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: 580-81298-4
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:
11/8/2018 3:12:58 PM

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

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Job ID: 580-81298-4

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE
Client: AECOM
Project: Portland Harbor Pre-Remedial Design
Report Number: 580-81298-4

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 10/24/2018 12:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.9º C.

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

This report contains results for Grain Size only. All other analyses for Seattle are being repored under separate cover.

The Grain Size containers were not submitted with other containers received on 10/24. The client was notified and provided these on 10/26/18. PDI-SC-S154-4to6 (580-81298-1) and PDI-SC-S185-5to6.5 (580-81298-2).

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.

GRAIN SIZE

Samples PDI-SC-S154-4to6 (580-81298-1) and PDI-SC-S185-5to6.5 (580-81298-2) were analyzed for grain size in accordance with D422. The samples were analyzed on 10/29/2018.

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

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

TestAmerica Job ID: 580-81298-4

Client Sample ID: PDI-SC-S154-4to6
Date Collected: 07/24/18 15:45
Date Received: 10/24/18 12:40

Lab Sample ID: 580-81298-1
Matrix: Solid

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			10/29/18 09:33	1
Coarse Sand	0.6				%			10/29/18 09:33	1
Medium Sand	0.3				%			10/29/18 09:33	1
Fine Sand	8.3				%			10/29/18 09:33	1
Silt	68.3				%			10/29/18 09:33	1
Clay	22.5				%			10/29/18 09:33	1

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

TestAmerica Job ID: 580-81298-4

Client Sample ID: PDI-SC-S185-5to6.5
Date Collected: 07/26/18 16:05
Date Received: 10/24/18 12:40

Lab Sample ID: 580-81298-2
Matrix: Solid

Method: D7928/D6913 - ASTM D7928/D6913

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gravel	0.0				%			10/29/18 09:33	1
Coarse Sand	0.2				%			10/29/18 09:33	1
Medium Sand	4.7				%			10/29/18 09:33	1
Fine Sand	20.2				%			10/29/18 09:33	1
Silt	65.4				%			10/29/18 09:33	1
Clay	9.5				%			10/29/18 09:33	1

Lab Chronicle

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

TestAmerica Job ID: 580-81298-4

Client Sample ID: PDI-SC-S154-4to6

Lab Sample ID: 580-81298-1

Date Collected: 07/24/18 15:45

Matrix: Solid

Date Received: 10/24/18 12:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D7928/D6913		1	287654	10/29/18 09:33	JKM	TAL SEA

Client Sample ID: PDI-SC-S185-5to6.5

Lab Sample ID: 580-81298-2

Date Collected: 07/26/18 16:05

Matrix: Solid

Date Received: 10/24/18 12:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D7928/D6913		1	287654	10/29/18 09:33	JKM	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: 580-81298-4
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	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-19

Sample Summary

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

TestAmerica Job ID: 580-81298-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-81298-1	PDI-SC-S154-4to6	Solid	07/24/18 15:45	10/24/18 12:40
580-81298-2	PDI-SC-S185-5to6.5	Solid	07/26/18 16:05	10/24/18 12:40

SUBSURFACE 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: Subsurface Sediment
Sample Type:

Project Contact: Amy Dahl / Chelsey Cook
Tel: (206) 438-2261 / (206) 438-2010
Analysis Turnaround Time
Calendar (C) or Work Days (W) _W_____
☐ 21 days
☒ Other ASAP

Site Contact: Nicky Moody
Laboratory Contact: Elaine-Walker
Date: 10/24/2018
Carrier: Courier
COC No: 1
__1__ of __1__ pages

580-81298 Chain of Custody

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S154 - 4 to 6	7/24/2018	15:45	SC		ED	3		x	x	x	x		Frozen 7/26/2018
PDI-SC-S185 - 5 to 6.5	7/26/2018	16:05	SC		ED	3		x	x	x	x		Frozen 7/26/2018
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column								AG	AG	WMG	WMG	AG	

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**

4.9

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Nicky Moody	AECOM	10/24/18 @ 1145		M.E.	10/24/18 11:45
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
				TAPOR	10/24/18 1240
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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

SUBSURFACE SEDIMENT
CHAIN OF CUSTODY

Client Contact	Project Contact: Amy Dahl / Chelsey Cook	Site Contact: Nicky Moody	Date: 10/24/2018	COC No: 1
AECOM	Tel: (206) 438-2261 / (206) 438-2010	Laboratory Contact: Elaine-Walker	Carrier: Courier	1 of 1 pages
1111 3rd Ave Suite 1600	Analysis Turnaround Time			
Seattle, WA 98101	Calendar (C) or Work Days (W) W			
Phone: (206) 438-2700 Fax: 1-(866) 495-5288	☐ 21 days			
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	☒ Other ASAP			
Portland, OR				
Project # 60566335 Study: **Subsurface Sediment**				
Sample Type:				

580-81298 Chain of Custody

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S154 - 4 to 6	7/24/2018	15:45	SC		ED	3		x	x	x	x		Frozen 7/26/2018
PDI-SC-S185 - 5 to 6.5	7/26/2018	16:05	SC		ED	3		x	x	x	x		Frozen 7/26/2018
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column								AG	AG	WMG	WMG	AG	

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**

4.9

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Nicky Moody	AECOM	10/24/18 @ 1145		M.E.	10/24/18 11:45
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
				TAL SEA	10/24/18 1240
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	TAL SEA	10/24/18 1700		TASEA	10-25-18 900

4-4.6/4.8

SUBSURFACE 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: Subsurface Sediment
Sample Type:

Project Contact: Amy Dahl / Chelsey Cook
Tel: (206) 438-2261 / (206) 438-2010
Analysis Turnaround Time
Calendar (C) or Work Days (W) _W_____

☐ 21 days

☒ Other ASAP

Site Contact: Nicky Moody
Laboratory Contact: Elaine-Walker

Date: 10/24/2018
Carrier: Courier

COC No: 1
_1_____ of __1___ pages

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S154 - 4 to 6	7/24/2018	15:45	SC		JS	1				x			Frozen 7/26/2018
PDI-SC-S185 - 5 to 6.5	7/26/2018	16:05	SC		JS	1				x			Frozen 7/26/2018
							AG	AG		WMG	WMG	AG	

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)

580-81298 Chain of Custody

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

Special Instructions/QC Requirements & Comments: **Separate reports for each lab**

Relinquished by:	Company: AECOM	Date/Time: 10/26/18 12:30	Received by:	Company: M.E.	Date/Time: 10/26/18 1230		
Relinquished by:	Company: M.E.	Date/Time: 10/26/18 1300	Received by:	Company: TAPOR	Date/Time: 10/26/18 1300		
Relinquished by:	Company: TAPOR	Date/Time: 10/26/18 1700	Received by:	Company: TASEA	Date/Time: 10.27.18 0930		

4.2

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-81298-4

Login Number: 81298
List Number: 1
Creator: Antonson, Angeline D

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.	N/A	
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	