TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-79555-2
Client Project/Site: Portland Harbor Pre-Remedial Design

For:
AECOM
1111 Third Ave
Suite 1600
Seattle, Washington 98101

Attn: Amy Dahl

M. Elaine Walker

Authorized for release by:
9/7/2018 5:21:06 PM

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

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

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

Table of Contents

Job ID: 580-79555-2

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE
Client: AECOM
Project: Portland Harbor Pre-Remedial Design
Report Number: 580-79555-2

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

Fifty-four samples were received on 8/13/2018 3:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 8 coolers at receipt time were 0.5º C, 0.7º C, 0.8º C, 1.0º C, 2.1º C, 2.2º C, 2.5º C and 3.6º C.

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

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

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

DIOXIN/ FURAN

Samples PDI-SC-S230-0to2 (580-79555-1), PDI-SC-S230-2to4 (580-79555-2), PDI-SC-S230-4to6 (580-79555-3), PDI-SC-S230-6to8 (580-79555-4), PDI-SC-S230-8to10.0 (580-79555-5), PDI-SC-S230-10.0to11.4 (580-79555-6), PDI-SC-S007-0to2 (580-79555-7), PDI-SC-S007-2to4 (580-79555-8), PDI-SC-S007-4to6 (580-79555-9), PDI-SC-S007-4to6D (580-79555-10), PDI-SC-S007-6to8 (580-79555-11), PDI-SC-S007-8to10 (580-79555-12), PDI-SC-S007-10to12 (580-79555-13), PDI-SC-S007-12to14 (580-79555-14), PDI-SC-S007-14to16 (580-79555-15), PDI-SC-S010-0to2 (580-79555-16), PDI-SC-S010-2to4 (580-79555-17), PDI-SC-S010-4to6.4 (580-79555-18), PDI-SC-S010-6.4to8.4 (580-79555-19), PDI-SC-S010-8.4to10.8 (580-79555-20), PDI-SC-S010-10.8to13.4 (580-79555-21), PDI-SC-S010-13.4to14.4 (580-79555-22), PDI-SC-S009-0to2 (580-79555-23), PDI-SC-S009-2to4 (580-79555-24), PDI-SC-S009-4to6 (580-79555-25), PDI-SC-S009-6to8 (580-79555-26), PDI-SC-S009-8to10 (580-79555-27), PDI-SC-S009-10to11.4 (580-79555-28), PDI-SC-S011-0to2 (580-79555-29), PDI-SC-S011-2to4 (580-79555-30), PDI-SC-S011-4to6 (580-79555-31), PDI-SC-S011-6to8 (580-79555-32), PDI-SC-S011-8to10 (580-79555-33), PDI-SC-S011-10to12 (580-79555-34), PDI-SC-S011-12to14.5 (580-79555-35), PDI-SC-S011-14.5to16.8 (580-79555-36), PDI-SC-S011-14.5to16.8D (580-79555-37), PDI-SC-S011-16.8to17.9 (580-79555-38), PDI-SC-S011-17.9to18.9 (580-79555-39), PDI-SC-S004-0to2 (580-79555-40), PDI-SC-S004-2to4 (580-79555-41), PDI-SC-S004-4to6 (580-79555-42), PDI-SC-S004-6to7.3 (580-79555-43), PDI-SC-S004-7.3to9.1 (580-79555-44), PDI-SC-S004-9.1to10.3 (580-79555-45), PDI-SC-S015-0to2 (580-79555-46), PDI-SC-S015-2to4 (580-79555-47), PDI-SC-S015-4to6 (580-79555-48), PDI-SC-S015-6to8 (580-79555-49), PDI-SC-S015-8to10 (580-79555-50), PDI-SC-S015-10to11.4 (580-79555-51) and PDI-SC-S015-11.4to12.4 (580-79555-52) were analyzed for Dioxin/ Furan in accordance with 1613B. The samples were prepared on 08/27/2018, 08/28/2018 and 08/30/2018 and analyzed on 08/31/2018, 09/01/2018, 09/02/2018, 09/03/2018, 09/04/2018, 09/05/2018 and 09/06/2018.

