aroclor 1260	3.3 U	ug/kg	3.3 UJ	s
PDI-SC-S030-4TO5.3	580-79163-18	SW8082A	Aroclor 1016	2.8 U	ug/kg	2.8 UJ	c
PDI-SC-S030-4TO5.3	580-79163-18	SW8082A	Aroclor 1221	2.8 U	ug/kg	2.8 UJ	s
PDI-SC-S030-4TO5.3	580-79163-18	SW8082A	Aroclor 1232	2.8 U	ug/kg	2.8 UJ	s
PDI-SC-S030-4TO5.3	580-79163-18	SW8082A	Aroclor 1242	2.8 U	ug/kg	2.8 UJ	s
PDI-SC-S030-4TO5.3	580-79163-18	SW8082A	Aroclor 1248	2.8 U	ug/kg	2.8 UJ	c
PDI-SC-S030-4TO5.3	580-79163-18	SW8082A	Aroclor 1254	91	ug/kg	91 J	s
PDI-SC-S030-4TO5.3	580-79163-18	SW8082A	Aroclor 1260	2.8 U	ug/kg	2.8 UJ	s
PDI-SC-S030-4TO5.3	580-79163-18	SW8270DSIM	Acenaphthylene	33 J	ug/kg	33 J	bl
PDI-SC-S185-0TO2	580-79163-19	D7928/D6913	Silt	6.3	%	6.3 L	ld
PDI-SC-S185-0TO2	580-79163-19	SW8082A	Aroclor 1016	2.5 U	ug/kg	2.5 UJ	c
PDI-SC-S185-0TO2	580-79163-19	SW8082A	Aroclor 1248	2.5 U	ug/kg	2.5 UJ	c
PDI-SC-S185-0TO2	580-79163-19	SW8082A	Aroclor 1254	2.0 J	ug/kg	2.0 J	r
PDI-SC-S185-2TO4	580-79163-20	SW8082A	Aroclor 1016	2.4 U	ug/kg	2.4 UJ	c
PDI-SC-S185-2TO4	580-79163-20	SW8082A	Aroclor 1248	2.4 U	ug/kg	2.4 UJ	c
PDI-SC-S185-2TO4	580-79163-20	SW8082A	Aroclor 1260	2.5	ug/kg	2.5 J	r
PDI-SC-S185-4TO5.5	580-79163-21	SW8082A	Aroclor 1016	2.6 U	ug/kg	2.6 UJ	c
PDI-SC-S185-4TO5.5	580-79163-21	SW8082A	Aroclor 1248	2.6 U	ug/kg	2.6 UJ	c
PDI-SC-S185-4TO5.5	580-79163-21	SW8082A	Aroclor 1260	2.1 J	ug/kg	2.1 J	q
PDI-SC-S055-0TO2	580-79163-22	SW8082A	Aroclor 1016	3.8 U	ug/kg	3.8 UJ	c
PDI-SC-S055-0TO2	580-79163-22	SW8082A	Aroclor 1221	3.8 U	ug/kg	3.8 UJ	s
PDI-SC-S055-0TO2	580-79163-22	SW8082A	Aroclor 1232	3.8 U	ug/kg	3.8 UJ	s
PDI-SC-S055-0TO2	580-79163-22	SW8082A	Aroclor 1242	3.8 U	ug/kg	3.8 UJ	s
PDI-SC-S055-0TO2	580-79163-22	SW8082A	Aroclor 1248	3.8 U	ug/kg	3.8 UJ	c
PDI-SC-S055-0TO2	580-79163-22	SW8082A	Aroclor 1254	3.8 U	ug/kg	3.8 UJ	s
PDI-SC-S055-0TO2	580-79163-22	SW8082A	Aroclor 1260	4.6	ug/kg	4.6 J	s
PDI-SC-S055-2TO4	580-79163-23	SW8082A	Aroclor 1016	3.6 U	ug/kg	3.6 UJ	c
PDI-SC-S055-2TO4	580-79163-23	SW8082A	Aroclor 1221	3.6 U	ug/kg	3.6 UJ	s
PDI-SC-S055-2TO4	580-79163-23	SW8082A	Aroclor 1232	3.6 U	ug/kg	3.6 UJ	s
PDI-SC-S055-2TO4	580-79163-23	SW8082A	Aroclor 1242	3.6 U	ug/kg	3.6 UJ	s
PDI-SC-S055-2TO4	580-79163-23	SW8082A	Aroclor 1248	3.6 U	ug/kg	3.6 UJ	c
PDI-SC-S055-2TO4	580-79163-23	SW8082A	Aroclor 1254	3.6 U	ug/kg	3.6 UJ	s
PDI-SC-S055-2TO4	580-79163-23	SW8082A	Aroclor 1260	6.7	ug/kg	6.7 J	s
PDI-SC-S055-4TO6	580-79163-24	SW8082A	Aroclor 1016	3.0 U	ug/kg	3.0 UJ	c
PDI-SC-S055-4TO6	580-79163-24	SW8082A	Aroclor 1221	3.0 U	ug/kg	3.0 UJ	s
PDI-SC-S055-4TO6	580-79163-24	SW8082A	Aroclor 1232	3.0 U	ug/kg	3.0 UJ	s
PDI-SC-S055-4TO6	580-79163-24	SW8082A	Aroclor 1242	3.0 U	ug/kg	3.0 UJ	s
PDI-SC-S055-4TO6	580-79163-24	SW8082A	Aroclor 1248	3.0 U	ug/kg	3.0 UJ	c
PDI-SC-S055-4TO6	580-79163-24	SW8082A	Aroclor 1254	3.0 U	ug/kg	3.0 UJ	s
PDI-SC-S055-4TO6	580-79163-24	SW8082A	Aroclor 1260	22	ug/kg	22 J	s
PDI-SC-S055-6TO8	580-79163-25	SW8082A	Aroclor 1016	3.0 U	ug/kg	3.0 UJ	c
PDI-SC-S055-6TO8	580-79163-25	SW8082A	Aroclor 1248	3.0 U	ug/kg	3.0 UJ	c
PDI-SC-S055-6TO8	580-79163-25	SW8082A	Aroclor 1260	5.3	ug/kg	5.3 J	q
PDI-SC-S024-0TO2	580-79163-26	SW8082A	Aroclor 1016	3.4 U	ug/kg	3.4 UJ	c
PDI-SC-S024-0TO2	580-79163-26	SW8082A	Aroclor 1221	3.4 U	ug/kg	3.4 UJ	s
PDI-SC-S024-0TO2	580-79163-26	SW8082A	Aroclor 1232	3.4 U	ug/kg	3.4 UJ	s
PDI-SC-S024-0TO2	580-79163-26	SW8082A	Aroclor 1242	3.4 U	ug/kg	3.4 UJ	s
PDI-SC-S024-0TO2	580-79163-26	SW8082A	Aroclor 1248	3.4 U	ug/kg	3.4 UJ	c
PDI-SC-S024-0TO2	580-79163-26	SW8082A	Aroclor 1254	3.4 U	ug/kg	3.4 UJ	s
PDI-SC-S024-0TO2	580-79163-26	SW8082A	Aroclor 1260	6.4	ug/kg	6.4 J	s
PDI-SC-S024-2TO4	580-79163-27	SW8082A	Aroclor 1016	2.7 U	ug/kg	2.7 UJ	c

