

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
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TestAmerica Job ID: 580-79946-2

Client Project/Site: Portland Harbor Pre-Remedial Design

For:

AECOM
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Authorized for release by:
9/29/2018 12:12:16 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.

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Case Narrative

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

TestAmerica Job ID: 580-79946-2

Job ID: 580-79946-2

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE

Client: AECOM

Project: Portland Harbor Pre-Remedial Design

Report Number: 580-79946-2

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

One sample was received on 8/29/2018 1:10 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3° C.

The following sample was activated for all on hold analysis by the client on 9/18/18: PDI-SG-B478 (580-79946-1).

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

This report contains results for 1613B Dioxins / Furans, performed at TestAmerica Sacramento.

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.

DIOXIN/ FURAN

Sample PDI-SG-B478 (580-79946-1) was analyzed for Dioxin/ Furan in accordance with 1613B. The samples were prepared on 09/25/2018 and analyzed on 09/27/2018.

1,2,3,4,7,8,9-HpCDF, 1,2,3,7,8,9-HxCDF and OCDD were detected in method blank MB 320-247773/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument 3D5 exceeded this criteria: PDI-SG-B478 (580-79946-1), (CCV 320-247547/2), (LCS 320-246650/2-A), (LCSD 320-246650/3-A), (MB 320-246650/1-A), (WDM 320-247547/1), (CCV 320-248108/16), (LCS 320-247773/2-A), (LCSD 320-247773/3-A) and (MB 320-247773/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Due to the matrix, the initial volumes used for the following samples deviated from the standard procedure: PDI-SG-B478 (580-79946-1). The reporting limits (RLs) have been adjusted proportionately. Samples are associated with preparation batch 320-246650.

Case Narrative

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

TestAmerica Job ID: 580-79946-2

Job ID: 580-79946-2 (Continued)

Laboratory: TestAmerica Seattle (Continued)

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

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Definitions/Glossary

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

TestAmerica Job ID: 580-79946-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.
B	Compound was found in the blank and sample.
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.
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: 580-79946-2

Client Sample ID: PDI-SG-B478

Lab Sample ID: 580-79946-1

Date Collected: 08/28/18 16:20

Matrix: Solid

Date Received: 08/29/18 13:10

Percent Solids: 63.5

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.062		0.0039	0.00098	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
1,2,3,4,6,7,8-HpCDF	0.0047	q	0.0039	0.00021	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
1,2,3,4,7,8,9-HpCDF	0.0012	J B	0.0039	0.00024	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
1,2,3,4,7,8-HxCDD	ND		0.0039	0.00027	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
1,2,3,4,7,8-HxCDF	0.0025	J	0.0039	0.00027	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
1,2,3,6,7,8-HxCDD	0.0012	J	0.0039	0.00027	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
1,2,3,6,7,8-HxCDF	0.00062	J	0.0039	0.00024	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
1,2,3,7,8,9-HxCDD	0.00065	J	0.0039	0.00025	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
1,2,3,7,8,9-HxCDF	0.0012	J B	0.0039	0.00020	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
1,2,3,7,8-PeCDD	ND		0.0039	0.00041	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
1,2,3,7,8-PeCDF	ND		0.0039	0.00025	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
2,3,4,6,7,8-HxCDF	ND		0.0039	0.00021	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
2,3,4,7,8-PeCDF	ND		0.0039	0.00025	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
2,3,7,8-TCDD	ND		0.00078	0.00024	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
2,3,7,8-TCDF	ND		0.00078	0.00018	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
OCDD	0.53	B	0.0078	0.00085	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1
OCDF	0.011		0.0078	0.00046	ug/Kg	☼	09/25/18 15:49	09/27/18 15:10	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	68		23 - 140	09/25/18 15:49	09/27/18 15:10	1
13C-1,2,3,4,6,7,8-HpCDF	51		28 - 143	09/25/18 15:49	09/27/18 15:10	1
13C-1,2,3,4,7,8,9-HpCDF	69		26 - 138	09/25/18 15:49	09/27/18 15:10	1
13C-1,2,3,4,7,8-HxCDD	66		32 - 141	09/25/18 15:49	09/27/18 15:10	1
13C-1,2,3,4,7,8-HxCDF	62		26 - 152	09/25/18 15:49	09/27/18 15:10	1
13C-1,2,3,6,7,8-HxCDD	59		28 - 130	09/25/18 15:49	09/27/18 15:10	1
13C-1,2,3,6,7,8-HxCDF	64		26 - 123	09/25/18 15:49	09/27/18 15:10	1
13C-1,2,3,7,8,9-HxCDF	70		29 - 147	09/25/18 15:49	09/27/18 15:10	1
13C-1,2,3,7,8-PeCDD	77		25 - 181	09/25/18 15:49	09/27/18 15:10	1
13C-1,2,3,7,8-PeCDF	70		24 - 185	09/25/18 15:49	09/27/18 15:10	1
13C-2,3,4,6,7,8-HxCDF	60		28 - 136	09/25/18 15:49	09/27/18 15:10	1
13C-2,3,4,7,8-PeCDF	75		21 - 178	09/25/18 15:49	09/27/18 15:10	1
13C-2,3,7,8-TCDD	71		25 - 164	09/25/18 15:49	09/27/18 15:10	1
13C-2,3,7,8-TCDF	71		24 - 169	09/25/18 15:49	09/27/18 15:10	1
13C-OCDD	64		17 - 157	09/25/18 15:49	09/27/18 15:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	87		35 - 197	09/25/18 15:49	09/27/18 15:10	1

