

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

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TestAmerica Job ID: 580-78204-2

Client Project/Site: Portland Harbor Pre-Remedial Design

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

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Case Narrative

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-78204-2

Job ID: 580-78204-2

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE

Client: AECOM

Project: Portland Harbor Pre-Remedial Design

Report Number: 580-78204-2

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

Three samples were received on 06/20/2018; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.9 C.

A sample container was provided to be archived frozen at the TestAmerica Sacramento laboratory.

This report contains results of Dioxins/Furans by Method 1613B, performed by TestAmerica Sacramento.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

DIOXIN/ FURAN

Samples PDI-SG-B191-BL1 (580-78204-1), PDI-SG-B114-BL1 (580-78204-2) and PDI-SG-B425-BL1 (580-78204-3) were analyzed for Dioxin/ Furan in accordance with 1613B. The samples were prepared on 06/28/2018 and analyzed on 07/07/2018.

1,2,3,4,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,7,8,9-HxCDF and OCDD were detected in method blank MB 320-231580/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument 10D5 exceeded this criteria: PDI-SG-B191-BL1 (580-78204-1), PDI-SG-B114-BL1 (580-78204-2), PDI-SG-B425-BL1 (580-78204-3), (CCV 320-232948/3) and (MB 320-231580/1-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.

The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: PDI-SG-B425-BL1 (580-78204-3). 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). All detection limits are below the lower calibration.

Method(s) HRMS-Sox: Due to the matrix, the initial volumes used for the following samples deviated from the standard procedure: PDI-SG-B191-BL1 (580-78204-1), PDI-SG-B114-BL1 (580-78204-2) and PDI-SG-B425-BL1 (580-78204-3). The reporting limits (RLs)

Case Narrative

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

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Laboratory: TestAmerica Seattle (Continued)

have been adjusted proportionately. Samples are associated with preparation batch 320-231580.

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: 580-78204-2

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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
%R	Listed under the "D" column to designate that the result is reported on a dry weight basis
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: 580-78204-2

Client Sample ID: PDI-SG-B191-BL1

Lab Sample ID: 580-78204-1

Date Collected: 06/18/18 16:31

Matrix: Solid

Date Received: 06/20/18 14:45

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	0.017	B	0.0034	0.00044	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
1,2,3,4,6,7,8-HpCDF	0.0027	J q	0.0034	0.00016	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
1,2,3,4,7,8,9-HpCDF	0.00037	J	0.0034	0.00020	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
1,2,3,4,7,8-HxCDD	0.00030	J B	0.0034	0.000064	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
1,2,3,4,7,8-HxCDF	0.00087	J	0.0034	0.00012	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
1,2,3,6,7,8-HxCDD	0.00083	J	0.0034	0.000058	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
1,2,3,6,7,8-HxCDF	0.00034	J	0.0034	0.00011	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
1,2,3,7,8,9-HxCDD	0.00072	J B	0.0034	0.000057	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
1,2,3,7,8,9-HxCDF	0.00032	J B	0.0034	0.000080	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
1,2,3,7,8-PeCDD	0.00018	J	0.0034	0.000076	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
1,2,3,7,8-PeCDF	0.00047	J	0.0034	0.000070	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
2,3,4,6,7,8-HxCDF	0.00019	J	0.0034	0.000078	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
2,3,4,7,8-PeCDF	0.00021	J q	0.0034	0.000073	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
2,3,7,8-TCDD	ND		0.00067	0.000073	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
2,3,7,8-TCDF	0.00034	J	0.00067	0.000044	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
OCDD	0.16	B	0.0067	0.00033	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
OCDF	0.0084		0.0067	0.00010	ug/Kg	⊗	06/28/18 15:14	07/07/18 02:57	1
Isotope Dilution	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	25			23 - 140			06/28/18 15:14	07/07/18 02:57	1
13C-1,2,3,4,6,7,8-HpCDF	28			28 - 143			06/28/18 15:14	07/07/18 02:57	1
13C-1,2,3,4,7,8,9-HpCDF	29			26 - 138			06/28/18 15:14	07/07/18 02:57	1
13C-1,2,3,4,7,8-HxCDD	35			32 - 141			06/28/18 15:14	07/07/18 02:57	1
13C-1,2,3,4,7,8-HxCDF	34			26 - 152			06/28/18 15:14	07/07/18 02:57	1
13C-1,2,3,6,7,8-HxCDD	38			28 - 130			06/28/18 15:14	07/07/18 02:57	1
13C-1,2,3,6,7,8-HxCDF	36			26 - 123			06/28/18 15:14	07/07/18 02:57	1
13C-1,2,3,7,8,9-HxCDF	35			29 - 147			06/28/18 15:14	07/07/18 02:57	1
13C-1,2,3,7,8-PeCDD	35			25 - 181			06/28/18 15:14	07/07/18 02:57	1
13C-1,2,3,7,8-PeCDF	41			24 - 185			06/28/18 15:14	07/07/18 02:57	1
13C-2,3,4,6,7,8-HxCDF	36			28 - 136			06/28/18 15:14	07/07/18 02:57	1
13C-2,3,4,7,8-PeCDF	42			21 - 178			06/28/18 15:14	07/07/18 02:57	1
13C-2,3,7,8-TCDD	39			25 - 164			06/28/18 15:14	07/07/18 02:57	1
13C-2,3,7,8-TCDF	45			24 - 169			06/28/18 15:14	07/07/18 02:57	1
13C-OCDD	23			17 - 157			06/28/18 15:14	07/07/18 02:57	1
Surrogate	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
37Cl-2,3,7,8-TCDD	80			35 - 197			06/28/18 15:14	07/07/18 02:57	1

