TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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TestAmerica Job ID: 580-79862-1
Client Project/Site: Portland Harbor Pre-Remedial Design
Revision: 1

For:
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Attn: Amy Dahl

M. Elaine Walker

Authorized for release by:
9/28/2018 6:55:45 PM

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Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE
Client: AECOM
Project: Portland Harbor Pre-Remedial Design
Report Number: 580-79862-1

REVISION 1: **SEPTEMBER 28, 2018**
This revision was required because the Hardness was reported by an icorrect method.

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
Sixteen samples were received on 8/24/2018 1:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.1º C and 3.4º C.

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

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

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples PDI-WS-T04E-1808 (580-79862-5), PDI-WS-T04E-1808-D (580-79862-6), PDI-WS-T04N-1808 (580-79862-7), PDI-WS-T04W-1808 (580-79862-8), Trip Blank T04 (580-79862-9), PDI-WS-T07E-1808 (580-79862-10), PDI-WS-T07W-1808 (580-79862-11), PDI-WS-T07NAV-1808 (580-79862-12), Trip Blank T07 (580-79862-13), PDI-WS-T03E-1808 (580-79862-14), PDI-WS-T03W-1808 (580-79862-15) and PDI-WS-T03NAV-1808 (580-79862-16) were analyzed for volatile organic compounds (GC-MS) in accordance with 8260C. The samples were analyzed on 08/31/2018 and 09/01/2018.

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

CHLORINATED HERBICIDES
Samples PDI-WS-T03-1808 (580-79862-1), PDI-WS-T04-1808 (580-79862-2), PDI-WS-T04-1808-D (580-79862-3) and PDI-WS-T07-1808 (580-79862-4) were analyzed for chlorinated herbicides in accordance with EPA SW-846 8151A. The samples were prepared on 08/29/2018 and analyzed on 09/11/2018.

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

METALS (ICP)
Samples PDI-WS-T03-1808 (580-79862-1), PDI-WS-T04-1808 (580-79862-2), PDI-WS-T04-1808-D (580-79862-3) and PDI-WS-T07-1808 (580-79862-4) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 08/29/2018 and 09/04/2018 and analyzed on 09/04/2018 and 09/07/2018.

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Laboratory: TestAmerica Seattle (Continued)

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

METALS (ICPMS)
Samples PDI-WS-T03-1808 (580-79862-1), PDI-WS-T04-1808 (580-79862-2), PDI-WS-T04-1808-D (580-79862-3) and PDI-WS-T07-1808 (580-79862-4) were analyzed for metals (ICPMS) in accordance with 6020A_LL. The samples were prepared on 08/29/2018 and 09/04/2018 and analyzed on 08/30/2018 and 09/05/2018.

Chromium and Copper exceeded the RPD limit for the duplicate of sample PDI-WS-T03-1808DU (580-79862-1). The LCS/LCSD and MS/MSD recoveries and precision met acceptance limits.

Zinc exceeded the RPD limit for the duplicate of sample PDI-WS-T07-1808DU (580-79862-4). The LCS/LCSD and MS/MSD recoveries and precision met acceptance limits.

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

METALS (ICPMS)
Samples PDI-WS-T03-1808 (580-79862-1), PDI-WS-T04-1808 (580-79862-2), PDI-WS-T04-1808-D (580-79862-3) and PDI-WS-T07-1808 (580-79862-4) were analyzed for Metals (ICPMS) in accordance with 6020A_LL. The samples were prepared on 08/31/2018 and analyzed on 09/04/2018.

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

HARDNESS
Samples PDI-WS-T03-1808 (580-79862-1), PDI-WS-T04-1808 (580-79862-2), PDI-WS-T04-1808-D (580-79862-3) and PDI-WS-T07-1808 (580-79862-4) were analyzed for hardness in accordance with SM20 2340B The samples were analyzed on 09/28/2018.

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

TOTAL DISSOLVED SOLIDS
Samples PDI-WS-T03-1808 (580-79862-1), PDI-WS-T04-1808 (580-79862-2), PDI-WS-T04-1808-D (580-79862-3) and PDI-WS-T07-1808 (580-79862-4) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 08/28/2018.

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

TOTAL SUSPENDED SOLIDS
Samples PDI-WS-T03-1808 (580-79862-1), PDI-WS-T04-1808 (580-79862-2), PDI-WS-T04-1808-D (580-79862-3) and PDI-WS-T07-1808 (580-79862-4) were analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 08/27/2018.

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

DISSOLVED ORGANIC CARBON
Samples PDI-WS-T03-1808 (580-79862-1), PDI-WS-T04-1808 (580-79862-2), PDI-WS-T04-1808-D (580-79862-3) and PDI-WS-T07-1808 (580-79862-4) were analyzed for dissolved organic carbon in accordance with SM20 5310B. The samples were analyzed on 08/28/2018 and 08/29/2018.

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

TOTAL ORGANIC CARBON
Samples PDI-WS-T03-1808 (580-79862-1), PDI-WS-T04-1808 (580-79862-2), PDI-WS-T04-1808-D (580-79862-3) and PDI-WS-T07-1808 (580-79862-4) were analyzed for total organic carbon in accordance with SM 5310B. The samples were analyzed on 08/28/2018 and 08/29/2018.

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.
F3	Duplicate RPD exceeds the control limit
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.

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-T03-1808

Date Collected: 08/22/18 17:55
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-1

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		08/29/18 14:34	09/11/18 17:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*109*		*44 - 145*	*08/29/18 14:34*	*09/11/18 17:10*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	9.2		1.1	0.16	mg/L		08/29/18 16:03	09/04/18 13:25	1
Magnesium	3.6		1.1	0.13	mg/L		08/29/18 16:03	09/04/18 13:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.80	J	1.0	0.20	ug/L		08/31/18 17:40	09/04/18 15:45	1
Chromium	0.39	J	0.40	0.17	ug/L		08/31/18 17:40	09/04/18 15:45	1
Copper	1.1	J	2.0	0.60	ug/L		08/31/18 17:40	09/04/18 15:45	1
Zinc	2.4	J	7.0	1.9	ug/L		08/31/18 17:40	09/04/18 15:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.64	J	1.0	0.20	ug/L		08/29/18 16:03	08/30/18 16:32	1
Chromium	1.5		0.40	0.17	ug/L		08/29/18 16:03	08/30/18 16:32	1
Copper	1.0	J	2.0	0.60	ug/L		08/29/18 16:03	08/30/18 16:32	1
Zinc	2.1	J	7.0	1.9	ug/L		08/29/18 16:03	08/30/18 16:32	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	38		1.1	1.1	mg/L			09/28/18 16:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	39		10	10	mg/L			08/28/18 08:57	1
Total Suspended Solids	7.8		2.0	2.0	mg/L			08/27/18 16:43	1
Total Organic Carbon	2.2		1.0	0.19	mg/L			08/28/18 11:49	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.9		1.0	0.19	mg/L			08/28/18 10:56	1

Client Sample ID: PDI-WS-T04-1808

Date Collected: 08/23/18 10:20
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-2

