TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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TestAmerica Job ID: 580-79019-1
Client Project/Site: Portland Harbor Pre-Remedial Design

For:
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Attn: Amy Dahl

M. Elaine Walker

Authorized for release by:
8/8/2018 2:12:21 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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Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE
Client: AECOM
Project: Portland Harbor Pre-Remedial Design
Report Number: 580-79019-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

Six samples were received on 7/20/2018 1:17 PM; the samples arrived in good condition, properly preserved and, where required, on ice.

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.

POLYCHLORINATED BIPHENYLS (PCBS)

Samples PDI-SC-S033-0to2 (580-79019-1), PDI-SC-S033-2to3 (580-79019-2), PDI-SC-S033-3to4 (580-79019-3), PDI-SC-S034-4to5.2 (580-79019-4), PDI-SC-S034-0to1.8 (580-79019-5) and PDI-SC-S034-1.8to4 (580-79019-6) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA sw-846 method 8082A. The samples were prepared on 07/23/2018 and analyzed on 07/23/2018, 07/24/2018 and 07/25/2018.

Surrogate recovery for the following samples were outside control limits: PDI-SC-S033-0to2 (580-79019-1), PDI-SC-S033-2to3 (580-79019-2), PDI-SC-S033-3to4 (580-79019-3), PDI-SC-S034-4to5.2 (580-79019-4), PDI-SC-S034-0to1.8 (580-79019-5), PDI-SC-S034-1.8to4 (580-79019-6). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis were not performed.

The continuing calibration verification (CCV) associated with 580-279856 recovered low and outside the control limits for PCB-1248 on the confirmation column. Results are confirmed on both columns and reported from the passing column. The following samples are impacted: PDI-SC-S033-0to2 (580-79019-1), PDI-SC-S033-2to3 (580-79019-2), PDI-SC-S033-3to4 (580-79019-3), PDI-SC-S034-4to5.2 (580-79019-4), PDI-SC-S034-1.8to4 (580-79019-6) and (CCV 580-279856/3).

The continuing calibration verification (CCV) associated with 580-280059 recovered low and outside the control limits for PCB-1248 on the confirmation column. Results are confirmed on both columns and reported from the passing column. The following samples are impacted: PDI-SC-S033-3to4 (580-79019-3), PDI-SC-S034-0to1.8 (580-79019-5) and (CCV 580-280059/3).

Samples PDI-SC-S033-0to2 (580-79019-1)[10X], PDI-SC-S033-2to3 (580-79019-2)[10X] and PDI-SC-S033-3to4 (580-79019-3)[100X] required dilution prior to analysis to bring the concentration of target analytes within the calibration range. The reporting limits have been

Job ID: 580-79019-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

adjusted accordingly.

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

SEMIVOLATILE ORGANIC COMPOUNDS - SELECTED ION MODE (SIM)

Samples PDI-SC-S033-0to2 (580-79019-1), PDI-SC-S033-2to3 (580-79019-2), PDI-SC-S033-3to4 (580-79019-3), PDI-SC-S034-4to5.2 (580-79019-4), PDI-SC-S034-0to1.8 (580-79019-5) and PDI-SC-S034-1.8to4 (580-79019-6) were analyzed for semivolatile organic compounds - Selected Ion Mode (SIM) in accordance with SW846 8270D_SIM. The samples were prepared on 07/27/2018 and analyzed on 07/28/2018, 07/30/2018 and 08/06/2018.

Several analytes were detected in method blank MB 580-280203/1-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. Target analyte concentrations in the MB were less ½ than the reporting limit (RL) or greater than 10x the concentration in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Methylnaphthalene, Naphthalene and Phenanthrene were detected in method blank MB 580-280231/1-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. Target analyte concentrations in the MB were less than ½ the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Indeno[1,2,3-cd]pyrene failed the recovery criteria high for LCS 580-280203/2-A. This random marginal exceedance does not indicate a systematic control problem. Qualified results have been reported.

Phenanthrene failed the recovery criteria low for the MS of sample PDI-SC-S034-0to1.8MS (580-79019-5) in batch 580-280309. Fluoranthene and Pyrene failed the recovery criteria high. For the MSD of sample PDI-SC-S034-0to1.8MSD (580-79019-5) in batch 580-280309, Fluoranthene, Phenanthrene and Pyrene failed the recovery criteria low. Indeno[1,2,3-cd]pyrene failed the recovery criteria high. Also, several analytes exceeded the RPD limit. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

The continuing calibration verification (CCV) associated with batch 580-280341 recovered above the upper control limit for Benzo[a]anthracene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

The following sample was reanalyzed due to high Benzo[a]anthracene in the initial analysis' CCVIS: PDI-SC-S033-2to3 (580-79019-2).

Samples PDI-SC-S033-0to2 (580-79019-1)[10X], PDI-SC-S033-2to3 (580-79019-2)[50X], PDI-SC-S033-3to4 (580-79019-3)[10X], PDI-SC-S034-4to5.2 (580-79019-4)[2X], PDI-SC-S034-0to1.8 (580-79019-5)[10X] and PDI-SC-S034-1.8to4 (580-79019-6)[2X] required dilution prior to analysis due to the nature of the sample matrix. The reporting limits have been adjusted accordingly.

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-S033-0to2 (580-79019-1), PDI-SC-S033-2to3 (580-79019-2), PDI-SC-S033-3to4 (580-79019-3), PDI-SC-S034-4to5.2 (580-79019-4), PDI-SC-S034-0to1.8 (580-79019-5) and PDI-SC-S034-1.8to4 (580-79019-6) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 07/24/2018.

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

GRAIN SIZE

Samples PDI-SC-S033-0to2 (580-79019-1), PDI-SC-S033-2to3 (580-79019-2), PDI-SC-S033-3to4 (580-79019-3), PDI-SC-S034-4to5.2 (580-79019-4), PDI-SC-S034-0to1.8 (580-79019-5) and PDI-SC-S034-1.8to4 (580-79019-6) were analyzed for grain size in accordance with ASTM D7928/D6913. The samples were analyzed on 07/24/2018.