Table 1
QA/QC Data Summary Review
Portland Harbor
Subsurface Sediment - Nearshore Stations
TestAmerica Laboratory Group: 580-79163-1

Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
PDI-SC-S024-2TO4	580-79163-27	SW8082A	Aroclor 1221	2.7 U	ug/kg	2.7 UJ	s
PDI-SC-S024-2TO4	580-79163-27	SW8082A	Aroclor 1232	2.7 U	ug/kg	2.7 UJ	s
PDI-SC-S024-2TO4	580-79163-27	SW8082A	Aroclor 1242	2.7 U	ug/kg	2.7 UJ	s
PDI-SC-S024-2TO4	580-79163-27	SW8082A	Aroclor 1248	2.7 U	ug/kg	2.7 UJ	c
PDI-SC-S024-2TO4	580-79163-27	SW8082A	Aroclor 1254	12	ug/kg	12 J	s
PDI-SC-S024-2TO4	580-79163-27	SW8082A	Aroclor 1260	2.7 U	ug/kg	2.7 UJ	s
PDI-SC-S024-4TO6	580-79163-28	SW8082A	Aroclor 1016	2.5 U	ug/kg	2.5 UJ	c
PDI-SC-S024-4TO6	580-79163-28	SW8082A	Aroclor 1221	2.5 U	ug/kg	2.5 UJ	s
PDI-SC-S024-4TO6	580-79163-28	SW8082A	Aroclor 1232	2.5 U	ug/kg	2.5 UJ	s
PDI-SC-S024-4TO6	580-79163-28	SW8082A	Aroclor 1242	2.5 U	ug/kg	2.5 UJ	s
PDI-SC-S024-4TO6	580-79163-28	SW8082A	Aroclor 1248	2.5 U	ug/kg	2.5 UJ	c
PDI-SC-S024-4TO6	580-79163-28	SW8082A	Aroclor 1254	7.7	ug/kg	7.7 J	s
PDI-SC-S024-4TO6	580-79163-28	SW8082A	Aroclor 1260	2.5 U	ug/kg	2.5 UJ	s
PDI-SC-S028-0TO2	580-79163-29	SW8082A	Aroclor 1016	3.0 U	ug/kg	3.0 UJ	c
PDI-SC-S028-0TO2	580-79163-29	SW8082A	Aroclor 1221	3.0 U	ug/kg	3.0 UJ	s
PDI-SC-S028-0TO2	580-79163-29	SW8082A	Aroclor 1232	3.0 U	ug/kg	3.0 UJ	s
PDI-SC-S028-0TO2	580-79163-29	SW8082A	Aroclor 1242	3.0 U	ug/kg	3.0 UJ	s
PDI-SC-S028-0TO2	580-79163-29	SW8082A	Aroclor 1248	3.0 U	ug/kg	3.0 UJ	c
PDI-SC-S028-0TO2	580-79163-29	SW8082A	Aroclor 1254	5.1	ug/kg	5.1 J	s
PDI-SC-S028-0TO2	580-79163-29	SW8082A	Aroclor 1260	3.0 U	ug/kg	3.0 UJ	s
PDI-SC-S028-2TO3.2	580-79163-30	SW8082A	Aroclor 1016	2.5 U	ug/kg	2.5 UJ	c
PDI-SC-S028-2TO3.2	580-79163-30	SW8082A	Aroclor 1221	2.5 U	ug/kg	2.5 UJ	s
PDI-SC-S028-2TO3.2	580-79163-30	SW8082A	Aroclor 1232	2.5 U	ug/kg	2.5 UJ	s
PDI-SC-S028-2TO3.2	580-79163-30	SW8082A	Aroclor 1242	2.5 U	ug/kg	2.5 UJ	s
PDI-SC-S028-2TO3.2	580-79163-30	SW8082A	Aroclor 1248	2.5 U	ug/kg	2.5 UJ	c
PDI-SC-S028-2TO3.2	580-79163-30	SW8082A	Aroclor 1254	3.0	ug/kg	3.0 J	s
PDI-SC-S028-2TO3.2	580-79163-30	SW8082A	Aroclor 1260	2.5 U	ug/kg	2.5 UJ	s
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8082A	Aroclor 1016	2.8 U	ug/kg	2.8 UJ	c
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8082A	Aroclor 1221	2.8 U	ug/kg	2.8 UJ	s
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8082A	Aroclor 1232	2.8 U	ug/kg	2.8 UJ	s
