

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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TestAmerica Job ID: 580-76388-1

Client Project/Site: Portland Harbor Pre-Remedial Design

For:

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Authorized for release by:
4/26/2018 4:58:54 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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

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Case Narrative

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

TestAmerica Job ID: 580-76388-1

Job ID: 580-76388-1

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE

Client: AECOM

Project: Portland Harbor Pre-Remedial Design

Report Number: 580-76388-1

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

Fourteen samples were received on 4/6/2018 2:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.6° C, 2.7° C and 4.7° C.

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

This report contains results of analyses performed at TestAmerica Seattle.

The following samples were placed on hold and stored in the CSU freezer on 4/14/2018. The samples were reactivated and were removed from the freezer on 4/20/18 at 9:30 AM to begin thawing. Samples were then extracted and placed in the microwave at the time stated in the batch info following SOP protocol. PDI-SG-B048-BL1 (580-76388-2), PDI-SG-B055-BL1 (580-76388-6), PDI-SG-B052-BL1 (580-76388-7) and PDI-SG-B053-BL1 (580-76388-8).

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-B049-BL1 (580-76388-1), PDI-SG-B048-BL1 (580-76388-2), PDI-SG-B047-BL1 (580-76388-3), PDI-SG-B051-BL1 (580-76388-4), PDI-SG-B050-BL1 (580-76388-5), PDI-SG-B055-BL1 (580-76388-6), PDI-SG-B052-BL1 (580-76388-7), PDI-SG-B053-BL1 (580-76388-8), PDI-SG-B057-BL1 (580-76388-9), PDI-SG-B056-BL1 (580-76388-10), PDI-SG-B058-BL1 (580-76388-11), PDI-SG-B060-BL1 (580-76388-12), PDI-SG-B060-BL1-D (580-76388-13) and PDI-SG-B061-BL1 (580-76388-14) were analyzed for diesel and extended range organics in accordance with Method NWTPH-Dx. The samples were prepared on 04/13/2018 and 04/20/2018 and analyzed on 04/17/2018, 04/18/2018 and 04/24/2018.

Motor Oil (>C24-C36) failed the recovery criteria low for the MSD of sample PDI-SG-B047-BL1MSD (580-76388-3) in batch 580-271542. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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-B049-BL1 (580-76388-1), PDI-SG-B047-BL1 (580-76388-3), PDI-SG-B051-BL1 (580-76388-4), PDI-SG-B055-BL1 (580-76388-6), PDI-SG-B052-BL1 (580-76388-7), PDI-SG-B053-BL1 (580-76388-8), PDI-SG-B056-BL1 (580-76388-10), PDI-SG-B058-BL1 (580-76388-11), PDI-SG-B060-BL1 (580-76388-12), PDI-SG-B060-BL1-D

Case Narrative

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

TestAmerica Job ID: 580-76388-1

Job ID: 580-76388-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

(580-76388-13), PDI-SG-B061-BL1 (580-76388-14) and (580-76388-F-11-B DU).

The %D of surrogate (o-Terphenyl) for CCV associated with batch 580-272110 was outside the lower control limits. All associated sample surrogate fell within acceptance criteria; therefore, the data have been reported. PDI-SG-B048-BL1 (580-76388-2), PDI-SG-B055-BL1 (580-76388-6), PDI-SG-B052-BL1 (580-76388-7), PDI-SG-B053-BL1 (580-76388-8), (CCV 580-272110/14).

Spike compounds were inadvertently omitted during the extraction process for the matrix spike/matrix spike duplicate (MS/MSD). The samples are outside of hold time for re-extraction and the associated laboratory control sample/laboratory control sample duplicate (LCS/LCSD) met acceptance criteria; therefore, the data are qualified and reported.

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

METALS (ICPMS)

Samples PDI-SG-B049-BL1 (580-76388-1), PDI-SG-B048-BL1 (580-76388-2), PDI-SG-B047-BL1 (580-76388-3), PDI-SG-B051-BL1 (580-76388-4), PDI-SG-B050-BL1 (580-76388-5), PDI-SG-B055-BL1 (580-76388-6), PDI-SG-B052-BL1 (580-76388-7), PDI-SG-B053-BL1 (580-76388-8), PDI-SG-B057-BL1 (580-76388-9), PDI-SG-B056-BL1 (580-76388-10), PDI-SG-B058-BL1 (580-76388-11), PDI-SG-B060-BL1 (580-76388-12), PDI-SG-B060-BL1-D (580-76388-13) and PDI-SG-B061-BL1 (580-76388-14) were analyzed for Metals (ICPMS) in accordance with 6020A_LL. The samples were prepared on 04/12/2018 and analyzed on 04/13/2018.

Copper failed the recovery criteria high for the MSD of sample PDI-SG-B047-BL1MSD (580-76388-3) in batch 580-271330. The MS and 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.

TOTAL MERCURY

Samples PDI-SG-B049-BL1 (580-76388-1), PDI-SG-B048-BL1 (580-76388-2), PDI-SG-B047-BL1 (580-76388-3), PDI-SG-B051-BL1 (580-76388-4), PDI-SG-B050-BL1 (580-76388-5), PDI-SG-B055-BL1 (580-76388-6), PDI-SG-B052-BL1 (580-76388-7), PDI-SG-B053-BL1 (580-76388-8), PDI-SG-B057-BL1 (580-76388-9), PDI-SG-B056-BL1 (580-76388-10), PDI-SG-B058-BL1 (580-76388-11), PDI-SG-B060-BL1 (580-76388-12), PDI-SG-B060-BL1-D (580-76388-13) and PDI-SG-B061-BL1 (580-76388-14) were analyzed for total mercury in accordance with EPA SW-846 Method 7471A. The samples were prepared and analyzed on 04/23/2018 and 04/25/2018.

Mercury exceeded the RPD limit for the duplicate of sample PDI-SG-B047-BL1DU (580-76388-3). The MS/MSD and 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.

TOTAL ORGANIC CARBON

Samples PDI-SG-B049-BL1 (580-76388-1), PDI-SG-B048-BL1 (580-76388-2), PDI-SG-B047-BL1 (580-76388-3), PDI-SG-B051-BL1 (580-76388-4), PDI-SG-B050-BL1 (580-76388-5), PDI-SG-B055-BL1 (580-76388-6), PDI-SG-B052-BL1 (580-76388-7), PDI-SG-B053-BL1 (580-76388-8), PDI-SG-B057-BL1 (580-76388-9), PDI-SG-B056-BL1 (580-76388-10), PDI-SG-B058-BL1 (580-76388-11), PDI-SG-B060-BL1 (580-76388-12), PDI-SG-B060-BL1-D (580-76388-13) and PDI-SG-B061-BL1 (580-76388-14) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 04/10/2018 and 04/16/2018.

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

GRAIN SIZE

Samples PDI-SG-B049-BL1 (580-76388-1), PDI-SG-B048-BL1 (580-76388-2), PDI-SG-B047-BL1 (580-76388-3), PDI-SG-B051-BL1 (580-76388-4), PDI-SG-B050-BL1 (580-76388-5), PDI-SG-B055-BL1 (580-76388-6), PDI-SG-B052-BL1 (580-76388-7), PDI-SG-B053-BL1 (580-76388-8), PDI-SG-B057-BL1 (580-76388-9), PDI-SG-B056-BL1 (580-76388-10), PDI-SG-B058-BL1 (580-76388-11), PDI-SG-B060-BL1 (580-76388-12) and PDI-SG-B061-BL1 (580-76388-14) were analyzed for grain size in accordance with D422. The samples were analyzed on 04/10/2018.

Gravel exceeded the RPD limit for the duplicate of sample PDI-SG-B061-BL1DU (580-76388-14).

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

Case Narrative

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

TestAmerica Job ID: 580-76388-1

Job ID: 580-76388-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

PERCENT SOLIDS

Samples PDI-SG-B049-BL1 (580-76388-1), PDI-SG-B048-BL1 (580-76388-2), PDI-SG-B047-BL1 (580-76388-3), PDI-SG-B051-BL1 (580-76388-4), PDI-SG-B050-BL1 (580-76388-5), PDI-SG-B055-BL1 (580-76388-6), PDI-SG-B052-BL1 (580-76388-7), PDI-SG-B053-BL1 (580-76388-8), PDI-SG-B057-BL1 (580-76388-9), PDI-SG-B056-BL1 (580-76388-10), PDI-SG-B058-BL1 (580-76388-11), PDI-SG-B060-BL1 (580-76388-12), PDI-SG-B060-BL1-D (580-76388-13) and PDI-SG-B061-BL1 (580-76388-14) were analyzed for percent solids in accordance with ASTM D2216. The samples were analyzed on 04/09/2018.