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

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Laboratory: TestAmerica Seattle (Continued)

PERCENT SOLIDS

Samples PDI-SC-S033-0to2 (580-79019-1), PDI-SC-S033-2to3 (580-79019-2), PDI-SC-S033-3to4 (580-79019-3), PDI-SC-S034-4to5.2 (580-79019-4), PDI-SC-S034-0to1.8 (580-79019-5) and PDI-SC-S034-1.8to4 (580-79019-6) were analyzed for percent solids in accordance with ASTM D2216. The samples were analyzed on 07/21/2018.

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

TOTAL SOLIDS @ 70C

Samples PDI-SC-S033-0to2 (580-79019-1), PDI-SC-S033-2to3 (580-79019-2), PDI-SC-S033-3to4 (580-79019-3), PDI-SC-S034-4to5.2 (580-79019-4), PDI-SC-S034-0to1.8 (580-79019-5) and PDI-SC-S034-1.8to4 (580-79019-6) were analyzed for Total Solids @ 70C. The samples were analyzed on 07/29/2018.

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

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.
*	LCS or LCSD is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
F1	MS and/or MSD Recovery is outside acceptance limits.

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

General Chemistry

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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 ID: PDI-SC-S033-0to2

Date Collected: 07/18/18 17:40
Date Received: 07/20/18 13:17

Lab Sample ID: 580-79019-1

Matrix: Solid
Percent Solids: 44.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	250	B	110	9.9	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Acenaphthene	1700	B	110	13	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Acenaphthylene	80	J B	110	11	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Anthracene	8500	B	110	13	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Benzo[a]anthracene	3300	B	110	17	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Benzo[a]pyrene	2900	B	110	8.8	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Benzo[b]fluoranthene	4200		110	13	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Benzo[g,h,i]perylene	2000		110	11	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Benzo[k]fluoranthene	1700	B	110	13	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Chrysene	5200		110	33	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Dibenz(a,h)anthracene	500		110	16	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Fluoranthene	11000		110	31	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Fluorene	3200	B	110	11	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Indeno[1,2,3-cd]pyrene	2400	*	110	13	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Naphthalene	260	B	110	18	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Phenanthrene	14000	B	110	15	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10
Pyrene	10000	B	110	21	ug/Kg	☼	07/27/18 09:37	07/28/18 18:33	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*84*		*57 - 120*	*07/27/18 09:37*	*07/28/18 18:33*	*10*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		44	7.4	ug/Kg	☼	07/23/18 09:14	07/24/18 00:38	10
PCB-1221	ND		44	21	ug/Kg	☼	07/23/18 09:14	07/24/18 00:38	10
PCB-1232	ND		44	10	ug/Kg	☼	07/23/18 09:14	07/24/18 00:38	10
PCB-1242	ND		44	11	ug/Kg	☼	07/23/18 09:14	07/24/18 00:38	10
PCB-1248	ND		44	3.5	ug/Kg	☼	07/23/18 09:14	07/24/18 00:38	10
PCB-1254	1400		44	17	ug/Kg	☼	07/23/18 09:14	07/24/18 00:38	10
PCB-1260	ND		44	7.4	ug/Kg	☼	07/23/18 09:14	07/24/18 00:38	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*77*		*54 - 142*	*07/23/18 09:14*	*07/24/18 00:38*	*10*
Tetrachloro-m-xylene	*42*	*X*	*58 - 122*	*07/23/18 09:14*	*07/24/18 00:38*	*10*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	40000		2000	44	mg/Kg			07/24/18 14:56	1
Total Solids	44.5		0.1	0.1	%			07/21/18 14:53	1
Total Solids @ 70°C	46	H	0.10	0.10	%			07/29/18 10:03	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.7				%			07/24/18 15:36	1
Coarse Sand	1.6				%			07/24/18 15:36	1
Medium Sand	8.1				%			07/24/18 15:36	1
Fine Sand	41.8				%			07/24/18 15:36	1
Silt	42.4				%			07/24/18 15:36	1
Clay	5.3				%			07/24/18 15:36	1

Client Sample ID: PDI-SC-S033-2to3

Date Collected: 07/18/18 17:45
Date Received: 07/20/18 13:17

Lab Sample ID: 580-79019-2

Matrix: Solid
Percent Solids: 51.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	2000	B	190	17	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Acenaphthene	1300		190	23	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Acenaphthylene	170	J	190	19	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Anthracene	6200		190	23	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Benzo[a]pyrene	3600		190	15	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Benzo[b]fluoranthene	6500		190	23	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Benzo[g,h,i]perylene	2900		190	19	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Benzo[k]fluoranthene	1700		190	23	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Chrysene	6800		190	58	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Dibenz(a,h)anthracene	520		190	28	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Fluoranthene	14000		190	54	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Fluorene	2100		190	19	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Indeno[1,2,3-cd]pyrene	3400		190	23	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Naphthalene	930	B	190	31	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Phenanthrene	10000	B	190	26	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50
Pyrene	15000		190	37	ug/Kg	☼	07/27/18 13:53	07/30/18 02:56	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*96*		*57 - 120*	*07/27/18 13:53*	*07/30/18 02:56*	*50*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	4200		190	29	ug/Kg	☼	07/27/18 13:53	08/06/18 12:00	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		38	6.4	ug/Kg	☼	07/23/18 09:14	07/24/18 00:56	10
PCB-1221	ND		38	18	ug/Kg	☼	07/23/18 09:14	07/24/18 00:56	10
PCB-1232	ND		38	8.9	ug/Kg	☼	07/23/18 09:14	07/24/18 00:56	10
PCB-1242	ND		38	9.3	ug/Kg	☼	07/23/18 09:14	07/24/18 00:56	10
PCB-1248	ND		38	3.0	ug/Kg	☼	07/23/18 09:14	07/24/18 00:56	10
PCB-1254	1500		38	15	ug/Kg	☼	07/23/18 09:14	07/24/18 00:56	10
PCB-1260	ND		38	6.4	ug/Kg	☼	07/23/18 09:14	07/24/18 00:56	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*55*		*54 - 142*	*07/23/18 09:14*	*07/24/18 00:56*	*10*
Tetrachloro-m-xylene	*43*	*X*	*58 - 122*	*07/23/18 09:14*	*07/24/18 00:56*	*10*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	46000		2000	44	mg/Kg			07/24/18 15:02	1
Total Solids	51.0		0.1	0.1	%			07/21/18 14:53	1
Total Solids @ 70°C	52	H	0.10	0.10	%			07/29/18 10:03	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/24/18 15:36	1
Coarse Sand	1.1				%			07/24/18 15:36	1
Medium Sand	3.0				%			07/24/18 15:36	1
Fine Sand	37.9				%			07/24/18 15:36	1
Silt	53.1				%			07/24/18 15:36	1

