

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: 580-79792-1

Client Project/Site: Portland Harbor Pre-Remedial Design

Revision: 1

For:

AECOM 1111 Third Ave Suite 1600 Seattle, Washington 98101

Attn: Amy Dahl

# M. Elaine Walker

Authorized for release by: 9/30/2018 2:18:17 PM

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

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

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79792-1

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## **Case Narrative**

Client: AECOM TestAmerica Job ID: 580-79792-1

Project/Site: Portland Harbor Pre-Remedial Design

Job ID: 580-79792-1

**Laboratory: TestAmerica Seattle** 

Narrative

## CASE NARRATIVE Client: AECOM

Project: Portland Harbor Pre-Remedial Design Report Number: 580-79792-1

#### REVISION 1: SEPTEMBER 28, 2018

This revision was required because the Hardness was reported by an icorrect method.

This

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**

Six samples were received on 8/22/2018 2:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.2° C.

Dissolved Ca and Mg were added to the samples per client request.

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-RB-PP-1820 (580-79792-2), PDI-WS-T05W-1808 (580-79792-3), PDI-WS-T05NAV-1808 (580-79792-4), PDI-WS-T05E-1808 (580-79792-5) and TRIP BLANK-T05 (580-79792-6) were analyzed for volatile organic compounds (GC-MS) in accordance with 8260C. The samples were analyzed on 08/24/2018, 08/25/2018 and 08/30/2018.

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

#### **CHLORINATED HERBICIDES**

Samples PDI-WS-T05-1808 (580-79792-1) and PDI-RB-PP-1820 (580-79792-2) were analyzed for chlorinated herbicides in accordance with EPA SW-846 8151A. The samples were prepared on 08/27/2018 and analyzed on 09/04/2018.

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

#### **METALS (ICP) - DISSOLVED**

Samples PDI-WS-T05-1808 (580-79792-1) and PDI-RB-PP-1820 (580-79792-2) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 08/28/2018 and analyzed on 08/31/2018.

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

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## **Case Narrative**

Client: AECOM TestAmerica Job ID: 580-79792-1

Project/Site: Portland Harbor Pre-Remedial Design

Job ID: 580-79792-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

#### **METALS (ICPMS) - DISSOLVED**

Samples PDI-WS-T05-1808 (580-79792-1) and PDI-RB-PP-1820 (580-79792-2) were analyzed for metals (ICPMS) in accordance with 6020A\_LL. The samples were prepared on 08/28/2018 and analyzed on 08/29/2018.

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

#### **METALS (ICPMS) - TOTAL**

Samples PDI-WS-T05-1808 (580-79792-1) and PDI-RB-PP-1820 (580-79792-2) were analyzed for Metals (ICPMS) in accordance with 6020A\_LL. The samples were prepared on 08/24/2018 and analyzed on 08/29/2018.

Chromium and Zinc exceeded the RPD limit for the duplicate of sample PDI-WS-T05-1808DU (580-79792-1). The MS/MSD and associated LCS/LCSD recoveries and precision met acceptance limits.

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

#### **HARDNESS**

Samples PDI-WS-T05-1808 (580-79792-1) and PDI-RB-PP-1820 (580-79792-2) were analyzed for hardness in accordance with SM20 2340B 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.

#### **TOTAL DISSOLVED SOLIDS**

Sample PDI-WS-T05-1808 (580-79792-1) was 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**

Sample PDI-WS-T05-1808 (580-79792-1) was analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 08/23/2018.

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

#### **DISSOLVED ORGANIC CARBON**

Samples PDI-WS-T05-1808 (580-79792-1) and PDI-RB-PP-1820 (580-79792-2) were analyzed for dissolved organic carbon in accordance with SM20 5310B. The samples were analyzed on 09/12/2018.

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

#### **TOTAL ORGANIC CARBON**

Samples PDI-WS-T05-1808 (580-79792-1) and PDI-RB-PP-1820 (580-79792-2) were analyzed for total organic carbon in accordance with SM 5310B. 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

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TestAmerica Seattle 9/30/2018 (Rev. 1)

# **Definitions/Glossary**

Client: AECOM TestAmerica Job ID: 580-79792-1

Project/Site: Portland Harbor Pre-Remedial Design

## **Qualifiers**

## **GC/MS VOA**

Quaimer	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## **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.

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

Client: AECOM

Client Sample ID: PDI-WS-T05-1808

Date Collected: 08/21/18 20:28

Date Received: 08/22/18 14:45

Calcium

Magnesium

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79792-1

Lab Sample ID: 580-79792-1

**Matrix: Water** 

alci	

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MCPP	ND		1.1	0.18	ug/L		08/27/18 15:08	09/04/18 16:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	108		44 - 145				08/27/18 15:08	09/04/18 16:43	1

1.1

1.1

0.16 mg/L

0.13 mg/L

Prepared	Analyzed	Dil Fac	
08/28/18 11:44	08/31/18 17:33	1	
08/28/18 11:44	08/31/18 17:33	1	

Method: 6020B - Metals (ICP/MS) - Total Recoverable									
Analyte	Result C	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.80 J	<u> </u>	1.0	0.20	ug/L		08/24/18 18:09	08/29/18 12:41	1
Chromium	5.2		0.40	0.17	ug/L		08/24/18 18:09	08/29/18 12:41	1
Copper	1.1 J	l	2.0	0.60	ug/L		08/24/18 18:09	08/29/18 12:41	1
Zinc	2.8 J	j	7.0	1.9	ug/L		08/24/18 18:09	08/29/18 12:41	1

