TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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TestAmerica Job ID: 580-83643-1
Client Project/Site: Portland Harbor Pre-Remedial Design

For:
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Attn: Amy Dahl

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Authorized for release by:
2/13/2019 4:00:11 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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Job ID: 580-83643-1

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE
Client: AECOM
Project: Portland Harbor Pre-Remedial Design
Report Number: 580-83643-1

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

Five samples were received on 2/1/2019 11:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.7º C and 3.9º C.

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

This report contains results for analyses performed at TestAmerica Seattle.

The TOC for the rinse blank sample was subcontracted to Analytical Resources, Inc., located in Tukwila, WA. Their data is appended to this report.

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-ST-T06B-1901 (580-83643-1), PDI-ST-T06A-1901 (580-83643-2), PDI-ST-T07A-1901 (580-83643-3) and PDI-ST-T07B-1901 (580-83643-4) were analyzed for diesel and extended range organics in accordance with Method NWTPH-Dx. The samples were prepared and analyzed on 02/05/2019.

#2 Diesel (C10-C24) and Motor Oil (>C24-C36) failed the recovery criteria low for the MSD of sample PDI-ST-T07B-1901MSD (580-83643-4) in batch 580-294211. #2 Diesel (C10-C24) and Motor Oil (>C24-C36) exceeded the RPD limit. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) recoveries and precision were within acceptance limits.

~~The following samples were diluted due to their color/appearance: PDI-ST-T06B-1901 (580-83643-1), PDI-ST-T06A-1901 (580-83643-2), PDI-ST-T07A-1901 (580-83643-3), PDI-ST-T07B-1901 (580-83643-4), PDI-ST-T07B-1901 MS (580-83643-4[MS]), PDI-ST-T07B-1901 (580-83643-4[MSD]) and PDI-ST-T06B-1901 DU (580-83643-1 DU). Elevated reporting limits (RL) are provided.~~ CC 2/25/19

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-ST-T06B-1901 (580-83643-1), PDI-ST-T06A-1901 (580-83643-2), PDI-ST-T07A-1901 MSD (580-83643-3), PDI-ST-T07B-1901 (580-83643-4) and PDI-ST-T06B-1901 DU (580-83643-1 DU).

Job ID: 580-83643-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

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

Sample PDI-RB-ST-190129 (580-83643-5) was analyzed for diesel and motor oil range organics in accordance with Method NWTPH-Dx. The sample was prepared and analyzed on 02/06/2019.

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

METALS (ICPMS)

Samples PDI-ST-T06B-1901 (580-83643-1), PDI-ST-T06A-1901 (580-83643-2), PDI-ST-T07A-1901 (580-83643-3) and PDI-ST-T07B-1901 (580-83643-4) were analyzed for Metals (ICPMS) in accordance with 6020A_LL. The samples were prepared on 02/04/2019 and analyzed on 02/05/2019.

Copper and Zinc failed the recovery criteria high for the MS of sample PDI-ST-T07B-1901MS (580-83643-4) in batch 580-294162. The 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 MERCURY

Samples PDI-ST-T06B-1901 (580-83643-1), PDI-ST-T06A-1901 (580-83643-2), PDI-ST-T07A-1901 (580-83643-3) and PDI-ST-T07B-1901 (580-83643-4) were analyzed for total mercury in accordance with EPA SW-846 Method 7471A. The samples were prepared and analyzed on 02/04/2019.

Mercury exceeded the RPD limit for the duplicate of sample PDI-ST-T07B-1901DU (580-83643-4). The MS/MSD and associated LCS/LCSD recoveries and precision 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

Sample PDI-RB-ST-190129 (580-83643-5) was analyzed for Metals (ICPMS) in accordance with 6020A_LL. The sample was prepared on 02/05/2019 and analyzed on 02/06/2019.

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

TOTAL MERCURY - RINSE BLANK

Sample PDI-RB-ST-190129 (580-83643-5) was analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 02/07/2019.

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

TOTAL ORGANIC CARBON

Samples PDI-ST-T06B-1901 (580-83643-1), PDI-ST-T06A-1901 (580-83643-2), PDI-ST-T07A-1901 (580-83643-3) and PDI-ST-T07B-1901 (580-83643-4) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 02/08/2019.

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

GRAIN SIZE

Samples PDI-ST-T06B-1901 (580-83643-1), PDI-ST-T06A-1901 (580-83643-2), PDI-ST-T07A-1901 (580-83643-3) and PDI-ST-T07B-1901 (580-83643-4) were analyzed for grain size in accordance with ASTM D7928/D6913. The samples were analyzed on 02/05/2019.

Medium Sand exceeded the RPD limit for the duplicate of sample PDI-ST-T06B-1901DU (580-83643-1).

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

Job ID: 580-83643-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

PERCENT SOLIDS

Samples PDI-ST-T06B-1901 (580-83643-1), PDI-ST-T06A-1901 (580-83643-2), PDI-ST-T07A-1901 (580-83643-3) and PDI-ST-T07B-1901 (580-83643-4) were analyzed for percent solids in accordance with ASTM D2216. The samples were analyzed on 02/05/2019.

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

TOTAL SOLIDS @ 70C

Samples PDI-ST-T06B-1901 (580-83643-1), PDI-ST-T06A-1901 (580-83643-2), PDI-ST-T07A-1901 (580-83643-3) and PDI-ST-T07B-1901 (580-83643-4) were analyzed for Total Solids @ 70C. The samples were analyzed on 02/05/2019.