TestAmerica Seattle

Client Sample Results

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-78204-2

Client Sample ID: PDI-SG-B114-BL1

Lab Sample ID: 580-78204-2

Date Collected: 06/18/18 10:22

Matrix: Solid

Date Received: 06/20/18 14:45

Percent Solids: 69.4

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	0.016	B	0.0036	0.00043	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
1,2,3,4,6,7,8-HpCDF	0.0032	J	0.0036	0.00016	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
1,2,3,4,7,8,9-HpCDF	ND		0.0036	0.00020	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
1,2,3,4,7,8-HxCDD	0.00021	J q B	0.0036	0.000061	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
1,2,3,4,7,8-HxCDF	0.00044	J	0.0036	0.000081	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
1,2,3,6,7,8-HxCDD	0.00054	J	0.0036	0.000058	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
1,2,3,6,7,8-HxCDF	0.00026	J	0.0036	0.000073	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
1,2,3,7,8,9-HxCDD	0.00057	J B	0.0036	0.000056	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
1,2,3,7,8,9-HxCDF	0.00013	J B	0.0036	0.000053	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
1,2,3,7,8-PeCDD	ND		0.0036	0.000079	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
1,2,3,7,8-PeCDF	0.00028	J	0.0036	0.000064	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
2,3,4,6,7,8-HxCDF	ND		0.0036	0.000053	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
2,3,4,7,8-PeCDF	ND		0.0036	0.000065	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
2,3,7,8-TCDD	ND		0.00072	0.000072	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
2,3,7,8-TCDF	0.00019	J	0.00072	0.000034	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
OCDD	0.20	B	0.0072	0.00045	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
OCDF	0.0088		0.0072	0.000094	ug/Kg	⊗	06/28/18 15:14	07/07/18 03:43	1
Isotope Dilution	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	27			23 - 140			06/28/18 15:14	07/07/18 03:43	1
13C-1,2,3,4,6,7,8-HpCDF	30			28 - 143			06/28/18 15:14	07/07/18 03:43	1
13C-1,2,3,4,7,8,9-HpCDF	32			26 - 138			06/28/18 15:14	07/07/18 03:43	1
13C-1,2,3,4,7,8-HxCDD	38			32 - 141			06/28/18 15:14	07/07/18 03:43	1
13C-1,2,3,4,7,8-HxCDF	37			26 - 152			06/28/18 15:14	07/07/18 03:43	1
13C-1,2,3,6,7,8-HxCDD	43			28 - 130			06/28/18 15:14	07/07/18 03:43	1
13C-1,2,3,6,7,8-HxCDF	39			26 - 123			06/28/18 15:14	07/07/18 03:43	1
13C-1,2,3,7,8,9-HxCDF	38			29 - 147			06/28/18 15:14	07/07/18 03:43	1
13C-1,2,3,7,8-PeCDD	38			25 - 181			06/28/18 15:14	07/07/18 03:43	1
13C-1,2,3,7,8-PeCDF	44			24 - 185			06/28/18 15:14	07/07/18 03:43	1
13C-2,3,4,6,7,8-HxCDF	39			28 - 136			06/28/18 15:14	07/07/18 03:43	1
13C-2,3,4,7,8-PeCDF	47			21 - 178			06/28/18 15:14	07/07/18 03:43	1
13C-2,3,7,8-TCDD	42			25 - 164			06/28/18 15:14	07/07/18 03:43	1
13C-2,3,7,8-TCDF	49			24 - 169			06/28/18 15:14	07/07/18 03:43	1
13C-OCDD	25			17 - 157			06/28/18 15:14	07/07/18 03:43	1
Surrogate	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	88			35 - 197			06/28/18 15:14	07/07/18 03:43	1