6.0

2.3

Method: 6020B - Metals (ICF	P/MS) - Dissolved							
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.62 J	1.0	0.20	ug/L		08/28/18 11:44	08/29/18 21:54	1
Chromium	1.7	0.40	0.17	ug/L		08/28/18 11:44	08/29/18 21:54	1
Copper	3.4	2.0	0.60	ug/L		08/28/18 11:44	08/29/18 21:54	1
Zinc	5.1 J	7.0	1.9	ug/L		08/28/18 11:44	08/29/18 21:54	1

Method: SM 2340B - Total Hard	iness (as CaCO3) by	calculation -	Dissolve	ed				
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Hardness as calcium	24	1.1	1.1	mg/L			08/31/18 17:33	1
carbonate				•				

General Chemistry Analyte	Result Qua	alifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	52	10	10	mg/L			08/28/18 08:57	1
Total Suspended Solids	5.8	2.0	2.0	mg/L			08/23/18 14:19	1
Total Organic Carbon	1.7	1.0	0.19	mg/L			08/27/18 11:17	1

General Chemistry - Dissolved									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.8		1.0	0.19	mg/L			09/12/18 15:47	1

Client Sample ID: PDI-RB-PP-1820

Date Collected: 08/20/18 16:00 Date Received: 08/22/18 14:45

**General Chemistry - Dissolved** 

**Dissolved Organic Carbon** 

Analyte

Client: AECOM

Lab Sample ID: 580-79792-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.85	J	3.0	0.50	ug/L			08/24/18 23:23	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
Toluene-d8 (Surr)	104		80 - 122					08/24/18 23:23	
Trifluorotoluene (Surr)	99		80 - 120					08/24/18 23:23	1
4-Bromofluorobenzene (Surr)	100		80 - 125					08/24/18 23:23	1
Dibromofluoromethane (Surr)	99		77 - 120					08/24/18 23:23	
1,2-Dichloroethane-d4 (Surr)	105		80 - 126					08/24/18 23:23	
Method: 8151A - Herbicides (G	GC/MS)								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MCPP	ND		1.0	0.18	ug/L		08/27/18 15:08	09/04/18 17:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
2,4-Dichlorophenylacetic acid	106		44 - 145				08/27/18 15:08	09/04/18 17:08	
Method: 6010C - Metals (ICP)	- Dissolved								
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.1		mg/L		08/28/18 11:44	08/31/18 17:36	•
Magnesium	ND		1.1	0.13	mg/L		08/28/18 11:44	08/31/18 17:36	1
Method: 6020B - Metals (ICP/N		Recoverab Qualifier	le RL	MDI	Unit	D	Droporod	Anglyzod	Dil Fac
Analyte Arsenic	ND	Qualifier	1.0		ug/L		Prepared 08/24/18 18:09	Analyzed 08/29/18 13:18	DII Fac
			0.40		ug/L ug/L		08/24/18 18:09	08/29/18 13:18	,
Conner	<b>0.18</b> ND	J	2.0		ug/L ug/L		08/24/18 18:09	08/29/18 13:18	,
Copper					•				
Zinc	ND		7.0	1.9	ug/L		06/24/16 16.09	08/29/18 13:18	
Method: 6020B - Metals (ICP/N Analyte		ved Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.20		=	08/28/18 11:44	08/29/18 21:22	
Chromium	0.76		0.40		ug/L			08/29/18 21:22	
Copper	ND		2.0	0.60	-			08/29/18 21:22	1
Zinc	2.9	J	7.0		ug/L			08/29/18 21:22	· · · · · · .
Method: SM 2340B - Total Har	dness (as C	CaCO3) by	calculation -	Dissolv	red				
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Hardness as calcium carbonate	ND		1.1	1.1	mg/L			08/31/18 17:36	•
General Chemistry									
General Chemistry Analyte Total Organic Carbon	Result 0.72	Qualifier	RL		Unit mg/L	D	Prepared	Analyzed 08/27/18 11:17	Dil Fac

Analyzed 09/12/18 15:47

Prepared

RL

1.0

MDL Unit

0.19 mg/L

Result Qualifier

0.73 J

Dil Fac

Client: AECOM TestAmerica Job ID: 580-79792-1

Project/Site: Portland Harbor Pre-Remedial Design

Client Sample ID: PDI-WS-T05W-1808 Lab Sample ID: 580-79792-3

Date Collected: 08/21/18 19:07 **Matrix: Water** 

Date Received: 08/22/18 14:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			08/24/18 23:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		80 - 122					08/24/18 23:50	1
Trifluorotoluene (Surr)	96		80 - 120					08/24/18 23:50	1
4-Bromofluorobenzene (Surr)	99		80 - 125					08/24/18 23:50	1
Dibromofluoromethane (Surr)	99		77 - 120					08/24/18 23:50	1
1,2-Dichloroethane-d4 (Surr)	106		80 - 126					08/24/18 23:50	1