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: 580-83643-1

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.
F2	MS/MSD RPD exceeds control 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.

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 Sample ID: PDI-ST-T06B-1901
Date Collected: 01/30/19 18:25
Date Received: 02/01/19 11:30

Lab Sample ID: 580-83643-1
Matrix: Solid
Percent Solids: 24.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	170	J	190	48	mg/Kg	☼	02/05/19 09:05	02/05/19 21:21	1
Motor Oil (>C24-C36)	940		190	68	mg/Kg	☼	02/05/19 09:05	02/05/19 21:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*82*		*50 - 150*	*02/05/19 09:05*	*02/05/19 21:21*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.9		0.95	0.19	mg/Kg	☼	02/04/19 13:04	02/05/19 07:56	5
Cadmium	0.21	J	0.76	0.15	mg/Kg	☼	02/04/19 13:04	02/05/19 07:56	5
Copper	43		1.9	0.42	mg/Kg	☼	02/04/19 13:04	02/05/19 07:56	5
Lead	13		0.95	0.091	mg/Kg	☼	02/04/19 13:04	02/05/19 07:56	5
Zinc	110		9.5	3.1	mg/Kg	☼	02/04/19 13:04	02/05/19 07:56	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.070	J	0.12	0.036	mg/Kg	☼	02/04/19 10:58	02/04/19 16:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	40000		2000	44	mg/Kg			02/08/19 08:17	1
Total Solids	24.7		0.1	0.1	%			02/05/19 08:20	1
Total Solids @ 70°C	24		0.10	0.10	%			02/05/19 16:27	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	10.2				%			02/05/19 13:16	1
Coarse Sand	0.1				%			02/05/19 13:16	1
Fine Sand	17.0				%			02/05/19 13:16	1
Gravel	0.0				%			02/05/19 13:16	1
Medium Sand	0.7				%			02/05/19 13:16	1
Silt	72.1				%			02/05/19 13:16	1

Client Sample ID: PDI-ST-T06A-1901

Date Collected: 01/30/19 18:45
Date Received: 02/01/19 11:30

Lab Sample ID: 580-83643-2

Matrix: Solid
Percent Solids: 25.2

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	J	190	47	mg/Kg	☼	02/05/19 09:05	02/05/19 22:03	1
Motor Oil (>C24-C36)	730		190	67	mg/Kg	☼	02/05/19 09:05	02/05/19 22:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*83*		*50 - 150*	*02/05/19 09:05*	*02/05/19 22:03*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.2		0.97	0.19	mg/Kg	☼	02/04/19 13:04	02/05/19 08:00	5
Cadmium	0.21	J	0.78	0.15	mg/Kg	☼	02/04/19 13:04	02/05/19 08:00	5
Copper	46		1.9	0.43	mg/Kg	☼	02/04/19 13:04	02/05/19 08:00	5
Lead	12		0.97	0.094	mg/Kg	☼	02/04/19 13:04	02/05/19 08:00	5
Zinc	120		9.7	3.1	mg/Kg	☼	02/04/19 13:04	02/05/19 08:00	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.066	J	0.11	0.034	mg/Kg	☼	02/04/19 10:58	02/04/19 16:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	36000		2000	44	mg/Kg			02/08/19 08:23	1
Total Solids	25.2		0.1	0.1	%			02/05/19 08:20	1
Total Solids @ 70°C	25		0.10	0.10	%			02/05/19 16:27	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	10.0				%			02/05/19 13:16	1
Coarse Sand	0.0				%			02/05/19 13:16	1
Fine Sand	16.7				%			02/05/19 13:16	1
Gravel	0.0				%			02/05/19 13:16	1
Medium Sand	0.2				%			02/05/19 13:16	1
Silt	73.1				%			02/05/19 13:16	1

Client Sample ID: PDI-ST-T07A-1901

Date Collected: 01/30/19 17:45
Date Received: 02/01/19 11:30

Lab Sample ID: 580-83643-3

Matrix: Solid
Percent Solids: 23.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	190	J	210	51	mg/Kg	☼	02/05/19 09:05	02/05/19 22:25	1
Motor Oil (>C24-C36)	990		210	72	mg/Kg	☼	02/05/19 09:05	02/05/19 22:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*87*		*50 - 150*	*02/05/19 09:05*	*02/05/19 22:25*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.7		1.0	0.21	mg/Kg	☼	02/04/19 13:04	02/05/19 08:04	5
Cadmium	0.21	J	0.83	0.16	mg/Kg	☼	02/04/19 13:04	02/05/19 08:04	5
Copper	43		2.1	0.46	mg/Kg	☼	02/04/19 13:04	02/05/19 08:04	5
Lead	11		1.0	0.10	mg/Kg	☼	02/04/19 13:04	02/05/19 08:04	5
Zinc	110		10	3.3	mg/Kg	☼	02/04/19 13:04	02/05/19 08:04	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.054	J	0.11	0.034	mg/Kg	☼	02/04/19 10:58	02/04/19 16:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	50000		2000	44	mg/Kg			02/08/19 08:29	1
Total Solids	23.8		0.1	0.1	%			02/05/19 08:20	1
Total Solids @ 70°C	23		0.10	0.10	%			02/05/19 16:27	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	10.7				%			02/05/19 13:16	1
Coarse Sand	0.3				%			02/05/19 13:16	1
Fine Sand	19.4				%			02/05/19 13:16	1
Gravel	0.0				%			02/05/19 13:16	1
Medium Sand	1.4				%			02/05/19 13:16	1
Silt	68.2				%			02/05/19 13:16	1