Several analytes were detected in method blank MB 320-242378/1-A at levels that were above the method detection limit but below the

Job ID: 580-79555-2 (Continued)

Laboratory: TestAmerica Seattle (Continued)

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 320-242573/1-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 320-243160/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument 10D5 exceeded this criteria: PDI-SC-S230-0to2 (580-79555-1), PDI-SC-S230-2to4 (580-79555-2), PDI-SC-S230-4to6 (580-79555-3), PDI-SC-S230-6to8 (580-79555-4), PDI-SC-S230-8to10.0 (580-79555-5), PDI-SC-S230-10.0to11.4 (580-79555-6), PDI-SC-S007-0to2 (580-79555-7), PDI-SC-S007-2to4 (580-79555-8), PDI-SC-S007-4to6 (580-79555-9), PDI-SC-S007-4to6D (580-79555-10), PDI-SC-S007-6to8 (580-79555-11), PDI-SC-S007-8to10 (580-79555-12), PDI-SC-S007-10to12 (580-79555-13), PDI-SC-S007-12to14 (580-79555-14), PDI-SC-S007-14to16 (580-79555-15), PDI-SC-S010-0to2 (580-79555-16), PDI-SC-S010-2to4 (580-79555-17), PDI-SC-S010-4to6.4 (580-79555-18), PDI-SC-S010-6.4to8.4 (580-79555-19), PDI-SC-S010-8.4to10.8 (580-79555-20), PDI-SC-S010-10.8to13.4 (580-79555-21), PDI-SC-S010-13.4to14.4 (580-79555-22), PDI-SC-S009-0to2 (580-79555-23), PDI-SC-S009-2to4 (580-79555-24), PDI-SC-S009-4to6 (580-79555-25), PDI-SC-S009-6to8 (580-79555-26), PDI-SC-S009-8to10 (580-79555-27), PDI-SC-S009-10to11.4 (580-79555-28), (CCV 320-243771/2), (LCS 320-242573/2-A), (LCSD 320-242573/3-A), (MB 320-242573/1-A), PDI-SC-S011-0to2 (580-79555-29), PDI-SC-S011-4to6 (580-79555-31), PDI-SC-S011-6to8 (580-79555-32), PDI-SC-S011-8to10 (580-79555-33), PDI-SC-S011-10to12 (580-79555-34), PDI-SC-S011-14.5to16.8 (580-79555-36), PDI-SC-S011-17.9to18.9 (580-79555-39), PDI-SC-S004-0to2 (580-79555-40), PDI-SC-S004-2to4 (580-79555-41), PDI-SC-S004-4to6 (580-79555-42), PDI-SC-S004-6to7.3 (580-79555-43), PDI-SC-S004-7.3to9.1 (580-79555-44), PDI-SC-S004-9.1to10.3 (580-79555-45), PDI-SC-S015-0to2 (580-79555-46), PDI-SC-S015-2to4 (580-79555-47), PDI-SC-S015-4to6 (580-79555-48), PDI-SC-S015-6to8 (580-79555-49), PDI-SC-S015-8to10 (580-79555-50), PDI-SC-S015-10to11.4 (580-79555-51), PDI-SC-S015-11.4to12.4 (580-79555-52), (CCV 320-243706/16), (CCV 320-243705/1), (LCS 320-243160/2-A), (LCSD 320-243160/3-A), (MB 320-243160/1-A), (CCV 320-243698/75), (CCV 320-243510/30), (CCV 320-243224/15), (LCS 320-242378/2-A), (LCSD 320-242378/3-A) and (MB 320-242378/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 11D2 exceeded this criteria: PDI-SC-S230-0to2 (580-79555-1), PDI-SC-S230-2to4 (580-79555-2), PDI-SC-S230-4to6 (580-79555-3), PDI-SC-S230-6to8 (580-79555-4), PDI-SC-S230-8to10.0 (580-79555-5), PDI-SC-S230-10.0to11.4 (580-79555-6), PDI-SC-S007-0to2 (580-79555-7), PDI-SC-S007-2to4 (580-79555-8), PDI-SC-S007-4to6 (580-79555-9), PDI-SC-S007-4to6D (580-79555-10), PDI-SC-S007-6to8 (580-79555-11), PDI-SC-S007-8to10 (580-79555-12), PDI-SC-S007-10to12 (580-79555-13), PDI-SC-S007-12to14 (580-79555-14), PDI-SC-S007-14to16 (580-79555-15), PDI-SC-S010-0to2 (580-79555-16), PDI-SC-S010-2to4 (580-79555-17), (CCV 320-243794/2), and (CCV 320-243536/2). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 11D2 exceeded this criteria: PDI-SC-S007-4to6 (580-79555-9), PDI-SC-S007-4to6D (580-79555-10), PDI-SC-S007-6to8 (580-79555-11), PDI-SC-S007-8to10 (580-79555-12), PDI-SC-S007-10to12 (580-79555-13), PDI-SC-S007-12to14 (580-79555-14), PDI-SC-S007-14to16 (580-79555-15), PDI-SC-S010-0to2 (580-79555-16), PDI-SC-S010-2to4 (580-79555-17), PDI-SC-S010-4to6.4 (580-79555-18), PDI-SC-S009-0to2 (580-79555-23), PDI-SC-S009-2to4 (580-79555-24), PDI-SC-S009-4to6 (580-79555-25), PDI-SC-S009-6to8 (580-79555-26), PDI-SC-S009-8to10 (580-79555-27), PDI-SC-S009-10to11.4 (580-79555-28), PDI-SC-S011-0to2 (580-79555-29), PDI-SC-S011-2to4 (580-79555-30), PDI-SC-S011-4to6 (580-79555-31), PDI-SC-S011-6to8 (580-79555-32), PDI-SC-S011-8to10 (580-79555-33), PDI-SC-S011-10to12 (580-79555-34), PDI-SC-S011-12to14.5 (580-79555-35), PDI-SC-S011-14.5to16.8 (580-79555-36), PDI-SC-S011-14.5to16.8D (580-79555-37), PDI-SC-S011-16.8to17.9 (580-79555-38), PDI-SC-S011-17.9to18.9 (580-79555-39),

