

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: 580-79504-2

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:
9/4/2018 4:17:52 PM

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

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

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

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

Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions	6
Client Sample Results	7
QC Sample Results	56
Chronicle	67
Certification Summary	77
Sample Summary	78
Chain of Custody	79
Receipt Checklists	98
Field Data Sheets	101
Isotope Dilution Summary	105



Case Narrative

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

TestAmerica Job ID: 580-79504-2

Job ID: 580-79504-2

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE

Client: AECOM

Project: Portland Harbor Pre-Remedial Design

Report Number: 580-79504-2

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

Fifty samples were received on 8/10/2018 2:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 9 coolers at receipt time were 0.5° C, 1.8° C, 1.9° C, 2.3° C, 3.1° C, 4.1° C, 4.3° C, 5.1° C and 5.6° C.

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

This report contains results for Dioxins/Furans by Method 1613B, 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-SC-S098-0to1.3 (580-79504-1), PDI-SC-S098-1.3to3.3 (580-79504-2), PDI-SC-S098-3.3to5.3 (580-79504-3), PDI-SC-S098-3.3to5.3D (580-79504-4), PDI-SC-S098-5.3to7.2 (580-79504-5), PDI-SC-S098-7.2to8.2 (580-79504-6), PDI-SC-S103-0to2 (580-79504-7), PDI-SC-S103-2to4 (580-79504-8), PDI-SC-S103-4to6 (580-79504-9), PDI-SC-S103-6to8 (580-79504-10), PDI-SC-S103-8to9.7 (580-79504-11), PDI-SC-S103-9.7to10.7 (580-79504-12), PDI-SC-S103-10.7to13.4 (580-79504-13), PDI-SC-S176-0to2 (580-79504-14), PDI-SC-S176-2to4 (580-79504-15), PDI-SC-S176-4to5.5 (580-79504-16), PDI-SC-S176-5.5to7.5 (580-79504-17), PDI-SC-S176-7.5to9.5 (580-79504-18), PDI-SC-S188-0-1.5 (580-79504-19), PDI-SC-S198-0to2 (580-79504-20), PDI-SC-S198-2to4 (580-79504-21), PDI-SC-S198-2to4D (580-79504-22), PDI-SC-S198-4to6 (580-79504-23), PDI-SC-S198-6to8 (580-79504-24), PDI-SC-S198-8to10 (580-79504-25), PDI-SC-S198-10to11.8 (580-79504-26), PDI-SC-S213-0to2 (580-79504-27), PDI-SC-S213-2to4 (580-79504-28), PDI-SC-S213-4to6 (580-79504-29), PDI-SC-S213-6to8 (580-79504-30), PDI-SC-S213-8to10 (580-79504-31), PDI-SC-S213-10to11.8 (580-79504-32), PDI-SC-S213-11.8to12.8 (580-79504-33), PDI-SC-S229-0to2 (580-79504-34), PDI-SC-S229-2to4 (580-79504-35), PDI-SC-S229-4to6 (580-79504-36), PDI-SC-S229-6to8 (580-79504-37), PDI-SC-S229-8to9.9 (580-79504-38), PDI-SC-S229-9.9to12.5 (580-79504-39), PDI-SC-S238-0to2 (580-79504-40), PDI-SC-S238-2to4 (580-79504-41), PDI-SC-S238-2to4D (580-79504-42), PDI-SC-S238-4to6 (580-79504-43), PDI-SC-S238-6to8 (580-79504-44), PDI-SC-S238-8to10 (580-79504-45), PDI-SC-S238-10to12.4 (580-79504-46) and PDI-SC-S238-12.4to13.4 (580-79504-47) were analyzed for Dioxin/ Furan in accordance with 1613B. The samples were prepared on 08/21/2018, 08/22/2018 and 08/23/2018 and analyzed on 08/27/2018, 08/28/2018, 08/29/2018 and 08/30/2018.

Several analytes were detected in method blank MB 320-241175/1-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.

Case Narrative

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

TestAmerica Job ID: 580-79504-2

Job ID: 580-79504-2 (Continued)

Laboratory: TestAmerica Seattle (Continued)

Several analytes were detected in method blank MB 320-241430/1-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-SC-S098-0to1.3 (580-79504-1), PDI-SC-S098-1.3to3.3 (580-79504-2), PDI-SC-S098-3.3to5.3 (580-79504-3), PDI-SC-S098-3.3to5.3D (580-79504-4), PDI-SC-S098-5.3to7.2 (580-79504-5), PDI-SC-S098-7.2to8.2 (580-79504-6), PDI-SC-S103-0to2 (580-79504-7), PDI-SC-S103-2to4 (580-79504-8), PDI-SC-S103-6to8 (580-79504-10), PDI-SC-S103-8to9.7 (580-79504-11), PDI-SC-S103-9.7to10.7 (580-79504-12), PDI-SC-S103-10.7to13.4 (580-79504-13), PDI-SC-S176-0to2 (580-79504-14), PDI-SC-S176-2to4 (580-79504-15), PDI-SC-S176-4to5.5 (580-79504-16), PDI-SC-S176-5.5to7.5 (580-79504-17), PDI-SC-S176-7.5to9.5 (580-79504-18), PDI-SC-S188-0-1.5 (580-79504-19), PDI-SC-S198-0to2 (580-79504-20), PDI-SC-S198-2to4 (580-79504-21), PDI-SC-S198-2to4D (580-79504-22), PDI-SC-S198-4to6 (580-79504-23), PDI-SC-S198-6to8 (580-79504-24), PDI-SC-S198-8to10 (580-79504-25), PDI-SC-S198-10to11.8 (580-79504-26), PDI-SC-S213-0to2 (580-79504-27), PDI-SC-S213-2to4 (580-79504-28), PDI-SC-S213-4to6 (580-79504-29), (CCV 320-242805/14), (CCV 320-242803/1), (CCV 320-242428/85), (LCS 320-241430/2-A), (LCSD 320-241430/3-A), (MB 320-241430/1-A), (CCV 320-242219/30), (LCS 320-241175/2-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.

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 3D5 exceeded this criteria: PDI-SC-S103-4to6 (580-79504-9), PDI-SC-S213-6to8 (580-79504-30), PDI-SC-S213-8to10 (580-79504-31), PDI-SC-S213-10to11.8 (580-79504-32), PDI-SC-S213-11.8to12.8 (580-79504-33), PDI-SC-S229-0to2 (580-79504-34), PDI-SC-S229-2to4 (580-79504-35), PDI-SC-S229-4to6 (580-79504-36), PDI-SC-S229-6to8 (580-79504-37), PDI-SC-S229-8to9.9 (580-79504-38), PDI-SC-S229-9.9to12.5 (580-79504-39), PDI-SC-S238-0to2 (580-79504-40), PDI-SC-S238-2to4 (580-79504-41), PDI-SC-S238-2to4D (580-79504-42), PDI-SC-S238-4to6 (580-79504-43), PDI-SC-S238-6to8 (580-79504-44), PDI-SC-S238-8to10 (580-79504-45), PDI-SC-S238-10to12.4 (580-79504-46), PDI-SC-S238-12.4to13.4 (580-79504-47), (CCV 320-242738/16), (CCV 320-242737/2), (LCS 320-241601/2-A), (LCSD 320-241601/3-A), (MB 320-241601/1-A), (CCV 320-242614/2), (LCSD 320-241175/3-A), (CCV 320-243082/2), (LCS 320-241812/2-A), (LCSD 320-241812/3-A) and (MB 320-241812/1-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.

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 associated with the following samples run on instrument 11D2 exceeded this criteria: PDI-SC-S229-2to4 (580-79504-35), PDI-SC-S238-0to2 (580-79504-40), PDI-SC-S238-2to4 (580-79504-41), PDI-SC-S238-2to4D (580-79504-42), PDI-SC-S238-4to6 (580-79504-43), PDI-SC-S238-6to8 (580-79504-44), PDI-SC-S238-8to10 (580-79504-45), PDI-SC-S238-10to12.4 (580-79504-46), PDI-SC-S238-12.4to13.4 (580-79504-47) and (CCV 320-243226/2). 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.

The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: PDI-SC-S176-2to4 (580-79504-15) and PDI-SC-S238-2to4 (580-79504-41). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range: PDI-SC-S198-0to2 (580-79504-20), PDI-SC-S213-2to4 (580-79504-28), PDI-SC-S213-4to6 (580-79504-29), PDI-SC-S213-6to8 (580-79504-30), PDI-SC-S213-8to10 (580-79504-31), PDI-SC-S238-2to4 (580-79504-41), PDI-SC-S238-2to4D (580-79504-42), PDI-SC-S238-4to6 (580-79504-43), PDI-SC-S238-6to8 (580-79504-44), PDI-SC-S238-8to10 (580-79504-45), PDI-SC-S238-10to12.4 (580-79504-46) and PDI-SC-S238-12.4to13.4 (580-79504-47). These analytes have been qualified; however, the peak(s) did not saturate the instrument detector. Historical data indicate that for the isotope dilution method, dilution and re-analysis will not produce significantly different results from those reported above the calibration range.

The following samples exhibited elevated noise or matrix interferences for one or more analytes causing elevation of the detection limit (EDL): PDI-SC-S213-6to8 (580-79504-30), PDI-SC-S238-2to4 (580-79504-41), PDI-SC-S238-2to4D (580-79504-42), PDI-SC-S238-4to6

Case Narrative

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

TestAmerica Job ID: 580-79504-2

Job ID: 580-79504-2 (Continued)

Laboratory: TestAmerica Seattle (Continued)

(580-79504-43), PDI-SC-S238-8to10 (580-79504-45), PDI-SC-S238-10to12.4 (580-79504-46) and PDI-SC-S238-12.4to13.4 (580-79504-47). The reporting limit (RL) for the affected analytes has been raised to be equal to the EDL, and a "G" qualifier applied.

Due to the matrix, the initial volumes used for the following samples deviated from the standard procedure: PDI-SC-S098-0to1.3 (580-79504-1), PDI-SC-S098-1.3to3.3 (580-79504-2), PDI-SC-S098-3.3to5.3 (580-79504-3), PDI-SC-S098-3.3to5.3D (580-79504-4), PDI-SC-S098-5.3to7.2 (580-79504-5), PDI-SC-S098-7.2to8.2 (580-79504-6), PDI-SC-S103-0to2 (580-79504-7), PDI-SC-S103-2to4 (580-79504-8), PDI-SC-S103-4to6 (580-79504-9), PDI-SC-S103-6to8 (580-79504-10), PDI-SC-S103-8to9.7 (580-79504-11), PDI-SC-S103-9.7to10.7 (580-79504-12), PDI-SC-S103-10.7to13.4 (580-79504-13), PDI-SC-S176-0to2 (580-79504-14), PDI-SC-S176-2to4 (580-79504-15), PDI-SC-S176-4to5.5 (580-79504-16), PDI-SC-S176-5.5to7.5 (580-79504-17), PDI-SC-S176-7.5to9.5 (580-79504-18), PDI-SC-S188-0-1.5 (580-79504-19), PDI-SC-S198-0to2 (580-79504-20), PDI-SC-S198-2to4 (580-79504-21), PDI-SC-S198-2to4D (580-79504-22), PDI-SC-S198-4to6 (580-79504-23), PDI-SC-S198-6to8 (580-79504-24), PDI-SC-S198-8to10 (580-79504-25), PDI-SC-S198-10to11.8 (580-79504-26), PDI-SC-S213-0to2 (580-79504-27), PDI-SC-S213-2to4 (580-79504-28), PDI-SC-S213-4to6 (580-79504-29), PDI-SC-S213-6to8 (580-79504-30), PDI-SC-S213-8to10 (580-79504-31), PDI-SC-S213-10to11.8 (580-79504-32), PDI-SC-S213-11.8to12.8 (580-79504-33), PDI-SC-S229-0to2 (580-79504-34), PDI-SC-S229-2to4 (580-79504-35), PDI-SC-S229-4to6 (580-79504-36), PDI-SC-S229-6to8 (580-79504-37), PDI-SC-S229-8to9.9 (580-79504-38), PDI-SC-S229-9.9to12.5 (580-79504-39), PDI-SC-S238-0to2 (580-79504-40), PDI-SC-S238-2to4 (580-79504-41), PDI-SC-S238-2to4D (580-79504-42), PDI-SC-S238-4to6 (580-79504-43), PDI-SC-S238-6to8 (580-79504-44), PDI-SC-S238-8to10 (580-79504-45), PDI-SC-S238-10to12.4 (580-79504-46) and PDI-SC-S238-12.4to13.4 (580-79504-47). 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.

DIOXIN/ FURAN

Samples PDI-RB-SS-180809 (580-79504-49) and PDI-RB-SS-180809-1900 (580-79504-50) were analyzed for Dioxin/ Furan in accordance with 1613B. The samples were prepared on 08/24/2018 and analyzed on 08/30/2018.

1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF and 1,2,3,7,8,9-HxCDF were detected in method blank MB 320-241812/1-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 3D5 exceeded this criteria: PDI-RB-SS-180809 (580-79504-49), PDI-RB-SS-180809-1900 (580-79504-50) and (CCV 320-243084/16). 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.

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: 580-79504-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
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.
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.
*	Isotope Dilution analyte is outside acceptance limits.
E	Result exceeded calibration range.
G	The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference

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: 580-79504-2

Client Sample ID: PDI-SC-S098-0to1.3

Lab Sample ID: 580-79504-1

Date Collected: 08/09/18 12:00

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 54.9

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	0.078	B	0.0045	0.00031	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
1,2,3,4,6,7,8-HpCDF	0.018	B	0.0045	0.00019	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
1,2,3,4,7,8,9-HpCDF	0.0029	J B	0.0045	0.00024	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
1,2,3,4,7,8-HxCDD	0.00099	J B	0.0045	0.00013	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
1,2,3,4,7,8-HxCDF	0.0082		0.0045	0.00029	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
1,2,3,6,7,8-HxCDD	0.0041	J B	0.0045	0.00013	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
1,2,3,6,7,8-HxCDF	0.0035	J	0.0045	0.00031	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
1,2,3,7,8,9-HxCDD	0.0017	J B	0.0045	0.00012	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
1,2,3,7,8,9-HxCDF	ND		0.0045	0.00017	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
1,2,3,7,8-PeCDD	0.00058	J	0.0045	0.000079	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
1,2,3,7,8-PeCDF	0.0064	B	0.0045	0.00011	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
2,3,4,6,7,8-HxCDF	0.00060	J q	0.0045	0.00022	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
2,3,4,7,8-PeCDF	0.0024	J	0.0045	0.00013	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
2,3,7,8-TCDD	0.00020	J q	0.00090	0.000071	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
OCDD	0.76	B	0.0090	0.00032	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1
OCDF	0.047	B	0.0090	0.00011	ug/Kg	☼	08/21/18 13:53	08/27/18 00:27	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	42		23 - 140	08/21/18 13:53	08/27/18 00:27	1
13C-1,2,3,4,6,7,8-HpCDF	42		28 - 143	08/21/18 13:53	08/27/18 00:27	1
13C-1,2,3,4,7,8,9-HpCDF	42		26 - 138	08/21/18 13:53	08/27/18 00:27	1
13C-1,2,3,4,7,8-HxCDD	57		32 - 141	08/21/18 13:53	08/27/18 00:27	1
13C-1,2,3,4,7,8-HxCDF	63		26 - 152	08/21/18 13:53	08/27/18 00:27	1
13C-1,2,3,6,7,8-HxCDD	55		28 - 130	08/21/18 13:53	08/27/18 00:27	1
13C-1,2,3,6,7,8-HxCDF	61		26 - 123	08/21/18 13:53	08/27/18 00:27	1
13C-1,2,3,7,8,9-HxCDF	60		29 - 147	08/21/18 13:53	08/27/18 00:27	1
13C-1,2,3,7,8-PeCDD	57		25 - 181	08/21/18 13:53	08/27/18 00:27	1
13C-1,2,3,7,8-PeCDF	54		24 - 185	08/21/18 13:53	08/27/18 00:27	1
13C-2,3,4,6,7,8-HxCDF	60		28 - 136	08/21/18 13:53	08/27/18 00:27	1
13C-2,3,4,7,8-PeCDF	57		21 - 178	08/21/18 13:53	08/27/18 00:27	1
13C-2,3,7,8-TCDD	60		25 - 164	08/21/18 13:53	08/27/18 00:27	1
13C-OCDD	36		17 - 157	08/21/18 13:53	08/27/18 00:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	124		35 - 197	08/21/18 13:53	08/27/18 00:27	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0061	B	0.00090	0.00026	ug/Kg	☼	08/21/18 13:53	08/29/18 05:54	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	69		24 - 169	08/21/18 13:53	08/29/18 05:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	113		35 - 197	08/21/18 13:53	08/29/18 05:54	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S098-1.3to3.3

Lab Sample ID: 580-79504-2

Date Collected: 08/09/18 12:05

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 81.6

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	0.0031	0.00030	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
1,2,3,4,6,7,8-HpCDF	0.020	B	0.0031	0.00058	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
1,2,3,4,7,8,9-HpCDF	0.0062	B	0.0031	0.00064	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
1,2,3,4,7,8-HxCDD	0.00053	J B	0.0031	0.000073	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
1,2,3,4,7,8-HxCDF	0.038		0.0031	0.00030	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
1,2,3,6,7,8-HxCDD	0.0016	J B	0.0031	0.000068	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
1,2,3,6,7,8-HxCDF	0.0089		0.0031	0.00030	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
1,2,3,7,8,9-HxCDD	0.0011	J B	0.0031	0.000065	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
1,2,3,7,8,9-HxCDF	0.00054	J B	0.0031	0.00016	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
1,2,3,7,8-PeCDD	0.00024	J	0.0031	0.000044	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
1,2,3,7,8-PeCDF	0.017	B	0.0031	0.00017	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
2,3,4,6,7,8-HxCDF	0.0012	J	0.0031	0.00025	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
2,3,4,7,8-PeCDF	0.0063		0.0031	0.00018	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
2,3,7,8-TCDD	0.00016	J q	0.00062	0.000034	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
OCDD	0.62	B	0.0062	0.00023	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
OCDF	0.054	B	0.0062	0.000083	ug/Kg	☼	08/21/18 13:53	08/27/18 01:13	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	42		23 - 140				08/21/18 13:53	08/27/18 01:13	1
13C-1,2,3,4,6,7,8-HpCDF	39		28 - 143				08/21/18 13:53	08/27/18 01:13	1
13C-1,2,3,4,7,8,9-HpCDF	43		26 - 138				08/21/18 13:53	08/27/18 01:13	1
13C-1,2,3,4,7,8-HxCDD	48		32 - 141				08/21/18 13:53	08/27/18 01:13	1
13C-1,2,3,4,7,8-HxCDF	50		26 - 152				08/21/18 13:53	08/27/18 01:13	1
13C-1,2,3,6,7,8-HxCDD	49		28 - 130				08/21/18 13:53	08/27/18 01:13	1
13C-1,2,3,6,7,8-HxCDF	51		26 - 123				08/21/18 13:53	08/27/18 01:13	1
13C-1,2,3,7,8,9-HxCDF	54		29 - 147				08/21/18 13:53	08/27/18 01:13	1
13C-1,2,3,7,8-PeCDD	49		25 - 181				08/21/18 13:53	08/27/18 01:13	1
13C-1,2,3,7,8-PeCDF	50		24 - 185				08/21/18 13:53	08/27/18 01:13	1
13C-2,3,4,6,7,8-HxCDF	51		28 - 136				08/21/18 13:53	08/27/18 01:13	1
13C-2,3,4,7,8-PeCDF	52		21 - 178				08/21/18 13:53	08/27/18 01:13	1
13C-2,3,7,8-TCDD	57		25 - 164				08/21/18 13:53	08/27/18 01:13	1
13C-OCDD	31		17 - 157				08/21/18 13:53	08/27/18 01:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	124		35 - 197				08/21/18 13:53	08/27/18 01:13	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.010	B	0.00062	0.00024	ug/Kg	☼	08/21/18 13:53	08/29/18 06:32	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	60		24 - 169				08/21/18 13:53	08/29/18 06:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	116		35 - 197				08/21/18 13:53	08/29/18 06:32	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S098-3.3to5.3

Lab Sample ID: 580-79504-3

Date Collected: 08/09/18 12:10

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 76.0

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	0.0020	J B	0.0033	0.00027	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
1,2,3,4,6,7,8-HpCDF	ND		0.0033	0.00016	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
1,2,3,4,7,8,9-HpCDF	ND		0.0033	0.00017	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
1,2,3,4,7,8-HxCDD	0.00011	J B	0.0033	0.000040	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
1,2,3,4,7,8-HxCDF	ND		0.0033	0.000051	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
1,2,3,6,7,8-HxCDD	0.000077	J B q	0.0033	0.000038	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
1,2,3,6,7,8-HxCDF	ND		0.0033	0.000050	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
1,2,3,7,8,9-HxCDD	0.00023	J B	0.0033	0.000036	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
1,2,3,7,8,9-HxCDF	0.00018	J B	0.0033	0.000028	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
1,2,3,7,8-PeCDD	ND		0.0033	0.000028	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
1,2,3,7,8-PeCDF	ND		0.0033	0.000020	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
2,3,4,6,7,8-HxCDF	ND		0.0033	0.000042	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
2,3,4,7,8-PeCDF	ND		0.0033	0.000020	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
2,3,7,8-TCDD	ND		0.00066	0.000021	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
2,3,7,8-TCDF	ND		0.00066	0.000012	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
OCDD	0.036	B	0.0066	0.00010	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1
OCDF	0.00059	J B q	0.0066	0.000054	ug/Kg	✱	08/21/18 13:53	08/27/18 01:59	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	46		23 - 140	08/21/18 13:53	08/27/18 01:59	1
13C-1,2,3,4,6,7,8-HpCDF	43		28 - 143	08/21/18 13:53	08/27/18 01:59	1
13C-1,2,3,4,7,8,9-HpCDF	48		26 - 138	08/21/18 13:53	08/27/18 01:59	1
13C-1,2,3,4,7,8-HxCDD	49		32 - 141	08/21/18 13:53	08/27/18 01:59	1
13C-1,2,3,4,7,8-HxCDF	51		26 - 152	08/21/18 13:53	08/27/18 01:59	1
13C-1,2,3,6,7,8-HxCDD	48		28 - 130	08/21/18 13:53	08/27/18 01:59	1
13C-1,2,3,6,7,8-HxCDF	52		26 - 123	08/21/18 13:53	08/27/18 01:59	1
13C-1,2,3,7,8,9-HxCDF	55		29 - 147	08/21/18 13:53	08/27/18 01:59	1
13C-1,2,3,7,8-PeCDD	49		25 - 181	08/21/18 13:53	08/27/18 01:59	1
13C-1,2,3,7,8-PeCDF	50		24 - 185	08/21/18 13:53	08/27/18 01:59	1
13C-2,3,4,6,7,8-HxCDF	54		28 - 136	08/21/18 13:53	08/27/18 01:59	1
13C-2,3,4,7,8-PeCDF	52		21 - 178	08/21/18 13:53	08/27/18 01:59	1
13C-2,3,7,8-TCDD	60		25 - 164	08/21/18 13:53	08/27/18 01:59	1
13C-2,3,7,8-TCDF	60		24 - 169	08/21/18 13:53	08/27/18 01:59	1
13C-OCDD	32		17 - 157	08/21/18 13:53	08/27/18 01:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	127		35 - 197	08/21/18 13:53	08/27/18 01:59	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S098-3.3to5.3D

Date Collected: 08/09/18 12:10

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-4

Matrix: Solid

Percent Solids: 75.2

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	0.0013	J B	0.0033	0.00013	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
1,2,3,4,6,7,8-HpCDF	ND		0.0033	0.000083	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
1,2,3,4,7,8,9-HpCDF	ND		0.0033	0.000088	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
1,2,3,4,7,8-HxCDD	0.00011	J B	0.0033	0.000039	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
1,2,3,4,7,8-HxCDF	ND		0.0033	0.000039	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
1,2,3,6,7,8-HxCDD	ND		0.0033	0.000036	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
1,2,3,6,7,8-HxCDF	ND		0.0033	0.000038	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
1,2,3,7,8,9-HxCDD	0.00014	J q B	0.0033	0.000034	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
1,2,3,7,8,9-HxCDF	0.00013	J B	0.0033	0.000022	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
1,2,3,7,8-PeCDD	ND		0.0033	0.000026	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
1,2,3,7,8-PeCDF	ND		0.0033	0.000018	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
2,3,4,6,7,8-HxCDF	ND		0.0033	0.000033	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
2,3,4,7,8-PeCDF	ND		0.0033	0.000019	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
2,3,7,8-TCDD	ND		0.00066	0.000023	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
2,3,7,8-TCDF	0.000025	J B	0.00066	0.0000095	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
OCDD	0.019	B	0.0066	0.000083	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1
OCDF	0.00043	J B	0.0066	0.000040	ug/Kg	☼	08/21/18 13:53	08/27/18 02:45	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	53		23 - 140	08/21/18 13:53	08/27/18 02:45	1
13C-1,2,3,4,6,7,8-HpCDF	48		28 - 143	08/21/18 13:53	08/27/18 02:45	1
13C-1,2,3,4,7,8,9-HpCDF	54		26 - 138	08/21/18 13:53	08/27/18 02:45	1
13C-1,2,3,4,7,8-HxCDD	54		32 - 141	08/21/18 13:53	08/27/18 02:45	1
13C-1,2,3,4,7,8-HxCDF	56		26 - 152	08/21/18 13:53	08/27/18 02:45	1
13C-1,2,3,6,7,8-HxCDD	53		28 - 130	08/21/18 13:53	08/27/18 02:45	1
13C-1,2,3,6,7,8-HxCDF	57		26 - 123	08/21/18 13:53	08/27/18 02:45	1
13C-1,2,3,7,8,9-HxCDF	60		29 - 147	08/21/18 13:53	08/27/18 02:45	1
13C-1,2,3,7,8-PeCDD	53		25 - 181	08/21/18 13:53	08/27/18 02:45	1
13C-1,2,3,7,8-PeCDF	54		24 - 185	08/21/18 13:53	08/27/18 02:45	1
13C-2,3,4,6,7,8-HxCDF	57		28 - 136	08/21/18 13:53	08/27/18 02:45	1
13C-2,3,4,7,8-PeCDF	55		21 - 178	08/21/18 13:53	08/27/18 02:45	1
13C-2,3,7,8-TCDD	62		25 - 164	08/21/18 13:53	08/27/18 02:45	1
13C-2,3,7,8-TCDF	63		24 - 169	08/21/18 13:53	08/27/18 02:45	1
13C-OCDD	36		17 - 157	08/21/18 13:53	08/27/18 02:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	128		35 - 197	08/21/18 13:53	08/27/18 02:45	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S098-5.3to7.2

Date Collected: 08/09/18 12:15

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-5

Matrix: Solid

Percent Solids: 72.3

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	0.00067	J B	0.0035	0.000083	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
1,2,3,4,6,7,8-HpCDF	ND		0.0035	0.000046	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
1,2,3,4,7,8,9-HpCDF	0.000091	J B q	0.0035	0.000049	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
1,2,3,4,7,8-HxCDD	0.00011	J B q	0.0035	0.000031	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
1,2,3,4,7,8-HxCDF	ND		0.0035	0.000025	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
1,2,3,6,7,8-HxCDD	0.000048	J B q	0.0035	0.000029	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
1,2,3,6,7,8-HxCDF	ND		0.0035	0.000024	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
1,2,3,7,8,9-HxCDD	0.00011	J B	0.0035	0.000028	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
1,2,3,7,8,9-HxCDF	0.00018	J B	0.0035	0.000014	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
1,2,3,7,8-PeCDD	0.000038	J q	0.0035	0.000021	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
1,2,3,7,8-PeCDF	ND		0.0035	0.000018	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
2,3,4,6,7,8-HxCDF	ND		0.0035	0.000021	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
2,3,4,7,8-PeCDF	ND		0.0035	0.000019	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
2,3,7,8-TCDD	ND		0.00070	0.000016	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
2,3,7,8-TCDF	0.000030	J B	0.00070	0.0000090	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
OCDD	0.0099	B	0.0070	0.000061	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1
OCDF	0.00031	J B	0.0070	0.000026	ug/Kg	✱	08/21/18 13:53	08/27/18 03:31	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	62		23 - 140	08/21/18 13:53	08/27/18 03:31	1
13C-1,2,3,4,6,7,8-HpCDF	57		28 - 143	08/21/18 13:53	08/27/18 03:31	1
13C-1,2,3,4,7,8,9-HpCDF	62		26 - 138	08/21/18 13:53	08/27/18 03:31	1
13C-1,2,3,4,7,8-HxCDD	60		32 - 141	08/21/18 13:53	08/27/18 03:31	1
13C-1,2,3,4,7,8-HxCDF	63		26 - 152	08/21/18 13:53	08/27/18 03:31	1
13C-1,2,3,6,7,8-HxCDD	59		28 - 130	08/21/18 13:53	08/27/18 03:31	1
13C-1,2,3,6,7,8-HxCDF	64		26 - 123	08/21/18 13:53	08/27/18 03:31	1
13C-1,2,3,7,8,9-HxCDF	66		29 - 147	08/21/18 13:53	08/27/18 03:31	1
13C-1,2,3,7,8-PeCDD	58		25 - 181	08/21/18 13:53	08/27/18 03:31	1
13C-1,2,3,7,8-PeCDF	57		24 - 185	08/21/18 13:53	08/27/18 03:31	1
13C-2,3,4,6,7,8-HxCDF	65		28 - 136	08/21/18 13:53	08/27/18 03:31	1
13C-2,3,4,7,8-PeCDF	59		21 - 178	08/21/18 13:53	08/27/18 03:31	1
13C-2,3,7,8-TCDD	67		25 - 164	08/21/18 13:53	08/27/18 03:31	1
13C-2,3,7,8-TCDF	65		24 - 169	08/21/18 13:53	08/27/18 03:31	1
13C-OCDD	44		17 - 157	08/21/18 13:53	08/27/18 03:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	130		35 - 197	08/21/18 13:53	08/27/18 03:31	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S098-7.2to8.2

Date Collected: 08/09/18 12:20

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-6

Matrix: Solid

Percent Solids: 72.9

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	0.0017	J B	0.0034	0.000051	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
1,2,3,4,6,7,8-HpCDF	0.000093	J B	0.0034	0.000022	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
1,2,3,4,7,8,9-HpCDF	0.00010	J B	0.0034	0.000027	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
1,2,3,4,7,8-HxCDD	0.00015	J B	0.0034	0.000030	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
1,2,3,4,7,8-HxCDF	ND		0.0034	0.000022	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
1,2,3,6,7,8-HxCDD	0.00011	J B	0.0034	0.000028	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
1,2,3,6,7,8-HxCDF	ND		0.0034	0.000021	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
1,2,3,7,8,9-HxCDD	0.00022	J B	0.0034	0.000027	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
1,2,3,7,8,9-HxCDF	0.00012	J B q	0.0034	0.000013	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
1,2,3,7,8-PeCDD	ND		0.0034	0.000021	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
1,2,3,7,8-PeCDF	0.000040	J B q	0.0034	0.000014	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
2,3,4,6,7,8-HxCDF	ND		0.0034	0.000019	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
2,3,4,7,8-PeCDF	ND		0.0034	0.000015	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
2,3,7,8-TCDD	ND		0.00067	0.000016	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
2,3,7,8-TCDF	0.000026	J B	0.00067	0.0000076	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
OCDD	0.018	B	0.0067	0.000044	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1
OCDF	0.00029	J B	0.0067	0.000016	ug/Kg	☼	08/21/18 13:53	08/27/18 04:17	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	75		23 - 140	08/21/18 13:53	08/27/18 04:17	1
13C-1,2,3,4,6,7,8-HpCDF	72		28 - 143	08/21/18 13:53	08/27/18 04:17	1
13C-1,2,3,4,7,8,9-HpCDF	71		26 - 138	08/21/18 13:53	08/27/18 04:17	1
13C-1,2,3,4,7,8-HxCDD	62		32 - 141	08/21/18 13:53	08/27/18 04:17	1
13C-1,2,3,4,7,8-HxCDF	68		26 - 152	08/21/18 13:53	08/27/18 04:17	1
13C-1,2,3,6,7,8-HxCDD	65		28 - 130	08/21/18 13:53	08/27/18 04:17	1
13C-1,2,3,6,7,8-HxCDF	70		26 - 123	08/21/18 13:53	08/27/18 04:17	1
13C-1,2,3,7,8,9-HxCDF	68		29 - 147	08/21/18 13:53	08/27/18 04:17	1
13C-1,2,3,7,8-PeCDD	59		25 - 181	08/21/18 13:53	08/27/18 04:17	1
13C-1,2,3,7,8-PeCDF	59		24 - 185	08/21/18 13:53	08/27/18 04:17	1
13C-2,3,4,6,7,8-HxCDF	68		28 - 136	08/21/18 13:53	08/27/18 04:17	1
13C-2,3,4,7,8-PeCDF	58		21 - 178	08/21/18 13:53	08/27/18 04:17	1
13C-2,3,7,8-TCDD	66		25 - 164	08/21/18 13:53	08/27/18 04:17	1
13C-2,3,7,8-TCDF	63		24 - 169	08/21/18 13:53	08/27/18 04:17	1
13C-OCDD	59		17 - 157	08/21/18 13:53	08/27/18 04:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	126		35 - 197	08/21/18 13:53	08/27/18 04:17	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S103-0to2