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

TestAmerica Job ID: 580-79019-1

Client Sample ID: PDI-SC-S033-2to3
Date Collected: 07/18/18 17:45
Date Received: 07/20/18 13:17

Lab Sample ID: 580-79019-2
Matrix: Solid
Percent Solids: 51.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	4.8				%			07/24/18 15:36	1

Client Sample ID: PDI-SC-S033-3to4

Date Collected: 07/18/18 17:50
Date Received: 07/20/18 13:17

Lab Sample ID: 580-79019-3

Matrix: Solid
Percent Solids: 51.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	540	B	94	8.4	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Acenaphthene	7000	B	94	11	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Acenaphthylene	250	B	94	9.4	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Anthracene	14000	B	94	11	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Benzo[a]anthracene	9700	B	94	14	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Benzo[a]pyrene	6700	B	94	7.5	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Benzo[b]fluoranthene	10000		94	11	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Benzo[g,h,i]perylene	4500		94	9.4	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Benzo[k]fluoranthene	4200	B	94	11	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Chrysene	13000		94	28	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Dibenz(a,h)anthracene	940		94	13	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Fluoranthene	39000		94	26	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Fluorene	14000	B	94	9.4	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Indeno[1,2,3-cd]pyrene	5300	*	94	11	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Naphthalene	550	B	94	15	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Phenanthrene	67000	B	94	13	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10
Pyrene	32000	B	94	18	ug/Kg	☼	07/27/18 09:37	07/28/18 18:55	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*78*		*57 - 120*	*07/27/18 09:37*	*07/28/18 18:55*	*10*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		380	65	ug/Kg	☼	07/23/18 09:14	07/25/18 20:33	100
PCB-1221	ND		380	180	ug/Kg	☼	07/23/18 09:14	07/25/18 20:33	100
PCB-1232	ND		380	90	ug/Kg	☼	07/23/18 09:14	07/25/18 20:33	100
PCB-1242	ND		380	94	ug/Kg	☼	07/23/18 09:14	07/25/18 20:33	100
PCB-1248	ND		380	31	ug/Kg	☼	07/23/18 09:14	07/25/18 20:33	100
PCB-1254	8900		380	150	ug/Kg	☼	07/23/18 09:14	07/25/18 20:33	100
PCB-1260	ND		380	65	ug/Kg	☼	07/23/18 09:14	07/25/18 20:33	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*125*		*54 - 142*	*07/23/18 09:14*	*07/25/18 20:33*	*100*
Tetrachloro-m-xylene	*117*		*58 - 122*	*07/23/18 09:14*	*07/25/18 20:33*	*100*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	73000		2000	44	mg/Kg			07/24/18 15:08	1
Total Solids	51.9		0.1	0.1	%			07/21/18 14:53	1
Total Solids @ 70°C	59	H	0.10	0.10	%			07/29/18 10:03	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/24/18 15:36	1
Coarse Sand	0.8				%			07/24/18 15:36	1
Medium Sand	5.8				%			07/24/18 15:36	1
Fine Sand	43.6				%			07/24/18 15:36	1
Silt	40.9				%			07/24/18 15:36	1
Clay	8.9				%			07/24/18 15:36	1

Client Sample ID: PDI-SC-S034-4to5.2

Date Collected: 07/19/18 11:55
Date Received: 07/20/18 13:17

Lab Sample ID: 580-79019-4

Matrix: Solid
Percent Solids: 69.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	0.40	J B	2.7	0.25	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Acenaphthene	0.72	J B	2.7	0.33	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Acenaphthylene	ND		2.7	0.27	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Anthracene	1.2	J B	2.7	0.33	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Benzo[a]anthracene	2.2	J B	2.7	0.42	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Benzo[a]pyrene	1.4	J B	2.7	0.22	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Benzo[b]fluoranthene	2.6	J	2.7	0.32	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Benzo[g,h,i]perylene	3.9		2.7	0.27	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Benzo[k]fluoranthene	1.0	J B	2.7	0.33	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Chrysene	2.2	J	2.7	0.82	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Dibenz(a,h)anthracene	ND		2.7	0.39	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Fluoranthene	4.1		2.7	0.77	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Fluorene	1.2	J B	2.7	0.27	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Indeno[1,2,3-cd]pyrene	1.8	J *	2.7	0.33	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Naphthalene	0.65	J B	2.7	0.44	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Phenanthrene	6.6	B	2.7	0.38	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2
Pyrene	5.0	B	2.7	0.53	ug/Kg	☼	07/27/18 09:37	07/28/18 19:17	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*81*		*57 - 120*	*07/27/18 09:37*	*07/28/18 19:17*	*2*

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	☼	07/23/18 09:14	07/23/18 22:34	1
PCB-1221	ND		2.8	1.3	ug/Kg	☼	07/23/18 09:14	07/23/18 22:34	1
PCB-1232	ND		2.8	0.66	ug/Kg	☼	07/23/18 09:14	07/23/18 22:34	1
PCB-1242	ND		2.8	0.69	ug/Kg	☼	07/23/18 09:14	07/23/18 22:34	1
PCB-1248	ND		2.8	0.23	ug/Kg	☼	07/23/18 09:14	07/23/18 22:34	1
PCB-1254	ND		2.8	1.1	ug/Kg	☼	07/23/18 09:14	07/23/18 22:34	1
PCB-1260	ND		2.8	0.48	ug/Kg	☼	07/23/18 09:14	07/23/18 22:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*46*	*X*	*54 - 142*	*07/23/18 09:14*	*07/23/18 22:34*	*1*
Tetrachloro-m-xylene	*41*	*X*	*58 - 122*	*07/23/18 09:14*	*07/23/18 22:34*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	2300		2000	44	mg/Kg			07/24/18 15:13	1
Total Solids	69.3		0.1	0.1	%			07/21/18 14:53	1
Total Solids @ 70°C	73	H	0.10	0.10	%			07/29/18 10:03	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/24/18 15:36	1
Coarse Sand	0.4				%			07/24/18 15:36	1
Medium Sand	0.6				%			07/24/18 15:36	1
Fine Sand	22.8				%			07/24/18 15:36	1
Silt	58.3				%			07/24/18 15:36	1
Clay	17.8				%			07/24/18 15:36	1