Client Sample ID: PDI-ST-T07B-1901
Date Collected: 01/30/19 17:15
Date Received: 02/01/19 11:30

Lab Sample ID: 580-83643-4
Matrix: Solid
Percent Solids: 25.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	330	F1 F2	200	48	mg/Kg	☼	02/05/19 09:05	02/05/19 22:46	1
Motor Oil (>C24-C36)	1300	F1 F2	200	68	mg/Kg	☼	02/05/19 09:05	02/05/19 22:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*86*		*50 - 150*	*02/05/19 09:05*	*02/05/19 22:46*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.1		0.92	0.18	mg/Kg	☼	02/04/19 13:04	02/05/19 07:17	5
Cadmium	0.24	J	0.73	0.14	mg/Kg	☼	02/04/19 13:04	02/05/19 07:17	5
Copper	46	F1	1.8	0.40	mg/Kg	☼	02/04/19 13:04	02/05/19 07:17	5
Lead	11		0.92	0.088	mg/Kg	☼	02/04/19 13:04	02/05/19 07:17	5
Zinc	110	F1	9.2	2.9	mg/Kg	☼	02/04/19 13:04	02/05/19 07:17	5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.087	J	0.11	0.032	mg/Kg	☼	02/04/19 10:58	02/04/19 15:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	47000		2000	44	mg/Kg			02/08/19 08:36	1
Total Solids	25.2		0.1	0.1	%			02/05/19 08:20	1
Total Solids @ 70°C	26		0.10	0.10	%			02/05/19 16:27	1

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Clay	16.3				%			02/05/19 13:16	1
Coarse Sand	0.2				%			02/05/19 13:16	1
Fine Sand	13.4				%			02/05/19 13:16	1
Gravel	0.0				%			02/05/19 13:16	1
Medium Sand	1.0				%			02/05/19 13:16	1
Silt	69.0				%			02/05/19 13:16	1

Client Sample ID: PDI-RB-ST-190129

Date Collected: 01/29/19 18:45
Date Received: 02/01/19 11:30

Lab Sample ID: 580-83643-5

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)	**0.089**	**J**	0.11	0.067	mg/L		02/06/19 07:29	02/06/19 14:01	1
Motor Oil (>C24-C36)	ND		0.36	0.099	mg/L		02/06/19 07:29	02/06/19 14:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*50 - 150*	*02/06/19 07:29*	*02/06/19 14:01*	*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		02/05/19 09:18	02/06/19 09:59	1
Cadmium	ND		0.00040	0.00010	mg/L		02/05/19 09:18	02/06/19 09:59	1
Copper	**0.0016**	**J**	0.0020	0.00060	mg/L		02/05/19 09:18	02/06/19 09:59	1
Lead	ND		0.00080	0.00020	mg/L		02/05/19 09:18	02/06/19 09:59	1
Zinc	**0.0019**	**J**	0.0070	0.0019	mg/L		02/05/19 09:18	02/06/19 09:59	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00030	0.00015	mg/L		02/07/19 09:52	02/07/19 14:41	1

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

Lab Sample ID: MB 580-294147/1-A
Matrix: Solid
Analysis Batch: 294211

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294147

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg		02/05/19 09:05	02/05/19 17:22	1
Motor Oil (>C24-C36)	ND		50	18	mg/Kg		02/05/19 09:05	02/05/19 17:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*83*		*50 - 150*	*02/05/19 09:05*	*02/05/19 17:22*	*1*

Lab Sample ID: LCS 580-294147/2-A
Matrix: Solid
Analysis Batch: 294211

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294147

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			500	429		mg/Kg		86	70 - 125		
Motor Oil (>C24-C36)			500	432		mg/Kg		86	70 - 129		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*74*		*50 - 150*

Lab Sample ID: LCSD 580-294147/3-A
Matrix: Solid
Analysis Batch: 294211

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294147

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			500	429		mg/Kg		86	70 - 125	0	16
Motor Oil (>C24-C36)			500	436		mg/Kg		87	70 - 129	1	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*81*		*50 - 150*

Lab Sample ID: 580-83643-4 MS
Matrix: Solid
Analysis Batch: 294211

Client Sample ID: PDI-ST-T07B-1901
Prep Type: Total/NA
Prep Batch: 294147

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)	330	F1 F2	1950	1790		mg/Kg	☼	75	70 - 125		
Motor Oil (>C24-C36)	1300	F1 F2	1950	2750		mg/Kg	☼	76	70 - 129		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl	*75*		*50 - 150*

Lab Sample ID: 580-83643-4 MSD
Matrix: Solid
Analysis Batch: 294211

Client Sample ID: PDI-ST-T07B-1901
Prep Type: Total/NA
Prep Batch: 294147

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	330	F1 F2	1840	1360	F1 F2	mg/Kg	☼	56	70 - 125	28	16
Motor Oil (>C24-C36)	1300	F1 F2	1840	1940	F1 F2	mg/Kg	☼	36	70 - 129	35	16

