TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-82189-1
Client Project/Site: Portland Harbor Pre-Remedial Design

For:
AECOM
1111 Third Ave
Suite 1600
Seattle, Washington 98101

Attn: Amy Dahl

M. Elaine Walker

Authorized for release by:
12/28/2018 3:54:52 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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: 580-82189-1

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE
Client: AECOM
Project: Portland Harbor Pre-Remedial Design
Report Number: 580-82189-1

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

Twenty-five samples were received on 11/29/2018 1:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.3º C, 1.6º C and 2.0º C.

Additional volume was provided for sample PDI-WS-T03W-1811 (580-82189-2). The client confirmed that MS/MSD is needed for this sample.

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.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples PDI-WS-T03W-1811 (580-82189-2), PDI-WS-T03N-1811 (580-82189-3), PDI-WS-T03E-1811 (580-82189-4), PDI-WS-T07E-1811 (580-82189-6), PDI-WS-T07W-1811 (580-82189-7), PDI-WS-T07N-1811 (580-82189-8), Trip Blank 01 (580-82189-9), Trip Blank 07 (580-82189-10), Trip Blank 03 (580-82189-11), PDI-WS-T05N-1811 (580-82189-14), PDI-WS-T05E-1811 (580-82189-15), PDI-WS-T05W-1811 (580-82189-16), PDI-WS-T01N-1811 (580-82189-19), PDI-WS-T01E-1811 (580-82189-20), PDI-WS-T01W-1811 (580-82189-21), PDI-WS-T01N-1811D (580-82189-22), PDI-WS-T 01W-1811D (580-82189-23), Trip Blank 05 (580-82189-24) and Trip Blank (580-82189-25) were analyzed for volatile organic compounds (GC-MS) in accordance with 8260C. The samples were analyzed on 12/04/2018, 12/05/2018 and 12/06/2018.

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

CHLORINATED HERBICIDES

Samples PDI-WS-T03-1811 (580-82189-1), PDI-WS-T07-1811 (580-82189-5), PDI-RB-PP-181129 (580-82189-12), PDI-WS-T05-1811 (580-82189-13), PDI-WS-T01-1811 (580-82189-17) and PDI-WS-T01-1811D (580-82189-18) were analyzed for chlorinated herbicides in accordance with EPA SW-846 8151A. The samples were prepared on 12/04/2018 and analyzed on 12/27/2018.

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

METALS (ICP) - DISSOLVED

Samples PDI-WS-T03-1811 (580-82189-1), PDI-WS-T07-1811 (580-82189-5), PDI-RB-PP-181129 (580-82189-12), PDI-WS-T05-1811 (580-82189-13), PDI-WS-T01-1811 (580-82189-17) and PDI-WS-T01-1811D (580-82189-18) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 12/10/2018 and analyzed on 12/13/2018.

Job ID: 580-82189-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

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

METALS (ICPMS) - DISSOLVED

Samples PDI-WS-T03-1811 (580-82189-1), PDI-WS-T07-1811 (580-82189-5), PDI-RB-PP-181129 (580-82189-12), PDI-WS-T05-1811 (580-82189-13), PDI-WS-T01-1811 (580-82189-17) and PDI-WS-T01-1811D (580-82189-18) were analyzed for metals (ICPMS) in accordance with 6020A_LL. The samples were prepared on 12/10/2018 and analyzed on 12/12/2018.

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

METALS (ICPMS) - TOTAL

Samples PDI-WS-T03-1811 (580-82189-1), PDI-WS-T07-1811 (580-82189-5), PDI-RB-PP-181129 (580-82189-12), PDI-WS-T05-1811 (580-82189-13), PDI-WS-T01-1811 (580-82189-17) and PDI-WS-T01-1811D (580-82189-18) were analyzed for Metals (ICPMS) in accordance with 6020A_LL. The samples were prepared on 12/10/2018 and analyzed on 12/11/2018.

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

TOTAL DISSOLVED SOLIDS

Samples PDI-WS-T03-1811 (580-82189-1), PDI-WS-T07-1811 (580-82189-5), PDI-WS-T05-1811 (580-82189-13), PDI-WS-T01-1811 (580-82189-17) and PDI-WS-T01-1811D (580-82189-18) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 12/04/2018.

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

TOTAL SUSPENDED SOLIDS

Samples PDI-WS-T03-1811 (580-82189-1), PDI-WS-T07-1811 (580-82189-5), PDI-WS-T05-1811 (580-82189-13), PDI-WS-T01-1811 (580-82189-17) and PDI-WS-T01-1811D (580-82189-18) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 12/04/2018 and 12/05/2018.

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

HARDNESS

Samples PDI-WS-T03-1811 (580-82189-1), PDI-WS-T07-1811 (580-82189-5), PDI-RB-PP-181129 (580-82189-12), PDI-WS-T05-1811 (580-82189-13), PDI-WS-T01-1811 (580-82189-17) and PDI-WS-T01-1811D (580-82189-18) were analyzed for Hardness in accordance with SM 2340B. The samples were analyzed on 12/08/2018.

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

DISSOLVED ORGANIC CARBON

Samples PDI-WS-T03-1811 (580-82189-1), PDI-WS-T07-1811 (580-82189-5), PDI-RB-PP-181129 (580-82189-12), PDI-WS-T05-1811 (580-82189-13), PDI-WS-T01-1811 (580-82189-17) and PDI-WS-T01-1811D (580-82189-18) were analyzed for dissolved organic carbon in accordance with SM20 5310B. The samples were analyzed on 12/07/2018.

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

TOTAL ORGANIC CARBON

Samples PDI-WS-T03-1811 (580-82189-1), PDI-WS-T07-1811 (580-82189-5), PDI-RB-PP-181129 (580-82189-12), PDI-WS-T05-1811 (580-82189-13), PDI-WS-T01-1811 (580-82189-17) and PDI-WS-T01-1811D (580-82189-18) were analyzed for total organic carbon in accordance with SM 5310B. The samples were analyzed on 12/05/2018 and 12/10/2018.

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

Qualifiers

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.

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.

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-WS-T03-1811

Date Collected: 11/27/18 16:22
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-1

Matrix: Water

Method: 8151A - Herbicides (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MCPP	ND		1.1	0.18	ug/L		12/04/18 17:03	12/27/18 14:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*78*		*44 - 145*	*12/04/18 17:03*	*12/27/18 14:44*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**7.9**		1.1	0.16	mg/L		12/10/18 19:02	12/13/18 01:02	1
Magnesium	**3.0**		1.1	0.13	mg/L		12/10/18 19:02	12/13/18 01:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.56**	**J**	1.0	0.20	ug/L		12/10/18 19:05	12/11/18 14:17	1
Chromium	**0.21**	**J**	0.40	0.17	ug/L		12/10/18 19:05	12/11/18 14:17	1
Copper	ND		2.0	0.60	ug/L		12/10/18 19:05	12/11/18 14:17	1
Zinc	**2.6**	**J**	7.0	1.9	ug/L		12/10/18 19:05	12/11/18 14:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.51**	**J**	1.0	0.20	ug/L		12/10/18 19:02	12/12/18 17:27	1
Chromium	**0.20**	**J**	0.40	0.17	ug/L		12/10/18 19:02	12/12/18 17:27	1
Copper	**0.76**	**J**	2.0	0.60	ug/L		12/10/18 19:02	12/12/18 17:27	1
Zinc	**2.4**	**J**	7.0	1.9	ug/L		12/10/18 19:02	12/12/18 17:27	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Hardness as calcium carbonate	**32**		1.1	1.1	mg/L			12/08/18 10:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**78**		10	10	mg/L			12/04/18 14:36	1
Total Suspended Solids	ND		2.0	2.0	mg/L			12/04/18 15:58	1
Total Organic Carbon	**1.5**		1.0	0.19	mg/L			12/05/18 13:37	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	**1.7**		1.0	0.19	mg/L			12/07/18 02:16	1

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T03W-1811
Date Collected: 11/27/18 13:24
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-2
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/06/18 01:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*80 - 122*		*12/06/18 01:08*	*1*
Trifluorotoluene (Surr)	*96*		*80 - 120*		*12/06/18 01:08*	*1*
4-Bromofluorobenzene (Surr)	*115*		*80 - 125*		*12/06/18 01:08*	*1*
Dibromofluoromethane (Surr)	*103*		*77 - 120*		*12/06/18 01:08*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*80 - 126*		*12/06/18 01:08*	*1*

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T03N-1811
Date Collected: 11/27/18 14:55
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-3
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/04/18 20:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*80 - 122*		*12/04/18 20:04*	*1*
Trifluorotoluene (Surr)	*95*		*80 - 120*		*12/04/18 20:04*	*1*
4-Bromofluorobenzene (Surr)	*115*		*80 - 125*		*12/04/18 20:04*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*12/04/18 20:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*111*		*80 - 126*		*12/04/18 20:04*	*1*

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T03E-1811
Date Collected: 11/27/18 16:02
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-4
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/04/18 20:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*110*		*80 - 122*		*12/04/18 20:29*	*1*
Trifluorotoluene (Surr)	*99*		*80 - 120*		*12/04/18 20:29*	*1*
4-Bromofluorobenzene (Surr)	*113*		*80 - 125*		*12/04/18 20:29*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 120*		*12/04/18 20:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*117*		*80 - 126*		*12/04/18 20:29*	*1*

Client Sample ID: PDI-WS-T07-1811

Date Collected: 11/28/18 13:18
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-5

