TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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TestAmerica Job ID: 580-77770-1
Client Project/Site: Portland Harbor Pre-Remedial Design
Revision: 1

For:
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Attn: Karen Mixon

M. Elaine Walker

Authorized for release by:
8/9/2018 3:26:17 PM

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Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE
Client: AECOM
Project: Portland Harbor Pre-Remedial Design
Report Number: 580-77770-1

REVISION 1: AUGUST 9, 2018
This revision was required because the analysis date for Total Solids @70C was incorrect. The date was entered as 06/20/20, but should be 06/20/18..

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
Thirteen samples were received on 6/4/2018 2:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.9º C, 1.3º C, 3.0º C and 3.4º C.

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

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

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

DIESEL AND EXTENDED RANGE ORGANICS
Samples PDI-SG-B186-BL1 (580-77770-1), PDI-SG-B182-BL1 (580-77770-2), PDI-SG-B187-BL1 (580-77770-3), PDI-SG-B179-BL1 (580-77770-4), PDI-SG-B110-BL1 (580-77770-5), PDI-SG-B181-BL1 (580-77770-6), PDI-SG-B189-BL1 (580-77770-7), PDI-SG-B189-BL1-D (580-77770-8), PDI-SG-B316-BL1 (580-77770-9), PDI-SG-B317-BL1 (580-77770-10) and PDI-SG-B255-BL1 (580-77770-11) were analyzed for diesel and extended range organics in accordance with Method NWTPH-Dx. The samples were prepared and analyzed on 06/07/2018.

Surrogate recovery for the following sample was outside control limits: PDI-SG-B182-BL1 (580-77770-2), PDI-SG-B179-BL1 (580-77770-4) and PDI-SG-B316-BL1 (580-77770-9). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis were not performed.

The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: PDI-SG-B186-BL1 (580-77770-1), PDI-SG-B182-BL1 (580-77770-2), PDI-SG-B187-BL1 (580-77770-3), PDI-SG-B110-BL1 (580-77770-5), PDI-SG-B181-BL1 (580-77770-6), PDI-SG-B189-BL1 (580-77770-7), PDI-SG-B189-BL1-D (580-77770-8), PDI-SG-B316-BL1 (580-77770-9), PDI-SG-B317-BL1 (580-77770-10), PDI-SG-B255-BL1 (580-77770-11), (580-77770-F-1-B DU), and (580-77770-F-10-B DU).

Job ID: 580-77770-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

Samples PDI-SG-B186-BL1 (580-77770-1)[5X], PDI-SG-B182-BL1 (580-77770-2)[10X] and PDI-SG-B179-BL1 (580-77770-4)[10X] required dilution prior to analysis to bring the concentration of target analytes within the calibration range. 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.

DIESEL AND MOTOR OIL RANGE ORGANICS - RINSE BLANK

Samples PDI-RB-VV-180602 (580-77770-12) and PDI-RB-VV-180603 (580-77770-13) were analyzed for diesel and motor oil range organics in accordance with Method NWTPH-Dx. The samples were prepared on 06/15/2018 and analyzed on 06/18/2018.

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

METALS (ICPMS)

Samples PDI-SG-B186-BL1 (580-77770-1), PDI-SG-B182-BL1 (580-77770-2), PDI-SG-B187-BL1 (580-77770-3), PDI-SG-B179-BL1 (580-77770-4), PDI-SG-B110-BL1 (580-77770-5), PDI-SG-B181-BL1 (580-77770-6), PDI-SG-B189-BL1 (580-77770-7), PDI-SG-B189-BL1-D (580-77770-8), PDI-SG-B316-BL1 (580-77770-9), PDI-SG-B317-BL1 (580-77770-10) and PDI-SG-B255-BL1 (580-77770-11) were analyzed for Metals (ICPMS) in accordance with 6020A_LL. The samples were prepared and analyzed on 06/21/2018.

Cadmium exceeded the RPD limit for the duplicate of sample PDI-SG-B186-BL1DU (580-77770-1).

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

TOTAL MERCURY

Samples PDI-SG-B186-BL1 (580-77770-1), PDI-SG-B182-BL1 (580-77770-2), PDI-SG-B187-BL1 (580-77770-3), PDI-SG-B179-BL1 (580-77770-4), PDI-SG-B110-BL1 (580-77770-5), PDI-SG-B181-BL1 (580-77770-6), PDI-SG-B189-BL1 (580-77770-7), PDI-SG-B189-BL1-D (580-77770-8), PDI-SG-B316-BL1 (580-77770-9), PDI-SG-B317-BL1 (580-77770-10) and PDI-SG-B255-BL1 (580-77770-11) were analyzed for total mercury in accordance with EPA SW-846 Method 7471A. The samples were prepared on 06/19/2018 and 06/20/2018 and analyzed on 06/20/2018.

Mercury was detected in method blank MB 580-276731/22-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Mercury failed the recovery criteria high for the MS of sample PDI-SG-B110-BL1MS (580-77770-5) in batch 580-276893. Mercury failed the recovery criteria high for the MSD of sample PDI-SG-B110-BL1MSD (580-77770-5) in batch 580-276893. Mercury exceeded the RPD limit. The associated LCS/LCSD recoveries met acceptance limits.

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

METALS (ICPMS) - RINSE BLANK

Samples PDI-RB-VV-180602 (580-77770-12) and PDI-RB-VV-180603 (580-77770-13) were analyzed for Metals (ICPMS) in accordance with 6020A_LL. The samples were prepared on 06/19/2018 and analyzed on 06/20/2018.

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

TOTAL MERCURY - RINSE BLANK

Samples PDI-RB-VV-180602 (580-77770-12) and PDI-RB-VV-180603 (580-77770-13) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared on 06/15/2018 and analyzed on 06/18/2018.

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

TOTAL ORGANIC CARBON

Samples PDI-SG-B186-BL1 (580-77770-1), PDI-SG-B182-BL1 (580-77770-2), PDI-SG-B187-BL1 (580-77770-3), PDI-SG-B179-BL1

Job ID: 580-77770-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

(580-77770-4), PDI-SG-B110-BL1 (580-77770-5), PDI-SG-B181-BL1 (580-77770-6), PDI-SG-B189-BL1 (580-77770-7), PDI-SG-B189-BL1-D (580-77770-8), PDI-SG-B316-BL1 (580-77770-9), PDI-SG-B317-BL1 (580-77770-10) and PDI-SG-B255-BL1 (580-77770-11) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 06/13/2018.

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

TOTAL ORGANIC CARBON - RINSE BLANK

Samples PDI-RB-VV-180602 (580-77770-12) and PDI-RB-VV-180603 (580-77770-13) were analyzed for total organic carbon in accordance with SM 5310B. The samples were analyzed on 06/18/2018.

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

GRAIN SIZE

Samples PDI-SG-B186-BL1 (580-77770-1), PDI-SG-B182-BL1 (580-77770-2), PDI-SG-B187-BL1 (580-77770-3), PDI-SG-B179-BL1 (580-77770-4), PDI-SG-B110-BL1 (580-77770-5), PDI-SG-B181-BL1 (580-77770-6), PDI-SG-B189-BL1 (580-77770-7), PDI-SG-B316-BL1 (580-77770-9), PDI-SG-B317-BL1 (580-77770-10) and PDI-SG-B255-BL1 (580-77770-11) were analyzed for grain size in accordance with ASTM D7928/D6913. The samples were analyzed on 06/17/2018 and 06/22/2018.

Coarse Sand and Medium Sand exceeded the RPD limit for the duplicate of sample PDI-SG-B316-BL1DU (580-77770-9).

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

PERCENT SOLIDS

Samples PDI-SG-B186-BL1 (580-77770-1), PDI-SG-B182-BL1 (580-77770-2), PDI-SG-B187-BL1 (580-77770-3), PDI-SG-B179-BL1 (580-77770-4), PDI-SG-B110-BL1 (580-77770-5), PDI-SG-B181-BL1 (580-77770-6), PDI-SG-B189-BL1 (580-77770-7), PDI-SG-B189-BL1-D (580-77770-8), PDI-SG-B316-BL1 (580-77770-9), PDI-SG-B317-BL1 (580-77770-10) and PDI-SG-B255-BL1 (580-77770-11) were analyzed for percent solids in accordance with ASTM D2216. The samples were analyzed on 06/06/2018.

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

TOTAL SOLIDS @ 70C

Samples PDI-SG-B186-BL1 (580-77770-1), PDI-SG-B182-BL1 (580-77770-2), PDI-SG-B187-BL1 (580-77770-3), PDI-SG-B179-BL1 (580-77770-4), PDI-SG-B110-BL1 (580-77770-5), PDI-SG-B181-BL1 (580-77770-6), PDI-SG-B189-BL1 (580-77770-7), PDI-SG-B189-BL1-D (580-77770-8), PDI-SG-B316-BL1 (580-77770-9), PDI-SG-B317-BL1 (580-77770-10) and PDI-SG-B255-BL1 (580-77770-11) were analyzed for Total Solids @ 70C. The samples were analyzed on 06/20/2018, 06/25/2018 and 06/27/2018.