Client Sample ID: PDI-SC-S034-0to1.8
Date Collected: 07/19/18 11:45
Date Received: 07/20/18 13:17

Lab Sample ID: 580-79019-5
Matrix: Solid
Percent Solids: 79.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	6.8	J B	12	1.1	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Acenaphthene	46	B	12	1.5	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Acenaphthylene	6.3	J B	12	1.2	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Anthracene	48	F2 B	12	1.5	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Benzo[a]anthracene	99	B	12	1.9	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Benzo[a]pyrene	110	B	12	0.98	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Benzo[b]fluoranthene	140		12	1.4	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Benzo[g,h,i]perylene	98	F2	12	1.2	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Benzo[k]fluoranthene	50	B	12	1.5	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Chrysene	160		12	3.7	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Dibenz(a,h)anthracene	15	F2	12	1.8	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Fluoranthene	210	F2 F1	12	3.4	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Fluorene	69	B	12	1.2	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Indeno[1,2,3-cd]pyrene	110	F2 F1 *	12	1.5	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Naphthalene	20	F2 B	12	2.0	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Phenanthrene	500	F2 F1 B	12	1.7	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10
Pyrene	460	F2 F1 B	12	2.4	ug/Kg	☼	07/27/18 09:37	07/28/18 19:39	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*85*		*57 - 120*	*07/27/18 09:37*	*07/28/18 19:39*	*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	☼	07/23/18 09:14	07/25/18 20:51	1
PCB-1221	ND		2.4	1.2	ug/Kg	☼	07/23/18 09:14	07/25/18 20:51	1
PCB-1232	ND		2.4	0.57	ug/Kg	☼	07/23/18 09:14	07/25/18 20:51	1
PCB-1242	ND		2.4	0.60	ug/Kg	☼	07/23/18 09:14	07/25/18 20:51	1
PCB-1248	ND		2.4	0.19	ug/Kg	☼	07/23/18 09:14	07/25/18 20:51	1
PCB-1254	40		2.4	0.96	ug/Kg	☼	07/23/18 09:14	07/25/18 20:51	1
PCB-1260	ND		2.4	0.41	ug/Kg	☼	07/23/18 09:14	07/25/18 20:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*54*		*54 - 142*	*07/23/18 09:14*	*07/25/18 20:51*	*1*
Tetrachloro-m-xylene	*54*	*X*	*58 - 122*	*07/23/18 09:14*	*07/25/18 20:51*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	2700		2000	44	mg/Kg			07/24/18 15:18	1
Total Solids	79.3		0.1	0.1	%			07/21/18 14:53	1
Total Solids @ 70°C	81	H	0.10	0.10	%			07/29/18 10:03	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/24/18 15:36	1
Coarse Sand	1.3				%			07/24/18 15:36	1
Medium Sand	24.4				%			07/24/18 15:36	1
Fine Sand	62.5				%			07/24/18 15:36	1
Silt	11.0				%			07/24/18 15:36	1
Clay	0.8				%			07/24/18 15:36	1

Client Sample ID: PDI-SC-S034-1.8to4

Date Collected: 07/19/18 11:50
Date Received: 07/20/18 13:17

Lab Sample ID: 580-79019-6

Matrix: Solid
Percent Solids: 67.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	1.5	J B	2.8	0.25	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Acenaphthene	1.6	J B	2.8	0.34	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Acenaphthylene	0.29	J B	2.8	0.28	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Anthracene	4.9	B	2.8	0.34	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Benzo[a]anthracene	5.0	B	2.8	0.43	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Benzo[a]pyrene	3.5	B	2.8	0.23	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Benzo[b]fluoranthene	5.8		2.8	0.33	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Benzo[g,h,i]perylene	3.1		2.8	0.28	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Benzo[k]fluoranthene	2.1	J B	2.8	0.34	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Chrysene	5.2		2.8	0.85	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Dibenz(a,h)anthracene	0.90	J	2.8	0.41	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Fluoranthene	17		2.8	0.79	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Fluorene	3.6	B	2.8	0.28	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Indeno[1,2,3-cd]pyrene	3.0	*	2.8	0.34	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Naphthalene	1.6	J B	2.8	0.45	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Phenanthrene	23	B	2.8	0.39	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2
Pyrene	18	B	2.8	0.55	ug/Kg	☼	07/27/18 09:37	07/28/18 20:01	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*85*		*57 - 120*	*07/27/18 09:37*	*07/28/18 20:01*	*2*

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	☼	07/23/18 09:14	07/23/18 23:10	1
PCB-1221	ND		2.8	1.4	ug/Kg	☼	07/23/18 09:14	07/23/18 23:10	1
PCB-1232	ND		2.8	0.67	ug/Kg	☼	07/23/18 09:14	07/23/18 23:10	1
PCB-1242	ND		2.8	0.70	ug/Kg	☼	07/23/18 09:14	07/23/18 23:10	1
PCB-1248	ND		2.8	0.23	ug/Kg	☼	07/23/18 09:14	07/23/18 23:10	1
PCB-1254	ND		2.8	1.1	ug/Kg	☼	07/23/18 09:14	07/23/18 23:10	1
PCB-1260	ND		2.8	0.48	ug/Kg	☼	07/23/18 09:14	07/23/18 23:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*51*	*X*	*54 - 142*	*07/23/18 09:14*	*07/23/18 23:10*	*1*
Tetrachloro-m-xylene	*49*	*X*	*58 - 122*	*07/23/18 09:14*	*07/23/18 23:10*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	3000		2000	44	mg/Kg			07/24/18 15:23	1
Total Solids	67.5		0.1	0.1	%			07/21/18 14:53	1
Total Solids @ 70°C	70	H	0.10	0.10	%			07/29/18 10:03	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			07/24/18 15:36	1
Coarse Sand	0.3				%			07/24/18 15:36	1
Medium Sand	0.6				%			07/24/18 15:36	1
Fine Sand	14.4				%			07/24/18 15:36	1
Silt	59.9				%			07/24/18 15:36	1
Clay	24.8				%			07/24/18 15:36	1