Matrix: Water

Method: 8151A - Herbicides (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MCPP	ND		1.1	0.18	ug/L		12/04/18 17:03	12/27/18 16:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*82*		*44 - 145*	*12/04/18 17:03*	*12/27/18 16:02*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**8.6**		1.1	0.16	mg/L		12/10/18 19:02	12/13/18 00:37	1
Magnesium	**2.8**		1.1	0.13	mg/L		12/10/18 19:02	12/13/18 00:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.46**	**J**	1.0	0.20	ug/L		12/10/18 19:05	12/11/18 14:55	1
Chromium	ND		0.40	0.17	ug/L		12/10/18 19:05	12/11/18 14:55	1
Copper	ND		2.0	0.60	ug/L		12/10/18 19:05	12/11/18 14:55	1
Zinc	**1.9**	**J**	7.0	1.9	ug/L		12/10/18 19:05	12/11/18 14:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.59**	**J**	1.0	0.20	ug/L		12/10/18 19:02	12/12/18 16:47	1
Chromium	**0.32**	**J**	0.40	0.17	ug/L		12/10/18 19:02	12/12/18 16:47	1
Copper	**0.78**	**J**	2.0	0.60	ug/L		12/10/18 19:02	12/12/18 16:47	1
Zinc	**2.8**	**J**	7.0	1.9	ug/L		12/10/18 19:02	12/12/18 16:47	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Hardness as calcium carbonate	**33**		1.1	1.1	mg/L			12/08/18 10:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**50**		10	10	mg/L			12/04/18 14:37	1
Total Suspended Solids	ND		2.0	2.0	mg/L			12/05/18 15:56	1
Total Organic Carbon	**1.7**		1.0	0.19	mg/L			12/05/18 13:37	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	**2.3**		1.0	0.19	mg/L			12/07/18 02:16	1

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T07E-1811
Date Collected: 11/28/18 10:28
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-6
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/05/18 20:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*113*		*80 - 122*		*12/05/18 20:37*	*1*
Trifluorotoluene (Surr)	*93*		*80 - 120*		*12/05/18 20:37*	*1*
4-Bromofluorobenzene (Surr)	*113*		*80 - 125*		*12/05/18 20:37*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*12/05/18 20:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*80 - 126*		*12/05/18 20:37*	*1*

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T07W-1811
Date Collected: 11/28/18 11:00
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-7
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/05/18 21:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*113*		*80 - 122*		*12/05/18 21:02*	*1*
Trifluorotoluene (Surr)	*95*		*80 - 120*		*12/05/18 21:02*	*1*
4-Bromofluorobenzene (Surr)	*112*		*80 - 125*		*12/05/18 21:02*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*12/05/18 21:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*80 - 126*		*12/05/18 21:02*	*1*

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T07N-1811
Date Collected: 11/28/18 13:01
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-8
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/05/18 21:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*111*		*80 - 122*		*12/05/18 21:27*	*1*
Trifluorotoluene (Surr)	*99*		*80 - 120*		*12/05/18 21:27*	*1*
4-Bromofluorobenzene (Surr)	*114*		*80 - 125*		*12/05/18 21:27*	*1*
Dibromofluoromethane (Surr)	*107*		*77 - 120*		*12/05/18 21:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*115*		*80 - 126*		*12/05/18 21:27*	*1*

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: Trip Blank 01
Date Collected: 11/27/18 00:00
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-9
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/05/18 17:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*108*		*80 - 122*		*12/05/18 17:18*	*1*
Trifluorotoluene (Surr)	*96*		*80 - 120*		*12/05/18 17:18*	*1*
4-Bromofluorobenzene (Surr)	*108*		*80 - 125*		*12/05/18 17:18*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 120*		*12/05/18 17:18*	*1*
1,2-Dichloroethane-d4 (Surr)	*109*		*80 - 126*		*12/05/18 17:18*	*1*

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: Trip Blank 07
Date Collected: 11/27/18 00:00
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-10
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/05/18 17:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*112*		*80 - 122*		*12/05/18 17:43*	*1*
Trifluorotoluene (Surr)	*95*		*80 - 120*		*12/05/18 17:43*	*1*
4-Bromofluorobenzene (Surr)	*111*		*80 - 125*		*12/05/18 17:43*	*1*
Dibromofluoromethane (Surr)	*103*		*77 - 120*		*12/05/18 17:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*112*		*80 - 126*		*12/05/18 17:43*	*1*

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: Trip Blank 03
Date Collected: 11/27/18 00:00
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-11
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/05/18 18:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*111*		*80 - 122*		*12/05/18 18:08*	*1*
Trifluorotoluene (Surr)	*94*		*80 - 120*		*12/05/18 18:08*	*1*
4-Bromofluorobenzene (Surr)	*115*		*80 - 125*		*12/05/18 18:08*	*1*
Dibromofluoromethane (Surr)	*105*		*77 - 120*		*12/05/18 18:08*	*1*
1,2-Dichloroethane-d4 (Surr)	*108*		*80 - 126*		*12/05/18 18:08*	*1*

Client Sample ID: PDI-RB-PP-181129

Date Collected: 11/29/18 10:00
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-12

Matrix: Water

Method: 8151A - Herbicides (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MCPP	ND		1.1	0.18	ug/L		12/04/18 17:03	12/27/18 16:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*73*		*44 - 145*	*12/04/18 17:03*	*12/27/18 16:27*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.16	mg/L		12/10/18 19:02	12/13/18 01:05	1
Magnesium	ND		1.1	0.13	mg/L		12/10/18 19:02	12/13/18 01:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.20	ug/L		12/10/18 19:05	12/11/18 15:00	1
Chromium	ND		0.40	0.17	ug/L		12/10/18 19:05	12/11/18 15:00	1
Copper	ND		2.0	0.60	ug/L		12/10/18 19:05	12/11/18 15:00	1
Zinc	ND		7.0	1.9	ug/L		12/10/18 19:05	12/11/18 15:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.20	ug/L		12/10/18 19:02	12/12/18 17:31	1
Chromium	ND		0.40	0.17	ug/L		12/10/18 19:02	12/12/18 17:31	1
Copper	ND		2.0	0.60	ug/L		12/10/18 19:02	12/12/18 17:31	1
Zinc	ND		7.0	1.9	ug/L		12/10/18 19:02	12/12/18 17:31	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Hardness as calcium carbonate	ND		1.1	1.1	mg/L			12/08/18 10:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**0.56**	**J**	1.0	0.19	mg/L			12/10/18 14:52	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	**0.40**	**J**	1.0	0.19	mg/L			12/07/18 02:16	1

Client Sample ID: PDI-WS-T05-1811

Date Collected: 11/27/18 15:44
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-13

Matrix: Water

Method: 8151A - Herbicides (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MCPP	ND		1.1	0.19	ug/L		12/04/18 17:03	12/27/18 16:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*78*		*44 - 145*	*12/04/18 17:03*	*12/27/18 16:53*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**7.9**		1.1	0.16	mg/L		12/10/18 19:02	12/13/18 01:08	1
Magnesium	**2.6**		1.1	0.13	mg/L		12/10/18 19:02	12/13/18 01:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.61**	**J**	1.0	0.20	ug/L		12/10/18 19:05	12/11/18 15:04	1
Chromium	**0.32**	**J**	0.40	0.17	ug/L		12/10/18 19:05	12/11/18 15:04	1
Copper	**0.64**	**J**	2.0	0.60	ug/L		12/10/18 19:05	12/11/18 15:04	1
Zinc	**3.2**	**J**	7.0	1.9	ug/L		12/10/18 19:05	12/11/18 15:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.52**	**J**	1.0	0.20	ug/L		12/10/18 19:02	12/12/18 17:35	1
Chromium	**0.22**	**J**	0.40	0.17	ug/L		12/10/18 19:02	12/12/18 17:35	1
Copper	ND		2.0	0.60	ug/L		12/10/18 19:02	12/12/18 17:35	1
Zinc	**2.7**	**J**	7.0	1.9	ug/L		12/10/18 19:02	12/12/18 17:35	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Hardness as calcium carbonate	**31**		1.1	1.1	mg/L			12/08/18 10:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**52**		10	10	mg/L			12/04/18 14:37	1
Total Suspended Solids	ND		2.0	2.0	mg/L			12/04/18 15:58	1
Total Organic Carbon	**1.5**		1.0	0.19	mg/L			12/10/18 14:52	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	**2.1**		1.0	0.19	mg/L			12/07/18 02:16	1

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T05N-1811
Date Collected: 11/27/18 13:20
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-14
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/05/18 18:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*110*		*80 - 122*		*12/05/18 18:33*	*1*
Trifluorotoluene (Surr)	*93*		*80 - 120*		*12/05/18 18:33*	*1*
4-Bromofluorobenzene (Surr)	*115*		*80 - 125*		*12/05/18 18:33*	*1*
Dibromofluoromethane (Surr)	*103*		*77 - 120*		*12/05/18 18:33*	*1*
1,2-Dichloroethane-d4 (Surr)	*109*		*80 - 126*		*12/05/18 18:33*	*1*

Client Sample ID: PDI-WS-T05E-1811
Date Collected: 11/27/18 11:45
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-15
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/05/18 18:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*110*		*80 - 122*		*12/05/18 18:58*	*1*
Trifluorotoluene (Surr)	*94*		*80 - 120*		*12/05/18 18:58*	*1*
4-Bromofluorobenzene (Surr)	*117*		*80 - 125*		*12/05/18 18:58*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 120*		*12/05/18 18:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*111*		*80 - 126*		*12/05/18 18:58*	*1*

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T05W-1811
Date Collected: 11/27/18 14:50
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-16
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/05/18 19:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*113*		*80 - 122*		*12/05/18 19:23*	*1*
Trifluorotoluene (Surr)	*94*		*80 - 120*		*12/05/18 19:23*	*1*
4-Bromofluorobenzene (Surr)	*113*		*80 - 125*		*12/05/18 19:23*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*12/05/18 19:23*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*80 - 126*		*12/05/18 19:23*	*1*

Client Sample ID: PDI-WS-T01-1811

Date Collected: 11/28/18 14:26
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-17