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

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Definitions/Glossary

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

TestAmerica Job ID: 580-76388-1

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

Metals

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

General Chemistry

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.

Geotechnical

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B049-BL1

Lab Sample ID: 580-76388-1

Date Collected: 04/04/18 10:23

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 47.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	72	J	100	26	mg/Kg	☼	04/13/18 15:03	04/17/18 22:12	1
Motor Oil (>C24-C36)	430		100	36	mg/Kg	☼	04/13/18 15:03	04/17/18 22:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	88		50 - 150				04/13/18 15:03	04/17/18 22:12	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.5		0.35	0.071	mg/Kg	☼	04/12/18 13:19	04/13/18 01:56	5
Cadmium	0.44		0.28	0.054	mg/Kg	☼	04/12/18 13:19	04/13/18 01:56	5
Copper	30		0.71	0.16	mg/Kg	☼	04/12/18 13:19	04/13/18 01:56	5
Lead	11		0.35	0.034	mg/Kg	☼	04/12/18 13:19	04/13/18 01:56	5
Zinc	87		3.5	1.1	mg/Kg	☼	04/12/18 13:19	04/13/18 01:56	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.048	J	0.055	0.016	mg/Kg	☼	04/23/18 08:30	04/23/18 11:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	33000		2000	44	mg/Kg			04/10/18 11:48	1
Total Solids	47.0		0.1	0.1	%			04/09/18 14:57	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	8.1				%			04/10/18 13:30	1
Coarse Sand	0.2				%			04/10/18 13:30	1
Fine Sand	46.2				%			04/10/18 13:30	1
Gravel	1.0				%			04/10/18 13:30	1
Medium Sand	0.7				%			04/10/18 13:30	1
Silt	43.7				%			04/10/18 13:30	1

Client Sample Results

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B048-BL1

Lab Sample ID: 580-76388-2

Date Collected: 04/04/18 12:32

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 70.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		67	16	mg/Kg	☼	04/20/18 16:23	04/24/18 13:17	1
Motor Oil (>C24-C36)	ND		67	23	mg/Kg	☼	04/20/18 16:23	04/24/18 13:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	90		50 - 150				04/20/18 16:23	04/24/18 13:17	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.2		0.26	0.053	mg/Kg	☼	04/12/18 13:19	04/13/18 02:00	5
Cadmium	0.10	J	0.21	0.041	mg/Kg	☼	04/12/18 13:19	04/13/18 02:00	5
Copper	21		0.53	0.12	mg/Kg	☼	04/12/18 13:19	04/13/18 02:00	5
Lead	5.9		0.26	0.025	mg/Kg	☼	04/12/18 13:19	04/13/18 02:00	5
Zinc	61		2.6	0.85	mg/Kg	☼	04/12/18 13:19	04/13/18 02:00	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.018	J	0.041	0.012	mg/Kg	☼	04/25/18 08:30	04/25/18 15:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	3100		2000	44	mg/Kg			04/10/18 11:55	1
Total Solids	70.2		0.1	0.1	%			04/09/18 14:57	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	2.6				%			04/10/18 13:30	1
Coarse Sand	11.2				%			04/10/18 13:30	1
Fine Sand	19.0				%			04/10/18 13:30	1
Gravel	28.7				%			04/10/18 13:30	1
Medium Sand	22.3				%			04/10/18 13:30	1
Silt	16.2				%			04/10/18 13:30	1

Client Sample Results

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B047-BL1

Lab Sample ID: 580-76388-3

Date Collected: 04/04/18 14:07

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 39.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	57	J	130	31	mg/Kg	☼	04/13/18 15:03	04/17/18 22:34	1
Motor Oil (>C24-C36)	460	F1	130	44	mg/Kg	☼	04/13/18 15:03	04/17/18 22:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	90		50 - 150				04/13/18 15:03	04/17/18 22:34	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.4		0.36	0.073	mg/Kg	☼	04/12/18 13:19	04/13/18 01:21	5
Cadmium	0.31		0.29	0.056	mg/Kg	☼	04/12/18 13:19	04/13/18 01:21	5
Copper	39	F1	0.73	0.16	mg/Kg	☼	04/12/18 13:19	04/13/18 01:21	5
Lead	11		0.36	0.035	mg/Kg	☼	04/12/18 13:19	04/13/18 01:21	5
Zinc	100		3.6	1.2	mg/Kg	☼	04/12/18 13:19	04/13/18 01:21	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.051	J	0.076	0.023	mg/Kg	☼	04/23/18 08:30	04/23/18 11:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	30000		2000	44	mg/Kg			04/16/18 15:08	1
Total Solids	39.2		0.1	0.1	%			04/09/18 14:57	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	13.1				%			04/10/18 13:30	1
Coarse Sand	0.0				%			04/10/18 13:30	1
Fine Sand	15.7				%			04/10/18 13:30	1
Gravel	0.0				%			04/10/18 13:30	1
Medium Sand	0.1				%			04/10/18 13:30	1
Silt	71.0				%			04/10/18 13:30	1

Client Sample Results

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B051-BL1

Lab Sample ID: 580-76388-4

Date Collected: 04/04/18 15:08

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 38.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	39	J	130	32	mg/Kg	☼	04/13/18 15:03	04/17/18 23:40	1
Motor Oil (>C24-C36)	360		130	45	mg/Kg	☼	04/13/18 15:03	04/17/18 23:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	91		50 - 150				04/13/18 15:03	04/17/18 23:40	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.8		0.50	0.10	mg/Kg	☼	04/12/18 13:19	04/13/18 02:04	5
Cadmium	0.35	J	0.40	0.077	mg/Kg	☼	04/12/18 13:19	04/13/18 02:04	5
Copper	44		1.0	0.22	mg/Kg	☼	04/12/18 13:19	04/13/18 02:04	5
Lead	12		0.50	0.048	mg/Kg	☼	04/12/18 13:19	04/13/18 02:04	5
Zinc	110		5.0	1.6	mg/Kg	☼	04/12/18 13:19	04/13/18 02:04	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.058	J	0.068	0.020	mg/Kg	☼	04/23/18 08:30	04/23/18 11:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	28000		2000	44	mg/Kg			04/10/18 12:00	1
Total Solids	38.4		0.1	0.1	%			04/09/18 14:57	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	14.9				%			04/10/18 13:30	1
Coarse Sand	0.0				%			04/10/18 13:30	1
Fine Sand	13.8				%			04/10/18 13:30	1
Gravel	0.0				%			04/10/18 13:30	1
Medium Sand	0.1				%			04/10/18 13:30	1
Silt	71.2				%			04/10/18 13:30	1

Client Sample Results

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B050-BL1

Lab Sample ID: 580-76388-5

Date Collected: 04/04/18 16:27

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 69.8

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		70	17	mg/Kg	☼	04/13/18 15:03	04/18/18 00:24	1
Motor Oil (>C24-C36)	ND		70	25	mg/Kg	☼	04/13/18 15:03	04/18/18 00:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	87		50 - 150				04/13/18 15:03	04/18/18 00:24	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.2		0.26	0.052	mg/Kg	☼	04/12/18 13:19	04/13/18 02:08	5
Cadmium	0.13	J	0.21	0.040	mg/Kg	☼	04/12/18 13:19	04/13/18 02:08	5
Copper	14		0.52	0.12	mg/Kg	☼	04/12/18 13:19	04/13/18 02:08	5
Lead	5.5		0.26	0.025	mg/Kg	☼	04/12/18 13:19	04/13/18 02:08	5
Zinc	65		2.6	0.84	mg/Kg	☼	04/12/18 13:19	04/13/18 02:08	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.018	J	0.034	0.010	mg/Kg	☼	04/25/18 08:30	04/25/18 15:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	1500	J	2000	44	mg/Kg			04/10/18 12:06	1
Total Solids	69.8		0.1	0.1	%			04/09/18 14:57	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	1.0				%			04/10/18 13:30	1
Coarse Sand	2.5				%			04/10/18 13:30	1
Fine Sand	55.9				%			04/10/18 13:30	1
Gravel	0.0				%			04/10/18 13:30	1
Medium Sand	36.8				%			04/10/18 13:30	1
Silt	3.8				%			04/10/18 13:30	1

