TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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TestAmerica Job ID: 580-76634-2
Client Project/Site: Portland Harbor Pre-Remedial Design

For:
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Authorized for release by:
5/7/2018 4:57:58 PM

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

Table of Contents

Job ID: 580-76634-2

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE
Client: AECOM
Project: Portland Harbor Pre-Remedial Design
Report Number: 580-76634-2

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

Twenty-five samples were received on 4/16/2018 2:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 1.2º C, 1.9º C, 2.9º C, 3.2º C, 3.9º C and 4.2º C.

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

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-B152-BL1 (580-76634-1), PDI-SG-B157-BL1 (580-76634-2), PDI-SG-B158-BL1 (580-76634-3), PDI-SG-B158-BL1-D (580-76634-4), PDI-SG-B166-BL1 (580-76634-5), PDI-SG-B165-BL1 (580-76634-6), PDI-SG-B132-BL1 (580-76634-7), PDI-SG-B138-BL1 (580-76634-8), PDI-SG-B148-BL1 (580-76634-9), PDI-SG-B145-BL1 (580-76634-10), PDI-SG-B142-BL1 (580-76634-11), PDI-SG-B143-BL1 (580-76634-12), PDI-SG-B150-BL1 (580-76634-13), PDI-SG-B151-BL1 (580-76634-14), PDI-SG-B154-BL1 (580-76634-15), PDI-SG-B162-BL1 (580-76634-16), PDI-SG-B170-BL1 (580-76634-17), PDI-SG-B176-BL1 (580-76634-18), PDI-SG-B178-BL1 (580-76634-19), PDI-SG-B196-BL1 (580-76634-20), PDI-SG-B198-BL1 (580-76634-21), PDI-SG-B199-BL1 (580-76634-22) and PDI-SG-B141-BL1 (580-76634-25) were analyzed for Dioxin/ Furan in accordance with 1613B. The samples were prepared on 04/23/2018 and 04/24/2018 and analyzed on 04/26/2018, 04/27/2018, 04/28/2018, 05/02/2018, 05/03/2018 and 05/04/2018.

Several analytes were detected in method blank MB 320-219329/1-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.

Several analytes were detected in method blank MB 320-219533/1-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.

The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: PDI-SG-B166-BL1 (580-76634-5), PDI-SG-B165-BL1 (580-76634-6), PDI-SG-B132-BL1 (580-76634-7), PDI-SG-B138-BL1 (580-76634-8), PDI-SG-B145-BL1 (580-76634-10) and PDI-SG-B142-BL1 (580-76634-11). Generally, data quality is not considered affected if the IDA

Job ID: 580-76634-2 (Continued)

Laboratory: TestAmerica Seattle (Continued)

signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

The following sample exhibited elevated noise or matrix interferences for one or more analytes causing elevation of the detection limit (EDL): PDI-SG-B165-BL1 (580-76634-6). The reporting limit (RL) for the affected analytes has been raised to be equal to the EDL, and a "G" qualifier applied.

The concentration OCDD associated with the following sample exceeded the instrument calibration range: PDI-SG-B165-BL1 (580-76634-6). These analytes have been qualified; however, the peak 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-SG-B178-BL1 (580-76634-19) and PDI-SG-B196-BL1 (580-76634-20). The reporting limit (RL) for the affected analytes has been raised to be equal to the EDL, and a "G" qualifier applied.

The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: PDI-SG-B170-BL1 (580-76634-17) and PDI-SG-B176-BL1 (580-76634-18). 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. All detection limits are below the lower calibration.

Due to the matrix, the initial volumes used for the following samples deviated from the standard procedure: PDI-SG-B152-BL1 (580-76634-1), PDI-SG-B157-BL1 (580-76634-2), PDI-SG-B158-BL1 (580-76634-3), PDI-SG-B158-BL1-D (580-76634-4), PDI-SG-B166-BL1 (580-76634-5), PDI-SG-B165-BL1 (580-76634-6), PDI-SG-B132-BL1 (580-76634-7), PDI-SG-B138-BL1 (580-76634-8), PDI-SG-B148-BL1 (580-76634-9), PDI-SG-B145-BL1 (580-76634-10), PDI-SG-B142-BL1 (580-76634-11), PDI-SG-B143-BL1 (580-76634-12), PDI-SG-B150-BL1 (580-76634-13), PDI-SG-B151-BL1 (580-76634-14) and PDI-SG-B154-BL1 (580-76634-15). The reporting limits (RLs) have been adjusted proportionately. Samples are associated with preparation batch 320-219329.

Due to the matrix, the initial volumes used for the following samples deviated from the standard procedure: PDI-SG-B162-BL1 (580-76634-16), PDI-SG-B170-BL1 (580-76634-17), PDI-SG-B176-BL1 (580-76634-18), PDI-SG-B178-BL1 (580-76634-19), PDI-SG-B196-BL1 (580-76634-20), PDI-SG-B198-BL1 (580-76634-21), PDI-SG-B199-BL1 (580-76634-22) and PDI-SG-B141-BL1 (580-76634-25). The reporting limits (RLs) have been adjusted proportionately. Samples are associated with preparation batch 320-219533.

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

DIOXIN/ FURAN - Rinse Blank

Samples PDI-RB-180411-1800 (580-76634-23) and PDI-RB-180411-1752 (580-76634-24) were analyzed for Dioxin/ Furan in accordance with 1613B. The samples were prepared on 04/24/2018 and analyzed on 04/26/2018.

1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8-HxCDD, 2,3,7,8-TCDF and OCDD were detected in method blank MB 320-219436/1-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. Refer to the QC report for details.

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

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.
G	The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference
E	Result exceeded calibration range.

Glossary

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

Client Sample ID: PDI-SG-B152-BL1
Date Collected: 04/13/18 11:05
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-1
Matrix: Solid
Percent Solids: 57.8

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	0.057	B	0.0043	0.00045	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
1,2,3,4,6,7,8-HpCDF	0.0092	B	0.0043	0.00022	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
1,2,3,4,7,8,9-HpCDF	0.0010	J B	0.0043	0.00024	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
1,2,3,4,7,8-HxCDD	0.00054	J q B	0.0043	0.000052	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
1,2,3,4,7,8-HxCDF	0.0035	J	0.0043	0.00023	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
1,2,3,6,7,8-HxCDD	0.0026	J	0.0043	0.000050	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
1,2,3,6,7,8-HxCDF	0.0024	J	0.0043	0.00022	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
1,2,3,7,8,9-HxCDD	0.0011	J q	0.0043	0.000046	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
1,2,3,7,8,9-HxCDF	0.00065	J B	0.0043	0.00018	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
1,2,3,7,8-PeCDD	ND		0.0043	0.00015	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
1,2,3,7,8-PeCDF	0.0019	J	0.0043	0.00021	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
2,3,4,6,7,8-HxCDF	0.00039	J	0.0043	0.00017	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
2,3,4,7,8-PeCDF	0.00084	J	0.0043	0.00021	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
2,3,7,8-TCDD	ND		0.00085	0.00011	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
OCDD	0.50	B	0.0085	0.00027	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1
OCDF	0.026		0.0085	0.000079	ug/Kg	☼	04/23/18 12:27	04/26/18 22:17	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*51*		*23 - 140*	*04/23/18 12:27*	*04/26/18 22:17*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*41*		*28 - 143*	*04/23/18 12:27*	*04/26/18 22:17*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*48*		*26 - 138*	*04/23/18 12:27*	*04/26/18 22:17*	*1*
13C-1,2,3,4,7,8-HxCDD	*61*		*32 - 141*	*04/23/18 12:27*	*04/26/18 22:17*	*1*
13C-1,2,3,4,7,8-HxCDF	*64*		*26 - 152*	*04/23/18 12:27*	*04/26/18 22:17*	*1*
13C-1,2,3,6,7,8-HxCDD	*61*		*28 - 130*	*04/23/18 12:27*	*04/26/18 22:17*	*1*
13C-1,2,3,6,7,8-HxCDF	*60*		*26 - 123*	*04/23/18 12:27*	*04/26/18 22:17*	*1*
13C-1,2,3,7,8,9-HxCDF	*61*		*29 - 147*	*04/23/18 12:27*	*04/26/18 22:17*	*1*
13C-1,2,3,7,8-PeCDD	*61*		*25 - 181*	*04/23/18 12:27*	*04/26/18 22:17*	*1*
13C-1,2,3,7,8-PeCDF	*65*		*24 - 185*	*04/23/18 12:27*	*04/26/18 22:17*	*1*
13C-2,3,4,6,7,8-HxCDF	*64*		*28 - 136*	*04/23/18 12:27*	*04/26/18 22:17*	*1*
13C-2,3,4,7,8-PeCDF	*68*		*21 - 178*	*04/23/18 12:27*	*04/26/18 22:17*	*1*
13C-2,3,7,8-TCDD	*61*		*25 - 164*	*04/23/18 12:27*	*04/26/18 22:17*	*1*
13C-OCDD	*47*		*17 - 157*	*04/23/18 12:27*	*04/26/18 22:17*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*98*		*35 - 197*	*04/23/18 12:27*	*04/26/18 22:17*	*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	0.0017		0.00085	0.00014	ug/Kg	☼	04/23/18 12:27	04/28/18 00:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*70*		*24 - 169*	*04/23/18 12:27*	*04/28/18 00:54*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*93*		*35 - 197*	*04/23/18 12:27*	*04/28/18 00:54*	*1*

Client Sample ID: PDI-SG-B157-BL1

Date Collected: 04/13/18 12:55
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-2

Matrix: Solid
Percent Solids: 78.3

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	**0.014**	**B**	0.0032	0.00012	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
1,2,3,4,6,7,8-HpCDF	**0.0025**	**J B q**	0.0032	0.000099	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
1,2,3,4,7,8,9-HpCDF	ND		0.0032	0.00016	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
1,2,3,4,7,8-HxCDD	**0.00024**	**J B q**	0.0032	0.000060	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
1,2,3,4,7,8-HxCDF	**0.00083**	**J**	0.0032	0.00018	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
1,2,3,6,7,8-HxCDD	**0.00062**	**J**	0.0032	0.000066	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
1,2,3,6,7,8-HxCDF	**0.00027**	**J**	0.0032	0.00017	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
1,2,3,7,8,9-HxCDD	**0.00040**	**J**	0.0032	0.000057	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
1,2,3,7,8,9-HxCDF	ND		0.0032	0.00013	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
1,2,3,7,8-PeCDD	ND		0.0032	0.00027	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
1,2,3,7,8-PeCDF	ND		0.0032	0.00020	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
2,3,4,6,7,8-HxCDF	ND		0.0032	0.00014	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
2,3,4,7,8-PeCDF	ND		0.0032	0.00021	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
2,3,7,8-TCDD	ND		0.00064	0.00011	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
2,3,7,8-TCDF	**0.00045**	**J**	0.00064	0.00017	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
OCDD	**0.12**	**B**	0.0064	0.00015	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1
OCDF	**0.0076**		0.0064	0.000092	ug/Kg	☼	04/23/18 12:27	04/26/18 23:05	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*41*		*23 - 140*	*04/23/18 12:27*	*04/26/18 23:05*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*38*		*28 - 143*	*04/23/18 12:27*	*04/26/18 23:05*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*33*		*26 - 138*	*04/23/18 12:27*	*04/26/18 23:05*	*1*
13C-1,2,3,4,7,8-HxCDD	*72*		*32 - 141*	*04/23/18 12:27*	*04/26/18 23:05*	*1*
13C-1,2,3,4,7,8-HxCDF	*75*		*26 - 152*	*04/23/18 12:27*	*04/26/18 23:05*	*1*
13C-1,2,3,6,7,8-HxCDD	*55*		*28 - 130*	*04/23/18 12:27*	*04/26/18 23:05*	*1*
13C-1,2,3,6,7,8-HxCDF	*68*		*26 - 123*	*04/23/18 12:27*	*04/26/18 23:05*	*1*
13C-1,2,3,7,8,9-HxCDF	*63*		*29 - 147*	*04/23/18 12:27*	*04/26/18 23:05*	*1*
13C-1,2,3,7,8-PeCDD	*61*		*25 - 181*	*04/23/18 12:27*	*04/26/18 23:05*	*1*
13C-1,2,3,7,8-PeCDF	*65*		*24 - 185*	*04/23/18 12:27*	*04/26/18 23:05*	*1*
13C-2,3,4,6,7,8-HxCDF	*69*		*28 - 136*	*04/23/18 12:27*	*04/26/18 23:05*	*1*
13C-2,3,4,7,8-PeCDF	*65*		*21 - 178*	*04/23/18 12:27*	*04/26/18 23:05*	*1*
13C-2,3,7,8-TCDD	*57*		*25 - 164*	*04/23/18 12:27*	*04/26/18 23:05*	*1*
13C-2,3,7,8-TCDF	*63*		*24 - 169*	*04/23/18 12:27*	*04/26/18 23:05*	*1*
13C-OCDD	*38*		*17 - 157*	*04/23/18 12:27*	*04/26/18 23:05*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*99*		*35 - 197*	*04/23/18 12:27*	*04/26/18 23:05*	*1*

Client Sample ID: PDI-SG-B158-BL1
Date Collected: 04/13/18 14:30
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-3
Matrix: Solid
Percent Solids: 43.3

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	0.25	B	0.0057	0.0013	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
1,2,3,4,6,7,8-HpCDF	0.063	B	0.0057	0.00087	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
1,2,3,4,7,8,9-HpCDF	0.012	B	0.0057	0.0011	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
1,2,3,4,7,8-HxCDD	0.0018	J B	0.0057	0.00015	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
1,2,3,4,7,8-HxCDF	0.050		0.0057	0.0010	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
1,2,3,6,7,8-HxCDD	0.0079		0.0057	0.00015	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
1,2,3,6,7,8-HxCDF	0.017		0.0057	0.00096	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
1,2,3,7,8,9-HxCDD	0.0045	J	0.0057	0.00014	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
1,2,3,7,8,9-HxCDF	ND		0.0057	0.00086	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
1,2,3,7,8-PeCDD	ND		0.0057	0.00054	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
1,2,3,7,8-PeCDF	0.011		0.0057	0.00068	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
2,3,4,6,7,8-HxCDF	ND		0.0057	0.00082	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
2,3,4,7,8-PeCDF	0.0040	J	0.0057	0.00071	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
2,3,7,8-TCDD	0.00045	J q	0.0011	0.00027	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
OCDD	2.1	B	0.011	0.00075	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1
OCDF	0.13		0.011	0.00026	ug/Kg	☼	04/23/18 12:27	04/26/18 23:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*35*		*23 - 140*	*04/23/18 12:27*	*04/26/18 23:53*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*28*		*28 - 143*	*04/23/18 12:27*	*04/26/18 23:53*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*32*		*26 - 138*	*04/23/18 12:27*	*04/26/18 23:53*	*1*
13C-1,2,3,4,7,8-HxCDD	*54*		*32 - 141*	*04/23/18 12:27*	*04/26/18 23:53*	*1*
13C-1,2,3,4,7,8-HxCDF	*60*		*26 - 152*	*04/23/18 12:27*	*04/26/18 23:53*	*1*
13C-1,2,3,6,7,8-HxCDD	*47*		*28 - 130*	*04/23/18 12:27*	*04/26/18 23:53*	*1*
13C-1,2,3,6,7,8-HxCDF	*54*		*26 - 123*	*04/23/18 12:27*	*04/26/18 23:53*	*1*
13C-1,2,3,7,8,9-HxCDF	*50*		*29 - 147*	*04/23/18 12:27*	*04/26/18 23:53*	*1*
13C-1,2,3,7,8-PeCDD	*52*		*25 - 181*	*04/23/18 12:27*	*04/26/18 23:53*	*1*
13C-1,2,3,7,8-PeCDF	*55*		*24 - 185*	*04/23/18 12:27*	*04/26/18 23:53*	*1*
13C-2,3,4,6,7,8-HxCDF	*55*		*28 - 136*	*04/23/18 12:27*	*04/26/18 23:53*	*1*
13C-2,3,4,7,8-PeCDF	*58*		*21 - 178*	*04/23/18 12:27*	*04/26/18 23:53*	*1*
13C-2,3,7,8-TCDD	*50*		*25 - 164*	*04/23/18 12:27*	*04/26/18 23:53*	*1*
13C-OCDD	*33*		*17 - 157*	*04/23/18 12:27*	*04/26/18 23:53*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*101*		*35 - 197*	*04/23/18 12:27*	*04/26/18 23:53*	*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	0.0083		0.0011	0.00037	ug/Kg	☼	04/23/18 12:27	04/28/18 01:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*61*		*24 - 169*	*04/23/18 12:27*	*04/28/18 01:32*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*99*		*35 - 197*	*04/23/18 12:27*	*04/28/18 01:32*	*1*

Client Sample ID: PDI-SG-B158-BL1-D
Date Collected: 04/13/18 14:35
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-4
Matrix: Solid
Percent Solids: 45.7

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	0.10	B	0.0055	0.00041	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
1,2,3,4,6,7,8-HpCDF	0.020	B	0.0055	0.00041	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
1,2,3,4,7,8,9-HpCDF	0.0025	J B	0.0055	0.00049	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
1,2,3,4,7,8-HxCDD	0.0011	J B	0.0055	0.00012	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
1,2,3,4,7,8-HxCDF	0.0091		0.0055	0.00058	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
1,2,3,6,7,8-HxCDD	0.0049	J	0.0055	0.00012	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
1,2,3,6,7,8-HxCDF	0.0025	J	0.0055	0.00055	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
1,2,3,7,8,9-HxCDD	0.0023	J q	0.0055	0.00011	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
1,2,3,7,8,9-HxCDF	ND		0.0055	0.00043	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
1,2,3,7,8-PeCDD	ND		0.0055	0.00047	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
1,2,3,7,8-PeCDF	0.0075		0.0055	0.00070	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
2,3,4,6,7,8-HxCDF	ND		0.0055	0.00045	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
2,3,4,7,8-PeCDF	0.0028	J	0.0055	0.00079	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
2,3,7,8-TCDD	ND		0.0011	0.00018	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
OCDD	0.91	B	0.011	0.00038	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1
OCDF	0.044		0.011	0.00016	ug/Kg	☼	04/23/18 12:27	04/27/18 00:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*42*		*23 - 140*	*04/23/18 12:27*	*04/27/18 00:42*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*36*		*28 - 143*	*04/23/18 12:27*	*04/27/18 00:42*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*41*		*26 - 138*	*04/23/18 12:27*	*04/27/18 00:42*	*1*
13C-1,2,3,4,7,8-HxCDD	*70*		*32 - 141*	*04/23/18 12:27*	*04/27/18 00:42*	*1*
13C-1,2,3,4,7,8-HxCDF	*74*		*26 - 152*	*04/23/18 12:27*	*04/27/18 00:42*	*1*
13C-1,2,3,6,7,8-HxCDD	*51*		*28 - 130*	*04/23/18 12:27*	*04/27/18 00:42*	*1*
13C-1,2,3,6,7,8-HxCDF	*64*		*26 - 123*	*04/23/18 12:27*	*04/27/18 00:42*	*1*
13C-1,2,3,7,8,9-HxCDF	*61*		*29 - 147*	*04/23/18 12:27*	*04/27/18 00:42*	*1*
13C-1,2,3,7,8-PeCDD	*59*		*25 - 181*	*04/23/18 12:27*	*04/27/18 00:42*	*1*
13C-1,2,3,7,8-PeCDF	*63*		*24 - 185*	*04/23/18 12:27*	*04/27/18 00:42*	*1*
13C-2,3,4,6,7,8-HxCDF	*63*		*28 - 136*	*04/23/18 12:27*	*04/27/18 00:42*	*1*
13C-2,3,4,7,8-PeCDF	*65*		*21 - 178*	*04/23/18 12:27*	*04/27/18 00:42*	*1*
13C-2,3,7,8-TCDD	*54*		*25 - 164*	*04/23/18 12:27*	*04/27/18 00:42*	*1*
13C-OCDD	*41*		*17 - 157*	*04/23/18 12:27*	*04/27/18 00:42*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*100*		*35 - 197*	*04/23/18 12:27*	*04/27/18 00:42*	*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	0.0079		0.0011	0.00038	ug/Kg	☼	04/23/18 12:27	04/28/18 02:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*70*		*24 - 169*	*04/23/18 12:27*	*04/28/18 02:10*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*105*		*35 - 197*	*04/23/18 12:27*	*04/28/18 02:10*	*1*