Matrix: Water

Method: 8151A - Herbicides (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MCPP	ND		1.2	0.20	ug/L		12/04/18 17:03	12/27/18 17:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*86*		*44 - 145*	*12/04/18 17:03*	*12/27/18 17:19*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**7.9**		1.1	0.16	mg/L		12/10/18 19:02	12/13/18 01:12	1
Magnesium	**3.0**		1.1	0.13	mg/L		12/10/18 19:02	12/13/18 01:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.55**	**J**	1.0	0.20	ug/L		12/10/18 19:05	12/11/18 15:08	1
Chromium	**0.25**	**J**	0.40	0.17	ug/L		12/10/18 19:05	12/11/18 15:08	1
Copper	**0.63**	**J**	2.0	0.60	ug/L		12/10/18 19:05	12/11/18 15:08	1
Zinc	**2.3**	**J**	7.0	1.9	ug/L		12/10/18 19:05	12/11/18 15:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.45**	**J**	1.0	0.20	ug/L		12/10/18 19:02	12/12/18 17:40	1
Chromium	**0.59**		0.40	0.17	ug/L		12/10/18 19:02	12/12/18 17:40	1
Copper	**0.69**	**J**	2.0	0.60	ug/L		12/10/18 19:02	12/12/18 17:40	1
Zinc	**2.7**	**J**	7.0	1.9	ug/L		12/10/18 19:02	12/12/18 17:40	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Hardness as calcium carbonate	**32**		1.1	1.1	mg/L			12/08/18 10:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**58**		10	10	mg/L			12/04/18 14:37	1
Total Suspended Solids	ND		2.0	2.0	mg/L			12/05/18 15:56	1
Total Organic Carbon	**1.3**		1.0	0.19	mg/L			12/10/18 14:52	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	**1.5**		1.0	0.19	mg/L			12/07/18 02:16	1

Client Sample ID: PDI-WS-T01-1811D

Date Collected: 11/28/18 14:26
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-18

Matrix: Water

Method: 8151A - Herbicides (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MCPP	ND		1.1	0.18	ug/L		12/04/18 17:03	12/27/18 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*93*		*44 - 145*	*12/04/18 17:03*	*12/27/18 17:44*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**8.0**		1.1	0.16	mg/L		12/10/18 19:02	12/13/18 01:15	1
Magnesium	**3.1**		1.1	0.13	mg/L		12/10/18 19:02	12/13/18 01:15	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.48**	**J**	1.0	0.20	ug/L		12/10/18 19:05	12/11/18 15:13	1
Chromium	**0.21**	**J**	0.40	0.17	ug/L		12/10/18 19:05	12/11/18 15:13	1
Copper	**0.61**	**J**	2.0	0.60	ug/L		12/10/18 19:05	12/11/18 15:13	1
Zinc	**2.1**	**J**	7.0	1.9	ug/L		12/10/18 19:05	12/11/18 15:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.59**	**J**	1.0	0.20	ug/L		12/10/18 19:02	12/12/18 17:44	1
Chromium	**0.19**	**J**	0.40	0.17	ug/L		12/10/18 19:02	12/12/18 17:44	1
Copper	**0.67**	**J**	2.0	0.60	ug/L		12/10/18 19:02	12/12/18 17:44	1
Zinc	**2.4**	**J**	7.0	1.9	ug/L		12/10/18 19:02	12/12/18 17:44	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Hardness as calcium carbonate	**33**		1.1	1.1	mg/L			12/08/18 10:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**70**		10	10	mg/L			12/04/18 14:37	1
Total Suspended Solids	ND		2.0	2.0	mg/L			12/05/18 15:56	1
Total Organic Carbon	**1.4**		1.0	0.19	mg/L			12/10/18 14:52	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	**2.0**		1.0	0.19	mg/L			12/07/18 02:16	1

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T01N-1811
Date Collected: 11/28/18 12:46
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-19
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/05/18 21:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*110*		*80 - 122*		*12/05/18 21:52*	*1*
Trifluorotoluene (Surr)	*95*		*80 - 120*		*12/05/18 21:52*	*1*
4-Bromofluorobenzene (Surr)	*114*		*80 - 125*		*12/05/18 21:52*	*1*
Dibromofluoromethane (Surr)	*104*		*77 - 120*		*12/05/18 21:52*	*1*
1,2-Dichloroethane-d4 (Surr)	*119*		*80 - 126*		*12/05/18 21:52*	*1*

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T01E-1811
Date Collected: 11/28/18 14:15
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-20
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/06/18 02:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*80 - 122*		*12/06/18 02:22*	*1*
Trifluorotoluene (Surr)	*95*		*80 - 120*		*12/06/18 02:22*	*1*
4-Bromofluorobenzene (Surr)	*112*		*80 - 125*		*12/06/18 02:22*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*12/06/18 02:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*80 - 126*		*12/06/18 02:22*	*1*

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T01W-1811
Date Collected: 11/28/18 11:14
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-21
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/06/18 02:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*113*		*80 - 122*		*12/06/18 02:47*	*1*
Trifluorotoluene (Surr)	*98*		*80 - 120*		*12/06/18 02:47*	*1*
4-Bromofluorobenzene (Surr)	*114*		*80 - 125*		*12/06/18 02:47*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*12/06/18 02:47*	*1*
1,2-Dichloroethane-d4 (Surr)	*114*		*80 - 126*		*12/06/18 02:47*	*1*

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T01N-1811D
Date Collected: 11/28/18 12:46
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-22
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/06/18 03:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*110*		*80 - 122*		*12/06/18 03:11*	*1*
Trifluorotoluene (Surr)	*99*		*80 - 120*		*12/06/18 03:11*	*1*
4-Bromofluorobenzene (Surr)	*114*		*80 - 125*		*12/06/18 03:11*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*12/06/18 03:11*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*80 - 126*		*12/06/18 03:11*	*1*

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T 01W-1811D
Date Collected: 11/28/18 11:14
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-23
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/06/18 03:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*111*		*80 - 122*		*12/06/18 03:36*	*1*
Trifluorotoluene (Surr)	*94*		*80 - 120*		*12/06/18 03:36*	*1*
4-Bromofluorobenzene (Surr)	*118*		*80 - 125*		*12/06/18 03:36*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*12/06/18 03:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*115*		*80 - 126*		*12/06/18 03:36*	*1*

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: Trip Blank 05
Date Collected: 11/27/18 00:00
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-24
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/05/18 19:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*111*		*80 - 122*		*12/05/18 19:48*	*1*
Trifluorotoluene (Surr)	*96*		*80 - 120*		*12/05/18 19:48*	*1*
4-Bromofluorobenzene (Surr)	*116*		*80 - 125*		*12/05/18 19:48*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*12/05/18 19:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*80 - 126*		*12/05/18 19:48*	*1*

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: Trip Blank
Date Collected: 11/27/18 00:00
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-25
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/05/18 20:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*80 - 122*		*12/05/18 20:13*	*1*
Trifluorotoluene (Surr)	*94*		*80 - 120*		*12/05/18 20:13*	*1*
4-Bromofluorobenzene (Surr)	*112*		*80 - 125*		*12/05/18 20:13*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 120*		*12/05/18 20:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*80 - 126*		*12/05/18 20:13*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-290214/5
Matrix: Water
Analysis Batch: 290214

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/04/18 10:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*111*		*80 - 122*		*12/04/18 10:58*	*1*
Trifluorotoluene (Surr)	*93*		*80 - 120*		*12/04/18 10:58*	*1*
4-Bromofluorobenzene (Surr)	*117*		*80 - 125*		*12/04/18 10:58*	*1*
Dibromofluoromethane (Surr)	*104*		*77 - 120*		*12/04/18 10:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*80 - 126*		*12/04/18 10:58*	*1*

Lab Sample ID: LCS 580-290214/6
Matrix: Water
Analysis Batch: 290214

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylbenzene			10.0	10.1		ug/L		101	75 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*106*		*80 - 122*
Trifluorotoluene (Surr)	*96*		*80 - 120*
4-Bromofluorobenzene (Surr)	*115*		*80 - 125*
Dibromofluoromethane (Surr)	*103*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*116*		*80 - 126*

Lab Sample ID: LCSD 580-290214/7
Matrix: Water
Analysis Batch: 290214

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
Ethylbenzene			10.0	11.2		ug/L		112	75 - 120	10	14

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*109*		*80 - 122*
Trifluorotoluene (Surr)	*93*		*80 - 120*
4-Bromofluorobenzene (Surr)	*118*		*80 - 125*
Dibromofluoromethane (Surr)	*101*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*113*		*80 - 126*

Lab Sample ID: MB 580-290324/5
Matrix: Water
Analysis Batch: 290324

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/05/18 10:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*110*		*80 - 122*		*12/05/18 10:58*	*1*
Trifluorotoluene (Surr)	*95*		*80 - 120*		*12/05/18 10:58*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-290324/5
Matrix: Water
Analysis Batch: 290324

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		80 - 125		12/05/18 10:58	1
Dibromofluoromethane (Surr)	100		77 - 120		12/05/18 10:58	1
1,2-Dichloroethane-d4 (Surr)	108		80 - 126		12/05/18 10:58	1

Lab Sample ID: LCS 580-290324/6
Matrix: Water
Analysis Batch: 290324

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylbenzene			10.0	10.5		ug/L		105	75 - 120		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	108		80 - 122
Trifluorotoluene (Surr)	92		80 - 120
4-Bromofluorobenzene (Surr)	115		80 - 125
Dibromofluoromethane (Surr)	98		77 - 120
1,2-Dichloroethane-d4 (Surr)	111		80 - 126

Lab Sample ID: LCSD 580-290324/7
Matrix: Water
Analysis Batch: 290324

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
Ethylbenzene			10.0	10.8		ug/L		108	75 - 120	3	14

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	109		80 - 122
Trifluorotoluene (Surr)	94		80 - 120
4-Bromofluorobenzene (Surr)	115		80 - 125
Dibromofluoromethane (Surr)	98		77 - 120
1,2-Dichloroethane-d4 (Surr)	109		80 - 126