QC Sample Results

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

TestAmerica Job ID: 580-79946-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-247773/1-A
Matrix: Solid
Analysis Batch: 248108

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 247773

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	ND		0.0050	0.00014	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
1,2,3,4,6,7,8-HpCDF	ND		0.0050	0.000097	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
1,2,3,4,7,8,9-HpCDF	0.000717	J q	0.0050	0.00014	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
1,2,3,4,7,8-HxCDD	ND		0.0050	0.00012	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
1,2,3,4,7,8-HxCDF	ND		0.0050	0.00013	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
1,2,3,6,7,8-HxCDD	ND		0.0050	0.00012	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
1,2,3,6,7,8-HxCDF	ND		0.0050	0.00012	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
1,2,3,7,8,9-HxCDD	ND		0.0050	0.00011	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
1,2,3,7,8,9-HxCDF	0.00106	J	0.0050	0.00010	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
1,2,3,7,8-PeCDD	ND		0.0050	0.00021	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
1,2,3,7,8-PeCDF	ND		0.0050	0.00018	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
2,3,4,6,7,8-HxCDF	ND		0.0050	0.000098	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
2,3,4,7,8-PeCDF	ND		0.0050	0.00018	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
2,3,7,8-TCDD	ND		0.0010	0.00018	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
2,3,7,8-TCDF	ND		0.0010	0.00011	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
OCDD	0.00116	J	0.010	0.00049	ug/Kg		09/25/18 15:49	09/27/18 12:45	1
OCDF	ND		0.010	0.00041	ug/Kg		09/25/18 15:49	09/27/18 12:45	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	81		23 - 140	09/25/18 15:49	09/27/18 12:45	1
13C-1,2,3,4,6,7,8-HpCDF	79		28 - 143	09/25/18 15:49	09/27/18 12:45	1
13C-1,2,3,4,7,8,9-HpCDF	80		26 - 138	09/25/18 15:49	09/27/18 12:45	1
13C-1,2,3,4,7,8-HxCDD	77		32 - 141	09/25/18 15:49	09/27/18 12:45	1
13C-1,2,3,4,7,8-HxCDF	70		26 - 152	09/25/18 15:49	09/27/18 12:45	1
13C-1,2,3,6,7,8-HxCDD	68		28 - 130	09/25/18 15:49	09/27/18 12:45	1
13C-1,2,3,6,7,8-HxCDF	69		26 - 123	09/25/18 15:49	09/27/18 12:45	1
13C-1,2,3,7,8,9-HxCDF	77		29 - 147	09/25/18 15:49	09/27/18 12:45	1
13C-1,2,3,7,8-PeCDD	93		25 - 181	09/25/18 15:49	09/27/18 12:45	1
13C-1,2,3,7,8-PeCDF	83		24 - 185	09/25/18 15:49	09/27/18 12:45	1
13C-2,3,4,6,7,8-HxCDF	71		28 - 136	09/25/18 15:49	09/27/18 12:45	1
13C-2,3,4,7,8-PeCDF	87		21 - 178	09/25/18 15:49	09/27/18 12:45	1
13C-2,3,7,8-TCDD	72		25 - 164	09/25/18 15:49	09/27/18 12:45	1
13C-2,3,7,8-TCDF	72		24 - 169	09/25/18 15:49	09/27/18 12:45	1
13C-OCDD	81		17 - 157	09/25/18 15:49	09/27/18 12:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	85		35 - 197	09/25/18 15:49	09/27/18 12:45	1

