TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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TestAmerica Job ID: 580-79948-2
Client Project/Site: Portland Harbor Pre-Remedial Design

For:
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Attn: Amy Dahl

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Authorized for release by:
9/26/2018 4:24:10 PM

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Job ID: 580-79948-2

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE
Client: AECOM
Project: Portland Harbor Pre-Remedial Design
Report Number: 580-79948-2

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

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

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

Samples PDI-SG-S016 (580-79948-1) and PDI-SG-S017 (580-79948-2) were analyzed for Dioxin/ Furan in accordance with 1613B. The samples were prepared on 09/11/2018 and analyzed on 09/16/2018.

Several analytes were detected in method blank MB 320-245002/1-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.

EPA 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 10D5 exceeded this criteria: PDI-SG-S016 (580-79948-1), PDI-SG-S017 (580-79948-2), (CCV 320-245785/60), (LCS 320-245002/2-A), (LCSD 320-245002/3-A) and (MB 320-245002/1-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-S016 (580-79948-1) and PDI-SG-S017 (580-79948-2). The reporting limits (RLs) have been adjusted proportionately.

No additional 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: 580-79948-2

Qualifiers

Dioxin

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

Client Sample ID: PDI-SG-S016
Date Collected: 08/28/18 09:28
Date Received: 08/29/18 13:10

Lab Sample ID: 580-79948-1
Matrix: Solid
Percent Solids: 37.4

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	0.11	B	0.0066	0.00086	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
1,2,3,4,6,7,8-HpCDF	0.014	q B	0.0066	0.00021	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
1,2,3,4,7,8,9-HpCDF	0.0010	J B	0.0066	0.00023	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
1,2,3,4,7,8-HxCDD	0.00096	J B	0.0066	0.000062	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
1,2,3,4,7,8-HxCDF	0.0019	J B	0.0066	0.000095	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
1,2,3,6,7,8-HxCDD	0.0032	J B	0.0066	0.000060	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
1,2,3,6,7,8-HxCDF	0.00086	J B	0.0066	0.000085	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
1,2,3,7,8,9-HxCDD	0.0024	J B	0.0066	0.000056	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
1,2,3,7,8,9-HxCDF	0.00060	J B	0.0066	0.000065	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
1,2,3,7,8-PeCDD	0.00044	J	0.0066	0.000053	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
1,2,3,7,8-PeCDF	0.00067	J B	0.0066	0.000058	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
2,3,4,6,7,8-HxCDF	0.00046	J	0.0066	0.000068	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
2,3,4,7,8-PeCDF	0.00053	J	0.0066	0.000063	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
2,3,7,8-TCDD	0.00020	J q	0.0013	0.000032	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
2,3,7,8-TCDF	0.0012	J B	0.0013	0.000037	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
OCDD	0.89	B	0.013	0.00041	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1
OCDF	0.053	B	0.013	0.000053	ug/Kg	☼	09/11/18 11:31	09/16/18 20:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*60*		*23 - 140*	*09/11/18 11:31*	*09/16/18 20:10*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*51*		*28 - 143*	*09/11/18 11:31*	*09/16/18 20:10*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*56*		*26 - 138*	*09/11/18 11:31*	*09/16/18 20:10*	*1*
13C-1,2,3,4,7,8-HxCDD	*58*		*32 - 141*	*09/11/18 11:31*	*09/16/18 20:10*	*1*
13C-1,2,3,4,7,8-HxCDF	*60*		*26 - 152*	*09/11/18 11:31*	*09/16/18 20:10*	*1*
13C-1,2,3,6,7,8-HxCDD	*61*		*28 - 130*	*09/11/18 11:31*	*09/16/18 20:10*	*1*
13C-1,2,3,6,7,8-HxCDF	*64*		*26 - 123*	*09/11/18 11:31*	*09/16/18 20:10*	*1*
13C-1,2,3,7,8,9-HxCDF	*61*		*29 - 147*	*09/11/18 11:31*	*09/16/18 20:10*	*1*
13C-1,2,3,7,8-PeCDD	*57*		*25 - 181*	*09/11/18 11:31*	*09/16/18 20:10*	*1*
13C-1,2,3,7,8-PeCDF	*56*		*24 - 185*	*09/11/18 11:31*	*09/16/18 20:10*	*1*
13C-2,3,4,6,7,8-HxCDF	*63*		*28 - 136*	*09/11/18 11:31*	*09/16/18 20:10*	*1*
13C-2,3,4,7,8-PeCDF	*56*		*21 - 178*	*09/11/18 11:31*	*09/16/18 20:10*	*1*
13C-2,3,7,8-TCDD	*65*		*25 - 164*	*09/11/18 11:31*	*09/16/18 20:10*	*1*
13C-2,3,7,8-TCDF	*61*		*24 - 169*	*09/11/18 11:31*	*09/16/18 20:10*	*1*
13C-OCDD	*53*		*17 - 157*	*09/11/18 11:31*	*09/16/18 20:10*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*76*		*35 - 197*	*09/11/18 11:31*	*09/16/18 20:10*	*1*