Lab Sample ID: MB 580-290386/5
Matrix: Water
Analysis Batch: 290386

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			12/05/18 23:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	110		80 - 122		12/05/18 23:54	1
Trifluorotoluene (Surr)	95		80 - 120		12/05/18 23:54	1
4-Bromofluorobenzene (Surr)	114		80 - 125		12/05/18 23:54	1
Dibromofluoromethane (Surr)	101		77 - 120		12/05/18 23:54	1
1,2-Dichloroethane-d4 (Surr)	120		80 - 126		12/05/18 23:54	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-290386/6
Matrix: Water
Analysis Batch: 290386

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylbenzene			10.0	10.9		ug/L		109	75 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*109*		*80 - 122*
Trifluorotoluene (Surr)	*94*		*80 - 120*
4-Bromofluorobenzene (Surr)	*113*		*80 - 125*
Dibromofluoromethane (Surr)	*99*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*114*		*80 - 126*

Lab Sample ID: LCSD 580-290386/7
Matrix: Water
Analysis Batch: 290386

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
Ethylbenzene			10.0	10.0		ug/L		100	75 - 120	9	14

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*106*		*80 - 122*
Trifluorotoluene (Surr)	*94*		*80 - 120*
4-Bromofluorobenzene (Surr)	*109*		*80 - 125*
Dibromofluoromethane (Surr)	*102*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*115*		*80 - 126*

Lab Sample ID: 580-82189-2 MS
Matrix: Water
Analysis Batch: 290386

Client Sample ID: PDI-WS-T03W-1811
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylbenzene	ND		11.6	13.1		ug/L		113	75 - 120		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*107*		*80 - 122*
Trifluorotoluene (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*109*		*80 - 125*
Dibromofluoromethane (Surr)	*104*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*118*		*80 - 126*

Lab Sample ID: 580-82189-2 MSD
Matrix: Water
Analysis Batch: 290386

Client Sample ID: PDI-WS-T03W-1811
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	ND		11.6	10.8		ug/L		92	75 - 120	20	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*110*		*80 - 122*
Trifluorotoluene (Surr)	*90*		*80 - 120*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 580-82189-2 MSD
Matrix: Water
Analysis Batch: 290386

Client Sample ID: PDI-WS-T03W-1811
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		80 - 125
Dibromofluoromethane (Surr)	96		77 - 120
1,2-Dichloroethane-d4 (Surr)	107		80 - 126

Method: 8151A - Herbicides (GC/MS)

Lab Sample ID: MB 580-290295/1-A
Matrix: Water
Analysis Batch: 292097

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 290295

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MCPP	ND		1.0	0.17	ug/L		12/04/18 17:03	12/27/18 11:44	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	82		44 - 145	12/04/18 17:03	12/27/18 11:44	1

Lab Sample ID: LCS 580-290295/2-A
Matrix: Water
Analysis Batch: 292097

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 290295

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
MCPP			5.00	3.42		ug/L		68	61 - 135		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4-Dichlorophenylacetic acid	75		44 - 145

Lab Sample ID: LCSD 580-290295/3-A
Matrix: Water
Analysis Batch: 292097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 290295

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
MCPP			5.00	3.84		ug/L		77	61 - 135	12	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,4-Dichlorophenylacetic acid	74		44 - 145

Lab Sample ID: 580-82189-1 MS
Matrix: Water
Analysis Batch: 292097

Client Sample ID: PDI-WS-T03-1811
Prep Type: Total/NA
Prep Batch: 290295

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
MCPP	ND		5.48	4.33		ug/L		79	61 - 135		

Surrogate	MS %Recovery	MS Qualifier	Limits
2,4-Dichlorophenylacetic acid	87		44 - 145

Method: 8151A - Herbicides (GC/MS) (Continued)

Lab Sample ID: 580-82189-1 MSD
Matrix: Water
Analysis Batch: 292097

Client Sample ID: PDI-WS-T03-1811
Prep Type: Total/NA
Prep Batch: 290295

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
MCPP	ND		5.25	3.35		ug/L		64	61 - 135	26	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*81*		*44 - 145*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 580-290735/22-A
Matrix: Water
Analysis Batch: 290995

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 290735

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.16	mg/L		12/10/18 19:02	12/13/18 00:28	1
Magnesium	ND		1.1	0.13	mg/L		12/10/18 19:02	12/13/18 00:28	1

Lab Sample ID: LCS 580-290735/23-A
Matrix: Water
Analysis Batch: 290995

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 290735

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	20.1		mg/L		100	80 - 120
Magnesium	20.0	21.0		mg/L		105	80 - 120

Lab Sample ID: LCSD 580-290735/24-A
Matrix: Water
Analysis Batch: 290995

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 290735

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	20.0	20.3		mg/L		101	80 - 120	1	20
Magnesium	20.0	21.2		mg/L		106	80 - 120	1	20

Lab Sample ID: 580-82189-5 MS
Matrix: Water
Analysis Batch: 290995

Client Sample ID: PDI-WS-T07-1811
Prep Type: Dissolved
Prep Batch: 290735

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	8.6		20.0	26.2		mg/L		88	75 - 125
Magnesium	2.8		20.0	21.9		mg/L		96	75 - 125

Lab Sample ID: 580-82189-5 MSD
Matrix: Water
Analysis Batch: 290995

Client Sample ID: PDI-WS-T07-1811
Prep Type: Dissolved
Prep Batch: 290735

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	8.6		20.0	28.2		mg/L		98	75 - 125	7	20
Magnesium	2.8		20.0	23.6		mg/L		104	75 - 125	8	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 580-82189-5 DU
Matrix: Water
Analysis Batch: 290995

Client Sample ID: PDI-WS-T07-1811
Prep Type: Dissolved
Prep Batch: 290735

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	8.6		8.42		mg/L		2	20
Magnesium	2.8		2.72		mg/L		2	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-290735/22-A
Matrix: Water
Analysis Batch: 290996

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 290735

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.20	ug/L		12/10/18 19:02	12/12/18 16:34	1
Chromium	ND		0.40	0.17	ug/L		12/10/18 19:02	12/12/18 16:34	1
Copper	ND		2.0	0.60	ug/L		12/10/18 19:02	12/12/18 16:34	1
Zinc	ND		7.0	1.9	ug/L		12/10/18 19:02	12/12/18 16:34	1

Lab Sample ID: LCS 580-290735/23-A
Matrix: Water
Analysis Batch: 290996

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 290735

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1000	988		ug/L		99	80 - 120
Chromium	1000	991		ug/L		99	80 - 120
Copper	1000	989		ug/L		99	80 - 120
Zinc	1000	948		ug/L		95	80 - 120

Lab Sample ID: LCSD 580-290735/24-A
Matrix: Water
Analysis Batch: 290996

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 290735

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	1000	988		ug/L		99	80 - 120	0	20
Chromium	1000	992		ug/L		99	80 - 120	0	20
Copper	1000	998		ug/L		100	80 - 120	1	20
Zinc	1000	977		ug/L		98	80 - 120	3	20

Lab Sample ID: MB 580-290737/22-A
Matrix: Water
Analysis Batch: 290866

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 290737

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.20	ug/L		12/10/18 19:05	12/11/18 14:00	1
Chromium	ND		0.40	0.17	ug/L		12/10/18 19:05	12/11/18 14:00	1
Copper	ND		2.0	0.60	ug/L		12/10/18 19:05	12/11/18 14:00	1
Zinc	ND		7.0	1.9	ug/L		12/10/18 19:05	12/11/18 14:00	1

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

Lab Sample ID: LCS 580-290737/23-A
Matrix: Water
Analysis Batch: 290866

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 290737

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1000	1000		ug/L		100	80 - 120
Chromium	1000	974		ug/L		97	80 - 120
Copper	1000	969		ug/L		97	80 - 120
Zinc	1000	975		ug/L		97	80 - 120

Lab Sample ID: LCSD 580-290737/24-A
Matrix: Water
Analysis Batch: 290866

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 290737

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	1000	1000		ug/L		100	80 - 120	0	20
Chromium	1000	975		ug/L		98	80 - 120	0	20
Copper	1000	971		ug/L		97	80 - 120	0	20
Zinc	1000	994		ug/L		99	80 - 120	2	20

Lab Sample ID: 580-82189-1 MS
Matrix: Water
Analysis Batch: 290866

Client Sample ID: PDI-WS-T03-1811
Prep Type: Total Recoverable
Prep Batch: 290737

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.56	J	1000	957		ug/L		96	80 - 120
Chromium	0.21	J	1000	941		ug/L		94	80 - 120
Copper	ND		1000	941		ug/L		94	80 - 120
Zinc	2.6	J	1000	926		ug/L		92	80 - 120

Lab Sample ID: 580-82189-1 MSD
Matrix: Water
Analysis Batch: 290866

Client Sample ID: PDI-WS-T03-1811
Prep Type: Total Recoverable
Prep Batch: 290737

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.56	J	1000	979		ug/L		98	80 - 120	2	20
Chromium	0.21	J	1000	952		ug/L		95	80 - 120	1	20
Copper	ND		1000	935		ug/L		93	80 - 120	1	20
Zinc	2.6	J	1000	954		ug/L		95	80 - 120	3	20

Lab Sample ID: 580-82189-1 DU
Matrix: Water
Analysis Batch: 290866

Client Sample ID: PDI-WS-T03-1811
Prep Type: Total Recoverable
Prep Batch: 290737

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.56	J	0.523	J	ug/L		7	20
Chromium	0.21	J	0.224	J	ug/L		5	20
Copper	ND		ND		ug/L		NC	20
Zinc	2.6	J	2.33	J	ug/L		12	20