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		08/29/18 14:34	09/11/18 17:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*135*		*44 - 145*	*08/29/18 14:34*	*09/11/18 17:36*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**6.9**		1.1	0.16	mg/L		08/29/18 16:03	09/04/18 13:50	1
Magnesium	**2.7**		1.1	0.13	mg/L		08/29/18 16:03	09/04/18 13:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.64**	**J**	1.0	0.20	ug/L		08/31/18 17:40	09/04/18 15:49	1
Chromium	**0.18**	**J**	0.40	0.17	ug/L		08/31/18 17:40	09/04/18 15:49	1
Copper	**0.67**	**J**	2.0	0.60	ug/L		08/31/18 17:40	09/04/18 15:49	1
Zinc	ND		7.0	1.9	ug/L		08/31/18 17:40	09/04/18 15:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.63**	**J**	1.0	0.20	ug/L		08/29/18 16:03	08/30/18 17:10	1
Chromium	**10**		0.40	0.17	ug/L		08/29/18 16:03	08/30/18 17:10	1
Copper	**2.4**		2.0	0.60	ug/L		08/29/18 16:03	08/30/18 17:10	1
Zinc	**2.3**	**J**	7.0	1.9	ug/L		08/29/18 16:03	08/30/18 17:10	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	**28**		1.1	1.1	mg/L			09/28/18 16:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**46**		10	10	mg/L			08/28/18 08:57	1
Total Suspended Solids	**2.6**		2.0	2.0	mg/L			08/27/18 16:43	1
Total Organic Carbon	**2.4**		1.0	0.19	mg/L			08/28/18 11:49	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	**2.2**		1.0	0.19	mg/L			08/28/18 10:56	1

Client Sample ID: PDI-WS-T04-1808-D

Date Collected: 08/23/18 10:20
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-3

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		08/29/18 14:34	09/11/18 18:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*127*		*44 - 145*	*08/29/18 14:34*	*09/11/18 18:02*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**6.5**		1.1	0.16	mg/L		08/29/18 16:03	09/04/18 13:54	1
Magnesium	**2.5**		1.1	0.13	mg/L		08/29/18 16:03	09/04/18 13:54	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.57**	**J**	1.0	0.20	ug/L		08/31/18 17:40	09/04/18 15:53	1
Chromium	**0.18**	**J**	0.40	0.17	ug/L		08/31/18 17:40	09/04/18 15:53	1
Copper	**0.76**	**J**	2.0	0.60	ug/L		08/31/18 17:40	09/04/18 15:53	1
Zinc	ND		7.0	1.9	ug/L		08/31/18 17:40	09/04/18 15:53	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.63**	**J**	1.0	0.20	ug/L		08/29/18 16:03	08/30/18 17:14	1
Chromium	**2.2**		0.40	0.17	ug/L		08/29/18 16:03	08/30/18 17:14	1
Copper	**1.1**	**J**	2.0	0.60	ug/L		08/29/18 16:03	08/30/18 17:14	1
Zinc	**2.0**	**J**	7.0	1.9	ug/L		08/29/18 16:03	08/30/18 17:14	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	**27**		1.1	1.1	mg/L			09/28/18 16:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**36**		10	10	mg/L			08/28/18 08:57	1
Total Suspended Solids	**2.8**		2.0	2.0	mg/L			08/27/18 16:43	1
Total Organic Carbon	**2.2**		1.0	0.19	mg/L			08/29/18 18:19	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			08/28/18 10:56	1

Client Sample ID: PDI-WS-T07-1808

Date Collected: 08/23/18 18:20
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-4

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		08/29/18 14:34	09/11/18 18:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*86*		*44 - 145*	*08/29/18 14:34*	*09/11/18 18:28*	*1*

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	6.4		1.1	0.16	mg/L		09/04/18 15:03	09/07/18 10:50	1
Magnesium	2.4		1.1	0.13	mg/L		09/04/18 15:03	09/07/18 10:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.60	J	1.0	0.20	ug/L		08/31/18 17:40	09/04/18 15:07	1
Chromium	0.26	J	0.40	0.17	ug/L		08/31/18 17:40	09/04/18 15:07	1
Copper	1.4	J	2.0	0.60	ug/L		08/31/18 17:40	09/04/18 15:07	1
Zinc	3.1	J	7.0	1.9	ug/L		08/31/18 17:40	09/04/18 15:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.69	J	1.0	0.20	ug/L		09/04/18 15:03	09/05/18 12:08	1
Chromium	0.29	J	0.40	0.17	ug/L		09/04/18 15:03	09/05/18 12:08	1
Copper	1.3	J	2.0	0.60	ug/L		09/04/18 15:03	09/05/18 12:08	1
Zinc	4.3	J	7.0	1.9	ug/L		09/04/18 15:03	09/05/18 12:08	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	26		1.1	1.1	mg/L			09/28/18 16:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	30		10	10	mg/L			08/28/18 08:57	1
Total Suspended Solids	2.6		2.0	2.0	mg/L			08/27/18 16:43	1
Total Organic Carbon	4.5		1.0	0.19	mg/L			08/29/18 18:19	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	5.0		1.0	0.19	mg/L			08/29/18 16:33	1

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

TestAmerica Job ID: 580-79862-1

Client Sample ID: PDI-WS-T04E-1808
Date Collected: 08/22/18 10:15
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-5
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			09/01/18 06:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 122*		*09/01/18 06:52*	*1*
Trifluorotoluene (Surr)	*104*		*80 - 120*		*09/01/18 06:52*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 125*		*09/01/18 06:52*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*09/01/18 06:52*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 126*		*09/01/18 06:52*	*1*

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

TestAmerica Job ID: 580-79862-1

Client Sample ID: PDI-WS-T04E-1808-D
Date Collected: 08/22/18 10:15
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-6
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			09/01/18 07:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*80 - 122*		*09/01/18 07:17*	*1*
Trifluorotoluene (Surr)	*101*		*80 - 120*		*09/01/18 07:17*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 125*		*09/01/18 07:17*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*09/01/18 07:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 126*		*09/01/18 07:17*	*1*

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

TestAmerica Job ID: 580-79862-1

Client Sample ID: PDI-WS-T04N-1808
Date Collected: 08/22/18 13:15
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-7
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			09/01/18 07:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*80 - 122*		*09/01/18 07:43*	*1*
Trifluorotoluene (Surr)	*104*		*80 - 120*		*09/01/18 07:43*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 125*		*09/01/18 07:43*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*09/01/18 07:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 126*		*09/01/18 07:43*	*1*

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

TestAmerica Job ID: 580-79862-1

Client Sample ID: PDI-WS-T04W-1808
Date Collected: 08/23/18 09:20
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-8
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			09/01/18 08:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*80 - 122*		*09/01/18 08:09*	*1*
Trifluorotoluene (Surr)	*103*		*80 - 120*		*09/01/18 08:09*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 125*		*09/01/18 08:09*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 120*		*09/01/18 08:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 126*		*09/01/18 08:09*	*1*

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

TestAmerica Job ID: 580-79862-1

Client Sample ID: Trip Blank T04
Date Collected: 08/23/18 10:20
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-9
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			08/31/18 19:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 122*		*08/31/18 19:35*	*1*
Trifluorotoluene (Surr)	*102*		*80 - 120*		*08/31/18 19:35*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 125*		*08/31/18 19:35*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 120*		*08/31/18 19:35*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 126*		*08/31/18 19:35*	*1*