Date Collected: 08/09/18 15:30

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-7

Matrix: Solid

Percent Solids: 49.3

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	0.18	B	0.0050	0.00097	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
1,2,3,4,6,7,8-HpCDF	0.039	B	0.0050	0.00024	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
1,2,3,4,7,8,9-HpCDF	0.0066	B	0.0050	0.00026	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
1,2,3,4,7,8-HxCDD	0.0013	J q B	0.0050	0.00027	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
1,2,3,4,7,8-HxCDF	0.032		0.0050	0.00048	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
1,2,3,6,7,8-HxCDD	0.011	B	0.0050	0.00025	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
1,2,3,6,7,8-HxCDF	0.0081		0.0050	0.00048	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
1,2,3,7,8,9-HxCDD	0.0049	J B	0.0050	0.00024	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
1,2,3,7,8,9-HxCDF	0.00080	J B	0.0050	0.00026	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
1,2,3,7,8-PeCDD	0.0011	J	0.0050	0.000091	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
1,2,3,7,8-PeCDF	0.017	B	0.0050	0.00026	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
2,3,4,6,7,8-HxCDF	0.0014	J	0.0050	0.00039	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
2,3,4,7,8-PeCDF	0.0063		0.0050	0.00027	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
2,3,7,8-TCDD	0.00081	J	0.00099	0.000055	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
OCDD	1.7	B	0.0099	0.00045	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1
OCDF	0.11	B	0.0099	0.000057	ug/Kg	☼	08/21/18 13:53	08/27/18 05:03	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	55		23 - 140	08/21/18 13:53	08/27/18 05:03	1
13C-1,2,3,4,6,7,8-HpCDF	51		28 - 143	08/21/18 13:53	08/27/18 05:03	1
13C-1,2,3,4,7,8,9-HpCDF	51		26 - 138	08/21/18 13:53	08/27/18 05:03	1
13C-1,2,3,4,7,8-HxCDD	55		32 - 141	08/21/18 13:53	08/27/18 05:03	1
13C-1,2,3,4,7,8-HxCDF	58		26 - 152	08/21/18 13:53	08/27/18 05:03	1
13C-1,2,3,6,7,8-HxCDD	55		28 - 130	08/21/18 13:53	08/27/18 05:03	1
13C-1,2,3,6,7,8-HxCDF	58		26 - 123	08/21/18 13:53	08/27/18 05:03	1
13C-1,2,3,7,8,9-HxCDF	63		29 - 147	08/21/18 13:53	08/27/18 05:03	1
13C-1,2,3,7,8-PeCDD	56		25 - 181	08/21/18 13:53	08/27/18 05:03	1
13C-1,2,3,7,8-PeCDF	56		24 - 185	08/21/18 13:53	08/27/18 05:03	1
13C-2,3,4,6,7,8-HxCDF	60		28 - 136	08/21/18 13:53	08/27/18 05:03	1
13C-2,3,4,7,8-PeCDF	56		21 - 178	08/21/18 13:53	08/27/18 05:03	1
13C-2,3,7,8-TCDD	62		25 - 164	08/21/18 13:53	08/27/18 05:03	1
13C-OCDD	42		17 - 157	08/21/18 13:53	08/27/18 05:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	125		35 - 197	08/21/18 13:53	08/27/18 05:03	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.016	B	0.00099	0.00040	ug/Kg	☼	08/21/18 13:53	08/29/18 07:09	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	67		24 - 169	08/21/18 13:53	08/29/18 07:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	114		35 - 197	08/21/18 13:53	08/29/18 07:09	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S103-2to4

Date Collected: 08/09/18 15:35

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-8

Matrix: Solid

Percent Solids: 51.4

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	0.17	B	0.0048	0.00087	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
1,2,3,4,6,7,8-HpCDF	0.062	B	0.0048	0.00032	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
1,2,3,4,7,8,9-HpCDF	0.015	B	0.0048	0.00036	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
1,2,3,4,7,8-HxCDD	0.0018	J B	0.0048	0.00027	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
1,2,3,4,7,8-HxCDF	0.080		0.0048	0.00047	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
1,2,3,6,7,8-HxCDD	0.010	B	0.0048	0.00026	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
1,2,3,6,7,8-HxCDF	0.021		0.0048	0.00044	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
1,2,3,7,8,9-HxCDD	0.0037	J B	0.0048	0.00024	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
1,2,3,7,8,9-HxCDF	0.0016	J B	0.0048	0.00024	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
1,2,3,7,8-PeCDD	0.0012	J	0.0048	0.000094	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
1,2,3,7,8-PeCDF	0.052	B	0.0048	0.00059	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
2,3,4,6,7,8-HxCDF	0.0038	J	0.0048	0.00037	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
2,3,4,7,8-PeCDF	0.023		0.0048	0.00062	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
2,3,7,8-TCDD	0.00068	J	0.00095	0.000067	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
OCDD	1.7	B	0.0095	0.00044	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
OCDF	0.14	B	0.0095	0.000066	ug/Kg	☼	08/21/18 13:53	08/27/18 05:49	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	56		23 - 140				08/21/18 13:53	08/27/18 05:49	1
13C-1,2,3,4,6,7,8-HpCDF	53		28 - 143				08/21/18 13:53	08/27/18 05:49	1
13C-1,2,3,4,7,8,9-HpCDF	53		26 - 138				08/21/18 13:53	08/27/18 05:49	1
13C-1,2,3,4,7,8-HxCDD	58		32 - 141				08/21/18 13:53	08/27/18 05:49	1
13C-1,2,3,4,7,8-HxCDF	59		26 - 152				08/21/18 13:53	08/27/18 05:49	1
13C-1,2,3,6,7,8-HxCDD	56		28 - 130				08/21/18 13:53	08/27/18 05:49	1
13C-1,2,3,6,7,8-HxCDF	62		26 - 123				08/21/18 13:53	08/27/18 05:49	1
13C-1,2,3,7,8,9-HxCDF	63		29 - 147				08/21/18 13:53	08/27/18 05:49	1
13C-1,2,3,7,8-PeCDD	56		25 - 181				08/21/18 13:53	08/27/18 05:49	1
13C-1,2,3,7,8-PeCDF	57		24 - 185				08/21/18 13:53	08/27/18 05:49	1
13C-2,3,4,6,7,8-HxCDF	61		28 - 136				08/21/18 13:53	08/27/18 05:49	1
13C-2,3,4,7,8-PeCDF	58		21 - 178				08/21/18 13:53	08/27/18 05:49	1
13C-2,3,7,8-TCDD	63		25 - 164				08/21/18 13:53	08/27/18 05:49	1
13C-OCDD	43		17 - 157				08/21/18 13:53	08/27/18 05:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	126		35 - 197				08/21/18 13:53	08/27/18 05:49	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.041	B	0.00095	0.00045	ug/Kg	☼	08/21/18 13:53	08/29/18 07:47	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	63		24 - 169				08/21/18 13:53	08/29/18 07:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	111		35 - 197				08/21/18 13:53	08/29/18 07:47	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S103-4to6

Date Collected: 08/09/18 15:40

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-9

Matrix: Solid

Percent Solids: 50.4

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	0.13		0.0049	0.0026	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
1,2,3,4,6,7,8-HpCDF	0.031		0.0049	0.00076	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
1,2,3,4,7,8,9-HpCDF	0.0091		0.0049	0.0011	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
1,2,3,4,7,8-HxCDD	0.0016	J	0.0049	0.00035	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
1,2,3,4,7,8-HxCDF	0.069		0.0049	0.00091	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
1,2,3,6,7,8-HxCDD	0.0080		0.0049	0.00034	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
1,2,3,6,7,8-HxCDF	0.017		0.0049	0.00086	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
1,2,3,7,8,9-HxCDD	0.0046	J	0.0049	0.00032	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
1,2,3,7,8,9-HxCDF	0.0012	J	0.0049	0.00084	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
1,2,3,7,8-PeCDD	0.00099	J q	0.0049	0.00045	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
1,2,3,7,8-PeCDF	0.044		0.0049	0.00083	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
2,3,4,6,7,8-HxCDF	0.0031	J	0.0049	0.00078	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
2,3,4,7,8-PeCDF	0.019		0.0049	0.00080	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
2,3,7,8-TCDD	0.0013		0.00099	0.00026	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
OCDD	1.2		0.0099	0.0014	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1
OCDF	0.067		0.0099	0.00035	ug/Kg	☼	08/23/18 10:28	08/28/18 23:33	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	57		23 - 140	08/23/18 10:28	08/28/18 23:33	1
13C-1,2,3,4,6,7,8-HpCDF	49		28 - 143	08/23/18 10:28	08/28/18 23:33	1
13C-1,2,3,4,7,8,9-HpCDF	52		26 - 138	08/23/18 10:28	08/28/18 23:33	1
13C-1,2,3,4,7,8-HxCDD	56		32 - 141	08/23/18 10:28	08/28/18 23:33	1
13C-1,2,3,4,7,8-HxCDF	54		26 - 152	08/23/18 10:28	08/28/18 23:33	1
13C-1,2,3,6,7,8-HxCDD	55		28 - 130	08/23/18 10:28	08/28/18 23:33	1
13C-1,2,3,6,7,8-HxCDF	56		26 - 123	08/23/18 10:28	08/28/18 23:33	1
13C-1,2,3,7,8,9-HxCDF	60		29 - 147	08/23/18 10:28	08/28/18 23:33	1
13C-1,2,3,7,8-PeCDD	65		25 - 181	08/23/18 10:28	08/28/18 23:33	1
13C-1,2,3,7,8-PeCDF	62		24 - 185	08/23/18 10:28	08/28/18 23:33	1
13C-2,3,4,6,7,8-HxCDF	55		28 - 136	08/23/18 10:28	08/28/18 23:33	1
13C-2,3,4,7,8-PeCDF	64		21 - 178	08/23/18 10:28	08/28/18 23:33	1
13C-2,3,7,8-TCDD	62		25 - 164	08/23/18 10:28	08/28/18 23:33	1
13C-OCDD	60		17 - 157	08/23/18 10:28	08/28/18 23:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	133		35 - 197	08/23/18 10:28	08/28/18 23:33	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.039		0.00099	0.00074	ug/Kg	☼	08/23/18 10:28	08/30/18 05:38	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	78		24 - 169	08/23/18 10:28	08/30/18 05:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	122		35 - 197	08/23/18 10:28	08/30/18 05:38	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S103-6to8

Lab Sample ID: 580-79504-10

Date Collected: 08/09/18 15:45

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 53.5

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	0.17	B	0.0046	0.00047	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
1,2,3,4,6,7,8-HpCDF	0.042	B	0.0046	0.00032	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
1,2,3,4,7,8,9-HpCDF	0.0084	B	0.0046	0.00053	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
1,2,3,4,7,8-HxCDD	0.0019	J	0.0046	0.00029	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
1,2,3,4,7,8-HxCDF	0.041		0.0046	0.00038	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
1,2,3,6,7,8-HxCDD	0.011		0.0046	0.00031	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
1,2,3,6,7,8-HxCDF	0.011		0.0046	0.00039	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
1,2,3,7,8,9-HxCDD	0.0058		0.0046	0.00027	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
1,2,3,7,8,9-HxCDF	0.0014	J B	0.0046	0.00026	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
1,2,3,7,8-PeCDD	0.0014	J	0.0046	0.00011	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
1,2,3,7,8-PeCDF	0.024	B	0.0046	0.00019	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
2,3,4,6,7,8-HxCDF	0.0021	J	0.0046	0.00029	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
2,3,4,7,8-PeCDF	0.0093		0.0046	0.00017	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
2,3,7,8-TCDD	0.00083	J	0.00092	0.000046	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
OCDD	1.7	B	0.0092	0.00040	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1
OCDF	0.10	B	0.0092	0.000097	ug/Kg	☼	08/22/18 13:10	08/27/18 13:13	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	33		23 - 140	08/22/18 13:10	08/27/18 13:13	1
13C-1,2,3,4,6,7,8-HpCDF	31		28 - 143	08/22/18 13:10	08/27/18 13:13	1
13C-1,2,3,4,7,8,9-HpCDF	26		26 - 138	08/22/18 13:10	08/27/18 13:13	1
13C-1,2,3,4,7,8-HxCDD	52		32 - 141	08/22/18 13:10	08/27/18 13:13	1
13C-1,2,3,4,7,8-HxCDF	73		26 - 152	08/22/18 13:10	08/27/18 13:13	1
13C-1,2,3,6,7,8-HxCDD	34		28 - 130	08/22/18 13:10	08/27/18 13:13	1
13C-1,2,3,6,7,8-HxCDF	67		26 - 123	08/22/18 13:10	08/27/18 13:13	1
13C-1,2,3,7,8,9-HxCDF	51		29 - 147	08/22/18 13:10	08/27/18 13:13	1
13C-1,2,3,7,8-PeCDD	64		25 - 181	08/22/18 13:10	08/27/18 13:13	1
13C-1,2,3,7,8-PeCDF	52		24 - 185	08/22/18 13:10	08/27/18 13:13	1
13C-2,3,4,6,7,8-HxCDF	65		28 - 136	08/22/18 13:10	08/27/18 13:13	1
13C-2,3,4,7,8-PeCDF	69		21 - 178	08/22/18 13:10	08/27/18 13:13	1
13C-2,3,7,8-TCDD	73		25 - 164	08/22/18 13:10	08/27/18 13:13	1
13C-OCDD	34		17 - 157	08/22/18 13:10	08/27/18 13:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	154		35 - 197	08/22/18 13:10	08/27/18 13:13	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.025	B	0.00092	0.00018	ug/Kg	☼	08/22/18 13:10	08/29/18 15:35	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	74		24 - 169	08/22/18 13:10	08/29/18 15:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	122		35 - 197	08/22/18 13:10	08/29/18 15:35	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S103-8to9.7

Lab Sample ID: 580-79504-11

Date Collected: 08/09/18 15:50

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 70.1

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	0.037	B	0.0035	0.00018	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
1,2,3,4,6,7,8-HpCDF	0.015	B	0.0035	0.00015	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
1,2,3,4,7,8,9-HpCDF	0.0031	J B	0.0035	0.00016	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
1,2,3,4,7,8-HxCDD	0.00034	J	0.0035	0.000066	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
1,2,3,4,7,8-HxCDF	0.013		0.0035	0.00012	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
1,2,3,6,7,8-HxCDD	0.0016	J	0.0035	0.000063	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
1,2,3,6,7,8-HxCDF	0.0035		0.0035	0.00012	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
1,2,3,7,8,9-HxCDD	0.00097	J	0.0035	0.000059	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
1,2,3,7,8,9-HxCDF	0.00096	J B	0.0035	0.000057	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
1,2,3,7,8-PeCDD	0.00021	J	0.0035	0.000042	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
1,2,3,7,8-PeCDF	0.0075	B	0.0035	0.00010	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
2,3,4,6,7,8-HxCDF	0.00060	J	0.0035	0.000091	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
2,3,4,7,8-PeCDF	0.0029	J	0.0035	0.00012	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
2,3,7,8-TCDD	0.00015	J q	0.00070	0.000023	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
OCDD	0.46	B	0.0070	0.00019	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1
OCDF	0.028	B	0.0070	0.000060	ug/Kg	☼	08/22/18 13:10	08/27/18 13:59	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	35		23 - 140	08/22/18 13:10	08/27/18 13:59	1
13C-1,2,3,4,6,7,8-HpCDF	34		28 - 143	08/22/18 13:10	08/27/18 13:59	1
13C-1,2,3,4,7,8,9-HpCDF	37		26 - 138	08/22/18 13:10	08/27/18 13:59	1
13C-1,2,3,4,7,8-HxCDD	43		32 - 141	08/22/18 13:10	08/27/18 13:59	1
13C-1,2,3,4,7,8-HxCDF	45		26 - 152	08/22/18 13:10	08/27/18 13:59	1
13C-1,2,3,6,7,8-HxCDD	43		28 - 130	08/22/18 13:10	08/27/18 13:59	1
13C-1,2,3,6,7,8-HxCDF	46		26 - 123	08/22/18 13:10	08/27/18 13:59	1
13C-1,2,3,7,8,9-HxCDF	53		29 - 147	08/22/18 13:10	08/27/18 13:59	1
13C-1,2,3,7,8-PeCDD	48		25 - 181	08/22/18 13:10	08/27/18 13:59	1
13C-1,2,3,7,8-PeCDF	48		24 - 185	08/22/18 13:10	08/27/18 13:59	1
13C-2,3,4,6,7,8-HxCDF	51		28 - 136	08/22/18 13:10	08/27/18 13:59	1
13C-2,3,4,7,8-PeCDF	48		21 - 178	08/22/18 13:10	08/27/18 13:59	1
13C-2,3,7,8-TCDD	56		25 - 164	08/22/18 13:10	08/27/18 13:59	1
13C-OCDD	29		17 - 157	08/22/18 13:10	08/27/18 13:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	125		35 - 197	08/22/18 13:10	08/27/18 13:59	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0064	B	0.00070	0.00014	ug/Kg	☼	08/22/18 13:10	08/29/18 16:13	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	69		24 - 169	08/22/18 13:10	08/29/18 16:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	133		35 - 197	08/22/18 13:10	08/29/18 16:13	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S103-9.7to10.7

Lab Sample ID: 580-79504-12

Date Collected: 08/09/18 15:55

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 72.8

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	0.0039	B	0.0035	0.000047	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
1,2,3,4,6,7,8-HpCDF	0.00070	J q B	0.0035	0.000059	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
1,2,3,4,7,8,9-HpCDF	0.00051	J B	0.0035	0.000065	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
1,2,3,4,7,8-HxCDD	0.00012	J q	0.0035	0.000035	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
1,2,3,4,7,8-HxCDF	0.00059	J	0.0035	0.000037	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
1,2,3,6,7,8-HxCDD	0.00024	J	0.0035	0.000033	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
1,2,3,6,7,8-HxCDF	0.00021	J	0.0035	0.000038	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
1,2,3,7,8,9-HxCDD	0.00025	J	0.0035	0.000031	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
1,2,3,7,8,9-HxCDF	0.00058	J B	0.0035	0.000020	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
1,2,3,7,8-PeCDD	0.000068	J	0.0035	0.000023	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
1,2,3,7,8-PeCDF	0.00034	J B	0.0035	0.000016	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
2,3,4,6,7,8-HxCDF	ND		0.0035	0.000031	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
2,3,4,7,8-PeCDF	0.00014	J	0.0035	0.000017	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
2,3,7,8-TCDD	ND		0.00069	0.000048	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
2,3,7,8-TCDF	0.00027	J B	0.00069	0.0000099	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
OCDD	0.061	B	0.0069	0.000089	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1
OCDF	0.0023	J B	0.0069	0.000036	ug/Kg	✱	08/22/18 13:10	08/27/18 14:45	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	44		23 - 140	08/22/18 13:10	08/27/18 14:45	1
13C-1,2,3,4,6,7,8-HpCDF	42		28 - 143	08/22/18 13:10	08/27/18 14:45	1
13C-1,2,3,4,7,8,9-HpCDF	45		26 - 138	08/22/18 13:10	08/27/18 14:45	1
13C-1,2,3,4,7,8-HxCDD	48		32 - 141	08/22/18 13:10	08/27/18 14:45	1
13C-1,2,3,4,7,8-HxCDF	50		26 - 152	08/22/18 13:10	08/27/18 14:45	1
13C-1,2,3,6,7,8-HxCDD	47		28 - 130	08/22/18 13:10	08/27/18 14:45	1
13C-1,2,3,6,7,8-HxCDF	50		26 - 123	08/22/18 13:10	08/27/18 14:45	1
13C-1,2,3,7,8,9-HxCDF	55		29 - 147	08/22/18 13:10	08/27/18 14:45	1
13C-1,2,3,7,8-PeCDD	48		25 - 181	08/22/18 13:10	08/27/18 14:45	1
13C-1,2,3,7,8-PeCDF	50		24 - 185	08/22/18 13:10	08/27/18 14:45	1
13C-2,3,4,6,7,8-HxCDF	53		28 - 136	08/22/18 13:10	08/27/18 14:45	1
13C-2,3,4,7,8-PeCDF	52		21 - 178	08/22/18 13:10	08/27/18 14:45	1
13C-2,3,7,8-TCDD	59		25 - 164	08/22/18 13:10	08/27/18 14:45	1
13C-2,3,7,8-TCDF	61		24 - 169	08/22/18 13:10	08/27/18 14:45	1
13C-OCDD	32		17 - 157	08/22/18 13:10	08/27/18 14:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	126		35 - 197	08/22/18 13:10	08/27/18 14:45	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S103-10.7to13.4

Lab Sample ID: 580-79504-13

Date Collected: 08/09/18 16:00

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 73.7

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	0.0015	J B	0.0034	0.000033	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
1,2,3,4,6,7,8-HpCDF	0.00022	J q B	0.0034	0.00010	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
1,2,3,4,7,8,9-HpCDF	0.00029	J B	0.0034	0.000090	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
1,2,3,4,7,8-HxCDD	0.00013	J	0.0034	0.000024	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
1,2,3,4,7,8-HxCDF	0.00014	J	0.0034	0.000020	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
1,2,3,6,7,8-HxCDD	0.00010	J	0.0034	0.000022	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
1,2,3,6,7,8-HxCDF	0.000062	J	0.0034	0.000021	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
1,2,3,7,8,9-HxCDD	0.00016	J	0.0034	0.000021	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
1,2,3,7,8,9-HxCDF	0.00046	J B	0.0034	0.000011	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
1,2,3,7,8-PeCDD	0.000026	J q	0.0034	0.000016	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
1,2,3,7,8-PeCDF	0.000094	J B	0.0034	0.000010	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
2,3,4,6,7,8-HxCDF	ND		0.0034	0.000017	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
2,3,4,7,8-PeCDF	0.000034	J	0.0034	0.000011	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
2,3,7,8-TCDD	ND		0.00068	0.000027	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
2,3,7,8-TCDF	0.000045	J B	0.00068	0.000049	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
OCDD	0.028	B	0.0068	0.000043	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1
OCDF	0.00077	J B	0.0068	0.000016	ug/Kg	✱	08/22/18 13:10	08/27/18 15:31	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	68		23 - 140	08/22/18 13:10	08/27/18 15:31	1
13C-1,2,3,4,6,7,8-HpCDF	53		28 - 143	08/22/18 13:10	08/27/18 15:31	1
13C-1,2,3,4,7,8,9-HpCDF	69		26 - 138	08/22/18 13:10	08/27/18 15:31	1
13C-1,2,3,4,7,8-HxCDD	63		32 - 141	08/22/18 13:10	08/27/18 15:31	1
13C-1,2,3,4,7,8-HxCDF	68		26 - 152	08/22/18 13:10	08/27/18 15:31	1
13C-1,2,3,6,7,8-HxCDD	65		28 - 130	08/22/18 13:10	08/27/18 15:31	1
13C-1,2,3,6,7,8-HxCDF	68		26 - 123	08/22/18 13:10	08/27/18 15:31	1
13C-1,2,3,7,8,9-HxCDF	74		29 - 147	08/22/18 13:10	08/27/18 15:31	1
13C-1,2,3,7,8-PeCDD	61		25 - 181	08/22/18 13:10	08/27/18 15:31	1
13C-1,2,3,7,8-PeCDF	61		24 - 185	08/22/18 13:10	08/27/18 15:31	1
13C-2,3,4,6,7,8-HxCDF	70		28 - 136	08/22/18 13:10	08/27/18 15:31	1
13C-2,3,4,7,8-PeCDF	61		21 - 178	08/22/18 13:10	08/27/18 15:31	1
13C-2,3,7,8-TCDD	69		25 - 164	08/22/18 13:10	08/27/18 15:31	1
13C-2,3,7,8-TCDF	68		24 - 169	08/22/18 13:10	08/27/18 15:31	1
13C-OCDD	50		17 - 157	08/22/18 13:10	08/27/18 15:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	124		35 - 197	08/22/18 13:10	08/27/18 15:31	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S176-0to2

Date Collected: 08/08/18 16:20

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-14

Matrix: Solid

Percent Solids: 61.1

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	0.064	B	0.0041	0.00032	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
1,2,3,4,6,7,8-HpCDF	0.050	B	0.0041	0.00035	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
1,2,3,4,7,8,9-HpCDF	ND		0.0041	0.00042	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
1,2,3,4,7,8-HxCDD	0.00057	J q	0.0041	0.000089	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
1,2,3,4,7,8-HxCDF	0.0013	J q	0.0041	0.00040	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
1,2,3,6,7,8-HxCDD	0.0027	J	0.0041	0.000086	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
1,2,3,6,7,8-HxCDF	0.0042		0.0041	0.00039	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
1,2,3,7,8,9-HxCDD	0.0012	J	0.0041	0.000081	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
1,2,3,7,8,9-HxCDF	0.00062	J B q	0.0041	0.00021	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
1,2,3,7,8-PeCDD	0.00041	J	0.0041	0.000069	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
1,2,3,7,8-PeCDF	0.00062	J B	0.0041	0.00028	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
2,3,4,6,7,8-HxCDF	0.00085	J	0.0041	0.00031	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
2,3,4,7,8-PeCDF	0.00057	J	0.0041	0.00032	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
2,3,7,8-TCDD	0.00018	J q	0.00082	0.000025	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
OCDD	0.92	B	0.0082	0.00023	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
OCDF	0.14	B	0.0082	0.000061	ug/Kg	☼	08/22/18 13:10	08/27/18 16:17	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	43		23 - 140				08/22/18 13:10	08/27/18 16:17	1
13C-1,2,3,4,6,7,8-HpCDF	42		28 - 143				08/22/18 13:10	08/27/18 16:17	1
13C-1,2,3,4,7,8,9-HpCDF	39		26 - 138				08/22/18 13:10	08/27/18 16:17	1
13C-1,2,3,4,7,8-HxCDD	51		32 - 141				08/22/18 13:10	08/27/18 16:17	1
13C-1,2,3,4,7,8-HxCDF	52		26 - 152				08/22/18 13:10	08/27/18 16:17	1
13C-1,2,3,6,7,8-HxCDD	51		28 - 130				08/22/18 13:10	08/27/18 16:17	1
13C-1,2,3,6,7,8-HxCDF	55		26 - 123				08/22/18 13:10	08/27/18 16:17	1
13C-1,2,3,7,8,9-HxCDF	58		29 - 147				08/22/18 13:10	08/27/18 16:17	1
13C-1,2,3,7,8-PeCDD	55		25 - 181				08/22/18 13:10	08/27/18 16:17	1
13C-1,2,3,7,8-PeCDF	57		24 - 185				08/22/18 13:10	08/27/18 16:17	1
13C-2,3,4,6,7,8-HxCDF	58		28 - 136				08/22/18 13:10	08/27/18 16:17	1
13C-2,3,4,7,8-PeCDF	56		21 - 178				08/22/18 13:10	08/27/18 16:17	1
13C-2,3,7,8-TCDD	62		25 - 164				08/22/18 13:10	08/27/18 16:17	1
13C-OCDD	35		17 - 157				08/22/18 13:10	08/27/18 16:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	122		35 - 197				08/22/18 13:10	08/27/18 16:17	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.00051	J B	0.00082	0.00027	ug/Kg	☼	08/22/18 13:10	08/29/18 16:51	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	76		24 - 169				08/22/18 13:10	08/29/18 16:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	119		35 - 197				08/22/18 13:10	08/29/18 16:51	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S176-2to4

Lab Sample ID: 580-79504-15

Date Collected: 08/08/18 16:25

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 59.2

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	0.073	B	0.0041	0.00030	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
1,2,3,4,6,7,8-HpCDF	0.075	B	0.0041	0.00035	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
1,2,3,4,7,8,9-HpCDF	ND		0.0041	0.00061	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
1,2,3,4,7,8-HxCDD	0.00073	J	0.0041	0.00010	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
1,2,3,4,7,8-HxCDF	ND		0.0041	0.00091	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
1,2,3,6,7,8-HxCDD	0.0039	J	0.0041	0.00010	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
1,2,3,6,7,8-HxCDF	0.0053		0.0041	0.00089	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
1,2,3,7,8,9-HxCDD	0.0015	J	0.0041	0.000094	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
1,2,3,7,8,9-HxCDF	ND		0.0041	0.00055	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
1,2,3,7,8-PeCDD	0.00061	J	0.0041	0.00011	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
1,2,3,7,8-PeCDF	ND		0.0041	0.00053	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
2,3,4,6,7,8-HxCDF	0.0012	J	0.0041	0.00073	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
2,3,4,7,8-PeCDF	0.0012	J	0.0041	0.00056	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
2,3,7,8-TCDD	0.00026	J q	0.00083	0.000034	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
OCDD	1.1	B	0.0083	0.00031	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1
OCDF	0.18	B	0.0083	0.00012	ug/Kg	☼	08/22/18 13:10	08/27/18 17:03	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	32		23 - 140	08/22/18 13:10	08/27/18 17:03	1
13C-1,2,3,4,6,7,8-HpCDF	31		28 - 143	08/22/18 13:10	08/27/18 17:03	1
13C-1,2,3,4,7,8,9-HpCDF	21 *		26 - 138	08/22/18 13:10	08/27/18 17:03	1
13C-1,2,3,4,7,8-HxCDD	59		32 - 141	08/22/18 13:10	08/27/18 17:03	1
13C-1,2,3,4,7,8-HxCDF	65		26 - 152	08/22/18 13:10	08/27/18 17:03	1
13C-1,2,3,6,7,8-HxCDD	55		28 - 130	08/22/18 13:10	08/27/18 17:03	1
13C-1,2,3,6,7,8-HxCDF	67		26 - 123	08/22/18 13:10	08/27/18 17:03	1
13C-1,2,3,7,8,9-HxCDF	57		29 - 147	08/22/18 13:10	08/27/18 17:03	1
13C-1,2,3,7,8-PeCDD	64		25 - 181	08/22/18 13:10	08/27/18 17:03	1
13C-1,2,3,7,8-PeCDF	64		24 - 185	08/22/18 13:10	08/27/18 17:03	1
13C-2,3,4,6,7,8-HxCDF	65		28 - 136	08/22/18 13:10	08/27/18 17:03	1
13C-2,3,4,7,8-PeCDF	66		21 - 178	08/22/18 13:10	08/27/18 17:03	1
13C-2,3,7,8-TCDD	61		25 - 164	08/22/18 13:10	08/27/18 17:03	1
13C-OCDD	27		17 - 157	08/22/18 13:10	08/27/18 17:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	120		35 - 197	08/22/18 13:10	08/27/18 17:03	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0012	B	0.00083	0.00039	ug/Kg	☼	08/22/18 13:10	08/29/18 17:29	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	75		24 - 169	08/22/18 13:10	08/29/18 17:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	120		35 - 197	08/22/18 13:10	08/29/18 17:29	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S176-4to5.5

Lab Sample ID: 580-79504-16

Date Collected: 08/08/18 16:30

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 66.0

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	0.016	B	0.0037	0.00014	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
1,2,3,4,6,7,8-HpCDF	0.028	B	0.0037	0.00017	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
1,2,3,4,7,8,9-HpCDF	ND		0.0037	0.00019	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
1,2,3,4,7,8-HxCDD	0.00022	J	0.0037	0.000055	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
1,2,3,4,7,8-HxCDF	ND		0.0037	0.00020	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
1,2,3,6,7,8-HxCDD	0.00092	J	0.0037	0.000050	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
1,2,3,6,7,8-HxCDF	0.0016	J	0.0037	0.00020	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
1,2,3,7,8,9-HxCDD	0.00049	J	0.0037	0.000048	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
1,2,3,7,8,9-HxCDF	0.00066	J B	0.0037	0.00011	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
1,2,3,7,8-PeCDD	0.00017	J	0.0037	0.000043	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
1,2,3,7,8-PeCDF	0.00019	J B q	0.0037	0.00012	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
2,3,4,6,7,8-HxCDF	0.00046	J	0.0037	0.00017	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
2,3,4,7,8-PeCDF	ND		0.0037	0.00013	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
2,3,7,8-TCDD	ND		0.00075	0.000023	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
2,3,7,8-TCDF	0.00063	J B	0.00075	0.00016	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
OCDD	0.24	B	0.0075	0.00011	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1
OCDF	0.035	B	0.0075	0.000038	ug/Kg	✱	08/22/18 13:10	08/28/18 21:12	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	48		23 - 140	08/22/18 13:10	08/28/18 21:12	1
13C-1,2,3,4,6,7,8-HpCDF	46		28 - 143	08/22/18 13:10	08/28/18 21:12	1
13C-1,2,3,4,7,8,9-HpCDF	46		26 - 138	08/22/18 13:10	08/28/18 21:12	1
13C-1,2,3,4,7,8-HxCDD	48		32 - 141	08/22/18 13:10	08/28/18 21:12	1
13C-1,2,3,4,7,8-HxCDF	53		26 - 152	08/22/18 13:10	08/28/18 21:12	1
13C-1,2,3,6,7,8-HxCDD	52		28 - 130	08/22/18 13:10	08/28/18 21:12	1
13C-1,2,3,6,7,8-HxCDF	56		26 - 123	08/22/18 13:10	08/28/18 21:12	1
13C-1,2,3,7,8,9-HxCDF	58		29 - 147	08/22/18 13:10	08/28/18 21:12	1
13C-1,2,3,7,8-PeCDD	48		25 - 181	08/22/18 13:10	08/28/18 21:12	1
13C-1,2,3,7,8-PeCDF	52		24 - 185	08/22/18 13:10	08/28/18 21:12	1
13C-2,3,4,6,7,8-HxCDF	56		28 - 136	08/22/18 13:10	08/28/18 21:12	1
13C-2,3,4,7,8-PeCDF	53		21 - 178	08/22/18 13:10	08/28/18 21:12	1
13C-2,3,7,8-TCDD	59		25 - 164	08/22/18 13:10	08/28/18 21:12	1
13C-2,3,7,8-TCDF	61		24 - 169	08/22/18 13:10	08/28/18 21:12	1
13C-OCDD	34		17 - 157	08/22/18 13:10	08/28/18 21:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	124		35 - 197	08/22/18 13:10	08/28/18 21:12	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S176-5.5to7.5