Lab Sample ID: LCS 320-247773/2-A
Matrix: Solid
Analysis Batch: 248108

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 247773

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,2,3,4,6,7,8-HpCDD	0.100	0.0986		ug/Kg		99	70 - 140
1,2,3,4,6,7,8-HpCDF	0.100	0.101		ug/Kg		101	82 - 122
1,2,3,4,7,8,9-HpCDF	0.100	0.104		ug/Kg		104	78 - 138
1,2,3,4,7,8-HxCDD	0.100	0.100		ug/Kg		100	70 - 164
1,2,3,4,7,8-HxCDF	0.100	0.105		ug/Kg		105	72 - 134

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79946-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-247773/2-A
Matrix: Solid
Analysis Batch: 248108

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 247773

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,2,3,6,7,8-HxCDD	0.100	0.103		ug/Kg		103	76 - 134
1,2,3,6,7,8-HxCDF	0.100	0.107		ug/Kg		107	84 - 130
1,2,3,7,8,9-HxCDD	0.100	0.104		ug/Kg		104	64 - 162
1,2,3,7,8,9-HxCDF	0.100	0.106		ug/Kg		106	78 - 130
1,2,3,7,8-PeCDD	0.100	0.100		ug/Kg		100	70 - 142
1,2,3,7,8-PeCDF	0.100	0.104		ug/Kg		104	80 - 134
2,3,4,6,7,8-HxCDF	0.100	0.109		ug/Kg		109	70 - 156
2,3,4,7,8-PeCDF	0.100	0.102		ug/Kg		102	68 - 160
2,3,7,8-TCDD	0.0200	0.0207		ug/Kg		103	67 - 158
2,3,7,8-TCDF	0.0200	0.0200		ug/Kg		100	75 - 158
OCDD	0.200	0.205		ug/Kg		103	78 - 144
OCDF	0.200	0.196		ug/Kg		98	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,6,7,8-HpCDD	89		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	81		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	86		20 - 186
13C-1,2,3,4,7,8-HxCDD	80		21 - 193
13C-1,2,3,4,7,8-HxCDF	71		19 - 202
13C-1,2,3,6,7,8-HxCDD	74		25 - 163
13C-1,2,3,6,7,8-HxCDF	75		21 - 159
13C-1,2,3,7,8,9-HxCDF	83		17 - 205
13C-1,2,3,7,8-PeCDD	85		21 - 227
13C-1,2,3,7,8-PeCDF	79		21 - 192
13C-2,3,4,6,7,8-HxCDF	78		22 - 176
13C-2,3,4,7,8-PeCDF	76		13 - 328
13C-2,3,7,8-TCDD	77		20 - 175
13C-2,3,7,8-TCDF	74		22 - 152
13C-OCDD	89		13 - 199