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

Definitions/Glossary

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

TestAmerica Job ID: 580-77770-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

Metals

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.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits

General Chemistry

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

Geotechnical

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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: AECOM
Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-77770-1

Client Sample ID: PDI-SG-B186-BL1
Date Collected: 06/01/18 16:22
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-1
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	6900		2000	44	mg/Kg			06/13/18 15:21	1
Total Solids	69.9		0.1	0.1	%			06/06/18 09:20	1
Total Solids @ 70°C	71		0.10	0.10	%			06/25/18 16:45	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	3.2				%			06/17/18 11:03	1
Coarse Sand	3.0				%			06/17/18 11:03	1
Fine Sand	63.3				%			06/17/18 11:03	1
Gravel	0.7				%			06/17/18 11:03	1
Medium Sand	18.9				%			06/17/18 11:03	1
Silt	10.8				%			06/17/18 11:03	1

Client Sample ID: PDI-SG-B186-BL1
Date Collected: 06/01/18 16:22
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-1
Matrix: Solid
Percent Solids: 69.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		340	83	mg/Kg	☼	06/07/18 09:45	06/07/18 18:00	5
Motor Oil (>C24-C36)	**200**	**J**	340	120	mg/Kg	☼	06/07/18 09:45	06/07/18 18:00	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*105*		*50 - 150*	*06/07/18 09:45*	*06/07/18 18:00*	*5*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**1.9**		0.24	0.047	mg/Kg	☼	06/21/18 10:50	06/21/18 15:56	5
Cadmium	**0.054**	**J**	0.19	0.036	mg/Kg	☼	06/21/18 10:50	06/21/18 15:56	5
Copper	**11**		0.47	0.10	mg/Kg	☼	06/21/18 10:50	06/21/18 15:56	5
Lead	**4.1**		0.24	0.023	mg/Kg	☼	06/21/18 10:50	06/21/18 15:56	5
Zinc	**41**		2.4	0.76	mg/Kg	☼	06/21/18 10:50	06/21/18 15:56	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.027**	**J B**	0.030	0.0091	mg/Kg	☼	06/19/18 16:46	06/20/18 11:43	1

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

TestAmerica Job ID: 580-77770-1

Client Sample ID: PDI-SG-B182-BL1
Date Collected: 06/01/18 14:26
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-2
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	46000		2000	44	mg/Kg			06/13/18 15:26	1
Total Solids	47.6		0.1	0.1	%			06/06/18 09:20	1
Total Solids @ 70°C	48		0.10	0.10	%			06/25/18 16:45	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	12.4				%			06/17/18 11:03	1
Coarse Sand	0.1				%			06/17/18 11:03	1
Fine Sand	44.6				%			06/17/18 11:03	1
Gravel	0.0				%			06/17/18 11:03	1
Medium Sand	0.6				%			06/17/18 11:03	1
Silt	42.3				%			06/17/18 11:03	1

Client Sample ID: PDI-SG-B182-BL1

Date Collected: 06/01/18 14:26
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-2

Matrix: Solid
Percent Solids: 47.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	2400		990	240	mg/Kg	☼	06/07/18 09:45	06/07/18 18:43	10
Motor Oil (>C24-C36)	3500		990	350	mg/Kg	☼	06/07/18 09:45	06/07/18 18:43	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*311*	*X*	*50 - 150*	*06/07/18 09:45*	*06/07/18 18:43*	*10*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.5		0.38	0.075	mg/Kg	☼	06/21/18 10:50	06/21/18 16:34	5
Cadmium	0.17	J	0.30	0.058	mg/Kg	☼	06/21/18 10:50	06/21/18 16:34	5
Copper	33		0.75	0.17	mg/Kg	☼	06/21/18 10:50	06/21/18 16:34	5
Lead	14		0.38	0.036	mg/Kg	☼	06/21/18 10:50	06/21/18 16:34	5
Zinc	98		3.8	1.2	mg/Kg	☼	06/21/18 10:50	06/21/18 16:34	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.018	J B	0.051	0.015	mg/Kg	☼	06/19/18 16:46	06/20/18 11:57	1

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

TestAmerica Job ID: 580-77770-1

Client Sample ID: PDI-SG-B187-BL1
Date Collected: 06/01/18 16:20
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-3
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	23000		2000	44	mg/Kg			06/13/18 15:32	1
Total Solids	44.0		0.1	0.1	%			06/06/18 09:20	1
Total Solids @ 70°C	44		0.10	0.10	%			06/25/18 16:45	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	15.7				%			06/17/18 11:03	1
Coarse Sand	0.6				%			06/17/18 11:03	1
Fine Sand	17.7				%			06/17/18 11:03	1
Gravel	0.0				%			06/17/18 11:03	1
Medium Sand	0.5				%			06/17/18 11:03	1
Silt	65.5				%			06/17/18 11:03	1

Client Sample ID: PDI-SG-B187-BL1

Date Collected: 06/01/18 16:20
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-3

Matrix: Solid
Percent Solids: 44.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	260		100	25	mg/Kg	☼	06/07/18 11:34	06/07/18 20:10	1
Motor Oil (>C24-C36)	520		100	35	mg/Kg	☼	06/07/18 11:34	06/07/18 20:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*65*		*50 - 150*	*06/07/18 11:34*	*06/07/18 20:10*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.0		0.43	0.087	mg/Kg	☼	06/21/18 10:50	06/21/18 16:38	5
Cadmium	0.23	J	0.35	0.067	mg/Kg	☼	06/21/18 10:50	06/21/18 16:38	5
Copper	42		0.87	0.19	mg/Kg	☼	06/21/18 10:50	06/21/18 16:38	5
Lead	18		0.43	0.042	mg/Kg	☼	06/21/18 10:50	06/21/18 16:38	5
Zinc	110		4.3	1.4	mg/Kg	☼	06/21/18 10:50	06/21/18 16:38	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.099	B	0.058	0.017	mg/Kg	☼	06/19/18 16:46	06/20/18 11:59	1

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

TestAmerica Job ID: 580-77770-1

Client Sample ID: PDI-SG-B179-BL1
Date Collected: 06/01/18 14:20
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-4
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	61000		2000	44	mg/Kg			06/13/18 15:38	1
Total Solids	42.1		0.1	0.1	%			06/06/18 09:20	1
Total Solids @ 70°C	43		0.10	0.10	%			06/25/18 16:45	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	4.9				%			06/17/18 11:03	1
Coarse Sand	0.7				%			06/17/18 11:03	1
Fine Sand	30.1				%			06/17/18 11:03	1
Gravel	0.6				%			06/17/18 11:03	1
Medium Sand	1.7				%			06/17/18 11:03	1
Silt	62.0				%			06/17/18 11:03	1

Client Sample ID: PDI-SG-B179-BL1
Date Collected: 06/01/18 14:20
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-4
Matrix: Solid
Percent Solids: 42.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	2000		1100	260	mg/Kg	☼	06/07/18 11:34	06/07/18 20:32	10
Motor Oil (>C24-C36)	2000		1100	370	mg/Kg	☼	06/07/18 11:34	06/07/18 20:32	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*153*	*X*	*50 - 150*	*06/07/18 11:34*	*06/07/18 20:32*	*10*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.9		0.43	0.087	mg/Kg	☼	06/21/18 10:50	06/21/18 16:42	5
Cadmium	0.20	J	0.35	0.067	mg/Kg	☼	06/21/18 10:50	06/21/18 16:42	5
Copper	36		0.87	0.19	mg/Kg	☼	06/21/18 10:50	06/21/18 16:42	5
Lead	18		0.43	0.042	mg/Kg	☼	06/21/18 10:50	06/21/18 16:42	5
Zinc	110		4.3	1.4	mg/Kg	☼	06/21/18 10:50	06/21/18 16:42	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.11	B	0.059	0.018	mg/Kg	☼	06/19/18 16:46	06/20/18 12:01	1

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

TestAmerica Job ID: 580-77770-1

Client Sample ID: PDI-SG-B110-BL1
Date Collected: 06/02/18 14:45
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-5
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	4200		2000	44	mg/Kg			06/13/18 15:45	1
Total Solids	74.4		0.1	0.1	%			06/06/18 09:20	1
Total Solids @ 70°C	78		0.10	0.10	%			06/25/18 16:45	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	1.3				%			06/17/18 11:03	1
Coarse Sand	0.9				%			06/17/18 11:03	1
Fine Sand	59.7				%			06/17/18 11:03	1
Gravel	2.5				%			06/17/18 11:03	1
Medium Sand	24.4				%			06/17/18 11:03	1
Silt	11.2				%			06/17/18 11:03	1