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

TestAmerica Job ID: 580-79862-1

Client Sample ID: PDI-WS-T07E-1808
Date Collected: 08/23/18 17:43
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-10
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			08/31/18 20:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 122*		*08/31/18 20:27*	*1*
Trifluorotoluene (Surr)	*101*		*80 - 120*		*08/31/18 20:27*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 125*		*08/31/18 20:27*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*08/31/18 20:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 126*		*08/31/18 20:27*	*1*

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

TestAmerica Job ID: 580-79862-1

Client Sample ID: PDI-WS-T07W-1808
Date Collected: 08/23/18 15:59
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-11
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			09/01/18 08:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 122*		*09/01/18 08:35*	*1*
Trifluorotoluene (Surr)	*103*		*80 - 120*		*09/01/18 08:35*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 125*		*09/01/18 08:35*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*09/01/18 08:35*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 126*		*09/01/18 08:35*	*1*

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

TestAmerica Job ID: 580-79862-1

Client Sample ID: PDI-WS-T07NAV-1808
Date Collected: 08/23/18 10:10
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-12
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			09/01/18 09:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 122*		*09/01/18 09:02*	*1*
Trifluorotoluene (Surr)	*102*		*80 - 120*		*09/01/18 09:02*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 125*		*09/01/18 09:02*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*09/01/18 09:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 126*		*09/01/18 09:02*	*1*

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

TestAmerica Job ID: 580-79862-1

Client Sample ID: Trip Blank T07
Date Collected: 08/23/18 09:00
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-13
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			09/01/18 06:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 122*		*09/01/18 06:25*	*1*
Trifluorotoluene (Surr)	*104*		*80 - 120*		*09/01/18 06:25*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 125*		*09/01/18 06:25*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*09/01/18 06:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 126*		*09/01/18 06:25*	*1*

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

TestAmerica Job ID: 580-79862-1

Client Sample ID: PDI-WS-T03E-1808
Date Collected: 08/22/18 09:20
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-14
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			08/31/18 08:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 122*		*08/31/18 08:13*	*1*
Trifluorotoluene (Surr)	*101*		*80 - 120*		*08/31/18 08:13*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 125*		*08/31/18 08:13*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*08/31/18 08:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 126*		*08/31/18 08:13*	*1*

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

TestAmerica Job ID: 580-79862-1

Client Sample ID: PDI-WS-T03W-1808
Date Collected: 08/22/18 12:39
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-15
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			08/31/18 08:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*80 - 122*		*08/31/18 08:39*	*1*
Trifluorotoluene (Surr)	*102*		*80 - 120*		*08/31/18 08:39*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 125*		*08/31/18 08:39*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*08/31/18 08:39*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 126*		*08/31/18 08:39*	*1*

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

TestAmerica Job ID: 580-79862-1

Client Sample ID: PDI-WS-T03NAV-1808
Date Collected: 08/22/18 15:16
Date Received: 08/24/18 13:25

Lab Sample ID: 580-79862-16
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			08/31/18 09:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 122*		*08/31/18 09:05*	*1*
Trifluorotoluene (Surr)	*103*		*80 - 120*		*08/31/18 09:05*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 125*		*08/31/18 09:05*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 120*		*08/31/18 09:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 126*		*08/31/18 09:05*	*1*

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

Lab Sample ID: MB 580-282863/5
Matrix: Water
Analysis Batch: 282863

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			08/30/18 23:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*80 - 122*		*08/30/18 23:57*	*1*
Trifluorotoluene (Surr)	*102*		*80 - 120*		*08/30/18 23:57*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 125*		*08/30/18 23:57*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 120*		*08/30/18 23:57*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 126*		*08/30/18 23:57*	*1*

Lab Sample ID: LCS 580-282863/6
Matrix: Water
Analysis Batch: 282863

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	9.32		ug/L		93	75 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*80 - 122*
Trifluorotoluene (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*80 - 125*
Dibromofluoromethane (Surr)	*99*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 126*

Lab Sample ID: LCSD 580-282863/7
Matrix: Water
Analysis Batch: 282863

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	9.56		ug/L		96	75 - 120	3	14

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*80 - 122*
Trifluorotoluene (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 125*
Dibromofluoromethane (Surr)	*102*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 126*

Lab Sample ID: MB 580-282997/5
Matrix: Water
Analysis Batch: 282997

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			08/31/18 16:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*80 - 122*		*08/31/18 16:06*	*1*
Trifluorotoluene (Surr)	*102*		*80 - 120*		*08/31/18 16:06*	*1*

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

Lab Sample ID: MB 580-282997/5
Matrix: Water
Analysis Batch: 282997

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		80 - 125		08/31/18 16:06	1
Dibromofluoromethane (Surr)	101		77 - 120		08/31/18 16:06	1
1,2-Dichloroethane-d4 (Surr)	103		80 - 126		08/31/18 16:06	1

Lab Sample ID: LCS 580-282997/6
Matrix: Water
Analysis Batch: 282997

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	9.08		ug/L		91	75 - 120		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	103		80 - 122
Trifluorotoluene (Surr)	102		80 - 120
4-Bromofluorobenzene (Surr)	102		80 - 125
Dibromofluoromethane (Surr)	101		77 - 120
1,2-Dichloroethane-d4 (Surr)	100		80 - 126

Lab Sample ID: LCSD 580-282997/7
Matrix: Water
Analysis Batch: 282997

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	9.18		ug/L		92	75 - 120	1	14

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	102		80 - 122
Trifluorotoluene (Surr)	103		80 - 120
4-Bromofluorobenzene (Surr)	99		80 - 125
Dibromofluoromethane (Surr)	100		77 - 120
1,2-Dichloroethane-d4 (Surr)	99		80 - 126

Lab Sample ID: MB 580-283011/5
Matrix: Water
Analysis Batch: 283011

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			09/01/18 03:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		80 - 122		09/01/18 03:50	1
Trifluorotoluene (Surr)	101		80 - 120		09/01/18 03:50	1
4-Bromofluorobenzene (Surr)	99		80 - 125		09/01/18 03:50	1
Dibromofluoromethane (Surr)	100		77 - 120		09/01/18 03:50	1
1,2-Dichloroethane-d4 (Surr)	100		80 - 126		09/01/18 03:50	1

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

Lab Sample ID: LCS 580-283011/6
Matrix: Water
Analysis Batch: 283011

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	9.43		ug/L		94	75 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*80 - 122*
Trifluorotoluene (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 125*
Dibromofluoromethane (Surr)	*100*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 126*

Lab Sample ID: LCSD 580-283011/7
Matrix: Water
Analysis Batch: 283011

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	9.34		ug/L		93	75 - 120	1	14

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*80 - 122*
Trifluorotoluene (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 125*
Dibromofluoromethane (Surr)	*100*		*77 - 120*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 126*

Method: 8151A - Herbicides (GC/MS)

Lab Sample ID: MB 580-282791/1-A
Matrix: Water
Analysis Batch: 283698

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 282791

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MCPP	ND		1.0	0.17	ug/L		08/29/18 14:34	09/11/18 15:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*88*		*44 - 145*	*08/29/18 14:34*	*09/11/18 15:52*	*1*

Lab Sample ID: LCS 580-282791/2-A
Matrix: Water
Analysis Batch: 283698

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 282791

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
MCPP			5.00	3.47		ug/L		69	61 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*82*		*44 - 145*