TestAmerica Seattle

Client Sample Results

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-78204-2

Client Sample ID: PDI-SG-B425-BL1

Lab Sample ID: 580-78204-3

Date Collected: 06/19/18 12:01

Matrix: Solid

Date Received: 06/20/18 14:45

Percent Solids: 49.0

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	0.030	B	0.0051	0.00058	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
1,2,3,4,6,7,8-HpCDF	0.0052	q	0.0051	0.00025	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
1,2,3,4,7,8,9-HpCDF	0.00055	J	0.0051	0.00030	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
1,2,3,4,7,8-HxCDD	0.00044	J q B	0.0051	0.00011	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
1,2,3,4,7,8-HxCDF	0.00060	J	0.0051	0.00014	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
1,2,3,6,7,8-HxCDD	0.0013	J	0.0051	0.00011	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
1,2,3,6,7,8-HxCDF	0.00035	J	0.0051	0.00012	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
1,2,3,7,8,9-HxCDD	0.0013	J B	0.0051	0.00010	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
1,2,3,7,8,9-HxCDF	0.00015	J B	0.0051	0.000093	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
1,2,3,7,8-PeCDD	0.00030	J	0.0051	0.00011	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
1,2,3,7,8-PeCDF	0.00036	J	0.0051	0.000081	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
2,3,4,6,7,8-HxCDF	0.00022	J q	0.0051	0.000092	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
2,3,4,7,8-PeCDF	0.00018	J	0.0051	0.000082	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
2,3,7,8-TCDD	ND		0.0010	0.000087	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
2,3,7,8-TCDF	0.00033	J	0.0010	0.000054	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
OCDD	0.28	B	0.010	0.00045	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
OCDF	0.019		0.010	0.00013	ug/Kg	⊗	06/28/18 15:14	07/07/18 04:29	1
Isotope Dilution	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	25			23 - 140			06/28/18 15:14	07/07/18 04:29	1
13C-1,2,3,4,6,7,8-HpCDF	26	*		28 - 143			06/28/18 15:14	07/07/18 04:29	1
13C-1,2,3,4,7,8,9-HpCDF	28			26 - 138			06/28/18 15:14	07/07/18 04:29	1
13C-1,2,3,4,7,8-HxCDD	33			32 - 141			06/28/18 15:14	07/07/18 04:29	1
13C-1,2,3,4,7,8-HxCDF	32			26 - 152			06/28/18 15:14	07/07/18 04:29	1
13C-1,2,3,6,7,8-HxCDD	36			28 - 130			06/28/18 15:14	07/07/18 04:29	1
13C-1,2,3,6,7,8-HxCDF	35			26 - 123			06/28/18 15:14	07/07/18 04:29	1
13C-1,2,3,7,8,9-HxCDF	33			29 - 147			06/28/18 15:14	07/07/18 04:29	1
13C-1,2,3,7,8-PeCDD	33			25 - 181			06/28/18 15:14	07/07/18 04:29	1
13C-1,2,3,7,8-PeCDF	38			24 - 185			06/28/18 15:14	07/07/18 04:29	1
13C-2,3,4,6,7,8-HxCDF	34			28 - 136			06/28/18 15:14	07/07/18 04:29	1
13C-2,3,4,7,8-PeCDF	40			21 - 178			06/28/18 15:14	07/07/18 04:29	1
13C-2,3,7,8-TCDD	35			25 - 164			06/28/18 15:14	07/07/18 04:29	1
13C-2,3,7,8-TCDF	42			24 - 169			06/28/18 15:14	07/07/18 04:29	1
13C-OCDD	23			17 - 157			06/28/18 15:14	07/07/18 04:29	1
Surrogate	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	73			35 - 197			06/28/18 15:14	07/07/18 04:29	1