Client Sample ID: PDI-SG-S017
Date Collected: 08/28/18 10:54
Date Received: 08/29/18 13:10

Lab Sample ID: 580-79948-2
Matrix: Solid
Percent Solids: 68.0

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	0.043	B	0.0036	0.00045	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
1,2,3,4,6,7,8-HpCDF	0.0064	B	0.0036	0.00011	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
1,2,3,4,7,8,9-HpCDF	0.00078	J B	0.0036	0.00012	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
1,2,3,4,7,8-HxCDD	0.00051	J B	0.0036	0.000031	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
1,2,3,4,7,8-HxCDF	0.00090	J B	0.0036	0.000042	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
1,2,3,6,7,8-HxCDD	0.0012	J B	0.0036	0.000029	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
1,2,3,6,7,8-HxCDF	0.00044	J B	0.0036	0.000039	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
1,2,3,7,8,9-HxCDD	0.0012	J B	0.0036	0.000028	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
1,2,3,7,8,9-HxCDF	0.00023	J B	0.0036	0.000029	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
1,2,3,7,8-PeCDD	0.00019	J q	0.0036	0.000030	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
1,2,3,7,8-PeCDF	0.00028	J B	0.0036	0.000026	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
2,3,4,6,7,8-HxCDF	0.00023	J	0.0036	0.000031	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
2,3,4,7,8-PeCDF	0.00025	J	0.0036	0.000028	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
2,3,7,8-TCDD	0.000074	J q	0.00072	0.000016	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
2,3,7,8-TCDF	0.00058	J B	0.00072	0.000013	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
OCDD	0.40	B	0.0072	0.00023	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1
OCDF	0.022	B	0.0072	0.000026	ug/Kg	☼	09/11/18 11:31	09/16/18 20:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*60*		*23 - 140*	*09/11/18 11:31*	*09/16/18 20:56*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*49*		*28 - 143*	*09/11/18 11:31*	*09/16/18 20:56*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*56*		*26 - 138*	*09/11/18 11:31*	*09/16/18 20:56*	*1*
13C-1,2,3,4,7,8-HxCDD	*56*		*32 - 141*	*09/11/18 11:31*	*09/16/18 20:56*	*1*
13C-1,2,3,4,7,8-HxCDF	*59*		*26 - 152*	*09/11/18 11:31*	*09/16/18 20:56*	*1*
13C-1,2,3,6,7,8-HxCDD	*61*		*28 - 130*	*09/11/18 11:31*	*09/16/18 20:56*	*1*
13C-1,2,3,6,7,8-HxCDF	*62*		*26 - 123*	*09/11/18 11:31*	*09/16/18 20:56*	*1*
13C-1,2,3,7,8,9-HxCDF	*60*		*29 - 147*	*09/11/18 11:31*	*09/16/18 20:56*	*1*
13C-1,2,3,7,8-PeCDD	*57*		*25 - 181*	*09/11/18 11:31*	*09/16/18 20:56*	*1*
13C-1,2,3,7,8-PeCDF	*55*		*24 - 185*	*09/11/18 11:31*	*09/16/18 20:56*	*1*
13C-2,3,4,6,7,8-HxCDF	*62*		*28 - 136*	*09/11/18 11:31*	*09/16/18 20:56*	*1*
13C-2,3,4,7,8-PeCDF	*55*		*21 - 178*	*09/11/18 11:31*	*09/16/18 20:56*	*1*
13C-2,3,7,8-TCDD	*64*		*25 - 164*	*09/11/18 11:31*	*09/16/18 20:56*	*1*
13C-2,3,7,8-TCDF	*60*		*24 - 169*	*09/11/18 11:31*	*09/16/18 20:56*	*1*
13C-OCDD	*50*		*17 - 157*	*09/11/18 11:31*	*09/16/18 20:56*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*77*		*35 - 197*	*09/11/18 11:31*	*09/16/18 20:56*	*1*