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

Lab Sample ID: 580-83643-4 MSD
Matrix: Solid
Analysis Batch: 294211

Client Sample ID: PDI-ST-T07B-1901
Prep Type: Total/NA
Prep Batch: 294147

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl	59		50 - 150

Lab Sample ID: 580-83643-1 DU
Matrix: Solid
Analysis Batch: 294211

Client Sample ID: PDI-ST-T06B-1901
Prep Type: Total/NA
Prep Batch: 294147

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
#2 Diesel (C10-C24)	170	J		186	J	mg/Kg	☼			10	35
Motor Oil (>C24-C36)	940			1050		mg/Kg	☼			11	35

Surrogate	DU %Recovery	DU Qualifier	Limits
o-Terphenyl	83		50 - 150

Lab Sample ID: MB 580-294217/1-A
Matrix: Water
Analysis Batch: 294245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294217

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		02/06/19 07:29	02/06/19 12:55	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		02/06/19 07:29	02/06/19 12:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	76		50 - 150	02/06/19 07:29	02/06/19 12:55	1

Lab Sample ID: LCS 580-294217/2-A
Matrix: Water
Analysis Batch: 294245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294217

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			2.00	1.79		mg/L		90	50 - 120		
Motor Oil (>C24-C36)			2.00	1.95		mg/L		98	64 - 120		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	103		50 - 150

Lab Sample ID: LCSD 580-294217/3-A
Matrix: Water
Analysis Batch: 294245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294217

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			2.00	1.67		mg/L		84	50 - 120	7	26
Motor Oil (>C24-C36)			2.00	1.90		mg/L		95	64 - 120	3	24

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

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-294128/21-A
Matrix: Solid
Analysis Batch: 294162

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294128

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.25	0.050	mg/Kg		02/04/19 13:04	02/05/19 07:05	5
Cadmium	ND		0.20	0.039	mg/Kg		02/04/19 13:04	02/05/19 07:05	5
Copper	ND		0.50	0.11	mg/Kg		02/04/19 13:04	02/05/19 07:05	5
Lead	ND		0.25	0.024	mg/Kg		02/04/19 13:04	02/05/19 07:05	5
Zinc	ND		2.5	0.81	mg/Kg		02/04/19 13:04	02/05/19 07:05	5

Lab Sample ID: LCS 580-294128/22-A
Matrix: Solid
Analysis Batch: 294162

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294128

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	50.0	51.3		mg/Kg		103	80 - 120
Cadmium	50.0	51.5		mg/Kg		103	80 - 120
Copper	50.0	51.1		mg/Kg		102	80 - 120
Lead	50.0	50.7		mg/Kg		101	80 - 120
Zinc	50.0	51.9		mg/Kg		104	80 - 120

Lab Sample ID: LCSD 580-294128/23-A
Matrix: Solid
Analysis Batch: 294162

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294128

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	50.0	53.3		mg/Kg		107	80 - 120	4	20
Cadmium	50.0	52.3		mg/Kg		105	80 - 120	2	20
Copper	50.0	53.2		mg/Kg		106	80 - 120	4	20
Lead	50.0	51.9		mg/Kg		104	80 - 120	2	20
Zinc	50.0	53.9		mg/Kg		108	80 - 120	4	20

Lab Sample ID: 580-83643-4 MS
Matrix: Solid
Analysis Batch: 294162

Client Sample ID: PDI-ST-T07B-1901
Prep Type: Total/NA
Prep Batch: 294128

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	7.1		195	235		mg/Kg	☼	116	80 - 120
Cadmium	0.24	J	195	228		mg/Kg	☼	117	80 - 120
Copper	46	F1	195	282	F1	mg/Kg	☼	121	80 - 120
Lead	11		195	231		mg/Kg	☼	112	80 - 120
Zinc	110	F1	195	354	F1	mg/Kg	☼	123	80 - 120

Lab Sample ID: 580-83643-4 MSD
Matrix: Solid
Analysis Batch: 294162

Client Sample ID: PDI-ST-T07B-1901
Prep Type: Total/NA
Prep Batch: 294128

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	7.1		195	213		mg/Kg	☼	105	80 - 120	10	20
Cadmium	0.24	J	195	205		mg/Kg	☼	105	80 - 120	11	20
Copper	46	F1	195	261		mg/Kg	☼	110	80 - 120	7	20
Lead	11		195	219		mg/Kg	☼	107	80 - 120	5	20
Zinc	110	F1	195	340		mg/Kg	☼	116	80 - 120	4	20

Lab Sample ID: 580-83643-4 DU
Matrix: Solid
Analysis Batch: 294162

Client Sample ID: PDI-ST-T07B-1901
Prep Type: Total/NA
Prep Batch: 294128

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	7.1		7.42		mg/Kg	☼	5	20
Cadmium	0.24	J	0.251	J	mg/Kg	☼	7	20
Copper	46	F1	50.2		mg/Kg	☼	9	20
Lead	11		12.7		mg/Kg	☼	12	20
Zinc	110	F1	127		mg/Kg	☼	11	20