TestAmerica Seattle

QC Sample Results

Client: AECOM

TestAmerica Job ID: 580-78204-2

Project/Site: Portland Harbor Pre-Remedial Design

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

Lab Sample ID: MB 320-231580/1-A

Client Sample ID: Method Blank

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 232948

Prep Batch: 231580

Analyte	MB		RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							

1,2,3,4,6,7,8-HpCDD	0.0000886	J	0.0050	0.000058	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
1,2,3,4,6,7,8-HpCDF	ND		0.0050	0.000054	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
1,2,3,4,7,8,9-HpCDF	ND		0.0050	0.000077	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
1,2,3,4,7,8-HxCDD	0.000156	J	0.0050	0.000060	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
1,2,3,4,7,8-HxCDF	ND		0.0050	0.000064	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
1,2,3,6,7,8-HxCDD	ND		0.0050	0.000055	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
1,2,3,6,7,8-HxCDF	ND		0.0050	0.000054	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
1,2,3,7,8,9-HxCDD	0.000102	J q	0.0050	0.000054	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
1,2,3,7,8,9-HxCDF	0.000182	J	0.0050	0.000044	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
1,2,3,7,8-PeCDD	ND		0.0050	0.000073	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
1,2,3,7,8-PeCDF	ND		0.0050	0.000064	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
2,3,4,6,7,8-HxCDF	ND		0.0050	0.000043	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
2,3,4,7,8-PeCDF	ND		0.0050	0.000071	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
2,3,7,8-TCDD	ND		0.0010	0.000071	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
2,3,7,8-TCDF	ND		0.0010	0.000045	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
OCDD	0.000480	J q	0.010	0.000065	ug/Kg	06/28/18 15:14	07/07/18 00:39	1
OCDF	ND		0.010	0.000083	ug/Kg	06/28/18 15:14	07/07/18 00:39	1

Isotope Dilution	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,4,6,7,8-HpCDD	35		23 - 140	06/28/18 15:14	07/07/18 00:39	1
13C-1,2,3,4,6,7,8-HpCDF	42		28 - 143	06/28/18 15:14	07/07/18 00:39	1
13C-1,2,3,4,7,8,9-HpCDF	39		26 - 138	06/28/18 15:14	07/07/18 00:39	1
13C-1,2,3,4,7,8-HxCDD	41		32 - 141	06/28/18 15:14	07/07/18 00:39	1
13C-1,2,3,4,7,8-HxCDF	41		26 - 152	06/28/18 15:14	07/07/18 00:39	1
13C-1,2,3,6,7,8-HxCDD	50		28 - 130	06/28/18 15:14	07/07/18 00:39	1
13C-1,2,3,6,7,8-HxCDF	46		26 - 123	06/28/18 15:14	07/07/18 00:39	1
13C-1,2,3,7,8,9-HxCDF	42		29 - 147	06/28/18 15:14	07/07/18 00:39	1
13C-1,2,3,7,8-PeCDD	44		25 - 181	06/28/18 15:14	07/07/18 00:39	1
13C-1,2,3,7,8-PeCDF	50		24 - 185	06/28/18 15:14	07/07/18 00:39	1
13C-2,3,4,6,7,8-HxCDF	44		28 - 136	06/28/18 15:14	07/07/18 00:39	1
13C-2,3,4,7,8-PeCDF	47		21 - 178	06/28/18 15:14	07/07/18 00:39	1
13C-2,3,7,8-TCDD	47		25 - 164	06/28/18 15:14	07/07/18 00:39	1
13C-2,3,7,8-TCDF	50		24 - 169	06/28/18 15:14	07/07/18 00:39	1
13C-OCDD	33		17 - 157	06/28/18 15:14	07/07/18 00:39	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	81		35 - 197	06/28/18 15:14	07/07/18 00:39	1

Lab Sample ID: LCS 320-231580/2-A	Client Sample ID: Lab Control Sample	
	Prep Type: Total/NA	Prep Batch: 231580
Matrix: Solid		
Analysis Batch: 233895		

Analyte	Spike		LCS	LCS	%Rec.		
	Added	Result	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	0.0957		ug/Kg	96	82 - 122	
1,2,3,4,7,8,9-HpCDF	0.100	0.0984		ug/Kg	98	78 - 138	
1,2,3,4,7,8-HxCDD	0.100	0.106		ug/Kg	106	70 - 164	
1,2,3,4,7,8-HxCDF	0.100	0.100		ug/Kg	100	72 - 134	

TestAmerica Seattle

QC Sample Results

Client: AECOM

TestAmerica Job ID: 580-78204-2

Project/Site: Portland Harbor Pre-Remedial Design

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

Lab Sample ID: LCS 320-231580/2-A

Matrix: Solid

Analysis Batch: 233895

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 231580

Analyte	Spike	LCS	LCS	Unit	D	%Rec	Limits
	Added	Result	Qualifier				
1,2,3,6,7,8-HxCDD	0.100	0.102		ug/Kg		102	76 - 134
1,2,3,6,7,8-HxCDF	0.100	0.103		ug/Kg		103	84 - 130
1,2,3,7,8,9-HxCDD	0.100	0.108		ug/Kg		108	64 - 162
1,2,3,7,8,9-HxCDF	0.100	0.0996		ug/Kg		100	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	0.100		ug/Kg		100	80 - 134
2,3,4,6,7,8-HxCDF	0.100	0.0975		ug/Kg		98	70 - 156
2,3,4,7,8-PeCDF	0.100	0.0985		ug/Kg		98	68 - 160
2,3,7,8-TCDD	0.0200	0.0190		ug/Kg		95	67 - 158
2,3,7,8-TCDF	0.0200	0.0182		ug/Kg		91	75 - 158
OCDD	0.200	0.208		ug/Kg		104	78 - 144
OCDF	0.200	0.194		ug/Kg		97	63 - 170