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

Lab Sample ID: MB 320-245002/1-A
Matrix: Solid
Analysis Batch: 245785

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 245002

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.000114	J	0.0050	0.000011	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
1,2,3,4,6,7,8-HpCDF	0.0000773	J	0.0050	0.000013	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
1,2,3,4,7,8,9-HpCDF	0.000128	J q	0.0050	0.000016	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
1,2,3,4,7,8-HxCDD	0.000118	J q	0.0050	0.000013	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
1,2,3,4,7,8-HxCDF	0.0000298	J q	0.0050	0.000024	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
1,2,3,6,7,8-HxCDD	0.0000238	J q	0.0050	0.000013	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
1,2,3,6,7,8-HxCDF	0.0000287	J q	0.0050	0.000022	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
1,2,3,7,8,9-HxCDD	0.0000370	J q	0.0050	0.000012	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
1,2,3,7,8,9-HxCDF	0.000297	J	0.0050	0.000018	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
1,2,3,7,8-PeCDD	ND		0.0050	0.000018	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
1,2,3,7,8-PeCDF	0.0000363	J q	0.0050	0.000017	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
2,3,4,6,7,8-HxCDF	ND		0.0050	0.000018	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
2,3,4,7,8-PeCDF	ND		0.0050	0.000019	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
2,3,7,8-TCDD	ND		0.0010	0.000026	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
2,3,7,8-TCDF	0.000149	J	0.0010	0.000013	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
OCDD	0.000911	J	0.010	0.000016	ug/Kg		09/11/18 11:31	09/16/18 14:02	1
OCDF	0.000133	J	0.010	0.000023	ug/Kg		09/11/18 11:31	09/16/18 14:02	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*86*		*23 - 140*	*09/11/18 11:31*	*09/16/18 14:02*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*76*		*28 - 143*	*09/11/18 11:31*	*09/16/18 14:02*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*78*		*26 - 138*	*09/11/18 11:31*	*09/16/18 14:02*	*1*
13C-1,2,3,4,7,8-HxCDD	*71*		*32 - 141*	*09/11/18 11:31*	*09/16/18 14:02*	*1*
13C-1,2,3,4,7,8-HxCDF	*77*		*26 - 152*	*09/11/18 11:31*	*09/16/18 14:02*	*1*
13C-1,2,3,6,7,8-HxCDD	*80*		*28 - 130*	*09/11/18 11:31*	*09/16/18 14:02*	*1*
13C-1,2,3,6,7,8-HxCDF	*83*		*26 - 123*	*09/11/18 11:31*	*09/16/18 14:02*	*1*
13C-1,2,3,7,8,9-HxCDF	*76*		*29 - 147*	*09/11/18 11:31*	*09/16/18 14:02*	*1*
13C-1,2,3,7,8-PeCDD	*73*		*25 - 181*	*09/11/18 11:31*	*09/16/18 14:02*	*1*
13C-1,2,3,7,8-PeCDF	*67*		*24 - 185*	*09/11/18 11:31*	*09/16/18 14:02*	*1*
13C-2,3,4,6,7,8-HxCDF	*79*		*28 - 136*	*09/11/18 11:31*	*09/16/18 14:02*	*1*
13C-2,3,4,7,8-PeCDF	*67*		*21 - 178*	*09/11/18 11:31*	*09/16/18 14:02*	*1*
13C-2,3,7,8-TCDD	*76*		*25 - 164*	*09/11/18 11:31*	*09/16/18 14:02*	*1*
13C-2,3,7,8-TCDF	*67*		*24 - 169*	*09/11/18 11:31*	*09/16/18 14:02*	*1*
13C-OCDD	*73*		*17 - 157*	*09/11/18 11:31*	*09/16/18 14:02*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*80*		*35 - 197*	*09/11/18 11:31*	*09/16/18 14:02*	*1*

Lab Sample ID: LCS 320-245002/2-A
Matrix: Solid
Analysis Batch: 245785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 245002