Lab Sample ID: 580-79504-17

Date Collected: 08/08/18 16:35

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 73.6

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	0.0028	J B	0.0034	0.000045	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
1,2,3,4,6,7,8-HpCDF	0.0043	B	0.0034	0.000044	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
1,2,3,4,7,8,9-HpCDF	0.00044	J B	0.0034	0.000045	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
1,2,3,4,7,8-HxCDD	0.00011	J q	0.0034	0.000039	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
1,2,3,4,7,8-HxCDF	0.00025	J	0.0034	0.000058	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
1,2,3,6,7,8-HxCDD	0.00018	J q	0.0034	0.000037	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
1,2,3,6,7,8-HxCDF	ND		0.0034	0.000056	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
1,2,3,7,8,9-HxCDD	0.00015	J	0.0034	0.000035	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
1,2,3,7,8,9-HxCDF	0.00058	J B	0.0034	0.000030	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
1,2,3,7,8-PeCDD	0.000032	J q	0.0034	0.000023	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
1,2,3,7,8-PeCDF	0.000088	J B	0.0034	0.000030	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
2,3,4,6,7,8-HxCDF	0.000080	J	0.0034	0.000049	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
2,3,4,7,8-PeCDF	0.000052	J q	0.0034	0.000031	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
2,3,7,8-TCDD	ND		0.00068	0.000015	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
2,3,7,8-TCDF	0.00010	J B q	0.00068	0.000029	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
OCDD	0.040	B	0.0068	0.000056	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1
OCDF	0.0061	J B	0.0068	0.000033	ug/Kg	☼	08/22/18 13:10	08/28/18 21:58	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	45		23 - 140	08/22/18 13:10	08/28/18 21:58	1
13C-1,2,3,4,6,7,8-HpCDF	42		28 - 143	08/22/18 13:10	08/28/18 21:58	1
13C-1,2,3,4,7,8,9-HpCDF	48		26 - 138	08/22/18 13:10	08/28/18 21:58	1
13C-1,2,3,4,7,8-HxCDD	48		32 - 141	08/22/18 13:10	08/28/18 21:58	1
13C-1,2,3,4,7,8-HxCDF	52		26 - 152	08/22/18 13:10	08/28/18 21:58	1
13C-1,2,3,6,7,8-HxCDD	49		28 - 130	08/22/18 13:10	08/28/18 21:58	1
13C-1,2,3,6,7,8-HxCDF	53		26 - 123	08/22/18 13:10	08/28/18 21:58	1
13C-1,2,3,7,8,9-HxCDF	58		29 - 147	08/22/18 13:10	08/28/18 21:58	1
13C-1,2,3,7,8-PeCDD	50		25 - 181	08/22/18 13:10	08/28/18 21:58	1
13C-1,2,3,7,8-PeCDF	52		24 - 185	08/22/18 13:10	08/28/18 21:58	1
13C-2,3,4,6,7,8-HxCDF	55		28 - 136	08/22/18 13:10	08/28/18 21:58	1
13C-2,3,4,7,8-PeCDF	54		21 - 178	08/22/18 13:10	08/28/18 21:58	1
13C-2,3,7,8-TCDD	61		25 - 164	08/22/18 13:10	08/28/18 21:58	1
13C-2,3,7,8-TCDF	64		24 - 169	08/22/18 13:10	08/28/18 21:58	1
13C-OCDD	29		17 - 157	08/22/18 13:10	08/28/18 21:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	128		35 - 197	08/22/18 13:10	08/28/18 21:58	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S176-7.5to9.5

Lab Sample ID: 580-79504-18

Date Collected: 08/08/18 16:40

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 70.2

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	0.00079	J B	0.0036	0.000023	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
1,2,3,4,6,7,8-HpCDF	0.00077	J B	0.0036	0.000026	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
1,2,3,4,7,8,9-HpCDF	0.00035	J B	0.0036	0.000027	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
1,2,3,4,7,8-HxCDD	0.00010	J q	0.0036	0.000034	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
1,2,3,4,7,8-HxCDF	0.00010	J	0.0036	0.000034	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
1,2,3,6,7,8-HxCDD	0.000061	J	0.0036	0.000032	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
1,2,3,6,7,8-HxCDF	ND		0.0036	0.000034	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
1,2,3,7,8,9-HxCDD	0.00012	J q	0.0036	0.000030	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
1,2,3,7,8,9-HxCDF	0.00059	J B	0.0036	0.000019	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
1,2,3,7,8-PeCDD	ND		0.0036	0.000023	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
1,2,3,7,8-PeCDF	0.000043	J B q	0.0036	0.000018	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
2,3,4,6,7,8-HxCDF	ND		0.0036	0.000030	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
2,3,4,7,8-PeCDF	ND		0.0036	0.000019	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
2,3,7,8-TCDD	ND		0.00072	0.000015	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
2,3,7,8-TCDF	0.000046	J B	0.00072	0.000010	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
OCDD	0.0081	B	0.0072	0.000037	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1
OCDF	0.00064	J B	0.0072	0.000022	ug/Kg	☼	08/22/18 13:10	08/28/18 22:44	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	47		23 - 140	08/22/18 13:10	08/28/18 22:44	1
13C-1,2,3,4,6,7,8-HpCDF	45		28 - 143	08/22/18 13:10	08/28/18 22:44	1
13C-1,2,3,4,7,8,9-HpCDF	49		26 - 138	08/22/18 13:10	08/28/18 22:44	1
13C-1,2,3,4,7,8-HxCDD	49		32 - 141	08/22/18 13:10	08/28/18 22:44	1
13C-1,2,3,4,7,8-HxCDF	54		26 - 152	08/22/18 13:10	08/28/18 22:44	1
13C-1,2,3,6,7,8-HxCDD	49		28 - 130	08/22/18 13:10	08/28/18 22:44	1
13C-1,2,3,6,7,8-HxCDF	55		26 - 123	08/22/18 13:10	08/28/18 22:44	1
13C-1,2,3,7,8,9-HxCDF	58		29 - 147	08/22/18 13:10	08/28/18 22:44	1
13C-1,2,3,7,8-PeCDD	48		25 - 181	08/22/18 13:10	08/28/18 22:44	1
13C-1,2,3,7,8-PeCDF	52		24 - 185	08/22/18 13:10	08/28/18 22:44	1
13C-2,3,4,6,7,8-HxCDF	55		28 - 136	08/22/18 13:10	08/28/18 22:44	1
13C-2,3,4,7,8-PeCDF	53		21 - 178	08/22/18 13:10	08/28/18 22:44	1
13C-2,3,7,8-TCDD	61		25 - 164	08/22/18 13:10	08/28/18 22:44	1
13C-2,3,7,8-TCDF	64		24 - 169	08/22/18 13:10	08/28/18 22:44	1
13C-OCDD	31		17 - 157	08/22/18 13:10	08/28/18 22:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	129		35 - 197	08/22/18 13:10	08/28/18 22:44	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S188-0-1.5

Lab Sample ID: 580-79504-19

Date Collected: 08/08/18 17:00

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 37.9

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	0.28	B	0.0066	0.00072	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
1,2,3,4,6,7,8-HpCDF	0.038	B	0.0066	0.00034	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
1,2,3,4,7,8,9-HpCDF	0.0062	J B	0.0066	0.00056	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
1,2,3,4,7,8-HxCDD	0.0023	J	0.0066	0.00034	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
1,2,3,4,7,8-HxCDF	0.0052	J	0.0066	0.00039	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
1,2,3,6,7,8-HxCDD	0.014		0.0066	0.00034	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
1,2,3,6,7,8-HxCDF	0.0026	J	0.0066	0.00040	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
1,2,3,7,8,9-HxCDD	0.0065	J	0.0066	0.00031	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
1,2,3,7,8,9-HxCDF	0.0015	J B	0.0066	0.00024	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
1,2,3,7,8-PeCDD	0.0015	J	0.0066	0.00027	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
1,2,3,7,8-PeCDF	0.0016	J B	0.0066	0.00020	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
2,3,4,6,7,8-HxCDF	0.0014	J q	0.0066	0.00031	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
2,3,4,7,8-PeCDF	0.0017	J	0.0066	0.00016	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
2,3,7,8-TCDD	0.00095	J	0.0013	0.000087	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
OCDD	2.9	B	0.013	0.00063	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1
OCDF	0.17	B	0.013	0.00017	ug/Kg	☼	08/22/18 13:10	08/28/18 23:30	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	36		23 - 140	08/22/18 13:10	08/28/18 23:30	1
13C-1,2,3,4,6,7,8-HpCDF	34		28 - 143	08/22/18 13:10	08/28/18 23:30	1
13C-1,2,3,4,7,8,9-HpCDF	28		26 - 138	08/22/18 13:10	08/28/18 23:30	1
13C-1,2,3,4,7,8-HxCDD	61		32 - 141	08/22/18 13:10	08/28/18 23:30	1
13C-1,2,3,4,7,8-HxCDF	81		26 - 152	08/22/18 13:10	08/28/18 23:30	1
13C-1,2,3,6,7,8-HxCDD	51		28 - 130	08/22/18 13:10	08/28/18 23:30	1
13C-1,2,3,6,7,8-HxCDF	77		26 - 123	08/22/18 13:10	08/28/18 23:30	1
13C-1,2,3,7,8,9-HxCDF	64		29 - 147	08/22/18 13:10	08/28/18 23:30	1
13C-1,2,3,7,8-PeCDD	70		25 - 181	08/22/18 13:10	08/28/18 23:30	1
13C-1,2,3,7,8-PeCDF	57		24 - 185	08/22/18 13:10	08/28/18 23:30	1
13C-2,3,4,6,7,8-HxCDF	67		28 - 136	08/22/18 13:10	08/28/18 23:30	1
13C-2,3,4,7,8-PeCDF	80		21 - 178	08/22/18 13:10	08/28/18 23:30	1
13C-2,3,7,8-TCDD	66		25 - 164	08/22/18 13:10	08/28/18 23:30	1
13C-OCDD	33		17 - 157	08/22/18 13:10	08/28/18 23:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	144		35 - 197	08/22/18 13:10	08/28/18 23:30	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.013	B	0.0013	0.00032	ug/Kg	☼	08/22/18 13:10	08/29/18 18:07	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	72		24 - 169	08/22/18 13:10	08/29/18 18:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	123		35 - 197	08/22/18 13:10	08/29/18 18:07	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S198-0to2

Lab Sample ID: 580-79504-20

Date Collected: 08/08/18 14:45

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 45.2

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	0.50	B	0.0056	0.0019	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
1,2,3,4,6,7,8-HpCDF	0.13	B	0.0056	0.0011	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
1,2,3,4,7,8,9-HpCDF	0.0078	B	0.0056	0.0012	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
1,2,3,4,7,8-HxCDD	0.0039	J	0.0056	0.00047	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
1,2,3,4,7,8-HxCDF	0.011		0.0056	0.00085	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
1,2,3,6,7,8-HxCDD	0.021		0.0056	0.00044	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
1,2,3,6,7,8-HxCDF	0.0072		0.0056	0.00085	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
1,2,3,7,8,9-HxCDD	0.0092		0.0056	0.00042	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
1,2,3,7,8,9-HxCDF	0.00088	J B	0.0056	0.00048	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
1,2,3,7,8-PeCDD	0.0016	J q	0.0056	0.00037	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
1,2,3,7,8-PeCDF	0.0038	J B	0.0056	0.00036	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
2,3,4,6,7,8-HxCDF	0.0024	J	0.0056	0.00076	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
2,3,4,7,8-PeCDF	0.0029	J	0.0056	0.00040	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
2,3,7,8-TCDD	0.0011		0.0011	0.000043	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
OCDD	5.4	E B	0.011	0.0012	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1
OCDF	0.54	B	0.011	0.00012	ug/Kg	☼	08/22/18 13:10	08/29/18 06:08	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	64		23 - 140	08/22/18 13:10	08/29/18 06:08	1
13C-1,2,3,4,6,7,8-HpCDF	60		28 - 143	08/22/18 13:10	08/29/18 06:08	1
13C-1,2,3,4,7,8,9-HpCDF	59		26 - 138	08/22/18 13:10	08/29/18 06:08	1
13C-1,2,3,4,7,8-HxCDD	61		32 - 141	08/22/18 13:10	08/29/18 06:08	1
13C-1,2,3,4,7,8-HxCDF	65		26 - 152	08/22/18 13:10	08/29/18 06:08	1
13C-1,2,3,6,7,8-HxCDD	61		28 - 130	08/22/18 13:10	08/29/18 06:08	1
13C-1,2,3,6,7,8-HxCDF	65		26 - 123	08/22/18 13:10	08/29/18 06:08	1
13C-1,2,3,7,8,9-HxCDF	67		29 - 147	08/22/18 13:10	08/29/18 06:08	1
13C-1,2,3,7,8-PeCDD	57		25 - 181	08/22/18 13:10	08/29/18 06:08	1
13C-1,2,3,7,8-PeCDF	58		24 - 185	08/22/18 13:10	08/29/18 06:08	1
13C-2,3,4,6,7,8-HxCDF	65		28 - 136	08/22/18 13:10	08/29/18 06:08	1
13C-2,3,4,7,8-PeCDF	57		21 - 178	08/22/18 13:10	08/29/18 06:08	1
13C-2,3,7,8-TCDD	66		25 - 164	08/22/18 13:10	08/29/18 06:08	1
13C-OCDD	50		17 - 157	08/22/18 13:10	08/29/18 06:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	123		35 - 197	08/22/18 13:10	08/29/18 06:08	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0043	B	0.0011	0.00051	ug/Kg	☼	08/22/18 13:10	08/30/18 01:13	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	73		24 - 169	08/22/18 13:10	08/30/18 01:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	124		35 - 197	08/22/18 13:10	08/30/18 01:13	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S198-2to4

Lab Sample ID: 580-79504-21

Date Collected: 08/08/18 14:50

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 52.6

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	0.27	B	0.0047	0.00087	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
1,2,3,4,6,7,8-HpCDF	0.12	B	0.0047	0.00086	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
1,2,3,4,7,8,9-HpCDF	0.0054	B	0.0047	0.0014	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
1,2,3,4,7,8-HxCDD	0.0028	J	0.0047	0.00033	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
1,2,3,4,7,8-HxCDF	0.0063		0.0047	0.0012	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
1,2,3,6,7,8-HxCDD	0.012		0.0047	0.00033	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
1,2,3,6,7,8-HxCDF	0.0088		0.0047	0.0012	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
1,2,3,7,8,9-HxCDD	0.0050		0.0047	0.00030	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
1,2,3,7,8,9-HxCDF	0.00080	J B	0.0047	0.00065	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
1,2,3,7,8-PeCDD	0.0012	J q	0.0047	0.00027	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
1,2,3,7,8-PeCDF	0.0017	J B q	0.0047	0.00044	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
2,3,4,6,7,8-HxCDF	ND		0.0047	0.0010	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
2,3,4,7,8-PeCDF	0.0014	J	0.0047	0.00047	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
2,3,7,8-TCDD	0.00080	J q	0.00094	0.000040	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
OCDD	3.5	B	0.0094	0.00067	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
OCDF	0.36	B	0.0094	0.00014	ug/Kg	☼	08/22/18 13:10	08/29/18 06:54	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	38		23 - 140				08/22/18 13:10	08/29/18 06:54	1
13C-1,2,3,4,6,7,8-HpCDF	36		28 - 143				08/22/18 13:10	08/29/18 06:54	1
13C-1,2,3,4,7,8,9-HpCDF	28		26 - 138				08/22/18 13:10	08/29/18 06:54	1
13C-1,2,3,4,7,8-HxCDD	56		32 - 141				08/22/18 13:10	08/29/18 06:54	1
13C-1,2,3,4,7,8-HxCDF	60		26 - 152				08/22/18 13:10	08/29/18 06:54	1
13C-1,2,3,6,7,8-HxCDD	54		28 - 130				08/22/18 13:10	08/29/18 06:54	1
13C-1,2,3,6,7,8-HxCDF	60		26 - 123				08/22/18 13:10	08/29/18 06:54	1
13C-1,2,3,7,8,9-HxCDF	59		29 - 147				08/22/18 13:10	08/29/18 06:54	1
13C-1,2,3,7,8-PeCDD	57		25 - 181				08/22/18 13:10	08/29/18 06:54	1
13C-1,2,3,7,8-PeCDF	59		24 - 185				08/22/18 13:10	08/29/18 06:54	1
13C-2,3,4,6,7,8-HxCDF	62		28 - 136				08/22/18 13:10	08/29/18 06:54	1
13C-2,3,4,7,8-PeCDF	60		21 - 178				08/22/18 13:10	08/29/18 06:54	1
13C-2,3,7,8-TCDD	62		25 - 164				08/22/18 13:10	08/29/18 06:54	1
13C-OCDD	28		17 - 157				08/22/18 13:10	08/29/18 06:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	121		35 - 197				08/22/18 13:10	08/29/18 06:54	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0015	B	0.00094	0.00056	ug/Kg	☼	08/22/18 13:10	08/30/18 01:51	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	82		24 - 169				08/22/18 13:10	08/30/18 01:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	146		35 - 197				08/22/18 13:10	08/30/18 01:51	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S198-2to4D

Lab Sample ID: 580-79504-22

Date Collected: 08/08/18 14:50

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 52.6

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	0.23	B	0.0048	0.00076	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
1,2,3,4,6,7,8-HpCDF	0.11	B	0.0048	0.00079	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
1,2,3,4,7,8,9-HpCDF	0.0047	J B	0.0048	0.0011	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
1,2,3,4,7,8-HxCDD	0.0022	J	0.0048	0.00029	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
1,2,3,4,7,8-HxCDF	0.0059		0.0048	0.00080	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
1,2,3,6,7,8-HxCDD	0.010		0.0048	0.00028	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
1,2,3,6,7,8-HxCDF	0.0078		0.0048	0.00079	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
1,2,3,7,8,9-HxCDD	0.0047	J	0.0048	0.00026	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
1,2,3,7,8,9-HxCDF	0.00090	J B q	0.0048	0.00042	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
1,2,3,7,8-PeCDD	0.0010	J q	0.0048	0.00025	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
1,2,3,7,8-PeCDF	0.0017	J B	0.0048	0.00044	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
2,3,4,6,7,8-HxCDF	0.0015	J q	0.0048	0.00067	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
2,3,4,7,8-PeCDF	0.0015	J	0.0048	0.00047	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
2,3,7,8-TCDD	0.00071	J q	0.00095	0.000036	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
OCDD	3.0	B	0.0095	0.00054	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1
OCDF	0.31	B	0.0095	0.00013	ug/Kg	☼	08/22/18 13:10	08/29/18 07:40	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	37		23 - 140	08/22/18 13:10	08/29/18 07:40	1
13C-1,2,3,4,6,7,8-HpCDF	36		28 - 143	08/22/18 13:10	08/29/18 07:40	1
13C-1,2,3,4,7,8,9-HpCDF	30		26 - 138	08/22/18 13:10	08/29/18 07:40	1
13C-1,2,3,4,7,8-HxCDD	51		32 - 141	08/22/18 13:10	08/29/18 07:40	1
13C-1,2,3,4,7,8-HxCDF	54		26 - 152	08/22/18 13:10	08/29/18 07:40	1
13C-1,2,3,6,7,8-HxCDD	49		28 - 130	08/22/18 13:10	08/29/18 07:40	1
13C-1,2,3,6,7,8-HxCDF	54		26 - 123	08/22/18 13:10	08/29/18 07:40	1
13C-1,2,3,7,8,9-HxCDF	57		29 - 147	08/22/18 13:10	08/29/18 07:40	1
13C-1,2,3,7,8-PeCDD	51		25 - 181	08/22/18 13:10	08/29/18 07:40	1
13C-1,2,3,7,8-PeCDF	53		24 - 185	08/22/18 13:10	08/29/18 07:40	1
13C-2,3,4,6,7,8-HxCDF	56		28 - 136	08/22/18 13:10	08/29/18 07:40	1
13C-2,3,4,7,8-PeCDF	54		21 - 178	08/22/18 13:10	08/29/18 07:40	1
13C-2,3,7,8-TCDD	58		25 - 164	08/22/18 13:10	08/29/18 07:40	1
13C-OCDD	28		17 - 157	08/22/18 13:10	08/29/18 07:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	124		35 - 197	08/22/18 13:10	08/29/18 07:40	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0017	B	0.00095	0.00060	ug/Kg	☼	08/22/18 13:10	08/30/18 02:29	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	70		24 - 169	08/22/18 13:10	08/30/18 02:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	133		35 - 197	08/22/18 13:10	08/30/18 02:29	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S198-4to6

Lab Sample ID: 580-79504-23

Date Collected: 08/08/18 14:55

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 62.2

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	0.13	B	0.0040	0.00051	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
1,2,3,4,6,7,8-HpCDF	0.048	B	0.0040	0.00059	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
1,2,3,4,7,8,9-HpCDF	0.0028	J B	0.0040	0.00072	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
1,2,3,4,7,8-HxCDD	0.0011	J	0.0040	0.00013	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
1,2,3,4,7,8-HxCDF	0.0029	J	0.0040	0.00042	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
1,2,3,6,7,8-HxCDD	0.0053		0.0040	0.00012	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
1,2,3,6,7,8-HxCDF	0.0035	J	0.0040	0.00042	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
1,2,3,7,8,9-HxCDD	0.0023	J	0.0040	0.00012	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
1,2,3,7,8,9-HxCDF	0.00060	J B q	0.0040	0.00023	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
1,2,3,7,8-PeCDD	0.00043	J q	0.0040	0.00016	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
1,2,3,7,8-PeCDF	0.00075	J B	0.0040	0.00018	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
2,3,4,6,7,8-HxCDF	0.00065	J q	0.0040	0.00035	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
2,3,4,7,8-PeCDF	0.00052	J	0.0040	0.00020	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
2,3,7,8-TCDD	0.00030	J q	0.00081	0.000031	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
2,3,7,8-TCDF	0.00078	J B	0.00081	0.00021	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
OCDD	1.6	B	0.0081	0.00036	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1
OCDF	0.21	B	0.0081	0.00011	ug/Kg	✱	08/22/18 13:10	08/29/18 08:26	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	36		23 - 140	08/22/18 13:10	08/29/18 08:26	1
13C-1,2,3,4,6,7,8-HpCDF	35		28 - 143	08/22/18 13:10	08/29/18 08:26	1
13C-1,2,3,4,7,8,9-HpCDF	33		26 - 138	08/22/18 13:10	08/29/18 08:26	1
13C-1,2,3,4,7,8-HxCDD	47		32 - 141	08/22/18 13:10	08/29/18 08:26	1
13C-1,2,3,4,7,8-HxCDF	50		26 - 152	08/22/18 13:10	08/29/18 08:26	1
13C-1,2,3,6,7,8-HxCDD	45		28 - 130	08/22/18 13:10	08/29/18 08:26	1
13C-1,2,3,6,7,8-HxCDF	50		26 - 123	08/22/18 13:10	08/29/18 08:26	1
13C-1,2,3,7,8,9-HxCDF	52		29 - 147	08/22/18 13:10	08/29/18 08:26	1
13C-1,2,3,7,8-PeCDD	51		25 - 181	08/22/18 13:10	08/29/18 08:26	1
13C-1,2,3,7,8-PeCDF	53		24 - 185	08/22/18 13:10	08/29/18 08:26	1
13C-2,3,4,6,7,8-HxCDF	52		28 - 136	08/22/18 13:10	08/29/18 08:26	1
13C-2,3,4,7,8-PeCDF	54		21 - 178	08/22/18 13:10	08/29/18 08:26	1
13C-2,3,7,8-TCDD	57		25 - 164	08/22/18 13:10	08/29/18 08:26	1
13C-2,3,7,8-TCDF	59		24 - 169	08/22/18 13:10	08/29/18 08:26	1
13C-OCDD	27		17 - 157	08/22/18 13:10	08/29/18 08:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	129		35 - 197	08/22/18 13:10	08/29/18 08:26	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S198-6to8

Lab Sample ID: 580-79504-24

Date Collected: 08/08/18 15:00

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 68.3

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	0.010	B	0.0036	0.00019	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
1,2,3,4,6,7,8-HpCDF	0.0034	J B	0.0036	0.00027	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
1,2,3,4,7,8,9-HpCDF	0.00055	J B	0.0036	0.00027	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
1,2,3,4,7,8-HxCDD	0.00027	J	0.0036	0.000063	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
1,2,3,4,7,8-HxCDF	ND		0.0036	0.000094	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
1,2,3,6,7,8-HxCDD	0.00047	J	0.0036	0.000060	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
1,2,3,6,7,8-HxCDF	0.00025	J q	0.0036	0.000098	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
1,2,3,7,8,9-HxCDD	0.00036	J	0.0036	0.000056	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
1,2,3,7,8,9-HxCDF	0.00078	J B	0.0036	0.000049	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
1,2,3,7,8-PeCDD	0.000095	J	0.0036	0.000034	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
1,2,3,7,8-PeCDF	0.00015	J B	0.0036	0.000035	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
2,3,4,6,7,8-HxCDF	ND		0.0036	0.000084	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
2,3,4,7,8-PeCDF	ND		0.0036	0.000035	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
2,3,7,8-TCDD	ND		0.00072	0.000046	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
2,3,7,8-TCDF	0.00011	J B	0.00072	0.000021	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
OCDD	0.14	B	0.0072	0.00013	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1
OCDF	0.012	B	0.0072	0.000072	ug/Kg	✱	08/22/18 13:10	08/29/18 09:12	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	34		23 - 140	08/22/18 13:10	08/29/18 09:12	1
13C-1,2,3,4,6,7,8-HpCDF	31		28 - 143	08/22/18 13:10	08/29/18 09:12	1
13C-1,2,3,4,7,8,9-HpCDF	37		26 - 138	08/22/18 13:10	08/29/18 09:12	1
13C-1,2,3,4,7,8-HxCDD	36		32 - 141	08/22/18 13:10	08/29/18 09:12	1
13C-1,2,3,4,7,8-HxCDF	40		26 - 152	08/22/18 13:10	08/29/18 09:12	1
13C-1,2,3,6,7,8-HxCDD	37		28 - 130	08/22/18 13:10	08/29/18 09:12	1
13C-1,2,3,6,7,8-HxCDF	40		26 - 123	08/22/18 13:10	08/29/18 09:12	1
13C-1,2,3,7,8,9-HxCDF	46		29 - 147	08/22/18 13:10	08/29/18 09:12	1
13C-1,2,3,7,8-PeCDD	38		25 - 181	08/22/18 13:10	08/29/18 09:12	1
13C-1,2,3,7,8-PeCDF	42		24 - 185	08/22/18 13:10	08/29/18 09:12	1
13C-2,3,4,6,7,8-HxCDF	41		28 - 136	08/22/18 13:10	08/29/18 09:12	1
13C-2,3,4,7,8-PeCDF	45		21 - 178	08/22/18 13:10	08/29/18 09:12	1
13C-2,3,7,8-TCDD	55		25 - 164	08/22/18 13:10	08/29/18 09:12	1
13C-2,3,7,8-TCDF	58		24 - 169	08/22/18 13:10	08/29/18 09:12	1
13C-OCDD	21		17 - 157	08/22/18 13:10	08/29/18 09:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	129		35 - 197	08/22/18 13:10	08/29/18 09:12	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S198-8to10

Lab Sample ID: 580-79504-25

Date Collected: 08/08/18 15:05

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 65.9

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	0.0016	J B	0.0038	0.000096	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
1,2,3,4,6,7,8-HpCDF	0.00032	J B	0.0038	0.000083	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
1,2,3,4,7,8,9-HpCDF	0.00032	J q B	0.0038	0.000093	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
1,2,3,4,7,8-HxCDD	0.00013	J	0.0038	0.000040	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
1,2,3,4,7,8-HxCDF	0.000063	J	0.0038	0.000034	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
1,2,3,6,7,8-HxCDD	0.000073	J q	0.0038	0.000038	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
1,2,3,6,7,8-HxCDF	0.000051	J	0.0038	0.000034	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
1,2,3,7,8,9-HxCDD	0.00017	J q	0.0038	0.000036	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
1,2,3,7,8,9-HxCDF	0.00057	J B	0.0038	0.000019	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
1,2,3,7,8-PeCDD	ND		0.0038	0.000020	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
1,2,3,7,8-PeCDF	0.000059	J B	0.0038	0.000016	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
2,3,4,6,7,8-HxCDF	ND		0.0038	0.000031	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
2,3,4,7,8-PeCDF	ND		0.0038	0.000018	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
2,3,7,8-TCDD	ND		0.00077	0.000063	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
2,3,7,8-TCDF	0.000016	J B	0.00077	0.0000065	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
OCDD	0.022	B	0.0077	0.000045	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1
OCDF	0.0011	J B	0.0077	0.000030	ug/Kg	☼	08/22/18 13:10	08/29/18 09:58	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	57		23 - 140	08/22/18 13:10	08/29/18 09:58	1
13C-1,2,3,4,6,7,8-HpCDF	56		28 - 143	08/22/18 13:10	08/29/18 09:58	1
13C-1,2,3,4,7,8,9-HpCDF	58		26 - 138	08/22/18 13:10	08/29/18 09:58	1
13C-1,2,3,4,7,8-HxCDD	49		32 - 141	08/22/18 13:10	08/29/18 09:58	1
13C-1,2,3,4,7,8-HxCDF	54		26 - 152	08/22/18 13:10	08/29/18 09:58	1
13C-1,2,3,6,7,8-HxCDD	51		28 - 130	08/22/18 13:10	08/29/18 09:58	1
13C-1,2,3,6,7,8-HxCDF	55		26 - 123	08/22/18 13:10	08/29/18 09:58	1
13C-1,2,3,7,8,9-HxCDF	59		29 - 147	08/22/18 13:10	08/29/18 09:58	1
13C-1,2,3,7,8-PeCDD	46		25 - 181	08/22/18 13:10	08/29/18 09:58	1
13C-1,2,3,7,8-PeCDF	48		24 - 185	08/22/18 13:10	08/29/18 09:58	1
13C-2,3,4,6,7,8-HxCDF	55		28 - 136	08/22/18 13:10	08/29/18 09:58	1
13C-2,3,4,7,8-PeCDF	47		21 - 178	08/22/18 13:10	08/29/18 09:58	1
13C-2,3,7,8-TCDD	58		25 - 164	08/22/18 13:10	08/29/18 09:58	1
13C-2,3,7,8-TCDF	54		24 - 169	08/22/18 13:10	08/29/18 09:58	1
13C-OCDD	42		17 - 157	08/22/18 13:10	08/29/18 09:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	126		35 - 197	08/22/18 13:10	08/29/18 09:58	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S198-10to11.8

Lab Sample ID: 580-79504-26

Date Collected: 08/08/18 15:10

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 74.2

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	0.00071	J B	0.0034	0.000069	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
1,2,3,4,6,7,8-HpCDF	0.000088	J B	0.0034	0.000052	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
1,2,3,4,7,8,9-HpCDF	0.00022	J B	0.0034	0.000054	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
1,2,3,4,7,8-HxCDD	0.000095	J q	0.0034	0.000031	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
1,2,3,4,7,8-HxCDF	ND		0.0034	0.000045	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
1,2,3,6,7,8-HxCDD	0.000045	J q	0.0034	0.000029	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
1,2,3,6,7,8-HxCDF	ND		0.0034	0.000044	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
1,2,3,7,8,9-HxCDD	ND		0.0034	0.000028	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
1,2,3,7,8,9-HxCDF	0.00038	J B	0.0034	0.000024	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
1,2,3,7,8-PeCDD	ND		0.0034	0.000032	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
1,2,3,7,8-PeCDF	ND		0.0034	0.000020	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
2,3,4,6,7,8-HxCDF	ND		0.0034	0.000037	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
2,3,4,7,8-PeCDF	ND		0.0034	0.000023	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
2,3,7,8-TCDD	ND		0.00067	0.000035	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
2,3,7,8-TCDF	ND		0.00067	0.000017	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
OCDD	0.0084	B	0.0067	0.000030	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1
OCDF	0.00026	J B q	0.0067	0.000034	ug/Kg	☼	08/22/18 13:10	08/29/18 10:44	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	78		23 - 140	08/22/18 13:10	08/29/18 10:44	1
13C-1,2,3,4,6,7,8-HpCDF	74		28 - 143	08/22/18 13:10	08/29/18 10:44	1
13C-1,2,3,4,7,8,9-HpCDF	82		26 - 138	08/22/18 13:10	08/29/18 10:44	1
13C-1,2,3,4,7,8-HxCDD	71		32 - 141	08/22/18 13:10	08/29/18 10:44	1
13C-1,2,3,4,7,8-HxCDF	68		26 - 152	08/22/18 13:10	08/29/18 10:44	1
13C-1,2,3,6,7,8-HxCDD	71		28 - 130	08/22/18 13:10	08/29/18 10:44	1
13C-1,2,3,6,7,8-HxCDF	72		26 - 123	08/22/18 13:10	08/29/18 10:44	1
13C-1,2,3,7,8,9-HxCDF	79		29 - 147	08/22/18 13:10	08/29/18 10:44	1
13C-1,2,3,7,8-PeCDD	66		25 - 181	08/22/18 13:10	08/29/18 10:44	1
13C-1,2,3,7,8-PeCDF	71		24 - 185	08/22/18 13:10	08/29/18 10:44	1
13C-2,3,4,6,7,8-HxCDF	76		28 - 136	08/22/18 13:10	08/29/18 10:44	1
13C-2,3,4,7,8-PeCDF	66		21 - 178	08/22/18 13:10	08/29/18 10:44	1
13C-2,3,7,8-TCDD	80		25 - 164	08/22/18 13:10	08/29/18 10:44	1
13C-2,3,7,8-TCDF	75		24 - 169	08/22/18 13:10	08/29/18 10:44	1
13C-OCDD	62		17 - 157	08/22/18 13:10	08/29/18 10:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	137		35 - 197	08/22/18 13:10	08/29/18 10:44	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S213-0to2

Lab Sample ID: 580-79504-27

Date Collected: 08/09/18 09:50

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 34.1

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	0.48	B	0.0072	0.0029	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
1,2,3,4,6,7,8-HpCDF	0.14	B	0.0072	0.0017	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
1,2,3,4,7,8,9-HpCDF	0.010	B	0.0072	0.0017	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
1,2,3,4,7,8-HxCDD	0.0039	J	0.0072	0.00041	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
1,2,3,4,7,8-HxCDF	0.023		0.0072	0.0015	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
1,2,3,6,7,8-HxCDD	0.018		0.0072	0.00040	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
1,2,3,6,7,8-HxCDF	0.0053	J	0.0072	0.0015	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
1,2,3,7,8,9-HxCDD	0.0061	J	0.0072	0.00037	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
1,2,3,7,8,9-HxCDF	0.00091	J B	0.0072	0.00076	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
1,2,3,7,8-PeCDD	0.0016	J	0.0072	0.00028	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
1,2,3,7,8-PeCDF	0.0021	J B	0.0072	0.00059	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
2,3,4,6,7,8-HxCDF	ND		0.0072	0.0013	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
2,3,4,7,8-PeCDF	0.0035	J	0.0072	0.00063	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
2,3,7,8-TCDD	ND		0.0014	0.00035	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
OCDD	4.2	B	0.014	0.00069	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
OCDF	0.54	B	0.014	0.00020	ug/Kg	☼	08/22/18 13:10	08/29/18 12:02	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	62		23 - 140				08/22/18 13:10	08/29/18 12:02	1
13C-1,2,3,4,6,7,8-HpCDF	51		28 - 143				08/22/18 13:10	08/29/18 12:02	1
13C-1,2,3,4,7,8,9-HpCDF	59		26 - 138				08/22/18 13:10	08/29/18 12:02	1
13C-1,2,3,4,7,8-HxCDD	52		32 - 141				08/22/18 13:10	08/29/18 12:02	1
13C-1,2,3,4,7,8-HxCDF	45		26 - 152				08/22/18 13:10	08/29/18 12:02	1
13C-1,2,3,6,7,8-HxCDD	51		28 - 130				08/22/18 13:10	08/29/18 12:02	1
13C-1,2,3,6,7,8-HxCDF	46		26 - 123				08/22/18 13:10	08/29/18 12:02	1
13C-1,2,3,7,8,9-HxCDF	51		29 - 147				08/22/18 13:10	08/29/18 12:02	1
13C-1,2,3,7,8-PeCDD	52		25 - 181				08/22/18 13:10	08/29/18 12:02	1
13C-1,2,3,7,8-PeCDF	46		24 - 185				08/22/18 13:10	08/29/18 12:02	1
13C-2,3,4,6,7,8-HxCDF	46		28 - 136				08/22/18 13:10	08/29/18 12:02	1
13C-2,3,4,7,8-PeCDF	46		21 - 178				08/22/18 13:10	08/29/18 12:02	1
13C-2,3,7,8-TCDD	57		25 - 164				08/22/18 13:10	08/29/18 12:02	1
13C-OCDD	62		17 - 157				08/22/18 13:10	08/29/18 12:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	114		35 - 197				08/22/18 13:10	08/29/18 12:02	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0037	B	0.0014	0.00048	ug/Kg	☼	08/22/18 13:10	08/30/18 03:45	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	67		24 - 169				08/22/18 13:10	08/30/18 03:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	127		35 - 197				08/22/18 13:10	08/30/18 03:45	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S213-2to4