Isotope Dilution	LCS	LCS	Limits
	%Recovery	Qualifier	
13C-1,2,3,4,6,7,8-HpCDD	61		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	58		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	58		20 - 186
13C-1,2,3,4,7,8-HxCDD	51		21 - 193
13C-1,2,3,4,7,8-HxCDF	54		19 - 202
13C-1,2,3,6,7,8-HxCDD	53		25 - 163
13C-1,2,3,6,7,8-HxCDF	54		21 - 159
13C-1,2,3,7,8,9-HxCDF	54		17 - 205
13C-1,2,3,7,8-PeCDD	54		21 - 227
13C-1,2,3,7,8-PeCDF	53		21 - 192
13C-2,3,4,6,7,8-HxCDF	55		22 - 176
13C-2,3,4,7,8-PeCDF	53		13 - 328
13C-2,3,7,8-TCDD	51		20 - 175
13C-2,3,7,8-TCDF	49		22 - 152
13C-OCDD	58		13 - 199

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	60		31 - 191

Lab Sample ID: LCSD 320-231580/3-A

Matrix: Solid

Analysis Batch: 233895

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 231580

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	Limits	RPD	Limit
	Added	Result	Qualifier						
1,2,3,4,6,7,8-HpCDD	0.100	0.0971		ug/Kg		97	70 - 140	4	50
1,2,3,4,6,7,8-HpCDF	0.100	0.108		ug/Kg		108	82 - 122	12	50
1,2,3,4,7,8,9-HpCDF	0.100	0.0982		ug/Kg		98	78 - 138	0	50
1,2,3,4,7,8-HxCDD	0.100	0.102		ug/Kg		102	70 - 164	4	50
1,2,3,4,7,8-HxCDF	0.100	0.103		ug/Kg		103	72 - 134	3	50
1,2,3,6,7,8-HxCDD	0.100	0.103		ug/Kg		103	76 - 134	1	50
1,2,3,6,7,8-HxCDF	0.100	0.106		ug/Kg		106	84 - 130	3	50
1,2,3,7,8,9-HxCDD	0.100	0.104		ug/Kg		104	64 - 162	4	50
1,2,3,7,8,9-HxCDF	0.100	0.0983		ug/Kg		98	78 - 130	1	50
1,2,3,7,8-PeCDD	0.100	0.101		ug/Kg		101	70 - 142	2	50

TestAmerica Seattle

QC Sample Results

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-78204-2

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

Lab Sample ID: LCSD 320-231580/3-A

Matrix: Solid

Analysis Batch: 233895

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 231580

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec.		RPD	RPD Limit
		Result	Qualifier				Ridge	Limits		
1,2,3,7,8-PeCDF	0.100	0.101		ug/Kg		101	80 - 134		1	50
2,3,4,6,7,8-HxCDF	0.100	0.102		ug/Kg		102	70 - 156		4	50
2,3,4,7,8-PeCDF	0.100	0.101		ug/Kg		101	68 - 160		3	50
2,3,7,8-TCDD	0.0200	0.0192		ug/Kg		96	67 - 158		1	50
2,3,7,8-TCDF	0.0200	0.0183		ug/Kg		92	75 - 158		1	50
OCDD	0.200	0.213		ug/Kg		107	78 - 144		2	50
OCDF	0.200	0.198		ug/Kg		99	63 - 170		2	50
<i>Isotope Dilution</i>		<i>LCSD</i>	<i>LCSD</i>	<i>Qualifer</i>		<i>Limits</i>		<i>RPD</i>		
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	59			20 - 186						
13C-1,2,3,4,7,8-HxCDD	57			21 - 193						
13C-1,2,3,4,7,8-HxCDF	54			19 - 202						
13C-1,2,3,6,7,8-HxCDD	52			25 - 163						
13C-1,2,3,6,7,8-HxCDF	52			21 - 159						
13C-1,2,3,7,8-HxCDD	55			17 - 205						
13C-1,2,3,7,8-PeCDD	54			21 - 227						
13C-1,2,3,7,8-PeCDF	53			21 - 192						
13C-2,3,4,6,7,8-HxCDF	54			22 - 176						
13C-2,3,4,7,8-PeCDF	51			13 - 328						
13C-2,3,7,8-TCDD	53			20 - 175						
13C-2,3,7,8-TCDF	49			22 - 152						
13C-OCDD	58			13 - 199						
<i>Surrogate</i>		<i>LCSD</i>	<i>LCSD</i>	<i>Qualifer</i>		<i>Limits</i>		<i>RPD</i>		
37Cl4-2,3,7,8-TCDD	61			31 - 191						