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	87		31 - 191

Lab Sample ID: LCSD 320-247773/3-A
Matrix: Solid
Analysis Batch: 248108

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 247773

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD
							Limits	RPD	
1,2,3,4,6,7,8-HpCDD	0.100	0.0986		ug/Kg		99	70 - 140	0	50
1,2,3,4,6,7,8-HpCDF	0.100	0.0991		ug/Kg		99	82 - 122	2	50
1,2,3,4,7,8,9-HpCDF	0.100	0.100		ug/Kg		100	78 - 138	4	50
1,2,3,4,7,8-HxCDD	0.100	0.0998		ug/Kg		100	70 - 164	1	50
1,2,3,4,7,8-HxCDF	0.100	0.105		ug/Kg		105	72 - 134	0	50
1,2,3,6,7,8-HxCDD	0.100	0.102		ug/Kg		102	76 - 134	1	50
1,2,3,6,7,8-HxCDF	0.100	0.103		ug/Kg		103	84 - 130	4	50
1,2,3,7,8,9-HxCDD	0.100	0.103		ug/Kg		103	64 - 162	2	50
1,2,3,7,8,9-HxCDF	0.100	0.106		ug/Kg		106	78 - 130	0	50
1,2,3,7,8-PeCDD	0.100	0.0999		ug/Kg		100	70 - 142	0	50

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79946-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-247773/3-A
 Matrix: Solid
 Analysis Batch: 248108

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 247773

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3,7,8-PeCDF	0.100	0.103		ug/Kg		103	80 - 134	1	50
2,3,4,6,7,8-HxCDF	0.100	0.107		ug/Kg		107	70 - 156	2	50
2,3,4,7,8-PeCDF	0.100	0.101		ug/Kg		101	68 - 160	1	50
2,3,7,8-TCDD	0.0200	0.0192		ug/Kg		96	67 - 158	7	50
2,3,7,8-TCDF	0.0200	0.0195		ug/Kg		97	75 - 158	3	50
OCDD	0.200	0.206		ug/Kg		103	78 - 144	0	50
OCDF	0.200	0.207		ug/Kg		103	63 - 170	5	50

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,6,7,8-HpCDD	90		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	81		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	88		20 - 186
13C-1,2,3,4,7,8-HxCDD	82		21 - 193
13C-1,2,3,4,7,8-HxCDF	75		19 - 202
13C-1,2,3,6,7,8-HxCDD	75		25 - 163
13C-1,2,3,6,7,8-HxCDF	77		21 - 159
13C-1,2,3,7,8,9-HxCDF	84		17 - 205
13C-1,2,3,7,8-PeCDD	94		21 - 227
13C-1,2,3,7,8-PeCDF	93		21 - 192
13C-2,3,4,6,7,8-HxCDF	75		22 - 176
13C-2,3,4,7,8-PeCDF	89		13 - 328
13C-2,3,7,8-TCDD	78		20 - 175
13C-2,3,7,8-TCDF	76		22 - 152
13C-OCDD	85		13 - 199

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	85		31 - 191

Lab Chronicle

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

TestAmerica Job ID: 580-79946-2

Client Sample ID: PDI-SG-B478

Lab Sample ID: 580-79946-1

Date Collected: 08/28/18 16:20

Matrix: Solid

Date Received: 08/29/18 13:10

Percent Solids: 63.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			247773	09/25/18 15:49	SR1	TAL SAC
Total/NA	Analysis	1613B		1	248108	09/27/18 15:10	AS	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

- 1
- 2
- 3
- 4
- 5
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- 11
- 12
- 13

Accreditation/Certification Summary

Client: AECOM

TestAmerica Job ID: 580-79946-2

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

Laboratory: TestAmerica Sacramento

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	17-020	01-20-21
ANAB	DoD ELAP		L2468	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-19
California	State Program	9	2897	01-31-19
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-19
Illinois	NELAP	5	200060	03-17-19
Kansas	NELAP	7	E-10375	10-31-18
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-18-19
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	03-31-19
Oregon	NELAP	10	4040	01-29-19
Pennsylvania	NELAP	3	68-01272	03-31-19
Texas	NELAP	6	T104704399	05-31-19
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-19
Vermont	State Program	1	VT-4040	04-30-19
Virginia	NELAP	3	460278	03-14-19
Washington	State Program	10	C581	05-05-19
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

Sample Summary

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

TestAmerica Job ID: 580-79946-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79946-1	PDI-SG-B478	Solid	08/28/18 16:20	08/29/18 13:10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
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- 11
- 12
- 13