Client Sample ID: PDI-SG-B166-BL1
Date Collected: 04/13/18 16:15
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-5
Matrix: Solid
Percent Solids: 35.9

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	0.058	B	0.0070	0.00030	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
1,2,3,4,6,7,8-HpCDF	0.014	B q	0.0070	0.00072	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
1,2,3,4,7,8,9-HpCDF	0.0022	J B	0.0070	0.00056	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
1,2,3,4,7,8-HxCDD	0.00070	J B q	0.0070	0.000091	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
1,2,3,4,7,8-HxCDF	0.010		0.0070	0.00033	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
1,2,3,6,7,8-HxCDD	0.0025	J	0.0070	0.000093	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
1,2,3,6,7,8-HxCDF	0.0062	J	0.0070	0.00030	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
1,2,3,7,8,9-HxCDD	0.0019	J	0.0070	0.000083	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
1,2,3,7,8,9-HxCDF	ND		0.0070	0.00023	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
1,2,3,7,8-PeCDD	ND		0.0070	0.00025	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
1,2,3,7,8-PeCDF	0.0044	J	0.0070	0.00024	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
2,3,4,6,7,8-HxCDF	ND		0.0070	0.00024	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
2,3,4,7,8-PeCDF	0.0016	J	0.0070	0.00026	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
2,3,7,8-TCDD	0.00026	J q	0.0014	0.00014	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
OCDD	0.51	B	0.014	0.00032	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1
OCDF	0.035		0.014	0.00017	ug/Kg	☼	04/23/18 12:27	04/27/18 01:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*37*		*23 - 140*	*04/23/18 12:27*	*04/27/18 01:30*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*22*	*	*28 - 143*	*04/23/18 12:27*	*04/27/18 01:30*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*35*		*26 - 138*	*04/23/18 12:27*	*04/27/18 01:30*	*1*
13C-1,2,3,4,7,8-HxCDD	*59*		*32 - 141*	*04/23/18 12:27*	*04/27/18 01:30*	*1*
13C-1,2,3,4,7,8-HxCDF	*57*		*26 - 152*	*04/23/18 12:27*	*04/27/18 01:30*	*1*
13C-1,2,3,6,7,8-HxCDD	*49*		*28 - 130*	*04/23/18 12:27*	*04/27/18 01:30*	*1*
13C-1,2,3,6,7,8-HxCDF	*53*		*26 - 123*	*04/23/18 12:27*	*04/27/18 01:30*	*1*
13C-1,2,3,7,8,9-HxCDF	*56*		*29 - 147*	*04/23/18 12:27*	*04/27/18 01:30*	*1*
13C-1,2,3,7,8-PeCDD	*57*		*25 - 181*	*04/23/18 12:27*	*04/27/18 01:30*	*1*
13C-1,2,3,7,8-PeCDF	*59*		*24 - 185*	*04/23/18 12:27*	*04/27/18 01:30*	*1*
13C-2,3,4,6,7,8-HxCDF	*56*		*28 - 136*	*04/23/18 12:27*	*04/27/18 01:30*	*1*
13C-2,3,4,7,8-PeCDF	*63*		*21 - 178*	*04/23/18 12:27*	*04/27/18 01:30*	*1*
13C-2,3,7,8-TCDD	*54*		*25 - 164*	*04/23/18 12:27*	*04/27/18 01:30*	*1*
13C-OCDD	*33*		*17 - 157*	*04/23/18 12:27*	*04/27/18 01:30*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*102*		*35 - 197*	*04/23/18 12:27*	*04/27/18 01:30*	*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	0.0039		0.0014	0.00029	ug/Kg	☼	04/23/18 12:27	04/28/18 02:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*63*		*24 - 169*	*04/23/18 12:27*	*04/28/18 02:48*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*97*		*35 - 197*	*04/23/18 12:27*	*04/28/18 02:48*	*1*

Client Sample ID: PDI-SG-B165-BL1
Date Collected: 04/13/18 17:00
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-6
Matrix: Solid
Percent Solids: 42.0

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	2.3	B G	0.0065	0.0065	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
1,2,3,4,6,7,8-HpCDF	0.028	B	0.0059	0.00074	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
1,2,3,4,7,8,9-HpCDF	ND		0.0059	0.00053	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
1,2,3,4,7,8-HxCDD	0.0028	J B q	0.0059	0.00078	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
1,2,3,4,7,8-HxCDF	0.0056	J	0.0059	0.00052	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
1,2,3,6,7,8-HxCDD	0.029		0.0059	0.00080	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
1,2,3,6,7,8-HxCDF	0.0043	J	0.0059	0.00048	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
1,2,3,7,8,9-HxCDD	0.0068		0.0059	0.00071	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
1,2,3,7,8,9-HxCDF	ND		0.0059	0.00038	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
1,2,3,7,8-PeCDD	0.0010	J	0.0059	0.00027	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
1,2,3,7,8-PeCDF	0.0046	J	0.0059	0.00036	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
2,3,4,6,7,8-HxCDF	0.00083	J	0.0059	0.00040	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
2,3,4,7,8-PeCDF	0.0018	J	0.0059	0.00040	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
2,3,7,8-TCDD	0.00034	J q	0.0012	0.00014	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
OCDD	11	E B	0.012	0.0027	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1
OCDF	0.033		0.012	0.00014	ug/Kg	☼	04/23/18 12:27	04/27/18 02:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*44*		*23 - 140*	*04/23/18 12:27*	*04/27/18 02:19*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*25*	*	*28 - 143*	*04/23/18 12:27*	*04/27/18 02:19*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*42*		*26 - 138*	*04/23/18 12:27*	*04/27/18 02:19*	*1*
13C-1,2,3,4,7,8-HxCDD	*67*		*32 - 141*	*04/23/18 12:27*	*04/27/18 02:19*	*1*
13C-1,2,3,4,7,8-HxCDF	*65*		*26 - 152*	*04/23/18 12:27*	*04/27/18 02:19*	*1*
13C-1,2,3,6,7,8-HxCDD	*53*		*28 - 130*	*04/23/18 12:27*	*04/27/18 02:19*	*1*
13C-1,2,3,6,7,8-HxCDF	*60*		*26 - 123*	*04/23/18 12:27*	*04/27/18 02:19*	*1*
13C-1,2,3,7,8,9-HxCDF	*64*		*29 - 147*	*04/23/18 12:27*	*04/27/18 02:19*	*1*
13C-1,2,3,7,8-PeCDD	*62*		*25 - 181*	*04/23/18 12:27*	*04/27/18 02:19*	*1*
13C-1,2,3,7,8-PeCDF	*66*		*24 - 185*	*04/23/18 12:27*	*04/27/18 02:19*	*1*
13C-2,3,4,6,7,8-HxCDF	*63*		*28 - 136*	*04/23/18 12:27*	*04/27/18 02:19*	*1*
13C-2,3,4,7,8-PeCDF	*69*		*21 - 178*	*04/23/18 12:27*	*04/27/18 02:19*	*1*
13C-2,3,7,8-TCDD	*60*		*25 - 164*	*04/23/18 12:27*	*04/27/18 02:19*	*1*
13C-OCDD	*43*		*17 - 157*	*04/23/18 12:27*	*04/27/18 02:19*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*102*		*35 - 197*	*04/23/18 12:27*	*04/27/18 02:19*	*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	0.0044		0.0012	0.00020	ug/Kg	☼	04/23/18 12:27	04/28/18 03:26	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*71*		*24 - 169*	*04/23/18 12:27*	*04/28/18 03:26*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*100*		*35 - 197*	*04/23/18 12:27*	*04/28/18 03:26*	*1*

Client Sample ID: PDI-SG-B132-BL1
Date Collected: 04/13/18 10:42
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-7
Matrix: Solid
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	0.13	B	0.0045	0.00068	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
1,2,3,4,6,7,8-HpCDF	0.018	B	0.0045	0.00057	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
1,2,3,4,7,8,9-HpCDF	ND		0.0045	0.00047	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
1,2,3,4,7,8-HxCDD	0.0017	J B	0.0045	0.000084	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
1,2,3,4,7,8-HxCDF	0.0025	J	0.0045	0.00077	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
1,2,3,6,7,8-HxCDD	0.0064		0.0045	0.000084	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
1,2,3,6,7,8-HxCDF	0.0038	J	0.0045	0.00069	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
1,2,3,7,8,9-HxCDD	0.0033	J	0.0045	0.000075	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
1,2,3,7,8,9-HxCDF	ND		0.0045	0.00050	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
1,2,3,7,8-PeCDD	0.00066	J q	0.0045	0.00027	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
1,2,3,7,8-PeCDF	0.0015	J q	0.0045	0.00032	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
2,3,4,6,7,8-HxCDF	ND		0.0045	0.00054	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
2,3,4,7,8-PeCDF	0.00070	J	0.0045	0.00034	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
2,3,7,8-TCDD	0.00021	J q	0.00090	0.00012	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
OCDD	1.3	B	0.0090	0.00051	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1
OCDF	0.040		0.0090	0.000096	ug/Kg	☼	04/23/18 12:27	04/27/18 03:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*42*		*23 - 140*	*04/23/18 12:27*	*04/27/18 03:07*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*25*	*	*28 - 143*	*04/23/18 12:27*	*04/27/18 03:07*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*38*		*26 - 138*	*04/23/18 12:27*	*04/27/18 03:07*	*1*
13C-1,2,3,4,7,8-HxCDD	*60*		*32 - 141*	*04/23/18 12:27*	*04/27/18 03:07*	*1*
13C-1,2,3,4,7,8-HxCDF	*56*		*26 - 152*	*04/23/18 12:27*	*04/27/18 03:07*	*1*
13C-1,2,3,6,7,8-HxCDD	*52*		*28 - 130*	*04/23/18 12:27*	*04/27/18 03:07*	*1*
13C-1,2,3,6,7,8-HxCDF	*52*		*26 - 123*	*04/23/18 12:27*	*04/27/18 03:07*	*1*
13C-1,2,3,7,8,9-HxCDF	*58*		*29 - 147*	*04/23/18 12:27*	*04/27/18 03:07*	*1*
13C-1,2,3,7,8-PeCDD	*59*		*25 - 181*	*04/23/18 12:27*	*04/27/18 03:07*	*1*
13C-1,2,3,7,8-PeCDF	*61*		*24 - 185*	*04/23/18 12:27*	*04/27/18 03:07*	*1*
13C-2,3,4,6,7,8-HxCDF	*57*		*28 - 136*	*04/23/18 12:27*	*04/27/18 03:07*	*1*
13C-2,3,4,7,8-PeCDF	*64*		*21 - 178*	*04/23/18 12:27*	*04/27/18 03:07*	*1*
13C-2,3,7,8-TCDD	*59*		*25 - 164*	*04/23/18 12:27*	*04/27/18 03:07*	*1*
13C-OCDD	*36*		*17 - 157*	*04/23/18 12:27*	*04/27/18 03:07*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*105*		*35 - 197*	*04/23/18 12:27*	*04/27/18 03:07*	*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		0.00090	0.00023	ug/Kg	☼	04/23/18 12:27	04/28/18 04:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*66*		*24 - 169*	*04/23/18 12:27*	*04/28/18 04:04*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*98*		*35 - 197*	*04/23/18 12:27*	*04/28/18 04:04*	*1*

Client Sample ID: PDI-SG-B138-BL1
Date Collected: 04/13/18 12:25
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-8
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	**0.14**	**B**	0.0050	0.0017	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
1,2,3,4,6,7,8-HpCDF	**0.0082**	**B**	0.0050	0.00054	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
1,2,3,4,7,8,9-HpCDF	ND		0.0050	0.00046	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
1,2,3,4,7,8-HxCDD	ND		0.0050	0.00051	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
1,2,3,4,7,8-HxCDF	**0.0012**	**J**	0.0050	0.00035	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
1,2,3,6,7,8-HxCDD	**0.0025**	**J**	0.0050	0.00048	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
1,2,3,6,7,8-HxCDF	**0.0028**	**J**	0.0050	0.00033	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
1,2,3,7,8,9-HxCDD	**0.0011**	**J q**	0.0050	0.00045	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
1,2,3,7,8,9-HxCDF	ND		0.0050	0.00026	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
1,2,3,7,8-PeCDD	ND		0.0050	0.0019	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
1,2,3,7,8-PeCDF	ND		0.0050	0.00022	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
2,3,4,6,7,8-HxCDF	ND		0.0050	0.00026	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
2,3,4,7,8-PeCDF	ND		0.0050	0.00023	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
2,3,7,8-TCDD	ND		0.00099	0.00025	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
2,3,7,8-TCDF	**0.00054**	**J**	0.00099	0.00019	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
OCDD	**0.85**	**B**	0.0099	0.00051	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1
OCDF	**0.016**		0.0099	0.00013	ug/Kg	☼	04/23/18 12:27	04/27/18 07:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*40*		*23 - 140*	*04/23/18 12:27*	*04/27/18 07:39*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*26*	*	*28 - 143*	*04/23/18 12:27*	*04/27/18 07:39*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*38*		*26 - 138*	*04/23/18 12:27*	*04/27/18 07:39*	*1*
13C-1,2,3,4,7,8-HxCDD	*51*		*32 - 141*	*04/23/18 12:27*	*04/27/18 07:39*	*1*
13C-1,2,3,4,7,8-HxCDF	*51*		*26 - 152*	*04/23/18 12:27*	*04/27/18 07:39*	*1*
13C-1,2,3,6,7,8-HxCDD	*52*		*28 - 130*	*04/23/18 12:27*	*04/27/18 07:39*	*1*
13C-1,2,3,6,7,8-HxCDF	*49*		*26 - 123*	*04/23/18 12:27*	*04/27/18 07:39*	*1*
13C-1,2,3,7,8,9-HxCDF	*53*		*29 - 147*	*04/23/18 12:27*	*04/27/18 07:39*	*1*
13C-1,2,3,7,8-PeCDD	*53*		*25 - 181*	*04/23/18 12:27*	*04/27/18 07:39*	*1*
13C-1,2,3,7,8-PeCDF	*56*		*24 - 185*	*04/23/18 12:27*	*04/27/18 07:39*	*1*
13C-2,3,4,6,7,8-HxCDF	*52*		*28 - 136*	*04/23/18 12:27*	*04/27/18 07:39*	*1*
13C-2,3,4,7,8-PeCDF	*59*		*21 - 178*	*04/23/18 12:27*	*04/27/18 07:39*	*1*
13C-2,3,7,8-TCDD	*53*		*25 - 164*	*04/23/18 12:27*	*04/27/18 07:39*	*1*
13C-2,3,7,8-TCDF	*61*		*24 - 169*	*04/23/18 12:27*	*04/27/18 07:39*	*1*
13C-OCDD	*35*		*17 - 157*	*04/23/18 12:27*	*04/27/18 07:39*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*103*		*35 - 197*	*04/23/18 12:27*	*04/27/18 07:39*	*1*

Client Sample ID: PDI-SG-B148-BL1
Date Collected: 04/13/18 17:37
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-9
Matrix: Solid
Percent Solids: 43.1

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	**0.095**	**B**	0.0058	0.00096	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
1,2,3,4,6,7,8-HpCDF	**0.013**	**B q**	0.0058	0.0011	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
1,2,3,4,7,8,9-HpCDF	ND		0.0058	0.00099	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
1,2,3,4,7,8-HxCDD	**0.00094**	**J B**	0.0058	0.000096	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
1,2,3,4,7,8-HxCDF	**0.0017**	**J**	0.0058	0.00038	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
1,2,3,6,7,8-HxCDD	**0.0039**	**J**	0.0058	0.000092	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
1,2,3,6,7,8-HxCDF	ND		0.0058	0.0057	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
1,2,3,7,8,9-HxCDD	**0.0022**	**J**	0.0058	0.000084	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
1,2,3,7,8,9-HxCDF	ND		0.0058	0.00029	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
1,2,3,7,8-PeCDD	ND		0.0058	0.00035	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
1,2,3,7,8-PeCDF	**0.00088**	**J**	0.0058	0.00031	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
2,3,4,6,7,8-HxCDF	ND		0.0058	0.00030	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
2,3,4,7,8-PeCDF	ND		0.0058	0.00034	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
2,3,7,8-TCDD	ND		0.0012	0.00019	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
2,3,7,8-TCDF	**0.0011**	**J**	0.0012	0.00034	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
OCDD	**1.1**	**B**	0.012	0.00071	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1
OCDF	**0.038**		0.012	0.00016	ug/Kg	☼	04/23/18 12:27	04/27/18 08:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*43*		*23 - 140*	*04/23/18 12:27*	*04/27/18 08:27*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*28*		*28 - 143*	*04/23/18 12:27*	*04/27/18 08:27*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*37*		*26 - 138*	*04/23/18 12:27*	*04/27/18 08:27*	*1*
13C-1,2,3,4,7,8-HxCDD	*61*		*32 - 141*	*04/23/18 12:27*	*04/27/18 08:27*	*1*
13C-1,2,3,4,7,8-HxCDF	*60*		*26 - 152*	*04/23/18 12:27*	*04/27/18 08:27*	*1*
13C-1,2,3,6,7,8-HxCDD	*56*		*28 - 130*	*04/23/18 12:27*	*04/27/18 08:27*	*1*
13C-1,2,3,6,7,8-HxCDF	*56*		*26 - 123*	*04/23/18 12:27*	*04/27/18 08:27*	*1*
13C-1,2,3,7,8,9-HxCDF	*58*		*29 - 147*	*04/23/18 12:27*	*04/27/18 08:27*	*1*
13C-1,2,3,7,8-PeCDD	*57*		*25 - 181*	*04/23/18 12:27*	*04/27/18 08:27*	*1*
13C-1,2,3,7,8-PeCDF	*62*		*24 - 185*	*04/23/18 12:27*	*04/27/18 08:27*	*1*
13C-2,3,4,6,7,8-HxCDF	*58*		*28 - 136*	*04/23/18 12:27*	*04/27/18 08:27*	*1*
13C-2,3,4,7,8-PeCDF	*65*		*21 - 178*	*04/23/18 12:27*	*04/27/18 08:27*	*1*
13C-2,3,7,8-TCDD	*59*		*25 - 164*	*04/23/18 12:27*	*04/27/18 08:27*	*1*
13C-2,3,7,8-TCDF	*62*		*24 - 169*	*04/23/18 12:27*	*04/27/18 08:27*	*1*
13C-OCDD	*40*		*17 - 157*	*04/23/18 12:27*	*04/27/18 08:27*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*101*		*35 - 197*	*04/23/18 12:27*	*04/27/18 08:27*	*1*

Client Sample ID: PDI-SG-B145-BL1

Date Collected: 04/13/18 16:21
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-10