Client Sample Results

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B055-BL1

Lab Sample ID: 580-76388-6

Date Collected: 04/04/18 17:56

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 66.7

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		72	18	mg/Kg	☼	04/20/18 16:23	04/24/18 13:40	1
Motor Oil (>C24-C36)	39	J	72	25	mg/Kg	☼	04/20/18 16:23	04/24/18 13:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	87		50 - 150				04/20/18 16:23	04/24/18 13:40	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.9		0.26	0.052	mg/Kg	☼	04/12/18 13:19	04/13/18 02:12	5
Cadmium	0.15	J	0.21	0.040	mg/Kg	☼	04/12/18 13:19	04/13/18 02:12	5
Copper	27		0.52	0.11	mg/Kg	☼	04/12/18 13:19	04/13/18 02:12	5
Lead	5.8		0.26	0.025	mg/Kg	☼	04/12/18 13:19	04/13/18 02:12	5
Zinc	64		2.6	0.83	mg/Kg	☼	04/12/18 13:19	04/13/18 02:12	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.031	J	0.038	0.011	mg/Kg	☼	04/25/18 08:30	04/25/18 15:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	6600		2000	44	mg/Kg			04/10/18 12:11	1
Total Solids	66.7		0.1	0.1	%			04/09/18 14:57	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	9.0				%			04/10/18 13:30	1
Coarse Sand	3.2				%			04/10/18 13:30	1
Fine Sand	36.5				%			04/10/18 13:30	1
Gravel	8.7				%			04/10/18 13:30	1
Medium Sand	4.9				%			04/10/18 13:30	1
Silt	37.7				%			04/10/18 13:30	1

Client Sample Results

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B052-BL1

Lab Sample ID: 580-76388-7

Date Collected: 04/05/18 10:41

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 54.2

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		78	19	mg/Kg	☼	04/20/18 16:23	04/24/18 14:02	1
Motor Oil (>C24-C36)	470		78	27	mg/Kg	☼	04/20/18 16:23	04/24/18 14:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	83		50 - 150				04/20/18 16:23	04/24/18 14:02	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.4		0.34	0.068	mg/Kg	☼	04/12/18 13:19	04/13/18 02:16	5
Cadmium	0.21	J	0.27	0.052	mg/Kg	☼	04/12/18 13:19	04/13/18 02:16	5
Copper	23		0.68	0.15	mg/Kg	☼	04/12/18 13:19	04/13/18 02:16	5
Lead	18		0.34	0.033	mg/Kg	☼	04/12/18 13:19	04/13/18 02:16	5
Zinc	110		3.4	1.1	mg/Kg	☼	04/12/18 13:19	04/13/18 02:16	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.085		0.048	0.015	mg/Kg	☼	04/25/18 08:30	04/25/18 15:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	51000		2000	44	mg/Kg			04/10/18 12:16	1
Total Solids	54.2		0.1	0.1	%			04/09/18 14:57	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	4.6				%			04/10/18 13:30	1
Coarse Sand	1.0				%			04/10/18 13:30	1
Fine Sand	65.1				%			04/10/18 13:30	1
Gravel	4.3				%			04/10/18 13:30	1
Medium Sand	6.0				%			04/10/18 13:30	1
Silt	19.0				%			04/10/18 13:30	1

Client Sample Results

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B053-BL1

Lab Sample ID: 580-76388-8

Date Collected: 04/05/18 11:47

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 67.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		63	15	mg/Kg	☼	04/20/18 16:23	04/24/18 14:24	1
Motor Oil (>C24-C36)	71		63	22	mg/Kg	☼	04/20/18 16:23	04/24/18 14:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	87		50 - 150				04/20/18 16:23	04/24/18 14:24	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.5		0.27	0.053	mg/Kg	☼	04/12/18 13:19	04/13/18 02:20	5
Cadmium	0.11	J	0.21	0.041	mg/Kg	☼	04/12/18 13:19	04/13/18 02:20	5
Copper	14		0.53	0.12	mg/Kg	☼	04/12/18 13:19	04/13/18 02:20	5
Lead	10		0.27	0.026	mg/Kg	☼	04/12/18 13:19	04/13/18 02:20	5
Zinc	63		2.7	0.86	mg/Kg	☼	04/12/18 13:19	04/13/18 02:20	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.034	J	0.037	0.011	mg/Kg	☼	04/25/18 08:30	04/25/18 15:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	2800		2000	44	mg/Kg			04/10/18 12:23	1
Total Solids	67.5		0.1	0.1	%			04/09/18 14:57	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	0.8				%			04/10/18 13:31	1
Coarse Sand	3.8				%			04/10/18 13:31	1
Fine Sand	52.1				%			04/10/18 13:31	1
Gravel	3.4				%			04/10/18 13:31	1
Medium Sand	34.9				%			04/10/18 13:31	1
Silt	4.9				%			04/10/18 13:31	1

Client Sample Results

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B057-BL1

Lab Sample ID: 580-76388-9

Date Collected: 04/05/18 12:43

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 59.4

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		82	20	mg/Kg	☼	04/13/18 15:03	04/18/18 00:46	1
Motor Oil (>C24-C36)	81	J	82	29	mg/Kg	☼	04/13/18 15:03	04/18/18 00:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-Terphenyl</i>	91		50 - 150				04/13/18 15:03	04/18/18 00:46	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.5		0.35	0.069	mg/Kg	☼	04/12/18 13:19	04/13/18 02:24	5
Cadmium	0.12	J	0.28	0.053	mg/Kg	☼	04/12/18 13:19	04/13/18 02:24	5
Copper	21		0.69	0.15	mg/Kg	☼	04/12/18 13:19	04/13/18 02:24	5
Lead	12		0.35	0.033	mg/Kg	☼	04/12/18 13:19	04/13/18 02:24	5
Zinc	91		3.5	1.1	mg/Kg	☼	04/12/18 13:19	04/13/18 02:24	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.034	J	0.039	0.012	mg/Kg	☼	04/25/18 08:30	04/25/18 15:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	5300		2000	44	mg/Kg			04/10/18 12:28	1
Total Solids	59.4		0.1	0.1	%			04/09/18 14:57	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	6.8				%			04/10/18 13:31	1
Coarse Sand	0.0				%			04/10/18 13:31	1
Fine Sand	82.7				%			04/10/18 13:31	1
Gravel	0.0				%			04/10/18 13:31	1
Medium Sand	0.6				%			04/10/18 13:31	1
Silt	9.9				%			04/10/18 13:31	1

Client Sample Results

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B056-BL1

Lab Sample ID: 580-76388-10

Date Collected: 04/05/18 16:23

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 42.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	48	J	110	28	mg/Kg	☼	04/13/18 15:03	04/18/18 01:07	1
Motor Oil (>C24-C36)	460		110	40	mg/Kg	☼	04/13/18 15:03	04/18/18 01:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	90		50 - 150				04/13/18 15:03	04/18/18 01:07	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.2		0.42	0.085	mg/Kg	☼	04/12/18 13:19	04/13/18 02:28	5
Cadmium	0.30	J	0.34	0.065	mg/Kg	☼	04/12/18 13:19	04/13/18 02:28	5
Copper	37		0.85	0.19	mg/Kg	☼	04/12/18 13:19	04/13/18 02:28	5
Lead	10		0.42	0.041	mg/Kg	☼	04/12/18 13:19	04/13/18 02:28	5
Zinc	97		4.2	1.4	mg/Kg	☼	04/12/18 13:19	04/13/18 02:28	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.038	J	0.058	0.017	mg/Kg	☼	04/25/18 08:30	04/25/18 15:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	27000		2000	44	mg/Kg			04/16/18 15:45	1
Total Solids	42.5		0.1	0.1	%			04/09/18 14:57	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	12.9				%			04/10/18 13:31	1
Coarse Sand	0.0				%			04/10/18 13:31	1
Fine Sand	28.5				%			04/10/18 13:31	1
Gravel	0.0				%			04/10/18 13:31	1
Medium Sand	0.2				%			04/10/18 13:31	1
Silt	58.3				%			04/10/18 13:31	1