Client Sample ID: PDI-SG-B110-BL1

Date Collected: 06/02/18 14:45
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-5

Matrix: Solid
Percent Solids: 74.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		60	15	mg/Kg	☼	06/07/18 11:34	06/07/18 20:54	1
Motor Oil (>C24-C36)	**86**		60	21	mg/Kg	☼	06/07/18 11:34	06/07/18 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*82*		*50 - 150*	*06/07/18 11:34*	*06/07/18 20:54*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**4.0**		0.21	0.043	mg/Kg	☼	06/21/18 10:50	06/21/18 16:47	5
Cadmium	**0.088**	**J**	0.17	0.033	mg/Kg	☼	06/21/18 10:50	06/21/18 16:47	5
Copper	**15**		0.43	0.094	mg/Kg	☼	06/21/18 10:50	06/21/18 16:47	5
Lead	**13**		0.21	0.020	mg/Kg	☼	06/21/18 10:50	06/21/18 16:47	5
Zinc	**72**		2.1	0.69	mg/Kg	☼	06/21/18 10:50	06/21/18 16:47	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	F1 F2	0.029	0.0087	mg/Kg	☼	06/20/18 10:25	06/20/18 17:55	1

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

TestAmerica Job ID: 580-77770-1

Client Sample ID: PDI-SG-B181-BL1
Date Collected: 06/02/18 09:55
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-6
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	20000		2000	44	mg/Kg			06/13/18 15:50	1
Total Solids	51.0		0.1	0.1	%			06/06/18 09:20	1
Total Solids @ 70°C	52		0.10	0.10	%			06/25/18 16:45	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	8.5				%			06/17/18 11:03	1
Coarse Sand	0.0				%			06/17/18 11:03	1
Fine Sand	48.7				%			06/17/18 11:03	1
Gravel	0.0				%			06/17/18 11:03	1
Medium Sand	5.1				%			06/17/18 11:03	1
Silt	37.7				%			06/17/18 11:03	1

Client Sample ID: PDI-SG-B181-BL1
Date Collected: 06/02/18 09:55
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-6
Matrix: Solid
Percent Solids: 51.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	230		86	21	mg/Kg	☼	06/07/18 11:34	06/07/18 21:16	1
Motor Oil (>C24-C36)	520		86	30	mg/Kg	☼	06/07/18 11:34	06/07/18 21:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*80*		*50 - 150*	*06/07/18 11:34*	*06/07/18 21:16*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.6		0.33	0.066	mg/Kg	☼	06/21/18 10:50	06/21/18 16:51	5
Cadmium	0.14	J	0.27	0.051	mg/Kg	☼	06/21/18 10:50	06/21/18 16:51	5
Copper	27		0.66	0.15	mg/Kg	☼	06/21/18 10:50	06/21/18 16:51	5
Lead	10		0.33	0.032	mg/Kg	☼	06/21/18 10:50	06/21/18 16:51	5
Zinc	78		3.3	1.1	mg/Kg	☼	06/21/18 10:50	06/21/18 16:51	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.039	J	0.041	0.012	mg/Kg	☼	06/20/18 10:25	06/20/18 18:54	1

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

TestAmerica Job ID: 580-77770-1

Client Sample ID: PDI-SG-B189-BL1
Date Collected: 06/02/18 10:19
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-7
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	26000		2000	44	mg/Kg			06/13/18 15:55	1
Total Solids	46.2		0.1	0.1	%			06/06/18 09:20	1
Total Solids @ 70°C	47		0.10	0.10	%			06/25/18 16:45	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	9.3				%			06/17/18 11:03	1
Coarse Sand	0.1				%			06/17/18 11:03	1
Fine Sand	32.0				%			06/17/18 11:03	1
Gravel	0.8				%			06/17/18 11:03	1
Medium Sand	1.3				%			06/17/18 11:03	1
Silt	56.5				%			06/17/18 11:03	1

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

TestAmerica Job ID: 580-77770-1

Client Sample ID: PDI-SG-B189-BL1
Date Collected: 06/02/18 10:19
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-7
Matrix: Solid
Percent Solids: 46.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	130		100	25	mg/Kg	☼	06/07/18 11:34	06/07/18 21:38	1
Motor Oil (>C24-C36)	540		100	36	mg/Kg	☼	06/07/18 11:34	06/07/18 21:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*81*		*50 - 150*	*06/07/18 11:34*	*06/07/18 21:38*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0		0.34	0.067	mg/Kg	☼	06/21/18 10:50	06/21/18 16:55	5
Cadmium	0.18	J	0.27	0.052	mg/Kg	☼	06/21/18 10:50	06/21/18 16:55	5
Copper	32		0.67	0.15	mg/Kg	☼	06/21/18 10:50	06/21/18 16:55	5
Lead	11		0.34	0.032	mg/Kg	☼	06/21/18 10:50	06/21/18 16:55	5
Zinc	89		3.4	1.1	mg/Kg	☼	06/21/18 10:50	06/21/18 16:55	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.069		0.054	0.016	mg/Kg	☼	06/20/18 10:25	06/20/18 18:26	1

Client Sample ID: PDI-SG-B189-BL1-D

Date Collected: 06/02/18 10:20
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-8

Matrix: Solid
Percent Solids: 45.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	110		100	25	mg/Kg	☼	06/07/18 11:34	06/07/18 22:22	1
Motor Oil (>C24-C36)	450		100	36	mg/Kg	☼	06/07/18 11:34	06/07/18 22:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*65*		*50 - 150*	*06/07/18 11:34*	*06/07/18 22:22*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.1		0.41	0.082	mg/Kg	☼	06/21/18 10:50	06/21/18 16:59	5
Cadmium	0.19	J	0.33	0.063	mg/Kg	☼	06/21/18 10:50	06/21/18 16:59	5
Copper	34		0.82	0.18	mg/Kg	☼	06/21/18 10:50	06/21/18 16:59	5
Lead	11		0.41	0.039	mg/Kg	☼	06/21/18 10:50	06/21/18 16:59	5
Zinc	94		4.1	1.3	mg/Kg	☼	06/21/18 10:50	06/21/18 16:59	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.018	J	0.047	0.014	mg/Kg	☼	06/20/18 10:25	06/20/18 18:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	27000		2000	44	mg/Kg			06/13/18 16:01	1
Total Solids	45.6		0.1	0.1	%			06/06/18 09:20	1
Total Solids @ 70°C	46		0.10	0.10	%			06/27/18 15:03	1

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

TestAmerica Job ID: 580-77770-1

Client Sample ID: PDI-SG-B316-BL1
Date Collected: 06/02/18 14:34
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-9
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	29000		2000	44	mg/Kg			06/13/18 16:07	1
Total Solids	40.4		0.1	0.1	%			06/06/18 09:20	1
Total Solids @ 70°C	41	H	0.10	0.10	%			06/20/18 11:00	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	11.2				%			06/22/18 13:26	1
Coarse Sand	0.0				%			06/22/18 13:26	1
Fine Sand	11.7				%			06/22/18 13:26	1
Gravel	0.0				%			06/22/18 13:26	1
Medium Sand	0.3				%			06/22/18 13:26	1
Silt	76.9				%			06/22/18 13:26	1

Client Sample ID: PDI-SG-B316-BL1
Date Collected: 06/02/18 14:34
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-9
Matrix: Solid
Percent Solids: 40.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	70	J	110	28	mg/Kg	☼	06/07/18 11:34	06/07/18 22:44	1
Motor Oil (>C24-C36)	210		110	40	mg/Kg	☼	06/07/18 11:34	06/07/18 22:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*33*	*X*	*50 - 150*	*06/07/18 11:34*	*06/07/18 22:44*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.7		0.44	0.087	mg/Kg	☼	06/21/18 10:50	06/21/18 17:03	5
Cadmium	0.17	J	0.35	0.067	mg/Kg	☼	06/21/18 10:50	06/21/18 17:03	5
Copper	39		0.87	0.19	mg/Kg	☼	06/21/18 10:50	06/21/18 17:03	5
Lead	11		0.44	0.042	mg/Kg	☼	06/21/18 10:50	06/21/18 17:03	5
Zinc	93		4.4	1.4	mg/Kg	☼	06/21/18 10:50	06/21/18 17:03	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.058	0.017	mg/Kg	☼	06/20/18 10:25	06/20/18 18:17	1

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

TestAmerica Job ID: 580-77770-1

Client Sample ID: PDI-SG-B317-BL1
Date Collected: 06/03/18 09:05
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-10
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	27000		2000	44	mg/Kg			06/13/18 16:19	1
Total Solids	41.5		0.1	0.1	%			06/06/18 09:20	1
Total Solids @ 70°C	43	H	0.10	0.10	%			06/20/18 11:00	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	11.8				%			06/22/18 13:26	1
Coarse Sand	0.0				%			06/22/18 13:26	1
Fine Sand	14.0				%			06/22/18 13:26	1
Gravel	0.0				%			06/22/18 13:26	1
Medium Sand	0.2				%			06/22/18 13:26	1
Silt	74.1				%			06/22/18 13:26	1