Matrix: Solid
Percent Solids: 39.8

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	**0.10**	**B**	0.0063	0.00078	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
1,2,3,4,6,7,8-HpCDF	**0.014**	**B q**	0.0063	0.00072	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
1,2,3,4,7,8,9-HpCDF	ND		0.0063	0.00067	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
1,2,3,4,7,8-HxCDD	**0.00097**	**J B**	0.0063	0.00014	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
1,2,3,4,7,8-HxCDF	**0.0019**	**J**	0.0063	0.00041	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
1,2,3,6,7,8-HxCDD	**0.0035**	**J**	0.0063	0.00013	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
1,2,3,6,7,8-HxCDF	**0.0044**	**J**	0.0063	0.00040	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
1,2,3,7,8,9-HxCDD	**0.0020**	**J q**	0.0063	0.00012	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
1,2,3,7,8,9-HxCDF	ND		0.0063	0.00029	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
1,2,3,7,8-PeCDD	ND		0.0063	0.00033	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
1,2,3,7,8-PeCDF	ND		0.0063	0.00027	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
2,3,4,6,7,8-HxCDF	ND		0.0063	0.00030	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
2,3,4,7,8-PeCDF	ND		0.0063	0.00029	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
2,3,7,8-TCDD	ND		0.0013	0.00014	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
2,3,7,8-TCDF	**0.0010**	**J**	0.0013	0.00028	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
OCDD	**0.92**	**B**	0.013	0.00064	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1
OCDF	**0.035**		0.013	0.00016	ug/Kg	☼	04/23/18 12:27	04/27/18 09:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*38*		*23 - 140*	*04/23/18 12:27*	*04/27/18 09:16*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*26*	*	*28 - 143*	*04/23/18 12:27*	*04/27/18 09:16*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*34*		*26 - 138*	*04/23/18 12:27*	*04/27/18 09:16*	*1*
13C-1,2,3,4,7,8-HxCDD	*55*		*32 - 141*	*04/23/18 12:27*	*04/27/18 09:16*	*1*
13C-1,2,3,4,7,8-HxCDF	*51*		*26 - 152*	*04/23/18 12:27*	*04/27/18 09:16*	*1*
13C-1,2,3,6,7,8-HxCDD	*49*		*28 - 130*	*04/23/18 12:27*	*04/27/18 09:16*	*1*
13C-1,2,3,6,7,8-HxCDF	*49*		*26 - 123*	*04/23/18 12:27*	*04/27/18 09:16*	*1*
13C-1,2,3,7,8,9-HxCDF	*53*		*29 - 147*	*04/23/18 12:27*	*04/27/18 09:16*	*1*
13C-1,2,3,7,8-PeCDD	*55*		*25 - 181*	*04/23/18 12:27*	*04/27/18 09:16*	*1*
13C-1,2,3,7,8-PeCDF	*56*		*24 - 185*	*04/23/18 12:27*	*04/27/18 09:16*	*1*
13C-2,3,4,6,7,8-HxCDF	*52*		*28 - 136*	*04/23/18 12:27*	*04/27/18 09:16*	*1*
13C-2,3,4,7,8-PeCDF	*58*		*21 - 178*	*04/23/18 12:27*	*04/27/18 09:16*	*1*
13C-2,3,7,8-TCDD	*53*		*25 - 164*	*04/23/18 12:27*	*04/27/18 09:16*	*1*
13C-2,3,7,8-TCDF	*57*		*24 - 169*	*04/23/18 12:27*	*04/27/18 09:16*	*1*
13C-OCDD	*36*		*17 - 157*	*04/23/18 12:27*	*04/27/18 09:16*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*98*		*35 - 197*	*04/23/18 12:27*	*04/27/18 09:16*	*1*

Client Sample ID: PDI-SG-B142-BL1
Date Collected: 04/13/18 15:25
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-11
Matrix: Solid
Percent Solids: 40.1

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	**0.065**	**B**	0.0061	0.00052	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
1,2,3,4,6,7,8-HpCDF	**0.011**	**B q**	0.0061	0.00060	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
1,2,3,4,7,8,9-HpCDF	ND		0.0061	0.00051	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
1,2,3,4,7,8-HxCDD	**0.00068**	**J B q**	0.0061	0.000095	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
1,2,3,4,7,8-HxCDF	**0.0012**	**J q**	0.0061	0.00035	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
1,2,3,6,7,8-HxCDD	**0.0029**	**J**	0.0061	0.000093	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
1,2,3,6,7,8-HxCDF	ND		0.0061	0.0034	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
1,2,3,7,8,9-HxCDD	**0.0018**	**J q**	0.0061	0.000085	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
1,2,3,7,8,9-HxCDF	ND		0.0061	0.00024	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
1,2,3,7,8-PeCDD	ND		0.0061	0.00029	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
1,2,3,7,8-PeCDF	ND		0.0061	0.00024	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
2,3,4,6,7,8-HxCDF	ND		0.0061	0.00025	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
2,3,4,7,8-PeCDF	ND		0.0061	0.00025	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
2,3,7,8-TCDD	ND		0.0012	0.00015	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
2,3,7,8-TCDF	**0.00079**	**J**	0.0012	0.00023	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
OCDD	**0.51**	**B**	0.012	0.00039	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1
OCDF	**0.027**		0.012	0.00017	ug/Kg	☼	04/23/18 12:27	04/27/18 10:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*42*		*23 - 140*	*04/23/18 12:27*	*04/27/18 10:04*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*26*	*	*28 - 143*	*04/23/18 12:27*	*04/27/18 10:04*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*39*		*26 - 138*	*04/23/18 12:27*	*04/27/18 10:04*	*1*
13C-1,2,3,4,7,8-HxCDD	*53*		*32 - 141*	*04/23/18 12:27*	*04/27/18 10:04*	*1*
13C-1,2,3,4,7,8-HxCDF	*49*		*26 - 152*	*04/23/18 12:27*	*04/27/18 10:04*	*1*
13C-1,2,3,6,7,8-HxCDD	*49*		*28 - 130*	*04/23/18 12:27*	*04/27/18 10:04*	*1*
13C-1,2,3,6,7,8-HxCDF	*47*		*26 - 123*	*04/23/18 12:27*	*04/27/18 10:04*	*1*
13C-1,2,3,7,8,9-HxCDF	*51*		*29 - 147*	*04/23/18 12:27*	*04/27/18 10:04*	*1*
13C-1,2,3,7,8-PeCDD	*56*		*25 - 181*	*04/23/18 12:27*	*04/27/18 10:04*	*1*
13C-1,2,3,7,8-PeCDF	*55*		*24 - 185*	*04/23/18 12:27*	*04/27/18 10:04*	*1*
13C-2,3,4,6,7,8-HxCDF	*49*		*28 - 136*	*04/23/18 12:27*	*04/27/18 10:04*	*1*
13C-2,3,4,7,8-PeCDF	*58*		*21 - 178*	*04/23/18 12:27*	*04/27/18 10:04*	*1*
13C-2,3,7,8-TCDD	*53*		*25 - 164*	*04/23/18 12:27*	*04/27/18 10:04*	*1*
13C-2,3,7,8-TCDF	*56*		*24 - 169*	*04/23/18 12:27*	*04/27/18 10:04*	*1*
13C-OCDD	*39*		*17 - 157*	*04/23/18 12:27*	*04/27/18 10:04*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*102*		*35 - 197*	*04/23/18 12:27*	*04/27/18 10:04*	*1*

Client Sample ID: PDI-SG-B143-BL1
Date Collected: 04/14/18 16:01
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-12
Matrix: Solid
Percent Solids: 66.7

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	**0.019**	**B**	0.0037	0.00019	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
1,2,3,4,6,7,8-HpCDF	**0.0037**	**B**	0.0037	0.00016	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
1,2,3,4,7,8,9-HpCDF	ND		0.0037	0.00017	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
1,2,3,4,7,8-HxCDD	**0.00037**	**J B**	0.0037	0.000054	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
1,2,3,4,7,8-HxCDF	**0.00061**	**J q**	0.0037	0.00012	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
1,2,3,6,7,8-HxCDD	**0.00090**	**J**	0.0037	0.000053	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
1,2,3,6,7,8-HxCDF	ND		0.0037	0.00098	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
1,2,3,7,8,9-HxCDD	**0.00055**	**J**	0.0037	0.000048	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
1,2,3,7,8,9-HxCDF	ND		0.0037	0.000082	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
1,2,3,7,8-PeCDD	ND		0.0037	0.00013	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
1,2,3,7,8-PeCDF	**0.00032**	**J**	0.0037	0.000081	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
2,3,4,6,7,8-HxCDF	ND		0.0037	0.000084	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
2,3,4,7,8-PeCDF	**0.00014**	**J q**	0.0037	0.000088	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
2,3,7,8-TCDD	ND		0.00074	0.000080	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
2,3,7,8-TCDF	**0.00039**	**J**	0.00074	0.000088	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
OCDD	**0.18**	**B**	0.0074	0.00015	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1
OCDF	**0.0092**		0.0074	0.000067	ug/Kg	☼	04/23/18 12:27	04/27/18 10:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*56*		*23 - 140*	*04/23/18 12:27*	*04/27/18 10:53*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*41*		*28 - 143*	*04/23/18 12:27*	*04/27/18 10:53*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*51*		*26 - 138*	*04/23/18 12:27*	*04/27/18 10:53*	*1*
13C-1,2,3,4,7,8-HxCDD	*64*		*32 - 141*	*04/23/18 12:27*	*04/27/18 10:53*	*1*
13C-1,2,3,4,7,8-HxCDF	*59*		*26 - 152*	*04/23/18 12:27*	*04/27/18 10:53*	*1*
13C-1,2,3,6,7,8-HxCDD	*61*		*28 - 130*	*04/23/18 12:27*	*04/27/18 10:53*	*1*
13C-1,2,3,6,7,8-HxCDF	*56*		*26 - 123*	*04/23/18 12:27*	*04/27/18 10:53*	*1*
13C-1,2,3,7,8,9-HxCDF	*62*		*29 - 147*	*04/23/18 12:27*	*04/27/18 10:53*	*1*
13C-1,2,3,7,8-PeCDD	*68*		*25 - 181*	*04/23/18 12:27*	*04/27/18 10:53*	*1*
13C-1,2,3,7,8-PeCDF	*65*		*24 - 185*	*04/23/18 12:27*	*04/27/18 10:53*	*1*
13C-2,3,4,6,7,8-HxCDF	*61*		*28 - 136*	*04/23/18 12:27*	*04/27/18 10:53*	*1*
13C-2,3,4,7,8-PeCDF	*69*		*21 - 178*	*04/23/18 12:27*	*04/27/18 10:53*	*1*
13C-2,3,7,8-TCDD	*64*		*25 - 164*	*04/23/18 12:27*	*04/27/18 10:53*	*1*
13C-2,3,7,8-TCDF	*64*		*24 - 169*	*04/23/18 12:27*	*04/27/18 10:53*	*1*
13C-OCDD	*52*		*17 - 157*	*04/23/18 12:27*	*04/27/18 10:53*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*104*		*35 - 197*	*04/23/18 12:27*	*04/27/18 10:53*	*1*

Client Sample ID: PDI-SG-B150-BL1
Date Collected: 04/14/18 14:49
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-13
Matrix: Solid
Percent Solids: 65.3

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	**0.030**	**B**	0.0039	0.00027	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
1,2,3,4,6,7,8-HpCDF	**0.0049**	**B**	0.0039	0.00021	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
1,2,3,4,7,8,9-HpCDF	ND		0.0039	0.00020	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
1,2,3,4,7,8-HxCDD	**0.00034**	**J B q**	0.0039	0.000066	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
1,2,3,4,7,8-HxCDF	**0.00056**	**J q**	0.0039	0.00015	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
1,2,3,6,7,8-HxCDD	**0.0014**	**J**	0.0039	0.000065	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
1,2,3,6,7,8-HxCDF	ND		0.0039	0.0013	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
1,2,3,7,8,9-HxCDD	**0.00085**	**J**	0.0039	0.000059	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
1,2,3,7,8,9-HxCDF	ND		0.0039	0.00011	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
1,2,3,7,8-PeCDD	ND		0.0039	0.00016	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
1,2,3,7,8-PeCDF	**0.00032**	**J**	0.0039	0.00011	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
2,3,4,6,7,8-HxCDF	ND		0.0039	0.00011	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
2,3,4,7,8-PeCDF	ND		0.0039	0.00012	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
2,3,7,8-TCDD	ND		0.00077	0.000069	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
2,3,7,8-TCDF	**0.00025**	**J q**	0.00077	0.00011	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
OCDD	**0.26**	**B**	0.0077	0.00025	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1
OCDF	**0.011**		0.0077	0.000069	ug/Kg	☼	04/23/18 12:27	04/27/18 11:41	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*49*		*23 - 140*	*04/23/18 12:27*	*04/27/18 11:41*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*35*		*28 - 143*	*04/23/18 12:27*	*04/27/18 11:41*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*47*		*26 - 138*	*04/23/18 12:27*	*04/27/18 11:41*	*1*
13C-1,2,3,4,7,8-HxCDD	*56*		*32 - 141*	*04/23/18 12:27*	*04/27/18 11:41*	*1*
13C-1,2,3,4,7,8-HxCDF	*52*		*26 - 152*	*04/23/18 12:27*	*04/27/18 11:41*	*1*
13C-1,2,3,6,7,8-HxCDD	*54*		*28 - 130*	*04/23/18 12:27*	*04/27/18 11:41*	*1*
13C-1,2,3,6,7,8-HxCDF	*50*		*26 - 123*	*04/23/18 12:27*	*04/27/18 11:41*	*1*
13C-1,2,3,7,8,9-HxCDF	*53*		*29 - 147*	*04/23/18 12:27*	*04/27/18 11:41*	*1*
13C-1,2,3,7,8-PeCDD	*61*		*25 - 181*	*04/23/18 12:27*	*04/27/18 11:41*	*1*
13C-1,2,3,7,8-PeCDF	*57*		*24 - 185*	*04/23/18 12:27*	*04/27/18 11:41*	*1*
13C-2,3,4,6,7,8-HxCDF	*53*		*28 - 136*	*04/23/18 12:27*	*04/27/18 11:41*	*1*
13C-2,3,4,7,8-PeCDF	*60*		*21 - 178*	*04/23/18 12:27*	*04/27/18 11:41*	*1*
13C-2,3,7,8-TCDD	*58*		*25 - 164*	*04/23/18 12:27*	*04/27/18 11:41*	*1*
13C-2,3,7,8-TCDF	*58*		*24 - 169*	*04/23/18 12:27*	*04/27/18 11:41*	*1*
13C-OCDD	*48*		*17 - 157*	*04/23/18 12:27*	*04/27/18 11:41*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*103*		*35 - 197*	*04/23/18 12:27*	*04/27/18 11:41*	*1*

Client Sample ID: PDI-SG-B151-BL1

Date Collected: 04/14/18 11:09
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-14

Matrix: Solid
Percent Solids: 60.6

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**	0.0041	0.00036	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
1,2,3,4,6,7,8-HpCDF	**0.0081**	**B**	0.0041	0.00021	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
1,2,3,4,7,8,9-HpCDF	ND		0.0041	0.00024	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
1,2,3,4,7,8-HxCDD	**0.00045**	**J B**	0.0041	0.000096	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
1,2,3,4,7,8-HxCDF	**0.0010**	**J**	0.0041	0.00031	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
1,2,3,6,7,8-HxCDD	**0.0026**	**J**	0.0041	0.000092	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
1,2,3,6,7,8-HxCDF	**0.0032**	**J**	0.0041	0.00028	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
1,2,3,7,8,9-HxCDD	**0.0010**	**J**	0.0041	0.000084	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
1,2,3,7,8,9-HxCDF	ND		0.0041	0.00023	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
1,2,3,7,8-PeCDD	ND		0.0041	0.00021	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
1,2,3,7,8-PeCDF	ND		0.0041	0.00029	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
2,3,4,6,7,8-HxCDF	ND		0.0041	0.00022	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
2,3,4,7,8-PeCDF	ND		0.0041	0.00032	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
2,3,7,8-TCDD	ND		0.00082	0.000089	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
OCDD	**0.45**	**B**	0.0082	0.00024	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1
OCDF	**0.015**		0.0082	0.000095	ug/Kg	☼	04/23/18 12:27	04/27/18 12:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*51*		*23 - 140*	*04/23/18 12:27*	*04/27/18 12:30*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*38*		*28 - 143*	*04/23/18 12:27*	*04/27/18 12:30*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*45*		*26 - 138*	*04/23/18 12:27*	*04/27/18 12:30*	*1*
13C-1,2,3,4,7,8-HxCDD	*54*		*32 - 141*	*04/23/18 12:27*	*04/27/18 12:30*	*1*
13C-1,2,3,4,7,8-HxCDF	*49*		*26 - 152*	*04/23/18 12:27*	*04/27/18 12:30*	*1*
13C-1,2,3,6,7,8-HxCDD	*51*		*28 - 130*	*04/23/18 12:27*	*04/27/18 12:30*	*1*
13C-1,2,3,6,7,8-HxCDF	*48*		*26 - 123*	*04/23/18 12:27*	*04/27/18 12:30*	*1*
13C-1,2,3,7,8,9-HxCDF	*49*		*29 - 147*	*04/23/18 12:27*	*04/27/18 12:30*	*1*
13C-1,2,3,7,8-PeCDD	*56*		*25 - 181*	*04/23/18 12:27*	*04/27/18 12:30*	*1*
13C-1,2,3,7,8-PeCDF	*53*		*24 - 185*	*04/23/18 12:27*	*04/27/18 12:30*	*1*
13C-2,3,4,6,7,8-HxCDF	*50*		*28 - 136*	*04/23/18 12:27*	*04/27/18 12:30*	*1*
13C-2,3,4,7,8-PeCDF	*55*		*21 - 178*	*04/23/18 12:27*	*04/27/18 12:30*	*1*
13C-2,3,7,8-TCDD	*50*		*25 - 164*	*04/23/18 12:27*	*04/27/18 12:30*	*1*
13C-OCDD	*57*		*17 - 157*	*04/23/18 12:27*	*04/27/18 12:30*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*102*		*35 - 197*	*04/23/18 12:27*	*04/27/18 12:30*	*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	**0.00073**	**J**	0.00082	0.00032	ug/Kg	☼	04/23/18 12:27	04/28/18 05:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*57*		*24 - 169*	*04/23/18 12:27*	*04/28/18 05:20*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*100*		*35 - 197*	*04/23/18 12:27*	*04/28/18 05:20*	*1*

Client Sample ID: PDI-SG-B154-BL1

Date Collected: 04/14/18 12:01
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-15

Matrix: Solid
Percent Solids: 53.4

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**	0.0046	0.0011	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
1,2,3,4,6,7,8-HpCDF	**0.11**	**B**	0.0046	0.00099	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
1,2,3,4,7,8,9-HpCDF	ND		0.0046	0.0011	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
1,2,3,4,7,8-HxCDD	ND		0.0046	0.00034	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
1,2,3,4,7,8-HxCDF	**0.0053**		0.0046	0.0015	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
1,2,3,6,7,8-HxCDD	**0.0076**		0.0046	0.00035	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
1,2,3,6,7,8-HxCDF	**0.0093**		0.0046	0.0015	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
1,2,3,7,8,9-HxCDD	**0.0032**	**J**	0.0046	0.00031	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
1,2,3,7,8,9-HxCDF	ND		0.0046	0.0011	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
1,2,3,7,8-PeCDD	ND		0.0046	0.0012	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
1,2,3,7,8-PeCDF	ND		0.0046	0.0017	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
2,3,4,6,7,8-HxCDF	ND		0.0046	0.0012	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
2,3,4,7,8-PeCDF	ND		0.0046	0.0020	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
2,3,7,8-TCDD	ND		0.00091	0.00025	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
OCDD	**2.2**	**B**	0.0091	0.00073	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1
OCDF	**0.11**		0.0091	0.00026	ug/Kg	☼	04/23/18 12:27	04/27/18 13:18	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*40*		*23 - 140*	*04/23/18 12:27*	*04/27/18 13:18*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*34*		*28 - 143*	*04/23/18 12:27*	*04/27/18 13:18*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*40*		*26 - 138*	*04/23/18 12:27*	*04/27/18 13:18*	*1*
13C-1,2,3,4,7,8-HxCDD	*61*		*32 - 141*	*04/23/18 12:27*	*04/27/18 13:18*	*1*
13C-1,2,3,4,7,8-HxCDF	*54*		*26 - 152*	*04/23/18 12:27*	*04/27/18 13:18*	*1*
13C-1,2,3,6,7,8-HxCDD	*48*		*28 - 130*	*04/23/18 12:27*	*04/27/18 13:18*	*1*
13C-1,2,3,6,7,8-HxCDF	*45*		*26 - 123*	*04/23/18 12:27*	*04/27/18 13:18*	*1*
13C-1,2,3,7,8,9-HxCDF	*50*		*29 - 147*	*04/23/18 12:27*	*04/27/18 13:18*	*1*
13C-1,2,3,7,8-PeCDD	*62*		*25 - 181*	*04/23/18 12:27*	*04/27/18 13:18*	*1*
13C-1,2,3,7,8-PeCDF	*57*		*24 - 185*	*04/23/18 12:27*	*04/27/18 13:18*	*1*
13C-2,3,4,6,7,8-HxCDF	*50*		*28 - 136*	*04/23/18 12:27*	*04/27/18 13:18*	*1*
13C-2,3,4,7,8-PeCDF	*60*		*21 - 178*	*04/23/18 12:27*	*04/27/18 13:18*	*1*
13C-2,3,7,8-TCDD	*52*		*25 - 164*	*04/23/18 12:27*	*04/27/18 13:18*	*1*
13C-OCDD	*43*		*17 - 157*	*04/23/18 12:27*	*04/27/18 13:18*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*101*		*35 - 197*	*04/23/18 12:27*	*04/27/18 13:18*	*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	**0.0030**	**G**	0.0026	0.0026	ug/Kg	☼	04/23/18 12:27	04/28/18 05:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*83*		*24 - 169*	*04/23/18 12:27*	*04/28/18 05:58*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*115*		*35 - 197*	*04/23/18 12:27*	*04/28/18 05:58*	*1*