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,6,7,8-HpCDD	0.100	0.100		ug/Kg		100	70 - 140
1,2,3,4,6,7,8-HpCDF	0.100	0.107		ug/Kg		107	82 - 122
1,2,3,4,7,8,9-HpCDF	0.100	0.108		ug/Kg		108	78 - 138
1,2,3,4,7,8-HxCDD	0.100	0.108		ug/Kg		108	70 - 164
1,2,3,4,7,8-HxCDF	0.100	0.109		ug/Kg		109	72 - 134

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

Lab Sample ID: LCS 320-245002/2-A
Matrix: Solid
Analysis Batch: 245785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 245002

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,6,7,8-HxCDD	0.100	0.109		ug/Kg		109	76 - 134
1,2,3,6,7,8-HxCDF	0.100	0.110		ug/Kg		110	84 - 130
1,2,3,7,8,9-HxCDD	0.100	0.114		ug/Kg		114	64 - 162
1,2,3,7,8,9-HxCDF	0.100	0.111		ug/Kg		111	78 - 130
1,2,3,7,8-PeCDD	0.100	0.105		ug/Kg		105	70 - 142
1,2,3,7,8-PeCDF	0.100	0.108		ug/Kg		108	80 - 134
2,3,4,6,7,8-HxCDF	0.100	0.110		ug/Kg		110	70 - 156
2,3,4,7,8-PeCDF	0.100	0.107		ug/Kg		107	68 - 160
2,3,7,8-TCDD	0.0200	0.0187		ug/Kg		93	67 - 158
2,3,7,8-TCDF	0.0200	0.0213		ug/Kg		107	75 - 158
OCDD	0.200	0.202		ug/Kg		101	78 - 144
OCDF	0.200	0.224		ug/Kg		112	63 - 170

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*73*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*63*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*68*		*20 - 186*
13C-1,2,3,4,7,8-HxCDD	*63*		*21 - 193*
13C-1,2,3,4,7,8-HxCDF	*63*		*19 - 202*
13C-1,2,3,6,7,8-HxCDD	*65*		*25 - 163*
13C-1,2,3,6,7,8-HxCDF	*69*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*67*		*17 - 205*
13C-1,2,3,7,8-PeCDD	*65*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*61*		*21 - 192*
13C-2,3,4,6,7,8-HxCDF	*68*		*22 - 176*
13C-2,3,4,7,8-PeCDF	*55*		*13 - 328*
13C-2,3,7,8-TCDD	*68*		*20 - 175*
13C-2,3,7,8-TCDF	*61*		*22 - 152*
13C-OCDD	*65*		*13 - 199*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*78*		*31 - 191*

Lab Sample ID: LCSD 320-245002/3-A
Matrix: Solid
Analysis Batch: 245785

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 245002

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3,4,6,7,8-HpCDD	0.100	0.0999		ug/Kg		100	70 - 140	0	50
1,2,3,4,6,7,8-HpCDF	0.100	0.106		ug/Kg		106	82 - 122	2	50
1,2,3,4,7,8,9-HpCDF	0.100	0.109		ug/Kg		109	78 - 138	1	50
1,2,3,4,7,8-HxCDD	0.100	0.108		ug/Kg		108	70 - 164	0	50
1,2,3,4,7,8-HxCDF	0.100	0.110		ug/Kg		110	72 - 134	1	50
1,2,3,6,7,8-HxCDD	0.100	0.110		ug/Kg		110	76 - 134	1	50
1,2,3,6,7,8-HxCDF	0.100	0.111		ug/Kg		111	84 - 130	0	50
1,2,3,7,8,9-HxCDD	0.100	0.111		ug/Kg		111	64 - 162	3	50
1,2,3,7,8,9-HxCDF	0.100	0.110		ug/Kg		110	78 - 130	1	50
1,2,3,7,8-PeCDD	0.100	0.104		ug/Kg		104	70 - 142	0	50

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

Lab Sample ID: LCSD 320-245002/3-A
Matrix: Solid
Analysis Batch: 245785

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 245002

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3,7,8-PeCDF			0.100	0.108		ug/Kg		108	80 - 134	0	50
2,3,4,6,7,8-HxCDF			0.100	0.109		ug/Kg		109	70 - 156	1	50
2,3,4,7,8-PeCDF			0.100	0.110		ug/Kg		110	68 - 160	3	50
2,3,7,8-TCDD			0.0200	0.0187		ug/Kg		93	67 - 158	0	50
2,3,7,8-TCDF			0.0200	0.0218		ug/Kg		109	75 - 158	2	50
OCDD			0.200	0.207		ug/Kg		104	78 - 144	3	50
OCDF			0.200	0.224		ug/Kg		112	63 - 170	0	50