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

Lab Sample ID: 580-82189-5 MS
Matrix: Water
Analysis Batch: 290996

Client Sample ID: PDI-WS-T07-1811
Prep Type: Dissolved
Prep Batch: 290735

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.59	J	1000	1050		ug/L		104	80 - 120
Chromium	0.32	J	1000	1040		ug/L		104	80 - 120
Copper	0.78	J	1000	1050		ug/L		105	80 - 120
Zinc	2.8	J	1000	1040		ug/L		103	80 - 120

Lab Sample ID: 580-82189-5 MSD
Matrix: Water
Analysis Batch: 290996

Client Sample ID: PDI-WS-T07-1811
Prep Type: Dissolved
Prep Batch: 290735

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.59	J	1000	986		ug/L		99	80 - 120	6	20
Chromium	0.32	J	1000	979		ug/L		98	80 - 120	6	20
Copper	0.78	J	1000	984		ug/L		98	80 - 120	7	20
Zinc	2.8	J	1000	970		ug/L		97	80 - 120	6	20

Lab Sample ID: 580-82189-5 DU
Matrix: Water
Analysis Batch: 290996

Client Sample ID: PDI-WS-T07-1811
Prep Type: Dissolved
Prep Batch: 290735

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.59	J	0.637	J	ug/L		8	20
Chromium	0.32	J	0.324	J	ug/L		2	20
Copper	0.78	J	0.780	J	ug/L		0.1	20
Zinc	2.8	J	2.71	J	ug/L		2	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 580-290262/1
Matrix: Water
Analysis Batch: 290262

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	10	mg/L			12/04/18 14:36	1

Lab Sample ID: LCS 580-290262/2
Matrix: Water
Analysis Batch: 290262

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	888		mg/L		89	80 - 120

Lab Sample ID: 580-82189-1 DU
Matrix: Water
Analysis Batch: 290262

Client Sample ID: PDI-WS-T03-1811
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	78		76.0		mg/L		3	20

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 580-290277/1
Matrix: Water
Analysis Batch: 290277

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			12/04/18 15:58	1

Lab Sample ID: LCS 580-290277/2
Matrix: Water
Analysis Batch: 290277

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	24.0		mg/L		87	70.6 - 120

Lab Sample ID: 580-82189-1 DU
Matrix: Water
Analysis Batch: 290277

Client Sample ID: PDI-WS-T03-1811
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	ND		ND		mg/L		NC	20

Lab Sample ID: MB 580-290384/1
Matrix: Water
Analysis Batch: 290384

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			12/05/18 15:56	1

Lab Sample ID: LCS 580-290384/2
Matrix: Water
Analysis Batch: 290384

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	27.2		mg/L		99	70.6 - 120

Lab Sample ID: 580-82189-5 DU
Matrix: Water
Analysis Batch: 290384

Client Sample ID: PDI-WS-T07-1811
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	ND		ND		mg/L		NC	20

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

Lab Sample ID: MB 580-290689/49
Matrix: Water
Analysis Batch: 290689

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.19	mg/L			12/05/18 13:37	1

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

Lab Sample ID: LCS 580-290689/50
Matrix: Water
Analysis Batch: 290689

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.86		mg/L		99	85 - 115

Method: SM 5310B - Organic Carbon, Dissolved (DOC)

Lab Sample ID: MB 580-290742/3
Matrix: Water
Analysis Batch: 290742

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	ND		1.0	0.19	mg/L			12/07/18 02:16	1

Lab Sample ID: LCS 580-290742/4
Matrix: Water
Analysis Batch: 290742

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.57		mg/L		96	85 - 115

Lab Sample ID: 580-82189-1 MS
Matrix: Water
Analysis Batch: 290742

Client Sample ID: PDI-WS-T03-1811
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	1.7		10.0	11.4		mg/L		97	85 - 115

Lab Sample ID: 580-82189-1 MSD
Matrix: Water
Analysis Batch: 290742

Client Sample ID: PDI-WS-T03-1811
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	1.7		10.0	11.5		mg/L		98	85 - 115	1	20

Client Sample ID: PDI-WS-T03-1811

Lab Sample ID: 580-82189-1

Date Collected: 11/27/18 16:22

Matrix: Water

Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			290295	12/04/18 17:03	ERZ	TAL SEA
Total/NA	Analysis	8151A		1	292097	12/27/18 14:44	ADB	TAL SEA
Dissolved	Prep	3005A			290735	12/10/18 19:02	T1H	TAL SEA
Dissolved	Analysis	6010C		1	290995	12/13/18 01:02	HJM	TAL SEA
Dissolved	Prep	3005A			290735	12/10/18 19:02	T1H	TAL SEA
Dissolved	Analysis	6020B		1	290996	12/12/18 17:27	FCW	TAL SEA
Total Recoverable	Prep	3005A			290737	12/10/18 19:05	JKM	TAL SEA
Total Recoverable	Analysis	6020B		1	290866	12/11/18 14:17	FCW	TAL SEA
Dissolved	Analysis	SM 2340B		1	290598	12/08/18 10:26	R1K	TAL SEA
Total/NA	Analysis	SM 2540C		1	290262	12/04/18 14:36	R1K	TAL SEA
Total/NA	Analysis	SM 2540D		1	290277	12/04/18 15:58	EMM	TAL SEA
Dissolved	Analysis	SM 5310B		1	290742	12/07/18 02:16	HJM	TAL SEA
Total/NA	Analysis	SM 5310B		1	290689	12/05/18 13:37	HJM	TAL SEA

Client Sample ID: PDI-WS-T03W-1811

Lab Sample ID: 580-82189-2

Date Collected: 11/27/18 13:24

Matrix: Water

Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290386	12/06/18 01:08	E1L	TAL SEA

Client Sample ID: PDI-WS-T03N-1811

Lab Sample ID: 580-82189-3

Date Collected: 11/27/18 14:55

Matrix: Water

Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290214	12/04/18 20:04	W1T	TAL SEA

Client Sample ID: PDI-WS-T03E-1811

Lab Sample ID: 580-82189-4

Date Collected: 11/27/18 16:02

Matrix: Water

Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290214	12/04/18 20:29	W1T	TAL SEA

Client Sample ID: PDI-WS-T07-1811

Lab Sample ID: 580-82189-5

Date Collected: 11/28/18 13:18

Matrix: Water

Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			290295	12/04/18 17:03	ERZ	TAL SEA
Total/NA	Analysis	8151A		1	292097	12/27/18 16:02	ADB	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T07-1811

Lab Sample ID: 580-82189-5
Date Collected: 11/28/18 13:18
Matrix: Water
Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			290735	12/10/18 19:02	T1H	TAL SEA
Dissolved	Analysis	6010C		1	290995	12/13/18 00:37	HJM	TAL SEA
Dissolved	Prep	3005A			290735	12/10/18 19:02	T1H	TAL SEA
Dissolved	Analysis	6020B		1	290996	12/12/18 16:47	FCW	TAL SEA
Total Recoverable	Prep	3005A			290737	12/10/18 19:05	JKM	TAL SEA
Total Recoverable	Analysis	6020B		1	290866	12/11/18 14:55	FCW	TAL SEA
Dissolved	Analysis	SM 2340B		1	290598	12/08/18 10:26	R1K	TAL SEA
Total/NA	Analysis	SM 2540C		1	290262	12/04/18 14:37	R1K	TAL SEA
Total/NA	Analysis	SM 2540D		1	290384	12/05/18 15:56	EMM	TAL SEA
Dissolved	Analysis	SM 5310B		1	290742	12/07/18 02:16	HJM	TAL SEA
Total/NA	Analysis	SM 5310B		1	290689	12/05/18 13:37	HJM	TAL SEA

Client Sample ID: PDI-WS-T07E-1811

Lab Sample ID: 580-82189-6
Date Collected: 11/28/18 10:28
Matrix: Water
Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290324	12/05/18 20:37	CJ	TAL SEA

Client Sample ID: PDI-WS-T07W-1811

Lab Sample ID: 580-82189-7
Date Collected: 11/28/18 11:00
Matrix: Water
Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290324	12/05/18 21:02	CJ	TAL SEA

Client Sample ID: PDI-WS-T07N-1811

Lab Sample ID: 580-82189-8
Date Collected: 11/28/18 13:01
Matrix: Water
Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290324	12/05/18 21:27	CJ	TAL SEA

Client Sample ID: Trip Blank 01

Lab Sample ID: 580-82189-9
Date Collected: 11/27/18 00:00
Matrix: Water
Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290324	12/05/18 17:18	CJ	TAL SEA

Client Sample ID: Trip Blank 07

Lab Sample ID: 580-82189-10
Matrix: Water
Date Collected: 11/27/18 00:00
Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290324	12/05/18 17:43	CJ	TAL SEA

Client Sample ID: Trip Blank 03

Lab Sample ID: 580-82189-11
Matrix: Water
Date Collected: 11/27/18 00:00
Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290324	12/05/18 18:08	CJ	TAL SEA

Client Sample ID: PDI-RB-PP-181129

Lab Sample ID: 580-82189-12
Matrix: Water
Date Collected: 11/29/18 10:00
Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			290295	12/04/18 17:03	ERZ	TAL SEA
Total/NA	Analysis	8151A		1	292097	12/27/18 16:27	ADB	TAL SEA
Dissolved	Prep	3005A			290735	12/10/18 19:02	T1H	TAL SEA
Dissolved	Analysis	6010C		1	290995	12/13/18 01:05	HJM	TAL SEA
Dissolved	Prep	3005A			290735	12/10/18 19:02	T1H	TAL SEA
Dissolved	Analysis	6020B		1	290996	12/12/18 17:31	FCW	TAL SEA
Total Recoverable	Prep	3005A			290737	12/10/18 19:05	JKM	TAL SEA
Total Recoverable	Analysis	6020B		1	290866	12/11/18 15:00	FCW	TAL SEA
Dissolved	Analysis	SM 2340B		1	290598	12/08/18 10:26	R1K	TAL SEA
Dissolved	Analysis	SM 5310B		1	290742	12/07/18 02:16	HJM	TAL SEA
Total/NA	Analysis	SM 5310B		1	290689	12/10/18 14:52	HJM	TAL SEA