TestAmerica Seattle

Lab Chronicle

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-78204-2

Client Sample ID: PDI-SG-B191-BL1

Lab Sample ID: 580-78204-1

Date Collected: 06/18/18 16:31

Matrix: Solid

Date Received: 06/20/18 14:45

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			231580	06/28/18 15:14	SR1	TAL SAC
Total/NA	Analysis	1613B		1	232948	07/07/18 02:57	AS	TAL SAC

Client Sample ID: PDI-SG-B114-BL1

Lab Sample ID: 580-78204-2

Date Collected: 06/18/18 10:22

Matrix: Solid

Date Received: 06/20/18 14:45

Percent Solids: 69.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			231580	06/28/18 15:14	SR1	TAL SAC
Total/NA	Analysis	1613B		1	232948	07/07/18 03:43	AS	TAL SAC

Client Sample ID: PDI-SG-B425-BL1

Lab Sample ID: 580-78204-3

Date Collected: 06/19/18 12:01

Matrix: Solid

Date Received: 06/20/18 14:45

Percent Solids: 49.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			231580	06/28/18 15:14	SR1	TAL SAC
Total/NA	Analysis	1613B		1	232948	07/07/18 04:29	AS	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

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-78204-2

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	07-31-18
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	08-11-18
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	07-31-18 *
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	07-31-18 *
USDA	Federal		P330-11-00436	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

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Seattle

Sample Summary

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-78204-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-78204-1	PDI-SG-B191-BL1	Solid	06/18/18 16:31	06/20/18 14:45
580-78204-2	PDI-SG-B114-BL1	Solid	06/18/18 10:22	06/20/18 14:45
580-78204-3	PDI-SG-B425-BL1	Solid	06/19/18 12:01	06/20/18 14:45

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TestAmerica Seattle

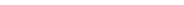
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SURFACE SEDIMENT CHAIN OF CUSTODY												
TestAmerica-Seattle			Project Contact: Amy Dahl / Chelssey Cook			Site Contact: Jennifer Ray / Michaela McCraig			Date: 6/20/18			
5755 8th Street-Seattle Tacoma, WA 98424-1317 Ph: 253-922-2310 Fax: 253-922-5047			Client Contact			Laboratory Contact: Elaine-Walker			Carrier: Courier			
AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101			Tel: (206) 438-2861 / (206) 438-2910						COC No: 1 1 of 1 COCs			
Analysis Turnaround Time			Calendar (C) or Work Days (W)									
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 6056335 Study: Surface Sediment Sample Type: SRS			<input checked="" type="checkbox"/> 21 days <input type="checkbox"/> Other _____									
Sample Identification			Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Sample Specific Notes:		
PDI-SG-B191-BL1	6/18/2018	16:31	SS		MM	x	x	x	PCB Concentrations 1668A	B114	Ready To Filter Cell & Extracted	
PDI-SG-B114-BL1	6/18/2018	10:22	SS		MM	x	x	x	TPH Diesel, Metals, Mercury, NWP-HDX			
PDI-SG-B425-BL1	6/19/2018	12:01	SS		MM	x	x	x	Grain size ASTM D7928/D6913			
									Total organic carbon, Total solids 9060 (104C & 70C)			
									Archive Archive-20°C			
									580-78204 Chain of Custody			
Container Type: WM-G=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/time: Relinquished by: Relinquished date: Relinquished time: Date/time: Received by: Received date: Received time: Company: Signature: Comments: Separate reports for each lab. Special Instructions/QC Requirements & Comments: 0.9												
Company: M-E. Received By: M-E. Date/Time: 6/20/18 / 14:30			Company: M-E. Received By: M-E. Date/Time: 6/20/18 / 14:30			Company: M-E. Received By: M-E. Date/Time: 6/20/18 / 14:30			Company: M-E. Received By: M-E. Date/Time: 6/20/18 / 14:30			