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

Lab Sample ID: MB 580-280203/1-A
Matrix: Solid
Analysis Batch: 280309

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 280203

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	0.590	J	1.0	0.090	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Acenaphthene	0.237	J	1.0	0.12	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Acenaphthylene	0.160	J	1.0	0.10	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Anthracene	0.140	J	1.0	0.12	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Benzo[a]anthracene	0.203	J	1.0	0.15	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Benzo[a]pyrene	0.146	J	1.0	0.080	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Benzo[b]fluoranthene	ND		1.0	0.12	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Benzo[g,h,i]perylene	ND		1.0	0.10	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Benzo[k]fluoranthene	0.162	J	1.0	0.12	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Chrysene	ND		1.0	0.30	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Dibenz(a,h)anthracene	ND		1.0	0.14	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Fluoranthene	ND		1.0	0.28	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Fluorene	0.226	J	1.0	0.10	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Indeno[1,2,3-cd]pyrene	ND		1.0	0.12	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Naphthalene	0.391	J	1.0	0.16	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Phenanthrene	0.653	J	1.0	0.14	ug/Kg		07/27/18 09:37	07/28/18 17:48	1
Pyrene	0.212	J	1.0	0.19	ug/Kg		07/27/18 09:37	07/28/18 17:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*89*		*57 - 120*	*07/27/18 09:37*	*07/28/18 17:48*	*1*

Lab Sample ID: LCS 580-280203/2-A
Matrix: Solid
Analysis Batch: 280309

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 280203

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene	200	185		ug/Kg		92	68 - 120
Acenaphthene	200	188		ug/Kg		94	68 - 120
Acenaphthylene	200	186		ug/Kg		93	68 - 120
Anthracene	200	187		ug/Kg		94	73 - 125
Benzo[a]anthracene	200	202		ug/Kg		101	66 - 120
Benzo[a]pyrene	200	225		ug/Kg		113	72 - 124
Benzo[b]fluoranthene	200	210		ug/Kg		105	63 - 121
Benzo[g,h,i]perylene	200	223		ug/Kg		111	63 - 120
Benzo[k]fluoranthene	200	226		ug/Kg		113	63 - 123
Chrysene	200	221		ug/Kg		111	69 - 120
Dibenz(a,h)anthracene	200	247		ug/Kg		123	70 - 125
Fluoranthene	200	188		ug/Kg		94	74 - 125
Fluorene	200	191		ug/Kg		96	73 - 120
Indeno[1,2,3-cd]pyrene	200	254	*	ug/Kg		127	65 - 121
Naphthalene	200	184		ug/Kg		92	70 - 120
Phenanthrene	200	182		ug/Kg		91	73 - 120
Pyrene	200	187		ug/Kg		94	70 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*86*		*57 - 120*

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

Lab Sample ID: 580-79019-5 MS
Matrix: Solid
Analysis Batch: 280309

Client Sample ID: PDI-SC-S034-0to1.8
Prep Type: Total/NA
Prep Batch: 280203

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene	6.8	J B	235	224		ug/Kg	☼	92	68 - 120
Acenaphthene	46	B	235	263		ug/Kg	☼	92	68 - 120
Acenaphthylene	6.3	J B	235	227		ug/Kg	☼	94	68 - 120
Anthracene	48	F2 B	235	313		ug/Kg	☼	113	73 - 125
Benzo[a]anthracene	99	B	235	364		ug/Kg	☼	113	66 - 120
Benzo[a]pyrene	110	B	235	330		ug/Kg	☼	92	72 - 124
Benzo[b]fluoranthene	140		235	356		ug/Kg	☼	93	63 - 121
Benzo[g,h,i]perylene	98	F2	235	275		ug/Kg	☼	75	63 - 120
Benzo[k]fluoranthene	50	B	235	299		ug/Kg	☼	106	63 - 123
Chrysene	160		235	408		ug/Kg	☼	105	69 - 120
Dibenz(a,h)anthracene	15	F2	235	237		ug/Kg	☼	94	70 - 125
Fluoranthene	210	F2 F1	235	505	F1	ug/Kg	☼	127	74 - 125
Fluorene	69	B	235	247		ug/Kg	☼	76	73 - 120
Indeno[1,2,3-cd]pyrene	110	F2 F1 *	235	347		ug/Kg	☼	102	65 - 121
Naphthalene	20	F2 B	235	289		ug/Kg	☼	114	70 - 120
Phenanthrene	500	F2 F1 B	235	542	F1	ug/Kg	☼	18	73 - 120
Pyrene	460	F2 F1 B	235	880	F1	ug/Kg	☼	180	70 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Terphenyl-d14	*96*		*57 - 120*