Lab Sample ID: 580-79504-28

Date Collected: 08/09/18 09:55

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 38.1

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	0.48	B	0.0065	0.0020	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
1,2,3,4,6,7,8-HpCDF	0.17	B	0.0065	0.0021	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
1,2,3,4,7,8,9-HpCDF	0.018	B	0.0065	0.0019	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
1,2,3,4,7,8-HxCDD	0.0036	J	0.0065	0.00040	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
1,2,3,4,7,8-HxCDF	0.045		0.0065	0.0018	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
1,2,3,6,7,8-HxCDD	0.019		0.0065	0.00037	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
1,2,3,6,7,8-HxCDF	0.0081		0.0065	0.0018	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
1,2,3,7,8,9-HxCDD	0.0057	J	0.0065	0.00035	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
1,2,3,7,8,9-HxCDF	0.0012	J B	0.0065	0.00089	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
1,2,3,7,8-PeCDD	0.0015	J	0.0065	0.00026	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
1,2,3,7,8-PeCDF	0.0018	J B	0.0065	0.00079	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
2,3,4,6,7,8-HxCDF	0.0031	J	0.0065	0.0016	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
2,3,4,7,8-PeCDF	0.0040	J	0.0065	0.00086	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
2,3,7,8-TCDD	0.00061	J q	0.0013	0.00013	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
OCDD	4.1	B	0.013	0.00084	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1
OCDF	0.49	B	0.013	0.00023	ug/Kg	☼	08/22/18 13:10	08/29/18 12:48	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	54		23 - 140	08/22/18 13:10	08/29/18 12:48	1
13C-1,2,3,4,6,7,8-HpCDF	43		28 - 143	08/22/18 13:10	08/29/18 12:48	1
13C-1,2,3,4,7,8,9-HpCDF	53		26 - 138	08/22/18 13:10	08/29/18 12:48	1
13C-1,2,3,4,7,8-HxCDD	48		32 - 141	08/22/18 13:10	08/29/18 12:48	1
13C-1,2,3,4,7,8-HxCDF	45		26 - 152	08/22/18 13:10	08/29/18 12:48	1
13C-1,2,3,6,7,8-HxCDD	49		28 - 130	08/22/18 13:10	08/29/18 12:48	1
13C-1,2,3,6,7,8-HxCDF	44		26 - 123	08/22/18 13:10	08/29/18 12:48	1
13C-1,2,3,7,8,9-HxCDF	51		29 - 147	08/22/18 13:10	08/29/18 12:48	1
13C-1,2,3,7,8-PeCDD	54		25 - 181	08/22/18 13:10	08/29/18 12:48	1
13C-1,2,3,7,8-PeCDF	48		24 - 185	08/22/18 13:10	08/29/18 12:48	1
13C-2,3,4,6,7,8-HxCDF	46		28 - 136	08/22/18 13:10	08/29/18 12:48	1
13C-2,3,4,7,8-PeCDF	50		21 - 178	08/22/18 13:10	08/29/18 12:48	1
13C-2,3,7,8-TCDD	61		25 - 164	08/22/18 13:10	08/29/18 12:48	1
13C-OCDD	48		17 - 157	08/22/18 13:10	08/29/18 12:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	119		35 - 197	08/22/18 13:10	08/29/18 12:48	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0026	B	0.0013	0.00056	ug/Kg	☼	08/22/18 13:10	08/30/18 04:23	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	67		24 - 169	08/22/18 13:10	08/30/18 04:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	121		35 - 197	08/22/18 13:10	08/30/18 04:23	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S213-4to6

Lab Sample ID: 580-79504-29

Date Collected: 08/09/18 10:00

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 43.0

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	0.57	B	0.0057	0.0013	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
1,2,3,4,6,7,8-HpCDF	0.17	B	0.0057	0.0015	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
1,2,3,4,7,8,9-HpCDF	0.012	B	0.0057	0.0024	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
1,2,3,4,7,8-HxCDD	0.0042	J	0.0057	0.00053	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
1,2,3,4,7,8-HxCDF	0.031		0.0057	0.0020	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
1,2,3,6,7,8-HxCDD	0.028		0.0057	0.00051	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
1,2,3,6,7,8-HxCDF	0.0091		0.0057	0.0021	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
1,2,3,7,8,9-HxCDD	0.0093		0.0057	0.00047	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
1,2,3,7,8,9-HxCDF	ND		0.0057	0.0010	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
1,2,3,7,8-PeCDD	0.0024	J	0.0057	0.00029	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
1,2,3,7,8-PeCDF	0.0021	J B	0.0057	0.0014	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
2,3,4,6,7,8-HxCDF	0.0026	J	0.0057	0.0017	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
2,3,4,7,8-PeCDF	0.0038	J	0.0057	0.0014	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
2,3,7,8-TCDD	0.0012		0.0011	0.00012	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
OCDD	6.3	E B	0.011	0.0012	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1
OCDF	0.57	B	0.011	0.00026	ug/Kg	☼	08/22/18 13:10	08/29/18 13:34	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	45		23 - 140	08/22/18 13:10	08/29/18 13:34	1
13C-1,2,3,4,6,7,8-HpCDF	37		28 - 143	08/22/18 13:10	08/29/18 13:34	1
13C-1,2,3,4,7,8,9-HpCDF	30		26 - 138	08/22/18 13:10	08/29/18 13:34	1
13C-1,2,3,4,7,8-HxCDD	45		32 - 141	08/22/18 13:10	08/29/18 13:34	1
13C-1,2,3,4,7,8-HxCDF	42		26 - 152	08/22/18 13:10	08/29/18 13:34	1
13C-1,2,3,6,7,8-HxCDD	43		28 - 130	08/22/18 13:10	08/29/18 13:34	1
13C-1,2,3,6,7,8-HxCDF	40		26 - 123	08/22/18 13:10	08/29/18 13:34	1
13C-1,2,3,7,8,9-HxCDF	45		29 - 147	08/22/18 13:10	08/29/18 13:34	1
13C-1,2,3,7,8-PeCDD	52		25 - 181	08/22/18 13:10	08/29/18 13:34	1
13C-1,2,3,7,8-PeCDF	45		24 - 185	08/22/18 13:10	08/29/18 13:34	1
13C-2,3,4,6,7,8-HxCDF	42		28 - 136	08/22/18 13:10	08/29/18 13:34	1
13C-2,3,4,7,8-PeCDF	48		21 - 178	08/22/18 13:10	08/29/18 13:34	1
13C-2,3,7,8-TCDD	57		25 - 164	08/22/18 13:10	08/29/18 13:34	1
13C-OCDD	38		17 - 157	08/22/18 13:10	08/29/18 13:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	119		35 - 197	08/22/18 13:10	08/29/18 13:34	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0080	B	0.0011	0.00058	ug/Kg	☼	08/22/18 13:10	08/30/18 05:01	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	67		24 - 169	08/22/18 13:10	08/30/18 05:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	124		35 - 197	08/22/18 13:10	08/30/18 05:01	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S213-6to8

Lab Sample ID: 580-79504-30

Date Collected: 08/09/18 10:05

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 49.9

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	0.47	G	0.0067	0.0067	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
1,2,3,4,6,7,8-HpCDF	0.12		0.0050	0.0029	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
1,2,3,4,7,8,9-HpCDF	0.0080		0.0050	0.0040	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
1,2,3,4,7,8-HxCDD	0.0037	J	0.0050	0.00058	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
1,2,3,4,7,8-HxCDF	0.017		0.0050	0.0013	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
1,2,3,6,7,8-HxCDD	0.020		0.0050	0.00056	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
1,2,3,6,7,8-HxCDF	0.012		0.0050	0.0013	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
1,2,3,7,8,9-HxCDD	0.011		0.0050	0.00053	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
1,2,3,7,8,9-HxCDF	ND		0.0050	0.0011	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
1,2,3,7,8-PeCDD	0.0025	J	0.0050	0.00058	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
1,2,3,7,8-PeCDF	0.0030	J	0.0050	0.00073	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
2,3,4,6,7,8-HxCDF	0.0031	J	0.0050	0.0011	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
2,3,4,7,8-PeCDF	0.0029	J	0.0050	0.00072	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
2,3,7,8-TCDD	0.0013	q	0.00099	0.00027	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
OCDD	6.2	E	0.0099	0.0047	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
OCDF	0.38		0.0099	0.00061	ug/Kg	☼	08/23/18 10:28	08/29/18 00:21	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	58		23 - 140				08/23/18 10:28	08/29/18 00:21	1
13C-1,2,3,4,6,7,8-HpCDF	49		28 - 143				08/23/18 10:28	08/29/18 00:21	1
13C-1,2,3,4,7,8,9-HpCDF	51		26 - 138				08/23/18 10:28	08/29/18 00:21	1
13C-1,2,3,4,7,8-HxCDD	55		32 - 141				08/23/18 10:28	08/29/18 00:21	1
13C-1,2,3,4,7,8-HxCDF	53		26 - 152				08/23/18 10:28	08/29/18 00:21	1
13C-1,2,3,6,7,8-HxCDD	54		28 - 130				08/23/18 10:28	08/29/18 00:21	1
13C-1,2,3,6,7,8-HxCDF	53		26 - 123				08/23/18 10:28	08/29/18 00:21	1
13C-1,2,3,7,8,9-HxCDF	55		29 - 147				08/23/18 10:28	08/29/18 00:21	1
13C-1,2,3,7,8-PeCDD	61		25 - 181				08/23/18 10:28	08/29/18 00:21	1
13C-1,2,3,7,8-PeCDF	56		24 - 185				08/23/18 10:28	08/29/18 00:21	1
13C-2,3,4,6,7,8-HxCDF	53		28 - 136				08/23/18 10:28	08/29/18 00:21	1
13C-2,3,4,7,8-PeCDF	58		21 - 178				08/23/18 10:28	08/29/18 00:21	1
13C-2,3,7,8-TCDD	57		25 - 164				08/23/18 10:28	08/29/18 00:21	1
13C-OCDD	64		17 - 157				08/23/18 10:28	08/29/18 00:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	135		35 - 197				08/23/18 10:28	08/29/18 00:21	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0050	G	0.0011	0.0011	ug/Kg	☼	08/23/18 10:28	08/30/18 06:16	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	67		24 - 169				08/23/18 10:28	08/30/18 06:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	130		35 - 197				08/23/18 10:28	08/30/18 06:16	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S213-8to10

Date Collected: 08/09/18 10:10

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-31

Matrix: Solid

Percent Solids: 56.2

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	0.29		0.0045	0.0039	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
1,2,3,4,6,7,8-HpCDF	0.15		0.0045	0.0029	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
1,2,3,4,7,8,9-HpCDF	0.0083		0.0045	0.0043	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
1,2,3,4,7,8-HxCDD	0.0025	J	0.0045	0.00045	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
1,2,3,4,7,8-HxCDF	0.021		0.0045	0.0012	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
1,2,3,6,7,8-HxCDD	0.013		0.0045	0.00044	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
1,2,3,6,7,8-HxCDF	0.0098		0.0045	0.0011	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
1,2,3,7,8,9-HxCDD	0.0066		0.0045	0.00042	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
1,2,3,7,8,9-HxCDF	ND		0.0045	0.0011	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
1,2,3,7,8-PeCDD	0.0015	J	0.0045	0.00045	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
1,2,3,7,8-PeCDF	0.0017	J q	0.0045	0.00081	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
2,3,4,6,7,8-HxCDF	0.0033	J	0.0045	0.0011	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
2,3,4,7,8-PeCDF	0.0025	J	0.0045	0.00084	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
2,3,7,8-TCDD	0.00078	J	0.00089	0.00024	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
OCDD	3.7	E	0.0089	0.0029	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1
OCDF	0.36		0.0089	0.00052	ug/Kg	☼	08/23/18 10:28	08/29/18 01:10	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	54		23 - 140	08/23/18 10:28	08/29/18 01:10	1
13C-1,2,3,4,6,7,8-HpCDF	45		28 - 143	08/23/18 10:28	08/29/18 01:10	1
13C-1,2,3,4,7,8,9-HpCDF	46		26 - 138	08/23/18 10:28	08/29/18 01:10	1
13C-1,2,3,4,7,8-HxCDD	53		32 - 141	08/23/18 10:28	08/29/18 01:10	1
13C-1,2,3,4,7,8-HxCDF	50		26 - 152	08/23/18 10:28	08/29/18 01:10	1
13C-1,2,3,6,7,8-HxCDD	51		28 - 130	08/23/18 10:28	08/29/18 01:10	1
13C-1,2,3,6,7,8-HxCDF	52		26 - 123	08/23/18 10:28	08/29/18 01:10	1
13C-1,2,3,7,8,9-HxCDF	54		29 - 147	08/23/18 10:28	08/29/18 01:10	1
13C-1,2,3,7,8-PeCDD	59		25 - 181	08/23/18 10:28	08/29/18 01:10	1
13C-1,2,3,7,8-PeCDF	55		24 - 185	08/23/18 10:28	08/29/18 01:10	1
13C-2,3,4,6,7,8-HxCDF	51		28 - 136	08/23/18 10:28	08/29/18 01:10	1
13C-2,3,4,7,8-PeCDF	56		21 - 178	08/23/18 10:28	08/29/18 01:10	1
13C-2,3,7,8-TCDD	56		25 - 164	08/23/18 10:28	08/29/18 01:10	1
13C-OCDD	56		17 - 157	08/23/18 10:28	08/29/18 01:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	132		35 - 197	08/23/18 10:28	08/29/18 01:10	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0013	q	0.00089	0.00030	ug/Kg	☼	08/23/18 10:28	08/30/18 06:54	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	70		24 - 169	08/23/18 10:28	08/30/18 06:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	134		35 - 197	08/23/18 10:28	08/30/18 06:54	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S213-10to11.8

Lab Sample ID: 580-79504-32

Date Collected: 08/09/18 10:15

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 51.7

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	0.20		0.0048	0.0029	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
1,2,3,4,6,7,8-HpCDF	0.16		0.0048	0.0022	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
1,2,3,4,7,8,9-HpCDF	0.0050		0.0048	0.0033	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
1,2,3,4,7,8-HxCDD	0.0013	J q	0.0048	0.00043	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
1,2,3,4,7,8-HxCDF	0.0070		0.0048	0.0011	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
1,2,3,6,7,8-HxCDD	0.010		0.0048	0.00044	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
1,2,3,6,7,8-HxCDF	0.015		0.0048	0.00099	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
1,2,3,7,8,9-HxCDD	0.0047	J	0.0048	0.00041	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
1,2,3,7,8,9-HxCDF	ND		0.0048	0.00091	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
1,2,3,7,8-PeCDD	0.0015	J	0.0048	0.00062	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
1,2,3,7,8-PeCDF	ND		0.0048	0.00099	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
2,3,4,6,7,8-HxCDF	0.0037	J	0.0048	0.00090	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
2,3,4,7,8-PeCDF	0.0021	J	0.0048	0.0010	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
2,3,7,8-TCDD	0.0011		0.00095	0.00029	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
OCDD	3.0		0.0095	0.0023	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
OCDF	0.29		0.0095	0.00056	ug/Kg	☼	08/23/18 10:28	08/29/18 01:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	49		23 - 140				08/23/18 10:28	08/29/18 01:58	1
13C-1,2,3,4,6,7,8-HpCDF	42		28 - 143				08/23/18 10:28	08/29/18 01:58	1
13C-1,2,3,4,7,8,9-HpCDF	41		26 - 138				08/23/18 10:28	08/29/18 01:58	1
13C-1,2,3,4,7,8-HxCDD	52		32 - 141				08/23/18 10:28	08/29/18 01:58	1
13C-1,2,3,4,7,8-HxCDF	47		26 - 152				08/23/18 10:28	08/29/18 01:58	1
13C-1,2,3,6,7,8-HxCDD	47		28 - 130				08/23/18 10:28	08/29/18 01:58	1
13C-1,2,3,6,7,8-HxCDF	49		26 - 123				08/23/18 10:28	08/29/18 01:58	1
13C-1,2,3,7,8,9-HxCDF	52		29 - 147				08/23/18 10:28	08/29/18 01:58	1
13C-1,2,3,7,8-PeCDD	58		25 - 181				08/23/18 10:28	08/29/18 01:58	1
13C-1,2,3,7,8-PeCDF	56		24 - 185				08/23/18 10:28	08/29/18 01:58	1
13C-2,3,4,6,7,8-HxCDF	48		28 - 136				08/23/18 10:28	08/29/18 01:58	1
13C-2,3,4,7,8-PeCDF	59		21 - 178				08/23/18 10:28	08/29/18 01:58	1
13C-2,3,7,8-TCDD	56		25 - 164				08/23/18 10:28	08/29/18 01:58	1
13C-OCDD	51		17 - 157				08/23/18 10:28	08/29/18 01:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	130		35 - 197				08/23/18 10:28	08/29/18 01:58	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0014		0.00095	0.00067	ug/Kg	☼	08/23/18 10:28	08/30/18 07:32	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	71		24 - 169				08/23/18 10:28	08/30/18 07:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	136		35 - 197				08/23/18 10:28	08/30/18 07:32	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S213-11.8to12.8

Lab Sample ID: 580-79504-33

Date Collected: 08/09/18 10:20

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 53.1

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	0.15		0.0046	0.0021	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
1,2,3,4,6,7,8-HpCDF	0.23		0.0046	0.0019	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
1,2,3,4,7,8,9-HpCDF	0.0043	J	0.0046	0.0027	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
1,2,3,4,7,8-HxCDD	0.0010	J q	0.0046	0.00029	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
1,2,3,4,7,8-HxCDF	0.011		0.0046	0.00095	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
1,2,3,6,7,8-HxCDD	0.0089		0.0046	0.00026	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
1,2,3,6,7,8-HxCDF	0.032		0.0046	0.00086	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
1,2,3,7,8,9-HxCDD	0.0046		0.0046	0.00025	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
1,2,3,7,8,9-HxCDF	ND		0.0046	0.00082	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
1,2,3,7,8-PeCDD	0.0014	J	0.0046	0.00033	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
1,2,3,7,8-PeCDF	0.0027	J	0.0046	0.00079	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
2,3,4,6,7,8-HxCDF	0.0039	J	0.0046	0.00079	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
2,3,4,7,8-PeCDF	0.0022	J	0.0046	0.00080	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
2,3,7,8-TCDD	0.00056	J q	0.00092	0.00024	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
OCDD	2.9		0.0092	0.0018	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
OCDF	0.20		0.0092	0.00039	ug/Kg	☼	08/23/18 10:28	08/29/18 02:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	71		23 - 140				08/23/18 10:28	08/29/18 02:46	1
13C-1,2,3,4,6,7,8-HpCDF	61		28 - 143				08/23/18 10:28	08/29/18 02:46	1
13C-1,2,3,4,7,8,9-HpCDF	59		26 - 138				08/23/18 10:28	08/29/18 02:46	1
13C-1,2,3,4,7,8-HxCDD	65		32 - 141				08/23/18 10:28	08/29/18 02:46	1
13C-1,2,3,4,7,8-HxCDF	63		26 - 152				08/23/18 10:28	08/29/18 02:46	1
13C-1,2,3,6,7,8-HxCDD	60		28 - 130				08/23/18 10:28	08/29/18 02:46	1
13C-1,2,3,6,7,8-HxCDF	63		26 - 123				08/23/18 10:28	08/29/18 02:46	1
13C-1,2,3,7,8,9-HxCDF	64		29 - 147				08/23/18 10:28	08/29/18 02:46	1
13C-1,2,3,7,8-PeCDD	74		25 - 181				08/23/18 10:28	08/29/18 02:46	1
13C-1,2,3,7,8-PeCDF	67		24 - 185				08/23/18 10:28	08/29/18 02:46	1
13C-2,3,4,6,7,8-HxCDF	62		28 - 136				08/23/18 10:28	08/29/18 02:46	1
13C-2,3,4,7,8-PeCDF	66		21 - 178				08/23/18 10:28	08/29/18 02:46	1
13C-2,3,7,8-TCDD	63		25 - 164				08/23/18 10:28	08/29/18 02:46	1
13C-OCDD	79		17 - 157				08/23/18 10:28	08/29/18 02:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	132		35 - 197				08/23/18 10:28	08/29/18 02:46	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0012	G	0.00097	0.00097	ug/Kg	☼	08/23/18 10:28	08/30/18 08:10	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	79		24 - 169				08/23/18 10:28	08/30/18 08:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	131		35 - 197				08/23/18 10:28	08/30/18 08:10	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S229-0to2

Lab Sample ID: 580-79504-34

Date Collected: 08/09/18 19:40

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 44.1

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	0.41		0.0056	0.0046	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
1,2,3,4,6,7,8-HpCDF	0.078		0.0056	0.0020	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
1,2,3,4,7,8,9-HpCDF	0.0060		0.0056	0.0026	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
1,2,3,4,7,8-HxCDD	0.0042	J	0.0056	0.00055	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
1,2,3,4,7,8-HxCDF	0.012		0.0056	0.00094	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
1,2,3,6,7,8-HxCDD	0.019		0.0056	0.00055	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
1,2,3,6,7,8-HxCDF	0.0065		0.0056	0.00089	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
1,2,3,7,8,9-HxCDD	0.0099		0.0056	0.00051	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
1,2,3,7,8,9-HxCDF	ND		0.0056	0.00082	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
1,2,3,7,8-PeCDD	0.0023	J	0.0056	0.00077	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
1,2,3,7,8-PeCDF	0.0021	J	0.0056	0.00067	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
2,3,4,6,7,8-HxCDF	0.0029	J	0.0056	0.00077	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
2,3,4,7,8-PeCDF	0.0027	J	0.0056	0.00067	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
2,3,7,8-TCDD	0.0011	q	0.0011	0.00029	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
OCDD	4.4		0.011	0.0030	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1
OCDF	0.23		0.011	0.00058	ug/Kg	☼	08/23/18 10:28	08/29/18 03:35	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	54		23 - 140	08/23/18 10:28	08/29/18 03:35	1
13C-1,2,3,4,6,7,8-HpCDF	44		28 - 143	08/23/18 10:28	08/29/18 03:35	1
13C-1,2,3,4,7,8,9-HpCDF	51		26 - 138	08/23/18 10:28	08/29/18 03:35	1
13C-1,2,3,4,7,8-HxCDD	52		32 - 141	08/23/18 10:28	08/29/18 03:35	1
13C-1,2,3,4,7,8-HxCDF	48		26 - 152	08/23/18 10:28	08/29/18 03:35	1
13C-1,2,3,6,7,8-HxCDD	48		28 - 130	08/23/18 10:28	08/29/18 03:35	1
13C-1,2,3,6,7,8-HxCDF	49		26 - 123	08/23/18 10:28	08/29/18 03:35	1
13C-1,2,3,7,8,9-HxCDF	54		29 - 147	08/23/18 10:28	08/29/18 03:35	1
13C-1,2,3,7,8-PeCDD	61		25 - 181	08/23/18 10:28	08/29/18 03:35	1
13C-1,2,3,7,8-PeCDF	57		24 - 185	08/23/18 10:28	08/29/18 03:35	1
13C-2,3,4,6,7,8-HxCDF	50		28 - 136	08/23/18 10:28	08/29/18 03:35	1
13C-2,3,4,7,8-PeCDF	60		21 - 178	08/23/18 10:28	08/29/18 03:35	1
13C-2,3,7,8-TCDD	60		25 - 164	08/23/18 10:28	08/29/18 03:35	1
13C-OCDD	59		17 - 157	08/23/18 10:28	08/29/18 03:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	136		35 - 197	08/23/18 10:28	08/29/18 03:35	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0047		0.0011	0.00076	ug/Kg	☼	08/23/18 10:28	08/30/18 08:48	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	69		24 - 169	08/23/18 10:28	08/30/18 08:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	135		35 - 197	08/23/18 10:28	08/30/18 08:48	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S229-2to4

Lab Sample ID: 580-79504-35

Date Collected: 08/09/18 19:45

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 63.0

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	0.13		0.0039	0.0019	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
1,2,3,4,6,7,8-HpCDF	0.041		0.0039	0.0010	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
1,2,3,4,7,8,9-HpCDF	0.0021	J	0.0039	0.0012	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
1,2,3,4,7,8-HxCDD	0.0018	J	0.0039	0.00033	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
1,2,3,4,7,8-HxCDF	0.0027	J	0.0039	0.00038	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
1,2,3,6,7,8-HxCDD	0.0045		0.0039	0.00031	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
1,2,3,6,7,8-HxCDF	0.0036	J	0.0039	0.00035	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
1,2,3,7,8,9-HxCDD	0.0030	J	0.0039	0.00030	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
1,2,3,7,8,9-HxCDF	0.00038	J	0.0039	0.00033	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
1,2,3,7,8-PeCDD	ND		0.0039	0.00042	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
1,2,3,7,8-PeCDF	ND		0.0039	0.00036	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
2,3,4,6,7,8-HxCDF	0.0011	J	0.0039	0.00031	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
2,3,4,7,8-PeCDF	0.00057	J q	0.0039	0.00036	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
2,3,7,8-TCDD	0.00034	J q	0.00079	0.00021	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
OCDD	2.3		0.0079	0.0017	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
OCDF	0.12		0.0079	0.00040	ug/Kg	☼	08/23/18 10:28	08/29/18 04:23	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	54		23 - 140				08/23/18 10:28	08/29/18 04:23	1
13C-1,2,3,4,6,7,8-HpCDF	44		28 - 143				08/23/18 10:28	08/29/18 04:23	1
13C-1,2,3,4,7,8,9-HpCDF	53		26 - 138				08/23/18 10:28	08/29/18 04:23	1
13C-1,2,3,4,7,8-HxCDD	52		32 - 141				08/23/18 10:28	08/29/18 04:23	1
13C-1,2,3,4,7,8-HxCDF	48		26 - 152				08/23/18 10:28	08/29/18 04:23	1
13C-1,2,3,6,7,8-HxCDD	50		28 - 130				08/23/18 10:28	08/29/18 04:23	1
13C-1,2,3,6,7,8-HxCDF	49		26 - 123				08/23/18 10:28	08/29/18 04:23	1
13C-1,2,3,7,8,9-HxCDF	54		29 - 147				08/23/18 10:28	08/29/18 04:23	1
13C-1,2,3,7,8-PeCDD	62		25 - 181				08/23/18 10:28	08/29/18 04:23	1
13C-1,2,3,7,8-PeCDF	57		24 - 185				08/23/18 10:28	08/29/18 04:23	1
13C-2,3,4,6,7,8-HxCDF	51		28 - 136				08/23/18 10:28	08/29/18 04:23	1
13C-2,3,4,7,8-PeCDF	60		21 - 178				08/23/18 10:28	08/29/18 04:23	1
13C-2,3,7,8-TCDD	60		25 - 164				08/23/18 10:28	08/29/18 04:23	1
13C-OCDD	58		17 - 157				08/23/18 10:28	08/29/18 04:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	135		35 - 197				08/23/18 10:28	08/29/18 04:23	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.00061	J	0.00079	0.00021	ug/Kg	☼	08/23/18 10:28	08/30/18 13:59	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	65		24 - 169				08/23/18 10:28	08/30/18 13:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	122		35 - 197				08/23/18 10:28	08/30/18 13:59	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S229-4to6

Lab Sample ID: 580-79504-36

Date Collected: 08/09/18 19:50

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 74.4

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	0.019		0.0034	0.00042	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
1,2,3,4,6,7,8-HpCDF	0.0071		0.0034	0.00025	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
1,2,3,4,7,8,9-HpCDF	0.00053	J	0.0034	0.00030	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
1,2,3,4,7,8-HxCDD	0.00038	J	0.0034	0.00017	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
1,2,3,4,7,8-HxCDF	0.00045	J	0.0034	0.00021	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
1,2,3,6,7,8-HxCDD	0.00077	J q	0.0034	0.00017	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
1,2,3,6,7,8-HxCDF	0.00067	J	0.0034	0.00020	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
1,2,3,7,8,9-HxCDD	0.00045	J	0.0034	0.00016	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
1,2,3,7,8,9-HxCDF	ND		0.0034	0.00018	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
1,2,3,7,8-PeCDD	ND		0.0034	0.00021	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
1,2,3,7,8-PeCDF	ND		0.0034	0.00015	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
2,3,4,6,7,8-HxCDF	ND		0.0034	0.00018	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
2,3,4,7,8-PeCDF	ND		0.0034	0.00015	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
2,3,7,8-TCDD	ND		0.00068	0.00014	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
2,3,7,8-TCDF	ND		0.00068	0.00011	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
OCDD	0.38		0.0068	0.00052	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1
OCDF	0.021		0.0068	0.00026	ug/Kg	✱	08/23/18 10:28	08/29/18 05:11	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	56		23 - 140	08/23/18 10:28	08/29/18 05:11	1
13C-1,2,3,4,6,7,8-HpCDF	49		28 - 143	08/23/18 10:28	08/29/18 05:11	1
13C-1,2,3,4,7,8,9-HpCDF	56		26 - 138	08/23/18 10:28	08/29/18 05:11	1
13C-1,2,3,4,7,8-HxCDD	49		32 - 141	08/23/18 10:28	08/29/18 05:11	1
13C-1,2,3,4,7,8-HxCDF	46		26 - 152	08/23/18 10:28	08/29/18 05:11	1
13C-1,2,3,6,7,8-HxCDD	50		28 - 130	08/23/18 10:28	08/29/18 05:11	1
13C-1,2,3,6,7,8-HxCDF	49		26 - 123	08/23/18 10:28	08/29/18 05:11	1
13C-1,2,3,7,8,9-HxCDF	53		29 - 147	08/23/18 10:28	08/29/18 05:11	1
13C-1,2,3,7,8-PeCDD	60		25 - 181	08/23/18 10:28	08/29/18 05:11	1
13C-1,2,3,7,8-PeCDF	55		24 - 185	08/23/18 10:28	08/29/18 05:11	1
13C-2,3,4,6,7,8-HxCDF	49		28 - 136	08/23/18 10:28	08/29/18 05:11	1
13C-2,3,4,7,8-PeCDF	58		21 - 178	08/23/18 10:28	08/29/18 05:11	1
13C-2,3,7,8-TCDD	59		25 - 164	08/23/18 10:28	08/29/18 05:11	1
13C-2,3,7,8-TCDF	60		24 - 169	08/23/18 10:28	08/29/18 05:11	1
13C-OCDD	61		17 - 157	08/23/18 10:28	08/29/18 05:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	134		35 - 197	08/23/18 10:28	08/29/18 05:11	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S229-6to8

Lab Sample ID: 580-79504-37

Date Collected: 08/09/18 19:55

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 72.1

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	0.00060	J q	0.0035	0.00017	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
1,2,3,4,6,7,8-HpCDF	ND		0.0035	0.00015	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
1,2,3,4,7,8,9-HpCDF	ND		0.0035	0.00017	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
1,2,3,4,7,8-HxCDD	ND		0.0035	0.00029	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
1,2,3,4,7,8-HxCDF	ND		0.0035	0.00024	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
1,2,3,6,7,8-HxCDD	ND		0.0035	0.00026	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
1,2,3,6,7,8-HxCDF	ND		0.0035	0.00023	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
1,2,3,7,8,9-HxCDD	ND		0.0035	0.00025	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
1,2,3,7,8,9-HxCDF	ND		0.0035	0.00018	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
1,2,3,7,8-PeCDD	ND		0.0035	0.00026	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
1,2,3,7,8-PeCDF	ND		0.0035	0.00019	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
2,3,4,6,7,8-HxCDF	ND		0.0035	0.00017	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
2,3,4,7,8-PeCDF	ND		0.0035	0.00024	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
2,3,7,8-TCDD	ND		0.00069	0.00016	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
2,3,7,8-TCDF	ND		0.00069	0.00010	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
OCDD	0.0070		0.0069	0.00043	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1
OCDF	ND		0.0069	0.00033	ug/Kg	☼	08/23/18 10:28	08/29/18 09:43	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	48		23 - 140	08/23/18 10:28	08/29/18 09:43	1
13C-1,2,3,4,6,7,8-HpCDF	37		28 - 143	08/23/18 10:28	08/29/18 09:43	1
13C-1,2,3,4,7,8,9-HpCDF	50		26 - 138	08/23/18 10:28	08/29/18 09:43	1
13C-1,2,3,4,7,8-HxCDD	38		32 - 141	08/23/18 10:28	08/29/18 09:43	1
13C-1,2,3,4,7,8-HxCDF	37		26 - 152	08/23/18 10:28	08/29/18 09:43	1
13C-1,2,3,6,7,8-HxCDD	38		28 - 130	08/23/18 10:28	08/29/18 09:43	1
13C-1,2,3,6,7,8-HxCDF	39		26 - 123	08/23/18 10:28	08/29/18 09:43	1
13C-1,2,3,7,8,9-HxCDF	51		29 - 147	08/23/18 10:28	08/29/18 09:43	1
13C-1,2,3,7,8-PeCDD	55		25 - 181	08/23/18 10:28	08/29/18 09:43	1
13C-1,2,3,7,8-PeCDF	52		24 - 185	08/23/18 10:28	08/29/18 09:43	1
13C-2,3,4,6,7,8-HxCDF	47		28 - 136	08/23/18 10:28	08/29/18 09:43	1
13C-2,3,4,7,8-PeCDF	46		21 - 178	08/23/18 10:28	08/29/18 09:43	1
13C-2,3,7,8-TCDD	58		25 - 164	08/23/18 10:28	08/29/18 09:43	1
13C-2,3,7,8-TCDF	58		24 - 169	08/23/18 10:28	08/29/18 09:43	1
13C-OCDD	46		17 - 157	08/23/18 10:28	08/29/18 09:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	133		35 - 197	08/23/18 10:28	08/29/18 09:43	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S229-8to9.9