Client Sample ID: PDI-WS-T05-1811

Lab Sample ID: 580-82189-13
Matrix: Water
Date Collected: 11/27/18 15:44
Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			290295	12/04/18 17:03	ERZ	TAL SEA
Total/NA	Analysis	8151A		1	292097	12/27/18 16:53	ADB	TAL SEA
Dissolved	Prep	3005A			290735	12/10/18 19:02	T1H	TAL SEA
Dissolved	Analysis	6010C		1	290995	12/13/18 01:08	HJM	TAL SEA
Dissolved	Prep	3005A			290735	12/10/18 19:02	T1H	TAL SEA
Dissolved	Analysis	6020B		1	290996	12/12/18 17:35	FCW	TAL SEA
Total Recoverable	Prep	3005A			290737	12/10/18 19:05	JKM	TAL SEA
Total Recoverable	Analysis	6020B		1	290866	12/11/18 15:04	FCW	TAL SEA
Dissolved	Analysis	SM 2340B		1	290598	12/08/18 10:26	R1K	TAL SEA
Total/NA	Analysis	SM 2540C		1	290262	12/04/18 14:37	R1K	TAL SEA
Total/NA	Analysis	SM 2540D		1	290277	12/04/18 15:58	EMM	TAL SEA

Client Sample ID: PDI-WS-T05-1811

Lab Sample ID: 580-82189-13

Date Collected: 11/27/18 15:44

Matrix: Water

Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	SM 5310B		1	290742	12/07/18 02:16	HJM	TAL SEA
Total/NA	Analysis	SM 5310B		1	290689	12/10/18 14:52	HJM	TAL SEA

Client Sample ID: PDI-WS-T05N-1811

Lab Sample ID: 580-82189-14

Date Collected: 11/27/18 13:20

Matrix: Water

Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290324	12/05/18 18:33	CJ	TAL SEA

Client Sample ID: PDI-WS-T05E-1811

Lab Sample ID: 580-82189-15

Date Collected: 11/27/18 11:45

Matrix: Water

Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290324	12/05/18 18:58	CJ	TAL SEA

Client Sample ID: PDI-WS-T05W-1811

Lab Sample ID: 580-82189-16

Date Collected: 11/27/18 14:50

Matrix: Water

Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290324	12/05/18 19:23	CJ	TAL SEA

Client Sample ID: PDI-WS-T01-1811

Lab Sample ID: 580-82189-17

Date Collected: 11/28/18 14:26

Matrix: Water

Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			290295	12/04/18 17:03	ERZ	TAL SEA
Total/NA	Analysis	8151A		1	292097	12/27/18 17:19	ADB	TAL SEA
Dissolved	Prep	3005A			290735	12/10/18 19:02	T1H	TAL SEA
Dissolved	Analysis	6010C		1	290995	12/13/18 01:12	HJM	TAL SEA
Dissolved	Prep	3005A			290735	12/10/18 19:02	T1H	TAL SEA
Dissolved	Analysis	6020B		1	290996	12/12/18 17:40	FCW	TAL SEA
Total Recoverable	Prep	3005A			290737	12/10/18 19:05	JKM	TAL SEA
Total Recoverable	Analysis	6020B		1	290866	12/11/18 15:08	FCW	TAL SEA
Dissolved	Analysis	SM 2340B		1	290598	12/08/18 10:26	R1K	TAL SEA
Total/NA	Analysis	SM 2540C		1	290262	12/04/18 14:37	R1K	TAL SEA
Total/NA	Analysis	SM 2540D		1	290384	12/05/18 15:56	EMM	TAL SEA
Dissolved	Analysis	SM 5310B		1	290742	12/07/18 02:16	HJM	TAL SEA
Total/NA	Analysis	SM 5310B		1	290689	12/10/18 14:52	HJM	TAL SEA

Client Sample ID: PDI-WS-T01-1811D
Date Collected: 11/28/18 14:26
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-18
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			290295	12/04/18 17:03	ERZ	TAL SEA
Total/NA	Analysis	8151A		1	292097	12/27/18 17:44	ADB	TAL SEA
Dissolved	Prep	3005A			290735	12/10/18 19:02	T1H	TAL SEA
Dissolved	Analysis	6010C		1	290995	12/13/18 01:15	HJM	TAL SEA
Dissolved	Prep	3005A			290735	12/10/18 19:02	T1H	TAL SEA
Dissolved	Analysis	6020B		1	290996	12/12/18 17:44	FCW	TAL SEA
Total Recoverable	Prep	3005A			290737	12/10/18 19:05	JKM	TAL SEA
Total Recoverable	Analysis	6020B		1	290866	12/11/18 15:13	FCW	TAL SEA
Dissolved	Analysis	SM 2340B		1	290598	12/08/18 10:26	R1K	TAL SEA
Total/NA	Analysis	SM 2540C		1	290262	12/04/18 14:37	R1K	TAL SEA
Total/NA	Analysis	SM 2540D		1	290384	12/05/18 15:56	EMM	TAL SEA
Dissolved	Analysis	SM 5310B		1	290742	12/07/18 02:16	HJM	TAL SEA
Total/NA	Analysis	SM 5310B		1	290689	12/10/18 14:52	HJM	TAL SEA

Client Sample ID: PDI-WS-T01N-1811
Date Collected: 11/28/18 12:46
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-19
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290324	12/05/18 21:52	CJ	TAL SEA

Client Sample ID: PDI-WS-T01E-1811
Date Collected: 11/28/18 14:15
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-20
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290386	12/06/18 02:22	E1L	TAL SEA

Client Sample ID: PDI-WS-T01W-1811
Date Collected: 11/28/18 11:14
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-21
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290386	12/06/18 02:47	E1L	TAL SEA

Client Sample ID: PDI-WS-T01N-1811D
Date Collected: 11/28/18 12:46
Date Received: 11/29/18 13:25

Lab Sample ID: 580-82189-22
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290386	12/06/18 03:11	E1L	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-82189-1

Client Sample ID: PDI-WS-T 01W-1811D

Lab Sample ID: 580-82189-23

Date Collected: 11/28/18 11:14

Matrix: Water

Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290386	12/06/18 03:36	E1L	TAL SEA

Client Sample ID: Trip Blank 05

Lab Sample ID: 580-82189-24

Date Collected: 11/27/18 00:00

Matrix: Water

Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290324	12/05/18 19:48	CJ	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-82189-25

Date Collected: 11/27/18 00:00

Matrix: Water

Date Received: 11/29/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	290324	12/05/18 20:13	CJ	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 580-82189-1

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	11-05-19
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: 580-82189-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-82189-1	PDI-WS-T03-1811	Water	11/27/18 16:22	11/29/18 13:25
580-82189-2	PDI-WS-T03W-1811	Water	11/27/18 13:24	11/29/18 13:25
580-82189-3	PDI-WS-T03N-1811	Water	11/27/18 14:55	11/29/18 13:25
580-82189-4	PDI-WS-T03E-1811	Water	11/27/18 16:02	11/29/18 13:25
580-82189-5	PDI-WS-T07-1811	Water	11/28/18 13:18	11/29/18 13:25
580-82189-6	PDI-WS-T07E-1811	Water	11/28/18 10:28	11/29/18 13:25
580-82189-7	PDI-WS-T07W-1811	Water	11/28/18 11:00	11/29/18 13:25
580-82189-8	PDI-WS-T07N-1811	Water	11/28/18 13:01	11/29/18 13:25
580-82189-9	Trip Blank 01	Water	11/27/18 00:00	11/29/18 13:25
580-82189-10	Trip Blank 07	Water	11/27/18 00:00	11/29/18 13:25
580-82189-11	Trip Blank 03	Water	11/27/18 00:00	11/29/18 13:25
580-82189-12	PDI-RB-PP-181129	Water	11/29/18 10:00	11/29/18 13:25
580-82189-13	PDI-WS-T05-1811	Water	11/27/18 15:44	11/29/18 13:25
580-82189-14	PDI-WS-T05N-1811	Water	11/27/18 13:20	11/29/18 13:25
580-82189-15	PDI-WS-T05E-1811	Water	11/27/18 11:45	11/29/18 13:25
580-82189-16	PDI-WS-T05W-1811	Water	11/27/18 14:50	11/29/18 13:25
580-82189-17	PDI-WS-T01-1811	Water	11/28/18 14:26	11/29/18 13:25
580-82189-18	PDI-WS-T01-1811D	Water	11/28/18 14:26	11/29/18 13:25
580-82189-19	PDI-WS-T01N-1811	Water	11/28/18 12:46	11/29/18 13:25
580-82189-20	PDI-WS-T01E-1811	Water	11/28/18 14:15	11/29/18 13:25
580-82189-21	PDI-WS-T01W-1811	Water	11/28/18 11:14	11/29/18 13:25
580-82189-22	PDI-WS-T01N-1811D	Water	11/28/18 12:46	11/29/18 13:25
580-82189-23	PDI-WS-T 01W-1811D	Water	11/28/18 11:14	11/29/18 13:25
580-82189-24	Trip Blank 05	Water	11/27/18 00:00	11/29/18 13:25
580-82189-25	Trip Blank	Water	11/27/18 00:00	11/29/18 13:25

580-82189 Chain of Custody

SURFACE WATER
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) _____ ☐ 21 days ☐ Other _____	**Site Contact: Jennifer Ray / Michaela McCoog** **Laboratory Contact: Elaine-Walker**	**Date: 11/29/2018** **Carrier: TestAmerica Courier**
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 Water			COC No: 2 of 3 COCs