Job ID: 580-79555-2 (Continued)

Laboratory: TestAmerica Seattle (Continued)

PDI-SC-S004-0to2 (580-79555-40), PDI-SC-S015-0to2 (580-79555-46), PDI-SC-S015-2to4 (580-79555-47), PDI-SC-S015-4to6 (580-79555-48), PDI-SC-S015-6to8 (580-79555-49), PDI-SC-S015-8to10 (580-79555-50), PDI-SC-S015-10to11.4 (580-79555-51), PDI-SC-S015-11.4to12.4 (580-79555-52), (CCV 320-244307/2), (CCV 320-244215/2), (CCV 320-243921/2), and (CCV 320-244066/2). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range: PDI-SC-S230-2to4 (580-79555-2), PDI-SC-S230-4to6 (580-79555-3), PDI-SC-S230-6to8 (580-79555-4), PDI-SC-S230-8to10.0 (580-79555-5) and PDI-SC-S230-10.0to11.4 (580-79555-6), PDI-SC-S007-12to14 (580-79555-14), PDI-SC-S011-4to6 (580-79555-31), PDI-SC-S011-14.5to16.8 (580-79555-36) and PDI-SC-S011-14.5to16.8D (580-79555-37), PDI-SC-S015-6to8 (580-79555-49), PDI-SC-S015-8to10 (580-79555-50), PDI-SC-S015-10to11.4 (580-79555-51) and PDI-SC-S015-11.4to12.4 (580-79555-52). These analytes have been qualified; however, the peaks did not saturate the instrument detector. Historical data indicate that for the isotope dilution method, dilution and re-analysis will not produce significantly different results from those reported above the calibration range.

The following samples exhibited elevated noise or matrix interferences for one or more analytes causing elevation of the detection limit (EDL): PDI-SC-S010-0to2 (580-79555-16), PDI-SC-S011-4to6 (580-79555-31) and PDI-SC-S011-12to14.5 (580-79555-35). The reporting limit (RL) for the affected analytes has been raised to be equal to the EDL, and a "G" qualifier applied.

Due to the matrix, the initial volumes used for the following samples deviated from the standard procedure: PDI-SC-S230-0to2 (580-79555-1), PDI-SC-S230-2to4 (580-79555-2), PDI-SC-S230-4to6 (580-79555-3), PDI-SC-S230-6to8 (580-79555-4), PDI-SC-S230-8to10.0 (580-79555-5), PDI-SC-S230-10.0to11.4 (580-79555-6), PDI-SC-S007-0to2 (580-79555-7), PDI-SC-S007-2to4 (580-79555-8), PDI-SC-S007-4to6 (580-79555-9), PDI-SC-S007-4to6D (580-79555-10), PDI-SC-S007-6to8 (580-79555-11), PDI-SC-S007-8to10 (580-79555-12), PDI-SC-S007-10to12 (580-79555-13), PDI-SC-S007-12to14 (580-79555-14), PDI-SC-S007-14to16 (580-79555-15), PDI-SC-S010-0to2 (580-79555-16), PDI-SC-S010-2to4 (580-79555-17), PDI-SC-S010-4to6.4 (580-79555-18), PDI-SC-S010-6.4to8.4 (580-79555-19) and PDI-SC-S010-8.4to10.8 (580-79555-20), PDI-SC-S004-2to4 (580-79555-41), PDI-SC-S004-4to6 (580-79555-42), PDI-SC-S004-6to7.3 (580-79555-43), PDI-SC-S004-7.3to9.1 (580-79555-44), PDI-SC-S004-9.1to10.3 (580-79555-45), PDI-SC-S015-0to2 (580-79555-46), PDI-SC-S015-2to4 (580-79555-47), PDI-SC-S015-4to6 (580-79555-48), PDI-SC-S015-6to8 (580-79555-49), PDI-SC-S015-8to10 (580-79555-50), PDI-SC-S015-10to11.4 (580-79555-51) and PDI-SC-S015-11.4to12.4 (580-79555-52). The reporting limits (RLs) have been adjusted proportionately. Samples are associated with preparation batch 320-242378 and 320-242378.