Lab Sample ID: 580-79019-5 MSD
Matrix: Solid
Analysis Batch: 280309

Client Sample ID: PDI-SC-S034-0to1.8
Prep Type: Total/NA
Prep Batch: 280203

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Methylnaphthalene	6.8	J B	233	234		ug/Kg	☼	97	68 - 120	5	12
Acenaphthene	46	B	233	258		ug/Kg	☼	91	68 - 120	2	12
Acenaphthylene	6.3	J B	233	235		ug/Kg	☼	98	68 - 120	3	12
Anthracene	48	F2 B	233	247	F2	ug/Kg	☼	85	73 - 125	24	12
Benzo[a]anthracene	99	B	233	356		ug/Kg	☼	110	66 - 120	2	14
Benzo[a]pyrene	110	B	233	371		ug/Kg	☼	110	72 - 124	12	12
Benzo[b]fluoranthene	140		233	387		ug/Kg	☼	108	63 - 121	8	10
Benzo[g,h,i]perylene	98	F2	233	334	F2	ug/Kg	☼	101	63 - 120	19	14
Benzo[k]fluoranthene	50	B	233	312		ug/Kg	☼	112	63 - 123	4	15
Chrysene	160		233	428		ug/Kg	☼	115	69 - 120	5	10
Dibenz(a,h)anthracene	15	F2	233	295	F2	ug/Kg	☼	120	70 - 125	22	13
Fluoranthene	210	F2 F1	233	335	F2 F1	ug/Kg	☼	55	74 - 125	41	13
Fluorene	69	B	233	247		ug/Kg	☼	76	73 - 120	0	13
Indeno[1,2,3-cd]pyrene	110	F2 F1 *	233	427	F1 F2	ug/Kg	☼	137	65 - 121	21	15
Naphthalene	20	F2 B	233	234	F2	ug/Kg	☼	92	70 - 120	21	12
Phenanthrene	500	F2 F1 B	233	471	F2 F1	ug/Kg	☼	-12	73 - 120	14	11
Pyrene	460	F2 F1 B	233	591	F2 F1	ug/Kg	☼	58	70 - 120	39	12

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Terphenyl-d14	*93*		*57 - 120*

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

Lab Sample ID: MB 580-280231/1-A
Matrix: Solid
Analysis Batch: 280341

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 280231

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	0.159	J	1.0	0.090	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Acenaphthene	ND		1.0	0.12	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Acenaphthylene	ND		1.0	0.10	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Anthracene	ND		1.0	0.12	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Benzo[a]anthracene	ND		1.0	0.15	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Benzo[a]pyrene	ND		1.0	0.080	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Benzo[b]fluoranthene	ND		1.0	0.12	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Benzo[g,h,i]perylene	ND		1.0	0.10	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Benzo[k]fluoranthene	ND		1.0	0.12	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Chrysene	ND		1.0	0.30	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Dibenz(a,h)anthracene	ND		1.0	0.14	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Fluoranthene	ND		1.0	0.28	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Fluorene	ND		1.0	0.10	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Indeno[1,2,3-cd]pyrene	ND		1.0	0.12	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Naphthalene	0.409	J	1.0	0.16	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Phenanthrene	0.183	J	1.0	0.14	ug/Kg		07/27/18 13:53	07/29/18 16:58	1
Pyrene	ND		1.0	0.19	ug/Kg		07/27/18 13:53	07/29/18 16:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*96*		*57 - 120*	*07/27/18 13:53*	*07/29/18 16:58*	*1*

Lab Sample ID: LCS 580-280231/2-A
Matrix: Solid
Analysis Batch: 280717

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 280231

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene	200	219		ug/Kg		109	68 - 120
Acenaphthene	200	207		ug/Kg		103	68 - 120
Acenaphthylene	200	197		ug/Kg		99	68 - 120
Anthracene	200	215		ug/Kg		108	73 - 125
Benzo[a]anthracene	200	206		ug/Kg		103	66 - 120
Benzo[a]pyrene	200	197		ug/Kg		98	72 - 124
Benzo[b]fluoranthene	200	195		ug/Kg		98	63 - 121
Benzo[g,h,i]perylene	200	217		ug/Kg		108	63 - 120
Benzo[k]fluoranthene	200	211		ug/Kg		105	63 - 123
Chrysene	200	190		ug/Kg		95	69 - 120
Dibenz(a,h)anthracene	200	214		ug/Kg		107	70 - 125
Fluoranthene	200	204		ug/Kg		102	74 - 125
Fluorene	200	215		ug/Kg		108	73 - 120
Indeno[1,2,3-cd]pyrene	200	200		ug/Kg		100	65 - 121
Naphthalene	200	197		ug/Kg		98	70 - 120
Phenanthrene	200	197		ug/Kg		99	73 - 120
Pyrene	200	199		ug/Kg		100	70 - 120

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

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

Lab Sample ID: MB 580-279760/1-A
Matrix: Solid
Analysis Batch: 279856

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 279760

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		2.0	0.34	ug/Kg		07/23/18 09:14	07/23/18 19:56	1
PCB-1221	ND		2.0	0.95	ug/Kg		07/23/18 09:14	07/23/18 19:56	1
PCB-1232	ND		2.0	0.47	ug/Kg		07/23/18 09:14	07/23/18 19:56	1
PCB-1242	ND		2.0	0.49	ug/Kg		07/23/18 09:14	07/23/18 19:56	1
PCB-1248	ND		2.0	0.16	ug/Kg		07/23/18 09:14	07/23/18 19:56	1
PCB-1254	ND		2.0	0.79	ug/Kg		07/23/18 09:14	07/23/18 19:56	1
PCB-1260	ND		2.0	0.34	ug/Kg		07/23/18 09:14	07/23/18 19:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*80*		*54 - 142*	*07/23/18 09:14*	*07/23/18 19:56*	*1*
Tetrachloro-m-xylene	*64*		*58 - 122*	*07/23/18 09:14*	*07/23/18 19:56*	*1*

Lab Sample ID: LCS 580-279760/2-A
Matrix: Solid
Analysis Batch: 279856

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 279760

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	10.0	7.34		ug/Kg		73	64 - 120
PCB-1260	10.0	7.64		ug/Kg		76	63 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*79*		*54 - 142*
Tetrachloro-m-xylene	*68*		*58 - 122*

Method: 9060_PSEP - TOC (Puget Sound)

Lab Sample ID: MB 580-279996/3
Matrix: Solid
Analysis Batch: 279996

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			07/24/18 14:17	1

Lab Sample ID: LCS 580-279996/4
Matrix: Solid
Analysis Batch: 279996

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		93	68 - 149

Lab Sample ID: LCSD 580-279996/5
Matrix: Solid
Analysis Batch: 279996

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	4120		mg/Kg		96	68 - 149	3	32