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*81*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*72*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*74*		*20 - 186*
13C-1,2,3,4,7,8-HxCDD	*66*		*21 - 193*
13C-1,2,3,4,7,8-HxCDF	*70*		*19 - 202*
13C-1,2,3,6,7,8-HxCDD	*73*		*25 - 163*
13C-1,2,3,6,7,8-HxCDF	*76*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*71*		*17 - 205*
13C-1,2,3,7,8-PeCDD	*66*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*62*		*21 - 192*
13C-2,3,4,6,7,8-HxCDF	*76*		*22 - 176*
13C-2,3,4,7,8-PeCDF	*58*		*13 - 328*
13C-2,3,7,8-TCDD	*70*		*20 - 175*
13C-2,3,7,8-TCDF	*60*		*22 - 152*
13C-OCDD	*72*		*13 - 199*

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*75*		*31 - 191*

Lab Chronicle

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

TestAmerica Job ID: 580-79948-2

Client Sample ID: PDI-SG-S016

Lab Sample ID: 580-79948-1
Date Collected: 08/28/18 09:28
Matrix: Solid
Date Received: 08/29/18 13:10
Percent Solids: 37.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			245002	09/11/18 11:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	245785	09/16/18 20:10	AS	TAL SAC

Client Sample ID: PDI-SG-S017

Lab Sample ID: 580-79948-2
Date Collected: 08/28/18 10:54
Matrix: Solid
Date Received: 08/29/18 13:10
Percent Solids: 68.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			245002	09/11/18 11:31	SR1	TAL SAC
Total/NA	Analysis	1613B		1	245785	09/16/18 20:56	AS	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: AECOM
TestAmerica Job ID: 580-79948-2
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: 580-79948-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79948-1	PDI-SG-S016	Solid	08/28/18 09:28	08/29/18 13:10
580-79948-2	PDI-SG-S017	Solid	08/28/18 10:54	08/29/18 13:10

SURFACE SEDIMENT CHAIN OF CUSTODY

TestAmerica-Seattle 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** **Analysis Turnaround Time** Calendar (C) or Work Days (W) _____ [x] 21 days [ ] Other _____	**Site Contact: Jennifer Ray / Michaela McCoog** **Laboratory Contact: Elaine-Walker**	**8/29/2018** **Carrier: Courier**	COC No: 1 __1__ of __1__ COCs

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: SMA/Co-Loc	

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congeners 1668A	PCDD/Fs 1613B	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060 (104C & 70C)	Archive Archive -20 C	PAHs, 8270-SIM												Sample Specific Notes:
PDI-SG-S016	8/28/2018	9:28	SS		MT	16		x	x	x	x	x	x												
PDI-SG-S017	8/28/2018	10:54	SS		MT	16		x	x	x	x	x	x												

Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column

Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid

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

Sample Disposal

[ ] *Return To Client* [X] *Disposal By Lab* [X] *Archive For* **12** *Months*

Special Instructions/QC Requirements & Comments:

Separate reports for each lab.

Relinquished by:	Company: Recon	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: TAS-SEA	Date/Time: 8/29/18 1310
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

580-79948 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 Sediment
Sample Type: SMA/Co-Loc

Project Contact: Amy Dahl / Chelsey Cook
Tel: (206) 438-2261 / (206) 438-2010
Analysis Turnaround Time
Calendar (C) or Work Days (W) ________
[x] 21 days
[ ] Other ________

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

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congeners 1668A	PCDD/Fs 1613B	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060 (104C & 70C)	Archive Archive -20 C	PAHs, 8270-SIM, 75	Sample Specific Notes:
PDI-SG-S016	8/28/2018	9:28	SS		MT	5/6		x	x	x	x	x	x	
PDI-SG-S017	8/28/2018	10:54	SS		MT	6/6		x	x	x	x	x	x	

Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column
Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid
Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)

Sample Disposal
[ ] Return To Client [X] Disposal By Lab [X] Archive For 12 Months

Special Instructions/QC Requirements & Comments:

Separate reports for each lab.