Client Sample Results

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B058-BL1

Lab Sample ID: 580-76388-11

Date Collected: 04/05/18 15:20

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 52.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	33	J	92	23	mg/Kg	☼	04/13/18 15:03	04/18/18 01:29	1
Motor Oil (>C24-C36)	260		92	32	mg/Kg	☼	04/13/18 15:03	04/18/18 01:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	93		50 - 150				04/13/18 15:03	04/18/18 01:29	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.3		0.37	0.073	mg/Kg	☼	04/12/18 13:19	04/13/18 02:47	5
Cadmium	0.23	J	0.29	0.056	mg/Kg	☼	04/12/18 13:19	04/13/18 02:47	5
Copper	27		0.73	0.16	mg/Kg	☼	04/12/18 13:19	04/13/18 02:47	5
Lead	14		0.37	0.035	mg/Kg	☼	04/12/18 13:19	04/13/18 02:47	5
Zinc	81		3.7	1.2	mg/Kg	☼	04/12/18 13:19	04/13/18 02:47	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.043	J	0.049	0.015	mg/Kg	☼	04/25/18 08:30	04/25/18 15:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	16000		2000	44	mg/Kg			04/16/18 15:51	1
Total Solids	52.2		0.1	0.1	%			04/09/18 14:57	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	11.8				%			04/10/18 13:31	1
Coarse Sand	0.1				%			04/10/18 13:31	1
Fine Sand	40.6				%			04/10/18 13:31	1
Gravel	0.0				%			04/10/18 13:31	1
Medium Sand	1.1				%			04/10/18 13:31	1
Silt	46.5				%			04/10/18 13:31	1

Client Sample Results

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B060-BL1

Lab Sample ID: 580-76388-12

Date Collected: 04/05/18 14:02

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 64.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	38	J	75	18	mg/Kg	☼	04/13/18 15:03	04/18/18 02:13	1
Motor Oil (>C24-C36)	240		75	26	mg/Kg	☼	04/13/18 15:03	04/18/18 02:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	100		50 - 150				04/13/18 15:03	04/18/18 02:13	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.7		0.30	0.060	mg/Kg	☼	04/12/18 13:19	04/13/18 02:51	5
Cadmium	0.25		0.24	0.046	mg/Kg	☼	04/12/18 13:19	04/13/18 02:51	5
Copper	24		0.60	0.13	mg/Kg	☼	04/12/18 13:19	04/13/18 02:51	5
Lead	8.2		0.30	0.029	mg/Kg	☼	04/12/18 13:19	04/13/18 02:51	5
Zinc	91		3.0	0.96	mg/Kg	☼	04/12/18 13:19	04/13/18 02:51	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.050		0.038	0.011	mg/Kg	☼	04/25/18 08:30	04/25/18 15:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	9200		2000	44	mg/Kg			04/16/18 15:57	1
Total Solids	64.2		0.1	0.1	%			04/09/18 14:57	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	7.1				%			04/10/18 13:31	1
Coarse Sand	1.6				%			04/10/18 13:31	1
Fine Sand	59.7				%			04/10/18 13:31	1
Gravel	2.1				%			04/10/18 13:31	1
Medium Sand	8.0				%			04/10/18 13:31	1
Silt	21.4				%			04/10/18 13:31	1

Client Sample Results

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B060-BL1-D

Lab Sample ID: 580-76388-13

Date Collected: 04/05/18 14:02

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 62.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	31	J	80	20	mg/Kg	☼	04/13/18 15:03	04/18/18 02:35	1
Motor Oil (>C24-C36)	190		80	28	mg/Kg	☼	04/13/18 15:03	04/18/18 02:35	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>o-Terphenyl</i>	<i>94</i>		<i>50 - 150</i>				<i>04/13/18 15:03</i>	<i>04/18/18 02:35</i>	<i>1</i>

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.5		0.26	0.052	mg/Kg	☼	04/12/18 13:19	04/13/18 02:55	5
Cadmium	0.29		0.21	0.040	mg/Kg	☼	04/12/18 13:19	04/13/18 02:55	5
Copper	22		0.52	0.11	mg/Kg	☼	04/12/18 13:19	04/13/18 02:55	5
Lead	7.5		0.26	0.025	mg/Kg	☼	04/12/18 13:19	04/13/18 02:55	5
Zinc	88		2.6	0.83	mg/Kg	☼	04/12/18 13:19	04/13/18 02:55	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.041		0.036	0.011	mg/Kg	☼	04/25/18 08:30	04/25/18 15:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	9900		2000	44	mg/Kg			04/16/18 16:02	1
Total Solids	62.7		0.1	0.1	%			04/09/18 14:57	1

Client Sample Results

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B061-BL1

Lab Sample ID: 580-76388-14

Date Collected: 04/05/18 17:17

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 49.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	47	J	99	24	mg/Kg	☼	04/13/18 15:03	04/18/18 02:56	1
Motor Oil (>C24-C36)	310		99	35	mg/Kg	☼	04/13/18 15:03	04/18/18 02:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	93		50 - 150				04/13/18 15:03	04/18/18 02:56	1

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.1		0.38	0.076	mg/Kg	☼	04/12/18 13:19	04/13/18 02:59	5
Cadmium	0.32		0.30	0.059	mg/Kg	☼	04/12/18 13:19	04/13/18 02:59	5
Copper	37		0.76	0.17	mg/Kg	☼	04/12/18 13:19	04/13/18 02:59	5
Lead	11		0.38	0.037	mg/Kg	☼	04/12/18 13:19	04/13/18 02:59	5
Zinc	100		3.8	1.2	mg/Kg	☼	04/12/18 13:19	04/13/18 02:59	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.040	J	0.047	0.014	mg/Kg	☼	04/25/18 08:30	04/25/18 15:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	20000		2000	44	mg/Kg			04/16/18 16:07	1
Total Solids	49.3		0.1	0.1	%			04/09/18 14:57	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	11.6				%			04/10/18 13:31	1
Coarse Sand	0.2				%			04/10/18 13:31	1
Fine Sand	35.6				%			04/10/18 13:31	1
Gravel	0.0				%			04/10/18 13:31	1
Medium Sand	3.1				%			04/10/18 13:31	1
Silt	49.5				%			04/10/18 13:31	1

QC Sample Results

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

TestAmerica Job ID: 580-76388-1

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

Lab Sample ID: MB 580-271366/1-A
Matrix: Solid
Analysis Batch: 271542

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 271366

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg		04/13/18 15:03	04/17/18 21:06	1
Motor Oil (>C24-C36)	ND		50	18	mg/Kg		04/13/18 15:03	04/17/18 21:06	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	90		50 - 150				04/13/18 15:03	04/17/18 21:06	1

Lab Sample ID: LCS 580-271366/2-A
Matrix: Solid
Analysis Batch: 271542

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 271366

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
#2 Diesel (C10-C24)	500	468		mg/Kg		94	70 - 125		
Motor Oil (>C24-C36)	500	501		mg/Kg		100	70 - 119		
Surrogate	%Recovery	LCS Qualifier	Limits						
<i>o</i> -Terphenyl	97		50 - 150						

Lab Sample ID: LCSD 580-271366/3-A
Matrix: Solid
Analysis Batch: 271542

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 271366

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	500	479		mg/Kg		96	70 - 125	2	16
Motor Oil (>C24-C36)	500	505		mg/Kg		101	70 - 119	1	16
Surrogate	%Recovery	LCSD Qualifier	Limits						
<i>o</i> -Terphenyl	89		50 - 150						

Lab Sample ID: 580-76388-3 MS
Matrix: Solid
Analysis Batch: 271542

Client Sample ID: PDI-SG-B047-BL1
Prep Type: Total/NA
Prep Batch: 271366

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits		
#2 Diesel (C10-C24)	57	J	1200	1160		mg/Kg	☼	91	70 - 125		
Motor Oil (>C24-C36)	460	F1	1200	1510		mg/Kg	☼	87	70 - 119		
Surrogate	%Recovery	MS Qualifier	Limits								
<i>o</i> -Terphenyl	86		50 - 150								