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

Lab Sample ID: LCSD 580-282791/3-A
Matrix: Water
Analysis Batch: 283698

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 282791

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
MCPP			5.00	4.29		ug/L		86	61 - 135	21	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*101*		*44 - 145*

Lab Sample ID: 580-79862-4 MS
Matrix: Water
Analysis Batch: 283698

Client Sample ID: PDI-WS-T07-1808
Prep Type: Total/NA
Prep Batch: 282791

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
MCPP	ND		5.50	4.29		ug/L		78	61 - 135		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*108*		*44 - 145*

Lab Sample ID: 580-79862-4 MSD
Matrix: Water
Analysis Batch: 283698

Client Sample ID: PDI-WS-T07-1808
Prep Type: Total/NA
Prep Batch: 282791

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
MCPP	ND		5.48	4.71		ug/L		86	61 - 135	9	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*102*		*44 - 145*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 580-282823/22-A
Matrix: Water
Analysis Batch: 283181

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 282823

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.16	mg/L		08/29/18 16:03	09/04/18 13:16	1
Magnesium	ND		1.1	0.13	mg/L		08/29/18 16:03	09/04/18 13:16	1

Lab Sample ID: LCS 580-282823/23-A
Matrix: Water
Analysis Batch: 283181

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 282823

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Calcium			20.0	22.8		mg/L		114	80 - 120		
Magnesium			20.0	23.0		mg/L		115	80 - 120		

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

Lab Sample ID: LCSD 580-282823/24-A
Matrix: Water
Analysis Batch: 283181

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 282823

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	20.0	21.4		mg/L		107	80 - 120	7	20
Magnesium	20.0	21.5		mg/L		107	80 - 120	7	20

Lab Sample ID: MB 580-283174/18-A
Matrix: Water
Analysis Batch: 283467

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 283174

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1	0.16	mg/L		09/04/18 17:21	09/07/18 10:41	1
Magnesium	ND		1.1	0.13	mg/L		09/04/18 17:21	09/07/18 10:41	1

Lab Sample ID: LCS 580-283174/19-A
Matrix: Water
Analysis Batch: 283467

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 283174

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	20.0	20.4		mg/L		102	80 - 120
Magnesium	20.0	20.3		mg/L		102	80 - 120

Lab Sample ID: LCSD 580-283174/20-A
Matrix: Water
Analysis Batch: 283467

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 283174

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	20.0	20.8		mg/L		104	80 - 120	2	20
Magnesium	20.0	20.9		mg/L		104	80 - 120	3	20

Lab Sample ID: 580-79862-1 MS
Matrix: Water
Analysis Batch: 283181

Client Sample ID: PDI-WS-T03-1808
Prep Type: Dissolved
Prep Batch: 282823

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	9.2		20.0	31.4		mg/L		111	75 - 125
Magnesium	3.6		20.0	26.1		mg/L		112	75 - 125

Lab Sample ID: 580-79862-1 MSD
Matrix: Water
Analysis Batch: 283181

Client Sample ID: PDI-WS-T03-1808
Prep Type: Dissolved
Prep Batch: 282823

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	9.2		20.0	32.2		mg/L		115	75 - 125	3	20
Magnesium	3.6		20.0	26.8		mg/L		116	75 - 125	3	20

Lab Sample ID: 580-79862-1 DU
Matrix: Water
Analysis Batch: 283181

Client Sample ID: PDI-WS-T03-1808
Prep Type: Dissolved
Prep Batch: 282823

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	9.2		9.71		mg/L		5	20

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

Lab Sample ID: 580-79862-1 DU
Matrix: Water
Analysis Batch: 283181

Client Sample ID: PDI-WS-T03-1808
Prep Type: Dissolved
Prep Batch: 282823

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Magnesium	3.6		3.82		mg/L		5	20

Lab Sample ID: 580-79862-4 MS
Matrix: Water
Analysis Batch: 283467

Client Sample ID: PDI-WS-T07-1808
Prep Type: Dissolved
Prep Batch: 283174

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	6.4		20.0	27.4		mg/L		105	75 - 125
Magnesium	2.4		20.0	23.6		mg/L		106	75 - 125

Lab Sample ID: 580-79862-4 MSD
Matrix: Water
Analysis Batch: 283467

Client Sample ID: PDI-WS-T07-1808
Prep Type: Dissolved
Prep Batch: 283174

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	6.4		20.0	25.7		mg/L		97	75 - 125	6	20
Magnesium	2.4		20.0	22.0		mg/L		98	75 - 125	7	20

Lab Sample ID: 580-79862-4 DU
Matrix: Water
Analysis Batch: 283467

Client Sample ID: PDI-WS-T07-1808
Prep Type: Dissolved
Prep Batch: 283174

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	6.4		6.25		mg/L		3	20
Magnesium	2.4		2.30		mg/L		5	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-282823/22-A
Matrix: Water
Analysis Batch: 282950

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 282823

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.20	ug/L		08/29/18 16:03	08/30/18 16:19	1
Chromium	ND		0.40	0.17	ug/L		08/29/18 16:03	08/30/18 16:19	1
Copper	ND		2.0	0.60	ug/L		08/29/18 16:03	08/30/18 16:19	1
Zinc	ND		7.0	1.9	ug/L		08/29/18 16:03	08/30/18 16:19	1

Lab Sample ID: LCS 580-282823/23-A
Matrix: Water
Analysis Batch: 282950

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 282823

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4000	4020		ug/L		101	80 - 120
Chromium	400	397		ug/L		99	80 - 120
Copper	500	513		ug/L		103	80 - 120
Zinc	4000	3940		ug/L		98	80 - 120

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

Lab Sample ID: LCSD 580-282823/24-A
Matrix: Water
Analysis Batch: 282950

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 282823

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4000	3960		ug/L		99	80 - 120	2	20
Chromium	400	395		ug/L		99	80 - 120	0	20
Copper	500	510		ug/L		102	80 - 120	1	20
Zinc	4000	3870		ug/L		97	80 - 120	2	20

Lab Sample ID: MB 580-283050/23-A
Matrix: Water
Analysis Batch: 283207

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 283050

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.20	ug/L		08/31/18 17:40	09/04/18 14:54	1
Chromium	ND		0.40	0.17	ug/L		08/31/18 17:40	09/04/18 14:54	1
Copper	ND		2.0	0.60	ug/L		08/31/18 17:40	09/04/18 14:54	1
Zinc	ND		7.0	1.9	ug/L		08/31/18 17:40	09/04/18 14:54	1

Lab Sample ID: LCS 580-283050/24-A
Matrix: Water
Analysis Batch: 283207

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 283050

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4000	4040		ug/L		101	80 - 120
Chromium	400	399		ug/L		100	80 - 120
Copper	500	499		ug/L		100	80 - 120
Zinc	4000	3910		ug/L		98	80 - 120

Lab Sample ID: LCSD 580-283050/25-A
Matrix: Water
Analysis Batch: 283207

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 283050

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4000	4040		ug/L		101	80 - 120	0	20
Chromium	400	391		ug/L		98	80 - 120	2	20
Copper	500	497		ug/L		99	80 - 120	0	20
Zinc	4000	3870		ug/L		97	80 - 120	1	20