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8082A	Aroclor 1242	2.8 U	ug/kg	2.8 UJ	s
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8082A	Aroclor 1248	2.8 U	ug/kg	2.8 UJ	c
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8082A	Aroclor 1254	4.2	ug/kg	4.2 J	s
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8082A	Aroclor 1260	2.8 U	ug/kg	2.8 UJ	s
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8270DSIM	Benz(a)anthracene	44	ug/kg	44 J	fd
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8270DSIM	Benzo(a)pyrene	55	ug/kg	55 J	fd
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8270DSIM	Benzo(b)fluoranthene	66	ug/kg	66 J	fd
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8270DSIM	Benzo(k)fluoranthene	21	ug/kg	21 J	fd
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8270DSIM	Chrysene	56	ug/kg	56 J	fd
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8270DSIM	Fluoranthene	49	ug/kg	49 J	fd
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8270DSIM	Phenanthrene	34.0	ug/kg	34 J	fd
PDI-SC-S028-3.2TO5.7	580-79163-31	SW8270DSIM	Pyrene	120	ug/kg	120 J	fd
PDI-SC-S028-3.2TO5.7D	580-79163-32	SW8082A	Aroclor 1016	2.7 U	ug/kg	2.7 UJ	c
PDI-SC-S028-3.2TO5.7D	580-79163-32	SW8082A	Aroclor 1248	2.7 U	ug/kg	2.7 UJ	c
PDI-SC-S028-3.2TO5.7D	580-79163-32	SW8082A	Aroclor 1254	5.6	ug/kg	5.6 J	r
PDI-SC-S028-3.2TO5.7D	580-79163-32	SW8270DSIM	Benz(a)anthracene	110	ug/kg	110 J	fd
PDI-SC-S028-3.2TO5.7D	580-79163-32	SW8270DSIM	Benzo(a)pyrene	98	ug/kg	98 J	fd
PDI-SC-S028-3.2TO5.7D	580-79163-32	SW8270DSIM	Benzo(b)fluoranthene	120	ug/kg	120 J	fd
PDI-SC-S028-3.2TO5.7D	580-79163-32	SW8270DSIM	Benzo(k)fluoranthene	36	ug/kg	36 J	fd
PDI-SC-S028-3.2TO5.7D	580-79163-32	SW8270DSIM	Chrysene	130	ug/kg	130 J	fd
PDI-SC-S028-3.2TO5.7D	580-79163-32	SW8270DSIM	Fluoranthene	160	ug/kg	160 J	fd
PDI-SC-S028-3.2TO5.7D	580-79163-32	SW8270DSIM	Phenanthrene	73.0	ug/kg	73 J	fd
PDI-SC-S028-3.2TO5.7D	580-79163-32	SW8270DSIM	Pyrene	350	ug/kg	350 J	fd
PDI-RB-SS-180725	580-79163-33	SW8082A	Aroclor 1016	0.45 U	ug/L	0.45 UJ	c
PDI-RB-SS-180725	580-79163-33	SW8082A	Aroclor 1221	0.45 U	ug/L	0.45 UJ	c
PDI-RB-SS-180725	580-79163-33	SW8082A	Aroclor 1232	0.45 U	ug/L	0.45 UJ	c
PDI-RB-SS-180725	580-79163-33	SW8082A	Aroclor 1242	0.45 U	ug/L	0.45 UJ	c
PDI-RB-SS-180725	580-79163-33	SW8082A	Aroclor 1254	0.45 U	ug/L	0.45 UJ	c
PDI-RB-SS-180725	580-79163-33	SW8082A	Aroclor 1260	0.45 U	ug/L	0.45 UJ	c