Lab Sample ID: 580-76388-3 MSD
Matrix: Solid
Analysis Batch: 271542

Client Sample ID: PDI-SG-B047-BL1
Prep Type: Total/NA
Prep Batch: 271366

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	57	J	1250	982		mg/Kg	☼	74	70 - 125	16	16
Motor Oil (>C24-C36)	460	F1	1250	1300	F1	mg/Kg	☼	67	70 - 119	15	16

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-76388-1

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

Lab Sample ID: 580-76388-3 MSD
Matrix: Solid
Analysis Batch: 271542

Client Sample ID: PDI-SG-B047-BL1
Prep Type: Total/NA
Prep Batch: 271366

Surrogate	MSD %Recovery	MSD Qualifier	Limits
<i>o</i> -Terphenyl	78		50 - 150

Lab Sample ID: 580-76388-11 DU
Matrix: Solid
Analysis Batch: 271542

Client Sample ID: PDI-SG-B058-BL1
Prep Type: Total/NA
Prep Batch: 271366

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
#2 Diesel (C10-C24)	33	J	32.2	J	mg/Kg	☼	4	35
Motor Oil (>C24-C36)	260		284		mg/Kg	☼	7	35

Surrogate	DU %Recovery	DU Qualifier	Limits
<i>o</i> -Terphenyl	92		50 - 150

Lab Sample ID: MB 580-271933/1-A
Matrix: Solid
Analysis Batch: 272110

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 271933

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg		04/20/18 16:23	04/24/18 12:09	1
Motor Oil (>C24-C36)	ND		50	18	mg/Kg		04/20/18 16:23	04/24/18 12:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	92		50 - 150	04/20/18 16:23	04/24/18 12:09	1

Lab Sample ID: LCS 580-271933/2-A
Matrix: Solid
Analysis Batch: 272110

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 271933

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	414		mg/Kg		83	70 - 125
Motor Oil (>C24-C36)	500	417		mg/Kg		83	70 - 119

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	82		50 - 150

Lab Sample ID: LCSD 580-271933/3-A
Matrix: Solid
Analysis Batch: 272110

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 271933

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	426		mg/Kg		85	70 - 125	3	16
Motor Oil (>C24-C36)	500	421		mg/Kg		84	70 - 119	1	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	77		50 - 150

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-76388-1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-271222/18-A
Matrix: Solid
Analysis Batch: 271330

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 271222

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.25	0.050	mg/Kg		04/12/18 13:19	04/13/18 01:09	5
Cadmium	ND		0.20	0.039	mg/Kg		04/12/18 13:19	04/13/18 01:09	5
Copper	ND		0.50	0.11	mg/Kg		04/12/18 13:19	04/13/18 01:09	5
Lead	ND		0.25	0.024	mg/Kg		04/12/18 13:19	04/13/18 01:09	5
Zinc	ND		2.5	0.81	mg/Kg		04/12/18 13:19	04/13/18 01:09	5

Lab Sample ID: LCS 580-271222/19-A
Matrix: Solid
Analysis Batch: 271330

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 271222

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	200	200		mg/Kg		100	80 - 120
Cadmium	5.00	4.78		mg/Kg		96	80 - 120
Copper	25.0	25.5		mg/Kg		102	80 - 120
Lead	50.0	48.3		mg/Kg		97	80 - 120
Zinc	200	192		mg/Kg		96	80 - 120

Lab Sample ID: LCSD 580-271222/20-A
Matrix: Solid
Analysis Batch: 271330

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 271222

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	200	197		mg/Kg		98	80 - 120	2	20
Cadmium	5.00	4.88		mg/Kg		98	80 - 120	2	20
Copper	25.0	25.2		mg/Kg		101	80 - 120	1	20
Lead	50.0	48.7		mg/Kg		97	80 - 120	1	20
Zinc	200	190		mg/Kg		95	80 - 120	1	20

Lab Sample ID: 580-76388-3 MS
Matrix: Solid
Analysis Batch: 271330

Client Sample ID: PDI-SG-B047-BL1
Prep Type: Total/NA
Prep Batch: 271222

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Arsenic	5.4		390	403		mg/Kg	☼	102	80 - 120
Cadmium	0.31		9.75	10.0		mg/Kg	☼	100	80 - 120
Copper	39	F1	48.7	96.3		mg/Kg	☼	117	80 - 120
Lead	11		97.5	110		mg/Kg	☼	102	80 - 120
Zinc	100		390	495		mg/Kg	☼	101	80 - 120

Lab Sample ID: 580-76388-3 MSD
Matrix: Solid
Analysis Batch: 271330

Client Sample ID: PDI-SG-B047-BL1
Prep Type: Total/NA
Prep Batch: 271222

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	5.4		381	413		mg/Kg	☼	107	80 - 120	2	20
Cadmium	0.31		9.52	10.5		mg/Kg	☼	107	80 - 120	5	20
Copper	39	F1	47.6	101	F1	mg/Kg	☼	129	80 - 120	4	20
Lead	11		95.2	113		mg/Kg	☼	107	80 - 120	2	20
Zinc	100		381	515		mg/Kg	☼	108	80 - 120	4	20

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-76388-1

Lab Sample ID: 580-76388-3 DU
Matrix: Solid
Analysis Batch: 271330

Client Sample ID: PDI-SG-B047-BL1
Prep Type: Total/NA
Prep Batch: 271222

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
Arsenic	5.4		5.73		mg/Kg	✖		6	20
Cadmium	0.31		0.298	J	mg/Kg	✖		2	20
Copper	39	F1	41.3		mg/Kg	✖		5	20
Lead	11		11.7		mg/Kg	✖		5	20
Zinc	100		110		mg/Kg	✖		7	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 580-271939/22-A
Matrix: Solid
Analysis Batch: 272041

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 271939

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.018	0.0054	mg/Kg		04/23/18 08:30	04/23/18 10:55	1

Lab Sample ID: LCS 580-271939/23-A
Matrix: Solid
Analysis Batch: 272041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 271939

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Lab Sample ID: LCSD 580-271939/24-A
Matrix: Solid
Analysis Batch: 272041

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 271939

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit

Lab Sample ID: MB 580-272122/21-A
Matrix: Solid
Analysis Batch: 272293

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 272122

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.030	0.0090	mg/Kg		04/25/18 08:30	04/25/18 14:53	1

Lab Sample ID: LCS 580-272122/22-A
Matrix: Solid
Analysis Batch: 272293

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 272122

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Lab Sample ID: LCSD 580-272122/23-A
Matrix: Solid
Analysis Batch: 272293

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 272122

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-76388-1

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

Lab Sample ID: 580-76388-3 MS
Matrix: Solid
Analysis Batch: 272293

Client Sample ID: PDI-SG-B047-BL1
Prep Type: Total/NA
Prep Batch: 272122
%Rec. Limits

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	0.051	J	0.396	0.468		mg/Kg	☼	105	80 - 120

Lab Sample ID: 580-76388-3 MSD
Matrix: Solid
Analysis Batch: 272293

Client Sample ID: PDI-SG-B047-BL1
Prep Type: Total/NA
Prep Batch: 272122
%Rec. RPD Limit

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	0.051	J	0.324	0.398		mg/Kg	☼	107	80 - 120	16	20

Lab Sample ID: 580-76388-3 DU
Matrix: Solid
Analysis Batch: 272293

Client Sample ID: PDI-SG-B047-BL1
Prep Type: Total/NA
Prep Batch: 272122
%Rec. RPD Limit

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Mercury	0.051	J	0.0652	F5	mg/Kg	☼	24	20

Method: 9060_PSEP - TOC (Puget Sound)

Lab Sample ID: MB 580-271020/3
Matrix: Solid
Analysis Batch: 271020

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			04/10/18 09:33	1

Lab Sample ID: LCS 580-271020/4
Matrix: Solid
Analysis Batch: 271020

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
%Rec. Limits

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Total Organic Carbon - Duplicates	4620	5060		mg/Kg		110	68 - 149

Lab Sample ID: LCSD 580-271020/5
Matrix: Solid
Analysis Batch: 271020

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
%Rec. RPD Limit

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Total Organic Carbon - Duplicates	4620	5520		mg/Kg		119	68 - 149	9	32