Client Sample ID: PDI-SG-B317-BL1

Date Collected: 06/03/18 09:05
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-10

Matrix: Solid
Percent Solids: 41.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	88	J	120	28	mg/Kg	☼	06/07/18 11:34	06/07/18 23:06	1
Motor Oil (>C24-C36)	470		120	40	mg/Kg	☼	06/07/18 11:34	06/07/18 23:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*74*		*50 - 150*	*06/07/18 11:34*	*06/07/18 23:06*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.0		0.48	0.095	mg/Kg	☼	06/21/18 10:50	06/21/18 17:08	5
Cadmium	0.17	J	0.38	0.073	mg/Kg	☼	06/21/18 10:50	06/21/18 17:08	5
Copper	43		0.95	0.21	mg/Kg	☼	06/21/18 10:50	06/21/18 17:08	5
Lead	12		0.48	0.046	mg/Kg	☼	06/21/18 10:50	06/21/18 17:08	5
Zinc	99		4.8	1.5	mg/Kg	☼	06/21/18 10:50	06/21/18 17:08	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.079		0.058	0.017	mg/Kg	☼	06/20/18 10:25	06/20/18 18:19	1

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

TestAmerica Job ID: 580-77770-1

Client Sample ID: PDI-SG-B255-BL1
Date Collected: 06/03/18 09:55
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-11
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	25000		2000	44	mg/Kg			06/13/18 16:25	1
Total Solids	42.2		0.1	0.1	%			06/06/18 09:20	1
Total Solids @ 70°C	43	H	0.10	0.10	%			06/20/18 11:00	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	20.6				%			06/22/18 13:26	1
Coarse Sand	0.1				%			06/22/18 13:26	1
Fine Sand	8.9				%			06/22/18 13:26	1
Gravel	0.0				%			06/22/18 13:26	1
Medium Sand	0.2				%			06/22/18 13:26	1
Silt	70.3				%			06/22/18 13:26	1

Client Sample ID: PDI-SG-B255-BL1
Date Collected: 06/03/18 09:55
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-11
Matrix: Solid
Percent Solids: 42.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	170		110	28	mg/Kg	☼	06/07/18 11:34	06/07/18 23:50	1
Motor Oil (>C24-C36)	650		110	40	mg/Kg	☼	06/07/18 11:34	06/07/18 23:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*80*		*50 - 150*	*06/07/18 11:34*	*06/07/18 23:50*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.4		0.31	0.062	mg/Kg	☼	06/21/18 10:50	06/21/18 17:29	5
Cadmium	0.27		0.25	0.048	mg/Kg	☼	06/21/18 10:50	06/21/18 17:29	5
Copper	210		0.62	0.14	mg/Kg	☼	06/21/18 10:50	06/21/18 17:29	5
Lead	24		0.31	0.030	mg/Kg	☼	06/21/18 10:50	06/21/18 17:29	5
Zinc	210		3.1	1.0	mg/Kg	☼	06/21/18 10:50	06/21/18 17:29	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.13		0.044	0.013	mg/Kg	☼	06/20/18 10:25	06/20/18 18:22	1

Client Sample ID: PDI-RB-VV-180602

Date Collected: 06/02/18 15:30
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-12

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.073	mg/L		06/15/18 10:48	06/18/18 13:45	1
Motor Oil (>C24-C36)	ND		0.40	0.11	mg/L		06/15/18 10:48	06/18/18 13:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*99*		*50 - 150*	*06/15/18 10:48*	*06/18/18 13:45*	*1*

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		06/19/18 14:25	06/20/18 13:21	1
Cadmium	ND		0.00040	0.00010	mg/L		06/19/18 14:25	06/20/18 13:21	1
Copper	ND		0.0020	0.00060	mg/L		06/19/18 14:25	06/20/18 13:21	1
Lead	ND		0.00080	0.00020	mg/L		06/19/18 14:25	06/20/18 13:21	1
Zinc	**0.0036**	**J**	0.0070	0.0019	mg/L		06/19/18 14:25	06/20/18 13:21	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00030	0.00015	mg/L		06/15/18 17:10	06/18/18 13:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**0.31**	**J**	1.0	0.19	mg/L			06/18/18 15:21	1

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

TestAmerica Job ID: 580-77770-1

Client Sample ID: PDI-RB-VV-180603
Date Collected: 06/03/18 12:10
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-13
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.13	0.075	mg/L		06/15/18 10:48	06/18/18 14:06	1
Motor Oil (>C24-C36)	ND		0.41	0.11	mg/L		06/15/18 10:48	06/18/18 14:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*93*		*50 - 150*	*06/15/18 10:48*	*06/18/18 14:06*	*1*

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		06/19/18 14:25	06/20/18 13:24	1
Cadmium	ND		0.00040	0.00010	mg/L		06/19/18 14:25	06/20/18 13:24	1
Copper	ND		0.0020	0.00060	mg/L		06/19/18 14:25	06/20/18 13:24	1
Lead	**0.00030**	**J**	0.00080	0.00020	mg/L		06/19/18 14:25	06/20/18 13:24	1
Zinc	**0.0053**	**J**	0.0070	0.0019	mg/L		06/19/18 14:25	06/20/18 13:24	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00030	0.00015	mg/L		06/15/18 17:10	06/18/18 13:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**0.50**	**J**	1.0	0.19	mg/L			06/18/18 15:21	1

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

Lab Sample ID: MB 580-275624/1-A
Matrix: Solid
Analysis Batch: 275713

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 275624

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg		06/07/18 09:45	06/07/18 16:54	1
Motor Oil (>C24-C36)	ND		50	18	mg/Kg		06/07/18 09:45	06/07/18 16:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*107*		*50 - 150*	*06/07/18 09:45*	*06/07/18 16:54*	*1*

Lab Sample ID: LCS 580-275624/2-A
Matrix: Solid
Analysis Batch: 275713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 275624

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			500	464		mg/Kg		93	70 - 125		
Motor Oil (>C24-C36)			500	477		mg/Kg		95	70 - 129		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*112*		*50 - 150*

Lab Sample ID: LCSD 580-275624/3-A
Matrix: Solid
Analysis Batch: 275713

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 275624

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			500	471		mg/Kg		94	70 - 125	1	16
Motor Oil (>C24-C36)			500	486		mg/Kg		97	70 - 129	2	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*108*		*50 - 150*

Lab Sample ID: 580-77770-1 DU
Matrix: Solid
Analysis Batch: 275713

Client Sample ID: PDI-SG-B186-BL1
Prep Type: Total/NA
Prep Batch: 275624

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
#2 Diesel (C10-C24)	ND			ND		mg/Kg	☼			NC	35
Motor Oil (>C24-C36)	200	J		193	J	mg/Kg	☼			2	35

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
o-Terphenyl	*98*		*50 - 150*

Lab Sample ID: MB 580-275660/1-A
Matrix: Solid
Analysis Batch: 275619

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 275660

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg		06/07/18 11:34	06/07/18 19:05	1
Motor Oil (>C24-C36)	ND		50	18	mg/Kg		06/07/18 11:34	06/07/18 19:05	1

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

Lab Sample ID: MB 580-275660/1-A
Matrix: Solid
Analysis Batch: 275619

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 275660

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	82		50 - 150	06/07/18 11:34	06/07/18 19:05	1

Lab Sample ID: LCS 580-275660/2-A
Matrix: Solid
Analysis Batch: 275619

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 275660

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			500	458		mg/Kg		92	70 - 125		
Motor Oil (>C24-C36)			500	502		mg/Kg		100	70 - 129		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	94		50 - 150

Lab Sample ID: LCSD 580-275660/3-A
Matrix: Solid
Analysis Batch: 275619

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 275660

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			500	449		mg/Kg		90	70 - 125	2	16
Motor Oil (>C24-C36)			500	484		mg/Kg		97	70 - 129	4	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl	85		50 - 150

Lab Sample ID: 580-77770-10 DU
Matrix: Solid
Analysis Batch: 275619

Client Sample ID: PDI-SG-B317-BL1
Prep Type: Total/NA
Prep Batch: 275660

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
#2 Diesel (C10-C24)	88	J		83.8	J	mg/Kg	☼			5	35
Motor Oil (>C24-C36)	470			444		mg/Kg	☼			6	35

Surrogate	DU %Recovery	DU Qualifier	Limits
o-Terphenyl	77		50 - 150

Lab Sample ID: MB 580-276371/1-A
Matrix: Water
Analysis Batch: 276526

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 276371

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		06/15/18 10:48	06/18/18 10:22	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		06/15/18 10:48	06/18/18 10:22	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	98		50 - 150	06/15/18 10:48	06/18/18 10:22	1