Lab Sample ID: 580-79862-4 MS
Matrix: Water
Analysis Batch: 283207

Client Sample ID: PDI-WS-T07-1808
Prep Type: Total Recoverable
Prep Batch: 283050

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.60	J	4000	4120		ug/L		103	80 - 120
Chromium	0.26	J	400	413		ug/L		103	80 - 120
Copper	1.4	J	500	512		ug/L		102	80 - 120
Zinc	3.1	J	4000	4010		ug/L		100	80 - 120

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

Lab Sample ID: 580-79862-4 MSD
Matrix: Water
Analysis Batch: 283207

Client Sample ID: PDI-WS-T07-1808
Prep Type: Total Recoverable
Prep Batch: 283050

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.60	J	4000	4390		ug/L		110	80 - 120	6	20
Chromium	0.26	J	400	431		ug/L		108	80 - 120	4	20
Copper	1.4	J	500	549		ug/L		109	80 - 120	7	20
Zinc	3.1	J	4000	4260		ug/L		106	80 - 120	6	20

Lab Sample ID: 580-79862-4 DU
Matrix: Water
Analysis Batch: 283207

Client Sample ID: PDI-WS-T07-1808
Prep Type: Total Recoverable
Prep Batch: 283050

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.60	J	0.661	J	ug/L		10	20
Chromium	0.26	J	0.260	J	ug/L		0.7	20
Copper	1.4	J	1.44	J	ug/L		1	20
Zinc	3.1	J	2.56	J	ug/L		18	20

Lab Sample ID: MB 580-283174/18-A
Matrix: Water
Analysis Batch: 283346

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 283174

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.20	ug/L		09/04/18 17:21	09/05/18 11:55	1
Chromium	ND		0.40	0.17	ug/L		09/04/18 17:21	09/05/18 11:55	1
Copper	ND		2.0	0.60	ug/L		09/04/18 17:21	09/05/18 11:55	1
Zinc	ND		7.0	1.9	ug/L		09/04/18 17:21	09/05/18 11:55	1

Lab Sample ID: LCS 580-283174/19-A
Matrix: Water
Analysis Batch: 283346

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 283174

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4000	4100		ug/L		102	80 - 120
Chromium	400	398		ug/L		100	80 - 120
Copper	500	505		ug/L		101	80 - 120
Zinc	4000	3990		ug/L		100	80 - 120

Lab Sample ID: LCSD 580-283174/20-A
Matrix: Water
Analysis Batch: 283346

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 283174

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4000	4060		ug/L		102	80 - 120	1	20
Chromium	400	397		ug/L		99	80 - 120	0	20
Copper	500	509		ug/L		102	80 - 120	1	20
Zinc	4000	3950		ug/L		99	80 - 120	1	20

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

Lab Sample ID: 580-79862-1 MS
Matrix: Water
Analysis Batch: 282950

Client Sample ID: PDI-WS-T03-1808
Prep Type: Dissolved
Prep Batch: 282823

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.64	J	4000	3960		ug/L		99	80 - 120
Chromium	1.5		400	396		ug/L		99	80 - 120
Copper	1.0	J	500	507		ug/L		101	80 - 120
Zinc	2.1	J	4000	3860		ug/L		96	80 - 120

Lab Sample ID: 580-79862-1 MSD
Matrix: Water
Analysis Batch: 282950

Client Sample ID: PDI-WS-T03-1808
Prep Type: Dissolved
Prep Batch: 282823

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.64	J	4000	4110		ug/L		103	80 - 120	4	20
Chromium	1.5		400	414		ug/L		103	80 - 120	5	20
Copper	1.0	J	500	525		ug/L		105	80 - 120	3	20
Zinc	2.1	J	4000	4040		ug/L		101	80 - 120	5	20

Lab Sample ID: 580-79862-1 DU
Matrix: Water
Analysis Batch: 282950

Client Sample ID: PDI-WS-T03-1808
Prep Type: Dissolved
Prep Batch: 282823

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.64	J	0.614	J	ug/L		4	20
Chromium	1.5		0.285	J F3	ug/L		137	20
Copper	1.0	J	0.840	J F5	ug/L		21	20
Zinc	2.1	J	ND		ug/L		NC	20

Lab Sample ID: 580-79862-4 MS
Matrix: Water
Analysis Batch: 283346

Client Sample ID: PDI-WS-T07-1808
Prep Type: Dissolved
Prep Batch: 283174

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.69	J	4000	4050		ug/L		101	80 - 120
Chromium	0.29	J	400	398		ug/L		99	80 - 120
Copper	1.3	J	500	506		ug/L		101	80 - 120
Zinc	4.3	J	4000	4010		ug/L		100	80 - 120

Lab Sample ID: 580-79862-4 MSD
Matrix: Water
Analysis Batch: 283346

Client Sample ID: PDI-WS-T07-1808
Prep Type: Dissolved
Prep Batch: 283174

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.69	J	4000	4550		ug/L		114	80 - 120	12	20
Chromium	0.29	J	400	447		ug/L		112	80 - 120	12	20
Copper	1.3	J	500	570		ug/L		114	80 - 120	12	20
Zinc	4.3	J	4000	4510		ug/L		113	80 - 120	12	20

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

Lab Sample ID: 580-79862-4 DU
Matrix: Water
Analysis Batch: 283346

Client Sample ID: PDI-WS-T07-1808
Prep Type: Dissolved
Prep Batch: 283174

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.69	J	0.646	J	ug/L		7	20
Chromium	0.29	J	0.265	J	ug/L		10	20
Copper	1.3	J	1.20	J	ug/L		10	20
Zinc	4.3	J	3.02	J F5	ug/L		34	20

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

Lab Sample ID: MB 580-282608/1
Matrix: Water
Analysis Batch: 282608

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			08/28/18 08:57	1

Lab Sample ID: LCS 580-282608/2
Matrix: Water
Analysis Batch: 282608

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	968		mg/L		97	80 - 120

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

Lab Sample ID: MB 580-282591/1
Matrix: Water
Analysis Batch: 282591

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			08/27/18 16:43	1

Lab Sample ID: LCS 580-282591/2
Matrix: Water
Analysis Batch: 282591

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	30.4		mg/L		110	70.6 - 120

Lab Sample ID: 580-79862-1 DU
Matrix: Water
Analysis Batch: 282591

Client Sample ID: PDI-WS-T03-1808
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	7.8		8.80		mg/L		12	20

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

Lab Sample ID: MB 580-282747/3
Matrix: Water
Analysis Batch: 282747

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			08/28/18 11:49	1

Lab Sample ID: LCS 580-282747/4
Matrix: Water
Analysis Batch: 282747

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	9.64		mg/L		96	85 - 115

Lab Sample ID: MB 580-282858/3
Matrix: Water
Analysis Batch: 282858

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			08/29/18 18:19	1

Lab Sample ID: LCS 580-282858/4
Matrix: Water
Analysis Batch: 282858

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	10.6		mg/L		106	85 - 115

Lab Sample ID: 580-79862-4 MS
Matrix: Water
Analysis Batch: 282858

Client Sample ID: PDI-WS-T07-1808
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	4.5		10.0	14.6		mg/L		100	85 - 115