Lab Sample ID: MB 580-271691/3
Matrix: Solid
Analysis Batch: 271691

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			04/16/18 14:47	1

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-76388-1

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

Lab Sample ID: LCS 580-271691/4
Matrix: Solid
Analysis Batch: 271691

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	5240		mg/Kg		113	68 - 149

Lab Sample ID: LCSD 580-271691/5
Matrix: Solid
Analysis Batch: 271691

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	5350		mg/Kg		116	68 - 149	2	32

Lab Sample ID: 580-76388-3 MS
Matrix: Solid
Analysis Batch: 271691

Client Sample ID: PDI-SG-B047-BL1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	30000		120000	140000		mg/Kg		92	68 - 149

Lab Sample ID: 580-76388-3 MSD
Matrix: Solid
Analysis Batch: 271691

Client Sample ID: PDI-SG-B047-BL1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	30000		120000	145000		mg/Kg		96	68 - 149	3	32

Lab Sample ID: 580-76388-3 DU
Matrix: Solid
Analysis Batch: 271691

Client Sample ID: PDI-SG-B047-BL1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	30000			31200		mg/Kg				4	50

Lab Sample ID: 580-76388-3 TRL
Matrix: Solid
Analysis Batch: 271691

Client Sample ID: PDI-SG-B047-BL1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	TRL Result	TRL Qualifier	Unit	D	%Rec	%Rec. Limits	RSD	RSD Limit
Total Organic Carbon - Duplicates	30000			30200		mg/Kg				2	20

Method: D7928/D6913 - ASTM D7928/D6913

Lab Sample ID: 580-76388-14 DU
Matrix: Solid
Analysis Batch: 271023

Client Sample ID: PDI-SG-B061-BL1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Clay	11.6			11.0		%				5	20

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-76388-1

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

Lab Sample ID: 580-76388-14 DU

Matrix: Solid

Analysis Batch: 271023

Client Sample ID: PDI-SG-B061-BL1

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier	Result	Qualifier				Limit
Coarse Sand	0.2		0.2		%		0	20
Fine Sand	35.6		35.6		%		0	20
Gravel	0.0		0.2	F3	%		200	20
Medium Sand	3.1		3.1		%		0	20
Silt	49.5		49.9		%		0.8	20

Lab Chronicle

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B049-BL1

Date Collected: 04/04/18 10:23

Date Received: 04/06/18 14:00

Lab Sample ID: 580-76388-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	271020	04/10/18 11:48	MP	TAL SEA
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA
Total/NA	Analysis	D7928/D6913		1	271023	04/10/18 13:30	HJM	TAL SEA

Client Sample ID: PDI-SG-B049-BL1

Date Collected: 04/04/18 10:23

Date Received: 04/06/18 14:00

Lab Sample ID: 580-76388-1

Matrix: Solid

Percent Solids: 47.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271366	04/13/18 15:03	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271542	04/17/18 22:12	ADB	TAL SEA
Total/NA	Prep	3050B			271222	04/12/18 13:19	ASJ	TAL SEA
Total/NA	Analysis	6020B		5	271330	04/13/18 01:56	FCW	TAL SEA
Total/NA	Prep	7471A			271939	04/23/18 08:30	PAB	TAL SEA
Total/NA	Analysis	7471A		1	272041	04/23/18 11:44	FCW	TAL SEA

Client Sample ID: PDI-SG-B048-BL1

Date Collected: 04/04/18 12:32

Date Received: 04/06/18 14:00

Lab Sample ID: 580-76388-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	271020	04/10/18 11:55	MP	TAL SEA
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA
Total/NA	Analysis	D7928/D6913		1	271023	04/10/18 13:30	HJM	TAL SEA

Client Sample ID: PDI-SG-B048-BL1

Date Collected: 04/04/18 12:32

Date Received: 04/06/18 14:00

Lab Sample ID: 580-76388-2

Matrix: Solid

Percent Solids: 70.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271933	04/20/18 16:23	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	272110	04/24/18 13:17	W1T	TAL SEA
Total/NA	Prep	3050B			271222	04/12/18 13:19	ASJ	TAL SEA
Total/NA	Analysis	6020B		5	271330	04/13/18 02:00	FCW	TAL SEA
Total/NA	Prep	7471A			272122	04/25/18 08:30	PAB	TAL SEA
Total/NA	Analysis	7471A		1	272293	04/25/18 15:23	PAB	TAL SEA

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B047-BL1

Lab Sample ID: 580-76388-3

Date Collected: 04/04/18 14:07

Matrix: Solid

Date Received: 04/06/18 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	271691	04/16/18 15:08	MP	TAL SEA
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA
Total/NA	Analysis	D7928/D6913		1	271023	04/10/18 13:30	HJM	TAL SEA

Client Sample ID: PDI-SG-B047-BL1

Lab Sample ID: 580-76388-3

Date Collected: 04/04/18 14:07

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 39.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271366	04/13/18 15:03	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271542	04/17/18 22:34	ADB	TAL SEA
Total/NA	Prep	3050B			271222	04/12/18 13:19	ASJ	TAL SEA
Total/NA	Analysis	6020B		5	271330	04/13/18 01:21	FCW	TAL SEA
Total/NA	Prep	7471A			271939	04/23/18 08:30	PAB	TAL SEA
Total/NA	Analysis	7471A		1	272041	04/23/18 11:51	FCW	TAL SEA

Client Sample ID: PDI-SG-B051-BL1

Lab Sample ID: 580-76388-4

Date Collected: 04/04/18 15:08

Matrix: Solid

Date Received: 04/06/18 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	271020	04/10/18 12:00	MP	TAL SEA
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA
Total/NA	Analysis	D7928/D6913		1	271023	04/10/18 13:30	HJM	TAL SEA

Client Sample ID: PDI-SG-B051-BL1

Lab Sample ID: 580-76388-4

Date Collected: 04/04/18 15:08

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 38.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271366	04/13/18 15:03	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271542	04/17/18 23:40	ADB	TAL SEA
Total/NA	Prep	3050B			271222	04/12/18 13:19	ASJ	TAL SEA
Total/NA	Analysis	6020B		5	271330	04/13/18 02:04	FCW	TAL SEA
Total/NA	Prep	7471A			271939	04/23/18 08:30	PAB	TAL SEA
Total/NA	Analysis	7471A		1	272041	04/23/18 11:53	FCW	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B050-BL1

Lab Sample ID: 580-76388-5

Date Collected: 04/04/18 16:27

Matrix: Solid

Date Received: 04/06/18 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	271020	04/10/18 12:06	MP	TAL SEA
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA
Total/NA	Analysis	D7928/D6913		1	271023	04/10/18 13:30	HJM	TAL SEA

Client Sample ID: PDI-SG-B050-BL1

Lab Sample ID: 580-76388-5

Date Collected: 04/04/18 16:27

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 69.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271366	04/13/18 15:03	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271542	04/18/18 00:24	ADB	TAL SEA
Total/NA	Prep	3050B			271222	04/12/18 13:19	ASJ	TAL SEA
Total/NA	Analysis	6020B		5	271330	04/13/18 02:08	FCW	TAL SEA
Total/NA	Prep	7471A			272122	04/25/18 08:30	PAB	TAL SEA
Total/NA	Analysis	7471A		1	272293	04/25/18 15:25	PAB	TAL SEA

Client Sample ID: PDI-SG-B055-BL1

Lab Sample ID: 580-76388-6

Date Collected: 04/04/18 17:56

Matrix: Solid

Date Received: 04/06/18 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	271020	04/10/18 12:11	MP	TAL SEA
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA
Total/NA	Analysis	D7928/D6913		1	271023	04/10/18 13:30	HJM	TAL SEA

Client Sample ID: PDI-SG-B055-BL1

Lab Sample ID: 580-76388-6

Date Collected: 04/04/18 17:56

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 66.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271933	04/20/18 16:23	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	272110	04/24/18 13:40	W1T	TAL SEA
Total/NA	Prep	3050B			271222	04/12/18 13:19	ASJ	TAL SEA
Total/NA	Analysis	6020B		5	271330	04/13/18 02:12	FCW	TAL SEA
Total/NA	Prep	7471A			272122	04/25/18 08:30	PAB	TAL SEA
Total/NA	Analysis	7471A		1	272293	04/25/18 15:27	PAB	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B052-BL1