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

Lab Sample ID: LCS 580-276371/2-A
Matrix: Water
Analysis Batch: 276526

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276371

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.71		mg/L		85	50 - 120
Motor Oil (>C24-C36)	2.00	1.90		mg/L		95	64 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*90*		*50 - 150*

Lab Sample ID: LCSD 580-276371/3-A
Matrix: Water
Analysis Batch: 276526

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 276371

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.73		mg/L		87	50 - 120	1	26
Motor Oil (>C24-C36)	2.00	1.88		mg/L		94	64 - 120	1	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*91*		*50 - 150*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-276934/22-A
Matrix: Solid
Analysis Batch: 277016

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 276934

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.25	0.050	mg/Kg		06/21/18 10:50	06/21/18 15:43	5
Cadmium	ND		0.20	0.039	mg/Kg		06/21/18 10:50	06/21/18 15:43	5
Copper	ND		0.50	0.11	mg/Kg		06/21/18 10:50	06/21/18 15:43	5
Lead	ND		0.25	0.024	mg/Kg		06/21/18 10:50	06/21/18 15:43	5
Zinc	ND		2.5	0.81	mg/Kg		06/21/18 10:50	06/21/18 15:43	5

Lab Sample ID: LCS 580-276934/23-A
Matrix: Solid
Analysis Batch: 277016

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276934

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	200	191		mg/Kg		96	80 - 120
Cadmium	5.00	4.39		mg/Kg		88	80 - 120
Copper	25.0	24.1		mg/Kg		96	80 - 120
Lead	50.0	46.3		mg/Kg		93	80 - 120
Zinc	200	187		mg/Kg		94	80 - 120

Lab Sample ID: LCSD 580-276934/24-A
Matrix: Solid
Analysis Batch: 277016

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 276934

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	200	191		mg/Kg		96	80 - 120	0	20
Cadmium	5.00	4.53		mg/Kg		91	80 - 120	3	20

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

Lab Sample ID: LCSD 580-276934/24-A
Matrix: Solid
Analysis Batch: 277016

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 276934

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Copper			25.0	23.8		mg/Kg		95	80 - 120	1	20
Lead			50.0	46.6		mg/Kg		93	80 - 120	1	20
Zinc			200	185		mg/Kg		93	80 - 120	1	20

Lab Sample ID: 580-77770-1 MS
Matrix: Solid
Analysis Batch: 277016

Client Sample ID: PDI-SG-B186-BL1
Prep Type: Total/NA
Prep Batch: 276934

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.9		182	184		mg/Kg	☼	100	80 - 120
Cadmium	0.054	J	4.56	4.18		mg/Kg	☼	91	80 - 120
Copper	11		22.8	35.9		mg/Kg	☼	110	80 - 120
Lead	4.1		45.6	49.1		mg/Kg	☼	99	80 - 120
Zinc	41		182	227		mg/Kg	☼	102	80 - 120

Lab Sample ID: 580-77770-1 MSD
Matrix: Solid
Analysis Batch: 277016

Client Sample ID: PDI-SG-B186-BL1
Prep Type: Total/NA
Prep Batch: 276934

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	1.9		185	192		mg/Kg	☼	103	80 - 120	4	20
Cadmium	0.054	J	4.62	4.67		mg/Kg	☼	100	80 - 120	11	20
Copper	11		23.1	38.0		mg/Kg	☼	118	80 - 120	6	20
Lead	4.1		46.2	51.2		mg/Kg	☼	102	80 - 120	4	20
Zinc	41		185	233		mg/Kg	☼	104	80 - 120	3	20

Lab Sample ID: 580-77770-1 DU
Matrix: Solid
Analysis Batch: 277016

Client Sample ID: PDI-SG-B186-BL1
Prep Type: Total/NA
Prep Batch: 276934

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	1.9		1.87		mg/Kg	☼	0.6	20
Cadmium	0.054	J	0.0673	J F5	mg/Kg	☼	22	20
Copper	11		11.0		mg/Kg	☼	2	20
Lead	4.1		3.91		mg/Kg	☼	5	20
Zinc	41		42.2		mg/Kg	☼	3	20

Lab Sample ID: MB 580-276707/22-A
Matrix: Water
Analysis Batch: 276827

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 276707

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		06/19/18 14:25	06/20/18 12:52	1
Cadmium	ND		0.00040	0.00010	mg/L		06/19/18 14:25	06/20/18 12:52	1
Copper	ND		0.0020	0.00060	mg/L		06/19/18 14:25	06/20/18 12:52	1
Lead	ND		0.00080	0.00020	mg/L		06/19/18 14:25	06/20/18 12:52	1
Zinc	ND		0.0070	0.0019	mg/L		06/19/18 14:25	06/20/18 12:52	1

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

Lab Sample ID: LCS 580-276707/23-A
Matrix: Water
Analysis Batch: 276827

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 276707

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.00	4.01		mg/L		100	80 - 120
Cadmium	0.100	0.0973		mg/L		97	80 - 120
Copper	0.500	0.507		mg/L		101	80 - 120
Lead	1.00	0.981		mg/L		98	80 - 120
Zinc	4.00	3.98		mg/L		99	80 - 120

Lab Sample ID: LCSD 580-276707/24-A
Matrix: Water
Analysis Batch: 276827

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 276707

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.00	4.06		mg/L		101	80 - 120	1	20
Cadmium	0.100	0.0997		mg/L		100	80 - 120	2	20
Copper	0.500	0.506		mg/L		101	80 - 120	0	20
Lead	1.00	0.970		mg/L		97	80 - 120	1	20
Zinc	4.00	3.96		mg/L		99	80 - 120	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 580-276432/22-A
Matrix: Water
Analysis Batch: 276631

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 276432

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00030	0.00015	mg/L		06/15/18 17:10	06/18/18 13:31	1

Lab Sample ID: LCS 580-276432/23-A
Matrix: Water
Analysis Batch: 276631

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276432

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00200	0.00195		mg/L		98	80 - 120

Lab Sample ID: LCSD 580-276432/24-A
Matrix: Water
Analysis Batch: 276631

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 276432

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.00200	0.00198		mg/L		99	80 - 120	2	20

Lab Sample ID: 580-77770-13 MS
Matrix: Water
Analysis Batch: 276631

Client Sample ID: PDI-RB-VV-180603
Prep Type: Total/NA
Prep Batch: 276432

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00200	0.00212		mg/L		106	80 - 120

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 580-77770-13 MSD — **Client Sample ID: PDI-RB-VV-180603**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 276631 — **Prep Batch: 276432**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00200	0.00206		mg/L		103	80 - 120	3	20

Lab Sample ID: 580-77770-13 DU — **Client Sample ID: PDI-RB-VV-180603**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 276631 — **Prep Batch: 276432**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	ND		ND		mg/L		NC	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 580-276731/22-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 276812 — **Prep Batch: 276731**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0106	J	0.030	0.0090	mg/Kg		06/19/18 16:46	06/20/18 11:36	1

Lab Sample ID: LCS 580-276731/23-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 276812 — **Prep Batch: 276731**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.167	0.145		mg/Kg		87	80 - 120

Lab Sample ID: LCSD 580-276731/24-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 276812 — **Prep Batch: 276731**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.167	0.162		mg/Kg		97	80 - 120	11	20

Lab Sample ID: 580-77770-1 MS — **Client Sample ID: PDI-SG-B186-BL1**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 276812 — **Prep Batch: 276731**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.027	J B	0.160	0.181		mg/Kg	☼	96	80 - 120

Lab Sample ID: 580-77770-1 MSD — **Client Sample ID: PDI-SG-B186-BL1**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 276812 — **Prep Batch: 276731**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.027	J B	0.164	0.210		mg/Kg	☼	112	80 - 120	15	20

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: 580-77770-1 DU
Matrix: Solid
Analysis Batch: 276812

Client Sample ID: PDI-SG-B186-BL1
Prep Type: Total/NA
Prep Batch: 276731

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	0.027	J B	0.0238	J	mg/Kg	☼	14	20

Lab Sample ID: MB 580-276786/22-A
Matrix: Solid
Analysis Batch: 276893

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 276786

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.030	0.0090	mg/Kg		06/20/18 10:25	06/20/18 17:47	1

Lab Sample ID: LCS 580-276786/23-A
Matrix: Solid
Analysis Batch: 276893

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276786

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.167	0.167		mg/Kg		100	80 - 120

Lab Sample ID: LCSD 580-276786/24-A
Matrix: Solid
Analysis Batch: 276893

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 276786

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.167	0.170		mg/Kg		102	80 - 120	2	20