Lab Sample ID: 580-79504-38

Date Collected: 08/09/18 20:00

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 76.0

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	ND		0.0033	0.00014	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
1,2,3,4,6,7,8-HpCDF	ND		0.0033	0.00011	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
1,2,3,4,7,8,9-HpCDF	ND		0.0033	0.00014	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
1,2,3,4,7,8-HxCDD	ND		0.0033	0.00015	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
1,2,3,4,7,8-HxCDF	ND		0.0033	0.00015	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
1,2,3,6,7,8-HxCDD	ND		0.0033	0.00015	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
1,2,3,6,7,8-HxCDF	ND		0.0033	0.00014	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
1,2,3,7,8,9-HxCDD	ND		0.0033	0.00014	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
1,2,3,7,8,9-HxCDF	0.00020	J q	0.0033	0.00013	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
1,2,3,7,8-PeCDD	ND		0.0033	0.00029	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
1,2,3,7,8-PeCDF	ND		0.0033	0.00018	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
2,3,4,6,7,8-HxCDF	ND		0.0033	0.00011	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
2,3,4,7,8-PeCDF	ND		0.0033	0.00018	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
2,3,7,8-TCDD	ND		0.00065	0.00015	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
2,3,7,8-TCDF	ND		0.00065	0.000080	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
OCDD	0.0033	J	0.0065	0.00028	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1
OCDF	ND		0.0065	0.00026	ug/Kg	☼	08/23/18 10:28	08/29/18 10:31	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	52		23 - 140	08/23/18 10:28	08/29/18 10:31	1
13C-1,2,3,4,6,7,8-HpCDF	44		28 - 143	08/23/18 10:28	08/29/18 10:31	1
13C-1,2,3,4,7,8,9-HpCDF	52		26 - 138	08/23/18 10:28	08/29/18 10:31	1
13C-1,2,3,4,7,8-HxCDD	49		32 - 141	08/23/18 10:28	08/29/18 10:31	1
13C-1,2,3,4,7,8-HxCDF	46		26 - 152	08/23/18 10:28	08/29/18 10:31	1
13C-1,2,3,6,7,8-HxCDD	48		28 - 130	08/23/18 10:28	08/29/18 10:31	1
13C-1,2,3,6,7,8-HxCDF	46		26 - 123	08/23/18 10:28	08/29/18 10:31	1
13C-1,2,3,7,8,9-HxCDF	52		29 - 147	08/23/18 10:28	08/29/18 10:31	1
13C-1,2,3,7,8-PeCDD	52		25 - 181	08/23/18 10:28	08/29/18 10:31	1
13C-1,2,3,7,8-PeCDF	52		24 - 185	08/23/18 10:28	08/29/18 10:31	1
13C-2,3,4,6,7,8-HxCDF	50		28 - 136	08/23/18 10:28	08/29/18 10:31	1
13C-2,3,4,7,8-PeCDF	55		21 - 178	08/23/18 10:28	08/29/18 10:31	1
13C-2,3,7,8-TCDD	56		25 - 164	08/23/18 10:28	08/29/18 10:31	1
13C-2,3,7,8-TCDF	58		24 - 169	08/23/18 10:28	08/29/18 10:31	1
13C-OCDD	53		17 - 157	08/23/18 10:28	08/29/18 10:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	125		35 - 197	08/23/18 10:28	08/29/18 10:31	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S229-9.9to12.5

Lab Sample ID: 580-79504-39

Date Collected: 08/09/18 20:05

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 72.5

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	0.0011	J	0.0034	0.00026	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
1,2,3,4,6,7,8-HpCDF	ND		0.0034	0.00020	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
1,2,3,4,7,8,9-HpCDF	ND		0.0034	0.00023	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
1,2,3,4,7,8-HxCDD	ND		0.0034	0.00025	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
1,2,3,4,7,8-HxCDF	ND		0.0034	0.00023	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
1,2,3,6,7,8-HxCDD	ND		0.0034	0.00023	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
1,2,3,6,7,8-HxCDF	ND		0.0034	0.00023	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
1,2,3,7,8,9-HxCDD	ND		0.0034	0.00022	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
1,2,3,7,8,9-HxCDF	ND		0.0034	0.00019	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
1,2,3,7,8-PeCDD	ND		0.0034	0.00034	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
1,2,3,7,8-PeCDF	ND		0.0034	0.00020	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
2,3,4,6,7,8-HxCDF	ND		0.0034	0.00019	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
2,3,4,7,8-PeCDF	ND		0.0034	0.00021	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
2,3,7,8-TCDD	ND		0.00068	0.00016	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
2,3,7,8-TCDF	ND		0.00068	0.000097	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
OCDD	0.011		0.0068	0.00048	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1
OCDF	ND		0.0068	0.00031	ug/Kg	☼	08/23/18 10:28	08/29/18 11:19	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	48		23 - 140	08/23/18 10:28	08/29/18 11:19	1
13C-1,2,3,4,6,7,8-HpCDF	40		28 - 143	08/23/18 10:28	08/29/18 11:19	1
13C-1,2,3,4,7,8,9-HpCDF	49		26 - 138	08/23/18 10:28	08/29/18 11:19	1
13C-1,2,3,4,7,8-HxCDD	44		32 - 141	08/23/18 10:28	08/29/18 11:19	1
13C-1,2,3,4,7,8-HxCDF	42		26 - 152	08/23/18 10:28	08/29/18 11:19	1
13C-1,2,3,6,7,8-HxCDD	45		28 - 130	08/23/18 10:28	08/29/18 11:19	1
13C-1,2,3,6,7,8-HxCDF	41		26 - 123	08/23/18 10:28	08/29/18 11:19	1
13C-1,2,3,7,8,9-HxCDF	49		29 - 147	08/23/18 10:28	08/29/18 11:19	1
13C-1,2,3,7,8-PeCDD	53		25 - 181	08/23/18 10:28	08/29/18 11:19	1
13C-1,2,3,7,8-PeCDF	49		24 - 185	08/23/18 10:28	08/29/18 11:19	1
13C-2,3,4,6,7,8-HxCDF	44		28 - 136	08/23/18 10:28	08/29/18 11:19	1
13C-2,3,4,7,8-PeCDF	51		21 - 178	08/23/18 10:28	08/29/18 11:19	1
13C-2,3,7,8-TCDD	55		25 - 164	08/23/18 10:28	08/29/18 11:19	1
13C-2,3,7,8-TCDF	57		24 - 169	08/23/18 10:28	08/29/18 11:19	1
13C-OCDD	47		17 - 157	08/23/18 10:28	08/29/18 11:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	130		35 - 197	08/23/18 10:28	08/29/18 11:19	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S238-0to2

Lab Sample ID: 580-79504-40

Date Collected: 08/09/18 17:30

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 47.9

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	0.29		0.0052	0.0050	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
1,2,3,4,6,7,8-HpCDF	0.068		0.0052	0.0019	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
1,2,3,4,7,8,9-HpCDF	0.0043	J	0.0052	0.0026	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
1,2,3,4,7,8-HxCDD	0.0027	J	0.0052	0.00054	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
1,2,3,4,7,8-HxCDF	0.0055		0.0052	0.00086	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
1,2,3,6,7,8-HxCDD	0.016		0.0052	0.00055	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
1,2,3,6,7,8-HxCDF	0.0063		0.0052	0.00078	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
1,2,3,7,8,9-HxCDD	0.0075		0.0052	0.00051	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
1,2,3,7,8,9-HxCDF	ND		0.0052	0.00075	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
1,2,3,7,8-PeCDD	0.0019	J	0.0052	0.00063	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
1,2,3,7,8-PeCDF	0.0015	J q	0.0052	0.00059	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
2,3,4,6,7,8-HxCDF	0.0020	J	0.0052	0.00072	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
2,3,4,7,8-PeCDF	0.0018	J	0.0052	0.00062	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
2,3,7,8-TCDD	0.0015		0.0010	0.00030	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
OCDD	3.7		0.010	0.0035	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
OCDF	0.26		0.010	0.00061	ug/Kg	☼	08/23/18 10:28	08/29/18 12:08	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	52		23 - 140				08/23/18 10:28	08/29/18 12:08	1
13C-1,2,3,4,6,7,8-HpCDF	43		28 - 143				08/23/18 10:28	08/29/18 12:08	1
13C-1,2,3,4,7,8,9-HpCDF	50		26 - 138				08/23/18 10:28	08/29/18 12:08	1
13C-1,2,3,4,7,8-HxCDD	50		32 - 141				08/23/18 10:28	08/29/18 12:08	1
13C-1,2,3,4,7,8-HxCDF	47		26 - 152				08/23/18 10:28	08/29/18 12:08	1
13C-1,2,3,6,7,8-HxCDD	47		28 - 130				08/23/18 10:28	08/29/18 12:08	1
13C-1,2,3,6,7,8-HxCDF	49		26 - 123				08/23/18 10:28	08/29/18 12:08	1
13C-1,2,3,7,8,9-HxCDF	51		29 - 147				08/23/18 10:28	08/29/18 12:08	1
13C-1,2,3,7,8-PeCDD	62		25 - 181				08/23/18 10:28	08/29/18 12:08	1
13C-1,2,3,7,8-PeCDF	57		24 - 185				08/23/18 10:28	08/29/18 12:08	1
13C-2,3,4,6,7,8-HxCDF	48		28 - 136				08/23/18 10:28	08/29/18 12:08	1
13C-2,3,4,7,8-PeCDF	60		21 - 178				08/23/18 10:28	08/29/18 12:08	1
13C-2,3,7,8-TCDD	58		25 - 164				08/23/18 10:28	08/29/18 12:08	1
13C-OCDD	58		17 - 157				08/23/18 10:28	08/29/18 12:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	131		35 - 197				08/23/18 10:28	08/29/18 12:08	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0042		0.0010	0.00029	ug/Kg	☼	08/23/18 10:28	08/30/18 14:37	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	64		24 - 169				08/23/18 10:28	08/30/18 14:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	122		35 - 197				08/23/18 10:28	08/30/18 14:37	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S238-2to4

Lab Sample ID: 580-79504-41

Date Collected: 08/09/18 17:35

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 50.8

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	0.39	G	0.0058	0.0058	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
1,2,3,4,6,7,8-HpCDF	0.099		0.0049	0.0036	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
1,2,3,4,7,8,9-HpCDF	0.0064		0.0049	0.0024	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
1,2,3,4,7,8-HxCDD	0.0036	J	0.0049	0.0014	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
1,2,3,4,7,8-HxCDF	0.0075		0.0049	0.0014	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
1,2,3,6,7,8-HxCDD	0.017		0.0049	0.0011	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
1,2,3,6,7,8-HxCDF	0.014		0.0049	0.0012	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
1,2,3,7,8,9-HxCDD	0.018		0.0049	0.0011	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
1,2,3,7,8,9-HxCDF	0.00078	J	0.0049	0.00053	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
1,2,3,7,8-PeCDD	0.0024	J	0.0049	0.00069	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
1,2,3,7,8-PeCDF	0.0028	J	0.0049	0.00068	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
2,3,4,6,7,8-HxCDF	0.0032	J	0.0049	0.00070	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
2,3,4,7,8-PeCDF	ND		0.0049	0.0014	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
2,3,7,8-TCDD	0.0013	q	0.00099	0.00027	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
OCDD	6.3	E	0.0099	0.0044	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1
OCDF	0.29		0.0099	0.00069	ug/Kg	☼	08/23/18 10:28	08/29/18 12:56	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	39		23 - 140	08/23/18 10:28	08/29/18 12:56	1
13C-1,2,3,4,6,7,8-HpCDF	20	*	28 - 143	08/23/18 10:28	08/29/18 12:56	1
13C-1,2,3,4,7,8,9-HpCDF	44		26 - 138	08/23/18 10:28	08/29/18 12:56	1
13C-1,2,3,4,7,8-HxCDD	17	*	32 - 141	08/23/18 10:28	08/29/18 12:56	1
13C-1,2,3,4,7,8-HxCDF	18	*	26 - 152	08/23/18 10:28	08/29/18 12:56	1
13C-1,2,3,6,7,8-HxCDD	19	*	28 - 130	08/23/18 10:28	08/29/18 12:56	1
13C-1,2,3,6,7,8-HxCDF	21	*	26 - 123	08/23/18 10:28	08/29/18 12:56	1
13C-1,2,3,7,8,9-HxCDF	48		29 - 147	08/23/18 10:28	08/29/18 12:56	1
13C-1,2,3,7,8-PeCDD	47		25 - 181	08/23/18 10:28	08/29/18 12:56	1
13C-1,2,3,7,8-PeCDF	41		24 - 185	08/23/18 10:28	08/29/18 12:56	1
13C-2,3,4,6,7,8-HxCDF	31		28 - 136	08/23/18 10:28	08/29/18 12:56	1
13C-2,3,4,7,8-PeCDF	20	*	21 - 178	08/23/18 10:28	08/29/18 12:56	1
13C-2,3,7,8-TCDD	53		25 - 164	08/23/18 10:28	08/29/18 12:56	1
13C-OCDD	52		17 - 157	08/23/18 10:28	08/29/18 12:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	129		35 - 197	08/23/18 10:28	08/29/18 12:56	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0024		0.00099	0.00026	ug/Kg	☼	08/23/18 10:28	08/30/18 15:15	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	63		24 - 169	08/23/18 10:28	08/30/18 15:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	120		35 - 197	08/23/18 10:28	08/30/18 15:15	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S238-2to4D

Lab Sample ID: 580-79504-42

Date Collected: 08/09/18 17:35

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 50.1

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	0.38	G	0.0055	0.0055	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
1,2,3,4,6,7,8-HpCDF	0.099		0.0050	0.0021	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
1,2,3,4,7,8,9-HpCDF	0.0066		0.0050	0.0032	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
1,2,3,4,7,8-HxCDD	0.0031	J	0.0050	0.00050	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
1,2,3,4,7,8-HxCDF	0.0097		0.0050	0.0010	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
1,2,3,6,7,8-HxCDD	0.017		0.0050	0.00048	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
1,2,3,6,7,8-HxCDF	0.014		0.0050	0.00093	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
1,2,3,7,8,9-HxCDD	0.0085		0.0050	0.00045	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
1,2,3,7,8,9-HxCDF	ND		0.0050	0.00093	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
1,2,3,7,8-PeCDD	ND		0.0050	0.00073	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
1,2,3,7,8-PeCDF	0.0027	J	0.0050	0.00077	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
2,3,4,6,7,8-HxCDF	0.0028	J	0.0050	0.00085	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
2,3,4,7,8-PeCDF	0.0021	J	0.0050	0.00076	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
2,3,7,8-TCDD	0.0017		0.0010	0.00031	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
OCDD	6.1	E	0.010	0.0040	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1
OCDF	0.27		0.010	0.00054	ug/Kg	☼	08/23/18 10:28	08/29/18 13:44	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	56		23 - 140	08/23/18 10:28	08/29/18 13:44	1
13C-1,2,3,4,6,7,8-HpCDF	47		28 - 143	08/23/18 10:28	08/29/18 13:44	1
13C-1,2,3,4,7,8,9-HpCDF	48		26 - 138	08/23/18 10:28	08/29/18 13:44	1
13C-1,2,3,4,7,8-HxCDD	51		32 - 141	08/23/18 10:28	08/29/18 13:44	1
13C-1,2,3,4,7,8-HxCDF	53		26 - 152	08/23/18 10:28	08/29/18 13:44	1
13C-1,2,3,6,7,8-HxCDD	52		28 - 130	08/23/18 10:28	08/29/18 13:44	1
13C-1,2,3,6,7,8-HxCDF	55		26 - 123	08/23/18 10:28	08/29/18 13:44	1
13C-1,2,3,7,8,9-HxCDF	56		29 - 147	08/23/18 10:28	08/29/18 13:44	1
13C-1,2,3,7,8-PeCDD	61		25 - 181	08/23/18 10:28	08/29/18 13:44	1
13C-1,2,3,7,8-PeCDF	56		24 - 185	08/23/18 10:28	08/29/18 13:44	1
13C-2,3,4,6,7,8-HxCDF	53		28 - 136	08/23/18 10:28	08/29/18 13:44	1
13C-2,3,4,7,8-PeCDF	59		21 - 178	08/23/18 10:28	08/29/18 13:44	1
13C-2,3,7,8-TCDD	60		25 - 164	08/23/18 10:28	08/29/18 13:44	1
13C-OCDD	66		17 - 157	08/23/18 10:28	08/29/18 13:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	132		35 - 197	08/23/18 10:28	08/29/18 13:44	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0020		0.0010	0.00042	ug/Kg	☼	08/23/18 10:28	08/30/18 15:53	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	61		24 - 169	08/23/18 10:28	08/30/18 15:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	126		35 - 197	08/23/18 10:28	08/30/18 15:53	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S238-4to6

Lab Sample ID: 580-79504-43

Date Collected: 08/09/18 17:40

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 50.8

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	0.51	G	0.0059	0.0059	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
1,2,3,4,6,7,8-HpCDF	0.43		0.0050	0.0039	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
1,2,3,4,7,8,9-HpCDF	0.0077		0.0050	0.0048	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
1,2,3,4,7,8-HxCDD	0.0041	J	0.0050	0.00067	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
1,2,3,4,7,8-HxCDF	0.012		0.0050	0.0014	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
1,2,3,6,7,8-HxCDD	0.022		0.0050	0.00069	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
1,2,3,6,7,8-HxCDF	0.013		0.0050	0.0013	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
1,2,3,7,8,9-HxCDD	0.012		0.0050	0.00063	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
1,2,3,7,8,9-HxCDF	ND		0.0050	0.0012	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
1,2,3,7,8-PeCDD	0.0024	J	0.0050	0.00082	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
1,2,3,7,8-PeCDF	0.0039	J	0.0050	0.00097	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
2,3,4,6,7,8-HxCDF	0.0031	J	0.0050	0.0012	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
2,3,4,7,8-PeCDF	0.0032	J	0.0050	0.0010	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
2,3,7,8-TCDD	0.0016		0.00099	0.00031	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
OCDD	7.6	E	0.0099	0.0042	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1
OCDF	0.43		0.0099	0.00057	ug/Kg	☼	08/23/18 10:28	08/29/18 14:33	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	56		23 - 140	08/23/18 10:28	08/29/18 14:33	1
13C-1,2,3,4,6,7,8-HpCDF	47		28 - 143	08/23/18 10:28	08/29/18 14:33	1
13C-1,2,3,4,7,8,9-HpCDF	56		26 - 138	08/23/18 10:28	08/29/18 14:33	1
13C-1,2,3,4,7,8-HxCDD	52		32 - 141	08/23/18 10:28	08/29/18 14:33	1
13C-1,2,3,4,7,8-HxCDF	50		26 - 152	08/23/18 10:28	08/29/18 14:33	1
13C-1,2,3,6,7,8-HxCDD	48		28 - 130	08/23/18 10:28	08/29/18 14:33	1
13C-1,2,3,6,7,8-HxCDF	47		26 - 123	08/23/18 10:28	08/29/18 14:33	1
13C-1,2,3,7,8,9-HxCDF	54		29 - 147	08/23/18 10:28	08/29/18 14:33	1
13C-1,2,3,7,8-PeCDD	61		25 - 181	08/23/18 10:28	08/29/18 14:33	1
13C-1,2,3,7,8-PeCDF	58		24 - 185	08/23/18 10:28	08/29/18 14:33	1
13C-2,3,4,6,7,8-HxCDF	50		28 - 136	08/23/18 10:28	08/29/18 14:33	1
13C-2,3,4,7,8-PeCDF	60		21 - 178	08/23/18 10:28	08/29/18 14:33	1
13C-2,3,7,8-TCDD	60		25 - 164	08/23/18 10:28	08/29/18 14:33	1
13C-OCDD	63		17 - 157	08/23/18 10:28	08/29/18 14:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	131		35 - 197	08/23/18 10:28	08/29/18 14:33	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0036	q	0.00099	0.00074	ug/Kg	☼	08/23/18 10:28	08/30/18 16:30	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	69		24 - 169	08/23/18 10:28	08/30/18 16:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	128		35 - 197	08/23/18 10:28	08/30/18 16:30	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S238-6to8

Lab Sample ID: 580-79504-44

Date Collected: 08/09/18 17:45

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 59.7

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	0.31		0.0041	0.0039	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
1,2,3,4,6,7,8-HpCDF	0.058		0.0041	0.0014	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
1,2,3,4,7,8,9-HpCDF	0.0041		0.0041	0.0019	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
1,2,3,4,7,8-HxCDD	0.0025	J	0.0041	0.00045	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
1,2,3,4,7,8-HxCDF	0.0051		0.0041	0.00084	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
1,2,3,6,7,8-HxCDD	0.014		0.0041	0.00044	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
1,2,3,6,7,8-HxCDF	0.0066		0.0041	0.00082	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
1,2,3,7,8,9-HxCDD	0.0070		0.0041	0.00041	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
1,2,3,7,8,9-HxCDF	ND		0.0041	0.00071	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
1,2,3,7,8-PeCDD	0.0016	J	0.0041	0.00052	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
1,2,3,7,8-PeCDF	0.0016	J	0.0041	0.00052	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
2,3,4,6,7,8-HxCDF	0.0018	J	0.0041	0.00069	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
2,3,4,7,8-PeCDF	0.0016	J	0.0041	0.00052	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
2,3,7,8-TCDD	0.00091	q	0.00082	0.00029	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
OCDD	4.6	E	0.0082	0.0032	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
OCDF	0.25		0.0082	0.00059	ug/Kg	☼	08/23/18 10:28	08/29/18 15:21	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	47		23 - 140				08/23/18 10:28	08/29/18 15:21	1
13C-1,2,3,4,6,7,8-HpCDF	39		28 - 143				08/23/18 10:28	08/29/18 15:21	1
13C-1,2,3,4,7,8,9-HpCDF	45		26 - 138				08/23/18 10:28	08/29/18 15:21	1
13C-1,2,3,4,7,8-HxCDD	44		32 - 141				08/23/18 10:28	08/29/18 15:21	1
13C-1,2,3,4,7,8-HxCDF	43		26 - 152				08/23/18 10:28	08/29/18 15:21	1
13C-1,2,3,6,7,8-HxCDD	44		28 - 130				08/23/18 10:28	08/29/18 15:21	1
13C-1,2,3,6,7,8-HxCDF	42		26 - 123				08/23/18 10:28	08/29/18 15:21	1
13C-1,2,3,7,8,9-HxCDF	49		29 - 147				08/23/18 10:28	08/29/18 15:21	1
13C-1,2,3,7,8-PeCDD	54		25 - 181				08/23/18 10:28	08/29/18 15:21	1
13C-1,2,3,7,8-PeCDF	51		24 - 185				08/23/18 10:28	08/29/18 15:21	1
13C-2,3,4,6,7,8-HxCDF	45		28 - 136				08/23/18 10:28	08/29/18 15:21	1
13C-2,3,4,7,8-PeCDF	55		21 - 178				08/23/18 10:28	08/29/18 15:21	1
13C-2,3,7,8-TCDD	55		25 - 164				08/23/18 10:28	08/29/18 15:21	1
13C-OCDD	52		17 - 157				08/23/18 10:28	08/29/18 15:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	134		35 - 197				08/23/18 10:28	08/29/18 15:21	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0024		0.00082	0.00050	ug/Kg	☼	08/23/18 10:28	08/30/18 17:08	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	70		24 - 169				08/23/18 10:28	08/30/18 17:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	137		35 - 197				08/23/18 10:28	08/30/18 17:08	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S238-8to10

Lab Sample ID: 580-79504-45

Date Collected: 08/09/18 17:50

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 55.9

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	0.56	G	0.0066	0.0066	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
1,2,3,4,6,7,8-HpCDF	0.10		0.0045	0.0022	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
1,2,3,4,7,8,9-HpCDF	0.0071		0.0045	0.0029	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
1,2,3,4,7,8-HxCDD	0.0053	q	0.0045	0.00064	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
1,2,3,4,7,8-HxCDF	0.013		0.0045	0.0012	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
1,2,3,6,7,8-HxCDD	0.022		0.0045	0.00065	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
1,2,3,6,7,8-HxCDF	0.011		0.0045	0.0011	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
1,2,3,7,8,9-HxCDD	0.012		0.0045	0.00060	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
1,2,3,7,8,9-HxCDF	ND		0.0045	0.0011	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
1,2,3,7,8-PeCDD	0.0029	J	0.0045	0.00070	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
1,2,3,7,8-PeCDF	0.0036	J	0.0045	0.00073	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
2,3,4,6,7,8-HxCDF	0.0028	J	0.0045	0.00096	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
2,3,4,7,8-PeCDF	0.0028	J	0.0045	0.00079	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
2,3,7,8-TCDD	0.0016		0.00089	0.00030	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
OCDD	7.1	E	0.0089	0.0048	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
OCDF	0.28		0.0089	0.00054	ug/Kg	☼	08/23/18 10:28	08/29/18 16:09	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	55		23 - 140				08/23/18 10:28	08/29/18 16:09	1
13C-1,2,3,4,6,7,8-HpCDF	46		28 - 143				08/23/18 10:28	08/29/18 16:09	1
13C-1,2,3,4,7,8,9-HpCDF	51		26 - 138				08/23/18 10:28	08/29/18 16:09	1
13C-1,2,3,4,7,8-HxCDD	53		32 - 141				08/23/18 10:28	08/29/18 16:09	1
13C-1,2,3,4,7,8-HxCDF	50		26 - 152				08/23/18 10:28	08/29/18 16:09	1
13C-1,2,3,6,7,8-HxCDD	51		28 - 130				08/23/18 10:28	08/29/18 16:09	1
13C-1,2,3,6,7,8-HxCDF	51		26 - 123				08/23/18 10:28	08/29/18 16:09	1
13C-1,2,3,7,8,9-HxCDF	54		29 - 147				08/23/18 10:28	08/29/18 16:09	1
13C-1,2,3,7,8-PeCDD	61		25 - 181				08/23/18 10:28	08/29/18 16:09	1
13C-1,2,3,7,8-PeCDF	57		24 - 185				08/23/18 10:28	08/29/18 16:09	1
13C-2,3,4,6,7,8-HxCDF	53		28 - 136				08/23/18 10:28	08/29/18 16:09	1
13C-2,3,4,7,8-PeCDF	59		21 - 178				08/23/18 10:28	08/29/18 16:09	1
13C-2,3,7,8-TCDD	59		25 - 164				08/23/18 10:28	08/29/18 16:09	1
13C-OCDD	63		17 - 157				08/23/18 10:28	08/29/18 16:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	134		35 - 197				08/23/18 10:28	08/29/18 16:09	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0034	G	0.0011	0.0011	ug/Kg	☼	08/23/18 10:28	08/30/18 17:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	63		24 - 169				08/23/18 10:28	08/30/18 17:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	130		35 - 197				08/23/18 10:28	08/30/18 17:46	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S238-10to12.4

Lab Sample ID: 580-79504-46

Date Collected: 08/09/18 17:55

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 56.7

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	0.48	G	0.0054	0.0054	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
1,2,3,4,6,7,8-HpCDF	0.11		0.0044	0.0020	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
1,2,3,4,7,8,9-HpCDF	0.0062		0.0044	0.0028	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
1,2,3,4,7,8-HxCDD	0.0037	J q	0.0044	0.00069	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
1,2,3,4,7,8-HxCDF	0.0093		0.0044	0.0010	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
1,2,3,6,7,8-HxCDD	0.021		0.0044	0.00066	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
1,2,3,6,7,8-HxCDF	0.0097		0.0044	0.00098	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
1,2,3,7,8,9-HxCDD	0.012		0.0044	0.00062	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
1,2,3,7,8,9-HxCDF	ND		0.0044	0.00097	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
1,2,3,7,8-PeCDD	0.0022	J q	0.0044	0.00074	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
1,2,3,7,8-PeCDF	0.0027	J	0.0044	0.00073	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
2,3,4,6,7,8-HxCDF	0.0032	J	0.0044	0.00089	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
2,3,4,7,8-PeCDF	0.0027	J	0.0044	0.00073	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
2,3,7,8-TCDD	0.0032		0.00089	0.00027	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
OCDD	6.3	E	0.0089	0.0037	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1
OCDF	0.32		0.0089	0.00054	ug/Kg	☼	08/23/18 10:28	08/29/18 16:57	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	53		23 - 140	08/23/18 10:28	08/29/18 16:57	1
13C-1,2,3,4,6,7,8-HpCDF	45		28 - 143	08/23/18 10:28	08/29/18 16:57	1
13C-1,2,3,4,7,8,9-HpCDF	48		26 - 138	08/23/18 10:28	08/29/18 16:57	1
13C-1,2,3,4,7,8-HxCDD	55		32 - 141	08/23/18 10:28	08/29/18 16:57	1
13C-1,2,3,4,7,8-HxCDF	53		26 - 152	08/23/18 10:28	08/29/18 16:57	1
13C-1,2,3,6,7,8-HxCDD	50		28 - 130	08/23/18 10:28	08/29/18 16:57	1
13C-1,2,3,6,7,8-HxCDF	53		26 - 123	08/23/18 10:28	08/29/18 16:57	1
13C-1,2,3,7,8,9-HxCDF	54		29 - 147	08/23/18 10:28	08/29/18 16:57	1
13C-1,2,3,7,8-PeCDD	65		25 - 181	08/23/18 10:28	08/29/18 16:57	1
13C-1,2,3,7,8-PeCDF	60		24 - 185	08/23/18 10:28	08/29/18 16:57	1
13C-2,3,4,6,7,8-HxCDF	53		28 - 136	08/23/18 10:28	08/29/18 16:57	1
13C-2,3,4,7,8-PeCDF	62		21 - 178	08/23/18 10:28	08/29/18 16:57	1
13C-2,3,7,8-TCDD	61		25 - 164	08/23/18 10:28	08/29/18 16:57	1
13C-OCDD	64		17 - 157	08/23/18 10:28	08/29/18 16:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	139		35 - 197	08/23/18 10:28	08/29/18 16:57	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0029		0.00089	0.00025	ug/Kg	☼	08/23/18 10:28	08/30/18 18:24	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	68		24 - 169	08/23/18 10:28	08/30/18 18:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	136		35 - 197	08/23/18 10:28	08/30/18 18:24	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S238-12.4to13.4

Lab Sample ID: 580-79504-47

Date Collected: 08/09/18 18:00

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 56.7

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	0.56	G	0.0056	0.0056	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
1,2,3,4,6,7,8-HpCDF	0.19		0.0043	0.0030	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
1,2,3,4,7,8,9-HpCDF	0.0096		0.0043	0.0043	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
1,2,3,4,7,8-HxCDD	0.0048		0.0043	0.00060	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
1,2,3,4,7,8-HxCDF	0.012		0.0043	0.0014	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
1,2,3,6,7,8-HxCDD	0.021		0.0043	0.00060	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
1,2,3,6,7,8-HxCDF	0.014		0.0043	0.0013	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
1,2,3,7,8,9-HxCDD	0.011		0.0043	0.00056	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
1,2,3,7,8,9-HxCDF	ND		0.0043	0.0012	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
1,2,3,7,8-PeCDD	0.0025	J	0.0043	0.00063	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
1,2,3,7,8-PeCDF	0.0021	J	0.0043	0.00087	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
2,3,4,6,7,8-HxCDF	0.0041	J	0.0043	0.0011	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
2,3,4,7,8-PeCDF	0.0022	J	0.0043	0.00083	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
2,3,7,8-TCDD	0.0013	q	0.00086	0.00030	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
OCDD	9.1	E	0.0086	0.0052	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
OCDF	0.53		0.0086	0.00083	ug/Kg	☼	08/23/18 10:28	08/29/18 17:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	45		23 - 140				08/23/18 10:28	08/29/18 17:46	1
13C-1,2,3,4,6,7,8-HpCDF	38		28 - 143				08/23/18 10:28	08/29/18 17:46	1
13C-1,2,3,4,7,8,9-HpCDF	39		26 - 138				08/23/18 10:28	08/29/18 17:46	1
13C-1,2,3,4,7,8-HxCDD	50		32 - 141				08/23/18 10:28	08/29/18 17:46	1
13C-1,2,3,4,7,8-HxCDF	49		26 - 152				08/23/18 10:28	08/29/18 17:46	1
13C-1,2,3,6,7,8-HxCDD	47		28 - 130				08/23/18 10:28	08/29/18 17:46	1
13C-1,2,3,6,7,8-HxCDF	48		26 - 123				08/23/18 10:28	08/29/18 17:46	1
13C-1,2,3,7,8,9-HxCDF	50		29 - 147				08/23/18 10:28	08/29/18 17:46	1
13C-1,2,3,7,8-PeCDD	59		25 - 181				08/23/18 10:28	08/29/18 17:46	1
13C-1,2,3,7,8-PeCDF	55		24 - 185				08/23/18 10:28	08/29/18 17:46	1
13C-2,3,4,6,7,8-HxCDF	50		28 - 136				08/23/18 10:28	08/29/18 17:46	1
13C-2,3,4,7,8-PeCDF	61		21 - 178				08/23/18 10:28	08/29/18 17:46	1
13C-2,3,7,8-TCDD	57		25 - 164				08/23/18 10:28	08/29/18 17:46	1
13C-OCDD	49		17 - 157				08/23/18 10:28	08/29/18 17:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	131		35 - 197				08/23/18 10:28	08/29/18 17:46	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0019		0.00086	0.00024	ug/Kg	☼	08/23/18 10:28	08/30/18 19:02	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	70		24 - 169				08/23/18 10:28	08/30/18 19:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	131		35 - 197				08/23/18 10:28	08/30/18 19:02	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-RB-SS-180809