Lab Sample ID: MB 580-294150/22-A
Matrix: Water
Analysis Batch: 294256

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 294150

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		02/05/19 09:18	02/06/19 09:46	1
Cadmium	ND		0.00040	0.00010	mg/L		02/05/19 09:18	02/06/19 09:46	1
Copper	ND		0.0020	0.00060	mg/L		02/05/19 09:18	02/06/19 09:46	1
Lead	ND		0.00080	0.00020	mg/L		02/05/19 09:18	02/06/19 09:46	1
Zinc	ND		0.0070	0.0019	mg/L		02/05/19 09:18	02/06/19 09:46	1

Lab Sample ID: LCS 580-294150/23-A
Matrix: Water
Analysis Batch: 294256

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 294150

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.03		mg/L		103	80 - 120
Cadmium	1.00	1.05		mg/L		105	80 - 120
Copper	1.00	0.999		mg/L		100	80 - 120
Lead	1.00	1.02		mg/L		102	80 - 120
Zinc	1.00	1.02		mg/L		102	80 - 120

Lab Sample ID: LCSD 580-294150/24-A
Matrix: Water
Analysis Batch: 294256

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 294150

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	1.00	1.02		mg/L		102	80 - 120	1	20
Cadmium	1.00	1.02		mg/L		102	80 - 120	3	20
Copper	1.00	1.00		mg/L		100	80 - 120	0	20
Lead	1.00	1.00		mg/L		100	80 - 120	2	20
Zinc	1.00	0.984		mg/L		98	80 - 120	3	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 580-294299/22-A
Matrix: Water
Analysis Batch: 294341

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294299

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00030	0.00015	mg/L		02/07/19 09:52	02/07/19 14:02	1

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

Lab Sample ID: LCS 580-294299/23-A
Matrix: Water
Analysis Batch: 294341

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294299

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00200	0.00210		mg/L		105	80 - 120

Lab Sample ID: LCSD 580-294299/24-A
Matrix: Water
Analysis Batch: 294341

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294299

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.00200	0.00200		mg/L		100	80 - 120	5	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 580-294122/21-A
Matrix: Solid
Analysis Batch: 294140

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294122

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.030	0.0090	mg/Kg		02/04/19 10:58	02/04/19 15:50	1

Lab Sample ID: LCS 580-294122/22-A
Matrix: Solid
Analysis Batch: 294140

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294122

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.167	0.180		mg/Kg		108	80 - 120

Lab Sample ID: LCSD 580-294122/23-A
Matrix: Solid
Analysis Batch: 294140

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294122

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.167	0.177		mg/Kg		106	80 - 120	2	20

Lab Sample ID: 580-83643-4 MS
Matrix: Solid
Analysis Batch: 294140

Client Sample ID: PDI-ST-T07B-1901
Prep Type: Total/NA
Prep Batch: 294122

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.087	J	0.602	0.747		mg/Kg	☼	110	80 - 120

Lab Sample ID: 580-83643-4 MSD
Matrix: Solid
Analysis Batch: 294140

Client Sample ID: PDI-ST-T07B-1901
Prep Type: Total/NA
Prep Batch: 294122

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.087	J	0.598	0.667		mg/Kg	☼	97	80 - 120	11	20

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

Lab Sample ID: 580-83643-4 DU
Matrix: Solid
Analysis Batch: 294140

Client Sample ID: PDI-ST-T07B-1901
Prep Type: Total/NA
Prep Batch: 294122

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	0.087	J	0.0684	J F5	mg/Kg	☼	24	20

Method: 9060_PSEP - TOC (Puget Sound)

Lab Sample ID: MB 580-294398/5
Matrix: Solid
Analysis Batch: 294398

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			02/08/19 08:09	1

Lab Sample ID: LCS 580-294398/6
Matrix: Solid
Analysis Batch: 294398

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	3890	3130		mg/Kg		80	40 - 180

Lab Sample ID: LCSD 580-294398/7
Matrix: Solid
Analysis Batch: 294398

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	3890	2730		mg/Kg		70	40 - 180	13	32

Lab Sample ID: 580-83643-4 MS
Matrix: Solid
Analysis Batch: 294398

Client Sample ID: PDI-ST-T07B-1901
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	47000		120000	155000		mg/Kg		90	68 - 149

Lab Sample ID: 580-83643-4 MSD
Matrix: Solid
Analysis Batch: 294398

Client Sample ID: PDI-ST-T07B-1901
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	47000		120000	153000		mg/Kg		88	68 - 149	1	32

Lab Sample ID: 580-83643-4 DU
Matrix: Solid
Analysis Batch: 294398

Client Sample ID: PDI-ST-T07B-1901
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon - Duplicates	47000		46400		mg/Kg		1	50

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

Lab Sample ID: 580-83643-4 TRL
Matrix: Solid
Analysis Batch: 294398

Client Sample ID: PDI-ST-T07B-1901
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		TRL Result	TRL Qualifier	Unit	D			RSD	RSD Limit
Total Organic Carbon - Duplicates	47000			46000		mg/Kg				1	20

Method: Moisture 70C - Percent Moisture, 70 C

Lab Sample ID: 580-83643-1 DU
Matrix: Solid
Analysis Batch: 294528

Client Sample ID: PDI-ST-T06B-1901
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Solids @ 70°C	24			24		%				0.06	20