Client: AECOM TestAmerica Job ID: 580-79792-1

Project/Site: Portland Harbor Pre-Remedial Design

Client Sample ID: PDI-WS-T05NAV-1808 Lab Sample ID: 580-79792-4

Date Collected: 08/21/18 16:17 **Matrix: Water** 

Date Received: 08/22/18 14:45

Method: 8260C - Volatile O Analyte	•	unds by G Qualifier	C/MS RL	MDL	Unit	D	Dronorod	Analyzed	Dil Fac
Ethylbenzene	ND	Qualifier	3.0		ug/L		Prepared	08/25/18 00:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		80 - 122					08/25/18 00:15	1
Trifluorotoluene (Surr)	97		80 - 120					08/25/18 00:15	1
4-Bromofluorobenzene (Surr)	100		80 - 125					08/25/18 00:15	1
Dibromofluoromethane (Surr)	99		77 - 120					08/25/18 00:15	1
1,2-Dichloroethane-d4 (Surr)	106		80 - 126					08/25/18 00:15	1

Client: AECOM TestAmerica Job ID: 580-79792-1

Project/Site: Portland Harbor Pre-Remedial Design

Client Sample ID: PDI-WS-T05E-1808 Lab Sample ID: 580-79792-5

Date Collected: 08/21/18 12:18 Matrix: Water

Date Received: 08/22/18 14:45

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			08/30/18 20:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		80 - 122			•		08/30/18 20:54	1
Trifluorotoluene (Surr)	101		80 - 120					08/30/18 20:54	1
4-Bromofluorobenzene (Surr)	100		80 - 125					08/30/18 20:54	1
Dibromofluoromethane (Surr)	103		77 - 120					08/30/18 20:54	1
1,2-Dichloroethane-d4 (Surr)	103		80 - 126					08/30/18 20:54	1

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Client: AECOM TestAmerica Job ID: 580-79792-1

Project/Site: Portland Harbor Pre-Remedial Design

Client Sample ID: TRIP BLANK-T05 Lab Sample ID: 580-79792-6

Date Collected: 08/21/18 12:00 Matrix: Water

Date Received: 08/22/18 14:45

Method: 8260C - Volatile O Analyte	•	unds by G Qualifier	C/MS RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0		ug/L	= .	- 10pa.0a	08/30/18 21:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		80 - 122					08/30/18 21:20	1
Trifluorotoluene (Surr)	101		80 - 120					08/30/18 21:20	1
4-Bromofluorobenzene (Surr)	99		80 - 125					08/30/18 21:20	1
Dibromofluoromethane (Surr)	101		77 - 120					08/30/18 21:20	1
1,2-Dichloroethane-d4 (Surr)	101		80 - 126					08/30/18 21:20	1

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

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

Lab Sample ID: MB 580-282397/5 Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 282397** 

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0	0.50	ug/L			08/24/18 14:41	1
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		80 - 122					08/24/18 14:41	1
Trifluorotoluene (Surr)	97		80 - 120					08/24/18 14:41	1
4-Bromofluorobenzene (Surr)	100		80 - 125					08/24/18 14:41	1
Dibromofluoromethane (Surr)	102		77 - 120					08/24/18 14:41	1
1,2-Dichloroethane-d4 (Surr)	112		80 - 126					08/24/18 14:41	1

Lab Sample ID: LCS 580-282397/6 **Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Total/NA** 

**Analysis Batch: 282397** 

LCS LCS Spike %Rec. Analyte Added Result Qualifier Unit D %Rec Limits Ethylbenzene 10.0 9.15 ug/L 91 75 - 120

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
Toluene-d8 (Surr)	104		80 - 122
Trifluorotoluene (Surr)	96		80 - 120
4-Bromofluorobenzene (Surr)	98		80 - 125
Dibromofluoromethane (Surr)	99		77 - 120
1,2-Dichloroethane-d4 (Surr)	109		80 - 126

Lab Sample ID: LCSD 580-282397/7 **Client Sample ID: Lab Control Sample Dup Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 282397** 

Spike LCSD LCSD RPD %Rec. D %Rec Analyte Added Result Qualifier Limits Limit Unit RPD Ethylbenzene 10.0 9.39 ug/L 94 75 - 120 3

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
Toluene-d8 (Surr)	107		80 - 122
Trifluorotoluene (Surr)	95		80 - 120
4-Bromofluorobenzene (Surr)	100		80 - 125
Dibromofluoromethane (Surr)	98		77 - 120
1,2-Dichloroethane-d4 (Surr)	109		80 - 126

Lab Sample ID: MB 580-282854/5 **Client Sample ID: Method Blank Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 282854** 

MB MB RL Analyte Result Qualifier MDL Unit **Prepared** Analyzed Dil Fac Ethylbenzene ND 3.0 0.50 ug/L 08/30/18 12:13 MB MB

%Recovery Qualifier Surrogate Limits Prepared Analyzed Dil Fac 102 80 - 122 08/30/18 12:13 Toluene-d8 (Surr) 08/30/18 12:13 103 80 - 120 Trifluorotoluene (Surr)

TestAmerica Job ID: 580-79792-1

Project/Site: Portland Harbor Pre-Remedial Design

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

Lab Sample ID: MB 580-282854/5

Lab Sample ID: LCS 580-282854/6

**Matrix: Water** 

Client: AECOM

**Analysis Batch: 282854** 

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

MR MR

- 1		III	III					
	Surrogate	%Recovery	Qualifier	Limits	Pre	epared	Analyzed	Dil Fac
	4-Bromofluorobenzene (Surr)	99		80 - 125			08/30/18 12:13	1
İ	Dibromofluoromethane (Surr)	101		77 - 120			08/30/18 12:13	1
Į	1,2-Dichloroethane-d4 (Surr)	98		80 - 126			08/30/18 12:13	1