Lab Chronicle

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

TestAmerica Job ID: 580-79019-1

Client Sample ID: PDI-SC-S033-0to2
Lab Sample ID: 580-79019-1
Date Collected: 07/18/18 17:40
Matrix: Solid
Date Received: 07/20/18 13:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	279996	07/24/18 14:56	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	279712	07/21/18 14:53	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280318	07/29/18 10:03	JSM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	279944	07/24/18 15:36	A1K	TAL SEA

Client Sample ID: PDI-SC-S033-0to2
Lab Sample ID: 580-79019-1
Date Collected: 07/18/18 17:40
Matrix: Solid
Date Received: 07/20/18 13:17
Percent Solids: 44.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280203	07/27/18 09:37	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		10	280309	07/28/18 18:33	T1W	TAL SEA
Total/NA	Prep	3550B			279760	07/23/18 09:14	TTN	TAL SEA
Total/NA	Analysis	8082A		10	279856	07/24/18 00:38	APR	TAL SEA

Client Sample ID: PDI-SC-S033-2to3
Lab Sample ID: 580-79019-2
Date Collected: 07/18/18 17:45
Matrix: Solid
Date Received: 07/20/18 13:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	279996	07/24/18 15:02	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	279712	07/21/18 14:53	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280318	07/29/18 10:03	JSM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	279944	07/24/18 15:36	A1K	TAL SEA

Client Sample ID: PDI-SC-S033-2to3
Lab Sample ID: 580-79019-2
Date Collected: 07/18/18 17:45
Matrix: Solid
Date Received: 07/20/18 13:17
Percent Solids: 51.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280231	07/27/18 13:53	KMS	TAL SEA
Total/NA	Analysis	8270D SIM		50	280341	07/30/18 02:56	CJ	TAL SEA
Total/NA	Prep	3546	RA		280231	07/27/18 13:53	KMS	TAL SEA
Total/NA	Analysis	8270D SIM	RA	50	280894	08/06/18 12:00	ERZ	TAL SEA
Total/NA	Prep	3550B			279760	07/23/18 09:14	TTN	TAL SEA
Total/NA	Analysis	8082A		10	279856	07/24/18 00:56	APR	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-79019-1

Client Sample ID: PDI-SC-S033-3to4
Lab Sample ID: 580-79019-3
Date Collected: 07/18/18 17:50
Matrix: Solid
Date Received: 07/20/18 13:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	279996	07/24/18 15:08	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	279712	07/21/18 14:53	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280318	07/29/18 10:03	JSM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	279944	07/24/18 15:36	A1K	TAL SEA

Client Sample ID: PDI-SC-S033-3to4
Lab Sample ID: 580-79019-3
Date Collected: 07/18/18 17:50
Matrix: Solid
Date Received: 07/20/18 13:17
Percent Solids: 51.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280203	07/27/18 09:37	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		10	280309	07/28/18 18:55	T1W	TAL SEA
Total/NA	Prep	3550B			279760	07/23/18 09:14	TTN	TAL SEA
Total/NA	Analysis	8082A		100	280059	07/25/18 20:33	TL1	TAL SEA

Client Sample ID: PDI-SC-S034-4to5.2
Lab Sample ID: 580-79019-4
Date Collected: 07/19/18 11:55
Matrix: Solid
Date Received: 07/20/18 13:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	279996	07/24/18 15:13	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	279712	07/21/18 14:53	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280318	07/29/18 10:03	JSM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	279944	07/24/18 15:36	A1K	TAL SEA

Client Sample ID: PDI-SC-S034-4to5.2
Lab Sample ID: 580-79019-4
Date Collected: 07/19/18 11:55
Matrix: Solid
Date Received: 07/20/18 13:17
Percent Solids: 69.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280203	07/27/18 09:37	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		2	280309	07/28/18 19:17	T1W	TAL SEA
Total/NA	Prep	3550B			279760	07/23/18 09:14	TTN	TAL SEA
Total/NA	Analysis	8082A		1	279856	07/23/18 22:34	APR	TAL SEA

Client Sample ID: PDI-SC-S034-0to1.8
Lab Sample ID: 580-79019-5
Date Collected: 07/19/18 11:45
Matrix: Solid
Date Received: 07/20/18 13:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	279996	07/24/18 15:18	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	279712	07/21/18 14:53	BAH	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-79019-1

Client Sample ID: PDI-SC-S034-0to1.8
Lab Sample ID: 580-79019-5
Date Collected: 07/19/18 11:45
Matrix: Solid
Date Received: 07/20/18 13:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture 70C		1	280318	07/29/18 10:03	JSM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	279944	07/24/18 15:36	A1K	TAL SEA

Client Sample ID: PDI-SC-S034-0to1.8
Lab Sample ID: 580-79019-5
Date Collected: 07/19/18 11:45
Matrix: Solid
Date Received: 07/20/18 13:17
Percent Solids: 79.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280203	07/27/18 09:37	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		10	280309	07/28/18 19:39	T1W	TAL SEA
Total/NA	Prep	3550B			279760	07/23/18 09:14	TTN	TAL SEA
Total/NA	Analysis	8082A		1	280059	07/25/18 20:51	TL1	TAL SEA

Client Sample ID: PDI-SC-S034-1.8to4
Lab Sample ID: 580-79019-6
Date Collected: 07/19/18 11:50
Matrix: Solid
Date Received: 07/20/18 13:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	279996	07/24/18 15:23	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	279712	07/21/18 14:53	BAH	TAL SEA
Total/NA	Analysis	Moisture 70C		1	280318	07/29/18 10:03	JSM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	279944	07/24/18 15:36	A1K	TAL SEA

Client Sample ID: PDI-SC-S034-1.8to4
Lab Sample ID: 580-79019-6
Date Collected: 07/19/18 11:50
Matrix: Solid
Date Received: 07/20/18 13:17
Percent Solids: 67.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			280203	07/27/18 09:37	BAH	TAL SEA
Total/NA	Analysis	8270D SIM		2	280309	07/28/18 20:01	T1W	TAL SEA
Total/NA	Prep	3550B			279760	07/23/18 09:14	TTN	TAL SEA
Total/NA	Analysis	8082A		1	279856	07/23/18 23:10	APR	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: 580-79019-1
Project/Site: Portland Harbor Pre-Remedial Design