Method: D7928/D6913 - ASTM D7928/D6913

Lab Sample ID: 580-83643-1 DU
Matrix: Solid
Analysis Batch: 294192

Client Sample ID: PDI-ST-T06B-1901
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Clay	10.2			10.2		%				0	20
Coarse Sand	0.1			0.1		%				0	20
Fine Sand	17.0			18.5		%				8	20
Gravel	0.0			0.0		%				NC	20
Medium Sand	0.7			0.5	F3	%				33	20
Silt	72.1			70.8		%				2	20

Lab Chronicle

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

TestAmerica Job ID: 580-83643-1

Client Sample ID: PDI-ST-T06B-1901
Lab Sample ID: 580-83643-1
Date Collected: 01/30/19 18:25
Matrix: Solid
Date Received: 02/01/19 11:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	294398	02/08/19 08:17	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	294141	02/05/19 08:20	DCV	TAL SEA
Total/NA	Analysis	Moisture 70C		1	294528	02/05/19 16:27	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	294192	02/05/19 13:16	JKM	TAL SEA

Client Sample ID: PDI-ST-T06B-1901
Lab Sample ID: 580-83643-1
Date Collected: 01/30/19 18:25
Matrix: Solid
Date Received: 02/01/19 11:30
Percent Solids: 24.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			294147	02/05/19 09:05	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	294211	02/05/19 21:21	Z1R	TAL SEA
Total/NA	Prep	3050B			294128	02/04/19 13:04	JKM	TAL SEA
Total/NA	Analysis	6020B		5	294162	02/05/19 07:56	FCW	TAL SEA
Total/NA	Prep	7471A			294122	02/04/19 10:58	JKM	TAL SEA
Total/NA	Analysis	7471A		1	294140	02/04/19 16:06	FCW	TAL SEA

Client Sample ID: PDI-ST-T06A-1901
Lab Sample ID: 580-83643-2
Date Collected: 01/30/19 18:45
Matrix: Solid
Date Received: 02/01/19 11:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	294398	02/08/19 08:23	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	294141	02/05/19 08:20	DCV	TAL SEA
Total/NA	Analysis	Moisture 70C		1	294528	02/05/19 16:27	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	294192	02/05/19 13:16	JKM	TAL SEA

Client Sample ID: PDI-ST-T06A-1901
Lab Sample ID: 580-83643-2
Date Collected: 01/30/19 18:45
Matrix: Solid
Date Received: 02/01/19 11:30
Percent Solids: 25.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			294147	02/05/19 09:05	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	294211	02/05/19 22:03	Z1R	TAL SEA
Total/NA	Prep	3050B			294128	02/04/19 13:04	JKM	TAL SEA
Total/NA	Analysis	6020B		5	294162	02/05/19 08:00	FCW	TAL SEA
Total/NA	Prep	7471A			294122	02/04/19 10:58	JKM	TAL SEA
Total/NA	Analysis	7471A		1	294140	02/04/19 16:08	FCW	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-83643-1

Client Sample ID: PDI-ST-T07A-1901
Date Collected: 01/30/19 17:45
Date Received: 02/01/19 11:30

Lab Sample ID: 580-83643-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	294398	02/08/19 08:29	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	294141	02/05/19 08:20	DCV	TAL SEA
Total/NA	Analysis	Moisture 70C		1	294528	02/05/19 16:27	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	294192	02/05/19 13:16	JKM	TAL SEA

Client Sample ID: PDI-ST-T07A-1901
Date Collected: 01/30/19 17:45
Date Received: 02/01/19 11:30

Lab Sample ID: 580-83643-3
Matrix: Solid
Percent Solids: 23.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			294147	02/05/19 09:05	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	294211	02/05/19 22:25	Z1R	TAL SEA
Total/NA	Prep	3050B			294128	02/04/19 13:04	JKM	TAL SEA
Total/NA	Analysis	6020B		5	294162	02/05/19 08:04	FCW	TAL SEA
Total/NA	Prep	7471A			294122	02/04/19 10:58	JKM	TAL SEA
Total/NA	Analysis	7471A		1	294140	02/04/19 16:11	FCW	TAL SEA

Client Sample ID: PDI-ST-T07B-1901
Date Collected: 01/30/19 17:15
Date Received: 02/01/19 11:30

Lab Sample ID: 580-83643-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060_PSEP		1	294398	02/08/19 08:36	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	294141	02/05/19 08:20	DCV	TAL SEA
Total/NA	Analysis	Moisture 70C		1	294528	02/05/19 16:27	HJM	TAL SEA
Total/NA	Analysis	D7928/D6913		1	294192	02/05/19 13:16	JKM	TAL SEA

Client Sample ID: PDI-ST-T07B-1901
Date Collected: 01/30/19 17:15
Date Received: 02/01/19 11:30

Lab Sample ID: 580-83643-4
Matrix: Solid
Percent Solids: 25.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			294147	02/05/19 09:05	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	294211	02/05/19 22:46	Z1R	TAL SEA
Total/NA	Prep	3050B			294128	02/04/19 13:04	JKM	TAL SEA
Total/NA	Analysis	6020B		5	294162	02/05/19 07:17	FCW	TAL SEA
Total/NA	Prep	7471A			294122	02/04/19 10:58	JKM	TAL SEA
Total/NA	Analysis	7471A		1	294140	02/04/19 15:57	FCW	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-83643-1