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 Ph: 253-922-2310 Fax: 253-922-5047		SURFACE SEDIMENT CHAIN OF CUSTODY												
Client Contact AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1-(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Surface Sediment Sample Type: SRS		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010 Analysis Turnaround Time Calendar (C) or Work Days (W)				Site Contact: Jennifer Ray / Michaela McCoog Laboratory Contact: Elaine-Walker				Date: 6/20/18 Carrier: Courier		COC No. 1 1 of 1 COCs		
		<input checked="" type="checkbox"/> 21 days <input type="checkbox"/> Other _____												
						Fraction	PCB Congeners 168A	PCDD/Fs 1613B	TPH Diesel, Metals, Mercury NNVT/PCBs, 60/20B, 74/71A	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060 (104C & 70C)	Archive Archive -20 C	 580-78204 Chain of Custody	
		Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.						Sample Specific Notes: B114 RECENTLY FROZEN COLLAR AND NEED TO KEEP FROZEN
		PDI-SG-B191-BL1	6/18/2018	16:31	SS		MM	6	x x x	x x x	x x x			
		PDI-SG-B114-BL1	6/18/2018	10:22	SS		MM	6	x x x	x x x	x x x			
		PDI-SG-B425-BL1	6/19/2018	12:01	SS		MM	6	x x x	x x x	x x x			
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Column Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)														
Fraction Disposal <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input checked="" type="checkbox"/> Archive For 12 Months														
Special Instructions/QC Requirements & Comments: Separate reports for each lab.														
Relinquished by <i>J. R. R. Reeder</i>	Company: <i>AECOM</i>	Date/Time: <i>6/20/18 / 1127</i>	Received by: <i>Jennifer Ray</i>	Company: <i>M.E.</i>	Date/Time: <i>6/20/18 / 1127</i>									
Relinquished by <i>J. R. R. Reeder</i>	Company: <i>M.E.</i>	Date/Time: <i>6/20/18 / 1430</i>	Received by: <i>Jennifer Ray</i>	Company: <i>M.E.</i>	Date/Time: <i>6/20/18 / 1430</i>									
Relinquished by <i>J. R. R. Reeder</i>	Company: <i>M.E.</i>	Date/Time: <i>6/20/18 / 1445</i>	Received by: <i>Jennifer Ray</i>	Company: <i>M.E.</i>	Date/Time: <i>6/20/18 / 1445</i>									

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Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
<i>John A. Henton Jr.</i>	HCCM	6/20/18 / 1127	<i>Janice Ayr</i>	M-E	6/20/18 / 1127
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
<i>John A. Henton Jr.</i>	M-E	6/20/18 / 1430		M-E	6-20-18 / 1430
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
<i>John A. Henton Jr.</i>	ME	6-20-18 / 1445		ME	6/20/18 / 1445

 TAPF 6/20/18 1700 S. Gao 92000 6/20/18 0920
TFS = 2.2 / 2.2 w/ 1.5

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7/16/2018



Sampler: Lab PM:

Client Information (Sub Contract Lab)		Sampler:	Lab Plt: Walker, Elaine M	Carrier Tracking No(s): 580-56467-1
Client Contact: Shipping/Receiving		Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): 580-78204-1		
Address: 880 Riverside Parkway, West Sacramento		Due Date Requested: 7/9/2018	Preservation Codes: M - Hexane 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:	
State, Zip: CA, 95605		TAT Requested (days):		
Phone: 916-375-5600(Tel) 916-372-1059(Fax)		PO #:		
Email: Project Name: Portland Harbor Pre-Remedial Design		W/O #:		
Site: SSOW#:		Project #: 58012120		
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=comp, G=grab) Field Filtered/Sample Matrix (Water, Sewage, Oceans, Air) Preservation Code:
PDI-SG-B191-BL1 (580-78204-1)		6/18/18	16:31 Pacific	Solid X X
PDI-SG-B114-BL1 (580-78204-2)		6/18/18	10:22 Pacific	Solid X X
PDI-SG-B425-BL1 (580-78204-3)		6/19/18	12:01 Pacific	Solid X X
Empty Kit Relinquished by: 		Date/Time: 2018-06-17 10:00	Company	Received by:
Relinquisher By: 		Date/Time: 2018-06-17 10:00	Company	Received by:
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2	Method of Shipment:	Method of Shipment:
Possible Hazard Identification Unconfirmed		Date:	Time:	Time:
Relinquisher By: 		Date/Time: 2018-06-17 10:00	Company	Received by:
Relinquisher By: 		Date/Time: 2018-06-17 10:00	Company	Received by:
Custody Seals Infact: Yes		Custody Seal No.: N	Cooler Temperature(s) °C and Other Remarks:	
Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analysis & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.		<input type="checkbox"/> Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months		
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:		

parafones. This sample shipment is forwarded under chain-of-custody. If the laboratory does not accreditations will be provided. Any changes to accreditation status should be brought to TestAmerica Inc.