Lab Sample ID: 580-79504-49

Date Collected: 08/09/18 08:00

Matrix: Water

Date Received: 08/10/18 14:50

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	ND		49	1.5	pg/L		08/24/18 08:14	08/30/18 13:48	1
1,2,3,4,6,7,8-HpCDF	ND		49	1.2	pg/L		08/24/18 08:14	08/30/18 13:48	1
1,2,3,4,7,8,9-HpCDF	ND		49	1.6	pg/L		08/24/18 08:14	08/30/18 13:48	1
1,2,3,4,7,8-HxCDD	ND		49	2.1	pg/L		08/24/18 08:14	08/30/18 13:48	1
1,2,3,4,7,8-HxCDF	ND		49	2.1	pg/L		08/24/18 08:14	08/30/18 13:48	1
1,2,3,6,7,8-HxCDD	ND		49	2.1	pg/L		08/24/18 08:14	08/30/18 13:48	1
1,2,3,6,7,8-HxCDF	ND		49	2.1	pg/L		08/24/18 08:14	08/30/18 13:48	1
1,2,3,7,8,9-HxCDD	ND		49	1.9	pg/L		08/24/18 08:14	08/30/18 13:48	1
1,2,3,7,8,9-HxCDF	6.4	J q B	49	2.0	pg/L		08/24/18 08:14	08/30/18 13:48	1
1,2,3,7,8-PeCDD	ND		49	4.6	pg/L		08/24/18 08:14	08/30/18 13:48	1
1,2,3,7,8-PeCDF	ND		49	2.4	pg/L		08/24/18 08:14	08/30/18 13:48	1
2,3,4,6,7,8-HxCDF	ND		49	1.8	pg/L		08/24/18 08:14	08/30/18 13:48	1
2,3,4,7,8-PeCDF	ND		49	2.6	pg/L		08/24/18 08:14	08/30/18 13:48	1
2,3,7,8-TCDD	ND		9.7	1.8	pg/L		08/24/18 08:14	08/30/18 13:48	1
2,3,7,8-TCDF	ND		9.7	1.3	pg/L		08/24/18 08:14	08/30/18 13:48	1
OCDD	18	J	97	4.1	pg/L		08/24/18 08:14	08/30/18 13:48	1
OCDF	ND		97	3.8	pg/L		08/24/18 08:14	08/30/18 13:48	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	86		23 - 140	08/24/18 08:14	08/30/18 13:48	1
13C-1,2,3,4,6,7,8-HpCDF	79		28 - 143	08/24/18 08:14	08/30/18 13:48	1
13C-1,2,3,4,7,8,9-HpCDF	84		26 - 138	08/24/18 08:14	08/30/18 13:48	1
13C-1,2,3,4,7,8-HxCDD	72		32 - 141	08/24/18 08:14	08/30/18 13:48	1
13C-1,2,3,4,7,8-HxCDF	68		26 - 152	08/24/18 08:14	08/30/18 13:48	1
13C-1,2,3,6,7,8-HxCDD	73		28 - 130	08/24/18 08:14	08/30/18 13:48	1
13C-1,2,3,6,7,8-HxCDF	73		26 - 123	08/24/18 08:14	08/30/18 13:48	1
13C-1,2,3,7,8,9-HxCDF	75		29 - 147	08/24/18 08:14	08/30/18 13:48	1
13C-1,2,3,7,8-PeCDD	78		25 - 181	08/24/18 08:14	08/30/18 13:48	1
13C-1,2,3,7,8-PeCDF	73		24 - 185	08/24/18 08:14	08/30/18 13:48	1
13C-2,3,4,6,7,8-HxCDF	74		28 - 136	08/24/18 08:14	08/30/18 13:48	1
13C-2,3,4,7,8-PeCDF	74		21 - 178	08/24/18 08:14	08/30/18 13:48	1
13C-2,3,7,8-TCDD	76		25 - 164	08/24/18 08:14	08/30/18 13:48	1
13C-2,3,7,8-TCDF	77		24 - 169	08/24/18 08:14	08/30/18 13:48	1
13C-OCDD	90		17 - 157	08/24/18 08:14	08/30/18 13:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	135		35 - 197	08/24/18 08:14	08/30/18 13:48	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-RB-SS-180809-1900

Lab Sample ID: 580-79504-50

Date Collected: 08/09/18 19:00

Matrix: Water

Date Received: 08/10/18 14:50

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	ND		50	6.3	pg/L		08/24/18 08:14	08/30/18 14:36	1
1,2,3,4,6,7,8-HpCDF	ND		50	3.6	pg/L		08/24/18 08:14	08/30/18 14:36	1
1,2,3,4,7,8,9-HpCDF	ND		50	4.9	pg/L		08/24/18 08:14	08/30/18 14:36	1
1,2,3,4,7,8-HxCDD	ND		50	6.5	pg/L		08/24/18 08:14	08/30/18 14:36	1
1,2,3,4,7,8-HxCDF	ND		50	5.7	pg/L		08/24/18 08:14	08/30/18 14:36	1
1,2,3,6,7,8-HxCDD	ND		50	6.0	pg/L		08/24/18 08:14	08/30/18 14:36	1
1,2,3,6,7,8-HxCDF	ND		50	5.3	pg/L		08/24/18 08:14	08/30/18 14:36	1
1,2,3,7,8,9-HxCDD	ND		50	5.8	pg/L		08/24/18 08:14	08/30/18 14:36	1
1,2,3,7,8,9-HxCDF	ND		50	4.8	pg/L		08/24/18 08:14	08/30/18 14:36	1
1,2,3,7,8-PeCDD	ND		50	9.2	pg/L		08/24/18 08:14	08/30/18 14:36	1
1,2,3,7,8-PeCDF	ND		50	6.1	pg/L		08/24/18 08:14	08/30/18 14:36	1
2,3,4,6,7,8-HxCDF	ND		50	4.7	pg/L		08/24/18 08:14	08/30/18 14:36	1
2,3,4,7,8-PeCDF	ND		50	6.5	pg/L		08/24/18 08:14	08/30/18 14:36	1
2,3,7,8-TCDD	ND		10	5.2	pg/L		08/24/18 08:14	08/30/18 14:36	1
2,3,7,8-TCDF	ND		10	3.6	pg/L		08/24/18 08:14	08/30/18 14:36	1
OCDD	46	J q	100	9.8	pg/L		08/24/18 08:14	08/30/18 14:36	1
OCDF	ND		100	8.1	pg/L		08/24/18 08:14	08/30/18 14:36	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	83		23 - 140	08/24/18 08:14	08/30/18 14:36	1
13C-1,2,3,4,6,7,8-HpCDF	78		28 - 143	08/24/18 08:14	08/30/18 14:36	1
13C-1,2,3,4,7,8,9-HpCDF	85		26 - 138	08/24/18 08:14	08/30/18 14:36	1
13C-1,2,3,4,7,8-HxCDD	65		32 - 141	08/24/18 08:14	08/30/18 14:36	1
13C-1,2,3,4,7,8-HxCDF	69		26 - 152	08/24/18 08:14	08/30/18 14:36	1
13C-1,2,3,6,7,8-HxCDD	71		28 - 130	08/24/18 08:14	08/30/18 14:36	1
13C-1,2,3,6,7,8-HxCDF	75		26 - 123	08/24/18 08:14	08/30/18 14:36	1
13C-1,2,3,7,8,9-HxCDF	78		29 - 147	08/24/18 08:14	08/30/18 14:36	1
13C-1,2,3,7,8-PeCDD	74		25 - 181	08/24/18 08:14	08/30/18 14:36	1
13C-1,2,3,7,8-PeCDF	67		24 - 185	08/24/18 08:14	08/30/18 14:36	1
13C-2,3,4,6,7,8-HxCDF	73		28 - 136	08/24/18 08:14	08/30/18 14:36	1
13C-2,3,4,7,8-PeCDF	70		21 - 178	08/24/18 08:14	08/30/18 14:36	1
13C-2,3,7,8-TCDD	73		25 - 164	08/24/18 08:14	08/30/18 14:36	1
13C-2,3,7,8-TCDF	76		24 - 169	08/24/18 08:14	08/30/18 14:36	1
13C-OCDD	82		17 - 157	08/24/18 08:14	08/30/18 14:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	129		35 - 197	08/24/18 08:14	08/30/18 14:36	1

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79504-2

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

Lab Sample ID: MB 320-241175/1-A

Matrix: Solid

Analysis Batch: 242218

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 241175

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.000123	J q	0.0050	0.000017	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
1,2,3,4,6,7,8-HpCDF	0.0000688	J q	0.0050	0.000019	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
1,2,3,4,7,8,9-HpCDF	0.000161	J q	0.0050	0.000022	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
1,2,3,4,7,8-HxCDD	0.000117	J q	0.0050	0.000022	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
1,2,3,4,7,8-HxCDF	ND		0.0050	0.000020	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
1,2,3,6,7,8-HxCDD	0.0000305	J q	0.0050	0.000020	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
1,2,3,6,7,8-HxCDF	ND		0.0050	0.000020	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
1,2,3,7,8,9-HxCDD	0.0000451	J	0.0050	0.000019	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
1,2,3,7,8,9-HxCDF	0.000214	J q	0.0050	0.000012	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
1,2,3,7,8-PeCDD	ND		0.0050	0.000018	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
1,2,3,7,8-PeCDF	0.0000340	J q	0.0050	0.000015	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
2,3,4,6,7,8-HxCDF	ND		0.0050	0.000018	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
2,3,4,7,8-PeCDF	ND		0.0050	0.000018	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
2,3,7,8-TCDD	ND		0.0010	0.0000073	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
2,3,7,8-TCDF	0.0000426	J	0.0010	0.0000052	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
OCDD	0.000941	J	0.010	0.000023	ug/Kg		08/21/18 13:53	08/26/18 11:41	1
OCDF	0.000163	J	0.010	0.0000086	ug/Kg		08/21/18 13:53	08/26/18 11:41	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	90		23 - 140	08/21/18 13:53	08/26/18 11:41	1
13C-1,2,3,4,6,7,8-HpCDF	81		28 - 143	08/21/18 13:53	08/26/18 11:41	1
13C-1,2,3,4,7,8,9-HpCDF	84		26 - 138	08/21/18 13:53	08/26/18 11:41	1
13C-1,2,3,4,7,8-HxCDD	71		32 - 141	08/21/18 13:53	08/26/18 11:41	1
13C-1,2,3,4,7,8-HxCDF	76		26 - 152	08/21/18 13:53	08/26/18 11:41	1
13C-1,2,3,6,7,8-HxCDD	74		28 - 130	08/21/18 13:53	08/26/18 11:41	1
13C-1,2,3,6,7,8-HxCDF	78		26 - 123	08/21/18 13:53	08/26/18 11:41	1
13C-1,2,3,7,8,9-HxCDF	75		29 - 147	08/21/18 13:53	08/26/18 11:41	1
13C-1,2,3,7,8-PeCDD	45		25 - 181	08/21/18 13:53	08/26/18 11:41	1
13C-1,2,3,7,8-PeCDF	50		24 - 185	08/21/18 13:53	08/26/18 11:41	1
13C-2,3,4,6,7,8-HxCDF	75		28 - 136	08/21/18 13:53	08/26/18 11:41	1
13C-2,3,4,7,8-PeCDF	45		21 - 178	08/21/18 13:53	08/26/18 11:41	1
13C-2,3,7,8-TCDD	74		25 - 164	08/21/18 13:53	08/26/18 11:41	1
13C-2,3,7,8-TCDF	68		24 - 169	08/21/18 13:53	08/26/18 11:41	1
13C-OCDD	78		17 - 157	08/21/18 13:53	08/26/18 11:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	122		35 - 197	08/21/18 13:53	08/26/18 11:41	1

Lab Sample ID: LCS 320-241175/2-A

Matrix: Solid

Analysis Batch: 242218

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 241175

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,2,3,4,6,7,8-HpCDD	0.100	0.101		ug/Kg		101	70 - 140
1,2,3,4,6,7,8-HpCDF	0.100	0.106		ug/Kg		106	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	0.104		ug/Kg		104	70 - 164
1,2,3,4,7,8-HxCDF	0.100	0.106		ug/Kg		106	72 - 134

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79504-2

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

Lab Sample ID: LCS 320-241175/2-A

Matrix: Solid

Analysis Batch: 242218

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 241175

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,6,7,8-HxCDD	0.100	0.107		ug/Kg		107	76 - 134
1,2,3,6,7,8-HxCDF	0.100	0.106		ug/Kg		106	84 - 130
1,2,3,7,8,9-HxCDD	0.100	0.109		ug/Kg		109	64 - 162
1,2,3,7,8,9-HxCDF	0.100	0.107		ug/Kg		107	78 - 130
1,2,3,7,8-PeCDD	0.100	0.0932		ug/Kg		93	70 - 142
1,2,3,7,8-PeCDF	0.100	0.109		ug/Kg		109	80 - 134
2,3,4,6,7,8-HxCDF	0.100	0.107		ug/Kg		107	70 - 156
2,3,4,7,8-PeCDF	0.100	0.112		ug/Kg		112	68 - 160
2,3,7,8-TCDD	0.0200	0.0186		ug/Kg		93	67 - 158
2,3,7,8-TCDF	0.0200	0.0211		ug/Kg		105	75 - 158
OCDD	0.200	0.215		ug/Kg		107	78 - 144
OCDF	0.200	0.221		ug/Kg		111	63 - 170

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDD	85		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	75		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	79		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	68		25 - 163
13C-1,2,3,6,7,8-HxCDF	72		21 - 159
13C-1,2,3,7,8,9-HxCDF	71		17 - 205
13C-1,2,3,7,8-PeCDD	33		21 - 227
13C-1,2,3,7,8-PeCDF	23		21 - 192
13C-2,3,4,6,7,8-HxCDF	70		22 - 176
13C-2,3,4,7,8-PeCDF	31		13 - 328
13C-2,3,7,8-TCDD	70		20 - 175
13C-2,3,7,8-TCDF	64		22 - 152
13C-OCDD	75		13 - 199

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	122		31 - 191

Lab Sample ID: LCSD 320-241175/3-A

Matrix: Solid

Analysis Batch: 242614

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 241175

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
1,2,3,4,6,7,8-HpCDD	0.100	0.0935		ug/Kg		94	70 - 140	7	50
1,2,3,4,6,7,8-HpCDF	0.100	0.0998		ug/Kg		100	82 - 122	6	50
1,2,3,4,7,8,9-HpCDF	0.100	0.103		ug/Kg		103	78 - 138	5	50
1,2,3,4,7,8-HxCDD	0.100	0.0943		ug/Kg		94	70 - 164	9	50
1,2,3,4,7,8-HxCDF	0.100	0.102		ug/Kg		102	72 - 134	4	50
1,2,3,6,7,8-HxCDD	0.100	0.103		ug/Kg		103	76 - 134	4	50
1,2,3,6,7,8-HxCDF	0.100	0.105		ug/Kg		105	84 - 130	1	50
1,2,3,7,8,9-HxCDD	0.100	0.104		ug/Kg		104	64 - 162	5	50
1,2,3,7,8,9-HxCDF	0.100	0.102		ug/Kg		102	78 - 130	5	50
1,2,3,7,8-PeCDD	0.100	0.0919		ug/Kg		92	70 - 142	1	50

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79504-2

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

Lab Sample ID: LCSD 320-241175/3-A

Matrix: Solid

Analysis Batch: 242614

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 241175

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3,7,8-PeCDF	0.100	0.101		ug/Kg		101	80 - 134	8	50
2,3,4,6,7,8-HxCDF	0.100	0.104		ug/Kg		104	70 - 156	3	50
2,3,4,7,8-PeCDF	0.100	0.0998		ug/Kg		100	68 - 160	11	50
2,3,7,8-TCDD	0.0200	0.0187		ug/Kg		93	67 - 158	0	50
2,3,7,8-TCDF	0.0200	0.0190		ug/Kg		95	75 - 158	10	50
OCDD	0.200	0.199		ug/Kg		99	78 - 144	8	50
OCDF	0.200	0.189		ug/Kg		94	63 - 170	16	50

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDD	90		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	78		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	83		20 - 186
13C-1,2,3,4,7,8-HxCDD	73		21 - 193
13C-1,2,3,4,7,8-HxCDF	69		19 - 202
13C-1,2,3,6,7,8-HxCDD	72		25 - 163
13C-1,2,3,6,7,8-HxCDF	73		21 - 159
13C-1,2,3,7,8,9-HxCDF	74		17 - 205
13C-1,2,3,7,8-PeCDD	80		21 - 227
13C-1,2,3,7,8-PeCDF	69		21 - 192
13C-2,3,4,6,7,8-HxCDF	74		22 - 176
13C-2,3,4,7,8-PeCDF	69		13 - 328
13C-2,3,7,8-TCDD	74		20 - 175
13C-2,3,7,8-TCDF	67		22 - 152
13C-OCDD	102		13 - 199

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
37Cl4-2,3,7,8-TCDD	126		31 - 191

Lab Sample ID: MB 320-241430/1-A

Matrix: Solid

Analysis Batch: 242428

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 241430

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.000223	J	0.0050	0.000032	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
1,2,3,4,6,7,8-HpCDF	0.000106	J q	0.0050	0.000022	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
1,2,3,4,7,8,9-HpCDF	0.000321	J	0.0050	0.000027	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
1,2,3,4,7,8-HxCDD	ND		0.0050	0.000032	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
1,2,3,4,7,8-HxCDF	ND		0.0050	0.000031	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
1,2,3,6,7,8-HxCDD	ND		0.0050	0.000030	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
1,2,3,6,7,8-HxCDF	ND		0.0050	0.000031	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
1,2,3,7,8,9-HxCDD	ND		0.0050	0.000028	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
1,2,3,7,8,9-HxCDF	0.000644	J	0.0050	0.000019	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
1,2,3,7,8-PeCDD	ND		0.0050	0.000020	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
1,2,3,7,8-PeCDF	0.0000521	J q	0.0050	0.000018	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
2,3,4,6,7,8-HxCDF	ND		0.0050	0.000028	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
2,3,4,7,8-PeCDF	ND		0.0050	0.000020	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
2,3,7,8-TCDD	ND		0.0010	0.000015	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
2,3,7,8-TCDF	0.0000320	J	0.0010	0.0000085	ug/Kg		08/22/18 13:10	08/27/18 10:09	1

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79504-2

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

Lab Sample ID: MB 320-241430/1-A

Matrix: Solid

Analysis Batch: 242428

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 241430

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
OCDD	0.00516	J	0.010	0.000050	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
OCDF	0.000420	J	0.010	0.000020	ug/Kg		08/22/18 13:10	08/27/18 10:09	1
Isotope Dilution	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	75		23 - 140				08/22/18 13:10	08/27/18 10:09	1
13C-1,2,3,4,6,7,8-HpCDF	71		28 - 143				08/22/18 13:10	08/27/18 10:09	1
13C-1,2,3,4,7,8,9-HpCDF	71		26 - 138				08/22/18 13:10	08/27/18 10:09	1
13C-1,2,3,4,7,8-HxCDD	63		32 - 141				08/22/18 13:10	08/27/18 10:09	1
13C-1,2,3,4,7,8-HxCDF	67		26 - 152				08/22/18 13:10	08/27/18 10:09	1
13C-1,2,3,6,7,8-HxCDD	64		28 - 130				08/22/18 13:10	08/27/18 10:09	1
13C-1,2,3,6,7,8-HxCDF	70		26 - 123				08/22/18 13:10	08/27/18 10:09	1
13C-1,2,3,7,8,9-HxCDF	70		29 - 147				08/22/18 13:10	08/27/18 10:09	1
13C-1,2,3,7,8-PeCDD	60		25 - 181				08/22/18 13:10	08/27/18 10:09	1
13C-1,2,3,7,8-PeCDF	58		24 - 185				08/22/18 13:10	08/27/18 10:09	1
13C-2,3,4,6,7,8-HxCDF	68		28 - 136				08/22/18 13:10	08/27/18 10:09	1
13C-2,3,4,7,8-PeCDF	57		21 - 178				08/22/18 13:10	08/27/18 10:09	1
13C-2,3,7,8-TCDD	66		25 - 164				08/22/18 13:10	08/27/18 10:09	1
13C-2,3,7,8-TCDF	61		24 - 169				08/22/18 13:10	08/27/18 10:09	1
13C-OCDD	60		17 - 157				08/22/18 13:10	08/27/18 10:09	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	127		35 - 197				08/22/18 13:10	08/27/18 10:09	1

Lab Sample ID: LCS 320-241430/2-A

Matrix: Solid

Analysis Batch: 242428

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 241430

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,2,3,4,6,7,8-HpCDD	0.100	0.106		ug/Kg		106	70 - 140
1,2,3,4,6,7,8-HpCDF	0.100	0.113		ug/Kg		113	82 - 122
1,2,3,4,7,8,9-HpCDF	0.100	0.115		ug/Kg		115	78 - 138
1,2,3,4,7,8-HxCDD	0.100	0.113		ug/Kg		113	70 - 164
1,2,3,4,7,8-HxCDF	0.100	0.115		ug/Kg		115	72 - 134
1,2,3,6,7,8-HxCDD	0.100	0.117		ug/Kg		117	76 - 134
1,2,3,6,7,8-HxCDF	0.100	0.115		ug/Kg		115	84 - 130
1,2,3,7,8,9-HxCDD	0.100	0.115		ug/Kg		115	64 - 162
1,2,3,7,8,9-HxCDF	0.100	0.115		ug/Kg		115	78 - 130
1,2,3,7,8-PeCDD	0.100	0.111		ug/Kg		111	70 - 142
1,2,3,7,8-PeCDF	0.100	0.116		ug/Kg		116	80 - 134
2,3,4,6,7,8-HxCDF	0.100	0.115		ug/Kg		115	70 - 156
2,3,4,7,8-PeCDF	0.100	0.116		ug/Kg		116	68 - 160
2,3,7,8-TCDD	0.0200	0.0208		ug/Kg		104	67 - 158
2,3,7,8-TCDF	0.0200	0.0230		ug/Kg		115	75 - 158
OCDD	0.200	0.224		ug/Kg		112	78 - 144
OCDF	0.200	0.243		ug/Kg		121	63 - 170
Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits				
13C-1,2,3,4,6,7,8-HpCDD	85		26 - 166				

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79504-2

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

Lab Sample ID: LCS 320-241430/2-A

Matrix: Solid

Analysis Batch: 242428

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 241430

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDF	81		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	81		20 - 186
13C-1,2,3,4,7,8-HxCDD	73		21 - 193
13C-1,2,3,4,7,8-HxCDF	77		19 - 202
13C-1,2,3,6,7,8-HxCDD	74		25 - 163
13C-1,2,3,6,7,8-HxCDF	80		21 - 159
13C-1,2,3,7,8,9-HxCDF	80		17 - 205
13C-1,2,3,7,8-PeCDD	66		21 - 227
13C-1,2,3,7,8-PeCDF	67		21 - 192
13C-2,3,4,6,7,8-HxCDF	78		22 - 176
13C-2,3,4,7,8-PeCDF	66		13 - 328
13C-2,3,7,8-TCDD	72		20 - 175
13C-2,3,7,8-TCDF	70		22 - 152
13C-OCDD	67		13 - 199

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	128		31 - 191

Lab Sample ID: LCSD 320-241430/3-A

Matrix: Solid

Analysis Batch: 242428

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 241430

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	0.105		ug/Kg		105	70 - 140	0	50
1,2,3,4,6,7,8-HpCDF	0.100	0.112		ug/Kg		112	82 - 122	1	50
1,2,3,4,7,8,9-HpCDF	0.100	0.114		ug/Kg		114	78 - 138	1	50
1,2,3,4,7,8-HxCDD	0.100	0.115		ug/Kg		115	70 - 164	2	50
1,2,3,4,7,8-HxCDF	0.100	0.115		ug/Kg		115	72 - 134	0	50
1,2,3,6,7,8-HxCDD	0.100	0.115		ug/Kg		115	76 - 134	2	50
1,2,3,6,7,8-HxCDF	0.100	0.115		ug/Kg		115	84 - 130	0	50
1,2,3,7,8,9-HxCDD	0.100	0.118		ug/Kg		118	64 - 162	2	50
1,2,3,7,8,9-HxCDF	0.100	0.115		ug/Kg		115	78 - 130	0	50
1,2,3,7,8-PeCDD	0.100	0.110		ug/Kg		110	70 - 142	1	50
1,2,3,7,8-PeCDF	0.100	0.118		ug/Kg		118	80 - 134	1	50
2,3,4,6,7,8-HxCDF	0.100	0.114		ug/Kg		114	70 - 156	0	50
2,3,4,7,8-PeCDF	0.100	0.116		ug/Kg		116	68 - 160	0	50
2,3,7,8-TCDD	0.0200	0.0204		ug/Kg		102	67 - 158	2	50
2,3,7,8-TCDF	0.0200	0.0227		ug/Kg		113	75 - 158	1	50
OCDD	0.200	0.225		ug/Kg		112	78 - 144	1	50
OCDF	0.200	0.246		ug/Kg		123	63 - 170	1	50

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDD	82		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	78		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	79		20 - 186
13C-1,2,3,4,7,8-HxCDD	71		21 - 193
13C-1,2,3,4,7,8-HxCDF	75		19 - 202
13C-1,2,3,6,7,8-HxCDD	72		25 - 163

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79504-2

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

Lab Sample ID: LCSD 320-241430/3-A

Matrix: Solid

Analysis Batch: 242428

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 241430

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-1,2,3,6,7,8-HxCDF	77		21 - 159
13C-1,2,3,7,8,9-HxCDF	78		17 - 205
13C-1,2,3,7,8-PeCDD	66		21 - 227
13C-1,2,3,7,8-PeCDF	66		21 - 192
13C-2,3,4,6,7,8-HxCDF	76		22 - 176
13C-2,3,4,7,8-PeCDF	65		13 - 328
13C-2,3,7,8-TCDD	73		20 - 175
13C-2,3,7,8-TCDF	70		22 - 152
13C-OCDD	65		13 - 199
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
37Cl4-2,3,7,8-TCDD	128		31 - 191

Lab Sample ID: MB 320-241601/1-A

Matrix: Solid

Analysis Batch: 242737

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 241601

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	ND		0.0050	0.00028	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
1,2,3,4,6,7,8-HpCDF	ND		0.0050	0.00018	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
1,2,3,4,7,8,9-HpCDF	ND		0.0050	0.00026	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
1,2,3,4,7,8-HxCDD	ND		0.0050	0.00027	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
1,2,3,4,7,8-HxCDF	ND		0.0050	0.00030	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
1,2,3,6,7,8-HxCDD	ND		0.0050	0.00027	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
1,2,3,6,7,8-HxCDF	ND		0.0050	0.00028	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
1,2,3,7,8,9-HxCDD	ND		0.0050	0.00025	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
1,2,3,7,8,9-HxCDF	ND		0.0050	0.00029	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
1,2,3,7,8-PeCDD	ND		0.0050	0.00044	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
1,2,3,7,8-PeCDF	ND		0.0050	0.00031	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
2,3,4,6,7,8-HxCDF	ND		0.0050	0.00026	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
2,3,4,7,8-PeCDF	ND		0.0050	0.00033	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
2,3,7,8-TCDD	ND		0.0010	0.00027	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
2,3,7,8-TCDF	ND		0.0010	0.00017	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
OCDD	ND		0.010	0.00034	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
OCDF	ND		0.010	0.00033	ug/Kg		08/23/18 10:28	08/28/18 21:08	1
Isotope Dilution	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	82		23 - 140				08/23/18 10:28	08/28/18 21:08	1
13C-1,2,3,4,6,7,8-HpCDF	74		28 - 143				08/23/18 10:28	08/28/18 21:08	1
13C-1,2,3,4,7,8,9-HpCDF	75		26 - 138				08/23/18 10:28	08/28/18 21:08	1
13C-1,2,3,4,7,8-HxCDD	68		32 - 141				08/23/18 10:28	08/28/18 21:08	1
13C-1,2,3,4,7,8-HxCDF	66		26 - 152				08/23/18 10:28	08/28/18 21:08	1
13C-1,2,3,6,7,8-HxCDD	73		28 - 130				08/23/18 10:28	08/28/18 21:08	1
13C-1,2,3,6,7,8-HxCDF	71		26 - 123				08/23/18 10:28	08/28/18 21:08	1
13C-1,2,3,7,8,9-HxCDF	72		29 - 147				08/23/18 10:28	08/28/18 21:08	1
13C-1,2,3,7,8-PeCDD	76		25 - 181				08/23/18 10:28	08/28/18 21:08	1
13C-1,2,3,7,8-PeCDF	67		24 - 185				08/23/18 10:28	08/28/18 21:08	1
13C-2,3,4,6,7,8-HxCDF	70		28 - 136				08/23/18 10:28	08/28/18 21:08	1

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79504-2

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

Lab Sample ID: MB 320-241601/1-A

Matrix: Solid

Analysis Batch: 242737

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 241601

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,4,7,8-PeCDF	68		21 - 178	08/23/18 10:28	08/28/18 21:08	1
13C-2,3,7,8-TCDD	67		25 - 164	08/23/18 10:28	08/28/18 21:08	1
13C-2,3,7,8-TCDF	65		24 - 169	08/23/18 10:28	08/28/18 21:08	1
13C-OCDD	90		17 - 157	08/23/18 10:28	08/28/18 21:08	1
Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	123		35 - 197	08/23/18 10:28	08/28/18 21:08	1

Lab Sample ID: LCS 320-241601/2-A

Matrix: Solid

Analysis Batch: 242737

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 241601

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,6,7,8-HpCDD	0.100	0.103		ug/Kg		103	70 - 140
1,2,3,4,6,7,8-HpCDF	0.100	0.103		ug/Kg		103	82 - 122
1,2,3,4,7,8,9-HpCDF	0.100	0.101		ug/Kg		101	78 - 138
1,2,3,4,7,8-HxCDD	0.100	0.102		ug/Kg		102	70 - 164
1,2,3,4,7,8-HxCDF	0.100	0.106		ug/Kg		106	72 - 134
1,2,3,6,7,8-HxCDD	0.100	0.106		ug/Kg		106	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	0.110		ug/Kg		110	64 - 162
1,2,3,7,8,9-HxCDF	0.100	0.113		ug/Kg		113	78 - 130
1,2,3,7,8-PeCDD	0.100	0.103		ug/Kg		103	70 - 142
1,2,3,7,8-PeCDF	0.100	0.106		ug/Kg		106	80 - 134
2,3,4,6,7,8-HxCDF	0.100	0.112		ug/Kg		112	70 - 156
2,3,4,7,8-PeCDF	0.100	0.106		ug/Kg		106	68 - 160
2,3,7,8-TCDD	0.0200	0.0202		ug/Kg		101	67 - 158
2,3,7,8-TCDF	0.0200	0.0210		ug/Kg		105	75 - 158
OCDD	0.200	0.218		ug/Kg		109	78 - 144
OCDF	0.200	0.202		ug/Kg		101	63 - 170

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDD	72		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	66		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	71		20 - 186
13C-1,2,3,4,7,8-HxCDD	62		21 - 193
13C-1,2,3,4,7,8-HxCDF	62		19 - 202
13C-1,2,3,6,7,8-HxCDD	68		25 - 163
13C-1,2,3,6,7,8-HxCDF	65		21 - 159
13C-1,2,3,7,8,9-HxCDF	65		17 - 205
13C-1,2,3,7,8-PeCDD	69		21 - 227
13C-1,2,3,7,8-PeCDF	63		21 - 192
13C-2,3,4,6,7,8-HxCDF	64		22 - 176
13C-2,3,4,7,8-PeCDF	62		13 - 328
13C-2,3,7,8-TCDD	65		20 - 175
13C-2,3,7,8-TCDF	60		22 - 152
13C-OCDD	83		13 - 199

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79504-2

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

Lab Sample ID: LCS 320-241601/2-A
Matrix: Solid
Analysis Batch: 242737

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 241601

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	129		31 - 191

Lab Sample ID: LCSD 320-241601/3-A
Matrix: Solid
Analysis Batch: 242737

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 241601

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	0.102		ug/Kg		102	70 - 140	1	50
1,2,3,4,6,7,8-HpCDF	0.100	0.0985		ug/Kg		99	82 - 122	4	50
1,2,3,4,7,8,9-HpCDF	0.100	0.102		ug/Kg		102	78 - 138	1	50
1,2,3,4,7,8-HxCDD	0.100	0.0961		ug/Kg		96	70 - 164	6	50
1,2,3,4,7,8-HxCDF	0.100	0.110		ug/Kg		110	72 - 134	4	50
1,2,3,6,7,8-HxCDD	0.100	0.108		ug/Kg		108	76 - 134	2	50
1,2,3,6,7,8-HxCDF	0.100	0.107		ug/Kg		107	84 - 130	3	50
1,2,3,7,8,9-HxCDD	0.100	0.119		ug/Kg		119	64 - 162	8	50
1,2,3,7,8,9-HxCDF	0.100	0.107		ug/Kg		107	78 - 130	6	50
1,2,3,7,8-PeCDD	0.100	0.102		ug/Kg		102	70 - 142	1	50
1,2,3,7,8-PeCDF	0.100	0.104		ug/Kg		104	80 - 134	2	50
2,3,4,6,7,8-HxCDF	0.100	0.114		ug/Kg		114	70 - 156	2	50
2,3,4,7,8-PeCDF	0.100	0.107		ug/Kg		107	68 - 160	0	50
2,3,7,8-TCDD	0.0200	0.0204		ug/Kg		102	67 - 158	1	50
2,3,7,8-TCDF	0.0200	0.0210		ug/Kg		105	75 - 158	0	50
OCDD	0.200	0.205		ug/Kg		103	78 - 144	6	50
OCDF	0.200	0.196		ug/Kg		98	63 - 170	3	50

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDD	60		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	54		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	57		20 - 186
13C-1,2,3,4,7,8-HxCDD	50		21 - 193
13C-1,2,3,4,7,8-HxCDF	47		19 - 202
13C-1,2,3,6,7,8-HxCDD	50		25 - 163
13C-1,2,3,6,7,8-HxCDF	53		21 - 159
13C-1,2,3,7,8,9-HxCDF	55		17 - 205
13C-1,2,3,7,8-PeCDD	60		21 - 227
13C-1,2,3,7,8-PeCDF	57		21 - 192
13C-2,3,4,6,7,8-HxCDF	51		22 - 176
13C-2,3,4,7,8-PeCDF	51		13 - 328
13C-2,3,7,8-TCDD	57		20 - 175
13C-2,3,7,8-TCDF	54		22 - 152
13C-OCDD	66		13 - 199

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
37Cl4-2,3,7,8-TCDD	134		31 - 191