Client Sample ID: PDI-RB-ST-190129

Date Collected: 01/29/19 18:45
Date Received: 02/01/19 11:30

Lab Sample ID: 580-83643-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			294217	02/06/19 07:29	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	294245	02/06/19 14:01	CJ	TAL SEA
Total Recoverable	Prep	3005A			294150	02/05/19 09:18	T1H	TAL SEA
Total Recoverable	Analysis	6020B		1	294256	02/06/19 09:59	FCW	TAL SEA
Total/NA	Prep	7470A			294299	02/07/19 09:52	T1H	TAL SEA
Total/NA	Analysis	7470A		1	294341	02/07/19 14:41	FCW	TAL SEA

Laboratory References:

SC0056 = Analytical Resources, Inc, 4611 South 134th Place, Suite 100, Tukwila, WA 98168, TEL (206)695-6200

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

Accreditation/Certification Summary

Client: AECOM
TestAmerica Job ID: 580-83643-1
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	02-28-19
ANAB	DoD / DOE		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-19

Sample Summary

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

TestAmerica Job ID: 580-83643-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-83643-1	PDI-ST-T06B-1901	Solid	01/30/19 18:25	02/01/19 11:30
580-83643-2	PDI-ST-T06A-1901	Solid	01/30/19 18:45	02/01/19 11:30
580-83643-3	PDI-ST-T07A-1901	Solid	01/30/19 17:45	02/01/19 11:30
580-83643-4	PDI-ST-T07B-1901	Solid	01/30/19 17:15	02/01/19 11:30
580-83643-5	PDI-RB-ST-190129	Water	01/29/19 18:45	02/01/19 11:30

Analytical Resources, Incorporated
Analytical Chemists and Consultants

13 February 2019

Elaine Walker
Test America
5755 8th Street East
Tacoma, WA 98424

RE: Portland Harbor Pre-Remedial Design

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
19B0063	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

19B0063

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Walker, Elaine M	Carrier Tracking No(s):	COC No: 580-63299.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 1 of 1
Company: Analytical Resources, Inc		Accreditations Required (See note):		Job #: 580-83643-1
Address: 4611 South 134th Place, Suite 100, ,	Due Date Requested: 2/11/2019			
City: Tukwila	TAT Requested (days):			
State, Zip: WA, 98168				
Phone: 206-695-6200(Tel)	PO #:			
Email:	WO #:			
Project Name: Portland Harbor Pre-Remedial Design	Project #: 58012120			
Site:	SSOW#:			

Analysis Requested

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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (5310C Organic Carbon, Total (TOC))	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
PDI-RB-ST-190129	1/29/19	18:45 Pacific		Water			X	1	

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	2/6/19 1620	TASEA	Stephanie Fishel	2-6-19 1620	ARI
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: -2.1

Ver: 09/20/2016

Analytical Report

Test America	Project: Portland Harbor Pre-Remedial Design	
5755 8th Street East	Project Number: 58012120	**Reported:**
Tacoma WA, 98424	Project Manager: Elaine Walker	13-Feb-2019 14:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PDI-RB-ST-190129	19B0063-01	Water	29-Jan-2019 18:45	06-Feb-2019 16:20

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Test America	Project: Portland Harbor Pre-Remedial Design	
5755 8th Street East	Project Number: 58012120	**Reported:**
Tacoma WA, 98424	Project Manager: Elaine Walker	13-Feb-2019 14:58

Work Order Case Narrative

Sample receipt

One sample as listed on the preceding page was received February 6, 2019 under ARI work order 19B0063. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Total Organic Carbon - Method SM5310

The sample was prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank was clean at the reporting limits.

The LCS percent recoveries were within control limits.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 2/6/2019 5:19:34PM

WORK ORDER

19B0063

Client: Test America | **Project Manager: Amanda Volgardsen**

Project: Portland Harbor Pre-Remedial Design | **Project Number: 58012120**

Report To:
Test America
Elaine Walker
5755 8th Street East
Tacoma, WA 98424
Phone: (253) 248-4970
Fax:

Invoice To:
Test America
Accounts Payable
5755 8th Street East
Tacoma, WA 98424
Phone :(253) 248-4970
Fax:

Date Due:	11-Feb-2019 18:00 (2 day TAT)		
Received By:	Stephanie Fishel	Date Received:	06-Feb-2019 16:20
Logged In By:	Stephanie Fishel	Date Logged In:	06-Feb-2019 17:17

Samples Received at: **2.1°C**

Intact, properly signed and dated custody seals attached to outside of cooler(s)	No	Custody papers included with the cooler	Yes
Custody papers properly filled out (in, signed, analyses requested, etc)	Yes	Was a temperature blank included in the cooler	Yes
Was sufficient ice used (if appropriate)	Yes	All bottles sealed in individual plastic bags	No
All bottles arrived in good condition (unbroken)	Yes	All bottle labels complete and legible	Yes
Number of containers listed on COC match number received	Yes	Bottle labels and tags agree with COC	Yes
Correct bottles used for the requested analyses	Yes	All VOC vials free of air bubbles	No
Analyses/bottles require preservation (attach preservation sheet excluding VOC)	Yes	Sufficient amount of sample sent in each bottle	Yes
Sample split at ARI	No		

19B0063-01 PDI-RB-ST-190129 [Water] Sampled 29-Jan-2019 18:45

Carbon, Organic Total, SM 5310 B-00	02/11/2019	2	2/26/2019

Preservation Confirmation

Container ID	Container Type	pH
19B0063-01 A	Glass NM, Amber, 250 mL, 9N H2SO4	<2 pass