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

**Matrix: Water** 

**Analysis Batch: 282854** 

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Ethylbenzene	10.0	9.53		ug/L		95	75 - 120	

LCS LCS Surrogate %Recovery Qualifier Limits Toluene-d8 (Surr) 105 80 - 122 Trifluorotoluene (Surr) 100 80 - 120 4-Bromofluorobenzene (Surr) 100 80 - 125 Dibromofluoromethane (Surr) 99 77 - 120 1,2-Dichloroethane-d4 (Surr) 80 - 126 94

Lab Sample ID: LCSD 580-282854/7 Client Sample ID: Lab Control Sample Dup **Matrix: Water Prep Type: Total/NA** 

**Analysis Batch: 282854** 

, ,	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Ethylbenzene	10.0	9.42		ug/L		94	75 - 120	1	14

LCSD	LCSD	
%Recovery	Qualifier	Limits
101		80 - 122
100		80 - 120
100		80 - 125
99		77 - 120
97		80 - 126
	%Recovery 101 100 100 99	100 100 99

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

Lab Sample ID: MB 580-282582/1-A **Client Sample ID: Method Blank Matrix: Water Prep Type: Total/NA** Analysis Batch: 283156 **Prep Batch: 282582** 

M	В	MB							
Analyte Resu	ılt	Qualifier RL	ME	L	Unit	D	Prepared	Analyzed	Dil Fac
MCPP N	ID	1.0	0.1	17	ug/L		08/27/18 15:00	09/04/18 15:25	1
M	ΙB	MB							

Surrogate %Recovery Qualifier I imits Prepared Analyzed Dil Fac 2,4-Dichlorophenylacetic acid 08/27/18 15:00 09/04/18 15:25 98 44 - 145

Client: AECOM Project/Site: Portland Harbor Pre-Remedial Design TestAmerica Job ID: 580-79792-1

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

Lab Sample ID: LCS 580-282582/2-A **Matrix: Water** 

**Analysis Batch: 283156** 

**Client Sample ID: Lab Control Sample** Prep Type: Total/NA **Prep Batch: 282582** 

Spike LCS LCS %Rec. Added Result Qualifier Unit D %Rec Limits 5.00 ug/L 61 - 135 3.84 77

LCS LCS

Surrogate %Recovery Qualifier Limits 2,4-Dichlorophenylacetic acid 103 44 - 145

Lab Sample ID: LCSD 580-282582/3-A

**Matrix: Water** 

**Analyte** MCPP

**Analysis Batch: 283156** 

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

**Prep Batch: 282582 RPD** %Rec.

LCSD LCSD Spike Analyte Added Result Qualifier Unit %Rec Limits RPD Limit MCPP 98 35 5.00 4.92 ug/L 61 - 135 25

LCSD LCSD

Surrogate **%Recovery Qualifier** Limits 44 - 145 2,4-Dichlorophenylacetic acid 105

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 580-282639/22-A

**Matrix: Water** 

Analysis Batch: 283117

Client Sample ID: Method Blank **Prep Type: Total Recoverable** 

Prep Batch: 282639

MB MB Analyte RL **MDL** Unit Prepared Analyzed Dil Fac Result Qualifier Calcium 1.1 0.16 mg/L 08/28/18 11:44 08/31/18 17:23 ND Magnesium ND 1.1 0.13 mg/L 08/28/18 11:44 08/31/18 17:23

Lab Sample ID: LCS 580-282639/23-A

**Matrix: Water** 

**Analysis Batch: 283117** 

Client Sample ID: Lab Control Sample **Prep Type: Total Recoverable** 

Prep Batch: 282639 %Rec.

Spike LCS LCS Added Result Qualifier D %Rec Limits Analyte Unit Calcium 20.0 19.5 97 80 - 120 mg/L 20.0 19.9 mg/L 80 - 120 Magnesium 99

Lab Sample ID: LCSD 580-282639/24-A

**Matrix: Water** 

**Analysis Batch: 283117** 

Client Sample ID: Lab Control Sample Dup

**Prep Type: Total Recoverable Prep Batch: 282639** 

Spike LCSD LCSD %Rec. **RPD** Added Result Qualifier Unit Limits RPD Limit Analyte D %Rec 20.0 19.6 Calcium mg/L 98 80 - 120 0 20 20.0 99 Magnesium 19.9 mg/L 80 - 120 20

Lab Sample ID: 580-79792-2 MS

**Matrix: Water** 

Analysis Batch: 283117

Client Sample ID: PDI-RB-PP-1820

**Prep Type: Dissolved** Prep Batch: 282639

Sample Sample Spike MS MS %Rec. Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Calcium ND 20.0 19.8 mg/L 99 75 - 125 ND Magnesium 20.0 20.0 mg/L 100 75 - 125

