

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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

TestAmerica Job ID: 580-78854-5

Client Project/Site: Portland Harbor Pre-Remedial Design

For:

AECOM  
1111 Third Ave  
Suite 1600  
Seattle, Washington 98101

Attn: Amy Dahl

*M. Elaine Walker*

Authorized for release by:  
8/31/2018 2:48:39 PM

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

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

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

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

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# Case Narrative

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

TestAmerica Job ID: 580-78854-5

**Job ID: 580-78854-5**

**Laboratory: TestAmerica Seattle**

**Narrative**

## CASE NARRATIVE

**Client: AECOM**

**Project: Portland Harbor Pre-Remedial Design**

**Report Number: 580-78854-5**

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**

Two samples were received on 7/16/2018 12:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.1° C.

Sample PDI-SG-B483 (580-78854-1) was activated for all on hold analysis by the client on 8/16/2018.

This report contains results for Atterberg limits for sample PDI-SG-B483 (580-78854-1) only.

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.

### **LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS**

**Sample PDI-SG-B483 (580-78854-1) was analyzed for Liquid Limit, Plastic Limit and Plasticity Index of Soils in accordance with ASTM D4318.** The sample was analyzed on 08/23/2018.

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

# Definitions/Glossary

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

TestAmerica Job ID: 580-78854-5

## Glossary

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

# Client Sample Results

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

TestAmerica Job ID: 580-78854-5

**Client Sample ID: PDI-SG-B483**

**Lab Sample ID: 580-78854-1**

**Date Collected: 07/13/18 14:50**

**Matrix: Solid**

**Date Received: 07/16/18 12:50**

**Method: D4318 - Liquid Limit, Plastic Limit and Plasticity Index of Soils**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Liquid Limit	57				NONE			08/23/18 15:13	1
Plastic Limit	37				NONE			08/23/18 15:13	1
Plasticity Index	20				NONE			08/23/18 15:13	1

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# Lab Chronicle

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

TestAmerica Job ID: 580-78854-5

**Client Sample ID: PDI-SG-B483**

**Lab Sample ID: 580-78854-1**

**Date Collected: 07/13/18 14:50**

**Matrix: Solid**

**Date Received: 07/16/18 12:50**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D4318		1	133242	08/23/18 15:13	MAP	TAL BUR

**Laboratory References:**

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990



# Accreditation/Certification Summary

Client: AECOM

TestAmerica Job ID: 580-78854-5

Project/Site: Portland Harbor Pre-Remedial Design

## Laboratory: TestAmerica Seattle

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

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

## Laboratory: TestAmerica Burlington

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
ANAB	DoD ELAP		L2336	02-25-20
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18
New Hampshire	NELAP	1	2006	12-18-18
New Jersey	NELAP	2	VT972	06-30-19
New York	NELAP	2	10391	04-01-19
Pennsylvania	NELAP	3	68-00489	04-30-19
Rhode Island	State Program	1	LAO00298	12-30-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-18
Virginia	NELAP	3	460209	12-14-18

# Sample Summary

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

TestAmerica Job ID: 580-78854-5

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-78854-1	PDI-SG-B483	Solid	07/13/18 14:50	07/16/18 12:50

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# SURFACE SEDIMENT CHAIN OF CUSTODY

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

**Client Contact**  
 AECOM  
 1111 3rd Ave Suite 1600  
 Seattle, WA 98101  
 Phone: (206) 438-2700 Fax: 1+(866) 495-5288

**Project Name:** Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling  
 Portland, OR  
 Project #: 60566335 Study: Surface Sediment  
 Sample Type: D/U

**Project Contact:** Amy Dahl / Chelsea Cook  
 Tel: (206) 438-2261 / (206) 438-2010  
 Analysis Turnaround Time  
 Calendar (C) or Work Days (W)  
 21 days  
 Other \_ASAP\_

Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.
7/13/2018	14:50	SS		LS	8
7/13/2018	12:10	SS		LS	7

Fracton	PCB Congeners 168A	PCDD/Fs 1613B	TPH Diesel, Metals, Mercury NWTPH-Dx	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060 (104C & 70C)	Archive Archive -20 C	PAHs, BEHP, Tributyltin, 8270-SIM, 8270-LI, Kron/Unger	Airberg Limits ASTM D4318	WQ - PCB Congeners 168A	WQ - PCDD/Fs 1613B	WQ - Diesel, Metals, Mercury NWTPH-Dx	6020B, 7471A	WQ - Total Organic Carbon SMS310B	WQ - PAHs 8270-SIM	WQ - BEHP EPA 8270D-LI	WQ - Tributyltin Kron/Unger
	H	H	x*	x*	x*	H	H	H								

Carrier: Courier  
 7/16/2018  
 COC No. 1 of 1 pages

Site Contact: Jennifer Ray  
 Laboratory Contact: Elaine-Walker

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

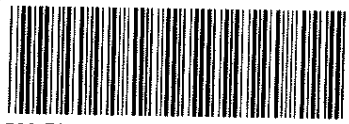
Special Instructions/QC Requirements & Comments:  
 Separate reports for each lab.  
 x\* - Analyze for grain size, metals (6020B analytes only), Mn, and TOC (9060 @ 104C & 70C) ASAP.  
 H - Hold analyses pending further instruction.