Client Sample ID: PDI-SG-B162-BL1
Date Collected: 04/14/18 17:23
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-16
Matrix: Solid
Percent Solids: 62.6

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	**0.060**	**B**	0.0039	0.00043	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
1,2,3,4,6,7,8-HpCDF	**0.0091**	**B**	0.0039	0.0013	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
1,2,3,4,7,8,9-HpCDF	ND		0.0039	0.0012	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
1,2,3,4,7,8-HxCDD	**0.00073**	**J B**	0.0039	0.00010	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
1,2,3,4,7,8-HxCDF	ND		0.0039	0.00054	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
1,2,3,6,7,8-HxCDD	**0.0022**	**J B**	0.0039	0.00010	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
1,2,3,6,7,8-HxCDF	**0.0048**	**B**	0.0039	0.00049	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
1,2,3,7,8,9-HxCDD	**0.0014**	**J B q**	0.0039	0.000092	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
1,2,3,7,8,9-HxCDF	ND		0.0039	0.00035	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
1,2,3,7,8-PeCDD	ND		0.0039	0.00022	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
1,2,3,7,8-PeCDF	ND		0.0039	0.00020	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
2,3,4,6,7,8-HxCDF	ND		0.0039	0.00038	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
2,3,4,7,8-PeCDF	ND		0.0039	0.00021	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
2,3,7,8-TCDD	**0.00013**	**J q**	0.00079	0.000088	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
2,3,7,8-TCDF	**0.00077**	**J B**	0.00079	0.00017	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
OCDD	**0.72**	**B**	0.0079	0.00034	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1
OCDF	**0.029**	**B**	0.0079	0.00011	ug/Kg	☼	04/24/18 11:47	05/02/18 19:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*50*		*23 - 140*	*04/24/18 11:47*	*05/02/18 19:30*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*28*		*28 - 143*	*04/24/18 11:47*	*05/02/18 19:30*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*43*		*26 - 138*	*04/24/18 11:47*	*05/02/18 19:30*	*1*
13C-1,2,3,4,7,8-HxCDD	*59*		*32 - 141*	*04/24/18 11:47*	*05/02/18 19:30*	*1*
13C-1,2,3,4,7,8-HxCDF	*53*		*26 - 152*	*04/24/18 11:47*	*05/02/18 19:30*	*1*
13C-1,2,3,6,7,8-HxCDD	*52*		*28 - 130*	*04/24/18 11:47*	*05/02/18 19:30*	*1*
13C-1,2,3,6,7,8-HxCDF	*50*		*26 - 123*	*04/24/18 11:47*	*05/02/18 19:30*	*1*
13C-1,2,3,7,8,9-HxCDF	*56*		*29 - 147*	*04/24/18 11:47*	*05/02/18 19:30*	*1*
13C-1,2,3,7,8-PeCDD	*66*		*25 - 181*	*04/24/18 11:47*	*05/02/18 19:30*	*1*
13C-1,2,3,7,8-PeCDF	*63*		*24 - 185*	*04/24/18 11:47*	*05/02/18 19:30*	*1*
13C-2,3,4,6,7,8-HxCDF	*54*		*28 - 136*	*04/24/18 11:47*	*05/02/18 19:30*	*1*
13C-2,3,4,7,8-PeCDF	*66*		*21 - 178*	*04/24/18 11:47*	*05/02/18 19:30*	*1*
13C-2,3,7,8-TCDD	*58*		*25 - 164*	*04/24/18 11:47*	*05/02/18 19:30*	*1*
13C-2,3,7,8-TCDF	*58*		*24 - 169*	*04/24/18 11:47*	*05/02/18 19:30*	*1*
13C-OCDD	*45*		*17 - 157*	*04/24/18 11:47*	*05/02/18 19:30*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*103*		*35 - 197*	*04/24/18 11:47*	*05/02/18 19:30*	*1*

Client Sample ID: PDI-SG-B170-BL1

Date Collected: 04/14/18 09:50
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-17

Matrix: Solid
Percent Solids: 40.8

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	0.25	B	0.0062	0.0010	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
1,2,3,4,6,7,8-HpCDF	0.11	B	0.0062	0.0015	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
1,2,3,4,7,8,9-HpCDF	0.027	B	0.0062	0.00096	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
1,2,3,4,7,8-HxCDD	0.0020	J B	0.0062	0.00027	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
1,2,3,4,7,8-HxCDF	0.16	B	0.0062	0.0040	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
1,2,3,6,7,8-HxCDD	0.0086	B	0.0062	0.00028	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
1,2,3,6,7,8-HxCDF	0.030	B	0.0062	0.0039	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
1,2,3,7,8,9-HxCDD	0.0048	J B	0.0062	0.00024	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
1,2,3,7,8,9-HxCDF	0.0040	J B	0.0062	0.0024	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
1,2,3,7,8-PeCDD	ND		0.0062	0.0011	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
1,2,3,7,8-PeCDF	0.095	B	0.0062	0.0023	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
2,3,4,6,7,8-HxCDF	0.0072	B	0.0062	0.0024	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
2,3,4,7,8-PeCDF	0.035	B	0.0062	0.0024	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
2,3,7,8-TCDD	0.00059	J q	0.0012	0.00039	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
OCDD	3.1	B	0.012	0.0011	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1
OCDF	0.24	B	0.012	0.00035	ug/Kg	☼	04/24/18 11:47	05/02/18 20:18	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*53*		*23 - 140*	*04/24/18 11:47*	*05/02/18 20:18*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*27*	*	*28 - 143*	*04/24/18 11:47*	*05/02/18 20:18*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*50*		*26 - 138*	*04/24/18 11:47*	*05/02/18 20:18*	*1*
13C-1,2,3,4,7,8-HxCDD	*63*		*32 - 141*	*04/24/18 11:47*	*05/02/18 20:18*	*1*
13C-1,2,3,4,7,8-HxCDF	*53*		*26 - 152*	*04/24/18 11:47*	*05/02/18 20:18*	*1*
13C-1,2,3,6,7,8-HxCDD	*50*		*28 - 130*	*04/24/18 11:47*	*05/02/18 20:18*	*1*
13C-1,2,3,6,7,8-HxCDF	*46*		*26 - 123*	*04/24/18 11:47*	*05/02/18 20:18*	*1*
13C-1,2,3,7,8,9-HxCDF	*55*		*29 - 147*	*04/24/18 11:47*	*05/02/18 20:18*	*1*
13C-1,2,3,7,8-PeCDD	*63*		*25 - 181*	*04/24/18 11:47*	*05/02/18 20:18*	*1*
13C-1,2,3,7,8-PeCDF	*58*		*24 - 185*	*04/24/18 11:47*	*05/02/18 20:18*	*1*
13C-2,3,4,6,7,8-HxCDF	*53*		*28 - 136*	*04/24/18 11:47*	*05/02/18 20:18*	*1*
13C-2,3,4,7,8-PeCDF	*63*		*21 - 178*	*04/24/18 11:47*	*05/02/18 20:18*	*1*
13C-2,3,7,8-TCDD	*55*		*25 - 164*	*04/24/18 11:47*	*05/02/18 20:18*	*1*
13C-OCDD	*48*		*17 - 157*	*04/24/18 11:47*	*05/02/18 20:18*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*107*		*35 - 197*	*04/24/18 11:47*	*05/02/18 20:18*	*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	0.049	B	0.0012	0.0012	ug/Kg	☼	04/24/18 11:47	05/03/18 21:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*79*		*24 - 169*	*04/24/18 11:47*	*05/03/18 21:52*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*122*		*35 - 197*	*04/24/18 11:47*	*05/03/18 21:52*	*1*

Client Sample ID: PDI-SG-B176-BL1

Date Collected: 04/14/18 11:24
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-18

Matrix: Solid
Percent Solids: 42.3

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	**0.051**	**B**	0.0059	0.00038	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
1,2,3,4,6,7,8-HpCDF	**0.011**	**B**	0.0059	0.00074	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
1,2,3,4,7,8,9-HpCDF	**0.0010**	**J B**	0.0059	0.00054	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
1,2,3,4,7,8-HxCDD	**0.00077**	**J B**	0.0059	0.00012	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
1,2,3,4,7,8-HxCDF	**0.0038**	**J B**	0.0059	0.00039	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
1,2,3,6,7,8-HxCDD	**0.0022**	**J B**	0.0059	0.00013	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
1,2,3,6,7,8-HxCDF	**0.0031**	**J B**	0.0059	0.00037	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
1,2,3,7,8,9-HxCDD	**0.0016**	**J B**	0.0059	0.00011	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
1,2,3,7,8,9-HxCDF	ND		0.0059	0.00025	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
1,2,3,7,8-PeCDD	ND		0.0059	0.00040	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
1,2,3,7,8-PeCDF	**0.0026**	**J B**	0.0059	0.00027	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
2,3,4,6,7,8-HxCDF	ND		0.0059	0.00029	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
2,3,4,7,8-PeCDF	**0.0012**	**J B**	0.0059	0.00030	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
2,3,7,8-TCDD	ND		0.0012	0.00029	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
OCDD	**0.49**	**B**	0.012	0.00040	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1
OCDF	**0.025**	**B**	0.012	0.00019	ug/Kg	☼	04/24/18 11:47	05/02/18 21:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*43*		*23 - 140*	*04/24/18 11:47*	*05/02/18 21:06*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*21*	*	*28 - 143*	*04/24/18 11:47*	*05/02/18 21:06*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*39*		*26 - 138*	*04/24/18 11:47*	*05/02/18 21:06*	*1*
13C-1,2,3,4,7,8-HxCDD	*58*		*32 - 141*	*04/24/18 11:47*	*05/02/18 21:06*	*1*
13C-1,2,3,4,7,8-HxCDF	*51*		*26 - 152*	*04/24/18 11:47*	*05/02/18 21:06*	*1*
13C-1,2,3,6,7,8-HxCDD	*49*		*28 - 130*	*04/24/18 11:47*	*05/02/18 21:06*	*1*
13C-1,2,3,6,7,8-HxCDF	*47*		*26 - 123*	*04/24/18 11:47*	*05/02/18 21:06*	*1*
13C-1,2,3,7,8,9-HxCDF	*54*		*29 - 147*	*04/24/18 11:47*	*05/02/18 21:06*	*1*
13C-1,2,3,7,8-PeCDD	*63*		*25 - 181*	*04/24/18 11:47*	*05/02/18 21:06*	*1*
13C-1,2,3,7,8-PeCDF	*60*		*24 - 185*	*04/24/18 11:47*	*05/02/18 21:06*	*1*
13C-2,3,4,6,7,8-HxCDF	*53*		*28 - 136*	*04/24/18 11:47*	*05/02/18 21:06*	*1*
13C-2,3,4,7,8-PeCDF	*63*		*21 - 178*	*04/24/18 11:47*	*05/02/18 21:06*	*1*
13C-2,3,7,8-TCDD	*56*		*25 - 164*	*04/24/18 11:47*	*05/02/18 21:06*	*1*
13C-OCDD	*41*		*17 - 157*	*04/24/18 11:47*	*05/02/18 21:06*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*108*		*35 - 197*	*04/24/18 11:47*	*05/02/18 21:06*	*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	**0.0033**	**B**	0.0012	0.00030	ug/Kg	☼	04/24/18 11:47	05/03/18 22:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*69*		*24 - 169*	*04/24/18 11:47*	*05/03/18 22:30*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*113*		*35 - 197*	*04/24/18 11:47*	*05/03/18 22:30*	*1*

Client Sample ID: PDI-SG-B178-BL1
Date Collected: 04/14/18 12:56
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-19
Matrix: Solid
Percent Solids: 41.3

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	0.64	B	0.012	0.0021	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
1,2,3,4,6,7,8-HpCDF	0.36	B	0.012	0.0021	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
1,2,3,4,7,8,9-HpCDF	0.074	B	0.012	0.0023	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
1,2,3,4,7,8-HxCDD	0.0064	J B	0.012	0.00046	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
1,2,3,4,7,8-HxCDF	0.31	B	0.012	0.0066	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
1,2,3,6,7,8-HxCDD	0.020	B	0.012	0.00053	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
1,2,3,6,7,8-HxCDF	0.099	B	0.012	0.0069	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
1,2,3,7,8,9-HxCDD	0.0090	J B	0.012	0.00044	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
1,2,3,7,8,9-HxCDF	ND		0.012	0.0045	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
1,2,3,7,8-PeCDD	ND		0.012	0.0021	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
1,2,3,7,8-PeCDF	0.50	B	0.012	0.0047	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
2,3,4,6,7,8-HxCDF	0.016	B	0.012	0.0051	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
2,3,4,7,8-PeCDF	0.081	B	0.012	0.0071	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
2,3,7,8-TCDD	0.0011	J q	0.0024	0.00094	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
OCDD	6.8	B	0.024	0.0019	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1
OCDF	0.76	B	0.024	0.00085	ug/Kg	☼	04/24/18 11:47	05/02/18 22:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*61*		*23 - 140*	*04/24/18 11:47*	*05/02/18 22:43*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*52*		*28 - 143*	*04/24/18 11:47*	*05/02/18 22:43*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*63*		*26 - 138*	*04/24/18 11:47*	*05/02/18 22:43*	*1*
13C-1,2,3,4,7,8-HxCDD	*68*		*32 - 141*	*04/24/18 11:47*	*05/02/18 22:43*	*1*
13C-1,2,3,4,7,8-HxCDF	*45*		*26 - 152*	*04/24/18 11:47*	*05/02/18 22:43*	*1*
13C-1,2,3,6,7,8-HxCDD	*48*		*28 - 130*	*04/24/18 11:47*	*05/02/18 22:43*	*1*
13C-1,2,3,6,7,8-HxCDF	*36*		*26 - 123*	*04/24/18 11:47*	*05/02/18 22:43*	*1*
13C-1,2,3,7,8,9-HxCDF	*51*		*29 - 147*	*04/24/18 11:47*	*05/02/18 22:43*	*1*
13C-1,2,3,7,8-PeCDD	*69*		*25 - 181*	*04/24/18 11:47*	*05/02/18 22:43*	*1*
13C-1,2,3,7,8-PeCDF	*73*		*24 - 185*	*04/24/18 11:47*	*05/02/18 22:43*	*1*
13C-2,3,4,6,7,8-HxCDF	*42*		*28 - 136*	*04/24/18 11:47*	*05/02/18 22:43*	*1*
13C-2,3,4,7,8-PeCDF	*68*		*21 - 178*	*04/24/18 11:47*	*05/02/18 22:43*	*1*
13C-2,3,7,8-TCDD	*63*		*25 - 164*	*04/24/18 11:47*	*05/02/18 22:43*	*1*
13C-OCDD	*63*		*17 - 157*	*04/24/18 11:47*	*05/02/18 22:43*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*120*		*35 - 197*	*04/24/18 11:47*	*05/02/18 22:43*	*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	0.12	G B	0.0028	0.0028	ug/Kg	☼	04/24/18 11:47	05/03/18 23:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*123*		*24 - 169*	*04/24/18 11:47*	*05/03/18 23:08*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*176*		*35 - 197*	*04/24/18 11:47*	*05/03/18 23:08*	*1*

Client Sample ID: PDI-SG-B196-BL1
Date Collected: 04/14/18 15:06
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-20
Matrix: Solid
Percent Solids: 46.2

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	**0.23**	**B**	0.0054	0.00073	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
1,2,3,4,6,7,8-HpCDF	**0.062**	**B**	0.0054	0.00093	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
1,2,3,4,7,8,9-HpCDF	**0.0085**	**B**	0.0054	0.0011	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
1,2,3,4,7,8-HxCDD	**0.0015**	**J B**	0.0054	0.00027	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
1,2,3,4,7,8-HxCDF	**0.041**	**B**	0.0054	0.0035	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
1,2,3,6,7,8-HxCDD	**0.0088**	**B**	0.0054	0.00024	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
1,2,3,6,7,8-HxCDF	**0.014**	**B**	0.0054	0.0034	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
1,2,3,7,8,9-HxCDD	**0.0029**	**J B**	0.0054	0.00023	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
1,2,3,7,8,9-HxCDF	ND		0.0054	0.0024	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
1,2,3,7,8-PeCDD	ND		0.0054	0.0014	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
1,2,3,7,8-PeCDF	**0.022**	**B**	0.0054	0.0043	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
2,3,4,6,7,8-HxCDF	ND		0.0054	0.0029	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
2,3,4,7,8-PeCDF	**0.0073**	**q B**	0.0054	0.0045	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
2,3,7,8-TCDD	**0.00064**	**J q**	0.0011	0.00030	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
OCDD	**2.3**	**B**	0.011	0.00085	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1
OCDF	**0.16**	**B**	0.011	0.00030	ug/Kg	☼	04/24/18 11:47	05/02/18 21:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*81*		*23 - 140*	*04/24/18 11:47*	*05/02/18 21:55*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*65*		*28 - 143*	*04/24/18 11:47*	*05/02/18 21:55*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*81*		*26 - 138*	*04/24/18 11:47*	*05/02/18 21:55*	*1*
13C-1,2,3,4,7,8-HxCDD	*72*		*32 - 141*	*04/24/18 11:47*	*05/02/18 21:55*	*1*
13C-1,2,3,4,7,8-HxCDF	*72*		*26 - 152*	*04/24/18 11:47*	*05/02/18 21:55*	*1*
13C-1,2,3,6,7,8-HxCDD	*60*		*28 - 130*	*04/24/18 11:47*	*05/02/18 21:55*	*1*
13C-1,2,3,6,7,8-HxCDF	*54*		*26 - 123*	*04/24/18 11:47*	*05/02/18 21:55*	*1*
13C-1,2,3,7,8,9-HxCDF	*63*		*29 - 147*	*04/24/18 11:47*	*05/02/18 21:55*	*1*
13C-1,2,3,7,8-PeCDD	*68*		*25 - 181*	*04/24/18 11:47*	*05/02/18 21:55*	*1*
13C-1,2,3,7,8-PeCDF	*60*		*24 - 185*	*04/24/18 11:47*	*05/02/18 21:55*	*1*
13C-2,3,4,6,7,8-HxCDF	*63*		*28 - 136*	*04/24/18 11:47*	*05/02/18 21:55*	*1*
13C-2,3,4,7,8-PeCDF	*72*		*21 - 178*	*04/24/18 11:47*	*05/02/18 21:55*	*1*
13C-2,3,7,8-TCDD	*59*		*25 - 164*	*04/24/18 11:47*	*05/02/18 21:55*	*1*
13C-OCDD	*74*		*17 - 157*	*04/24/18 11:47*	*05/02/18 21:55*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*109*		*35 - 197*	*04/24/18 11:47*	*05/02/18 21:55*	*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	**0.015**	**G B**	0.0032	0.0032	ug/Kg	☼	04/24/18 11:47	05/03/18 23:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*67*		*24 - 169*	*04/24/18 11:47*	*05/03/18 23:46*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*113*		*35 - 197*	*04/24/18 11:47*	*05/03/18 23:46*	*1*

Client Sample ID: PDI-SG-B198-BL1

Date Collected: 04/14/18 16:25
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-21