Preservation Confirmed By: SF

Date: 2-6-19

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Test America Project Name: PDX Harbor

COC No(s): _____ NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 19B0063 Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) -2.1

Time 1620

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00506

Cooler Accepted by: SF Date: 2-6-19 Time: 1620

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: SF Date: 2-6-19 Time: 1717 Labels checked by: SF

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Test America	Project: Portland Harbor Pre-Remedial Design	
5755 8th Street East	Project Number: 58012120	**Reported:**
Tacoma WA, 98424	Project Manager: Elaine Walker	13-Feb-2019 14:58

PDI-RB-ST-190129

19B0063-01RE1 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 01/29/2019 18:45

Instrument: TOC-LCSH Analyst: BF — Analyzed: 02/12/2019 14:41

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 19B0063-01RE1 A

Preparation Batch: BHB0190 — Sample Size: 20 mL

Prepared: 08-Feb-2019 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	ND	mg/L	U

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Test America	Project: Portland Harbor Pre-Remedial Design	
5755 8th Street East	Project Number: 58012120	**Reported:**
Tacoma WA, 98424	Project Manager: Elaine Walker	13-Feb-2019 14:58

Wet Chemistry - Quality Control

Batch BHB0190 - No Prep Wet Chem

Instrument: TOC-LCSH Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHB0190-BLK1)				Prepared: 08-Feb-2019 Analyzed: 08-Feb-2019 12:04							
Total Organic Carbon	ND	0.50	0.50	mg/L							U
LCS (BHB0190-BS1)				Prepared: 08-Feb-2019 Analyzed: 08-Feb-2019 12:30							
Total Organic Carbon	18.98	0.50	0.50	mg/L	20.00		94.9	90-110			

Test America	Project: Portland Harbor Pre-Remedial Design	
5755 8th Street East	Project Number: 58012120	**Reported:**
Tacoma WA, 98424	Project Manager: Elaine Walker	13-Feb-2019 14:58

Certified Analyses included in this Report

Analyte	Certifications
SM 5310 B-00 in Water	
Total Organic Carbon	WA-DW,WADOE,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	02/07/2019
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-011	05/12/2019
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019

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Test America	Project: Portland Harbor Pre-Remedial Design	
5755 8th Street East	Project Number: 58012120	**Reported:**
Tacoma WA, 98424	Project Manager: Elaine Walker	13-Feb-2019 14:58

Notes and Definitions

*	Flagged value is not within established control limits.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

580-83643 Chain of Custody

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 / Michaela McCoog** **Laboratory Contact: Elaine-Walker**	**Date:** ~~1/31/19~~ 2/1/19 **Carrier: courier**	COC No: 1 1 of 1 COCs
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: Study	[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, Total solids 9060	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-ST-T06B-1901	1/30/2019	18:25	Sed			6		X	X	X	X	X	X						
PDI-ST-T06A-1901	1/30/2019	18:45	Sed			6		X	X	X	X	X	X						
PDI-ST-T07A-1901	1/30/2019	17:45	Sed			6		X	X	X	X	X	X						
PDI-ST-T07B-~~1810~~ 1901	1/30/2019	17:15	Sed	MS/MSD		8		X	X	X	X	X	X						
PDI-RB-ST-190129	1/29/2019	18:45	GW			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

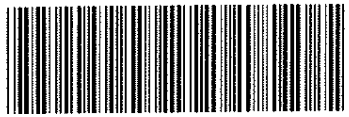
Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)

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

Special Instructions/QC Requirements & Comments:

1.7, 3.9

Relinquished by:	Company: AECOM	Date/Time: 2/1/19 1015	Received by:	Company: M.E	Date/Time: 2-1-19 / 1015
Relinquished by:	Company: M.E	Date/Time: 2-1-19 / ~~1415~~ 1430	Received by:	Company: TAL POR	Date/Time: 2/1/19 1130
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:



580-83643 Chain of Custody

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 / Michaela McCoog** **Laboratory Contact: Elaine-Walker**	**Date:** ~~1/31/19~~ 2/1/19 **Carrier: courier**	COC No: 1 1 of 1 COCs
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: Study	[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, Total solids 9060	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-ST-T06B-1901	1/30/2019	18:25	Sed			6		X	X	X	X	X	X						
PDI-ST-T06A-1901	1/30/2019	18:45	Sed			6		X	X	X	X	X	X						
PDI-ST-T07A-1901	1/30/2019	17:45	Sed			6		X	X	X	X	X	X						
PDI-ST-T07B-~~1810~~ 1901	1/30/2019	17:15	Sed	MS/MSD		8		X	X	X	X	X	X						
PDI-RB-ST-190129	1/29/2019	18:45	GW			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:

1.7, 3.9

Relinquished by:	Company: AECOM	Date/Time: 2/1/19 1015	Received by:	Company: M.E	Date/Time: 2-1-19 / 1015
Relinquished by:	Company: M.E	Date/Time: 2-1-19 1130	Received by:	Company: TAL SEA	Date/Time: 2/1/19 1130
Relinquished by:	Company: TAL SEA	Date/Time: 2/1/19 1700	Received by:	Company: TASEA	Date/Time: 2-2-19 1140

5=1.8

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-83643-1

Login Number: 83643
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	