Lab Sample ID: 580-76388-7

Date Collected: 04/05/18 10:41

Matrix: Solid

Date Received: 04/06/18 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	271020	04/10/18 12:16	MP	TAL SEA
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA
Total/NA	Analysis	D7928/D6913		1	271023	04/10/18 13:30	HJM	TAL SEA

Client Sample ID: PDI-SG-B052-BL1

Lab Sample ID: 580-76388-7

Date Collected: 04/05/18 10:41

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 54.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271933	04/20/18 16:23	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	272110	04/24/18 14:02	W1T	TAL SEA
Total/NA	Prep	3050B			271222	04/12/18 13:19	ASJ	TAL SEA
Total/NA	Analysis	6020B		5	271330	04/13/18 02:16	FCW	TAL SEA
Total/NA	Prep	7471A			272122	04/25/18 08:30	PAB	TAL SEA
Total/NA	Analysis	7471A		1	272293	04/25/18 15:29	PAB	TAL SEA

Client Sample ID: PDI-SG-B053-BL1

Lab Sample ID: 580-76388-8

Date Collected: 04/05/18 11:47

Matrix: Solid

Date Received: 04/06/18 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	271020	04/10/18 12:23	MP	TAL SEA
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA
Total/NA	Analysis	D7928/D6913		1	271023	04/10/18 13:31	HJM	TAL SEA

Client Sample ID: PDI-SG-B053-BL1

Lab Sample ID: 580-76388-8

Date Collected: 04/05/18 11:47

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 67.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271933	04/20/18 16:23	APR	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	272110	04/24/18 14:24	W1T	TAL SEA
Total/NA	Prep	3050B			271222	04/12/18 13:19	ASJ	TAL SEA
Total/NA	Analysis	6020B		5	271330	04/13/18 02:20	FCW	TAL SEA
Total/NA	Prep	7471A			272122	04/25/18 08:30	PAB	TAL SEA
Total/NA	Analysis	7471A		1	272293	04/25/18 15:32	PAB	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B057-BL1

Lab Sample ID: 580-76388-9

Date Collected: 04/05/18 12:43

Matrix: Solid

Date Received: 04/06/18 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	271020	04/10/18 12:28	MP	TAL SEA
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA
Total/NA	Analysis	D7928/D6913		1	271023	04/10/18 13:31	HJM	TAL SEA

Client Sample ID: PDI-SG-B057-BL1

Lab Sample ID: 580-76388-9

Date Collected: 04/05/18 12:43

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 59.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271366	04/13/18 15:03	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271542	04/18/18 00:46	ADB	TAL SEA
Total/NA	Prep	3050B			271222	04/12/18 13:19	ASJ	TAL SEA
Total/NA	Analysis	6020B		5	271330	04/13/18 02:24	FCW	TAL SEA
Total/NA	Prep	7471A			272122	04/25/18 08:30	PAB	TAL SEA
Total/NA	Analysis	7471A		1	272293	04/25/18 15:34	PAB	TAL SEA

Client Sample ID: PDI-SG-B056-BL1

Lab Sample ID: 580-76388-10

Date Collected: 04/05/18 16:23

Matrix: Solid

Date Received: 04/06/18 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	271691	04/16/18 15:45	MP	TAL SEA
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA
Total/NA	Analysis	D7928/D6913		1	271023	04/10/18 13:31	HJM	TAL SEA

Client Sample ID: PDI-SG-B056-BL1

Lab Sample ID: 580-76388-10

Date Collected: 04/05/18 16:23

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 42.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271366	04/13/18 15:03	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271542	04/18/18 01:07	ADB	TAL SEA
Total/NA	Prep	3050B			271222	04/12/18 13:19	ASJ	TAL SEA
Total/NA	Analysis	6020B		5	271330	04/13/18 02:28	FCW	TAL SEA
Total/NA	Prep	7471A			272122	04/25/18 08:30	PAB	TAL SEA
Total/NA	Analysis	7471A		1	272293	04/25/18 15:41	PAB	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B058-BL1

Lab Sample ID: 580-76388-11

Date Collected: 04/05/18 15:20

Matrix: Solid

Date Received: 04/06/18 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	271691	04/16/18 15:51	MP	TAL SEA
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA
Total/NA	Analysis	D7928/D6913		1	271023	04/10/18 13:31	HJM	TAL SEA

Client Sample ID: PDI-SG-B058-BL1

Lab Sample ID: 580-76388-11

Date Collected: 04/05/18 15:20

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 52.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271366	04/13/18 15:03	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271542	04/18/18 01:29	ADB	TAL SEA
Total/NA	Prep	3050B			271222	04/12/18 13:19	ASJ	TAL SEA
Total/NA	Analysis	6020B		5	271330	04/13/18 02:47	FCW	TAL SEA
Total/NA	Prep	7471A			272122	04/25/18 08:30	PAB	TAL SEA
Total/NA	Analysis	7471A		1	272293	04/25/18 15:43	PAB	TAL SEA

Client Sample ID: PDI-SG-B060-BL1

Lab Sample ID: 580-76388-12

Date Collected: 04/05/18 14:02

Matrix: Solid

Date Received: 04/06/18 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	271691	04/16/18 15:57	MP	TAL SEA
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA
Total/NA	Analysis	D7928/D6913		1	271023	04/10/18 13:31	HJM	TAL SEA

Client Sample ID: PDI-SG-B060-BL1

Lab Sample ID: 580-76388-12

Date Collected: 04/05/18 14:02

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 64.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271366	04/13/18 15:03	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271542	04/18/18 02:13	ADB	TAL SEA
Total/NA	Prep	3050B			271222	04/12/18 13:19	ASJ	TAL SEA
Total/NA	Analysis	6020B		5	271330	04/13/18 02:51	FCW	TAL SEA
Total/NA	Prep	7471A			272122	04/25/18 08:30	PAB	TAL SEA
Total/NA	Analysis	7471A		1	272293	04/25/18 15:46	PAB	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-76388-1

Client Sample ID: PDI-SG-B060-BL1-D

Lab Sample ID: 580-76388-13

Date Collected: 04/05/18 14:02

Matrix: Solid

Date Received: 04/06/18 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	271691	04/16/18 16:02	MP	TAL SEA
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA

Client Sample ID: PDI-SG-B060-BL1-D

Lab Sample ID: 580-76388-13

Date Collected: 04/05/18 14:02

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 62.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271366	04/13/18 15:03	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271542	04/18/18 02:35	ADB	TAL SEA
Total/NA	Prep	3050B			271222	04/12/18 13:19	ASJ	TAL SEA
Total/NA	Analysis	6020B		5	271330	04/13/18 02:55	FCW	TAL SEA
Total/NA	Prep	7471A			272122	04/25/18 08:30	PAB	TAL SEA
Total/NA	Analysis	7471A		1	272293	04/25/18 15:48	PAB	TAL SEA

Client Sample ID: PDI-SG-B061-BL1

Lab Sample ID: 580-76388-14

Date Collected: 04/05/18 17:17

Matrix: Solid

Date Received: 04/06/18 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	271691	04/16/18 16:07	MP	TAL SEA
Total/NA	Analysis	D 2216		1	270944	04/09/18 14:57	KMS	TAL SEA
Total/NA	Analysis	D7928/D6913		1	271023	04/10/18 13:31	HJM	TAL SEA

Client Sample ID: PDI-SG-B061-BL1

Lab Sample ID: 580-76388-14

Date Collected: 04/05/18 17:17

Matrix: Solid

Date Received: 04/06/18 14:00

Percent Solids: 49.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			271366	04/13/18 15:03	KMS	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	271542	04/18/18 02:56	ADB	TAL SEA
Total/NA	Prep	3050B			271222	04/12/18 13:19	ASJ	TAL SEA
Total/NA	Analysis	6020B		5	271330	04/13/18 02:59	FCW	TAL SEA
Total/NA	Prep	7471A			272122	04/25/18 08:30	PAB	TAL SEA
Total/NA	Analysis	7471A		1	272293	04/25/18 15:50	PAB	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: AECOM