TestAmerica Job ID: 580-79792-1

**Client Sample ID: Method Blank** 

08/24/18 18:09 08/29/18 12:28

**Client Sample ID: Lab Control Sample** 

**Client Sample ID: Lab Control Sample Dup** 

Client Sample ID: PDI-WS-T05-1808

**Prep Type: Total Recoverable** 

**Prep Type: Total Recoverable** 

# QC Sample Results

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

Lab Sample ID: 580-79792-2 MSD Client Sample ID: PDI-RB-PP-1820

Matrix: Water Analysis Batch: 283117									Prep Type Prep Ba			
•	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Calcium	ND		20.0	19.3		mg/L		96	75 - 125	3	20	
Magnesium	ND		20.0	19.5		ma/l		98	75 - 125	2	20	

Lab Sample ID: 580-79792-2 DU

**Matrix: Water** 

Analysis Batch: 283117

Client Sample ID: PDI-RB-PP-1820 **Prep Type: Dissolved Prep Batch: 282639** 

1.9 ug/L

,									
	Sample	Sample	DU	DU					RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D		RPD	Limit
Calcium	ND		ND		mg/L			NC	20
Magnesium	ND		ND		mg/L			NC	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-282446/12-A

**Matrix: Water** 

Analysis Batch: 282804

Prep Batch: 282446 MB MB Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Arsenic ND 1.0 0.20 ug/L 08/24/18 18:09 08/29/18 12:28 Chromium ND 0.40 08/24/18 18:09 08/29/18 12:28 0.17 ug/L Copper ND 2.0 0.60 ug/L 08/24/18 18:09 08/29/18 12:28

7.0

ND

Lab Sample ID: LCS 580-282446/13-A

**Matrix: Water** 

Zinc

Analysis Batch: 282804							Prep Batch: 282446	
•	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Arsenic	4000	4020		ug/L		100	80 - 120	
Chromium	400	392		ug/L		98	80 - 120	
Copper	500	511		ug/L		102	80 - 120	
Zinc	4000	3980		ug/L		100	80 - 120	

Lab Sample ID: LCSD 580-282446/14-A

Matrix: Water Analysis Batch: 282804					P	rep Ty	pe: Total l Prep Ba		
	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	4000	4020		ug/L		100	80 - 120	0	20
Chromium	400	398		ug/L		99	80 - 120	1	20
Copper	500	508		ug/L		102	80 - 120	1	20
Zinc	4000	3980		ug/L		100	80 - 120	0	20

Lab Sample ID: 580-79792-1 MS

Matrix: Water							P	rep Typ	e: Total	Recoverable
Analysis Batch: 282804									Prep B	atch: 282446
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Arsenic	0.80	J	4000	4100		ug/L		102	80 - 120	
Chromium	5.2		400	407		ug/L		100	80 - 120	
Copper	1.1	J	500	515		ug/L		103	80 - 120	

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79792-1

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

Lab Sample ID: 580-79792	Lab Sample ID: 580-79792-1 MS					Client Sample ID: PDI-WS-T05-1808						
Matrix: Water							P	rep Typ	oe: Total I	Recoverable		
Analysis Batch: 282804									Prep Ba	atch: 282446		
	Sample	Sample	Spike	MS	MS				%Rec.			
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits			
Zinc	2.8	J	4000	4100		ug/L		102	80 - 120			

Lab Sample ID: 580-79792-1 MSD Client Sample ID: PDI-WS-T05-1808 **Matrix: Water Prep Type: Total Recoverable** Analysis Batch: 282804 Prep Batch: 282446 Sample Sample Spike MSD MSD %Rec. **RPD** Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit Arsenic 0.80 J 4000 3950 99 4 20 ug/L 80 - 120 Chromium 5.2 400 401 ug/L 99 80 - 120 20 1 Copper 1.1 J 500 501 ug/L 100 80 - 120 20 3 Zinc 2.8 J 4000 3920 ug/L 80 - 120 20

Lab Sample ID: 580-79792-1 DU Client Sample ID: PDI-WS-T05-1808 **Matrix: Water Prep Type: Total Recoverable Analysis Batch: 282804** Prep Batch: 282446

DU DU Sample Sample **RPD** Analyte Result Qualifier Result Qualifier Unit **RPD** Limit Arsenic 0.80 0.746 J ug/L 20 Chromium 5.2 0.426 F3 ug/L 170 20 Copper 1.1 J 0.940 J ug/L 12 20 2.08 JF5 Zinc 2.8 J ug/L 30 20

Lab Sample ID: MB 580-282639/22-A **Client Sample ID: Method Blank Prep Type: Total Recoverable** 

**Matrix: Water** 

Zinc

**Analysis Batch: 282840** 

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.20	ug/L		08/28/18 11:44	08/29/18 21:11	1
Chromium	ND		0.40	0.17	ug/L		08/28/18 11:44	08/29/18 21:11	1
Copper	ND		2.0	0.60	ug/L		08/28/18 11:44	08/29/18 21:11	1
Zinc	ND		7.0	1 9	ua/l		08/28/18 11:44	08/29/18 21:11	1

ug/L 08/28/18 11:44 08/29/18 21:11 Lab Sample ID: LCS 580-282639/23-A **Client Sample ID: Lab Control Sample** 

**Prep Type: Total Recoverable Matrix: Water** Prep Batch: 282639 Analysis Batch: 282840 LCS LCS Spike %Rec. Analyte Added Result Qualifier Unit D %Rec Limits Arsenic 4000 4060 ug/L 101 80 - 120 Chromium 400 408 ug/L 102 80 - 120 Copper 500 516 ug/L 103 80 - 120