580-79946 Chain of Custody

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 Water
 Sample Type: DIU

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

Site Contact: Jennifer Ray
 Laboratory Contact: Elaine-Walker
 Carrier: Courier
 8/29/2018
 COC No. 2
 of 1
 COCs

Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.
8/28/2018	16:20	SS		MT	7

Fraction
 PB Congeners 168A H H H
 PCBs 1613B H H H
 TPH Diesel, Metals, Mercury WTPH-Dx, 602B, 717A H H H
 Grain size ASTM D7928/D6913 x
 Total organic carbon, Total solids 9060 (104C & 70C) H H H
 Archive Archive -20 C H H H
 PAHs, BEHP, Tributyltin, 8270-SIM, 8270-LI, Kron/Unger H H H

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

Relinquished by: [Signature] Date/Time: 8/29/18 12:30
 Relinquished by: M.E. Date/Time: 8/29/18 13:10
 Relinquished by: [Signature] Date/Time: [Blank]

Received by: [Signature] Date/Time: 8/29/18 12:30
 Received by: M.E. Date/Time: 8/29/18 13:10
 Received by: [Signature] Date/Time: [Blank]

Company: AECOM
 Company: M.E.
 Company: [Blank]

Special Instructions/QC Requirements & Comments:
 Analyze samples for grain size ASAP, Hold (H) remaining analyses pending further instruction.
 Separate reports for each lab.

2.3





580-79946 Chain of Custody

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

**SURFACE SEDIMENT
CHAIN OF CUSTODY**

Client Contact		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010			Site Contact: Jennifer Ray Laboratory Contact: Elaine-Walker					8/29/2018	COC No. 2						
AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288		Analysis Turnaround Time Calendar (C) or Work Days (W)			Carrier: Courier										1 of 1 COCs		
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling		<input type="checkbox"/> 21 days															
Portland, OR Project #: 60566335 Study: Surface Water		<input checked="" type="checkbox"/> Other _ASAP_ _____															
Sample Type: D/U																	

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congener 1668A	PCDD/Fs 1613B	TPH Direct. Metals, Mercury, SWTPH-DV, 8020B, 7471A	Grain size ASTM D7528/D6913	Total organic carbon, Total solids 9060 (104C & 70C)	Archive Archive -20 C	PAHs, BEHP, Tributyltin, 8270-SJM, 8270-LI., Krou/Unger	Sample Specific Notes:					
PDI-SG-B478	8/28/2018	16:20	SS		MT	7		H	H	H	x	H	H	H						

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:
Analyze samples for grain size ASAP, Hold (H) remaining analyses pending further instruction.
Separate reports for each lab.

Relinquished by:	Company: AECOM	Date/Time: 8/29/18 1230	Received by:	Company: M.E.	Date/Time: 8/29/18 1230
Relinquished by:	Company: M.E.	Date/Time: 8/29/18 1310	Received by:	Company: TAPOR	Date/Time: 8/29/18 1310
Relinquished by:	Company: TAPOR	Date/Time: 8/29/18 1700	Received by: B. Hall	Company: SCM TA	Date/Time: 8.30.18 0930

IR4 = 3.5/3.4 w/C.S.