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Ethylbenzene, EPA 8260C	MCPP, EPA Method 8151A	Metals (Total), EPA Method 6020B-LL	Total Suspended Solids, Standard Method 2540D	Total Dissolved Solids, Standard Method 2540C	Total Organic Carbon, SM5310B	Metals (Dissolved) + Hardness as CaCO3, EPA Method 6020B-LL	Dissolved Organic Carbon, SM5310B	Sample Specific Notes:
PDI-WS-T 03 - 18 11	11/27/2018	16:22	W	MS/MSD	BW	11			5	1	1	1	1	1	1	Extra MS/MSD MCPP included
PDI-WS-T 03 W- 18 11	11/27/2018	13:24	W		BW	8		8								
PDI-WS-T 03 N- 18 11	11/27/2018	14:55	W		BW	3		3								
PDI-WS-T 03 E- 18 11	11/27/2018	16:02	W		BW	3		3								
PDI-WS-T 07 - 18 11	11/28/2018	13:18	W		BW	8			2	1	1	1	1	1	1	
PDI-WS-T 07 E- 18 11	11/28/2018	10:28	W		BW	3		3								
PDI-WS-T 07 W- 18 11	11/28/2018	11:00	W		BW	3		3								
PDI-WS-T 07 N- 18 11	11/28/2018	13:01	W		BW	3		3								
Trip Blank 01 -			W			5		5								
Trip Blank 07 -			W			3		3								
Trip Blank 03 -			W			5		5								
PDI-RB-PP - 18 11 29	11/29/2018	10:00	W		ED	9		3	2	1			1	1	1	

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

Special Instructions/QC Requirements & Comments:

1.6, 1.3, 2.0

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	AECOM	11/29/2018 12:53		M.E.	11/29/18 1253
	M.E.	11/29/18 1325		TAPCR	11/29/18 1325

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

SURFACE WATER
CHAIN OF CUSTODY

Client Contact	Project Contact: Amy Dahl / Chelsey Cook	Site Contact: Jennifer Ray / Michaela McCoog	Date: 11/29/2018	COC No:
AECOM	Tel: (206) 438-2261 / (206) 438-2010	Laboratory Contact: Elaine-Walker	Carrier: TestAmerica Courier	1 of 3 COCs
1111 3rd Ave Suite 1600	Analysis Turnaround Time			
Seattle, WA 98101	Calendar (C) or Work Days (W) ______			
Phone: (206) 438-2700 Fax: 1+(866) 495-5288	☐ 21 days			
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling				
Portland, OR	☐ Other ______			
Project #: 60566335 Study: Surface Water				

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Ethylbenzene, EPA 8260C	MCPP, EPA Method 8151A	Metals (Total), EPA Method 6020B-LL	Total Suspended Solids, Standard Method 2540D	Total Dissolved Solids, Standard Method 2540C	Total Organic Carbon, SM5310B	Metals (Dissolved) + Hardness as CaCO3, EPA Method 6020B-LL	Dissolved Organic Carbon, SM5310B	Sample Specific Notes:
PDI-WS-T 05 - 18 11	11/27/2018	15:44	W		BW	8			2	1	1	1	1	1	1	
PDI-WS-T 05 N - 18 11	11/27/2018	13:20	W		BW	3		3								
PDI-WS-T 05 E - 18 11	11/27/2018	11:45	W		BW	3		3								
PDI-WS-T 05 W - 18 11	11/27/2018	14:50	W		BW	3		3								
PDI-WS-T 01 - 18 11	11/28/2018	14:26	W		ED	8			2	1	1	1	1	1	1	
PDI-WS-T 01 - 18 11 D	11/28/2018	14:26	W		ED	8			2	1	1	1	1	1	1	
PDI-WS-T 01 N - 18 11	11/28/2018	12:46	W		ED	3		3								
PDI-WS-T 01 E - 18 11	11/28/2018	14:15	W		ED	3		3								
PDI-WS-T 01 W - 18 11	11/28/2018	11:14	W		ED	3		3								
PDI-WS-T 01 N - 18 11 D	11/28/2018	12:46	W		ED	3		3								
PDI-WS-T 01 W - 18 11 D	11/28/2018	11:14	W		ED	3		3								
Trip Blank 05 -						3		3								

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	AECOM	11/29/2018 12:53	[signature]	M.E.	11/29/18 1253
[signature]	M.E.	11/29/18 1325	[signature]	[signature]	11/29/18 1325

SURFACE WATER
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) _____ ☐ 21 days ☐ Other _____	**Site Contact: Jennifer Ray / Michaela McCoog** **Laboratory Contact: Elaine-Walker**	**Date: 11/29/2018** **Carrier: TestAmerica Courier**
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 Water			COC No: 3 of 3 COCs

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Ethylbenzene, EPA 8260C	MCPP, EPA Method 8151A	Metals (Total), EPA Method 6020B-LL	Total Suspended Solids, Standard Method 2540D	Total Dissolved Solids, Standard Method 2540C	Total Organic Carbon, SM5310B	Metals (Dissolved) + Hardness as CaCO3, EPA Method 6020B-LL	Dissolved Organic Carbon, SM5310B	Sample Specific Notes:
Trip Blank			W			1		1								Trip blank associated with PDI-RB-181129

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company: AECOM	Date/Time: 11/29/2018 1253	Received by:	Company: M.E.	Date/Time: 11/29/18 1253
Relinquished by:	Company: M.E.	Date/Time: 11/29/18 1325	Received by:	Company: TRR	Date/Time: 11/29/18 1325
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

580-82189 Chain of Custody

SURFACE WATER
CHAIN OF CUSTODY

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

Client Contact	Project Contact: Amy Dahl / Chelsey Cook	Site Contact: Jennifer Ray / Michaela McCoog	Date: 11/29/2018	COC No:
AECOM	Tel: (206) 438-2261 / (206) 438-2010	Laboratory Contact: Elaine-Walker	Carrier: TestAmerica Courier	2 of 3 COCs
1111 3rd Ave Suite 1600	Analysis Turnaround Time			
Seattle, WA 98101	Calendar (C) or Work Days (W)			
Phone: (206) 438-2700 Fax: 1+(866) 495-5288	☐ 21 days			
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	☐ Other			
Portland, OR				
Project #: 60566335 Study: Surface Water				

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Ethylbenzene, EPA 8260C	MCPP, EPA Method 8151A	Metals (Total), EPA Method 6020B-LL	Total Suspended Solids, Standard Method 2540D	Total Dissolved Solids, Standard Method 2540C	Total Organic Carbon, SM5310B	Metals (Dissolved) + Hardness as CaCO3, EPA Method 6020B-LL	Dissolved Organic Carbon, SM5310B	Sample Specific Notes:
PDI-WS-T 03-18 11	11/27/2018	16:22	W	MS/MSD	BW	11			5	1	1	1	1	1	1	Extra MS/MSD MCPP included
PDI-WS-T 03W-18 11	11/27/2018	13:24	W		BW	8		8								
PDI-WS-T 03N-18 11	11/27/2018	14:55	W		BW	3		3								
PDI-WS-T 03E-18 11	11/27/2018	16:02	W		BW	3		3								
PDI-WS-T 07-18 11	11/28/2018	13:18	W		BW	8			2	1	1	1	1	1	1	
PDI-WS-T 07E-18 11	11/28/2018	10:28	W		BW	3		3								
PDI-WS-T 07W-18 11	11/28/2018	11:00	W		BW	3		3								
PDI-WS-T 07N-18 11	11/28/2018	13:01	W		BW	3		3								
Trip Blank 01			W			5		5								
Trip Blank 07			W			3		3								
Trip Blank 03			W			5		5								
PDI-RB-PP 29-18 11	11/29/2018	10:00	W		ED	9		3	2	1			1	1	1	

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:

1-6, 1-3, 2-0

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	AECOM	11/29/2018 12:53		M.E.	11/29/18 1253
	M.E.	11/29/18 1325		TAPOR	11/29/18 1325
	TAPOR	11/29/18 1700		SRA TA	11-30-18 0920

IR5 = 0.2/0.4 w/c.s.
IR5 = 1.3/1.5 w/c.s.
Metals → IR5 = 13.8/14.0 w/c.s.
IR5 = 19/20 w/c.s.

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

SURFACE WATER
CHAIN OF CUSTODY

Client Contact	Project Contact: Amy Dahl / Chelsey Cook	Site Contact: Jennifer Ray / Michaela McCoog	Date: 11/29/2018	COC No:
AECOM	Tel: (206) 438-2261 / (206) 438-2010	Laboratory Contact: Elaine-Walker	Carrier: TestAmerica Courier	1 of 3 COCs
1111 3rd Ave Suite 1600	Analysis Turnaround Time			
Seattle, WA 98101	Calendar (C) or Work Days (W) ________			
Phone: (206) 438-2700 Fax: 1+(866) 495-5288	☐ 21 days			
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling				
Portland, OR	☐ Other ____________			
Project #: 60566335 Study: Surface Water				

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Ethylbenzene, EPA 8260C	MCPP, EPA Method 8151A	Metals (Total), EPA Method 6020B-LL	Total Suspended Solids, Standard Method 2540D	Total Dissolved Solids, Standard Method 2540C	Total Organic Carbon, SM5310B	Metals (Dissolved) + Hardness as CaCO3, EPA Method 6020B-LL	Dissolved Organic Carbon, SM5310B								Sample Specific Notes:
PDI-WS-T 05 - 18 11	11/27/2018	15:44	W		BW	8			2	1	1	1	1	1	1								
PDI-WS-T 05 N - 18 11	11/27/2018	13:20	W		BW	3		3															
PDI-WS-T 05 E - 18 11	11/27/2018	11:45	W		BW	3		3															
PDI-WS-T 05 W - 18 11	11/27/2018	14:50	W		BW	3		3															
PDI-WS-T 01 - 18 11	11/28/2018	14:26	W		ED	8			2	1	1	1	1	1	1								
PDI-WS-T 01 - 18 11 D	11/28/2018	14:26	W		ED	8			2	1	1	1	1	1	1								
PDI-WS-T 01 N - 18 11	11/28/2018	12:46	W		ED	3		3															
PDI-WS-T 01 E - 18 11	11/28/2018	14:15	W		ED	3		3															
PDI-WS-T 01 W - 18 11	11/28/2018	11:14	W		ED	3		3															
PDI-WS-T 01 N - 18 11 D	11/28/2018	12:46	W		ED	3		3															
PDI-WS-T 01 W - 18 11 D	11/28/2018	11:14	W		ED	3		3															
Trip Blank 05 -						3		3															