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79504-2

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

Lab Sample ID: MB 320-241812/1-A
Matrix: Water
Analysis Batch: 243082

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 241812

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	ND		50	2.0	pg/L		08/24/18 08:14	08/29/18 22:48	1
1,2,3,4,6,7,8-HpCDF	2.61	J	50	1.2	pg/L		08/24/18 08:14	08/29/18 22:48	1
1,2,3,4,7,8,9-HpCDF	5.67	J	50	1.5	pg/L		08/24/18 08:14	08/29/18 22:48	1
1,2,3,4,7,8-HxCDD	ND		50	1.6	pg/L		08/24/18 08:14	08/29/18 22:48	1
1,2,3,4,7,8-HxCDF	ND		50	2.0	pg/L		08/24/18 08:14	08/29/18 22:48	1
1,2,3,6,7,8-HxCDD	ND		50	1.4	pg/L		08/24/18 08:14	08/29/18 22:48	1
1,2,3,6,7,8-HxCDF	ND		50	1.8	pg/L		08/24/18 08:14	08/29/18 22:48	1
1,2,3,7,8,9-HxCDD	ND		50	1.4	pg/L		08/24/18 08:14	08/29/18 22:48	1
1,2,3,7,8,9-HxCDF	9.38	J	50	1.8	pg/L		08/24/18 08:14	08/29/18 22:48	1
1,2,3,7,8-PeCDD	ND		50	3.3	pg/L		08/24/18 08:14	08/29/18 22:48	1
1,2,3,7,8-PeCDF	ND		50	2.1	pg/L		08/24/18 08:14	08/29/18 22:48	1
2,3,4,6,7,8-HxCDF	ND		50	1.6	pg/L		08/24/18 08:14	08/29/18 22:48	1
2,3,4,7,8-PeCDF	ND		50	2.2	pg/L		08/24/18 08:14	08/29/18 22:48	1
2,3,7,8-TCDD	ND		10	2.3	pg/L		08/24/18 08:14	08/29/18 22:48	1
2,3,7,8-TCDF	ND		10	1.6	pg/L		08/24/18 08:14	08/29/18 22:48	1
OCDD	ND		100	3.4	pg/L		08/24/18 08:14	08/29/18 22:48	1
OCDF	ND		100	3.4	pg/L		08/24/18 08:14	08/29/18 22:48	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	81		23 - 140	08/24/18 08:14	08/29/18 22:48	1
13C-1,2,3,4,6,7,8-HpCDF	77		28 - 143	08/24/18 08:14	08/29/18 22:48	1
13C-1,2,3,4,7,8,9-HpCDF	82		26 - 138	08/24/18 08:14	08/29/18 22:48	1
13C-1,2,3,4,7,8-HxCDD	73		32 - 141	08/24/18 08:14	08/29/18 22:48	1
13C-1,2,3,4,7,8-HxCDF	72		26 - 152	08/24/18 08:14	08/29/18 22:48	1
13C-1,2,3,6,7,8-HxCDD	80		28 - 130	08/24/18 08:14	08/29/18 22:48	1
13C-1,2,3,6,7,8-HxCDF	76		26 - 123	08/24/18 08:14	08/29/18 22:48	1
13C-1,2,3,7,8,9-HxCDF	79		29 - 147	08/24/18 08:14	08/29/18 22:48	1
13C-1,2,3,7,8-PeCDD	81		25 - 181	08/24/18 08:14	08/29/18 22:48	1
13C-1,2,3,7,8-PeCDF	74		24 - 185	08/24/18 08:14	08/29/18 22:48	1
13C-2,3,4,6,7,8-HxCDF	78		28 - 136	08/24/18 08:14	08/29/18 22:48	1
13C-2,3,4,7,8-PeCDF	76		21 - 178	08/24/18 08:14	08/29/18 22:48	1
13C-2,3,7,8-TCDD	72		25 - 164	08/24/18 08:14	08/29/18 22:48	1
13C-2,3,7,8-TCDF	73		24 - 169	08/24/18 08:14	08/29/18 22:48	1
13C-OCDD	84		17 - 157	08/24/18 08:14	08/29/18 22:48	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	132		35 - 197	08/24/18 08:14	08/29/18 22:48	1

Lab Sample ID: LCS 320-241812/2-A
Matrix: Water
Analysis Batch: 243082

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 241812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,2,3,4,6,7,8-HpCDD	1000	1010		pg/L		101	70 - 140
1,2,3,4,6,7,8-HpCDF	1000	926		pg/L		93	82 - 122
1,2,3,4,7,8,9-HpCDF	1000	942		pg/L		94	78 - 138
1,2,3,4,7,8-HxCDD	1000	976		pg/L		98	70 - 164
1,2,3,4,7,8-HxCDF	1000	1030		pg/L		103	72 - 134

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79504-2

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

Lab Sample ID: LCS 320-241812/2-A

Matrix: Water

Analysis Batch: 243082

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 241812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,6,7,8-HxCDD	1000	1040		pg/L		104	76 - 134
1,2,3,6,7,8-HxCDF	1000	1000		pg/L		100	84 - 130
1,2,3,7,8,9-HxCDD	1000	985		pg/L		99	64 - 162
1,2,3,7,8,9-HxCDF	1000	1040		pg/L		104	78 - 130
1,2,3,7,8-PeCDD	1000	969		pg/L		97	70 - 142
1,2,3,7,8-PeCDF	1000	976		pg/L		98	80 - 134
2,3,4,6,7,8-HxCDF	1000	1060		pg/L		106	70 - 156
2,3,4,7,8-PeCDF	1000	1000		pg/L		100	68 - 160
2,3,7,8-TCDD	200	192		pg/L		96	67 - 158
2,3,7,8-TCDF	200	209		pg/L		105	75 - 158
OCDD	2000	1930		pg/L		97	78 - 144
OCDF	2000	2050		pg/L		102	63 - 170

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDD	58		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	60		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	61		20 - 186
13C-1,2,3,4,7,8-HxCDD	60		21 - 193
13C-1,2,3,4,7,8-HxCDF	50		19 - 202
13C-1,2,3,6,7,8-HxCDD	59		25 - 163
13C-1,2,3,6,7,8-HxCDF	55		21 - 159
13C-1,2,3,7,8,9-HxCDF	67		17 - 205
13C-1,2,3,7,8-PeCDD	94		21 - 227
13C-1,2,3,7,8-PeCDF	89		21 - 192
13C-2,3,4,6,7,8-HxCDF	65		22 - 176
13C-2,3,4,7,8-PeCDF	88		13 - 328
13C-2,3,7,8-TCDD	71		20 - 175
13C-2,3,7,8-TCDF	66		22 - 152
13C-OCDD	64		13 - 199

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	141		31 - 191

Lab Sample ID: LCSD 320-241812/3-A

Matrix: Water

Analysis Batch: 243082

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 241812

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
1,2,3,4,6,7,8-HpCDD	1000	957		pg/L		96	70 - 140	6	50
1,2,3,4,6,7,8-HpCDF	1000	942		pg/L		94	82 - 122	2	50
1,2,3,4,7,8,9-HpCDF	1000	933		pg/L		93	78 - 138	1	50
1,2,3,4,7,8-HxCDD	1000	1010		pg/L		101	70 - 164	3	50
1,2,3,4,7,8-HxCDF	1000	1030		pg/L		103	72 - 134	0	50
1,2,3,6,7,8-HxCDD	1000	972		pg/L		97	76 - 134	6	50
1,2,3,6,7,8-HxCDF	1000	1030		pg/L		103	84 - 130	3	50
1,2,3,7,8,9-HxCDD	1000	1080		pg/L		108	64 - 162	9	50
1,2,3,7,8,9-HxCDF	1000	1070		pg/L		107	78 - 130	3	50
1,2,3,7,8-PeCDD	1000	990		pg/L		99	70 - 142	2	50

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79504-2

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

Lab Sample ID: LCSD 320-241812/3-A

Matrix: Water

Analysis Batch: 243082

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 241812

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3,7,8-PeCDF	1000	1020		pg/L		102	80 - 134	4	50
2,3,4,6,7,8-HxCDF	1000	1090		pg/L		109	70 - 156	2	50
2,3,4,7,8-PeCDF	1000	1020		pg/L		102	68 - 160	2	50
2,3,7,8-TCDD	200	212		pg/L		106	67 - 158	10	50
2,3,7,8-TCDF	200	219		pg/L		110	75 - 158	5	50
OCDD	2000	1790		pg/L		89	78 - 144	8	50
OCDF	2000	1850		pg/L		92	63 - 170	10	50

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDD	65		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	62		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	75		20 - 186
13C-1,2,3,4,7,8-HxCDD	61		21 - 193
13C-1,2,3,4,7,8-HxCDF	62		19 - 202
13C-1,2,3,6,7,8-HxCDD	68		25 - 163
13C-1,2,3,6,7,8-HxCDF	65		21 - 159
13C-1,2,3,7,8,9-HxCDF	71		17 - 205
13C-1,2,3,7,8-PeCDD	77		21 - 227
13C-1,2,3,7,8-PeCDF	64		21 - 192
13C-2,3,4,6,7,8-HxCDF	72		22 - 176
13C-2,3,4,7,8-PeCDF	69		13 - 328
13C-2,3,7,8-TCDD	70		20 - 175
13C-2,3,7,8-TCDF	63		22 - 152
13C-OCDD	70		13 - 199

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
37Cl4-2,3,7,8-TCDD	134		31 - 191

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S098-0to1.3

Date Collected: 08/09/18 12:00

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-1

Matrix: Solid

Percent Solids: 54.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241175	08/21/18 13:53	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242219	08/27/18 00:27	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241175	08/21/18 13:53	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	242739	08/29/18 05:54	AS	TAL SAC

Client Sample ID: PDI-SC-S098-1.3to3.3

Date Collected: 08/09/18 12:05

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-2

Matrix: Solid

Percent Solids: 81.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241175	08/21/18 13:53	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242219	08/27/18 01:13	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241175	08/21/18 13:53	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	242739	08/29/18 06:32	AS	TAL SAC

Client Sample ID: PDI-SC-S098-3.3to5.3

Date Collected: 08/09/18 12:10

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-3

Matrix: Solid

Percent Solids: 76.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241175	08/21/18 13:53	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242219	08/27/18 01:59	AS	TAL SAC

Client Sample ID: PDI-SC-S098-3.3to5.3D

Date Collected: 08/09/18 12:10

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-4

Matrix: Solid

Percent Solids: 75.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241175	08/21/18 13:53	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242219	08/27/18 02:45	AS	TAL SAC

Client Sample ID: PDI-SC-S098-5.3to7.2

Date Collected: 08/09/18 12:15

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-5

Matrix: Solid

Percent Solids: 72.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241175	08/21/18 13:53	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242219	08/27/18 03:31	AS	TAL SAC

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S098-7.2to8.2

Lab Sample ID: 580-79504-6

Date Collected: 08/09/18 12:20

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 72.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241175	08/21/18 13:53	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242219	08/27/18 04:17	AS	TAL SAC

Client Sample ID: PDI-SC-S103-0to2

Lab Sample ID: 580-79504-7

Date Collected: 08/09/18 15:30

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 49.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241175	08/21/18 13:53	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242219	08/27/18 05:03	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241175	08/21/18 13:53	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	242739	08/29/18 07:09	AS	TAL SAC

Client Sample ID: PDI-SC-S103-2to4

Lab Sample ID: 580-79504-8

Date Collected: 08/09/18 15:35

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 51.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241175	08/21/18 13:53	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242219	08/27/18 05:49	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241175	08/21/18 13:53	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	242739	08/29/18 07:47	AS	TAL SAC

Client Sample ID: PDI-SC-S103-4to6

Lab Sample ID: 580-79504-9

Date Collected: 08/09/18 15:40

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 50.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243156	08/30/18 05:38	AS	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242737	08/28/18 23:33	AS	TAL SAC

Client Sample ID: PDI-SC-S103-6to8

Lab Sample ID: 580-79504-10

Date Collected: 08/09/18 15:45

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 53.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242428	08/27/18 13:13	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	242929	08/29/18 15:35	ALM	TAL SAC

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S103-8to9.7

Lab Sample ID: 580-79504-11

Date Collected: 08/09/18 15:50

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 70.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242428	08/27/18 13:59	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	242929	08/29/18 16:13	ALM	TAL SAC

Client Sample ID: PDI-SC-S103-9.7to10.7

Lab Sample ID: 580-79504-12

Date Collected: 08/09/18 15:55

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 72.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242428	08/27/18 14:45	AS	TAL SAC

Client Sample ID: PDI-SC-S103-10.7to13.4

Lab Sample ID: 580-79504-13

Date Collected: 08/09/18 16:00

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 73.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242428	08/27/18 15:31	AS	TAL SAC

Client Sample ID: PDI-SC-S176-0to2

Lab Sample ID: 580-79504-14

Date Collected: 08/08/18 16:20

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 61.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242428	08/27/18 16:17	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	242929	08/29/18 16:51	ALM	TAL SAC

Client Sample ID: PDI-SC-S176-2to4

Lab Sample ID: 580-79504-15

Date Collected: 08/08/18 16:25

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 59.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242428	08/27/18 17:03	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	242929	08/29/18 17:29	ALM	TAL SAC

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S176-4to5.5

Lab Sample ID: 580-79504-16

Date Collected: 08/08/18 16:30

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 66.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242803	08/28/18 21:12	AS	TAL SAC

Client Sample ID: PDI-SC-S176-5.5to7.5

Lab Sample ID: 580-79504-17

Date Collected: 08/08/18 16:35

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 73.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242803	08/28/18 21:58	AS	TAL SAC

Client Sample ID: PDI-SC-S176-7.5to9.5

Lab Sample ID: 580-79504-18

Date Collected: 08/08/18 16:40

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 70.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242803	08/28/18 22:44	AS	TAL SAC

Client Sample ID: PDI-SC-S188-0-1.5

Lab Sample ID: 580-79504-19

Date Collected: 08/08/18 17:00

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 37.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242803	08/28/18 23:30	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	242929	08/29/18 18:07	ALM	TAL SAC

Client Sample ID: PDI-SC-S198-0to2

Lab Sample ID: 580-79504-20

Date Collected: 08/08/18 14:45

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 45.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242805	08/29/18 06:08	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243156	08/30/18 01:13	AS	TAL SAC

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S198-2to4

Lab Sample ID: 580-79504-21

Date Collected: 08/08/18 14:50

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 52.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242805	08/29/18 06:54	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243156	08/30/18 01:51	AS	TAL SAC

Client Sample ID: PDI-SC-S198-2to4D

Lab Sample ID: 580-79504-22

Date Collected: 08/08/18 14:50

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 52.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242805	08/29/18 07:40	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243156	08/30/18 02:29	AS	TAL SAC

Client Sample ID: PDI-SC-S198-4to6

Lab Sample ID: 580-79504-23

Date Collected: 08/08/18 14:55

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 62.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242805	08/29/18 08:26	AS	TAL SAC

Client Sample ID: PDI-SC-S198-6to8

Lab Sample ID: 580-79504-24

Date Collected: 08/08/18 15:00

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 68.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242805	08/29/18 09:12	AS	TAL SAC

Client Sample ID: PDI-SC-S198-8to10

Lab Sample ID: 580-79504-25

Date Collected: 08/08/18 15:05

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 65.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242805	08/29/18 09:58	AS	TAL SAC

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S198-10to11.8

Lab Sample ID: 580-79504-26

Date Collected: 08/08/18 15:10

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 74.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242805	08/29/18 10:44	AS	TAL SAC

Client Sample ID: PDI-SC-S213-0to2

Lab Sample ID: 580-79504-27

Date Collected: 08/09/18 09:50

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 34.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242805	08/29/18 12:02	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243156	08/30/18 03:45	AS	TAL SAC

Client Sample ID: PDI-SC-S213-2to4

Lab Sample ID: 580-79504-28

Date Collected: 08/09/18 09:55

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 38.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242805	08/29/18 12:48	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243156	08/30/18 04:23	AS	TAL SAC

Client Sample ID: PDI-SC-S213-4to6

Lab Sample ID: 580-79504-29

Date Collected: 08/09/18 10:00

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 43.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242805	08/29/18 13:34	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		241430	08/22/18 13:10	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243156	08/30/18 05:01	AS	TAL SAC

Client Sample ID: PDI-SC-S213-6to8

Lab Sample ID: 580-79504-30

Date Collected: 08/09/18 10:05

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 49.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243156	08/30/18 06:16	AS	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242737	08/29/18 00:21	AS	TAL SAC

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S213-8to10

Lab Sample ID: 580-79504-31

Date Collected: 08/09/18 10:10

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 56.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243156	08/30/18 06:54	AS	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242737	08/29/18 01:10	AS	TAL SAC

Client Sample ID: PDI-SC-S213-10to11.8

Lab Sample ID: 580-79504-32

Date Collected: 08/09/18 10:15

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 51.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243156	08/30/18 07:32	AS	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242737	08/29/18 01:58	AS	TAL SAC

Client Sample ID: PDI-SC-S213-11.8to12.8

Lab Sample ID: 580-79504-33

Date Collected: 08/09/18 10:20

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 53.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243156	08/30/18 08:10	AS	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242737	08/29/18 02:46	AS	TAL SAC

Client Sample ID: PDI-SC-S229-0to2

Lab Sample ID: 580-79504-34

Date Collected: 08/09/18 19:40

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 44.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243156	08/30/18 08:48	AS	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242737	08/29/18 03:35	AS	TAL SAC

Client Sample ID: PDI-SC-S229-2to4

Lab Sample ID: 580-79504-35

Date Collected: 08/09/18 19:45

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 63.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243226	08/30/18 13:59	ALM	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S229-2to4

Lab Sample ID: 580-79504-35

Date Collected: 08/09/18 19:45

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 63.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1613B		1	242737	08/29/18 04:23	AS	TAL SAC

Client Sample ID: PDI-SC-S229-4to6

Lab Sample ID: 580-79504-36

Date Collected: 08/09/18 19:50

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 74.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242737	08/29/18 05:11	AS	TAL SAC

Client Sample ID: PDI-SC-S229-6to8

Lab Sample ID: 580-79504-37

Date Collected: 08/09/18 19:55

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 72.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242738	08/29/18 09:43	ALM	TAL SAC

Client Sample ID: PDI-SC-S229-8to9.9

Lab Sample ID: 580-79504-38

Date Collected: 08/09/18 20:00

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 76.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242738	08/29/18 10:31	ALM	TAL SAC

Client Sample ID: PDI-SC-S229-9.9to12.5

Lab Sample ID: 580-79504-39

Date Collected: 08/09/18 20:05

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 72.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242738	08/29/18 11:19	ALM	TAL SAC

Client Sample ID: PDI-SC-S238-0to2

Lab Sample ID: 580-79504-40

Date Collected: 08/09/18 17:30

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 47.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243226	08/30/18 14:37	ALM	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242738	08/29/18 12:08	ALM	TAL SAC

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S238-2to4

Date Collected: 08/09/18 17:35

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-41

Matrix: Solid

Percent Solids: 50.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243226	08/30/18 15:15	ALM	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242738	08/29/18 12:56	ALM	TAL SAC

Client Sample ID: PDI-SC-S238-2to4D

Date Collected: 08/09/18 17:35

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-42

Matrix: Solid

Percent Solids: 50.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243226	08/30/18 15:53	ALM	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242738	08/29/18 13:44	ALM	TAL SAC

Client Sample ID: PDI-SC-S238-4to6

Date Collected: 08/09/18 17:40

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-43

Matrix: Solid

Percent Solids: 50.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243226	08/30/18 16:30	ALM	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242738	08/29/18 14:33	ALM	TAL SAC

Client Sample ID: PDI-SC-S238-6to8

Date Collected: 08/09/18 17:45

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-44

Matrix: Solid

Percent Solids: 59.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243226	08/30/18 17:08	ALM	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242738	08/29/18 15:21	ALM	TAL SAC

Client Sample ID: PDI-SC-S238-8to10

Date Collected: 08/09/18 17:50

Date Received: 08/10/18 14:50

Lab Sample ID: 580-79504-45

Matrix: Solid

Percent Solids: 55.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243226	08/30/18 17:46	ALM	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-79504-2

Client Sample ID: PDI-SC-S238-8to10

Lab Sample ID: 580-79504-45

Date Collected: 08/09/18 17:50

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 55.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1613B		1	242738	08/29/18 16:09	ALM	TAL SAC

Client Sample ID: PDI-SC-S238-10to12.4

Lab Sample ID: 580-79504-46

Date Collected: 08/09/18 17:55

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 56.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243226	08/30/18 18:24	ALM	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242738	08/29/18 16:57	ALM	TAL SAC

Client Sample ID: PDI-SC-S238-12.4to13.4

Lab Sample ID: 580-79504-47

Date Collected: 08/09/18 18:00

Matrix: Solid

Date Received: 08/10/18 14:50

Percent Solids: 56.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox	RA		241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243226	08/30/18 19:02	ALM	TAL SAC
Total/NA	Prep	HRMS-Sox			241601	08/23/18 10:28	SR1	TAL SAC
Total/NA	Analysis	1613B		1	242738	08/29/18 17:46	ALM	TAL SAC

Client Sample ID: PDI-RB-SS-180809

Lab Sample ID: 580-79504-49

Date Collected: 08/09/18 08:00

Matrix: Water

Date Received: 08/10/18 14:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			241812	08/24/18 08:14	ITH	TAL SAC
Total/NA	Analysis	1613B		1	243084	08/30/18 13:48	ALM	TAL SAC

Client Sample ID: PDI-RB-SS-180809-1900

Lab Sample ID: 580-79504-50

Date Collected: 08/09/18 19:00

Matrix: Water

Date Received: 08/10/18 14:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			241812	08/24/18 08:14	ITH	TAL SAC
Total/NA	Analysis	1613B		1	243084	08/30/18 14:36	ALM	TAL SAC

Laboratory References:

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

TestAmerica Seattle

Accreditation/Certification Summary

Client: AECOM

TestAmerica Job ID: 580-79504-2

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
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

TestAmerica Seattle

Sample Summary

Client: AECOM

TestAmerica Job ID: 580-79504-2

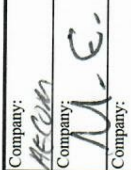
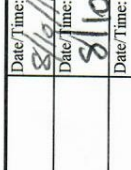
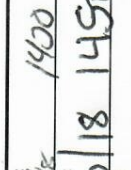
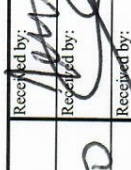
Project/Site: Portland Harbor Pre-Remedial Design

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79504-1	PDI-SC-S098-0to1.3	Solid	08/09/18 12:00	08/10/18 14:50
580-79504-2	PDI-SC-S098-1.3to3.3	Solid	08/09/18 12:05	08/10/18 14:50
580-79504-3	PDI-SC-S098-3.3to5.3	Solid	08/09/18 12:10	08/10/18 14:50
580-79504-4	PDI-SC-S098-3.3to5.3D	Solid	08/09/18 12:10	08/10/18 14:50
580-79504-5	PDI-SC-S098-5.3to7.2	Solid	08/09/18 12:15	08/10/18 14:50
580-79504-6	PDI-SC-S098-7.2to8.2	Solid	08/09/18 12:20	08/10/18 14:50
580-79504-7	PDI-SC-S103-0to2	Solid	08/09/18 15:30	08/10/18 14:50
580-79504-8	PDI-SC-S103-2to4	Solid	08/09/18 15:35	08/10/18 14:50
580-79504-9	PDI-SC-S103-4to6	Solid	08/09/18 15:40	08/10/18 14:50
580-79504-10	PDI-SC-S103-6to8	Solid	08/09/18 15:45	08/10/18 14:50
580-79504-11	PDI-SC-S103-8to9.7	Solid	08/09/18 15:50	08/10/18 14:50
580-79504-12	PDI-SC-S103-9.7to10.7	Solid	08/09/18 15:55	08/10/18 14:50
580-79504-13	PDI-SC-S103-10.7to13.4	Solid	08/09/18 16:00	08/10/18 14:50
580-79504-14	PDI-SC-S176-0to2	Solid	08/08/18 16:20	08/10/18 14:50
580-79504-15	PDI-SC-S176-2to4	Solid	08/08/18 16:25	08/10/18 14:50
580-79504-16	PDI-SC-S176-4to5.5	Solid	08/08/18 16:30	08/10/18 14:50
580-79504-17	PDI-SC-S176-5.5to7.5	Solid	08/08/18 16:35	08/10/18 14:50
580-79504-18	PDI-SC-S176-7.5to9.5	Solid	08/08/18 16:40	08/10/18 14:50
580-79504-19	PDI-SC-S188-0-1.5	Solid	08/08/18 17:00	08/10/18 14:50
580-79504-20	PDI-SC-S198-0to2	Solid	08/08/18 14:45	08/10/18 14:50
580-79504-21	PDI-SC-S198-2to4	Solid	08/08/18 14:50	08/10/18 14:50
580-79504-22	PDI-SC-S198-2to4D	Solid	08/08/18 14:50	08/10/18 14:50
580-79504-23	PDI-SC-S198-4to6	Solid	08/08/18 14:55	08/10/18 14:50
580-79504-24	PDI-SC-S198-6to8	Solid	08/08/18 15:00	08/10/18 14:50
580-79504-25	PDI-SC-S198-8to10	Solid	08/08/18 15:05	08/10/18 14:50
580-79504-26	PDI-SC-S198-10to11.8	Solid	08/08/18 15:10	08/10/18 14:50
580-79504-27	PDI-SC-S213-0to2	Solid	08/09/18 09:50	08/10/18 14:50
580-79504-28	PDI-SC-S213-2to4	Solid	08/09/18 09:55	08/10/18 14:50
580-79504-29	PDI-SC-S213-4to6	Solid	08/09/18 10:00	08/10/18 14:50
580-79504-30	PDI-SC-S213-6to8	Solid	08/09/18 10:05	08/10/18 14:50
580-79504-31	PDI-SC-S213-8to10	Solid	08/09/18 10:10	08/10/18 14:50
580-79504-32	PDI-SC-S213-10to11.8	Solid	08/09/18 10:15	08/10/18 14:50
580-79504-33	PDI-SC-S213-11.8to12.8	Solid	08/09/18 10:20	08/10/18 14:50
580-79504-34	PDI-SC-S229-0to2	Solid	08/09/18 19:40	08/10/18 14:50
580-79504-35	PDI-SC-S229-2to4	Solid	08/09/18 19:45	08/10/18 14:50
580-79504-36	PDI-SC-S229-4to6	Solid	08/09/18 19:50	08/10/18 14:50
580-79504-37	PDI-SC-S229-6to8	Solid	08/09/18 19:55	08/10/18 14:50
580-79504-38	PDI-SC-S229-8to9.9	Solid	08/09/18 20:00	08/10/18 14:50
580-79504-39	PDI-SC-S229-9.9to12.5	Solid	08/09/18 20:05	08/10/18 14:50
580-79504-40	PDI-SC-S238-0to2	Solid	08/09/18 17:30	08/10/18 14:50
580-79504-41	PDI-SC-S238-2to4	Solid	08/09/18 17:35	08/10/18 14:50
580-79504-42	PDI-SC-S238-2to4D	Solid	08/09/18 17:35	08/10/18 14:50
580-79504-43	PDI-SC-S238-4to6	Solid	08/09/18 17:40	08/10/18 14:50
580-79504-44	PDI-SC-S238-6to8	Solid	08/09/18 17:45	08/10/18 14:50
580-79504-45	PDI-SC-S238-8to10	Solid	08/09/18 17:50	08/10/18 14:50
580-79504-46	PDI-SC-S238-10to12.4	Solid	08/09/18 17:55	08/10/18 14:50
580-79504-47	PDI-SC-S238-12.4to13.4	Solid	08/09/18 18:00	08/10/18 14:50
580-79504-49	PDI-RB-SS-180809	Water	08/09/18 08:00	08/10/18 14:50
580-79504-50	PDI-RB-SS-180809-1900	Water	08/09/18 19:00	08/10/18 14:50

TestAmerica Seattle

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 ☒ 21 days ☐ Other		Site Contact: Jennifer Ray Laboratory Contact: Elaine Walker Date: 8/10/18 Carrier: Courier COC No. 1 of pages							
 580-79504 Chain of Custody		Alterberg Limits ASTM D4318 Total Solids 8082A, 8270D-SIM, 9060, 160.3 PCB Aroclors, PAHs, Total Organic Carbon, Grain Size ASTM D7928/D6913 Archive PCD/Fs 1613B Fraction		PCB Aroclors, PAHs, Total Organic Carbon, Grain Size ASTM D7928/D6913 Archive PCD/Fs 1613B Fraction		Alterberg Limits ASTM D4318 Total Solids 8082A, 8270D-SIM, 9060, 160.3 PCB Aroclors, PAHs, Total Organic Carbon, Grain Size ASTM D7928/D6913 Archive PCD/Fs 1613B Fraction							
Sample Identification PDI-SC-S098 - 0 to 1.3 PDI-SC-S098 - 1.3 to 3.3 PDI-SC-S098 - 3.3 to 5.3 PDI-SC-S098 - 3.3 to 5.3D PDI-SC-S098 - 5.3 to 7.2 PDI-SC-S098 - 7.2 to 8.2 PDI-SC-S103 - 0 to 2 PDI-SC-S103 - 2 to 4 PDI-SC-S103 - 4 to 6 PDI-SC-S103 - 6 to 8 PDI-SC-S103 - 8 to 9.7 PDI-SC-S103 - 9.7 to 10.7		Sample Date 8/9/2018 8/9/2018 8/9/2018 8/9/2018 8/9/2018 8/9/2018 8/9/2018 8/9/2018 8/9/2018 8/9/2018		Sample Time 12:00 12:05 12:10 12:10 12:15 12:20 15:30 15:35 15:40 15:45 15:50 15:55		Matrix SC SC SC SC SC SC SC SC SC SC SC		QC Sample ED ED ED ED ED ED ED ED ED ED ED		Sampler's Initials ED ED ED ED ED ED ED ED ED ED ED		Total No. of Cont. 4 4 4 3 4 4 4 4 6 4 4 4	
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)													
Special Instructions/QC Requirements & Comments: Separate reports for each lab													
Relinquished by:  Date/Time: 8/10/18 1400 Company: M.E.		Relinquished by:  Date/Time: 8/10/18 1450 Company: M.E.		Relinquished by:  Date/Time: 8/10/18 1450 Company: M.E.		Relinquished by:  Date/Time: 8/10/18 1450 Company: M.E.		Relinquished by:  Date/Time: 8/10/18 1450 Company: M.E.		Relinquished by:  Date/Time: 8/10/18 1450 Company: M.E.		Relinquished by:  Date/Time: 8/10/18 1450 Company: M.E.	