Lab Sample ID: 580-77770-5 MS
Matrix: Solid
Analysis Batch: 276893

Client Sample ID: PDI-SG-B110-BL1
Prep Type: Total/NA
Prep Batch: 276786

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	F1 F2	0.152	0.192	F1	mg/Kg	☼	126	80 - 120

Lab Sample ID: 580-77770-5 MSD
Matrix: Solid
Analysis Batch: 276893

Client Sample ID: PDI-SG-B110-BL1
Prep Type: Total/NA
Prep Batch: 276786

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	F1 F2	0.157	0.274	F1 F2	mg/Kg	☼	175	80 - 120	36	20

Lab Sample ID: 580-77770-5 DU
Matrix: Solid
Analysis Batch: 276893

Client Sample ID: PDI-SG-B110-BL1
Prep Type: Total/NA
Prep Batch: 276786

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	ND	F1 F2	0.0235	J	mg/Kg	☼	NC	20

Method: 9060_PSEP - TOC (Puget Sound)

Lab Sample ID: MB 580-276215/3
Matrix: Solid
Analysis Batch: 276215

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			06/13/18 14:47	1

Lab Sample ID: LCS 580-276215/4
Matrix: Solid
Analysis Batch: 276215

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			4620	4610		mg/Kg		100	68 - 149		

Lab Sample ID: LCSD 580-276215/5
Matrix: Solid
Analysis Batch: 276215

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			4620	5270		mg/Kg		114	68 - 149	13	32

Method: Moisture 70C - Percent Moisture, 70 C

Lab Sample ID: 580-77770-9 DU
Matrix: Solid
Analysis Batch: 277562

Client Sample ID: PDI-SG-B316-BL1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Solids @ 70°C	41	H		41		%				0	20

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

Lab Sample ID: MB 580-276634/3
Matrix: Water
Analysis Batch: 276634

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			06/18/18 15:21	1

Lab Sample ID: LCS 580-276634/4
Matrix: Water
Analysis Batch: 276634

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			10.0	9.67		mg/L		97	85 - 115		

Method: D7928/D6913 - ASTM D7928/D6913

Lab Sample ID: 580-77770-9 DU
Matrix: Solid
Analysis Batch: 277065

Client Sample ID: PDI-SG-B316-BL1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Clay	11.2			11.0		%				2	20
Coarse Sand	0.0			0.1	F3	%				200	20
Fine Sand	11.7			12.5		%				7	20
Gravel	0.0			0.0		%				NC	20
Medium Sand	0.3			0.2	F3	%				40	20
Silt	76.9			76.2		%				0.9	20

Lab Chronicle

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

TestAmerica Job ID: 580-77770-1

Client Sample ID: PDI-SG-B186-BL1
Lab Sample ID: 580-77770-1
Date Collected: 06/01/18 16:22
Matrix: Solid
Date Received: 06/04/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	276215	06/13/18 15:21	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	275494	06/06/18 09:20	JSM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	277338	06/25/18 16:45	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	276516	06/17/18 11:03	DB	TAL SEA

Client Sample ID: PDI-SG-B186-BL1
Lab Sample ID: 580-77770-1
Date Collected: 06/01/18 16:22
Matrix: Solid
Date Received: 06/04/18 14:25
Percent Solids: 69.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			275624	06/07/18 09:45	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		5	275713	06/07/18 18:00	CJ	TAL SEA
Total/NA	Prep	3050B			276934	06/21/18 10:50	CJB	TAL SEA
Total/NA	Analysis	6020B		5	277016	06/21/18 15:56	FCW	TAL SEA
Total/NA	Prep	7471A			276731	06/19/18 16:46	CJB	TAL SEA
Total/NA	Analysis	7471A		1	276812	06/20/18 11:43	FCW	TAL SEA

Client Sample ID: PDI-SG-B182-BL1
Lab Sample ID: 580-77770-2
Date Collected: 06/01/18 14:26
Matrix: Solid
Date Received: 06/04/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	276215	06/13/18 15:26	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	275494	06/06/18 09:20	JSM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	277338	06/25/18 16:45	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	276516	06/17/18 11:03	DB	TAL SEA

Client Sample ID: PDI-SG-B182-BL1
Lab Sample ID: 580-77770-2
Date Collected: 06/01/18 14:26
Matrix: Solid
Date Received: 06/04/18 14:25
Percent Solids: 47.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			275624	06/07/18 09:45	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		10	275713	06/07/18 18:43	CJ	TAL SEA
Total/NA	Prep	3050B			276934	06/21/18 10:50	CJB	TAL SEA
Total/NA	Analysis	6020B		5	277016	06/21/18 16:34	FCW	TAL SEA
Total/NA	Prep	7471A			276731	06/19/18 16:46	CJB	TAL SEA
Total/NA	Analysis	7471A		1	276812	06/20/18 11:57	FCW	TAL SEA

Client Sample ID: PDI-SG-B187-BL1

Lab Sample ID: 580-77770-3
Date Collected: 06/01/18 16:20
Matrix: Solid
Date Received: 06/04/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	276215	06/13/18 15:32	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	275494	06/06/18 09:20	JSM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	277338	06/25/18 16:45	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	276516	06/17/18 11:03	DB	TAL SEA

Client Sample ID: PDI-SG-B187-BL1

Lab Sample ID: 580-77770-3
Date Collected: 06/01/18 16:20
Matrix: Solid
Date Received: 06/04/18 14:25
Percent Solids: 44.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			275660	06/07/18 11:34	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	275619	06/07/18 20:10	CJ	TAL SEA
Total/NA	Prep	3050B			276934	06/21/18 10:50	CJB	TAL SEA
Total/NA	Analysis	6020B		5	277016	06/21/18 16:38	FCW	TAL SEA
Total/NA	Prep	7471A			276731	06/19/18 16:46	CJB	TAL SEA
Total/NA	Analysis	7471A		1	276812	06/20/18 11:59	FCW	TAL SEA

Client Sample ID: PDI-SG-B179-BL1

Lab Sample ID: 580-77770-4
Date Collected: 06/01/18 14:20
Matrix: Solid
Date Received: 06/04/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	276215	06/13/18 15:38	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	275494	06/06/18 09:20	JSM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	277338	06/25/18 16:45	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	276516	06/17/18 11:03	DB	TAL SEA

Client Sample ID: PDI-SG-B179-BL1

Lab Sample ID: 580-77770-4
Date Collected: 06/01/18 14:20
Matrix: Solid
Date Received: 06/04/18 14:25
Percent Solids: 42.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			275660	06/07/18 11:34	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		10	275619	06/07/18 20:32	CJ	TAL SEA
Total/NA	Prep	3050B			276934	06/21/18 10:50	CJB	TAL SEA
Total/NA	Analysis	6020B		5	277016	06/21/18 16:42	FCW	TAL SEA
Total/NA	Prep	7471A			276731	06/19/18 16:46	CJB	TAL SEA
Total/NA	Analysis	7471A		1	276812	06/20/18 12:01	FCW	TAL SEA

Client Sample ID: PDI-SG-B110-BL1

Lab Sample ID: 580-77770-5
Date Collected: 06/02/18 14:45
Matrix: Solid
Date Received: 06/04/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	276215	06/13/18 15:45	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	275494	06/06/18 09:20	JSM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	277338	06/25/18 16:45	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	276516	06/17/18 11:03	DB	TAL SEA

Client Sample ID: PDI-SG-B110-BL1

Lab Sample ID: 580-77770-5
Date Collected: 06/02/18 14:45
Matrix: Solid
Date Received: 06/04/18 14:25
Percent Solids: 74.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			275660	06/07/18 11:34	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	275619	06/07/18 20:54	CJ	TAL SEA
Total/NA	Prep	3050B			276934	06/21/18 10:50	CJB	TAL SEA
Total/NA	Analysis	6020B		5	277016	06/21/18 16:47	FCW	TAL SEA
Total/NA	Prep	7471A			276786	06/20/18 10:25	CJB	TAL SEA
Total/NA	Analysis	7471A		1	276893	06/20/18 17:55	FCW	TAL SEA

Client Sample ID: PDI-SG-B181-BL1

Lab Sample ID: 580-77770-6
Date Collected: 06/02/18 09:55
Matrix: Solid
Date Received: 06/04/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	276215	06/13/18 15:50	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	275494	06/06/18 09:20	JSM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	277338	06/25/18 16:45	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	276516	06/17/18 11:03	DB	TAL SEA

Client Sample ID: PDI-SG-B181-BL1

Lab Sample ID: 580-77770-6
Date Collected: 06/02/18 09:55
Matrix: Solid
Date Received: 06/04/18 14:25
Percent Solids: 51.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			275660	06/07/18 11:34	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	275619	06/07/18 21:16	CJ	TAL SEA
Total/NA	Prep	3050B			276934	06/21/18 10:50	CJB	TAL SEA
Total/NA	Analysis	6020B		5	277016	06/21/18 16:51	FCW	TAL SEA
Total/NA	Prep	7471A			276786	06/20/18 10:25	CJB	TAL SEA
Total/NA	Analysis	7471A		1	276893	06/20/18 18:54	FCW	TAL SEA