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	AECOM	11/29/2018 1253	[signature]	M.E.	11/29/18 1253
[signature]	M.E.	11/29/18 1325	[signature]	TAEK	11/29/18 1325
[signature]	TAEK	11/29/18 1700	B. [signature]	SEA TA	11.30.18 0920

SURFACE WATER
CHAIN OF CUSTODY

TestAmerica-Seattle			
5755-8th-Street-East			
Tacoma, WA 98424-1317			
Ph: 253-922-2310 Fax 253-922-5047			
Client Contact	**Project Contact: Amy Dahl / Chelsey Cook**	**Site Contact: Jennifer Ray / Michaela McCoog**	**Date: 11/29/2018**
AECOM	**Tel: (206) 438-2261 / (206) 438-2010**	**Laboratory Contact: Elaine-Walker**	**Carrier: TestAmerica Courier**
1111 3rd Ave Suite 1600	**Analysis Turnaround Time**		
Seattle, WA 98101	Calendar (C) or Work Days (W) _____		
Phone: (206) 438-2700 Fax: 1+(866) 495-5288	☐ 21 days		
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	☐ Other _____		
Portland, OR			
Project #: 60566335 Study: Surface Water			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Ethylbenzene, EPA 8260C	MCPP, EPA Method 8151A	Metals (Total), EPA Method 6020B-LL	Total Suspended Solids, Standard Method 2540D	Total Dissolved Solids, Standard Method 2540C	Total Organic Carbon, SM5310B	Metals (Dissolved) + Hardness as CaCO3, EPA Method 6020B-LL	Dissolved Organic Carbon, SM5310B	COC No: 3 of 3 COCs — Sample Specific Notes:
Trip Blank			W			1		1								Trip blank associated with PDI-RB-181129

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:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	AECOM	11/29/2018 1253		M.E.	11/29/18 1253
	M.E.	11/29/18 1325		TAKR	11/29/18 1325
	TAKR	11/29/18 1700			

Revised 12/5/18 KR

580-82189 Chain of Custody

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

SURFACE WATER

CHAIN OF CUSTODY

Client Contact	Project Contact: Amy Dahl / Chelsey Cook	Site Contact: Jennifer Ray / Michaela McCoog	Date: 11/29/2018	COC No: 2 of 3 COCs
AECOM	Tel: (206) 438-2261 / (206) 438-2010	Laboratory Contact: Elaine-Walker	Carrier: TestAmerica Courier	
1111 3rd Ave Suite 1600	Analysis Turnaround Time			
Seattle, WA 98101	Calendar (C) or Work Days (W)			
Phone: (206) 438-2700 Fax: 1+(866) 495-5288	☐ 21 days			
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	☐ Other ______			
Portland, OR				
Project #: 60566335 Study: Surface Water				

	Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Ethylbenzene, EPA 8260C	MCPP, EPA Method 8151A	Metals (Total), EPA Method 6020B-LL	Total Suspended Solids, Standard Method 2540D	Total Dissolved Solids, Standard Method 2540C	Total Organic Carbon, SM5310B	Metals (Dissolved) + Hardness as CaCO3, EPA Method 6020B-LL	Dissolved Organic Carbon, SM5310B	Sample Specific Notes:
1	PDI-WS-T 03 - 18 11	11/27/2018	16:22	W	MS/MSD	BW	11			5	1	1	1	1	1	1	Extra MS/MSD MCPP included
2	PDI-WS-T 03 W - 18 11	11/27/2018	13:24	W		BW	8		8								MS/MSD Provided by AECOM 12/5/18 KR
3	PDI-WS-T 03 N - 18 11	11/27/2018	14:55	W		BW	3		3								
4	PDI-WS-T 03 E - 18 11	11/27/2018	16:02	W		BW	3		3								
5	PDI-WS-T 07 - 18 11	11/28/2018	13:18	W		BW	8			2	1	1	1	1	1	1	
6	PDI-WS-T 07 E - 18 11	11/28/2018	10:28	W		BW	3		3								
7	PDI-WS-T 07 W - 18 11	11/28/2018	11:00	W		BW	3		3								
8	PDI-WS-T 07 N - 18 11	11/28/2018	13:01	W		BW	3		3								
9	Trip Blank 01 -			W			5		5								
10	Trip Blank 07 -			W			3		3								
11	Trip Blank 03 -			W			5		5								
12	PDI-RB-PP - 18 11 29	11/29/2018	10:00	W		ED	9		3	2	1			1	1	1	

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]

Special Instructions/QC Requirements & Comments:

1.6, 1.3, 2.0

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[illegible]	AECOM	11/29/2018 12:53	[illegible]	M.E.	11/29/18 1253
[illegible]	M.E.	11/29/18 1325	[illegible]	TAPOR	11/29/18 1325
[illegible]	TAPOR	11/29/18 1700	B. [illegible]	SEA TA	11-30-18 0920

FR5 = 0.2/0.4 w/C.S.
FR5 = 1.3/1.5 w/C.S.
Metals → IR5 = 13.8/14.0 w/C.S.
IR5

SURFACE WATER
CHAIN OF CUSTODY

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

Project Contact: Amy Dahl / Chelsey 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

Date: 11/29/2018
Carrier: TestAmerica Courier

COC No: 1 of 3 COCs

	Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Ethylbenzene, EPA 8260C	MCPP, EPA Method 8151A	Metals (Total), EPA Method 6020B-LL	Total Suspended Solids, Standard Method 2540D	Total Dissolved Solids, Standard Method 2540C	Total Organic Carbon, SM5310B	Metals (Dissolved) + Hardness as CaCO3, EPA Method 6020B-LL	Dissolved Organic Carbon, SM5310B	Sample Specific Notes:
13	PDI-WS-T 05 - 18 11	11/27/2018	15:44	W		BW	8			2	1	1	1	1	1	1	
14	PDI-WS-T 05N - 18 11	11/27/2018	13:20	W		BW	3		3								
15	PDI-WS-T 05E - 18 11	11/27/2018	11:45	W		BW	3		3								
16	PDI-WS-T 05W - 18 11	11/27/2018	14:50	W		BW	3		3								
17	PDI-WS-T 01 - 18 11	11/28/2018	14:26	W		ED	8			2	1	1	1	1	1	1	
18	PDI-WS-T 01 - 18 11 D	11/28/2018	14:26	W		ED	8			2	1	1	1	1	1	1	
19	PDI-WS-T 01N - 18 11	11/28/2018	12:46	W		ED	3		3								
20	PDI-WS-T 01E - 18 11	11/28/2018	14:15	W		ED	3		3								
21	PDI-WS-T 01W - 18 11	11/28/2018	11:14	W		ED	3		3								
22	PDI-WS-T 01N - 18 11 D	11/28/2018	12:46	W		ED	3		3								
23	PDI-WS-T 01W - 18 11 D	11/28/2018	11:14	W		ED	3		3								
24	Trip Blank 05 -						3		3								

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)

Special Instructions/QC Requirements & Comments:

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

Relinquished by:	Company: AECom	Date/Time: 11/29/2018 1253	Received by:	Company: M.E.	Date/Time: 11/29/18 1253
Relinquished by:	Company: M.E.	Date/Time: 11/29/18 1325	Received by:	Company: TAER	Date/Time: 11/29/18 1325
Relinquished by:	Company: TAER	Date/Time: 11/29/18 1900	Received by:	Company: SEA TA	Date/Time: 11-30-18 0920

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12/28/2018

SURFACE WATER
CHAIN OF CUSTODY

TestAmerica-Seattle	
5755-8th-Street-East	
Tacoma, WA 98424-1317	
Ph: 253-922-2310 Fax 253-922-504	
Client Contact	Project Contact: Amy Dahl / Chelsey Cook
AECOM	Tel: (206) 438-2261 / (206) 438-2010
1111 3rd Ave Suite 1600	Analysis Turnaround Time
Seattle, WA 98101	Calendar (C) or Work Days (W)
Phone: (206) 438-2700 Fax: 1+(866) 495-5288	☐ 21 days
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	☐ Other
Portland, OR	
Project #: 60566335 Study: Surface Water	

Site Contact: Jennifer Ray / Michaela McCoog
Laboratory Contact: Elaine-Walker
Date: 11/29/2018
Carrier: TestAmerica Courier
COC No: 3 of 3 COCs

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Ethylbenzene, EPA 8260C	MCPP, EPA Method 8151A	Metals (Total), EPA Method 6020B-LL	Total Suspended Solids, Standard Method 2540D	Total Dissolved Solids, Standard Method 2540C	Total Organic Carbon, SM5310B	Metals (Dissolved) + Hardness as CaCO3, EPA Method 6020B-LL	Dissolved Organic Carbon, SM5310B	Sample Specific Notes:
Trip Blank			W			1		1								Trip blank associated with PDI-RB-181129

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:

Relinquished by:	Company: AECOM	Date/Time: 11/29/2018 1253	Received by:	Company: M.E.	Date/Time: 11/29/18 1253
Relinquished by:	Company: M.E.	Date/Time: 11/29/18 1325	Received by:	Company: TAR	Date/Time: 11/29/18 1325
Relinquished by:	Company: TAR	Date/Time: 11/29/18 1700	Received by:	Company:	Date/Time:

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-82189-1

Login Number: 82189
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	