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

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 _____

Portland, OR
Project #: 60566335 Study: Subsurface Sediment
Sample Type:

Site Contact: Jennifer Ray
Laboratory Contact: Elaine-Walker
Date: 8/10/18
Carrier: Courier

COC No: 1 of _____ pages

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction				Archive	Grain size ASTM D792/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 1603	Afterberg Limits ASTM D4318	Sample Specific Notes:									
							P	C	D	F														
PDI-SC-S103 - 10.7 to 13.4	8/9/2018	16:00	SC		ED	4					X	X	X											
PDI-SC-S176 - 0 to 2	8/8/2018	16:20	SC		ED	4					X	X	X											
PDI-SC-S176 - 2 to 4	8/8/2018	16:25	SC	MS/MSD	ED	6					X	X	X											
PDI-SC-S176 - 4 to 5.5	8/8/2018	16:30	SC		ED	4					X	X	X											
PDI-SC-S176 - 5.5 to 7.5	8/8/2018	16:35	SC		ED	4					X	X	X											
PDI-SC-S176 - 7.5 to 9.5	8/8/2018	16:40	SC		ED	4					X	X	X											
PDI-SC-S188 - 0 to 1.5	8/8/2018	17:00	SC		ED	4					X	X	X											
PDI-SC-S198 - 0 to 2	8/8/2018	14:45	SC		ED	5					X	X	X	X										
PDI-SC-S198 - 2 to 4	8/8/2018	14:50	SC		ED	4					X	X	X											
PDI-SC-S198 - 2 to 4D	8/8/2018	14:50	SC		ED	3					X	X	X											
PDI-SC-S198 - 4 to 6	8/8/2018	14:55	SC		ED	4					X	X	X											
PDI-SC-S198 - 6 to 8	8/8/2018	15:00	SC		ED	4					X	X	X											

Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Colour
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 ☐ Ship For 12 Months

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

Relinquished by:	Company: AECOM	Date/Time: 8/10/18	Received by:	Company: M.E.	Date/Time: 8/10/18 14:00
Relinquished by:	Company: AECOM	Date/Time: 8/10/18	Received by:	Company: TACOM	Date/Time: 8/10/18 14:50
Relinquished by:	Company: AECOM	Date/Time: 8/10/18	Received by:	Company: TACOM	Date/Time: 8/10/18 14:50

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 _____

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.
PDI-SC-S198 - 8 to 10	8/8/2018	15:05	SC		ED	4
PDI-SC-S198 - 10 to 11.8	8/8/2018	15:10	SC		ED	4
PDI-SC-S213 - 0 to 2	8/9/2018	9:50	SC		ED	4
PDI-SC-S213 - 2 to 4	8/9/2018	9:55	SC	MS/MSD	ED	6
PDI-SC-S213 - 4 to 6	8/9/2018	10:00	SC		ED	4
PDI-SC-S213 - 6 to 8	8/9/2018	10:05	SC		ED	4
PDI-SC-S213 - 8 to 10	8/9/2018	10:10	SC		ED	4
PDI-SC-S213 - 10 to 11.8	8/9/2018	10:15	SC		ED	4
PDI-SC-S213 - 11.8 to 12.8	8/9/2018	10:20	SC		ED	4
PDI-SC-S229 - 0 to 2	8/9/2018	19:40	SC		ED	4
PDI-SC-S229 - 2 to 4	8/9/2018	19:45	SC		ED	4
PDI-SC-S229 - 4 to 6	8/9/2018	19:50	SC		ED	4

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)

Date: 8/10/18
Carrier: Courier

Site Contact: Jennifer Ray
Laboratory Contact: Elaine Walker

COC No. 1 of _____ pages

Grain size ASTM D7928/D6913
PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3
Alterberg Limits ASTM D4318

Sample Specific Notes:

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

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

Relinquished by:	Company: AECOM	Received by:	Company: M.E.	Date/Time: 8/10/18 1400
Relinquished by:	Company: M.E.	Received by:	Company: AECOM	Date/Time: 8/10/18 1450
Relinquished by:	Company:	Received by:	Company:	Date/Time:

1
2
3
4
5
6
7
8
9
10
11
12
13

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

SUBSURFACE SEDIMENT
CHAIN OF CUSTODY

COC No: 1 of _____ pages

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

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

Date: 8/10/18
Carrier: Courier

Site Contact: Jennifer Ray
Laboratory Contact: Elaine Walker

Sample Identification

Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.
8/9/2018	19:55	SC		ED	4
8/9/2018	20:00	SC		ED	4
8/9/2018	20:05	SC		ED	4
8/9/2018	17:30	SC		ED	4
8/9/2018	17:35	SC		ED	4
8/9/2018	17:35	SC		ED	3
8/9/2018	17:40	SC		ED	5
8/9/2018	17:45	SC		ED	4
8/9/2018	17:50	SC		ED	4
8/9/2018	17:55	SC		ED	4
8/9/2018	18:00	SC		ED	4
8/7/2018	14:25	SC		ED	1

Sample Disposal
☐ Return To Client ☒ Disposed By Lab ☒ Ship For 12 Months

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

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

Relinquished by: *[Signature]* **Date/Time:** 8/10/18 1400
Relinquished by: *[Signature]* **Date/Time:** 8/10/18 1450
Relinquished by: *[Signature]* **Date/Time:** 8/10/18 1450

Company: *[Signature]*
Company: *[Signature]*
Company: *[Signature]*

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

Date/Time: 8/10/18 1400
Date/Time: 8/10/18 1450
Date/Time: 8/10/18 1450

TestAmerica-Seattle	57555-8th-Street-East Tacoma, WA 98424-1317 Ph: 253-922-2310 Fax: 253-922-5047
Client Contact	
AECOM	11111 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 #: 60560335	Study: Subsurface Sediment
Sample Type:	

Relinquished by: <i>[Signature]</i>	Company: <i>Acme</i>	Date/Time: <i>8/10/18 1400</i>	Received by: <i>[Signature]</i>	Company: <i>M-E-</i>	Date/Time: <i>8/10/18 1400</i>
Relinquished by: <i>[Signature]</i>	Company: <i>M-E-</i>	Date/Time: <i>8/10/18 1450</i>	Received by: <i>[Signature]</i>	Company: <i>APOL</i>	Date/Time: <i>8/10/18 1450</i>
Relinquished by: <i>[Signature]</i>	Company: <i>M-E-</i>	Date/Time: <i>8/10/18 1450</i>	Received by: <i>[Signature]</i>	Company: <i>[Blank]</i>	Date/Time: <i>[Blank]</i>

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

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 Tel: (206) 438-2261 / (206) 438-2010				Site Contact: Jennifer Ray Laboratory Contact: Elaine-Walker				Date: 8/10/18	COC No: 1		
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		Analysis Turnaround Time Calendar (C) or Work Days (W) W								Carrier: Courier		of pages	
Portland, OR		☒ 21 days										 580-79504 Chain of Custody	
Project #: 60566335 Study: Subsurface Sediment		☐ Other											
Sample Type:													
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-SIM1, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S098 - 0 to 1.3	8/9/2018	12:00	SC		ED	4		x	x	x	x		
PDI-SC-S098 - 1.3 to 3.3	8/9/2018	12:05	SC		ED	4		x	x	x	x		
PDI-SC-S098 - 3.3 to 5.3	8/9/2018	12:10	SC		ED	4		x	x	x	x		
PDI-SC-S098 - 3.3 to 5.3D	8/9/2018	12:10	SC		ED	3		x	x	x	x		
PDI-SC-S098 - 5.3 to 7.2	8/9/2018	12:15	SC		ED	4		x	x	x	x		
PDI-SC-S098 - 7.2 to 8.2	8/9/2018	12:20	SC		ED	4		x	x	x	x		
PDI-SC-S103 - 0 to 2	8/9/2018	15:30	SC		ED	4		x	x	x	x		
PDI-SC-S103 - 2 to 4	8/9/2018	15:35	SC		ED	4		x	x	x	x		
PDI-SC-S103 - 4 to 6	8/9/2018	15:40	SC	MS/MSD	ED	6		x	x	x	x		
PDI-SC-S103 - 6 to 8	8/9/2018	15:45	SC		ED	4		x	x	x	x		
PDI-SC-S103 - 8 to 9.7	8/9/2018	15:50	SC		ED	4		x	x	x	x		
PDI-SC-S103 - 9.7 to 10.7	8/9/2018	15:55	SC		ED	4		x	x	x	x		
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Container							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 ☒ Dispose By Lab ☒ Store For 12 Months						
Special Instructions/QC Requirements & Comments: Separate reports for each lab													
4.1, 1.9, 3.1, 2.3, 5.1, 5.6, 4.3, 0.5, 1.8													
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:			
		AECOM		8/10/18 1400				M.E.		8/10/18 1400			
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:			
		M.E.		8/10/18 1450				TAPOR		8/10/18 1450			
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:			
		TAPOR		8/13/18 1700				SCATA		8/14/18 0945			

Page 85 of 110 $\pm R5 = 4.8/4.8 \text{ w/c.s.}$

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 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				Site Contact: Jennifer Ray Laboratory Contact: Elaine-Walker				Date: 8/10/18 Carrier: Courier				COC No: 1 of pages																																																																																																																																																																																																																																																			
Sample Identification Sample Date Sample Time Matrix QC Sample Sampler's Initials Total No. of Cont.		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Fraction</td> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">PCDD/Fs 1613B</td> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Archive</td> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Grain size ASTM D7928/D6913</td> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">PCB Aroclors, PAHs, Total Organic Carbon, Total Solids #082A, #270D-SIM, 9060, 160.3</td> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Atterberg Limits ASTM D4318</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>																		Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids #082A, #270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318																																Sample Specific Notes:																																																																																																																																																																																																								
		Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids #082A, #270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318																																																																																																																																																																																																																																																										
<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>PDI-SC-S198 - 8 to 10</td><td>8/8/2018</td><td>15:05</td><td>SC</td><td></td><td>ED</td><td>4</td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>PDI-SC-S198 - 10 to 11.8</td><td>8/8/2018</td><td>15:10</td><td>SC</td><td></td><td>ED</td><td>4</td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>PDI-SC-S213 - 0 to 2</td><td>8/9/2018</td><td>9:50</td><td>SC</td><td></td><td>ED</td><td>4</td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>PDI-SC-S213 - 2 to 4</td><td>8/9/2018</td><td>9:55</td><td>SC</td><td>MS/MSD</td><td>ED</td><td>6</td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>PDI-SC-S213 - 4 to 6</td><td>8/9/2018</td><td>10:00</td><td>SC</td><td></td><td>ED</td><td>4</td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>PDI-SC-S213 - 6 to 8</td><td>8/9/2018</td><td>10:05</td><td>SC</td><td></td><td>ED</td><td>4</td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>PDI-SC-S213 - 8 to 10</td><td>8/9/2018</td><td>10:10</td><td>SC</td><td></td><td>ED</td><td>4</td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>PDI-SC-S213 - 10 to 11.8</td><td>8/9/2018</td><td>10:15</td><td>SC</td><td></td><td>ED</td><td>4</td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>PDI-SC-S213 - 11.8 to 12.8</td><td>8/9/2018</td><td>10:20</td><td>SC</td><td></td><td>ED</td><td>4</td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>PDI-SC-S229 - 0 to 2</td><td>8/9/2018</td><td>19:40</td><td>SC</td><td></td><td>ED</td><td>4</td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>PDI-SC-S229 - 2 to 4</td><td>8/9/2018</td><td>19:45</td><td>SC</td><td></td><td>ED</td><td>4</td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>PDI-SC-S229 - 4 to 6</td><td>8/9/2018</td><td>19:50</td><td>SC</td><td></td><td>ED</td><td>4</td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>																		PDI-SC-S198 - 8 to 10	8/8/2018	15:05	SC		ED	4		x	x	x	x									PDI-SC-S198 - 10 to 11.8	8/8/2018	15:10	SC		ED	4		x	x	x	x									PDI-SC-S213 - 0 to 2	8/9/2018	9:50	SC		ED	4		x	x	x	x									PDI-SC-S213 - 2 to 4	8/9/2018	9:55	SC	MS/MSD	ED	6		x	x	x	x									PDI-SC-S213 - 4 to 6	8/9/2018	10:00	SC		ED	4		x	x	x	x									PDI-SC-S213 - 6 to 8	8/9/2018	10:05	SC		ED	4		x	x	x	x									PDI-SC-S213 - 8 to 10	8/9/2018	10:10	SC		ED	4		x	x	x	x									PDI-SC-S213 - 10 to 11.8	8/9/2018	10:15	SC		ED	4		x	x	x	x									PDI-SC-S213 - 11.8 to 12.8	8/9/2018	10:20	SC		ED	4		x	x	x	x									PDI-SC-S229 - 0 to 2	8/9/2018	19:40	SC		ED	4		x	x	x	x									PDI-SC-S229 - 2 to 4	8/9/2018	19:45	SC		ED	4		x	x	x	x									PDI-SC-S229 - 4 to 6	8/9/2018	19:50	SC		ED	4		x	x	x	x								
PDI-SC-S198 - 8 to 10	8/8/2018	15:05	SC		ED	4		x	x	x	x																																																																																																																																																																																																																																																						
PDI-SC-S198 - 10 to 11.8	8/8/2018	15:10	SC		ED	4		x	x	x	x																																																																																																																																																																																																																																																						
PDI-SC-S213 - 0 to 2	8/9/2018	9:50	SC		ED	4		x	x	x	x																																																																																																																																																																																																																																																						
PDI-SC-S213 - 2 to 4	8/9/2018	9:55	SC	MS/MSD	ED	6		x	x	x	x																																																																																																																																																																																																																																																						
PDI-SC-S213 - 4 to 6	8/9/2018	10:00	SC		ED	4		x	x	x	x																																																																																																																																																																																																																																																						
PDI-SC-S213 - 6 to 8	8/9/2018	10:05	SC		ED	4		x	x	x	x																																																																																																																																																																																																																																																						
PDI-SC-S213 - 8 to 10	8/9/2018	10:10	SC		ED	4		x	x	x	x																																																																																																																																																																																																																																																						
PDI-SC-S213 - 10 to 11.8	8/9/2018	10:15	SC		ED	4		x	x	x	x																																																																																																																																																																																																																																																						
PDI-SC-S213 - 11.8 to 12.8	8/9/2018	10:20	SC		ED	4		x	x	x	x																																																																																																																																																																																																																																																						
PDI-SC-S229 - 0 to 2	8/9/2018	19:40	SC		ED	4		x	x	x	x																																																																																																																																																																																																																																																						
PDI-SC-S229 - 2 to 4	8/9/2018	19:45	SC		ED	4		x	x	x	x																																																																																																																																																																																																																																																						
PDI-SC-S229 - 4 to 6	8/9/2018	19:50	SC		ED	4		x	x	x	x																																																																																																																																																																																																																																																						
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Closure Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)		Sample Disposal ☐ Return To Client ☒ Disposed By Lab ☒ Archive For 12 Months																																																																																																																																																																																																																																																															
Special Instructions/QC Requirements & Comments: Separate reports for each lab																																																																																																																																																																																																																																																																	
Relinquished by:		Company: AECOM		Date/Time: 8/10/18 1400		Received by:		Company: M-E.		Date/Time: 8/10/18 1400																																																																																																																																																																																																																																																							
Relinquished by:		Company: M. E.		Date/Time: 8/10/18 1450		Received by:		Company: TAPOR		Date/Time: 8/10/18 1450																																																																																																																																																																																																																																																							
Relinquished by:		Company: TAPOR		Date/Time: 8/13/18 1700		Received by:		Company: SEA TR		Date/Time: 8/14/18 0845																																																																																																																																																																																																																																																							

IR5 = 4.8 / 4.8 w/c.s.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)				Sampler: Walker, Elaine M Lab PM: Walker, Elaine M Phone: elaine.walker@testamericainc.com E-Mail: Oregon	
Client Contact: Shipping/Receiving Company: TestAmerica Laboratories, Inc.				State of Origin: Oregon Page: Page 1 of 1	
Address: 30 Community Drive, Suite 11, South Burlington, VT, 05403 Phone: 802-660-1990(Tel) 802-660-1919(Fax) Email: Project #: 58012120 Site: Portland Harbor Pre-Remedial Design				Job #: 580-79504-1 Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify) Other:	
Analysis Requested				Special Instructions/Note:	
Due Date Requested: 8/28/2018				Total Number of containers	
TAT Requested (days):				Field Filtered Sample (Yes or No)	
PO #:				Perform MS/MSD (Yes or No)	
WO #:				D4318	
Project #:				Matrix	
SSOW#:				(W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	
Sample Date				Sample Time	
Sample Identification - Client ID (Lab ID)				Preservation Code	
PDI-SC-S198-0to2 (580-79504-20)				14:45 Pacific	
PDI-SC-S238-4to6 (580-79504-43)				17:40 Pacific	
PDI-SC-S139-2to4 (580-79504-48)				14:25 Pacific	
Sample Date				Sample Time	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14:25 Pacific	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14:25 Pacific	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14:25 Pacific	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14:25 Pacific	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14:25 Pacific	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14:25 Pacific	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14:25 Pacific	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14:25 Pacific	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14:25 Pacific	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14:25 Pacific	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14:25 Pacific	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14:25 Pacific	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14:25 Pacific	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14:25 Pacific	
8/9/18				14:45 Pacific	
8/8/18				17:40 Pacific	
8/8/18				14	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Part # 159489-134 RIT2 EXP 03/19 *

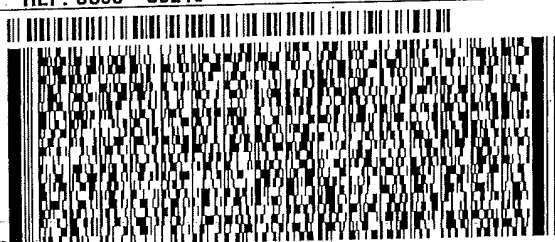
ORIGIN ID: BNOA (503) 906-9240
SAMPLE CONTROL
TESTAMERICA PORTLAND
8920 SW GEMINI DR
BUILDING 7
BEAVERTON, OR 970087145
UNITED STATES US

SHIP DATE: 13AUG18
ACTWGT: 30.00 LB
CAD: 0996922/CAFE3210

BILL RECIPIENT

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403

(802) 680-1990
REF: S580-30219



FedEx
Express

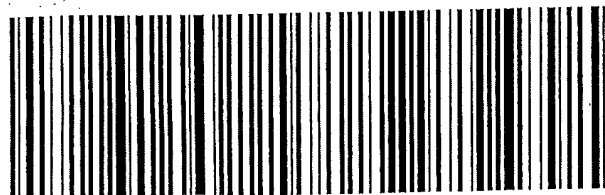


TRK# 4423 0750 8910
0201

TUE - 14 AUG 10:30A
PRIORITY OVERNIGHT

XH BTVA

05403
VT-US BTVA



TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Ver: 09/20/2016

Ver: 09/20/2016

Chain of Custody Record

Client Information (Sub Contract Lab)		Lab Pk: Walker, Elaine M		Carrier Tracking No(s): 580-58079.4	
Client Contact: Shipping/Receiving		Phone: E-Mail: elaine.walker@testamericainc.com		State of Origin: Oregon	
Company: TestAmerica Laboratories, Inc.		Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605		Page 4 of 6	
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		PO #:		Job #: 580-79504-2	
Email:		WO #:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Project Name: Portland Harbor Pre-Remedial Design		Project #: 58012120		Analysis Requested	
Site:		SSOW#:		Total Number of containers	
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, OW=wasteoil, BT=tissue, A=air)
PDI-SC-S213-2to4 (580-79504-28)	8/9/18	09:55 Pacific	Solid		
PDI-SC-S213-4to6 (580-79504-29)	8/9/18	10:00 Pacific	Solid		
PDI-SC-S213-6to8 (580-79504-30)	8/9/18	10:05 Pacific	Solid		
PDI-SC-S213-8to10 (580-79504-31)	8/9/18	10:10 Pacific	Solid		
PDI-SC-S213-10to11.8 (580-79504-32)	8/9/18	10:15 Pacific	Solid		
PDI-SC-S213-11.8to12.8 (580-79504-33)	8/9/18	10:20 Pacific	Solid		
PDI-SC-S229-0to2 (580-79504-34)	8/9/18	19:40 Pacific	Solid		
PDI-SC-S229-2to4 (580-79504-35)	8/9/18	19:45 Pacific	Solid		
PDI-SC-S229-4to6 (580-79504-36)	8/9/18	19:50 Pacific	Solid		
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. I					
Possible Hazard Identification					
Unconfirmed					
Deliverable Requested: I, II, III, IV, Other (specify)					
Primary Deliverable Rank: 2					
Special Instructions/Note:					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months					
Special Instructions/Note:					
Empty Kit Relinquished by:					
Relinquished by:		Date:	Time:	Method of Shipment:	
Relinquished by:		Date:	Time:	Company:	
Relinquished by:		Date:	Time:	Company:	
Relinquished by:		Date:	Time:	Company:	
Custody Seals Intact:		Custody Seal No.:			
Yes No					

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Ver: 09/20/2016

Ver: 09/20/2016

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-79504-2

Login Number: 79504

List Source: TestAmerica Seattle

List Number: 1

Creator: O'Connell, Jason I

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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 $<6\text{mm}$ (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: 580-79504-2

Login Number: 79504

List Number: 3

Creator: Her, David A

List Source: TestAmerica Sacramento

List Creation: 08/14/18 01:06 PM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
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	5.9c 1.5c
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 $<6\text{mm}$ (1/4").	N/A	
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: 580-79504-2

Login Number: 79504

List Number: 4

Creator: Her, David A

List Source: TestAmerica Sacramento

List Creation: 08/14/18 01:25 PM

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
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	5.9c 1.5c
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



Job: 580-79504 Field Sheet

Tracking # 4423 0750 9012

SO PO / FO / 2-Day / Ground / UPS / Courier / 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: Sample #17 was
received w/ cracked
lid. No volume lost.
Lid was secured w/
tape.
MLG 8/14/18

Therm. ID: AK-2 / AK-3 / AK-5 / AK-6 / HACCP / Other _____
(+0.7°C)

Ice Y Wet Y Gel _____ Other _____

Cooler Custody Seal: Seal

Sample Custody Seal: _____

Cooler ID: 1 of 2

Temp: Observed 3.9 Corrected 5.9

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: MLG Date: 8/14/18

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

FBI Sheriff B @ 1304





JC

580-79504 Field Sheet

SO / PO / FO / 2-Day / Ground / UPS / Courier / 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**

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: 478000

Sample Custody Seal: _____

Cooler ID: 7 of 2

Temp: Observed 2.3 Corrected 2.3

From: Temp Blank ☒ Sample ☒ *ML*

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: WLn Date: 8/15/18

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

FBI B @ 1310



Job: _____

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

9/4/2018

Isotope Dilution Summary

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

TestAmerica Job ID: 580-79504-2

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

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	HxCDD (32-141)	HxCDF (26-152)	HxDD (28-130)	HxDF (26-123)	HxCF (29-147)
Lab Sample ID	Client Sample ID								
580-79504-1	PDI-SC-S098-0to1.3	42	42	42	57	63	55	61	60
580-79504-1 - RA	PDI-SC-S098-0to1.3								
580-79504-2	PDI-SC-S098-1.3to3.3	42	39	43	48	50	49	51	54
580-79504-2 - RA	PDI-SC-S098-1.3to3.3								
580-79504-3	PDI-SC-S098-3.3to5.3	46	43	48	49	51	48	52	55
580-79504-4	PDI-SC-S098-3.3to5.3D	53	48	54	54	56	53	57	60
580-79504-5	PDI-SC-S098-5.3to7.2	62	57	62	60	63	59	64	66
580-79504-6	PDI-SC-S098-7.2to8.2	75	72	71	62	68	65	70	68
580-79504-7	PDI-SC-S103-0to2	55	51	51	55	58	55	58	63
580-79504-7 - RA	PDI-SC-S103-0to2								
580-79504-8	PDI-SC-S103-2to4	56	53	53	58	59	56	62	63
580-79504-8 - RA	PDI-SC-S103-2to4								
580-79504-9	PDI-SC-S103-4to6	57	49	52	56	54	55	56	60
580-79504-9 - RA	PDI-SC-S103-4to6								
580-79504-10	PDI-SC-S103-6to8	33	31	26	52	73	34	67	51
580-79504-10 - RA	PDI-SC-S103-6to8								
580-79504-11	PDI-SC-S103-8to9.7	35	34	37	43	45	43	46	53
580-79504-11 - RA	PDI-SC-S103-8to9.7								
580-79504-12	PDI-SC-S103-9.7to10.7	44	42	45	48	50	47	50	55
580-79504-13	PDI-SC-S103-10.7to13.4	68	53	69	63	68	65	68	74
580-79504-14	PDI-SC-S176-0to2	43	42	39	51	52	51	55	58
580-79504-14 - RA	PDI-SC-S176-0to2								
580-79504-15	PDI-SC-S176-2to4	32	31	21 *	59	65	55	67	57
580-79504-15 - RA	PDI-SC-S176-2to4								
580-79504-16	PDI-SC-S176-4to5.5	48	46	46	48	53	52	56	58
580-79504-17	PDI-SC-S176-5.5to7.5	45	42	48	48	52	49	53	58
580-79504-18	PDI-SC-S176-7.5to9.5	47	45	49	49	54	49	55	58
580-79504-19	PDI-SC-S188-0-1.5	36	34	28	61	81	51	77	64
580-79504-19 - RA	PDI-SC-S188-0-1.5								
580-79504-20	PDI-SC-S198-0to2	64	60	59	61	65	61	65	67
580-79504-20 - RA	PDI-SC-S198-0to2								
580-79504-21	PDI-SC-S198-2to4	38	36	28	56	60	54	60	59
580-79504-21 - RA	PDI-SC-S198-2to4								
580-79504-22	PDI-SC-S198-2to4D	37	36	30	51	54	49	54	57
580-79504-22 - RA	PDI-SC-S198-2to4D								
580-79504-23	PDI-SC-S198-4to6	36	35	33	47	50	45	50	52
580-79504-24	PDI-SC-S198-6to8	34	31	37	36	40	37	40	46
580-79504-25	PDI-SC-S198-8to10	57	56	58	49	54	51	55	59
580-79504-26	PDI-SC-S198-10to11.8	78	74	82	71	68	71	72	79
580-79504-27	PDI-SC-S213-0to2	62	51	59	52	45	51	46	51
580-79504-27 - RA	PDI-SC-S213-0to2								
580-79504-28	PDI-SC-S213-2to4	54	43	53	48	45	49	44	51
580-79504-28 - RA	PDI-SC-S213-2to4								
580-79504-29	PDI-SC-S213-4to6	45	37	30	45	42	43	40	45
580-79504-29 - RA	PDI-SC-S213-4to6								
580-79504-30	PDI-SC-S213-6to8	58	49	51	55	53	54	53	55
580-79504-30 - RA	PDI-SC-S213-6to8								
580-79504-31	PDI-SC-S213-8to10	54	45	46	53	50	51	52	54
580-79504-31 - RA	PDI-SC-S213-8to10								

TestAmerica Seattle

Isotope Dilution Summary

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

TestAmerica Job ID: 580-79504-2

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

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)
580-79504-32	PDI-SC-S213-10to11.8	49	42	41	52	47	47	49	52
580-79504-32 - RA	PDI-SC-S213-10to11.8								
580-79504-33	PDI-SC-S213-11.8to12.8	71	61	59	65	63	60	63	64
580-79504-33 - RA	PDI-SC-S213-11.8to12.8								
580-79504-34	PDI-SC-S229-0to2	54	44	51	52	48	48	49	54
580-79504-34 - RA	PDI-SC-S229-0to2								
580-79504-35	PDI-SC-S229-2to4	54	44	53	52	48	50	49	54
580-79504-35 - RA	PDI-SC-S229-2to4								
580-79504-36	PDI-SC-S229-4to6	56	49	56	49	46	50	49	53
580-79504-37	PDI-SC-S229-6to8	48	37	50	38	37	38	39	51
580-79504-38	PDI-SC-S229-8to9.9	52	44	52	49	46	48	46	52
580-79504-39	PDI-SC-S229-9.9to12.5	48	40	49	44	42	45	41	49
580-79504-40	PDI-SC-S238-0to2	52	43	50	50	47	47	49	51
580-79504-40 - RA	PDI-SC-S238-0to2								
580-79504-41	PDI-SC-S238-2to4	39	20 *	44	17 *	18 *	19 *	21 *	48
580-79504-41 - RA	PDI-SC-S238-2to4								
580-79504-42	PDI-SC-S238-2to4D	56	47	48	51	53	52	55	56
580-79504-42 - RA	PDI-SC-S238-2to4D								
580-79504-43	PDI-SC-S238-4to6	56	47	56	52	50	48	47	54
580-79504-43 - RA	PDI-SC-S238-4to6								
580-79504-44	PDI-SC-S238-6to8	47	39	45	44	43	44	42	49
580-79504-44 - RA	PDI-SC-S238-6to8								
580-79504-45	PDI-SC-S238-8to10	55	46	51	53	50	51	51	54
580-79504-45 - RA	PDI-SC-S238-8to10								
580-79504-46	PDI-SC-S238-10to12.4	53	45	48	55	53	50	53	54
580-79504-46 - RA	PDI-SC-S238-10to12.4								
580-79504-47	PDI-SC-S238-12.4to13.4	45	38	39	50	49	47	48	50
580-79504-47 - RA	PDI-SC-S238-12.4to13.4								
MB 320-241175/1-A	Method Blank	90	81	84	71	76	74	78	75
MB 320-241430/1-A	Method Blank	75	71	71	63	67	64	70	70
MB 320-241601/1-A	Method Blank	82	74	75	68	66	73	71	72

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)						
		PeCDD (25-181)	PeCDF (24-185)	13CHxCF (28-136)	PeCF (21-178)	TCDD (25-164)	TCDF (24-169)	OCDD (17-157)
580-79504-1	PDI-SC-S098-0to1.3	57	54	60	57	60		36
580-79504-1 - RA	PDI-SC-S098-0to1.3						69	
580-79504-2	PDI-SC-S098-1.3to3.3	49	50	51	52	57		31
580-79504-2 - RA	PDI-SC-S098-1.3to3.3						60	
580-79504-3	PDI-SC-S098-3.3to5.3	49	50	54	52	60	60	32
580-79504-4	PDI-SC-S098-3.3to5.3D	53	54	57	55	62	63	36
580-79504-5	PDI-SC-S098-5.3to7.2	58	57	65	59	67	65	44
580-79504-6	PDI-SC-S098-7.2to8.2	59	59	68	58	66	63	59
580-79504-7	PDI-SC-S103-0to2	56	56	60	56	62		42
580-79504-7 - RA	PDI-SC-S103-0to2						67	
580-79504-8	PDI-SC-S103-2to4	56	57	61	58	63		43
580-79504-8 - RA	PDI-SC-S103-2to4						63	
580-79504-9	PDI-SC-S103-4to6	65	62	55	64	62		60
580-79504-9 - RA	PDI-SC-S103-4to6						78	
580-79504-10	PDI-SC-S103-6to8	64	52	65	69	73		34

TestAmerica Seattle

Isotope Dilution Summary

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

TestAmerica Job ID: 580-79504-2

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

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)						OCDD (17-157)
		PeCDD (25-181)	PeCDF (24-185)	13CHxCF (28-136)	PeCF (21-178)	TCDD (25-164)	TCDF (24-169)	
580-79504-10 - RA	PDI-SC-S103-6to8						74	
580-79504-11	PDI-SC-S103-8to9.7	48	48	51	48	56		29
580-79504-11 - RA	PDI-SC-S103-8to9.7						69	
580-79504-12	PDI-SC-S103-9.7to10.7	48	50	53	52	59	61	32
580-79504-13	PDI-SC-S103-10.7to13.4	61	61	70	61	69	68	50
580-79504-14	PDI-SC-S176-0to2	55	57	58	56	62		35
580-79504-14 - RA	PDI-SC-S176-0to2						76	
580-79504-15	PDI-SC-S176-2to4	64	64	65	66	61		27
580-79504-15 - RA	PDI-SC-S176-2to4						75	
580-79504-16	PDI-SC-S176-4to5.5	48	52	56	53	59	61	34
580-79504-17	PDI-SC-S176-5.5to7.5	50	52	55	54	61	64	29
580-79504-18	PDI-SC-S176-7.5to9.5	48	52	55	53	61	64	31
580-79504-19	PDI-SC-S188-0-1.5	70	57	67	80	66		33
580-79504-19 - RA	PDI-SC-S188-0-1.5						72	
580-79504-20	PDI-SC-S198-0to2	57	58	65	57	66		50
580-79504-20 - RA	PDI-SC-S198-0to2						73	
580-79504-21	PDI-SC-S198-2to4	57	59	62	60	62		28
580-79504-21 - RA	PDI-SC-S198-2to4						82	
580-79504-22	PDI-SC-S198-2to4D	51	53	56	54	58		28
580-79504-22 - RA	PDI-SC-S198-2to4D						70	
580-79504-23	PDI-SC-S198-4to6	51	53	52	54	57	59	27
580-79504-24	PDI-SC-S198-6to8	38	42	41	45	55	58	21
580-79504-25	PDI-SC-S198-8to10	46	48	55	47	58	54	42
580-79504-26	PDI-SC-S198-10to11.8	66	71	76	66	80	75	62
580-79504-27	PDI-SC-S213-0to2	52	46	46	46	57		62
580-79504-27 - RA	PDI-SC-S213-0to2						67	
580-79504-28	PDI-SC-S213-2to4	54	48	46	50	61		48
580-79504-28 - RA	PDI-SC-S213-2to4						67	
580-79504-29	PDI-SC-S213-4to6	52	45	42	48	57		38
580-79504-29 - RA	PDI-SC-S213-4to6						67	
580-79504-30	PDI-SC-S213-6to8	61	56	53	58	57		64
580-79504-30 - RA	PDI-SC-S213-6to8						67	
580-79504-31	PDI-SC-S213-8to10	59	55	51	56	56		56
580-79504-31 - RA	PDI-SC-S213-8to10						70	
580-79504-32	PDI-SC-S213-10to11.8	58	56	48	59	56		51
580-79504-32 - RA	PDI-SC-S213-10to11.8						71	
580-79504-33	PDI-SC-S213-11.8to12.8	74	67	62	66	63		79
580-79504-33 - RA	PDI-SC-S213-11.8to12.8						79	
580-79504-34	PDI-SC-S229-0to2	61	57	50	60	60		59
580-79504-34 - RA	PDI-SC-S229-0to2						69	
580-79504-35	PDI-SC-S229-2to4	62	57	51	60	60		58
580-79504-35 - RA	PDI-SC-S229-2to4						65	
580-79504-36	PDI-SC-S229-4to6	60	55	49	58	59	60	61
580-79504-37	PDI-SC-S229-6to8	55	52	47	46	58	58	46
580-79504-38	PDI-SC-S229-8to9.9	52	52	50	55	56	58	53
580-79504-39	PDI-SC-S229-9.9to12.5	53	49	44	51	55	57	47
580-79504-40	PDI-SC-S238-0to2	62	57	48	60	58		58
580-79504-40 - RA	PDI-SC-S238-0to2						64	
580-79504-41	PDI-SC-S238-2to4	47	41	31	20 *	53		52

TestAmerica Seattle

Isotope Dilution Summary

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

TestAmerica Job ID: 580-79504-2

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

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)						
		PeCDD (25-181)	PeCDF (24-185)	13CHxCF (28-136)	PeCF (21-178)	TCDD (25-164)	TCDF (24-169)	OCDD (17-157)
580-79504-41 - RA	PDI-SC-S238-2to4						63	
580-79504-42	PDI-SC-S238-2to4D	61	56	53	59	60		66
580-79504-42 - RA	PDI-SC-S238-2to4D						61	
580-79504-43	PDI-SC-S238-4to6	61	58	50	60	60		63
580-79504-43 - RA	PDI-SC-S238-4to6						69	
580-79504-44	PDI-SC-S238-6to8	54	51	45	55	55		52
580-79504-44 - RA	PDI-SC-S238-6to8						70	
580-79504-45	PDI-SC-S238-8to10	61	57	53	59	59		63
580-79504-45 - RA	PDI-SC-S238-8to10						63	
580-79504-46	PDI-SC-S238-10to12.4	65	60	53	62	61		64
580-79504-46 - RA	PDI-SC-S238-10to12.4						68	
580-79504-47	PDI-SC-S238-12.4to13.4	59	55	50	61	57		49
580-79504-47 - RA	PDI-SC-S238-12.4to13.4						70	
MB 320-241175/1-A	Method Blank	45	50	75	45	74	68	78
MB 320-241430/1-A	Method Blank	60	58	68	57	66	61	60
MB 320-241601/1-A	Method Blank	76	67	70	68	67	65	90

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

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		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 320-241175/2-A	Lab Control Sample	85	75	79	66	70	68	72	71
LCS 320-241430/2-A	Lab Control Sample	85	81	81	73	77	74	80	80
LCS 320-241601/2-A	Lab Control Sample	72	66	71	62	62	68	65	65
LCSD 320-241175/3-A	Lab Control Sample Dup	90	78	83	73	69	72	73	74
LCSD 320-241430/3-A	Lab Control Sample Dup	82	78	79	71	75	72	77	78
LCSD 320-241601/3-A	Lab Control Sample Dup	60	54	57	50	47	50	53	55

TestAmerica Seattle

Isotope Dilution Summary

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

TestAmerica Job ID: 580-79504-2

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

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)						
		PeCDD (21-227)	PeCDF (21-192)	13CHxCF (22-176)	PeCF (13-328)	TCDD (20-175)	TCDF (22-152)	OCDD (13-199)
LCS 320-241175/2-A	Lab Control Sample	33	23	70	31	70	64	75
LCS 320-241430/2-A	Lab Control Sample	66	67	78	66	72	70	67
LCS 320-241601/2-A	Lab Control Sample	69	63	64	62	65	60	83
LCSD 320-241175/3-A	Lab Control Sample Dup	80	69	74	69	74	67	102
LCSD 320-241430/3-A	Lab Control Sample Dup	66	66	76	65	73	70	65
LCSD 320-241601/3-A	Lab Control Sample Dup	60	57	51	51	57	54	66

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: Water

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)
580-79504-49	PDI-RB-SS-180809	86	79	84	72	68	73	73	75
580-79504-50	PDI-RB-SS-180809-1900	83	78	85	65	69	71	75	78
MB 320-241812/1-A	Method Blank	81	77	82	73	72	80	76	79

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)						
		PeCDD (25-181)	PeCDF (24-185)	13CHxCF (28-136)	PeCF (21-178)	TCDD (25-164)	TCDF (24-169)	OCDD (17-157)
580-79504-49	PDI-RB-SS-180809	78	73	74	74	76	77	90
580-79504-50	PDI-RB-SS-180809-1900	74	67	73	70	73	76	82
MB 320-241812/1-A	Method Blank	81	74	78	76	72	73	84

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

TestAmerica Job ID: 580-79504-2

Project/Site: Portland Harbor Pre-Remedial Design

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: Water

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 320-241812/2-A	Lab Control Sample	58	60	61	60	50	59	55	67
LCSD 320-241812/3-A	Lab Control Sample Dup	65	62	75	61	62	68	65	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 320-241812/2-A	Lab Control Sample	94	89	65	88	71	66	64
LCSD 320-241812/3-A	Lab Control Sample Dup	77	64	72	69	70	63	70

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