Matrix: Solid
Percent Solids: 42.7

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	0.088	B	0.0059	0.00040	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
1,2,3,4,6,7,8-HpCDF	0.024	B	0.0059	0.00036	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
1,2,3,4,7,8,9-HpCDF	0.0048	J B	0.0059	0.00030	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
1,2,3,4,7,8-HxCDD	0.00095	J B q	0.0059	0.00018	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
1,2,3,4,7,8-HxCDF	0.026	B	0.0059	0.00077	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
1,2,3,6,7,8-HxCDD	0.0049	J B	0.0059	0.00020	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
1,2,3,6,7,8-HxCDF	0.0044	J B	0.0059	0.00076	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
1,2,3,7,8,9-HxCDD	0.0021	J B q	0.0059	0.00017	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
1,2,3,7,8,9-HxCDF	ND		0.0059	0.00052	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
1,2,3,7,8-PeCDD	ND		0.0059	0.00046	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
1,2,3,7,8-PeCDF	0.012	B	0.0059	0.00067	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
2,3,4,6,7,8-HxCDF	0.00078	J B q	0.0059	0.00051	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
2,3,4,7,8-PeCDF	0.0050	J B	0.0059	0.00075	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
2,3,7,8-TCDD	ND		0.0012	0.00088	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
OCDD	0.86	B	0.012	0.00040	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1
OCDF	0.049	B	0.012	0.00017	ug/Kg	☼	04/24/18 11:47	05/03/18 03:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*60*		*23 - 140*	*04/24/18 11:47*	*05/03/18 03:23*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*42*		*28 - 143*	*04/24/18 11:47*	*05/03/18 03:23*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*64*		*26 - 138*	*04/24/18 11:47*	*05/03/18 03:23*	*1*
13C-1,2,3,4,7,8-HxCDD	*60*		*32 - 141*	*04/24/18 11:47*	*05/03/18 03:23*	*1*
13C-1,2,3,4,7,8-HxCDF	*54*		*26 - 152*	*04/24/18 11:47*	*05/03/18 03:23*	*1*
13C-1,2,3,6,7,8-HxCDD	*46*		*28 - 130*	*04/24/18 11:47*	*05/03/18 03:23*	*1*
13C-1,2,3,6,7,8-HxCDF	*50*		*26 - 123*	*04/24/18 11:47*	*05/03/18 03:23*	*1*
13C-1,2,3,7,8,9-HxCDF	*56*		*29 - 147*	*04/24/18 11:47*	*05/03/18 03:23*	*1*
13C-1,2,3,7,8-PeCDD	*57*		*25 - 181*	*04/24/18 11:47*	*05/03/18 03:23*	*1*
13C-1,2,3,7,8-PeCDF	*56*		*24 - 185*	*04/24/18 11:47*	*05/03/18 03:23*	*1*
13C-2,3,4,6,7,8-HxCDF	*52*		*28 - 136*	*04/24/18 11:47*	*05/03/18 03:23*	*1*
13C-2,3,4,7,8-PeCDF	*57*		*21 - 178*	*04/24/18 11:47*	*05/03/18 03:23*	*1*
13C-2,3,7,8-TCDD	*55*		*25 - 164*	*04/24/18 11:47*	*05/03/18 03:23*	*1*
13C-OCDD	*68*		*17 - 157*	*04/24/18 11:47*	*05/03/18 03:23*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*102*		*35 - 197*	*04/24/18 11:47*	*05/03/18 03:23*	*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	0.014	B	0.0012	0.00046	ug/Kg	☼	04/24/18 11:47	05/04/18 00:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*60*		*24 - 169*	*04/24/18 11:47*	*05/04/18 00:24*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*105*		*35 - 197*	*04/24/18 11:47*	*05/04/18 00:24*	*1*

Client Sample ID: PDI-SG-B199-BL1

Date Collected: 04/14/18 15:30
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-22

Matrix: Solid
Percent Solids: 45.6

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	0.066	B	0.0055	0.00044	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
1,2,3,4,6,7,8-HpCDF	0.019	B q	0.0055	0.00045	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
1,2,3,4,7,8,9-HpCDF	0.0041	J B	0.0055	0.00038	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
1,2,3,4,7,8-HxCDD	0.0011	J B q	0.0055	0.00014	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
1,2,3,4,7,8-HxCDF	0.014	B	0.0055	0.00051	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
1,2,3,6,7,8-HxCDD	0.0036	J B	0.0055	0.00015	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
1,2,3,6,7,8-HxCDF	0.0097	B	0.0055	0.00050	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
1,2,3,7,8,9-HxCDD	0.0024	J B	0.0055	0.00013	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
1,2,3,7,8,9-HxCDF	0.00080	J B q	0.0055	0.00033	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
1,2,3,7,8-PeCDD	0.00052	J B q	0.0055	0.00038	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
1,2,3,7,8-PeCDF	0.015	B	0.0055	0.00057	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
2,3,4,6,7,8-HxCDF	0.0013	J B	0.0055	0.00036	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
2,3,4,7,8-PeCDF	0.0066	B	0.0055	0.00065	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
2,3,7,8-TCDD	ND		0.0011	0.00034	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
OCDD	0.65	B	0.011	0.00036	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1
OCDF	0.039	B	0.011	0.00018	ug/Kg	☼	04/24/18 11:47	05/03/18 04:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*54*		*23 - 140*	*04/24/18 11:47*	*05/03/18 04:11*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*36*		*28 - 143*	*04/24/18 11:47*	*05/03/18 04:11*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*55*		*26 - 138*	*04/24/18 11:47*	*05/03/18 04:11*	*1*
13C-1,2,3,4,7,8-HxCDD	*60*		*32 - 141*	*04/24/18 11:47*	*05/03/18 04:11*	*1*
13C-1,2,3,4,7,8-HxCDF	*52*		*26 - 152*	*04/24/18 11:47*	*05/03/18 04:11*	*1*
13C-1,2,3,6,7,8-HxCDD	*49*		*28 - 130*	*04/24/18 11:47*	*05/03/18 04:11*	*1*
13C-1,2,3,6,7,8-HxCDF	*47*		*26 - 123*	*04/24/18 11:47*	*05/03/18 04:11*	*1*
13C-1,2,3,7,8,9-HxCDF	*55*		*29 - 147*	*04/24/18 11:47*	*05/03/18 04:11*	*1*
13C-1,2,3,7,8-PeCDD	*65*		*25 - 181*	*04/24/18 11:47*	*05/03/18 04:11*	*1*
13C-1,2,3,7,8-PeCDF	*61*		*24 - 185*	*04/24/18 11:47*	*05/03/18 04:11*	*1*
13C-2,3,4,6,7,8-HxCDF	*53*		*28 - 136*	*04/24/18 11:47*	*05/03/18 04:11*	*1*
13C-2,3,4,7,8-PeCDF	*64*		*21 - 178*	*04/24/18 11:47*	*05/03/18 04:11*	*1*
13C-2,3,7,8-TCDD	*57*		*25 - 164*	*04/24/18 11:47*	*05/03/18 04:11*	*1*
13C-OCDD	*56*		*17 - 157*	*04/24/18 11:47*	*05/03/18 04:11*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*109*		*35 - 197*	*04/24/18 11:47*	*05/03/18 04:11*	*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	0.028	B	0.0011	0.00055	ug/Kg	☼	04/24/18 11:47	05/04/18 01:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*59*		*24 - 169*	*04/24/18 11:47*	*05/04/18 01:01*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*108*		*35 - 197*	*04/24/18 11:47*	*05/04/18 01:01*	*1*

Client Sample ID: PDI-RB-180411-1800
Date Collected: 04/11/18 18:00
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-23
Matrix: Water

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	3.5	J B	49	0.23	pg/L		04/24/18 08:04	04/26/18 02:23	1
1,2,3,4,6,7,8-HpCDF	1.8	J q B	49	0.19	pg/L		04/24/18 08:04	04/26/18 02:23	1
1,2,3,4,7,8,9-HpCDF	1.8	J	49	0.26	pg/L		04/24/18 08:04	04/26/18 02:23	1
1,2,3,4,7,8-HxCDD	2.1	J B	49	0.24	pg/L		04/24/18 08:04	04/26/18 02:23	1
1,2,3,4,7,8-HxCDF	0.72	J q	49	0.28	pg/L		04/24/18 08:04	04/26/18 02:23	1
1,2,3,6,7,8-HxCDD	1.2	J	49	0.23	pg/L		04/24/18 08:04	04/26/18 02:23	1
1,2,3,6,7,8-HxCDF	0.88	J q	49	0.26	pg/L		04/24/18 08:04	04/26/18 02:23	1
1,2,3,7,8,9-HxCDD	1.2	J q	49	0.21	pg/L		04/24/18 08:04	04/26/18 02:23	1
1,2,3,7,8,9-HxCDF	1.6	J q	49	0.21	pg/L		04/24/18 08:04	04/26/18 02:23	1
1,2,3,7,8-PeCDD	0.51	J q	49	0.37	pg/L		04/24/18 08:04	04/26/18 02:23	1
1,2,3,7,8-PeCDF	0.76	J q	49	0.27	pg/L		04/24/18 08:04	04/26/18 02:23	1
2,3,4,6,7,8-HxCDF	0.88	J q	49	0.20	pg/L		04/24/18 08:04	04/26/18 02:23	1
2,3,4,7,8-PeCDF	ND		49	0.29	pg/L		04/24/18 08:04	04/26/18 02:23	1
2,3,7,8-TCDD	ND		9.7	0.41	pg/L		04/24/18 08:04	04/26/18 02:23	1
2,3,7,8-TCDF	ND		9.7	0.26	pg/L		04/24/18 08:04	04/26/18 02:23	1
OCDD	29	J B	97	0.34	pg/L		04/24/18 08:04	04/26/18 02:23	1
OCDF	5.7	J	97	0.38	pg/L		04/24/18 08:04	04/26/18 02:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*71*		*23 - 140*	*04/24/18 08:04*	*04/26/18 02:23*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*66*		*28 - 143*	*04/24/18 08:04*	*04/26/18 02:23*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*67*		*26 - 138*	*04/24/18 08:04*	*04/26/18 02:23*	*1*
13C-1,2,3,4,7,8-HxCDD	*75*		*32 - 141*	*04/24/18 08:04*	*04/26/18 02:23*	*1*
13C-1,2,3,4,7,8-HxCDF	*78*		*26 - 152*	*04/24/18 08:04*	*04/26/18 02:23*	*1*
13C-1,2,3,6,7,8-HxCDD	*71*		*28 - 130*	*04/24/18 08:04*	*04/26/18 02:23*	*1*
13C-1,2,3,6,7,8-HxCDF	*75*		*26 - 123*	*04/24/18 08:04*	*04/26/18 02:23*	*1*
13C-1,2,3,7,8,9-HxCDF	*75*		*29 - 147*	*04/24/18 08:04*	*04/26/18 02:23*	*1*
13C-1,2,3,7,8-PeCDD	*74*		*25 - 181*	*04/24/18 08:04*	*04/26/18 02:23*	*1*
13C-1,2,3,7,8-PeCDF	*76*		*24 - 185*	*04/24/18 08:04*	*04/26/18 02:23*	*1*
13C-2,3,4,6,7,8-HxCDF	*78*		*28 - 136*	*04/24/18 08:04*	*04/26/18 02:23*	*1*
13C-2,3,4,7,8-PeCDF	*78*		*21 - 178*	*04/24/18 08:04*	*04/26/18 02:23*	*1*
13C-2,3,7,8-TCDD	*70*		*25 - 164*	*04/24/18 08:04*	*04/26/18 02:23*	*1*
13C-2,3,7,8-TCDF	*73*		*24 - 169*	*04/24/18 08:04*	*04/26/18 02:23*	*1*
13C-OCDD	*70*		*17 - 157*	*04/24/18 08:04*	*04/26/18 02:23*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*91*		*35 - 197*	*04/24/18 08:04*	*04/26/18 02:23*	*1*

Client Sample ID: PDI-RB-180411-1752

Date Collected: 04/11/18 17:52
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-24

Matrix: Water

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	**3.4**	**J B**	48	0.18	pg/L		04/24/18 08:04	04/26/18 03:11	1
1,2,3,4,6,7,8-HpCDF	**0.58**	**J q B**	48	0.23	pg/L		04/24/18 08:04	04/26/18 03:11	1
1,2,3,4,7,8,9-HpCDF	ND		48	0.32	pg/L		04/24/18 08:04	04/26/18 03:11	1
1,2,3,4,7,8-HxCDD	**1.7**	**J q B**	48	0.16	pg/L		04/24/18 08:04	04/26/18 03:11	1
1,2,3,4,7,8-HxCDF	ND		48	0.18	pg/L		04/24/18 08:04	04/26/18 03:11	1
1,2,3,6,7,8-HxCDD	ND		48	0.16	pg/L		04/24/18 08:04	04/26/18 03:11	1
1,2,3,6,7,8-HxCDF	ND		48	0.16	pg/L		04/24/18 08:04	04/26/18 03:11	1
1,2,3,7,8,9-HxCDD	ND		48	0.15	pg/L		04/24/18 08:04	04/26/18 03:11	1
1,2,3,7,8,9-HxCDF	**0.22**	**J q**	48	0.14	pg/L		04/24/18 08:04	04/26/18 03:11	1
1,2,3,7,8-PeCDD	ND		48	0.32	pg/L		04/24/18 08:04	04/26/18 03:11	1
1,2,3,7,8-PeCDF	ND		48	0.19	pg/L		04/24/18 08:04	04/26/18 03:11	1
2,3,4,6,7,8-HxCDF	ND		48	0.14	pg/L		04/24/18 08:04	04/26/18 03:11	1
2,3,4,7,8-PeCDF	ND		48	0.21	pg/L		04/24/18 08:04	04/26/18 03:11	1
2,3,7,8-TCDD	ND		9.6	0.28	pg/L		04/24/18 08:04	04/26/18 03:11	1
2,3,7,8-TCDF	ND		9.6	0.17	pg/L		04/24/18 08:04	04/26/18 03:11	1
OCDD	**60**	**J B**	96	0.32	pg/L		04/24/18 08:04	04/26/18 03:11	1
OCDF	**0.95**	**J**	96	0.27	pg/L		04/24/18 08:04	04/26/18 03:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*76*		*23 - 140*	*04/24/18 08:04*	*04/26/18 03:11*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*73*		*28 - 143*	*04/24/18 08:04*	*04/26/18 03:11*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*73*		*26 - 138*	*04/24/18 08:04*	*04/26/18 03:11*	*1*
13C-1,2,3,4,7,8-HxCDD	*82*		*32 - 141*	*04/24/18 08:04*	*04/26/18 03:11*	*1*
13C-1,2,3,4,7,8-HxCDF	*84*		*26 - 152*	*04/24/18 08:04*	*04/26/18 03:11*	*1*
13C-1,2,3,6,7,8-HxCDD	*78*		*28 - 130*	*04/24/18 08:04*	*04/26/18 03:11*	*1*
13C-1,2,3,6,7,8-HxCDF	*81*		*26 - 123*	*04/24/18 08:04*	*04/26/18 03:11*	*1*
13C-1,2,3,7,8,9-HxCDF	*79*		*29 - 147*	*04/24/18 08:04*	*04/26/18 03:11*	*1*
13C-1,2,3,7,8-PeCDD	*81*		*25 - 181*	*04/24/18 08:04*	*04/26/18 03:11*	*1*
13C-1,2,3,7,8-PeCDF	*84*		*24 - 185*	*04/24/18 08:04*	*04/26/18 03:11*	*1*
13C-2,3,4,6,7,8-HxCDF	*83*		*28 - 136*	*04/24/18 08:04*	*04/26/18 03:11*	*1*
13C-2,3,4,7,8-PeCDF	*86*		*21 - 178*	*04/24/18 08:04*	*04/26/18 03:11*	*1*
13C-2,3,7,8-TCDD	*78*		*25 - 164*	*04/24/18 08:04*	*04/26/18 03:11*	*1*
13C-2,3,7,8-TCDF	*82*		*24 - 169*	*04/24/18 08:04*	*04/26/18 03:11*	*1*
13C-OCDD	*76*		*17 - 157*	*04/24/18 08:04*	*04/26/18 03:11*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*102*		*35 - 197*	*04/24/18 08:04*	*04/26/18 03:11*	*1*

Client Sample ID: PDI-SG-B141-BL1
Date Collected: 04/13/18 14:32
Date Received: 04/16/18 14:00

Lab Sample ID: 580-76634-25
Matrix: Solid
Percent Solids: 51.8

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	0.054	B	0.0048	0.00034	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
1,2,3,4,6,7,8-HpCDF	0.0077	q B	0.0048	0.00041	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
1,2,3,4,7,8,9-HpCDF	ND		0.0048	0.00042	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
1,2,3,4,7,8-HxCDD	0.00063	J B	0.0048	0.00010	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
1,2,3,4,7,8-HxCDF	0.0012	J B	0.0048	0.00034	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
1,2,3,6,7,8-HxCDD	0.0021	J q B	0.0048	0.000091	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
1,2,3,6,7,8-HxCDF	0.0022	J B	0.0048	0.00031	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
1,2,3,7,8,9-HxCDD	0.0014	J B	0.0048	0.000086	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
1,2,3,7,8,9-HxCDF	ND		0.0048	0.00021	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
1,2,3,7,8-PeCDD	ND		0.0048	0.00027	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
1,2,3,7,8-PeCDF	ND		0.0048	0.00020	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
2,3,4,6,7,8-HxCDF	ND		0.0048	0.00024	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
2,3,4,7,8-PeCDF	ND		0.0048	0.00023	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
2,3,7,8-TCDD	0.00018	J q	0.00096	0.00013	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
2,3,7,8-TCDF	0.00072	J B	0.00096	0.00019	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
OCDD	0.43	B	0.0096	0.00031	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1
OCDF	0.016	B	0.0096	0.00014	ug/Kg	☼	04/24/18 11:47	05/03/18 05:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*54*		*23 - 140*	*04/24/18 11:47*	*05/03/18 05:00*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*32*		*28 - 143*	*04/24/18 11:47*	*05/03/18 05:00*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*48*		*26 - 138*	*04/24/18 11:47*	*05/03/18 05:00*	*1*
13C-1,2,3,4,7,8-HxCDD	*56*		*32 - 141*	*04/24/18 11:47*	*05/03/18 05:00*	*1*
13C-1,2,3,4,7,8-HxCDF	*52*		*26 - 152*	*04/24/18 11:47*	*05/03/18 05:00*	*1*
13C-1,2,3,6,7,8-HxCDD	*52*		*28 - 130*	*04/24/18 11:47*	*05/03/18 05:00*	*1*
13C-1,2,3,6,7,8-HxCDF	*51*		*26 - 123*	*04/24/18 11:47*	*05/03/18 05:00*	*1*
13C-1,2,3,7,8,9-HxCDF	*58*		*29 - 147*	*04/24/18 11:47*	*05/03/18 05:00*	*1*
13C-1,2,3,7,8-PeCDD	*67*		*25 - 181*	*04/24/18 11:47*	*05/03/18 05:00*	*1*
13C-1,2,3,7,8-PeCDF	*64*		*24 - 185*	*04/24/18 11:47*	*05/03/18 05:00*	*1*
13C-2,3,4,6,7,8-HxCDF	*54*		*28 - 136*	*04/24/18 11:47*	*05/03/18 05:00*	*1*
13C-2,3,4,7,8-PeCDF	*64*		*21 - 178*	*04/24/18 11:47*	*05/03/18 05:00*	*1*
13C-2,3,7,8-TCDD	*62*		*25 - 164*	*04/24/18 11:47*	*05/03/18 05:00*	*1*
13C-2,3,7,8-TCDF	*63*		*24 - 169*	*04/24/18 11:47*	*05/03/18 05:00*	*1*
13C-OCDD	*53*		*17 - 157*	*04/24/18 11:47*	*05/03/18 05:00*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*107*		*35 - 197*	*04/24/18 11:47*	*05/03/18 05:00*	*1*