Possible Hazard Identification

Unconfirmed

Special Instructions/QC Requirements:

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Method of Shipment:

Received by: John Doe Dated time: 11:00 AM Company: ABC Inc.

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Received by _____ Date/Time: _____
Company _____

J. M. HARRIS

Received by: _____ Date/Time: _____

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Cooler Temperature(s) °C and Other Remarks:

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Ver: 09/20/2016

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34567890123

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-78204-2

Login Number: 78204

List Source: TestAmerica Seattle

List Number: 1

Creator: O'Connell, Jason I

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

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-78204-2

Login Number: 78204

List Source: TestAmerica Sacramento

List Number: 2

List Creation: 06/21/18 03:14 PM

Creator: Hytrek, Cheryl

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	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	2.1
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").	True	
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



580-78204 Field Sheet

Job: _____

Tracking # 442367505500

SO / PO / FO / UPS / 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 <input checked="" type="checkbox"/>	Wet <input checked="" type="checkbox"/>	Gel <input checked="" type="checkbox"/>
	Other _____		
	Cooler Custody Seal: <u>Seal</u>		
	Sample Custody Seal: <u>/</u>		
	Cooler ID: <u>/</u>		
	Temp: Observed <u>91.1</u>		
	From: Temp Blank <input type="checkbox"/> Sample <input checked="" type="checkbox"/>		
	NCM Filed: Yes <input type="checkbox"/> No <input type="checkbox"/>		
	<u>Yes</u>	<u>No</u>	<u>NA</u>
Perchlorate has headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CoC is complete w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample temp OK?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample out of temp?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Initials: <u>CK</u> Date: <u>6-21-08</u> Time _____			
*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")			

F10B

Isotope Dilution Summary

Client: AECOM

TestAmerica Job ID: 580-78204-2

Project/Site: Portland Harbor Pre-Remedial Design

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 (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	HxCDD (32-141)	HxCDF (26-152)	HxD (28-130)	HxD (26-123)	HxCF (29-147)
580-78204-1	PDI-SG-B191-BL1	25	28	29	35	34	38	36	35
580-78204-2	PDI-SG-B114-BL1	27	30	32	38	37	43	39	38
580-78204-3	PDI-SG-B425-BL1	25	26 *	28	33	32	36	35	33
MB 320-231580/1-A	Method Blank	35	42	39	41	41	50	46	42

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)
580-78204-1	PDI-SG-B191-BL1	35	41	36	42	39	45	23
580-78204-2	PDI-SG-B114-BL1	38	44	39	47	42	49	25
580-78204-3	PDI-SG-B425-BL1	33	38	34	40	35	42	23
MB 320-231580/1-A	Method Blank	44	50	44	47	47	50	33

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-HpCDF2

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-HxDD

HxDF = 13C-1,2,3,6,7,8-HxDF

HxCF = 13C-1,2,3,7,8,9-HxCF

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-PeCF

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 320-231580/2-A	Lab Control Sample	61	58	58	51	54	53	54	54
LCSD 320-231580/3-A	Lab Control Sample Dup	60	54	59	57	54	52	52	55

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 320-231580/2-A	Lab Control Sample	54	53	55	53	51	49	58
LCSD 320-231580/3-A	Lab Control Sample Dup	54	53	54	51	53	49	58

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-HpCDF2

HxCDD = 13C-1,2,3,4,7,8-HxCDD

HxCDF = 13C-1,2,3,4,7,8-HxCDF

TestAmerica Seattle

Isotope Dilution Summary

Client: AECOM

Project/Site: Portland Harbor Pre-Remedial Design

TestAmerica Job ID: 580-78204-2

HxCDD = 13C-1,2,3,6,7,8-HxCDD

HxCDF = 13C-1,2,3,6,7,8-HxCDF

HxCDF = 13C-1,2,3,7,8,9-HxCDF

PeCDD = 13C-1,2,3,7,8-PeCDD

PeCDF = 13C-1,2,3,7,8-PeCDF

13CHxCDF = 13C-2,3,4,6,7,8-HxCDF

PeCF = 13C-2,3,4,7,8-PeCDF

TCDD = 13C-2,3,7,8-TCDD

TCDF = 13C-2,3,7,8-TCDF

OCDD = 13C-OCDD

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