Chain of Custody Record



Client Information (Sub Contract Lab) Client Contact: Shipping/Receiving Company: Address: City: State, Zip: Phone: Email: Project Name: Site:	Lab PM: E-Mail: Accreditations Required (See note):	Sampler: Phone:	Carrier Tracking No(s): State of Origin:	COC No: Page: Job #: Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodscathylate U - Acetone V - NCA W - pH 4-5 Z - other (specify)
Analysis Requested Total Number of Containers:				
Sample ID (Lab ID) PDI-SG-B478 (580-79946-1)	Sample Date 8/28/18	Sample Time 16:20 Pacific	Sample Type (C=comp, G=grab) Preservation Code: Solid	Matrix (Water, Sealed, On-site/Off-site) Preservation Code: Solid
Field Filtered Sample (Yes or No) <input type="checkbox"/>		Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/>	1613B/HRMS_Sox_P (MOD) Full List w/o Totals (Hold) <input checked="" type="checkbox"/>	Special Instructions/Note: 2
Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analysis & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.				
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) _____ Primary Deliverable Rank: 2				
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Special Instructions/QC Requirements: _____				
Empty Kit Relinquished by: _____ Date: _____ Time: _____ Relinquished by: Date: 9/16/19 Time: 1:50 Company: CARON Company Relinquished by: _____ Date: _____ Time: _____ Company: _____				
Received by: Date: 9/17/18 Time: 9:15 Company: TH-Sac Company Received by: _____ Date: _____ Time: _____ Company: _____ Received by: _____ Date: _____ Time: _____ Company: _____				
Custody Seals Intact: Δ Yes Δ No Custody Seal No.: 492309 Cooler Temperature(s) °C and Other Remarks: 1.7				

Client Information (Sub Contract Lab) Client Contact: Walker, Elaine M Shipping/Receiving: Elaine.Walker@testamerica.com Company: TestAmerica Laboratories, Inc.				Lab PM: Walker, Elaine M E-Mail: Elaine.Walker@testamerica.com		Carrier Tracking No(s): 580-58948-1 State of Origin: Oregon Job #: 580-79946-4		COC No: 580-58948-1 Page: Page 1 of 1 Job #: 580-79946-4													
Address: 880 Riverside Parkway, West Sacramento, CA 95605 Phone: 916-373-5600 (Tel) 916-372-1059 (Fax) Email:				Due Date Requested: 9/17/2018 TAT Requested (days):		Analysis Requested															
Project Name: Portland Harbor Pre-Remedial Design Site:				PO #: 58012120 WO #: 58012120 Project #: 58012120 SSOW #:		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2CO3 E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4.5 L - EDA X - Other (specify)															
Sample Identification - Client ID (Lab ID)				Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (Water, Soild, Overstabil, Other)		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Auto/PP PH Frozen Archive Container billed @ \$0.		Total Number of Containers		Special Instructions/Note:	
PDI-SG-B478 (580-79946-1)				8/28/18		16:20 Pacific		Solid				X				2					
<p>Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.</p>																					
Possible Hazard Identification				Unconfirmed <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months																	
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 1		Special Instructions/QC Requirements:																	
Empty Kit Relinquished by:				Date:		Time:		Method of Shipment:													
Relinquished by: [Signature]				9/16/18		1500		Received by: [Signature]				Date/Time: 9/17/18 9:05				Company: TA-S&S					
Relinquished by:				Date/Time:		Company:		Received by:				Date/Time:				Company:					
Relinquished by:				Date/Time:		Company:		Received by:				Date/Time:				Company:					
Custody Seal Intact: 492309				Yes		No		Cooler Temperature(s) °C and Other Remarks: 1.7													

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-79946-2

Login Number: 79946

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: 580-79946-2

Login Number: 79946
List Number: 2
Creator: Gooch, Mayce

List Source: TestAmerica Sacramento
List Creation: 09/07/18 11:42 AM

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	492309
Sample custody seals, if present, are intact.	N/A	
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	1.7c
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?	False	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.	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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Sample Receiving Notes