Table 1
QA/QC Data Summary Review
Portland Harbor
Subsurface Sediment - Nearshore Stations
TestAmerica Laboratory Group: 580-79163-1

Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
PDI-RB-SS-180726	580-79163-34	SW8082A	Aroclor 1016	0.43 U	ug/L	0.43 UJ	c
PDI-RB-SS-180726	580-79163-34	SW8082A	Aroclor 1221	0.43 U	ug/L	0.43 UJ	c
PDI-RB-SS-180726	580-79163-34	SW8082A	Aroclor 1232	0.43 U	ug/L	0.43 UJ	c
PDI-RB-SS-180726	580-79163-34	SW8082A	Aroclor 1242	0.43 U	ug/L	0.43 UJ	c
PDI-RB-SS-180726	580-79163-34	SW8082A	Aroclor 1254	0.43 U	ug/L	0.43 UJ	c
PDI-RB-SS-180726	580-79163-34	SW8082A	Aroclor 1260	0.43 U	ug/L	0.43 UJ	c
PDI-RB-SS-180727	580-79163-35	SW8082A	Aroclor 1016	0.43 U	ug/L	0.43 UJ	c
PDI-RB-SS-180727	580-79163-35	SW8082A	Aroclor 1221	0.43 U	ug/L	0.43 UJ	c
PDI-RB-SS-180727	580-79163-35	SW8082A	Aroclor 1232	0.43 U	ug/L	0.43 UJ	c
PDI-RB-SS-180727	580-79163-35	SW8082A	Aroclor 1242	0.43 U	ug/L	0.43 UJ	c
PDI-RB-SS-180727	580-79163-35	SW8082A	Aroclor 1254	0.43 U	ug/L	0.43 UJ	c
PDI-RB-SS-180727	580-79163-35	SW8082A	Aroclor 1260	0.43 U	ug/L	0.43 UJ	c

Notes:

% - percent

bl - laboratory blank contamination

c - calibration issue

fd - field duplicate RPD

J - estimated value

L - the grain size fraction was greater than 5 percent of the total combined fractions and the RPD for duplicate analysis on the sample fraction was greater than 20%

ld - laboratory duplicate RPD

q - quantitation issue

r - dual column RPD

s - surrogate recovery

ug/kg - microgram per kilogram

ug/L - microgram per liter

RPD - relative percent difference

U - Compound was analyzed for, but not detected above the value shown.

Note: Line items where the laboratory result contains a "J" and the final result contains a "U" with a data validation reason code "bl" indicate that the final result is reported as not detected ("U" flag) at the reporting limit.