3950

ug/L

99

80 - 120

Lab Sample ID: LCSD 580-282639/24-A Matrix: Water			C	Client S			Control Spe: Total F		
Analysis Batch: 282840							Prep Ba		
	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	4000	4050		ug/L		101	80 - 120	0	20
Chromium	400	406		ug/L		101	80 - 120	1	20

4000

TestAmerica Seattle

Prep Batch: 282639

Client Sample ID: PDI-RB-PP-1820

Project/Site: Portland Harbor Pre-Remedial Design

Lab Sample ID: 580-79792-2 MS

Client: AECOM

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

Lab Sample ID: LCSD 580-282639/24-A Matrix: Water			(	Client Sa			Control Spe: Total F		
Analysis Batch: 282840							Prep Ba	tch: 28	32639
	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Copper	500	506		ug/L		101	80 - 120	2	20
Zinc	4000	3920		ug/L		98	80 - 120	1	20

**Matrix: Water Prep Type: Dissolved** Analysis Batch: 282840 Prep Batch: 282639 Spike MS MS %Rec. Sample Sample **Analyte** Result Qualifier Added Result Qualifier Unit D %Rec Limits Arsenic ND 4000 4180 ug/L 105 80 - 120 Chromium 0.76 400 433 ug/L 108 80 - 120 Copper ND 500 533 ug/L 107 80 - 120Zinc 2.9 J 4000 4150 80 - 120 ug/L 104

Lab Sample ID: 580-79792-2 MSD Client Sample ID: PDI-RB-PP-1820 **Matrix: Water Prep Type: Dissolved Analysis Batch: 282840** Prep Batch: 282639 Sample Sample Spike MSD MSD %Rec. **RPD** Result Qualifier Added RPD Limit Analyte Result Qualifier Limits Unit D %Rec ND 4000 4290 2 20 Arsenic ug/L 107 80 - 120 0.76 Chromium 400 438 ug/L 109 80 - 120 20 1 500 Copper ND 546 ug/L 109 80 - 120 2 20 Zinc 2.9 J 4000 4230 ug/L 106 80 - 120 20

Lab Sample ID: 580-79792-2 DU Client Sample ID: PDI-RB-PP-1820 **Matrix: Water Prep Type: Dissolved Analysis Batch: 282840** Prep Batch: 282639 Sample Sample DU DU **RPD** Analyte Result Qualifier Result Qualifier Unit **RPD** Limit Arsenic ND ND ug/L NC 20 0.76 2 Chromium 0.747 ug/L 20 Copper ND ND ug/L NC 20 2.39 J

ug/L

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

2.9 J

Lab Sample ID: MB 580-282608/1 **Client Sample ID: Method Blank Matrix: Water** Prep Type: Total/NA

Analysis Batch: 282608

Zinc

	MB	MB							
Analyte	Result	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 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA **Analysis Batch: 282608** Spike LCS LCS %Rec. Added Analyte Result Qualifier Unit %Rec Limits 1000 968 **Total Dissolved Solids** mg/L 97 80 - 120

TestAmerica Seattle

20

18

TestAmerica Job ID: 580-79792-1

Project/Site: Portland Harbor Pre-Remedial Design

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

Lab Sample ID: 580-79792-1 DU Client Sample ID: PDI-WS-T05-1808 **Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 282608** 

Client: AECOM

Sample Sample DU DU RPD Analyte Result Qualifier Result Qualifier Unit D RPD Limit **Total Dissolved Solids** 52 44.0 mg/L 20

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

**Client Sample ID: Method Blank** Lab Sample ID: MB 580-282316/1 **Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 282316** 

MB MB RL Analyte Result Qualifier **MDL** Unit Dil Fac D Prepared Analyzed **Total Suspended Solids**  $\overline{\mathsf{ND}}$ 2.0 2.0 mg/L 08/23/18 14:19

Lab Sample ID: LCS 580-282316/2 Client Sample ID: Lab Control Sample **Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 282316** 

Spike LCS LCS %Rec Analyte Added Result Qualifier Unit %Rec Limits **Total Suspended Solids** 32.8 119 27.6 mg/L 70.6 - 120

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

Lab Sample ID: MB 580-282597/3 Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 282597** 

MR MR

RL **MDL** Unit Analyte Result Qualifier Prepared Analyzed Dil Fac 1.0 08/27/18 11:17 **Total Organic Carbon** ND 0.19 mg/L

Lab Sample ID: LCS 580-282597/4 Client Sample ID: Lab Control Sample **Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 282597** 

Spike LCS LCS %Rec. Added Result Qualifier Unit Limits Analyte D %Rec 10.0 10.6 **Total Organic Carbon** mg/L 106 85 - 115

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

Lab Sample ID: MB 580-283900/3 Client Sample ID: Method Blank **Matrix: Water Prep Type: Dissolved** 

Analysis Batch: 283900

MB MB Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac Dissolved Organic Carbon  $\overline{\mathsf{ND}}$ 1.0 0.19 mg/L 09/12/18 15:47

TestAmerica Job ID: 580-79792-1

Project/Site: Portland Harbor Pre-Remedial Design

Lab Sample ID: LCS 580-283900/4	Client Sample ID: Lab Control Sample
Matrix: Water	Prep Type: Dissolved
A	