Lab Sample ID: 580-79862-4 MSD
Matrix: Water
Analysis Batch: 282858

Client Sample ID: PDI-WS-T07-1808
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	4.5		10.0	13.9		mg/L		94	85 - 115	5	20

Lab Sample ID: 580-79862-4 DU
Matrix: Water
Analysis Batch: 282858

Client Sample ID: PDI-WS-T07-1808
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	4.5		4.49		mg/L		0.4	20

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

Lab Sample ID: MB 580-282720/3
Matrix: Water
Analysis Batch: 282720

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			08/28/18 10:56	1

Lab Sample ID: LCS 580-282720/4
Matrix: Water
Analysis Batch: 282720

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	9.69		mg/L		97	85 - 115

Lab Sample ID: MB 580-282847/22
Matrix: Water
Analysis Batch: 282847

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			08/29/18 16:33	1

Lab Sample ID: LCS 580-282847/23
Matrix: Water
Analysis Batch: 282847

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	10.2		mg/L		102	85 - 115

Client Sample ID: PDI-WS-T03-1808

Lab Sample ID: 580-79862-1

Date Collected: 08/22/18 17:55

Matrix: Water

Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			282791	08/29/18 14:34	JSM	TAL SEA
Total/NA	Analysis	8151A		1	283698	09/11/18 17:10	TL1	TAL SEA
Dissolved	Prep	3005A			282823	08/29/18 16:03	JKM	TAL SEA
Dissolved	Analysis	6010C		1	283181	09/04/18 13:25	HJM	TAL SEA
Dissolved	Prep	3005A			282823	08/29/18 16:03	JKM	TAL SEA
Dissolved	Analysis	6020B		1	282950	08/30/18 16:32	FCW	TAL SEA
Total Recoverable	Prep	3005A			283050	08/31/18 17:40	T1H	TAL SEA
Total Recoverable	Analysis	6020B		1	283207	09/04/18 15:45	FCW	TAL SEA
Dissolved	Analysis	SM 2340B		1	285244	09/28/18 16:12	SPP	TAL SEA
Total/NA	Analysis	SM 2540C		1	282608	08/28/18 08:57	R1K	TAL SEA
Total/NA	Analysis	SM 2540D		1	282591	08/27/18 16:43	TTN	TAL SEA
Dissolved	Analysis	SM 5310B		1	282720	08/28/18 10:56	TTN	TAL SEA
Total/NA	Analysis	SM 5310B		1	282747	08/28/18 11:49	TTN	TAL SEA

Client Sample ID: PDI-WS-T04-1808

Lab Sample ID: 580-79862-2

Date Collected: 08/23/18 10:20

Matrix: Water

Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			282791	08/29/18 14:34	JSM	TAL SEA
Total/NA	Analysis	8151A		1	283698	09/11/18 17:36	TL1	TAL SEA
Dissolved	Prep	3005A			282823	08/29/18 16:03	JKM	TAL SEA
Dissolved	Analysis	6010C		1	283181	09/04/18 13:50	HJM	TAL SEA
Dissolved	Prep	3005A			282823	08/29/18 16:03	JKM	TAL SEA
Dissolved	Analysis	6020B		1	282950	08/30/18 17:10	FCW	TAL SEA
Total Recoverable	Prep	3005A			283050	08/31/18 17:40	T1H	TAL SEA
Total Recoverable	Analysis	6020B		1	283207	09/04/18 15:49	FCW	TAL SEA
Dissolved	Analysis	SM 2340B		1	285244	09/28/18 16:12	SPP	TAL SEA
Total/NA	Analysis	SM 2540C		1	282608	08/28/18 08:57	R1K	TAL SEA
Total/NA	Analysis	SM 2540D		1	282591	08/27/18 16:43	TTN	TAL SEA
Dissolved	Analysis	SM 5310B		1	282720	08/28/18 10:56	TTN	TAL SEA
Total/NA	Analysis	SM 5310B		1	282747	08/28/18 11:49	TTN	TAL SEA

Client Sample ID: PDI-WS-T04-1808-D

Lab Sample ID: 580-79862-3

Date Collected: 08/23/18 10:20

Matrix: Water

Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			282791	08/29/18 14:34	JSM	TAL SEA
Total/NA	Analysis	8151A		1	283698	09/11/18 18:02	TL1	TAL SEA
Dissolved	Prep	3005A			282823	08/29/18 16:03	JKM	TAL SEA
Dissolved	Analysis	6010C		1	283181	09/04/18 13:54	HJM	TAL SEA

Client Sample ID: PDI-WS-T04-1808-D

Lab Sample ID: 580-79862-3

Date Collected: 08/23/18 10:20

Matrix: Water

Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			282823	08/29/18 16:03	JKM	TAL SEA
Dissolved	Analysis	6020B		1	282950	08/30/18 17:14	FCW	TAL SEA
Total Recoverable	Prep	3005A			283050	08/31/18 17:40	T1H	TAL SEA
Total Recoverable	Analysis	6020B		1	283207	09/04/18 15:53	FCW	TAL SEA
Dissolved	Analysis	SM 2340B		1	285244	09/28/18 16:12	SPP	TAL SEA
Total/NA	Analysis	SM 2540C		1	282608	08/28/18 08:57	R1K	TAL SEA
Total/NA	Analysis	SM 2540D		1	282591	08/27/18 16:43	TTN	TAL SEA
Dissolved	Analysis	SM 5310B		1	282720	08/28/18 10:56	TTN	TAL SEA
Total/NA	Analysis	SM 5310B		1	282858	08/29/18 18:19	TTN	TAL SEA

Client Sample ID: PDI-WS-T07-1808

Lab Sample ID: 580-79862-4

Date Collected: 08/23/18 18:20

Matrix: Water

Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			282791	08/29/18 14:34	JSM	TAL SEA
Total/NA	Analysis	8151A		1	283698	09/11/18 18:28	TL1	TAL SEA
Dissolved	Prep	3005A			283174	09/04/18 15:03	JKM	TAL SEA
Dissolved	Analysis	6010C		1	283467	09/07/18 10:50	HJM	TAL SEA
Dissolved	Prep	3005A			283174	09/04/18 15:03	JKM	TAL SEA
Dissolved	Analysis	6020B		1	283346	09/05/18 12:08	FCW	TAL SEA
Total Recoverable	Prep	3005A			283050	08/31/18 17:40	T1H	TAL SEA
Total Recoverable	Analysis	6020B		1	283207	09/04/18 15:07	FCW	TAL SEA
Dissolved	Analysis	SM 2340B		1	285244	09/28/18 16:12	SPP	TAL SEA
Total/NA	Analysis	SM 2540C		1	282608	08/28/18 08:57	R1K	TAL SEA
Total/NA	Analysis	SM 2540D		1	282591	08/27/18 16:43	TTN	TAL SEA
Dissolved	Analysis	SM 5310B		1	282847	08/29/18 16:33	TTN	TAL SEA
Total/NA	Analysis	SM 5310B		1	282858	08/29/18 18:19	TTN	TAL SEA

Client Sample ID: PDI-WS-T04E-1808

Lab Sample ID: 580-79862-5

Date Collected: 08/22/18 10:15

Matrix: Water

Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	283011	09/01/18 06:52	CJ	TAL SEA