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

Lab Sample ID: MB 320-219329/1-A
Matrix: Solid
Analysis Batch: 220276

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 219329

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.000114	J q	0.0050	0.000029	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
1,2,3,4,6,7,8-HpCDF	0.0000768	J	0.0050	0.000018	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
1,2,3,4,7,8,9-HpCDF	0.0000696	J q	0.0050	0.000026	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
1,2,3,4,7,8-HxCDD	0.000197	J	0.0050	0.000032	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
1,2,3,4,7,8-HxCDF	ND		0.0050	0.000030	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
1,2,3,6,7,8-HxCDD	ND		0.0050	0.000031	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
1,2,3,6,7,8-HxCDF	ND		0.0050	0.000027	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
1,2,3,7,8,9-HxCDD	ND		0.0050	0.000028	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
1,2,3,7,8,9-HxCDF	0.0000695	J	0.0050	0.000024	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
1,2,3,7,8-PeCDD	ND		0.0050	0.000056	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
1,2,3,7,8-PeCDF	ND		0.0050	0.000033	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
2,3,4,6,7,8-HxCDF	ND		0.0050	0.000022	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
2,3,4,7,8-PeCDF	ND		0.0050	0.000036	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
2,3,7,8-TCDD	ND		0.0010	0.000052	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
2,3,7,8-TCDF	ND		0.0010	0.000043	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
OCDD	0.000526	J	0.010	0.000029	ug/Kg		04/23/18 12:27	04/26/18 19:51	1
OCDF	ND		0.010	0.000056	ug/Kg		04/23/18 12:27	04/26/18 19:51	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*65*		*23 - 140*	*04/23/18 12:27*	*04/26/18 19:51*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*60*		*28 - 143*	*04/23/18 12:27*	*04/26/18 19:51*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*59*		*26 - 138*	*04/23/18 12:27*	*04/26/18 19:51*	*1*
13C-1,2,3,4,7,8-HxCDD	*66*		*32 - 141*	*04/23/18 12:27*	*04/26/18 19:51*	*1*
13C-1,2,3,4,7,8-HxCDF	*70*		*26 - 152*	*04/23/18 12:27*	*04/26/18 19:51*	*1*
13C-1,2,3,6,7,8-HxCDD	*71*		*28 - 130*	*04/23/18 12:27*	*04/26/18 19:51*	*1*
13C-1,2,3,6,7,8-HxCDF	*69*		*26 - 123*	*04/23/18 12:27*	*04/26/18 19:51*	*1*
13C-1,2,3,7,8,9-HxCDF	*66*		*29 - 147*	*04/23/18 12:27*	*04/26/18 19:51*	*1*
13C-1,2,3,7,8-PeCDD	*66*		*25 - 181*	*04/23/18 12:27*	*04/26/18 19:51*	*1*
13C-1,2,3,7,8-PeCDF	*69*		*24 - 185*	*04/23/18 12:27*	*04/26/18 19:51*	*1*
13C-2,3,4,6,7,8-HxCDF	*70*		*28 - 136*	*04/23/18 12:27*	*04/26/18 19:51*	*1*
13C-2,3,4,7,8-PeCDF	*69*		*21 - 178*	*04/23/18 12:27*	*04/26/18 19:51*	*1*
13C-2,3,7,8-TCDD	*63*		*25 - 164*	*04/23/18 12:27*	*04/26/18 19:51*	*1*
13C-2,3,7,8-TCDF	*65*		*24 - 169*	*04/23/18 12:27*	*04/26/18 19:51*	*1*
13C-OCDD	*63*		*17 - 157*	*04/23/18 12:27*	*04/26/18 19:51*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*100*		*35 - 197*	*04/23/18 12:27*	*04/26/18 19:51*	*1*

Lab Sample ID: LCS 320-219329/2-A
Matrix: Solid
Analysis Batch: 220276

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 219329

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,6,7,8-HpCDD	0.100	0.108		ug/Kg		108	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	0.107		ug/Kg		107	78 - 138
1,2,3,4,7,8-HxCDD	0.100	0.107		ug/Kg		107	70 - 164
1,2,3,4,7,8-HxCDF	0.100	0.105		ug/Kg		105	72 - 134

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

Lab Sample ID: LCS 320-219329/2-A
Matrix: Solid
Analysis Batch: 220276

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 219329

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,2,3,6,7,8-HxCDD			0.100	0.104		ug/Kg		104	76 - 134		
1,2,3,6,7,8-HxCDF			0.100	0.107		ug/Kg		107	84 - 130		
1,2,3,7,8,9-HxCDD			0.100	0.112		ug/Kg		112	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	0.112		ug/Kg		112	70 - 142		
1,2,3,7,8-PeCDF			0.100	0.107		ug/Kg		107	80 - 134		
2,3,4,6,7,8-HxCDF			0.100	0.103		ug/Kg		103	70 - 156		
2,3,4,7,8-PeCDF			0.100	0.107		ug/Kg		107	68 - 160		
2,3,7,8-TCDD			0.0200	0.0210		ug/Kg		105	67 - 158		
2,3,7,8-TCDF			0.0200	0.0191		ug/Kg		96	75 - 158		
OCDD			0.200	0.211		ug/Kg		106	78 - 144		
OCDF			0.200	0.195		ug/Kg		98	63 - 170		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*57*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*55*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*53*		*20 - 186*
13C-1,2,3,4,7,8-HxCDD	*59*		*21 - 193*
13C-1,2,3,4,7,8-HxCDF	*62*		*19 - 202*
13C-1,2,3,6,7,8-HxCDD	*61*		*25 - 163*
13C-1,2,3,6,7,8-HxCDF	*61*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*58*		*17 - 205*
13C-1,2,3,7,8-PeCDD	*60*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*63*		*21 - 192*
13C-2,3,4,6,7,8-HxCDF	*63*		*22 - 176*
13C-2,3,4,7,8-PeCDF	*63*		*13 - 328*
13C-2,3,7,8-TCDD	*59*		*20 - 175*
13C-2,3,7,8-TCDF	*60*		*22 - 152*
13C-OCDD	*57*		*13 - 199*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*103*		*31 - 191*

Lab Sample ID: LCSD 320-219329/3-A
Matrix: Solid
Analysis Batch: 220276

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 219329

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	0.111		ug/Kg		111	70 - 140	3	50
1,2,3,4,6,7,8-HpCDF			0.100	0.110		ug/Kg		110	82 - 122	4	50
1,2,3,4,7,8,9-HpCDF			0.100	0.106		ug/Kg		106	78 - 138	0	50
1,2,3,4,7,8-HxCDD			0.100	0.112		ug/Kg		112	70 - 164	4	50
1,2,3,4,7,8-HxCDF			0.100	0.107		ug/Kg		107	72 - 134	2	50
1,2,3,6,7,8-HxCDD			0.100	0.104		ug/Kg		104	76 - 134	0	50
1,2,3,6,7,8-HxCDF			0.100	0.106		ug/Kg		106	84 - 130	1	50
1,2,3,7,8,9-HxCDD			0.100	0.113		ug/Kg		113	64 - 162	1	50
1,2,3,7,8,9-HxCDF			0.100	0.105		ug/Kg		105	78 - 130	2	50
1,2,3,7,8-PeCDD			0.100	0.110		ug/Kg		110	70 - 142	2	50

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

Lab Sample ID: LCSD 320-219329/3-A
Matrix: Solid
Analysis Batch: 220276

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 219329

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3,7,8-PeCDF			0.100	0.108		ug/Kg		108	80 - 134	1	50
2,3,4,6,7,8-HxCDF			0.100	0.105		ug/Kg		105	70 - 156	2	50
2,3,4,7,8-PeCDF			0.100	0.110		ug/Kg		110	68 - 160	2	50
2,3,7,8-TCDD			0.0200	0.0212		ug/Kg		106	67 - 158	1	50
2,3,7,8-TCDF			0.0200	0.0204		ug/Kg		102	75 - 158	6	50
OCDD			0.200	0.217		ug/Kg		108	78 - 144	3	50
OCDF			0.200	0.203		ug/Kg		101	63 - 170	4	50

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*61*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*56*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*58*		*20 - 186*
13C-1,2,3,4,7,8-HxCDD	*64*		*21 - 193*
13C-1,2,3,4,7,8-HxCDF	*68*		*19 - 202*
13C-1,2,3,6,7,8-HxCDD	*66*		*25 - 163*
13C-1,2,3,6,7,8-HxCDF	*66*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*65*		*17 - 205*
13C-1,2,3,7,8-PeCDD	*66*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*68*		*21 - 192*
13C-2,3,4,6,7,8-HxCDF	*67*		*22 - 176*
13C-2,3,4,7,8-PeCDF	*68*		*13 - 328*
13C-2,3,7,8-TCDD	*62*		*20 - 175*
13C-2,3,7,8-TCDF	*64*		*22 - 152*
13C-OCDD	*61*		*13 - 199*

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*103*		*31 - 191*

Lab Sample ID: MB 320-219436/1-A
Matrix: Water
Analysis Batch: 219865

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 219436

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	2.36	J	50	0.25	pg/L		04/24/18 08:04	04/25/18 23:58	1
1,2,3,4,6,7,8-HpCDF	1.13	J q	50	0.50	pg/L		04/24/18 08:04	04/25/18 23:58	1
1,2,3,4,7,8,9-HpCDF	ND		50	0.71	pg/L		04/24/18 08:04	04/25/18 23:58	1
1,2,3,4,7,8-HxCDD	1.85	J	50	0.25	pg/L		04/24/18 08:04	04/25/18 23:58	1
1,2,3,4,7,8-HxCDF	ND		50	0.53	pg/L		04/24/18 08:04	04/25/18 23:58	1
1,2,3,6,7,8-HxCDD	ND		50	0.24	pg/L		04/24/18 08:04	04/25/18 23:58	1
1,2,3,6,7,8-HxCDF	ND		50	0.47	pg/L		04/24/18 08:04	04/25/18 23:58	1
1,2,3,7,8,9-HxCDD	ND		50	0.22	pg/L		04/24/18 08:04	04/25/18 23:58	1
1,2,3,7,8,9-HxCDF	ND		50	0.41	pg/L		04/24/18 08:04	04/25/18 23:58	1
1,2,3,7,8-PeCDD	ND		50	0.83	pg/L		04/24/18 08:04	04/25/18 23:58	1
1,2,3,7,8-PeCDF	ND		50	0.36	pg/L		04/24/18 08:04	04/25/18 23:58	1
2,3,4,6,7,8-HxCDF	ND		50	0.37	pg/L		04/24/18 08:04	04/25/18 23:58	1
2,3,4,7,8-PeCDF	ND		50	0.38	pg/L		04/24/18 08:04	04/25/18 23:58	1
2,3,7,8-TCDD	ND		10	0.48	pg/L		04/24/18 08:04	04/25/18 23:58	1
2,3,7,8-TCDF	0.843	J q	10	0.32	pg/L		04/24/18 08:04	04/25/18 23:58	1

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

Lab Sample ID: MB 320-219436/1-A
Matrix: Water
Analysis Batch: 219865

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 219436

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
OCDD	9.84	J	100	0.32	pg/L		04/24/18 08:04	04/25/18 23:58	1
OCDF	ND		100	0.51	pg/L		04/24/18 08:04	04/25/18 23:58	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*61*		*23 - 140*	*04/24/18 08:04*	*04/25/18 23:58*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*57*		*28 - 143*	*04/24/18 08:04*	*04/25/18 23:58*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*57*		*26 - 138*	*04/24/18 08:04*	*04/25/18 23:58*	*1*
13C-1,2,3,4,7,8-HxCDD	*68*		*32 - 141*	*04/24/18 08:04*	*04/25/18 23:58*	*1*
13C-1,2,3,4,7,8-HxCDF	*71*		*26 - 152*	*04/24/18 08:04*	*04/25/18 23:58*	*1*
13C-1,2,3,6,7,8-HxCDD	*68*		*28 - 130*	*04/24/18 08:04*	*04/25/18 23:58*	*1*
13C-1,2,3,6,7,8-HxCDF	*70*		*26 - 123*	*04/24/18 08:04*	*04/25/18 23:58*	*1*
13C-1,2,3,7,8,9-HxCDF	*68*		*29 - 147*	*04/24/18 08:04*	*04/25/18 23:58*	*1*
13C-1,2,3,7,8-PeCDD	*64*		*25 - 181*	*04/24/18 08:04*	*04/25/18 23:58*	*1*
13C-1,2,3,7,8-PeCDF	*67*		*24 - 185*	*04/24/18 08:04*	*04/25/18 23:58*	*1*
13C-2,3,4,6,7,8-HxCDF	*74*		*28 - 136*	*04/24/18 08:04*	*04/25/18 23:58*	*1*
13C-2,3,4,7,8-PeCDF	*71*		*21 - 178*	*04/24/18 08:04*	*04/25/18 23:58*	*1*
13C-2,3,7,8-TCDD	*63*		*25 - 164*	*04/24/18 08:04*	*04/25/18 23:58*	*1*
13C-2,3,7,8-TCDF	*66*		*24 - 169*	*04/24/18 08:04*	*04/25/18 23:58*	*1*
13C-OCDD	*60*		*17 - 157*	*04/24/18 08:04*	*04/25/18 23:58*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*97*		*35 - 197*	*04/24/18 08:04*	*04/25/18 23:58*	*1*

Lab Sample ID: LCS 320-219436/2-A
Matrix: Water
Analysis Batch: 219865

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 219436

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,6,7,8-HpCDD	1000	1090		pg/L		109	70 - 140
1,2,3,4,6,7,8-HpCDF	1000	1090		pg/L		109	82 - 122
1,2,3,4,7,8,9-HpCDF	1000	1060		pg/L		106	78 - 138
1,2,3,4,7,8-HxCDD	1000	1080		pg/L		108	70 - 164
1,2,3,4,7,8-HxCDF	1000	1070		pg/L		107	72 - 134
1,2,3,6,7,8-HxCDD	1000	1090		pg/L		109	76 - 134
1,2,3,6,7,8-HxCDF	1000	1070		pg/L		107	84 - 130
1,2,3,7,8,9-HxCDD	1000	1150		pg/L		115	64 - 162
1,2,3,7,8,9-HxCDF	1000	1070		pg/L		107	78 - 130
1,2,3,7,8-PeCDD	1000	1170		pg/L		117	70 - 142
1,2,3,7,8-PeCDF	1000	1110		pg/L		111	80 - 134
2,3,4,6,7,8-HxCDF	1000	1040		pg/L		104	70 - 156
2,3,4,7,8-PeCDF	1000	1120		pg/L		112	68 - 160
2,3,7,8-TCDD	200	218		pg/L		109	67 - 158
2,3,7,8-TCDF	200	200		pg/L		100	75 - 158
OCDD	2000	2040		pg/L		102	78 - 144
OCDF	2000	1990		pg/L		99	63 - 170

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*56*		*26 - 166*

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

Lab Sample ID: LCS 320-219436/2-A
Matrix: Water
Analysis Batch: 219865

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 219436

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDF	52		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	54		20 - 186
13C-1,2,3,4,7,8-HxCDD	60		21 - 193
13C-1,2,3,4,7,8-HxCDF	64		19 - 202
13C-1,2,3,6,7,8-HxCDD	59		25 - 163
13C-1,2,3,6,7,8-HxCDF	62		21 - 159
13C-1,2,3,7,8,9-HxCDF	62		17 - 205
13C-1,2,3,7,8-PeCDD	61		21 - 227
13C-1,2,3,7,8-PeCDF	63		21 - 192
13C-2,3,4,6,7,8-HxCDF	65		22 - 176
13C-2,3,4,7,8-PeCDF	67		13 - 328
13C-2,3,7,8-TCDD	61		20 - 175
13C-2,3,7,8-TCDF	65		22 - 152
13C-OCDD	56		13 - 199

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	95		31 - 191

Lab Sample ID: LCSD 320-219436/3-A
Matrix: Water
Analysis Batch: 219865

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 219436

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3,4,6,7,8-HpCDD			1000	1060		pg/L		106	70 - 140	2	50
1,2,3,4,6,7,8-HpCDF			1000	1060		pg/L		106	82 - 122	3	50
1,2,3,4,7,8,9-HpCDF			1000	1040		pg/L		104	78 - 138	2	50
1,2,3,4,7,8-HxCDD			1000	1110		pg/L		111	70 - 164	3	50
1,2,3,4,7,8-HxCDF			1000	1060		pg/L		106	72 - 134	1	50
1,2,3,6,7,8-HxCDD			1000	1060		pg/L		106	76 - 134	3	50
1,2,3,6,7,8-HxCDF			1000	1090		pg/L		109	84 - 130	2	50
1,2,3,7,8,9-HxCDD			1000	1150		pg/L		115	64 - 162	1	50
1,2,3,7,8,9-HxCDF			1000	1050		pg/L		105	78 - 130	2	50
1,2,3,7,8-PeCDD			1000	1150		pg/L		115	70 - 142	2	50
1,2,3,7,8-PeCDF			1000	1120		pg/L		112	80 - 134	1	50
2,3,4,6,7,8-HxCDF			1000	1040		pg/L		104	70 - 156	0	50
2,3,4,7,8-PeCDF			1000	1100		pg/L		110	68 - 160	2	50
2,3,7,8-TCDD			200	221		pg/L		110	67 - 158	1	50
2,3,7,8-TCDF			200	210		pg/L		105	75 - 158	5	50
OCDD			2000	1970		pg/L		98	78 - 144	4	50
OCDF			2000	1960		pg/L		98	63 - 170	1	50

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDD	56		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	53		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	53		20 - 186
13C-1,2,3,4,7,8-HxCDD	58		21 - 193
13C-1,2,3,4,7,8-HxCDF	62		19 - 202
13C-1,2,3,6,7,8-HxCDD	58		25 - 163

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

Lab Sample ID: LCSD 320-219436/3-A
Matrix: Water
Analysis Batch: 219865

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 219436

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-1,2,3,6,7,8-HxCDF	59		21 - 159
13C-1,2,3,7,8,9-HxCDF	61		17 - 205
13C-1,2,3,7,8-PeCDD	59		21 - 227
13C-1,2,3,7,8-PeCDF	62		21 - 192
13C-2,3,4,6,7,8-HxCDF	63		22 - 176
13C-2,3,4,7,8-PeCDF	65		13 - 328
13C-2,3,7,8-TCDD	59		20 - 175
13C-2,3,7,8-TCDF	63		22 - 152
13C-OCDD	56		13 - 199

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
37Cl4-2,3,7,8-TCDD	96		31 - 191

Lab Sample ID: MB 320-219533/1-A
Matrix: Solid
Analysis Batch: 221233

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 219533

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.000740	J	0.0050	0.000045	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
1,2,3,4,6,7,8-HpCDF	0.000609	J	0.0050	0.000047	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
1,2,3,4,7,8,9-HpCDF	0.000531	J	0.0050	0.000069	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
1,2,3,4,7,8-HxCDD	0.000727	J	0.0050	0.000049	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
1,2,3,4,7,8-HxCDF	0.000519	J	0.0050	0.000053	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
1,2,3,6,7,8-HxCDD	0.000466	J	0.0050	0.000047	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
1,2,3,6,7,8-HxCDF	0.000521	J	0.0050	0.000049	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
1,2,3,7,8,9-HxCDD	0.000461	J q	0.0050	0.000043	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
1,2,3,7,8,9-HxCDF	0.000539	J	0.0050	0.000042	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
1,2,3,7,8-PeCDD	0.000462	J	0.0050	0.00011	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
1,2,3,7,8-PeCDF	0.000377	J q	0.0050	0.000045	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
2,3,4,6,7,8-HxCDF	0.000515	J	0.0050	0.000041	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
2,3,4,7,8-PeCDF	0.000425	J	0.0050	0.000051	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
2,3,7,8-TCDD	ND		0.0010	0.000059	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
2,3,7,8-TCDF	0.000213	J q	0.0010	0.000044	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
OCDD	0.00272	J	0.010	0.000051	ug/Kg		04/24/18 11:47	05/02/18 17:04	1
OCDF	0.00103	J	0.010	0.000060	ug/Kg		04/24/18 11:47	05/02/18 17:04	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	67		23 - 140	04/24/18 11:47	05/02/18 17:04	1
13C-1,2,3,4,6,7,8-HpCDF	55		28 - 143	04/24/18 11:47	05/02/18 17:04	1
13C-1,2,3,4,7,8,9-HpCDF	55		26 - 138	04/24/18 11:47	05/02/18 17:04	1
13C-1,2,3,4,7,8-HxCDD	62		32 - 141	04/24/18 11:47	05/02/18 17:04	1
13C-1,2,3,4,7,8-HxCDF	63		26 - 152	04/24/18 11:47	05/02/18 17:04	1
13C-1,2,3,6,7,8-HxCDD	69		28 - 130	04/24/18 11:47	05/02/18 17:04	1
13C-1,2,3,6,7,8-HxCDF	63		26 - 123	04/24/18 11:47	05/02/18 17:04	1
13C-1,2,3,7,8,9-HxCDF	64		29 - 147	04/24/18 11:47	05/02/18 17:04	1
13C-1,2,3,7,8-PeCDD	73		25 - 181	04/24/18 11:47	05/02/18 17:04	1
13C-1,2,3,7,8-PeCDF	69		24 - 185	04/24/18 11:47	05/02/18 17:04	1
13C-2,3,4,6,7,8-HxCDF	64		28 - 136	04/24/18 11:47	05/02/18 17:04	1