**Analysis Batch: 283900** 

Client: AECOM

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Dissolved Organic Carbon	10.0	9.59		mg/L		96	85 - 115	

Lab Sample ID: 580-79792-1 MS Client Sample ID: PDI-WS-T05-1808 **Matrix: Water Prep Type: Dissolved** 

**Analysis Batch: 283900** 

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Dissolved Organic Carbon	1.8		10.0	11.8		mg/L		100	85 - 115	

Lab Sample ID: 580-79792-1 MSD Client Sample ID: PDI-WS-T05-1808 **Matrix: Water Prep Type: Dissolved** 

**Analysis Batch: 283900** 

Sample Sample Spike MSD MSD %Rec. **RPD** Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD Limit Dissolved Organic Carbon 1.8 10.0 12.2 mg/L 104

Lab Sample ID: 580-79792-1 DU Client Sample ID: PDI-WS-T05-1808 **Prep Type: Dissolved** 

**Matrix: Water** 

Analysis Batch: 283900

Amaryolo Batom 200000	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Dissolved Organic Carbon	1.8		 1.88		mg/L		3	20

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

Client Sample ID: PDI-WS-T05-1808

Date Collected: 08/21/18 20:28 Date Received: 08/22/18 14:45

Lab Sample ID: 580-79792-1

**Matrix: Water** 

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			282582	08/27/18 15:08	JSM	TAL SEA
Total/NA	Analysis	8151A		1	283156	09/04/18 16:43	ERZ	TAL SEA
Dissolved	Prep	3005A			282639	08/28/18 11:44	T1H	TAL SEA
Dissolved	Analysis	6010C		1	283117	08/31/18 17:33	HJM	TAL SEA
Dissolved	Prep	3005A			282639	08/28/18 11:44	T1H	TAL SEA
Dissolved	Analysis	6020B		1	282840	08/29/18 21:54	FCW	TAL SEA
Total Recoverable	Prep	3005A			282446	08/24/18 18:09	T1H	TAL SEA
Total Recoverable	Analysis	6020B		1	282804	08/29/18 12:41	FCW	TAL SEA
Dissolved	Analysis	SM 2340B		1	285242	08/31/18 17:33	SPP	TAL SEA
Total/NA	Analysis	SM 2540C		1	282608	08/28/18 08:57	R1K	TAL SEA
Total/NA	Analysis	SM 2540D		1	282316	08/23/18 14:19	TTN	TAL SEA
Dissolved	Analysis	SM 5310B		1	283900	09/12/18 15:47	TTN	TAL SEA
Total/NA	Analysis	SM 5310B		1	282597	08/27/18 11:17	TTN	TAL SEA

Client Sample ID: PDI-RB-PP-1820

Date Collected: 08/20/18 16:00

Date Received: 08/22/18 14:45

Lab Sample ID: 580-79792-2

**Matrix: Water** 

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	282397	08/24/18 23:23	TL1	TAL SEA
Total/NA	Prep	8151A			282582	08/27/18 15:08	JSM	TAL SEA
Total/NA	Analysis	8151A		1	283156	09/04/18 17:08	ERZ	TAL SEA
Dissolved	Prep	3005A			282639	08/28/18 11:44	T1H	TAL SEA
Dissolved	Analysis	6010C		1	283117	08/31/18 17:36	HJM	TAL SEA
Dissolved	Prep	3005A			282639	08/28/18 11:44	T1H	TAL SEA
Dissolved	Analysis	6020B		1	282840	08/29/18 21:22	FCW	TAL SEA
Total Recoverable	Prep	3005A			282446	08/24/18 18:09	T1H	TAL SEA
Total Recoverable	Analysis	6020B		1	282804	08/29/18 13:18	FCW	TAL SEA
Dissolved	Analysis	SM 2340B		1	285242	08/31/18 17:36	SPP	TAL SEA
Dissolved	Analysis	SM 5310B		1	283900	09/12/18 15:47	TTN	TAL SEA
Total/NA	Analysis	SM 5310B		1	282597	08/27/18 11:17	TTN	TAL SEA

Client Sample ID: PDI-WS-T05W-1808

Date Collected: 08/21/18 19:07

Date Received: 08/22/18 14:45

Lab Samp	le ID:	580-79	9792-3
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**Matrix: Water** 

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	282397	08/24/18 23:50	TL1	TAL SEA

## **Lab Chronicle**

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

Client Sample ID: PDI-WS-T05NAV-1808

Lab Sample ID: 580-79792-4

TestAmerica Job ID: 580-79792-1

**Matrix: Water** 

Date Collected: 08/21/18 16:17 Date Received: 08/22/18 14:45

Batch Dilution Batch Batch **Prepared Prep Type** Type Method Run **Factor** Number or Analyzed Analyst Lab 08/25/18 00:15 TL1 TAL SEA Total/NA Analysis 8260C 282397

Client Sample ID: PDI-WS-T05E-1808 Lab Sample ID: 580-79792-5

Date Collected: 08/21/18 12:18 **Matrix: Water** 

Date Received: 08/22/18 14:45

Dilution Batch **Batch Batch Prepared** Method **Prep Type** Type Run **Factor** Number or Analyzed **Analyst** Lab 08/30/18 20:54 W1T TAL SEA Total/NA 8260C 282854 Analysis