Client Sample ID: PDI-SG-B189-BL1
Date Collected: 06/02/18 10:19
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	276215	06/13/18 15:55	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	275494	06/06/18 09:20	JSM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	277338	06/25/18 16:45	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	276516	06/17/18 11:03	DB	TAL SEA

Client Sample ID: PDI-SG-B189-BL1
Date Collected: 06/02/18 10:19
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-7
Matrix: Solid
Percent Solids: 46.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			275660	06/07/18 11:34	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	275619	06/07/18 21:38	CJ	TAL SEA
Total/NA	Prep	3050B			276934	06/21/18 10:50	CJB	TAL SEA
Total/NA	Analysis	6020B		5	277016	06/21/18 16:55	FCW	TAL SEA
Total/NA	Prep	7471A			276786	06/20/18 10:25	CJB	TAL SEA
Total/NA	Analysis	7471A		1	276893	06/20/18 18:26	FCW	TAL SEA

Client Sample ID: PDI-SG-B189-BL1-D
Date Collected: 06/02/18 10:20
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	276215	06/13/18 16:01	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	275494	06/06/18 09:20	JSM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	277583	06/27/18 15:03	JSM	TAL SEA

Client Sample ID: PDI-SG-B189-BL1-D
Date Collected: 06/02/18 10:20
Date Received: 06/04/18 14:25

Lab Sample ID: 580-77770-8
Matrix: Solid
Percent Solids: 45.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			275660	06/07/18 11:34	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	275619	06/07/18 22:22	CJ	TAL SEA
Total/NA	Prep	3050B			276934	06/21/18 10:50	CJB	TAL SEA
Total/NA	Analysis	6020B		5	277016	06/21/18 16:59	FCW	TAL SEA
Total/NA	Prep	7471A			276786	06/20/18 10:25	CJB	TAL SEA
Total/NA	Analysis	7471A		1	276893	06/20/18 18:14	FCW	TAL SEA

Client Sample ID: PDI-SG-B316-BL1

Lab Sample ID: 580-77770-9
Date Collected: 06/02/18 14:34
Matrix: Solid
Date Received: 06/04/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	276215	06/13/18 16:07	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	275494	06/06/18 09:20	JSM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	277562	06/20/18 11:00	DB	TAL SEA
Total/NA	Analysis	D7928/D6913		1	277065	06/22/18 13:26	DB	TAL SEA

Client Sample ID: PDI-SG-B316-BL1

Lab Sample ID: 580-77770-9
Date Collected: 06/02/18 14:34
Matrix: Solid
Date Received: 06/04/18 14:25
Percent Solids: 40.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			275660	06/07/18 11:34	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	275619	06/07/18 22:44	CJ	TAL SEA
Total/NA	Prep	3050B			276934	06/21/18 10:50	CJB	TAL SEA
Total/NA	Analysis	6020B		5	277016	06/21/18 17:03	FCW	TAL SEA
Total/NA	Prep	7471A			276786	06/20/18 10:25	CJB	TAL SEA
Total/NA	Analysis	7471A		1	276893	06/20/18 18:17	FCW	TAL SEA

Client Sample ID: PDI-SG-B317-BL1

Lab Sample ID: 580-77770-10
Date Collected: 06/03/18 09:05
Matrix: Solid
Date Received: 06/04/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	276215	06/13/18 16:19	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	275494	06/06/18 09:20	JSM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	277562	06/20/18 11:00	DB	TAL SEA
Total/NA	Analysis	D7928/D6913		1	277065	06/22/18 13:26	DB	TAL SEA

Client Sample ID: PDI-SG-B317-BL1

Lab Sample ID: 580-77770-10
Date Collected: 06/03/18 09:05
Matrix: Solid
Date Received: 06/04/18 14:25
Percent Solids: 41.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			275660	06/07/18 11:34	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	275619	06/07/18 23:06	CJ	TAL SEA
Total/NA	Prep	3050B			276934	06/21/18 10:50	CJB	TAL SEA
Total/NA	Analysis	6020B		5	277016	06/21/18 17:08	FCW	TAL SEA
Total/NA	Prep	7471A			276786	06/20/18 10:25	CJB	TAL SEA
Total/NA	Analysis	7471A		1	276893	06/20/18 18:19	FCW	TAL SEA

Client Sample ID: PDI-SG-B255-BL1

Lab Sample ID: 580-77770-11
Date Collected: 06/03/18 09:55
Matrix: Solid
Date Received: 06/04/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	276215	06/13/18 16:25	Z1T	TAL SEA
Total/NA	Analysis	D 2216		1	275494	06/06/18 09:20	JSM	TAL SEA
Total/NA	Analysis	Moisture 70C		1	277562	06/20/18 11:00	DB	TAL SEA
Total/NA	Analysis	D7928/D6913		1	277065	06/22/18 13:26	DB	TAL SEA

Client Sample ID: PDI-SG-B255-BL1

Lab Sample ID: 580-77770-11
Date Collected: 06/03/18 09:55
Matrix: Solid
Date Received: 06/04/18 14:25
Percent Solids: 42.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			275660	06/07/18 11:34	TTN	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	275619	06/07/18 23:50	CJ	TAL SEA
Total/NA	Prep	3050B			276934	06/21/18 10:50	CJB	TAL SEA
Total/NA	Analysis	6020B		5	277016	06/21/18 17:29	FCW	TAL SEA
Total/NA	Prep	7471A			276786	06/20/18 10:25	CJB	TAL SEA
Total/NA	Analysis	7471A		1	276893	06/20/18 18:22	FCW	TAL SEA

Client Sample ID: PDI-RB-VV-180602

Lab Sample ID: 580-77770-12
Date Collected: 06/02/18 15:30
Matrix: Water
Date Received: 06/04/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			276371	06/15/18 10:48	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	276526	06/18/18 13:45	W1T	TAL SEA
Total Recoverable	Prep	3005A			276707	06/19/18 14:25	CJB	TAL SEA
Total Recoverable	Analysis	6020B		1	276827	06/20/18 13:21	FCW	TAL SEA
Total/NA	Prep	7470A			276432	06/15/18 17:10	CJB	TAL SEA
Total/NA	Analysis	7470A		1	276631	06/18/18 13:47	FCW	TAL SEA
Total/NA	Analysis	SM 5310B		1	276634	06/18/18 15:21	ASJ	TAL SEA

Client Sample ID: PDI-RB-VV-180603

Lab Sample ID: 580-77770-13
Date Collected: 06/03/18 12:10
Matrix: Water
Date Received: 06/04/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			276371	06/15/18 10:48	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	276526	06/18/18 14:06	W1T	TAL SEA
Total Recoverable	Prep	3005A			276707	06/19/18 14:25	CJB	TAL SEA
Total Recoverable	Analysis	6020B		1	276827	06/20/18 13:24	FCW	TAL SEA
Total/NA	Prep	7470A			276432	06/15/18 17:10	CJB	TAL SEA
Total/NA	Analysis	7470A		1	276631	06/18/18 13:38	FCW	TAL SEA
Total/NA	Analysis	SM 5310B		1	276634	06/18/18 15:21	ASJ	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-77770-1

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: 580-77770-1
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: 580-77770-1

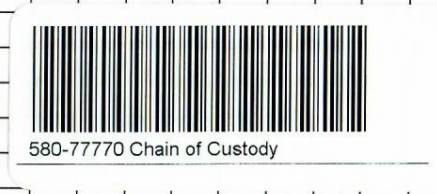
Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-77770-1	PDI-SG-B186-BL1	Solid	06/01/18 16:22	06/04/18 14:25
580-77770-2	PDI-SG-B182-BL1	Solid	06/01/18 14:26	06/04/18 14:25
580-77770-3	PDI-SG-B187-BL1	Solid	06/01/18 16:20	06/04/18 14:25
580-77770-4	PDI-SG-B179-BL1	Solid	06/01/18 14:20	06/04/18 14:25
580-77770-5	PDI-SG-B110-BL1	Solid	06/02/18 14:45	06/04/18 14:25
580-77770-6	PDI-SG-B181-BL1	Solid	06/02/18 09:55	06/04/18 14:25
580-77770-7	PDI-SG-B189-BL1	Solid	06/02/18 10:19	06/04/18 14:25
580-77770-8	PDI-SG-B189-BL1-D	Solid	06/02/18 10:20	06/04/18 14:25
580-77770-9	PDI-SG-B316-BL1	Solid	06/02/18 14:34	06/04/18 14:25
580-77770-10	PDI-SG-B317-BL1	Solid	06/03/18 09:05	06/04/18 14:25
580-77770-11	PDI-SG-B255-BL1	Solid	06/03/18 09:55	06/04/18 14:25
580-77770-12	PDI-RB-VV-180602	Water	06/02/18 15:30	06/04/18 14:25
580-77770-13	PDI-RB-VV-180603	Water	06/03/18 12:10	06/04/18 14:25