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

Lab Sample ID: MB 320-219533/1-A
Matrix: Solid
Analysis Batch: 221233

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 219533

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,4,7,8-PeCDF	71		21 - 178	04/24/18 11:47	05/02/18 17:04	1
13C-2,3,7,8-TCDD	64		25 - 164	04/24/18 11:47	05/02/18 17:04	1
13C-2,3,7,8-TCDF	64		24 - 169	04/24/18 11:47	05/02/18 17:04	1
13C-OCDD	67		17 - 157	04/24/18 11:47	05/02/18 17:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	101		35 - 197	04/24/18 11:47	05/02/18 17:04	1

Lab Sample ID: LCS 320-219533/2-A
Matrix: Solid
Analysis Batch: 221233

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 219533

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%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	0.103		ug/Kg		103	82 - 122
1,2,3,4,7,8,9-HpCDF	0.100	0.0965		ug/Kg		97	78 - 138
1,2,3,4,7,8-HxCDD	0.100	0.101		ug/Kg		101	70 - 164
1,2,3,4,7,8-HxCDF	0.100	0.0959		ug/Kg		96	72 - 134
1,2,3,6,7,8-HxCDD	0.100	0.0931		ug/Kg		93	76 - 134
1,2,3,6,7,8-HxCDF	0.100	0.0961		ug/Kg		96	84 - 130
1,2,3,7,8,9-HxCDD	0.100	0.0990		ug/Kg		99	64 - 162
1,2,3,7,8,9-HxCDF	0.100	0.0952		ug/Kg		95	78 - 130
1,2,3,7,8-PeCDD	0.100	0.0998		ug/Kg		100	70 - 142
1,2,3,7,8-PeCDF	0.100	0.0978		ug/Kg		98	80 - 134
2,3,4,6,7,8-HxCDF	0.100	0.0963		ug/Kg		96	70 - 156
2,3,4,7,8-PeCDF	0.100	0.0998		ug/Kg		100	68 - 160
2,3,7,8-TCDD	0.0200	0.0193		ug/Kg		96	67 - 158
2,3,7,8-TCDF	0.0200	0.0185		ug/Kg		93	75 - 158
OCDD	0.200	0.195		ug/Kg		98	78 - 144
OCDF	0.200	0.140		ug/Kg		70	63 - 170

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDD	71		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	55		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	55		20 - 186
13C-1,2,3,4,7,8-HxCDD	67		21 - 193
13C-1,2,3,4,7,8-HxCDF	65		19 - 202
13C-1,2,3,6,7,8-HxCDD	70		25 - 163
13C-1,2,3,6,7,8-HxCDF	66		21 - 159
13C-1,2,3,7,8,9-HxCDF	66		17 - 205
13C-1,2,3,7,8-PeCDD	73		21 - 227
13C-1,2,3,7,8-PeCDF	70		21 - 192
13C-2,3,4,6,7,8-HxCDF	66		22 - 176
13C-2,3,4,7,8-PeCDF	71		13 - 328
13C-2,3,7,8-TCDD	64		20 - 175
13C-2,3,7,8-TCDF	62		22 - 152
13C-OCDD	66		13 - 199

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

Lab Sample ID: LCS 320-219533/2-A
Matrix: Solid
Analysis Batch: 221233

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 219533

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	*103*		*31 - 191*

Lab Sample ID: LCSD 320-219533/3-A
Matrix: Solid
Analysis Batch: 221233

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 219533

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	0.101		ug/Kg		101	70 - 140	0	50
1,2,3,4,6,7,8-HpCDF			0.100	0.105		ug/Kg		105	82 - 122	2	50
1,2,3,4,7,8,9-HpCDF			0.100	0.100		ug/Kg		100	78 - 138	4	50
1,2,3,4,7,8-HxCDD			0.100	0.0958		ug/Kg		96	70 - 164	5	50
1,2,3,4,7,8-HxCDF			0.100	0.0983		ug/Kg		98	72 - 134	2	50
1,2,3,6,7,8-HxCDD			0.100	0.0967		ug/Kg		97	76 - 134	4	50
1,2,3,6,7,8-HxCDF			0.100	0.0988		ug/Kg		99	84 - 130	3	50
1,2,3,7,8,9-HxCDD			0.100	0.0989		ug/Kg		99	64 - 162	0	50
1,2,3,7,8,9-HxCDF			0.100	0.0985		ug/Kg		98	78 - 130	3	50
1,2,3,7,8-PeCDD			0.100	0.0991		ug/Kg		99	70 - 142	1	50
1,2,3,7,8-PeCDF			0.100	0.0969		ug/Kg		97	80 - 134	1	50
2,3,4,6,7,8-HxCDF			0.100	0.0959		ug/Kg		96	70 - 156	0	50
2,3,4,7,8-PeCDF			0.100	0.0950		ug/Kg		95	68 - 160	5	50
2,3,7,8-TCDD			0.0200	0.0189		ug/Kg		94	67 - 158	2	50
2,3,7,8-TCDF			0.0200	0.0183		ug/Kg		91	75 - 158	2	50
OCDD			0.200	0.196		ug/Kg		98	78 - 144	0	50
OCDF			0.200	0.177		ug/Kg		89	63 - 170	24	50

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDD	*71*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*46*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*59*		*20 - 186*
13C-1,2,3,4,7,8-HxCDD	*69*		*21 - 193*
13C-1,2,3,4,7,8-HxCDF	*63*		*19 - 202*
13C-1,2,3,6,7,8-HxCDD	*67*		*25 - 163*
13C-1,2,3,6,7,8-HxCDF	*65*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*66*		*17 - 205*
13C-1,2,3,7,8-PeCDD	*76*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*74*		*21 - 192*
13C-2,3,4,6,7,8-HxCDF	*67*		*22 - 176*
13C-2,3,4,7,8-PeCDF	*76*		*13 - 328*
13C-2,3,7,8-TCDD	*65*		*20 - 175*
13C-2,3,7,8-TCDF	*63*		*22 - 152*
13C-OCDD	*75*		*13 - 199*

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
37Cl4-2,3,7,8-TCDD	*107*		*31 - 191*

Lab Chronicle

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

TestAmerica Job ID: 580-76634-2

Client Sample ID: PDI-SG-B152-BL1

Lab Sample ID: 580-76634-1
Date Collected: 04/13/18 11:05
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 57.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220276	04/26/18 22:17	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	220382	04/28/18 00:54	SMA	TAL SAC

Client Sample ID: PDI-SG-B157-BL1

Lab Sample ID: 580-76634-2
Date Collected: 04/13/18 12:55
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 78.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220276	04/26/18 23:05	SMA	TAL SAC

Client Sample ID: PDI-SG-B158-BL1

Lab Sample ID: 580-76634-3
Date Collected: 04/13/18 14:30
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 43.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220276	04/26/18 23:53	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	220382	04/28/18 01:32	SMA	TAL SAC

Client Sample ID: PDI-SG-B158-BL1-D

Lab Sample ID: 580-76634-4
Date Collected: 04/13/18 14:35
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 45.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220276	04/27/18 00:42	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	220382	04/28/18 02:10	SMA	TAL SAC

Client Sample ID: PDI-SG-B166-BL1

Lab Sample ID: 580-76634-5
Date Collected: 04/13/18 16:15
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 35.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220276	04/27/18 01:30	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	220382	04/28/18 02:48	SMA	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 580-76634-2

Client Sample ID: PDI-SG-B165-BL1

Lab Sample ID: 580-76634-6
Date Collected: 04/13/18 17:00
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 42.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220276	04/27/18 02:19	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	220382	04/28/18 03:26	SMA	TAL SAC

Client Sample ID: PDI-SG-B132-BL1

Lab Sample ID: 580-76634-7
Date Collected: 04/13/18 10:42
Matrix: Solid
Date Received: 04/16/18 14:00
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			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220276	04/27/18 03:07	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	220382	04/28/18 04:04	SMA	TAL SAC

Client Sample ID: PDI-SG-B138-BL1

Lab Sample ID: 580-76634-8
Date Collected: 04/13/18 12:25
Matrix: Solid
Date Received: 04/16/18 14:00
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			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220279	04/27/18 07:39	SMA	TAL SAC

Client Sample ID: PDI-SG-B148-BL1

Lab Sample ID: 580-76634-9
Date Collected: 04/13/18 17:37
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 43.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220279	04/27/18 08:27	SMA	TAL SAC

Client Sample ID: PDI-SG-B145-BL1

Lab Sample ID: 580-76634-10
Date Collected: 04/13/18 16:21
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 39.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220279	04/27/18 09:16	SMA	TAL SAC

Client Sample ID: PDI-SG-B142-BL1

Lab Sample ID: 580-76634-11
Date Collected: 04/13/18 15:25
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 40.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220279	04/27/18 10:04	SMA	TAL SAC

Client Sample ID: PDI-SG-B143-BL1

Lab Sample ID: 580-76634-12
Date Collected: 04/14/18 16:01
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 66.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220279	04/27/18 10:53	SMA	TAL SAC

Client Sample ID: PDI-SG-B150-BL1

Lab Sample ID: 580-76634-13
Date Collected: 04/14/18 14:49
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 65.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220279	04/27/18 11:41	SMA	TAL SAC

Client Sample ID: PDI-SG-B151-BL1

Lab Sample ID: 580-76634-14
Date Collected: 04/14/18 11:09
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 60.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220279	04/27/18 12:30	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	220382	04/28/18 05:20	SMA	TAL SAC

Client Sample ID: PDI-SG-B154-BL1

Lab Sample ID: 580-76634-15
Date Collected: 04/14/18 12:01
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 53.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B		1	220279	04/27/18 13:18	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		219329	04/23/18 12:27	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	220382	04/28/18 05:58	SMA	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 580-76634-2

Client Sample ID: PDI-SG-B162-BL1

Lab Sample ID: 580-76634-16
Date Collected: 04/14/18 17:23
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 62.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219533	04/24/18 11:47	SR1	TAL SAC
Total/NA	Analysis	1613B		1	221233	05/02/18 19:30	SMA	TAL SAC

Client Sample ID: PDI-SG-B170-BL1

Lab Sample ID: 580-76634-17
Date Collected: 04/14/18 09:50
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 40.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219533	04/24/18 11:47	SR1	TAL SAC
Total/NA	Analysis	1613B		1	221233	05/02/18 20:18	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		219533	04/24/18 11:47	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	221559	05/03/18 21:52	KSS	TAL SAC

Client Sample ID: PDI-SG-B176-BL1

Lab Sample ID: 580-76634-18
Date Collected: 04/14/18 11:24
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 42.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219533	04/24/18 11:47	SR1	TAL SAC
Total/NA	Analysis	1613B		1	221233	05/02/18 21:06	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		219533	04/24/18 11:47	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	221559	05/03/18 22:30	KSS	TAL SAC

Client Sample ID: PDI-SG-B178-BL1

Lab Sample ID: 580-76634-19
Date Collected: 04/14/18 12:56
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 41.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219533	04/24/18 11:47	SR1	TAL SAC
Total/NA	Analysis	1613B		1	221233	05/02/18 22:43	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		219533	04/24/18 11:47	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	221559	05/03/18 23:08	KSS	TAL SAC

Client Sample ID: PDI-SG-B196-BL1

Lab Sample ID: 580-76634-20
Date Collected: 04/14/18 15:06
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 46.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219533	04/24/18 11:47	SR1	TAL SAC
Total/NA	Analysis	1613B		1	221233	05/02/18 21:55	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		219533	04/24/18 11:47	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	221559	05/03/18 23:46	KSS	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 580-76634-2

Client Sample ID: PDI-SG-B198-BL1

Lab Sample ID: 580-76634-21
Date Collected: 04/14/18 16:25
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 42.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219533	04/24/18 11:47	SR1	TAL SAC
Total/NA	Analysis	1613B		1	221239	05/03/18 03:23	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		219533	04/24/18 11:47	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	221559	05/04/18 00:24	KSS	TAL SAC

Client Sample ID: PDI-SG-B199-BL1

Lab Sample ID: 580-76634-22
Date Collected: 04/14/18 15:30
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 45.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219533	04/24/18 11:47	SR1	TAL SAC
Total/NA	Analysis	1613B		1	221239	05/03/18 04:11	SMA	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		219533	04/24/18 11:47	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	221559	05/04/18 01:01	KSS	TAL SAC

Client Sample ID: PDI-RB-180411-1800

Lab Sample ID: 580-76634-23
Date Collected: 04/11/18 18:00
Matrix: Water
Date Received: 04/16/18 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			219436	04/24/18 08:04	A1A	TAL SAC
Total/NA	Analysis	1613B		1	219865	04/26/18 02:23	SMA	TAL SAC

Client Sample ID: PDI-RB-180411-1752

Lab Sample ID: 580-76634-24
Date Collected: 04/11/18 17:52
Matrix: Water
Date Received: 04/16/18 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			219436	04/24/18 08:04	A1A	TAL SAC
Total/NA	Analysis	1613B		1	219865	04/26/18 03:11	SMA	TAL SAC

Client Sample ID: PDI-SG-B141-BL1

Lab Sample ID: 580-76634-25
Date Collected: 04/13/18 14:32
Matrix: Solid
Date Received: 04/16/18 14:00
Percent Solids: 51.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			219533	04/24/18 11:47	SR1	TAL SAC
Total/NA	Analysis	1613B		1	221239	05/03/18 05:00	SMA	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: AECOM
TestAmerica Job ID: 580-76634-2
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	10-31-18
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
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	08-31-18
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-18
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
L-A-B	DoD ELAP		L2468	01-20-21
Louisiana	NELAP	6	30612	06-30-18
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	06-30-18
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	05-05-18
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

Sample Summary

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

TestAmerica Job ID: 580-76634-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-76634-1	PDI-SG-B152-BL1	Solid	04/13/18 11:05	04/16/18 14:00
580-76634-2	PDI-SG-B157-BL1	Solid	04/13/18 12:55	04/16/18 14:00
580-76634-3	PDI-SG-B158-BL1	Solid	04/13/18 14:30	04/16/18 14:00
580-76634-4	PDI-SG-B158-BL1-D	Solid	04/13/18 14:35	04/16/18 14:00
580-76634-5	PDI-SG-B166-BL1	Solid	04/13/18 16:15	04/16/18 14:00
580-76634-6	PDI-SG-B165-BL1	Solid	04/13/18 17:00	04/16/18 14:00
580-76634-7	PDI-SG-B132-BL1	Solid	04/13/18 10:42	04/16/18 14:00
580-76634-8	PDI-SG-B138-BL1	Solid	04/13/18 12:25	04/16/18 14:00
580-76634-9	PDI-SG-B148-BL1	Solid	04/13/18 17:37	04/16/18 14:00
580-76634-10	PDI-SG-B145-BL1	Solid	04/13/18 16:21	04/16/18 14:00
580-76634-11	PDI-SG-B142-BL1	Solid	04/13/18 15:25	04/16/18 14:00
580-76634-12	PDI-SG-B143-BL1	Solid	04/14/18 16:01	04/16/18 14:00
580-76634-13	PDI-SG-B150-BL1	Solid	04/14/18 14:49	04/16/18 14:00
580-76634-14	PDI-SG-B151-BL1	Solid	04/14/18 11:09	04/16/18 14:00
580-76634-15	PDI-SG-B154-BL1	Solid	04/14/18 12:01	04/16/18 14:00
580-76634-16	PDI-SG-B162-BL1	Solid	04/14/18 17:23	04/16/18 14:00
580-76634-17	PDI-SG-B170-BL1	Solid	04/14/18 09:50	04/16/18 14:00
580-76634-18	PDI-SG-B176-BL1	Solid	04/14/18 11:24	04/16/18 14:00
580-76634-19	PDI-SG-B178-BL1	Solid	04/14/18 12:56	04/16/18 14:00
580-76634-20	PDI-SG-B196-BL1	Solid	04/14/18 15:06	04/16/18 14:00
580-76634-21	PDI-SG-B198-BL1	Solid	04/14/18 16:25	04/16/18 14:00
580-76634-22	PDI-SG-B199-BL1	Solid	04/14/18 15:30	04/16/18 14:00
580-76634-23	PDI-RB-180411-1800	Water	04/11/18 18:00	04/16/18 14:00
580-76634-24	PDI-RB-180411-1752	Water	04/11/18 17:52	04/16/18 14:00
580-76634-25	PDI-SG-B141-BL1	Solid	04/13/18 14:32	04/16/18 14:00

580-76634 Chain of Custody

SURFACE SEDIMENT
CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 **Ph: 253-922-2310 Fax: 253-922-5047**	**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 _____	**Site Contact: Jennifer Ray / Michaela McCoog** **Laboratory Contact: Elaine-Walker**	**Date:** 4/16/18 **Carrier:** currier
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: Study			COC No: 1 of 3 COCs

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congeners 1668A	PCDD/Fs 1613B	TPH Diesel, Metals, Mercury NWTPH-Dx, 6020B, 7471A	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060	Archive Archive -20 C	WQ - PCB Congeners 1668A	WQ - PCDD/Fs 1613B	WQ - TPH Diesel NWTPH-Dx	WQ - Metals, Mercury 6020B, 7470	WQ - Total Organic Carbon SM5310B	Sample Specific Notes:
PDI-SG-B152-BL1	4/13/2018	11:05	SE		NM	6		X	X	X	X	X	X						
PDI-SG-B157-BL1		12:55	SE		NM	6		X	X	X	X	X	X						
PDI-SG-B158-BL1		14:30	SE		NM	6		X	X	X	X	X	X						
PDI-SG-B158-BL1 -D		14:35	SE		NM	5		X	X	X		X	X						
PDI-SG-B166-BL1		16:15	SE		NM	6		X	X	X	X	X	X						
PDI-SG-B165-BL1		17:00	SE		NM	6		X	X	X	X	X	X						
PDI-SG-B132-BL1		10:42	SE		ED	6		X	X	X	X	X	X						
PDI-SG-B138-BL1		12:25	SE		ED	6		X	X	X	X	X	X						
~~PDI-SG-B132-BL1~~		14:32	SE		ED	6		X	X	X	X	X	X						
PDI-SG-B148-BL1		17:37	SE		ED	6		X	X	X	X	X	X						
PDI-SG-B145-BL1		16:21	SE		ED	6		X	X	X	X	X	X						
PDI-SG-B142-BL1	4/13/18	15:25	SE		ED	6		X	X	X	X	X	X						

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

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

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

Sample Disposal

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

Special Instructions/QC Requirements & Comments:

1.2 4.2 2.9
3.9 3.2 1.9

Relinquished by: Michaela McCoog	Company: AECOM	Date/Time: 4/16/18 1200	Received by: Jessica Nyn	Company: M.E.	Date/Time: 4/16/18 1330
Relinquished by: Jessica Nyn	Company: M.E.	Date/Time: 4/16/18 1400	Received by:	Company: TA-Por	Date/Time: 4/16/18 1400
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

5/7/2018

SURFACE SEDIMENT
CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 **Ph: 253-922-2310 Fax: 253-922-5047**	**Project Contact: Amy Dahl / Chelsey Cook** **Tel: (206) 438-2261 / (206) 438-2010** **Analysis Turnaround Time** Calendar (C) or Work Days (W) _____ ☐ 21 days ☐ Other _____	**Site Contact: Jennifer Ray / Michaela McCoog** **Laboratory Contact: Elaine-Walker**	**Date:** 4/16/18 **Carrier:** Currier	COC No: 2 of 3 COCs
Client Contact AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Study				