23

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	AECOM	8/29/18 1230	[signature]	M.E.	8/29/18 1230
[signature]	M.E.	8/29/18 1310	[signature]	TAPOR	8/29/18 1310
[signature]	TAPOR	8/29/18 1700	B. [signature]	SEA TA	8/30/18 0930

IR4 = 3.5/3.4 w/C.S.

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Walker, Elaine M	Carrier Tracking No(s):	COC No: 580-58948.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-79948-2
Address: 880 Riverside Parkway, ,	Due Date Requested: 9/17/2018			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Portland Harbor Pre-Remedial Design	Project #: 58012120			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
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	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/HRMS_Sox_P (MOD) Full List w/o Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
PDI-SG-S016 (580-79948-1)	8/28/18	09:28 Pacific		Solid			X	2	
PDI-SG-S017 (580-79948-2)	8/28/18	10:54 Pacific		Solid			X	2	

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/tests/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 complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	9/6/18 1500	TAOR		9/7/18 915	TA-Sac
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☒ Yes ☐ No	Custody Seal No.: 492309	Cooler Temperature(s) °C and Other Remarks: 1.7

Ver: 09/20/2016

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Walker, Elaine M	Carrier Tracking No(s):	COC No: 580-58948.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-79948-4
Address: 880 Riverside Parkway,	Due Date Requested: 9/17/2018			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Portland Harbor Pre-Remedial Design	Project #: 58012120			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
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	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	AutoOP/ PH Frozen Archive Container billed @ $0.	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
PDI-SG-S016 (580-79948-1)	8/28/18	09:28 Pacific		Solid			X	2	
PDI-SG-S017 (580-79948-2)	8/28/18	10:54 Pacific		Solid			X	2	

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/tests/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 complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ 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:	Date/Time: 9/6/18 1500	Company TAOR	Received by:	Date/Time: 9/7/18 915	Company TA-Sac
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☑ Yes ☐ No	Custody Seal No.: 492309	Cooler Temperature(s) °C and Other Remarks: 1.7

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-79948-2

Login Number: 79948
List Number: 1
Creator: O'Connell, Jason I

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-79948-2

Login Number: 79948
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

580-79948 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: ~~AK-2~~ / AK-3 / AK-5 / AK-6 / HACCP / Other _____ (+0.7°C)

Ice Y Wet Y Gel _____ Other _____

Cooler Custody Seal: 492309

Sample Custody Seal: —

Cooler ID: —

Temp: Observed 1.7 Corrected 1.7

From: Temp Blank ☐ Sample ☒

NCM Filed: Yes ☐ No ☐

	Yes	No	NA
Perchlorate has headspace?	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
CoC is complete w/o discrepancies?	☒	☐	☐
Samples received within holding time?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Cooler compromised/tampered with?	☐	☒	☐
Samples compromised/tampered with?	☐	☒	☐
Samples w/o discrepancies?	☒	☐	☐
Sample containers have legible labels?	☒	☐	☐
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided.	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Multiphasic samples are not present?	☐	☐	☐
Sample temp OK?	☒	☐	☐
Sample out of temp?	☐	☒	☐

Initials: MG Date: 9/7/18

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

F81 A @ 1150

Isotope Dilution Summary

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

TestAmerica Job ID: 580-79948-2

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)
580-79948-1	PDI-SG-S016	60	51	56	58	60	61	64	61
580-79948-2	PDI-SG-S017	60	49	56	56	59	61	62	60
MB 320-245002/1-A	Method Blank	86	76	78	71	77	80	83	76

		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)
580-79948-1	PDI-SG-S016	57	56	63	56	65	61	53
580-79948-2	PDI-SG-S017	57	55	62	55	64	60	50
MB 320-245002/1-A	Method Blank	73	67	79	67	76	67	73

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 320-245002/2-A	Lab Control Sample	73	63	68	63	63	65	69	67
LCSD 320-245002/3-A	Lab Control Sample Dup	81	72	74	66	70	73	76	71

		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 320-245002/2-A	Lab Control Sample	65	61	68	55	68	61	65
LCSD 320-245002/3-A	Lab Control Sample Dup	66	62	76	58	70	60	72

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

Isotope Dilution Summary

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

TestAmerica Job ID: 580-79948-2

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