580-79946 Field Sheet

Job: _____

Tracking # 4423 0751 0510 SO (PO) FO / 2-Day / SAT / Ground / UPS / Courier /
Drop Off / GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Therm. ID: <u>AK-2</u> / AK-3 / AK-5 / AK-6 / HACCP / Other _____ (+0.7°C)																																																																									
	Ice <input checked="" type="checkbox"/> Wet <input checked="" type="checkbox"/> Gel _____ Other _____																																																																									
	Cooler Custody Seal: <u>492309</u>																																																																									
	Sample Custody Seal: _____																																																																									
	Cooler ID: _____																																																																									
	Temp: Observed <u>1.7</u> Corrected <u>1.7</u>																																																																									
	From: Temp Blank <input type="checkbox"/> Sample <input checked="" type="checkbox"/>																																																																									
	NCM Filed: Yes <input type="checkbox"/> No <input type="checkbox"/>																																																																									
		<table border="0"> <thead> <tr> <th></th> <th>Yes</th> <th>No</th> <th>NA</th> </tr> </thead> <tbody> <tr> <td>Perchlorate has headspace?</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Alkalinity has no headspace?</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>CoC is complete w/o discrepancies?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Samples received within holding time?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Sample preservatives verified?</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Cooler compromised/tampered with?</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Samples compromised/tampered with?</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Samples w/o discrepancies?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Sample containers have legible labels?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Containers are not broken or leaking?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Sample date/times are provided.</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Appropriate containers are used?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Sample bottles are completely filled?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Zero headspace?*</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Multiphasic samples are not present?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Sample temp OK?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Sample out of temp?</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>		Yes	No	NA	Perchlorate has headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CoC is complete w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample date/times are provided.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample temp OK?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample out of temp?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Yes	No	NA																																																																						
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	Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																																																																						
	Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																																																						
	Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																																																						
	Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																						
	Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																						
	Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																						
Sample date/times are provided.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																							
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																							
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																							
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																																																																							
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																							
Sample temp OK?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																							
Sample out of temp?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																																																							
Initials: <u>MLG</u> Date: <u>9/7/18</u>																																																																										
*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")																																																																										

F81A @1130

Isotope Dilution Summary

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

TestAmerica Job ID: 580-79946-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	HxCDD (32-141)	HxCDF (26-152)	HxDD (28-130)	HxDF (26-123)	HxCF (29-147)
580-79946-1	PDI-SG-B478	68	51	69	66	62	59	64	70
MB 320-247773/1-A	Method Blank	81	79	80	77	70	68	69	77

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PeCDD (25-181)	PeCDF (24-185)	13CHxCF (28-136)	PeCF (21-178)	TCDD (25-164)	TCDF (24-169)	OCDD (17-157)
580-79946-1	PDI-SG-B478	77	70	60	75	71	71	64
MB 320-247773/1-A	Method Blank	93	83	71	87	72	72	81

Surrogate Legend

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
 HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
 HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
 HxCDD = 13C-1,2,3,4,7,8-HxCDD
 HxCDF = 13C-1,2,3,4,7,8-HxCDF
 HxDD = 13C-1,2,3,6,7,8-HxCDD
 HxDF = 13C-1,2,3,6,7,8-HxCDF
 HxCF = 13C-1,2,3,7,8,9-HxCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 PeCDF = 13C-1,2,3,7,8-PeCDF
 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
 PeCF = 13C-2,3,4,7,8-PeCDF
 TCDD = 13C-2,3,7,8-TCDD
 TCDF = 13C-2,3,7,8-TCDF
 OCDD = 13C-OCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	HxCDD (21-193)	HxCDF (19-202)	HxDD (25-163)	HxDF (21-159)	HxCF (17-205)
LCS 320-247773/2-A	Lab Control Sample	89	81	86	80	71	74	75	83
LCSD 320-247773/3-A	Lab Control Sample Dup	90	81	88	82	75	75	77	84

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PeCDD (21-227)	PeCDF (21-192)	13CHxCF (22-176)	PeCF (13-328)	TCDD (20-175)	TCDF (22-152)	OCDD (13-199)
LCS 320-247773/2-A	Lab Control Sample	85	79	78	76	77	74	89
LCSD 320-247773/3-A	Lab Control Sample Dup	94	93	75	89	78	76	85

Surrogate Legend

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
 HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
 HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
 HxCDD = 13C-1,2,3,4,7,8-HxCDD
 HxCDF = 13C-1,2,3,4,7,8-HxCDF
 HxDD = 13C-1,2,3,6,7,8-HxCDD
 HxDF = 13C-1,2,3,6,7,8-HxCDF
 HxCF = 13C-1,2,3,7,8,9-HxCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD

TestAmerica Seattle

Isotope Dilution Summary

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-79946-2

PeCDF = 13C-1,2,3,7,8-PeCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
PeCF = 13C-2,3,4,7,8-PeCDF
TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
OCDD = 13C-OCDD

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