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congeners 1668A	PCDD/Fs 1613B	TPH Diesel, Metals, Mercury, NWTPH-Dx, 6020B, 7471A	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060	Archive Archive -20 C	WQ - PCB Congeners 1668A	WQ - PCDD/Fs 1613B	WQ - TPH Diesel NWTPH-Dx	WQ - Metals, Mercury 6020B, 7470	WQ - Total Organic Carbon SM5310B							Sample Specific Notes:
PDI-SG-B143-BL1	4/14/2018	16:01	SE		ED	6		X	X	X	X	X	X												
PDI-SG-B150-BL1		14:49	SE		ED	6		X	X	X	X	X	X												
PDI-SG-B151-BL1		11:09	SE		ED	6		X	X	X	X	X	X												
PDI-SG-B154-BL1		12:01	SE	MS/MSD	ED	11		X	X	X	X	X	X												
PDI-SG-B162-BL1		17:23	SE		ED	6		X	X	X	X	X	X												
PDI-SG-B170-BL1		9:50	SE		NM	6		X	X	X	X	X	X												
PDI-SG-B176-BL1		11:24	SE		NM	6		X	X	X	X	X	X												
PDI-SG-B178-BL1		12:56	SE		NM	6		X	X	X	X	X	X												
PDI-SG-B196-BL1		15:06	SE		NM	6		X	X	X	X	X	X												
PDI-SG-B198-BL1		16:25	SE		NM	6		X	X	X	X	X	X												
PDI-SG-B199-BL1	4/14/18	15:30	SE		NM	6		X	X	X	X	X	X												
PDI-SG-																									

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

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

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

Sample Disposal

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

Special Instructions/QC Requirements & Comments:

Relinquished by: Michaela McCoog	Company: AECOM	Date/Time: 4/16/18 1200	Received by: Jessica Nye	Company: M.E.	Date/Time: 4/16/18 1330
Relinquished by: Jessica Nye	Company: M.E.	Date/Time: 4/16/18 1400	Received by:	Company: A-PDE	Date/Time: 4/16/18 1400
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

5/7/2018

SURFACE SEDIMENT
CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 **Ph: 253-922-2310 Fax: 253-922-5047**	**Project Contact: Amy Dahl / Chelsey Cook** **Tel: (206) 438-2261 / (206) 438-2010**	**Site Contact: Jennifer Ray / Michaela McCoog** **Laboratory Contact: Elaine-Walker**	**Date:** 4/16/18 **Carrier:** currier
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: Study	**Analysis Turnaround Time** Calendar (C) or Work Days (W) _____ ☐ 21 days ☐ Other _____		**COC No:** 3 of 3 COCs

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCB Congeners 1668A	PCDD/Fs 1613B	TPH Diesel, Metals, Mercury NWTPH-Dx, 6020B, 7471A	Grain size ASTM D7928/D6913	Total organic carbon, Total solids 9060	Archive Archive -20 C	WQ - PCB Congeners 1668A	WQ - PCDD/Fs 1613B	WQ - TPH Diesel NWTPH-Dx	WQ - Metals, Mercury 6020B, 7470	WQ - Total Organic Carbon SM5310B	Sample Specific Notes:
PDI-RB-180411-1800	4/11/18	1800	W	RB	NM	8								X	X	X	X	X	
RDI-RB-180411-1752	4/11/18	1752	W	RB	ED	8								X	X	X	X	X	
PDI-SG-B141-BL1	4/10/18	1432	SE		ED	6	B	X	X	X	X	X	X						

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

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

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

Sample Disposal

☐ Return To Client X isposal By Lab X Archive For 12 Months

Special Instructions/QC Requirements & Comments:

Relinquished by: Michaela McCoog	Company: AECOM	Date/Time: 4/16/18 1200	Received by:	Company: M.E.	Date/Time: 4/16/18 1330
Relinquished by:	Company: M.E.	Date/Time: 4/16/18 1400	Received by:	Company: A-PDX	Date/Time: 4/16/18 1400
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Walker, Elaine M	Carrier Tracking No(s):	COC No: 580-54675.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 1 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-76634-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 5/2/2018			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Portland Harbor Pre-Remedial Design	Project #: 58012120			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/HRMS_Sox_P Full List w/o Totals	AutoOP/ PH Frozen Archive Container billed @ $0.	1613B/1613B_Sox_Sep_P Full List w/o Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PDI-SG-B152-BL1 (580-76634-1)	4/13/18	11:05 Pacific		Solid			X	X		2	
PDI-SG-B157-BL1 (580-76634-2)	4/13/18	12:55 Pacific		Solid			X	X		2	
PDI-SG-B158-BL1 (580-76634-3)	4/13/18	14:30 Pacific		Solid			X	X		2	
PDI-SG-B158-BL1-D (580-76634-4)	4/13/18	14:35 Pacific		Solid			X	X		2	
PDI-SG-B166-BL1 (580-76634-5)	4/13/18	16:15 Pacific		Solid			X	X		2	
PDI-SG-B165-BL1 (580-76634-6)	4/13/18	17:00 Pacific		Solid			X	X		2	
PDI-SG-B132-BL1 (580-76634-7)	4/13/18	10:42 Pacific		Solid			X	X		2	
PDI-SG-B138-BL1 (580-76634-8)	4/13/18	12:25 Pacific		Solid			X	X		2	
PDI-SG-B148-BL1 (580-76634-9)	4/13/18	17:37 Pacific		Solid			X	X		2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4/17/18 1700	TA-PDX	[signature]	4/18/18 905	TA-Sac
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.6

Rec. Dot the 4/19/18 TA Sac 8:40 ~~Missing~~ Present Second Cooler

Ver: 09/20/2016

5/7/2018

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Walker, Elaine M	Carrier Tracking No(s):	COC No: 580-54675.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 2 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-76634-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 5/2/2018			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Portland Harbor Pre-Remedial Design	Project #: 58012120			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, 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:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/HRMS_Sox_P Full List w/o Totals	AutoOP/ PH Frozen Archive Container billed @ $0.	1613B/1613B_Sox_Sep_P Full List w/o Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PDI-SG-B145-BL1 (580-76634-10)	4/13/18	16:21 Pacific		Solid			X	X		2	
PDI-SG-B142-BL1 (580-76634-11)	4/13/18	15:25 Pacific		Solid			X	X		2	
PDI-SG-B143-BL1 (580-76634-12)	4/14/18	16:01 Pacific		Solid			X	X		2	
PDI-SG-B150-BL1 (580-76634-13)	4/14/18	14:49 Pacific		Solid			X	X		2	
PDI-SG-B151-BL1 (580-76634-14)	4/14/18	11:09 Pacific		Solid			X	X		2	
PDI-SG-B154-BL1 (580-76634-15)	4/14/18	12:01 Pacific		Solid			X	X		2	
PDI-SG-B162-BL1 (580-76634-16)	4/14/18	17:23 Pacific		Solid			X	X		2	
PDI-SG-B170-BL1 (580-76634-17)	4/14/18	09:50 Pacific		Solid			X	X		2	
PDI-SG-B176-BL1 (580-76634-18)	4/14/18	11:24 Pacific		Solid			X	X		2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

Empty Kit Relinquished by:		Date:	Time:		Method of Shipment:	
Relinquished by:	Date/Time: 4/17/18 1700	Company TA-POR	Received by:	Date/Time: 4/18/18 905	Company TA-Sac	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.6

Rec. Del Hr 4/19/18 TA-Sac 8:40 Second Cooler

Ver: 09/20/2016

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Walker, Elaine M	Carrier Tracking No(s):	COC No: 580-54675.3
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 3 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-76634-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 5/2/2018			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Portland Harbor Pre-Remedial Design	Project #: 58012120			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, 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:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/HRMS_Sox_P Full List w/o Totals	AutoOP/ PH Frozen Archive Container billed @ $0.	1613B/1613B_Sox_Sep_P Full List w/o Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
PDI-SG-B178-BL1 (580-76634-19)	4/14/18	12:56 Pacific		Solid			X	X		2	
PDI-SG-B196-BL1 (580-76634-20)	4/14/18	15:06 Pacific		Solid			X	X		2	
PDI-SG-B198-BL1 (580-76634-21)	4/14/18	16:25 Pacific		Solid			X	X		2	
PDI-SG-B199-BL1 (580-76634-22)	4/14/18	15:30 Pacific		Solid			X	X		2	
PDI-RB-180411-1800 (580-76634-23)	4/11/18	18:00 Pacific		Water					X	2	
PDI-RB-180411-1752 (580-76634-24)	4/11/18	17:52 Pacific		Water					X	2	
PDI-SG-B141-BL1 (580-76634-25)	4/13/18	14:32 Pacific		Solid			X	X		2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	[signature]	4/17/18 1700	[illegible]	[signature]	4/18/18 905	TA-Sac
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.6

Rec. DM/H 4/18/18 TA-Sac 8:40 Second Cooler

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-76634-2

Login Number: 76634
List Number: 1
Creator: Gonzales, Steve

List Source: TestAmerica Seattle

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

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-76634-2

Login Number: 76634
List Number: 2
Creator: Her, David A

List Source: TestAmerica Sacramento
List Creation: 04/18/18 02:06 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	3.6c
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	

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-76634-2

Login Number: 76634
List Number: 3
Creator: Her, David A

List Source: TestAmerica Sacramento
List Creation: 04/18/18 02:13 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	3.6c
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	

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-76634-2

Login Number: 76634
List Number: 4
Creator: Her, David A

List Source: TestAmerica Sacramento
List Creation: 04/19/18 12:44 PM

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	506320
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	3.1
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").	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

580-76634 Field Sheet

:S

Job: _____

Tracking # 4230 9923 0016 SO / PO / FO

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: 4/18/18

#1 C #24 c/D Ambers

#3 D #23 c/D Ambers

#4 D

#5 C

#6 C

#7 C/D

#8 C/D

#9 C/D

#10 C/D

#11 D

#12 C/D

#17 D

#21 D (2) 140s

Container soil C WFI B

Therm. ID: AK-2 / AK-3 / AK-4 / AK-5 / HACCP / Other____

Ice Y Wet Y Gel _____ Other _____

Cooler Custody Seal: Seal

Sample Custody Seal: —

Cooler ID: —

Temp: Observed 3.6

From: Temp Blank ☐ Sample ☑

NCM Filed: Yes ☐ No ☐

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

Initials: MG Date: 4/18/18 Time 905

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Sample Receiving Notes

Job: _____

Tracking # 437550811462 SO / PO / FO

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: Received 4/19/18
#1 D
#2 C/D
#3 C
#4 C
#5 D
#6 D
#11 C
#13 C/D
#14 C/D
#15 C/D
#16 C/D
#17 C
#18 C/D
#19 C/D
#20 C/D
#21 C
#22 C/D
#25 C/D

Therm. ID: AK-2 / AK-3 / ~~AK-4~~ / ~~AK-5~~ / HACCP / Other ____

Ice X Wet X Gel ____ Other ____

Cooler Custody Seal: 506320

Sample Custody Seal: —

Cooler ID: —

Temp: Observed 3.1c

From: Temp Blank ☐ Sample ☐

NCM Filed: Yes ☐ No ☐

	Yes	No	NA
Perchlorate has 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: _____ Date: 4/19/18 Time 840

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

Isotope Dilution Summary

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

TestAmerica Job ID: 580-76634-2

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

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	HxCDD (32-141)	HxCDF (26-152)	HxDD (28-130)	HxDF (26-123)	HxCF (29-147)
580-76634-1	PDI-SG-B152-BL1	51	41	48	61	64	61	60	61
580-76634-1 - RA	PDI-SG-B152-BL1								
580-76634-2	PDI-SG-B157-BL1	41	38	33	72	75	55	68	63
580-76634-3	PDI-SG-B158-BL1	35	28	32	54	60	47	54	50
580-76634-3 - RA	PDI-SG-B158-BL1								
580-76634-4	PDI-SG-B158-BL1-D	42	36	41	70	74	51	64	61
580-76634-4 - RA	PDI-SG-B158-BL1-D								
580-76634-5	PDI-SG-B166-BL1	37	22 *	35	59	57	49	53	56
580-76634-5 - RA	PDI-SG-B166-BL1								
580-76634-6	PDI-SG-B165-BL1	44	25 *	42	67	65	53	60	64
580-76634-6 - RA	PDI-SG-B165-BL1								
580-76634-7	PDI-SG-B132-BL1	42	25 *	38	60	56	52	52	58
580-76634-7 - RA	PDI-SG-B132-BL1								
580-76634-8	PDI-SG-B138-BL1	40	26 *	38	51	51	52	49	53
580-76634-9	PDI-SG-B148-BL1	43	28	37	61	60	56	56	58
580-76634-10	PDI-SG-B145-BL1	38	26 *	34	55	51	49	49	53
580-76634-11	PDI-SG-B142-BL1	42	26 *	39	53	49	49	47	51
580-76634-12	PDI-SG-B143-BL1	56	41	51	64	59	61	56	62
580-76634-13	PDI-SG-B150-BL1	49	35	47	56	52	54	50	53
580-76634-14	PDI-SG-B151-BL1	51	38	45	54	49	51	48	49
580-76634-14 - RA	PDI-SG-B151-BL1								
580-76634-15	PDI-SG-B154-BL1	40	34	40	61	54	48	45	50
580-76634-15 - RA	PDI-SG-B154-BL1								
580-76634-16	PDI-SG-B162-BL1	50	28	43	59	53	52	50	56
580-76634-17	PDI-SG-B170-BL1	53	27 *	50	63	53	50	46	55
580-76634-17 - RA	PDI-SG-B170-BL1								
580-76634-18	PDI-SG-B176-BL1	43	21 *	39	58	51	49	47	54
580-76634-18 - RA	PDI-SG-B176-BL1								
580-76634-19	PDI-SG-B178-BL1	61	52	63	68	45	48	36	51
580-76634-19 - RA	PDI-SG-B178-BL1								
580-76634-20	PDI-SG-B196-BL1	81	65	81	72	72	60	54	63
580-76634-20 - RA	PDI-SG-B196-BL1								
580-76634-21	PDI-SG-B198-BL1	60	42	64	60	54	46	50	56
580-76634-21 - RA	PDI-SG-B198-BL1								
580-76634-22	PDI-SG-B199-BL1	54	36	55	60	52	49	47	55
580-76634-22 - RA	PDI-SG-B199-BL1								
580-76634-25	PDI-SG-B141-BL1	54	32	48	56	52	52	51	58
MB 320-219329/1-A	Method Blank	65	60	59	66	70	71	69	66
MB 320-219533/1-A	Method Blank	67	55	55	62	63	69	63	64

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	PeCDD (25-181)	PeCDF (24-185)	13CHxCF (28-136)	PeCF (21-178)	TCDD (25-164)	TCDF (24-169)	OCDD (17-157)
580-76634-1	PDI-SG-B152-BL1	61	65	64	68	61		47
580-76634-1 - RA	PDI-SG-B152-BL1						70	
580-76634-2	PDI-SG-B157-BL1	61	65	69	65	57	63	38
580-76634-3	PDI-SG-B158-BL1	52	55	55	58	50		33
580-76634-3 - RA	PDI-SG-B158-BL1						61	
580-76634-4	PDI-SG-B158-BL1-D	59	63	63	65	54		41
580-76634-4 - RA	PDI-SG-B158-BL1-D						70	

Isotope Dilution Summary

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

TestAmerica Job ID: 580-76634-2

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	PeCDD (25-181)	PeCDF (24-185)	13CHxCF (28-136)	PeCF (21-178)	TCDD (25-164)	TCDF (24-169)	OCDD (17-157)
580-76634-5	PDI-SG-B166-BL1	57	59	56	63	54		33
580-76634-5 - RA	PDI-SG-B166-BL1						63	
580-76634-6	PDI-SG-B165-BL1	62	66	63	69	60		43
580-76634-6 - RA	PDI-SG-B165-BL1						71	
580-76634-7	PDI-SG-B132-BL1	59	61	57	64	59		36
580-76634-7 - RA	PDI-SG-B132-BL1						66	
580-76634-8	PDI-SG-B138-BL1	53	56	52	59	53	61	35
580-76634-9	PDI-SG-B148-BL1	57	62	58	65	59	62	40
580-76634-10	PDI-SG-B145-BL1	55	56	52	58	53	57	36
580-76634-11	PDI-SG-B142-BL1	56	55	49	58	53	56	39
580-76634-12	PDI-SG-B143-BL1	68	65	61	69	64	64	52
580-76634-13	PDI-SG-B150-BL1	61	57	53	60	58	58	48
580-76634-14	PDI-SG-B151-BL1	56	53	50	55	50		57
580-76634-14 - RA	PDI-SG-B151-BL1						57	
580-76634-15	PDI-SG-B154-BL1	62	57	50	60	52		43
580-76634-15 - RA	PDI-SG-B154-BL1						83	
580-76634-16	PDI-SG-B162-BL1	66	63	54	66	58	58	45
580-76634-17	PDI-SG-B170-BL1	63	58	53	63	55		48
580-76634-17 - RA	PDI-SG-B170-BL1						79	
580-76634-18	PDI-SG-B176-BL1	63	60	53	63	56		41
580-76634-18 - RA	PDI-SG-B176-BL1						69	
580-76634-19	PDI-SG-B178-BL1	69	73	42	68	63		63
580-76634-19 - RA	PDI-SG-B178-BL1						123	
580-76634-20	PDI-SG-B196-BL1	68	60	63	72	59		74
580-76634-20 - RA	PDI-SG-B196-BL1						67	
580-76634-21	PDI-SG-B198-BL1	57	56	52	57	55		68
580-76634-21 - RA	PDI-SG-B198-BL1						60	
580-76634-22	PDI-SG-B199-BL1	65	61	53	64	57		56
580-76634-22 - RA	PDI-SG-B199-BL1						59	
580-76634-25	PDI-SG-B141-BL1	67	64	54	64	62	63	53
MB 320-219329/1-A	Method Blank	66	69	70	69	63	65	63
MB 320-219533/1-A	Method Blank	73	69	64	71	64	64	67

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

Isotope Dilution Summary

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

TestAmerica Job ID: 580-76634-2

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

Matrix: Solid **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	HxCDD (21-193)	HxCDF (19-202)	HxDD (25-163)	HxDF (21-159)	HxCF (17-205)
LCS 320-219329/2-A	Lab Control Sample	57	55	53	59	62	61	61	58
LCS 320-219533/2-A	Lab Control Sample	71	55	55	67	65	70	66	66
LCSD 320-219329/3-A	Lab Control Sample Dup	61	56	58	64	68	66	66	65
LCSD 320-219533/3-A	Lab Control Sample Dup	71	46	59	69	63	67	65	66

		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 320-219329/2-A	Lab Control Sample	60	63	63	63	59	60	57
LCS 320-219533/2-A	Lab Control Sample	73	70	66	71	64	62	66
LCSD 320-219329/3-A	Lab Control Sample Dup	66	68	67	68	62	64	61
LCSD 320-219533/3-A	Lab Control Sample Dup	76	74	67	76	65	63	75

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)
580-76634-23	PDI-RB-180411-1800	71	66	67	75	78	71	75	75
580-76634-24	PDI-RB-180411-1752	76	73	73	82	84	78	81	79
MB 320-219436/1-A	Method Blank	61	57	57	68	71	68	70	68

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	PeCDD (25-181)	PeCDF (24-185)	13CHxCF (28-136)	PeCF (21-178)	TCDD (25-164)	TCDF (24-169)	OCDD (17-157)
580-76634-23	PDI-RB-180411-1800	74	76	78	78	70	73	70
580-76634-24	PDI-RB-180411-1752	81	84	83	86	78	82	76
MB 320-219436/1-A	Method Blank	64	67	74	71	63	66	60

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 (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	HxCDD (21-193)	HxCDF (19-202)	HxDD (25-163)	HxDF (21-159)	HxCF (17-205)
LCS 320-219436/2-A	Lab Control Sample	56	52	54	60	64	59	62	62
LCSD 320-219436/3-A	Lab Control Sample Dup	56	53	53	58	62	58	59	61

		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 320-219436/2-A	Lab Control Sample	61	63	65	67	61	65	56	
LCSD 320-219436/3-A	Lab Control Sample Dup	59	62	63	65	59	63	56	

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