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

SURFACE SEDIMENT
CHAIN OF CUSTODY

Client Contact	Project Contact: Amy Dahl / Chelsey Cook	Site Contact: Jennifer Ray	6/4/2018	COC No: 1
AECOM	Tel: (206) 438-2261 / (206) 438-2010	Laboratory Contact: Elaine-Walker	Carrier: Courier	1 of 2 page(s)
1111 3rd Ave Suite 1600	Analysis Turnaround Time			
Seattle, WA 98101	Calendar (C) or Work Days (W)			
Phone: (206) 438-2700 Fax: 1+(866) 495-5288	[x] 21 days			
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	[ ] Other			
Portland, OR				
Project #: 60566335 Study: Surface Sediment				

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congeners 1668A	PCDD/Fs 1613B	TPH Diesel, Metals, Mercury NWTPH-Dx, 6020B, 7471A	Grain size ASTM D7928/D6913	Total organic carbon 9060, Total solids (104C & 70C)	Archive Archive -20 C	WQ - PCB Congeners 1668A	WQ - PCDD/Fs 1613B	WQ - TPH Diesel NWTPH-Dx	WQ - Metals, Mercury 6020B, 7470	WQ - Total Organic Carbon SM5310B	Sample Specific Notes:
PDI-SG-B186-BL1	6/1/2018	16:22	SS		MM	6		x	x	x	x	x	x						
PDI-SG-B182-BL1	6/1/2018	14:26	SS		MM	6		x	x	x	x	x	x						
PDI-SG-B187-BL1	6/1/2018	16:20	SS		MT	6		x	x	x	x	x	x						
PDI-SG-B179-BL1	6/1/2018	14:20	SS		MT	6		x	x	x	x	x	x						
PDI-SG-B110-BL1	6/2/2018	14:45	SS		LS	6		x	x	x	x	x	x						
PDI-SG-B181-BL1	6/2/2018	9:55	SS		LS	6		x	x	x	x	x	x						
PDI-SG-B189-BL1	6/2/2018	10:19	SS		MM	6		x	x	x	x	x	x						
PDI-SG-B189-BL1-D	6/2/2018	10:20	SS		MM	5		x	x	x		x	x						
PDI-SG-B316-BL1	6/2/2018	14:34	SS		MM	6		x	x	x	x	x	x						
PDI-SG-B317-BL1	6/3/2018	9:05	SS		MM	6		x	x	x	x	x	x						
PDI-SG-B255-BL1	6/3/2018	9:55	SS		MM	6		x	x	x	x	x	x						
PDI-RB-VV-180602	6/2/2018	15:30	W		MT	8								x	x	x	x	x	



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

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

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

Sample Disposal
[ ] Return To Client [X] Disposal By Lab [X] Archive For 12 Months

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

0.9, 3.0, 1.3, 3.4

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Geosyntec	6/4/18 1350		M.E.	6/4/18 1350
	M.E.	6/4/18 1425		TAPOR	6/4/18 1425
	TAPOR	6/4/18 1700			

SURFACE 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** **Laboratory Contact: Elaine-Walker**	**6/4/2018** **Carrier: Courier**	COC No: 1 2 of 2 page(s)

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: Surface Sediment

Analysis Turnaround Time
Calendar (C) or Work Days (W) _____
[x] 21 days
[ ] Other _____

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	WQ - PCB Congeners 1668A	WQ - PCDD/Fs 1613B	WQ - TPH Diesel NWTPH-Dx	WQ - Metals, Mercury 6020B, 7470	WQ - Total Organic Carbon SM5310B	Sample Specific Notes:
PDI-RB-VV-180603	6/3/2018	12:10	W			8		x	x	x	x	x	

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

Sample Disposal
[ ] Return To Client [X] Disposal By Lab [X] Archive For 12 Months

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

	Company	Date/Time	Received by:	Company	Date/Time
Relinquished by:	GROSynTec	6/4/18 1350	Received by:	M.E.	6/4/18 1350
Relinquished by:	M.E.	6/4/18 1425	Received by:	TAPOR	6/4/18 1425
Relinquished by:	TAPOR	6/4/18 1700	Received by:		

SURFACE SEDIMENT
CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 **Ph: 253-922-2310 Fax: 253-922-5047**	**Project Contact: Amy Dahl / Chelsey Cook** **Tel: (206) 438-2261 / (206) 438-2010** **Analysis Turnaround Time** Calendar (C) or Work Days (W)	**Site Contact: Jennifer Ray** **Laboratory Contact: Elaine-Walker**	**6/4/2018** **Carrier: Courier**	COC No. 1 1 of 2 page(s)
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: Surface Sediment	[x] 21 days [ ] Other _____			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congeners 1668A	PCDD/Fs 1613B	TPH Diesel, Metals, Mercury NWTPH-Dx, 6020B, 7471A	Grain size ASTM D7928/D6913	Total organic carbon 9060, Total solids (104C & 70C)	Archive Archive -20 C	WQ - PCB Congeners 1668A	WQ - PCDD/Fs 1613B	WQ - TPH Diesel NWTPH-Dx	WQ - Metals, Mercury 6020B, 7470	WQ - Total Organic Carbon SM5310B	Sample Specific Notes:
PDI-SG-B186-BL1	6/1/2018	16:22	SS		MM	6		x	x	x	x	x	x						
PDI-SG-B182-BL1	6/1/2018	14:26	SS		MM	6		x	x	x	x	x	x						
PDI-SG-B187-BL1	6/1/2018	16:20	SS		MT	6		x	x	x	x	x	x						
PDI-SG-B179-BL1	6/1/2018	14:20	SS		MT	6		x	x	x	x	x	x						
PDI-SG-B110-BL1	6/2/2018	14:45	SS		LS	6		x	x	x	x	x	x						
PDI-SG-B181-BL1	6/2/2018	9:55	SS		LS	6		x	x	x	x	x	x						
PDI-SG-B189-BL1	6/2/2018	10:19	SS		MM	6		x	x	x	x	x	x						
PDI-SG-B189-BL1-D	6/2/2018	10:20	SS		MM	5		x	x	x		x	x						
PDI-SG-B316-BL1	6/2/2018	14:34	SS		MM	6		x	x	x	x	x	x						
PDI-SG-B317-BL1	6/3/2018	9:05	SS		MM	6		x	x	x	x	x	x						
PDI-SG-B255-BL1	6/3/2018	9:55	SS		MM	6		x	x	x	x	x	x						
PDI-RB-VV-180602	6/2/2018	15:30	W		MT	8								x	x	x	x	x	

580-77770 Chain of Custody

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

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

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

Sample Disposal

[ ] Return To Client [X] Disposal By Lab [X] Archive For 12 Months

Special Instructions/QC Requirements & Comments:

Separate reports for each lab.

0.9, 3.0, 1.3, 3.4

Relinquished by:	Company: Geosyntec	Date/Time: 6/4/18 1350	Received by:	Company: M.E.	Date/Time: 6/4/18 1350
Relinquished by:	Company: M.E.	Date/Time: 6/4/18 1425	Received by:	Company: ARDR	Date/Time: 6/4/18 1425
Relinquished by:	Company: ARDR	Date/Time: 6/4/18 1700	Received by:	Company: ASea	Date/Time: 6-5-18 0930

SURFACE 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** **Laboratory Contact: Elaine-Walker**	**6/4/2018** **Carrier: Courier**	COC No: 1 2 of 2 page(s)
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: Surface Sediment	**Analysis Turnaround Time** Calendar (C) or Work Days (W) _____ [x] 21 days [ ] Other _____			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	WQ - PCB Congeners 1668A	WQ - PCDD/Fs 1613B	WQ - TPH Diesel NWTPH-Dx	WQ - Metals, Mercury 6020B, 7470	WQ - Total Organic Carbon SM5310B	Sample Specific Notes:
PDI-RB-VV-180603	6/3/2018	12:10	W			8		x	x	x	x	x	

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

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

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

Sample Disposal
[ ] Return To Client [X] Disposal By Lab [X] Archive For 12 Months

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

Relinquished by:	Company: GeoSyntec	Date/Time: 6/4/18 1350	Received by:	Company: AECOM	Date/Time: 6/4/18 1350
Relinquished by:	Company: AECOM	Date/Time: 6/4/18 1425	Received by:	Company: TAL POR	Date/Time: 6/4/18 1425
Relinquished by:	Company: TAL POR	Date/Time: 6/4/18 1700	Received by:	Company: TAL SEA	Date/Time: 6-5-18 0930

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-77770-1

Login Number: 77770
List Number: 1
Creator: O'Connell, Jason I

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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	