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-19
ANAB	DoD ELAP		L2236	01-19-19
ANAB	ISO/IEC 17025		L2236	01-19-19
California	State Program	9	2901	11-05-18
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-18
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-19

Sample Summary

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

TestAmerica Job ID: 580-79019-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79019-1	PDI-SC-S033-0to2	Solid	07/18/18 17:40	07/20/18 13:17
580-79019-2	PDI-SC-S033-2to3	Solid	07/18/18 17:45	07/20/18 13:17
580-79019-3	PDI-SC-S033-3to4	Solid	07/18/18 17:50	07/20/18 13:17
580-79019-4	PDI-SC-S034-4to5.2	Solid	07/19/18 11:55	07/20/18 13:17
580-79019-5	PDI-SC-S034-0to1.8	Solid	07/19/18 11:45	07/20/18 13:17
580-79019-6	PDI-SC-S034-1.8to4	Solid	07/19/18 11:50	07/20/18 13:17

SUBSURFACE SEDIMENT
CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 **Ph: 253-922-2310 Fax: 253-922-5047**	**Project Contact: Amy Dahl / Chelsey Cook** **Tel: (206) 438-2261 / (206) 438-2010**	**Site Contact: Jennifer Ray / Michaela McCoog** **Laboratory Contact: Elaine-Walker**	**Date: 7/20/18** **Carrier: Courier**	COC No: 1 __1__ of __1__ pages

Client Contact

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

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

Analysis Turnaround Time
Calendar (C) or Work Days (W) _W____

[x] 21 days

[ ] Other _____

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S033 - 0 to 2	7/18/2018	17:40	SE		AF	4		x	x	x	x		
PDI-SC-S033 - 2 to 3	7/18/2018	17:45	SE		AF	4		x	x	x	x		
PDI-SC-S033 - 3 to 4	7/18/2018	17:50	SE		AF	4		x	x	x	x		
PDI-SC-S034 - 4 to 5.2	7/19/2018	11:55	SE		AF	4		x	x	x	x		
PDI-SC-S034 - 0 to 1.8	7/19/2018	11:45	SE		AF	4		x	x	x	x		
PDI-SC-S034 - 1.8 to 4	7/19/2018	11:50	SE		AF	5		x	x	x	x	x	
- to													
- to													
- to													
- to													
- to													
- to													
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Col								AG	AG	WMG	WMG	AG	

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

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

Sample Disposal
[ ] Return To Client [X] posal By Lab [X] chive For **12** Months

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

5.1

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	AECOM	07/20/2018 1237	[signature]	M.E.	7/20/18 1237
[signature]	M.E.	7/20/18 1415	[signature]	TAL OR	7/20/18 1415
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

8/8/2018

SUBSURFACE SEDIMENT
CHAIN OF CUSTODY

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Client Contact AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project # 60566335 Study: Subsurface Sediment Sample Type:	Analysis Turnaround Time Calendar (C) or Work Days (W) W [x] 21 days [ ] Other _____			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S033 - 0 to 2	7/18/2018	17:40	SE		AF	4		x	x	x	x		
PDI-SC-S033 - 2 to 3	7/18/2018	17:45	SE		AF	4		x	x	x	x		
PDI-SC-S033 - 3 to 4	7/18/2018	17:50	SE		AF	4		x	x	x	x		
PDI-SC-S034 - 4 to 5.2	7/19/2018	11:55	SE		AF	4		x	x	x	x		
PDI-SC-S034 - 0 to 1.8	7/19/2018	11:45	SE		AF	4		x	x	x	x		
PDI-SC-S034 - 1.8 to 4	7/19/2018	11:50	SE		AF	5		x	x	x	x	x	
- to													
- to													
- to													
- to													
- to													
- to													
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Col								AG	AG	WMG	WMG	AG	

580-79019 Chain of Custody

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

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

Sample Disposal
[ ] Return To Client [x] posal By Lab [x] chive For 12 Months

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

5.1

Relinquished by: Brent Dobrow	Company: AECOM	Date/Time: 07/20/2018 1237	Received by:	Company: M. E.	Date/Time: 7/20/18 1237
Relinquished by:	Company: M.E.	Date/Time: 7/20/18 1415	Received by:	Company: TAOR	Date/Time: 7/20/18 1415
Relinquished by:	Company: TAOR	Date/Time: 7/20/18 1700	Received by:	Company: TASC	Date/Time: 7-21-18 1600

IR5= -0.8/-0.8

Chain of Custody Record

580-79019 Chain of Custody

TestAmerica — THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Walker, Elaine M		1.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-79019-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 8/7/2018			
City: South Burlington	TAT Requested (days):			
State, Zip: VT, 05403				
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:			
Email:	WO #:			
Project Name: Portland Harbor Pre-Remedial Design	Project #: 58012120			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	D4318	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
PDI-SC-S034 - 1.8 to 4 (580-79019-6)	7/19/18	11:50 Pacific		Solid			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 7/20/18 1500	Company TAPCO	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: Taylor Johnson	Date/Time: 7/21/18 1000	Company TABK

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.: NA	Cooler Temperature(s) °C and Other Remarks: 2.9

Ver: 09/20/2016

FedEx® Saturday Delive...

TestAmeri...

THE LEADER IN ENVIRONMENTAL TES...

10/04 MWI

RT 876

FZ

Part # 15...

1
12:00
C
7260
07:21

ORIGIN ID:BNOA (503) 906-9240
SAMPLE CONTROL
TESTAMERICA PORTLAND
8920 SW GEMINI DR
BUILDING 7
BEAVERTON, OR 970087145
UNITED STATES US

SHIP DATE: 20JUL18
ACTWGT: 11.35 LB
CAD: 0996922/CAFE3210

BILL RECIPIENT

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
REF: S580-29798

551C2/8532/104C

FedEx
Express

E

J181118042001uv

TRK# 0201 4423 0750 7260

SATURDAY 12:00P
PRIORITY OVERNIGHT

X0 BTVA

05403
VT-US BTV

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-79019-1

Login Number: 79019
List Number: 1
Creator: Rogers, Angeline D

List Source: TestAmerica Seattle

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.	N/A	
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	