Client Sample ID: PDI-WS-T04E-1808-D

Lab Sample ID: 580-79862-6

Date Collected: 08/22/18 10:15

Matrix: Water

Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	283011	09/01/18 07:17	CJ	TAL SEA

Client Sample ID: PDI-WS-T04N-1808

Lab Sample ID: 580-79862-7

Date Collected: 08/22/18 13:15

Matrix: Water

Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	283011	09/01/18 07:43	CJ	TAL SEA

Client Sample ID: PDI-WS-T04W-1808

Lab Sample ID: 580-79862-8

Date Collected: 08/23/18 09:20

Matrix: Water

Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	283011	09/01/18 08:09	CJ	TAL SEA

Client Sample ID: Trip Blank T04

Lab Sample ID: 580-79862-9

Date Collected: 08/23/18 10:20

Matrix: Water

Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	282997	08/31/18 19:35	W1T	TAL SEA

Client Sample ID: PDI-WS-T07E-1808

Lab Sample ID: 580-79862-10

Date Collected: 08/23/18 17:43

Matrix: Water

Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	282997	08/31/18 20:27	W1T	TAL SEA

Client Sample ID: PDI-WS-T07W-1808

Lab Sample ID: 580-79862-11

Date Collected: 08/23/18 15:59

Matrix: Water

Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	283011	09/01/18 08:35	CJ	TAL SEA

Client Sample ID: PDI-WS-T07NAV-1808

Lab Sample ID: 580-79862-12

Date Collected: 08/23/18 10:10

Matrix: Water

Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	283011	09/01/18 09:02	CJ	TAL SEA

Lab Chronicle

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

TestAmerica Job ID: 580-79862-1

Client Sample ID: Trip Blank T07

Lab Sample ID: 580-79862-13
Date Collected: 08/23/18 09:00
Matrix: Water
Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	283011	09/01/18 06:25	CJ	TAL SEA

Client Sample ID: PDI-WS-T03E-1808

Lab Sample ID: 580-79862-14
Date Collected: 08/22/18 09:20
Matrix: Water
Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	282863	08/31/18 08:13	RSB	TAL SEA

Client Sample ID: PDI-WS-T03W-1808

Lab Sample ID: 580-79862-15
Date Collected: 08/22/18 12:39
Matrix: Water
Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	282863	08/31/18 08:39	RSB	TAL SEA

Client Sample ID: PDI-WS-T03NAV-1808

Lab Sample ID: 580-79862-16
Date Collected: 08/22/18 15:16
Matrix: Water
Date Received: 08/24/18 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	282863	08/31/18 09:05	RSB	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: AECOM
TestAmerica Job ID: 580-79862-1
Project/Site: Portland Harbor Pre-Remedial Design

Laboratory: TestAmerica Seattle

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-19
ANAB	DoD ELAP		L2236	01-19-19
ANAB	ISO/IEC 17025		L2236	01-19-19
California	State Program	9	2901	11-05-18
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-18
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-19

Sample Summary

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

TestAmerica Job ID: 580-79862-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79862-1	PDI-WS-T03-1808	Water	08/22/18 17:55	08/24/18 13:25
580-79862-2	PDI-WS-T04-1808	Water	08/23/18 10:20	08/24/18 13:25
580-79862-3	PDI-WS-T04-1808-D	Water	08/23/18 10:20	08/24/18 13:25
580-79862-4	PDI-WS-T07-1808	Water	08/23/18 18:20	08/24/18 13:25
580-79862-5	PDI-WS-T04E-1808	Water	08/22/18 10:15	08/24/18 13:25
580-79862-6	PDI-WS-T04E-1808-D	Water	08/22/18 10:15	08/24/18 13:25
580-79862-7	PDI-WS-T04N-1808	Water	08/22/18 13:15	08/24/18 13:25
580-79862-8	PDI-WS-T04W-1808	Water	08/23/18 09:20	08/24/18 13:25
580-79862-9	Trip Blank T04	Water	08/23/18 10:20	08/24/18 13:25
580-79862-10	PDI-WS-T07E-1808	Water	08/23/18 17:43	08/24/18 13:25
580-79862-11	PDI-WS-T07W-1808	Water	08/23/18 15:59	08/24/18 13:25
580-79862-12	PDI-WS-T07NAV-1808	Water	08/23/18 10:10	08/24/18 13:25
580-79862-13	Trip Blank T07	Water	08/23/18 09:00	08/24/18 13:25
580-79862-14	PDI-WS-T03E-1808	Water	08/22/18 09:20	08/24/18 13:25
580-79862-15	PDI-WS-T03W-1808	Water	08/22/18 12:39	08/24/18 13:25
580-79862-16	PDI-WS-T03NAV-1808	Water	08/22/18 15:16	08/24/18 13:25

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

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) 438-2618
Analysis Turnaround Time
Calendar (C) or Work Days (W)
☐ 21 days
☐ Other _____

Site Contact: Jennifer Ray / Michaela McCoog
Laboratory Contact: Elaine Walker
Date: 8/24/2018
Carrier:
COC No: 1 of 2 COCs

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Filtration	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-03-18-08	8/22/2018	17:55	SW		MT	8			2	1	1	1	1	1	1	
PDI-WS-T-04-18-08	8/23/2018	10:20	SW		MM	8			2	1	1	1	1	1	1	
PDI-WS-T-04-18-08-D	8/23/2018	10:20	SW		MM	8			2	1	1	1	1	1	1	
PDI-WS-T-07-18-08	8/23/2018	18:20	SW	MS/MSD	MT	14			6	3	1	1	1	1	1	
PDI-WS-T-04E-18-08	8/23/2018	10:15	SW		MM	3		3								
PDI-WS-T-04E-18-08-D	8/23/2018	10:15	SW		MM	3		3								
PDI-WS-T-04N-18-08	8/23/2018	13:15	SW		MM	3		3								
PDI-WS-T-04W-18-08	8/23/2018	9:20	SW		MM	3		3								
Trip Blank-T-04-	8/23/2018	10:20	W		MM	3		3								
PDI-WS-T-07E-18-08	8/23/2018	17:43	SW		MT	3		3								
PDI-WS-T-07W-18-08	8/23/2018	15:59	SW		MT	3		3								

Container Type: WMM=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: 8/24/2018 1300	Received by:	Company: A.I. E.	Date/Time: 8/24/18 1300
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

SURFACE WATER CHAIN OF CUSTODY

TestAmerica-Seattle	Project Contact: Amy Dahl / Chelsey Cook
5755 8th Street East	Tel: (206) 438-2261 / (206) 438-2010
Tacoma, WA 98424-1317	Analysis Turnaround Time
Ph: 253-922-2310 F 253-922-5047	Calendar (C) or Work Days (W) ____
Client Contact	☐ 21 days
AECOM	☐ Other ____
1111 3rd Ave Suite 1600	
Seattle, WA 98101	
Phone: (206) 438-2700 Fax: 1+(866) 495-5286	
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	
Portland, OR	
Project #: 60566335 Study: Surface Water	

Site Contact: Jennifer Ray / Michaela McCoog
Laboratory Contact: Elaine Walker
Date: 8/24/2018
Carrier:
COC No: 2 of 2 COCs