TestAmerica Job ID: 580-76388-1

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	10-31-18
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-19

Sample Summary

Client: AECOM

TestAmerica Job ID: 580-76388-1

Project/Site: Portland Harbor Pre-Remedial Design

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-76388-1	PDI-SG-B049-BL1	Solid	04/04/18 10:23	04/06/18 14:00
580-76388-2	PDI-SG-B048-BL1	Solid	04/04/18 12:32	04/06/18 14:00
580-76388-3	PDI-SG-B047-BL1	Solid	04/04/18 14:07	04/06/18 14:00
580-76388-4	PDI-SG-B051-BL1	Solid	04/04/18 15:08	04/06/18 14:00
580-76388-5	PDI-SG-B050-BL1	Solid	04/04/18 16:27	04/06/18 14:00
580-76388-6	PDI-SG-B055-BL1	Solid	04/04/18 17:56	04/06/18 14:00
580-76388-7	PDI-SG-B052-BL1	Solid	04/05/18 10:41	04/06/18 14:00
580-76388-8	PDI-SG-B053-BL1	Solid	04/05/18 11:47	04/06/18 14:00
580-76388-9	PDI-SG-B057-BL1	Solid	04/05/18 12:43	04/06/18 14:00
580-76388-10	PDI-SG-B056-BL1	Solid	04/05/18 16:23	04/06/18 14:00
580-76388-11	PDI-SG-B058-BL1	Solid	04/05/18 15:20	04/06/18 14:00
580-76388-12	PDI-SG-B060-BL1	Solid	04/05/18 14:02	04/06/18 14:00
580-76388-13	PDI-SG-B060-BL1-D	Solid	04/05/18 14:02	04/06/18 14:00
580-76388-14	PDI-SG-B061-BL1	Solid	04/05/18 17:17	04/06/18 14:00

**SURFACE SEDIMENT
CHAIN OF CUSTODY**

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

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

Project Contact: Any Dahl / Chebsey Cook
Tel: (206) 438-2261 / (206) 438-2010

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

Site Contact: Jennifer Ray / Michaela McCoog
Laboratory Contact: Elaine-Walker

Carrier: _____
Date: 4/16/18
COC No: 1 of 2 COCs

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction			Sample Specific Notes:
							PCB Congeners 168A	PCDD/Fs 1613B	TPH Diesel, Metals, Mercury SWTPH-Dx, 6020B, 7471A	
PDI-SG-B049-BL1	4/4/2018	10:23	SS		DH	6	X	X	X	
PDI-SG-B048-BL1	4/4/2018	12:32	SS		DH	6	X	X	X	
PDI-SG-B047-BL1	4/4/2018	14:07	SS	MS/MSD	DH	9	X	X	X	
PDI-SG-B051-BL1	4/4/2018	15:08	SS		DH	6	X	X	X	
PDI-SG-B050-BL1	4/4/2018	16:27	SS		DH	6	X	X	X	
PDI-SG-B055-BL1	4/4/2018	17:56	SS		DH	6	X	X	X	
PDI-SG-B052-BL1	4/5/2018	10:41	SS		DH	6	X	X	X	
PDI-SG-B053-BL1	4/5/2018	11:47	SS		DH	6	X	X	X	
PDI-SG-B057-BL1	4/5/2018	12:43	SS		DH	6	X	X	X	
PDI-SG-B056-BL1	4/5/2018	16:23	SS		DH	6	X	X	X	
PDI-SG-B058-BL1	4/5/2018	15:20	SS		DH	6	X	X	X	
PDI-SG-B060-BL1	4/5/2018	14:02	SS		DH	6	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 Disposal By Lab Archive For 12 Months

4.7 1.8
2.7

Relinquished by: *[Signature]* Company: AECOM Date/Time: 4/16/18 1150
Relinquished by: *[Signature]* Company: M.E. Date/Time: 4/16/18 1400
Relinquished by: *[Signature]* Company: M.E. Date/Time: 4/16/18 1150
Relinquished by: *[Signature]* Company: A-POR Date/Time: 4/16/18 1400



Chain of Custody record



THE LEADER IN ENVIRONMENTAL TESTING



Client Information (Sub Contract Lab)		Lab Pkt: Walker, Elaine M	Carrier Tracking No(s):
Client Contact: Shipping/Receiving		E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):	
Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email:		COC No: 580-54396.1	
Project Name: Portland Harbor Pre-Remedial Design Site:		Page: Page 1 of 2	
Due Date Requested: 4/22/2018		Job #: 580-76388-2	
TAT Requested (days):		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
PO #:		M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
WO #:		Total Number of Containers	
Project #: 58012120		Analysis Requested	
SSOW#:		1613B/HRMS_Sox_P Full List w/o Totals	
Sample Identification - Client ID (Lab ID)		Perform MS/MSD (Yes or No)	
Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Solid, G-waste, BT=Tissue, A=Air)
4/4/18	10:23 Pacific	Solid	Field Filtered Sample (Yes or No)
4/4/18	12:32 Pacific	Solid	1613B/HRMS_Sox_P Full List w/o Totals
4/4/18	14:07 Pacific	Solid	Perform MS/MSD (Yes or No)
4/4/18	15:08 Pacific	Solid	Field Filtered Sample (Yes or No)
4/4/18	16:27 Pacific	Solid	1613B/HRMS_Sox_P Full List w/o Totals
4/4/18	17:56 Pacific	Solid	Perform MS/MSD (Yes or No)
4/5/18	10:41 Pacific	Solid	Field Filtered Sample (Yes or No)
4/5/18	11:47 Pacific	Solid	1613B/HRMS_Sox_P Full List w/o Totals
4/5/18	12:43 Pacific	Solid	Perform MS/MSD (Yes or No)
4/5/18	12:43 Pacific	Solid	Field Filtered Sample (Yes or No)
Special Instructions/Note:			

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 of the 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 compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification
 Return To Client Disposal By Lab Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

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

Relinquished by: *[Signature]* Date/Time: 4/9/18 1700 Company: TAPOL
 Relinquished by: *[Signature]* Date/Time: 4-10-18 855 Company: TAW Suc
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: *5 in* Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: 2.6°C



Ver: 09/20/2016

Chain of Custody Record



Client Information (Sub Contract Lab) Shipping/Receiving TestAmerica Laboratories, Inc. Address: 880 Riverside Parkway, West Sacramento, CA, 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email:		Lab P/N: Walker, Elaine M E-Mail: elaine.walker@testamericainc.com State of Origin: Oregon Carrier Tracking No(s): Page 2 of 2 Job #: 580-76388-2				
Due Date Requested: 4/22/2018 TAT Requested (days):		Analysis Requested:				
Project Name: Portland Harbor Pre-Remedial Design Site:	FO #: WO #: Project #: 58012120 SSO#:	Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 1613B/HRMS_Sox_P Full List w/o Totals	Total Number of Containers:			
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=overstabil)	Preservation Code:	Special Instructions/Note:
PDI-SG-B056-BL1 (580-76388-10)	4/5/18	16:23 Pacific		Solid		2
PDI-SG-B058-BL1 (580-76388-11)	4/5/18	15:20 Pacific		Solid		2
PDI-SG-B060-BL1 (580-76388-12)	4/5/18	14:02 Pacific		Solid		2
PDI-SG-B060-BL1-D (580-76388-13)	4/5/18	14:02 Pacific		Solid		2
PDI-SG-B061-BL1 (580-76388-14)	4/5/18	17:17 Pacific		Solid		2
Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our 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/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 compliance to TestAmerica Laboratories, Inc.						
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)						
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Special Instructions/OC Requirements:						
Empty Kit Relinquished by:						
Relinquished by: <i>[Signature]</i> Date/Time: 4/5/18 17:00		Relinquished by: <i>[Signature]</i> Date/Time: 4-10-18 855		Relinquished by: <i>[Signature]</i> Date/Time:		Company: TAJ, Inc. Date/Time:
Relinquished by: <i>[Signature]</i> Date/Time:		Relinquished by: <i>[Signature]</i> Date/Time:		Relinquished by: <i>[Signature]</i> Date/Time:		Company:
Custody Seals Intact: <i>[Signature]</i> Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 2.6 °C		Ver: 09/20/2016



Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-76388-1

Login Number: 76388
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	