Relinquished by: *[Signature]* Date/Time: 7/16/18 12:10  
 Relinquished by: *[Signature]* Date/Time: 7/16/18 12:50  
 Relinquished by: *[Signature]* Date/Time: 7/16/18 12:50

Company: AECOM  
 Company: M.E.  
 Company: M.E.

580-78854 Chain of Custody

TestAmerica-Seattle		SURFACE SEDIMENT CHAIN OF CUSTODY																						
5755-8th-Street-East Tacoma, WA 98424-1317 Ph: 253-922-2310 Fax: 253-922-5047		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010					Site Contact: Jennifer Ray Laboratory Contact: Elaine-Walker					7/16/2018	COC No: 1											
Client Contact		Analysis Turnaround Time																						
AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Surface Sediment Sample Type: D/U		Calendar (C) or Work Days (W) <input type="checkbox"/> 21 days <input checked="" type="checkbox"/> Other ASAP _____																						
Carrier: Courier		1 of 1 pages																						
Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congeners 1668A	PCDD/Fs 1613B	TPH, Diesel, Metals, Mercury, NWTPH-Dx, 6020B, 7471A	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060 (104C & 70C)	Archive Archive -20 C	PAHs, BEHP, Tributyltin, 8270-SIM, 8270-LL, Kron/Unger	Alterberg Limits ASTM D4318	WQ - PCB Congeners 1668A	WQ - PCDD/Fs 1613B	TPH Diesel, Metals, Mercury NWTPH-Dx, 6020B, 7471A	WQ - Total Organic Carbon SMO310B	WQ - PAHs 8270-SIM	WQ - BEHP EPA 8270D-LL	WQ - Tributyltin Kron/Unger	Sample Specific Notes:	
PDI-SG-B483	7/13/2018	14:50	SS		LS	8	H	H	x*	x*	x*	H	H	H										
PDI-SG-B487	7/13/2018	12:10	SS		LS	17	H	H	x*	x*	x*	H	H											



580-78854 Chain of Custody

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:

Separate reports for each lab.  
x\* - Analyze for grain size, metals (6020B analytes only), Mn, and TOC (9060 @ 104C & 70C) ASAP.  
H - Hold analyses pending further instruction.

125

Relinquished by: <i>[Signature]</i>	Company: AECOM	Date/Time: 7/16/18 1210	Received by: <i>[Signature]</i>	Company: M.E.	Date/Time: 7/16/18 1210
Relinquished by: <i>[Signature]</i>	Company: M.E.	Date/Time: 7/16/18 1250	Received by: <i>[Signature]</i>	Company: TACOR	Date/Time: 7/16/18 1250
Relinquished by: <i>[Signature]</i>	Company: TACOR	Date/Time: 7/16/18 1700	Received by: <i>[Signature]</i>	Company: SEA TA	Date/Time: 7/17/18 0930

PKS = 0.710.7 w/c.s.







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RT 876

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# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTS

Part # 1  
12:00  
07:21  
C

ORIGIN ID: BNOA (503) 906-9240  
SAMPLE CONTROL  
TESTAMERICA PORTLAND  
8900 SW GEMINI DR  
BUILDING 7  
BEAVERTON, OR 970087145  
UNITED STATES US

SHIP DATE: 20JUL18  
ACTWTG: 11.35 LB  
CAD: 0996922/CAFE3210

BILL RECIPIENT

TO SHIPPING/RECEIVING

TESTAMERICA LABORATORIES, INC.  
30 COMMUNITY DRIVE  
SUITE 11

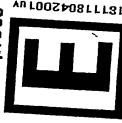
SOUTH BURLINGTON VT 05403

(602) 660-1880

REF: S580 - 29798



FedEx  
Express

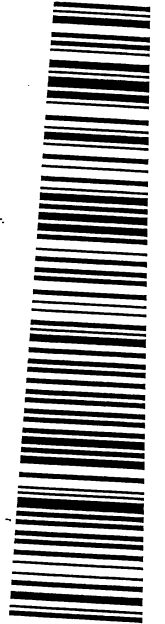


TRK# 4423 0750 7260  
0201

SATURDAY 12:00P  
PRIORITY OVERNIGHT

# XO BTVA

05403  
VT-US BTV



551C2/BS32/104S



## Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-78854-5

**Login Number: 78854**

**List Source: TestAmerica Seattle**

**List Number: 1**

**Creator: O'Connell, Jason I**

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	



# Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-78854-5

**Login Number: 78854**  
**List Number: 4**  
**Creator: Mohn, Taylor J**

**List Source: TestAmerica Burlington**  
**List Creation: 07/21/18 11:17 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
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	2.9°C
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?	N/A	Received project as a subcontract.
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.	N/A	
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	