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Molybdenum, EPA 6020C	MCPP, EPA Method 8151A	Metals (Total), EPA Method 6020A-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-07-NAV-18-08	8/23/2018	10:10	SW		MT	9	N	N	9								
Trip Blank-T-07	8/23/2018	9:00	W		MT	4	N	N	4								
PDI-WS-T-03-E-18-08	8/22/2018	9:20	SW		MT	3	N	N	3								
PDI-WS-T-03-W-18-08	8/22/2018	12:39	SW		MT	3	N	N	3								
PDI-WS-T-03-NAV-18-08	8/22/2018	15:16	SW		MT	3	N	N	3								
PDI-WS-T																	
PDI-WS-T																	
PDI-WS-T																	
Trip Blank-T																	
PDI-WS-T																	
PDI-WS-T																	

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

	Company:	Date/Time:		Company:	Date/Time:
Relinquished by:	AECOM	8/24/2018 1300	Received by:	M.E.	8/24/18 1300
Relinquished by:			Received by:		
Relinquished by:			Received by:		

580-79862 Chain of Custody

SURFACE WATER
CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 **Ph:** 253-922-2310 **Fa:** 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: 8/24/2018** **Carrier:**
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: 1 of 2 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-03-18-08	8/22/2018	17:55	SW		MT	8			2	1	1	1	1	1	1	
PDI-WS-T-04-18-08	8/23/2018	10:20	SW		MM	8			2	1	1	1	1	1	1	
PDI-WS-T-04-18-08-D	8/23/2018	10:20	SW		MM	8			2	1	1	1	1	1	1	
PDI-WS-T-07-18-08	8/23/2018	18:20	SW	MS/MSD	MT	14			6	3	1	1	1	1	1	
PDI-WS-T-04E-18-08	8/23/2018	10:15	SW		MM	3		3								
PDI-WS-T-04E-18-08-D	8/23/2018	10:15	SW		MM	3		3								
PDI-WS-T-04N-18-08	8/23/2018	13:15	SW		MM	3		3								
PDI-WS-T-04W-18-08	8/23/2018	9:20	SW		MM	3		3								
Trip Blank-T-04-	8/23/2018	10:20	W		MM	3		3								
PDI-WS-T-07E-18-08	8/23/2018	17:43	SW		MT	3		3								
PDI-WS-T-07W-18-08	8/23/2018	15:59	SW		MT	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:

21, 3.4

Relinquished by:	Company: AECOM	Date/Time: 8/24/2018 1300	Received by:	Company: M. E.	Date/Time: 8/24/18 1300
Relinquished by:	Company: M. E.	Date/Time: 8/24/18 1325	Received by:	Company: TARGET	Date/Time: 8/24/18 1325
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

SURFACE WATER
CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 **Ph:** 253-922-2310 F 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: 8/24/2018** **Carrier:**
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 2 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 07 NAV - 18 08	8/23/2018	10:10	SW		MT	9		9								
Trip Blank-T 07	8/23/2018	9:00	W		MT	4		4								
PDI-WS-T 03 E - 18 08	8/22/2018	9:20	SW		MT	3		3								
PDI-WS-T 03 W - 18 08	8/22/2018	12:39	SW		MT	3		3								
PDI-WS-T 03 NAV - 18 08	8/22/2018	15:16	SW		MT	3		3								
PDI-WS-T																
PDI-WS-T																
PDI-WS-T																
Trip Blank-T																
PDI-WS-T																
PDI-WS-T -																

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

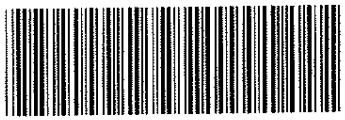
Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)

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: 8/24/2018 1300	Received by:	Company: M.E.	Date/Time: 8/24/18 1300
Relinquished by:	Company: M.E.	Date/Time: 8/24/18 1325	Received by:	Company: TARR	Date/Time: 8/24/18 1325
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:



580-79862 Chain of Custody

SURFACE WATER
CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 Ph: 253-922-2310 Fx: 253-922-5047	**Project Contact: Amy Dahl / Chelsey Cook** Tel: (206) 438-2261 / (206) 438-2010 **Analysis Turnaround Time** Calendar (C) or Work Days (W)	**Site Contact: Jennifer Ray / Michaela McCoog** **Laboratory Contact: Elaine-Walker**	**Date: 8/24/2018** **Carrier:**	**COC No:** 1 of 2 COC's
Client Contact AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Surface Water	☐ 21 days ☐ Other _____			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Filtered	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 08	8/22/2018	17:55	SW		MT	8			2	1	1	1	1	1	1	
PDI-WS-T 04 - 18 08	8/23/2018	10:20	SW		MM	8			2	1	1	1	1	1	1	
PDI-WS-T 04 - 18 08 D	8/23/2018	10:20	SW		MM	8			2	1	1	1	1	1	1	
PDI-WS-T 07 - 18 08	8/23/2018	18:20	SW	MS/MSD	MT	14			6	3	1	1	1	1	1	
PDI-WS-T 04 E - 18 08	8/23/2018	10:15	SW		MM	3		3								
PDI-WS-T 04 E - 18 08 D	8/23/2018	10:15	SW		MM	3		3								
PDI-WS-T 04 N - 18 08	8/23/2018	13:15	SW		MM	3		3								
PDI-WS-T 04 W - 18 08	8/23/2018	9:20	SW		MM	3		3								
Trip Blank-T 04 - - -	8/23/2018	10:20	W		MM	3		3								
PDI-WS-T 07 E - 18 08	8/23/2018	17:43	SW		MT	3		3								
PDI-WS-T 07 W - 18 08	8/23/2018	15:59	SW		MT	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 X Disposal By Lab X Archive For 12 Months

Special Instructions/QC Requirements & Comments:

21, 3.4

Relinquished by:	Company: AECOM	Date/Time: 8/24/2018 1300	Received by:	Company: M.E.	Date/Time: 8/24/18 1300
Relinquished by:	Company: M.E.	Date/Time: 8/24/18 1325	Received by:	Company: TAL	Date/Time: 8/24/18 1325
Relinquished by:	Company: TAL	Date/Time: 8/24/18 1630	Received by:	Company: TAL SEA	Date/Time: 8-25-18 0930

IRS=25/25

SURFACE WATER
CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 Ph: 253-922-2310 F 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** **Carrier:**
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		**Date: 8/24/2018** **COC No:** 2 of 2 COCs

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Filtered	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 07 NAV - 18 08	8/23/2018	10:10	SW		MT	9		9								
Trip Blank-T 07	8/23/2018	9:00	W		MT	4		4								
PDI-WS-T 03 E - 18 08	8/22/2018	9:20	SW		MT	3		3								
PDI-WS-T 03 W - 18 08	8/22/2018	12:39	SW		MT	3		3								
PDI-WS-T 03 NAV - 18 08	8/22/2018	15:16	SW		MT	3		3								
PDI-WS-T																
PDI-WS-T																
PDI-WS-T																
Trip Blank-T																
PDI-WS-T																
PDI-WS-T																

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:

	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	AECOM	8/24/2018 1300		M.E.	8/24/18 1300
Relinquished by:	M.E.	8/24/18 1325		TARR	8/24/18 1325
Relinquished by:	TARR	8/24/18 1630		TASEC	8.25.18 0930

IRS=2.5/2.5

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-79862-1

Login Number: 79862
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	