Client Sample ID: TRIP BLANK-T05 Lab Sample ID: 580-79792-6

Date Collected: 08/21/18 12:00 **Matrix: Water** 

Date Received: 08/22/18 14:45

Batch Batch **Dilution** Batch Prepared **Prep Type** Type Method Run **Factor** Number or Analyzed **Analyst** Lab 8260C 282854 TAL SEA Total/NA Analysis 08/30/18 21:20 W1T

**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: 580-79792-1

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	<b>Identification Number</b>	<b>Expiration Date</b>
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: 580-79792-1

Lab Sample ID	Client Sample ID	Matrix	Collected Received
580-79792-1	PDI-WS-T05-1808	Water	08/21/18 20:28 08/22/18 14:45
580-79792-2	PDI-RB-PP-1820	Water	08/20/18 16:00 08/22/18 14:45
580-79792-3	PDI-WS-T05W-1808	Water	08/21/18 19:07 08/22/18 14:45
580-79792-4	PDI-WS-T05NAV-1808	Water	08/21/18 16:17 08/22/18 14:45
580-79792-5	PDI-WS-T05E-1808	Water	08/21/18 12:18 08/22/18 14:45
580-79792-6	TRIP BLANK-T05	Water	08/21/18 12:00 08/22/18 14:45

244 1412 pages Date Time 580-79792 Chain of Custody 8/22/2018 3.2 Company X rchive For 12 Months arrier: Courier X isposal By Lab Dissolved Organic Carbon, SM5310B CaCO3, EPA Method 6020B-LL Metals (Dissolved) + Hardness as Total Organic Carbon, SM5310B Total Dissolved Solids, Standard Method Laboratory Contact: Elaine-Walker CHAIN OF CUSTODY SURFACE WATER Total Suspended Solids, Standard Method 2540D Return To Client Site Contact: Jennifer Ray Sample Disposa Metals (Total), EPA Method 6020B-LL teceived by: MCPP, EPA Method 8151A Received X Ethylbenzene, EPA 8260C Fraction Container Type: WMG=Wirde Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column 1417 445 Total No. of Cont. 5 23 MT Z Initials ア 17 Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010 QC Sample Analysis Turnaround Time Calendar (C) or Work Days (W) Preservative: HCI = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid Fraction: <math>D = Dissolved, PRT = Particulate, T = Total (unfiltered)Matrix 2 3 21 days Sample Time 8202 1600 190 1200 121 Ron Other 8/20/18 8/21/18 8121118 Strills Sample Date 8171118 Company: × Special Instructions/QC Requirements & Comments: F 253-922-5047 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Surface Water CS-1808 TIP BURNIC Sample Identification Client Contact Study: 253-922-2310 Facoma, WA 98424-1317 111 3rd Ave Suite 1600 PDI-WS.Y. OP Project #: 60566335 5755-8th-Street-East Seattle, WA 98101 PDI-WS-T PDI-WS-T PDI-WS-T TSM-IGH PDI-WS-T PDI-WS-T PDI-WS-T PDI-WS-T PDI-WS-T PDI-WS-T PDI-WS-T ortland, OR AECOM

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Ph: 253-922-2310 F 253-922-5047						~																		
Client Contact				Oahl / Chelsey C			_	Conta								ļ					8/	22/2018	COC No: 1	
AECOM				/ (206) 438-201	0		Lat	orator	y Cont	act: El	laine-V		1	1	1	Carrie	r: Couri	er			<del></del>		lofl	pages
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Project Name, Portland Harbor Pre-Remedial	•	21 (	lays							6626	lan.	and	<u>S</u>	dnes	S.E				1					
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Project #: 60566335 Study: Surface Water	1 -	O						Α	ĝ	EPA	spended 2540D	S S	Ü	Ned	23 11 11					İ				
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Complete decides	Samula Data	Sample Time	Massin	QC Sample	Sampler's Initials	Total No. of Cont.	E	Ethylbo	MCPP,	Metals (Total), EPA Method 6020B-LJ.	Total Su Method	Total Dissolved Solids, Standard Method	Total Organic Carbon, SMS310B	Metals (Dissolved) + Hardness as CaCO3, EPA Method 6020B-LL	Dissolved Organic Carbon, SM5310B			-					6	in a
Sample Identification	Sample Date	Sample Trafe	Matrix	QC Sample			35.	<u> </u>		<del>                                     </del>	≆Σ	1	<del></del>	<b></b>	-		+	+				+	Sample Spec	ilic Notes:
PDI-WS-T 05- 1808	18/21/18	2028	$\sim$		MT	€ ۲۰در	L		X	χ	X	X	Х	Y	Х		]		]					
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Container Type: WMG=Wide Mouth Glass J	ar, P=HDPE, P	P=Polypropyl	ene, AG=amb	er glass, G≡g	lass, RC≖Re	sin Colum	n														1			
Preservative: HCl = Hydrochloric Acid, H3P												<b></b>										1		
Fraction: D = Dissolved, PRT = Particulate, T = 7						······································	*******	Samp	le Dis	osal		<del></del>	<u></u>	<u></u>		······································	·············							
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Special Instructions/QC Requirements & Comm-	ents:					**************************************																		
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Client: AECOM Job Number: 580-79792-1

Login Number: 79792 List Source: TestAmerica Seattle

List Number: 1

Creator: Antonson, Angeline D

orotton Antonioon, Angomio B		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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	