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-SS-180810-1200 (580-79555-53) and PDI-RB-SS-180810-1730 (580-79555-54) were analyzed for Dioxin/ Furan in accordance with 1613B. The samples were prepared on 08/28/2018 and analyzed on 09/01/2018.

Several analytes were detected in method blank MB 320-242488/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and/or 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument 10D5 exceeded this criteria: PDI-RB-SS-180810-1200 (580-79555-53), PDI-RB-SS-180810-1730 (580-79555-54), (CCV 320-243696/45), (LCS 320-242488/2-A), (LCSD 320-242488/3-A) and (MB 320-242488/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

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

Definitions/Glossary

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

TestAmerica Job ID: 580-79555-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.
E	Result exceeded calibration range.
G	The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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-SC-S230-0to2
Date Collected: 08/10/18 08:45
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-1
Matrix: Solid
Percent Solids: 41.5

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.32	B	0.0060	0.0014	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
1,2,3,4,6,7,8-HpCDF	0.052	B	0.0060	0.00052	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
1,2,3,4,7,8,9-HpCDF	0.0035	J B	0.0060	0.00062	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
1,2,3,4,7,8-HxCDD	0.0032	J B	0.0060	0.00050	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
1,2,3,4,7,8-HxCDF	0.0050	J	0.0060	0.00054	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
1,2,3,6,7,8-HxCDD	0.021		0.0060	0.00046	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
1,2,3,6,7,8-HxCDF	0.0045	J	0.0060	0.00056	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
1,2,3,7,8,9-HxCDD	0.0083		0.0060	0.00044	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
1,2,3,7,8,9-HxCDF	0.00051	J B	0.0060	0.00031	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
1,2,3,7,8-PeCDD	0.0023	J	0.0060	0.00019	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
1,2,3,7,8-PeCDF	0.00093	J	0.0060	0.00065	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
2,3,4,6,7,8-HxCDF	0.0015	J	0.0060	0.00052	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
2,3,4,7,8-PeCDF	0.0015	J	0.0060	0.00068	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
2,3,7,8-TCDD	0.0012		0.0012	0.000055	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
OCDD	3.9	B	0.012	0.00087	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1
OCDF	0.17	B	0.012	0.000080	ug/Kg	☼	08/27/18 15:30	08/31/18 05:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*54*		*23 - 140*	*08/27/18 15:30*	*08/31/18 05:52*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*49*		*28 - 143*	*08/27/18 15:30*	*08/31/18 05:52*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*44*		*26 - 138*	*08/27/18 15:30*	*08/31/18 05:52*	*1*
13C-1,2,3,4,7,8-HxCDD	*55*		*32 - 141*	*08/27/18 15:30*	*08/31/18 05:52*	*1*
13C-1,2,3,4,7,8-HxCDF	*54*		*26 - 152*	*08/27/18 15:30*	*08/31/18 05:52*	*1*
13C-1,2,3,6,7,8-HxCDD	*53*		*28 - 130*	*08/27/18 15:30*	*08/31/18 05:52*	*1*
13C-1,2,3,6,7,8-HxCDF	*53*		*26 - 123*	*08/27/18 15:30*	*08/31/18 05:52*	*1*
13C-1,2,3,7,8,9-HxCDF	*57*		*29 - 147*	*08/27/18 15:30*	*08/31/18 05:52*	*1*
13C-1,2,3,7,8-PeCDD	*58*		*25 - 181*	*08/27/18 15:30*	*08/31/18 05:52*	*1*
13C-1,2,3,7,8-PeCDF	*56*		*24 - 185*	*08/27/18 15:30*	*08/31/18 05:52*	*1*
13C-2,3,4,6,7,8-HxCDF	*54*		*28 - 136*	*08/27/18 15:30*	*08/31/18 05:52*	*1*
13C-2,3,4,7,8-PeCDF	*58*		*21 - 178*	*08/27/18 15:30*	*08/31/18 05:52*	*1*
13C-2,3,7,8-TCDD	*64*		*25 - 164*	*08/27/18 15:30*	*08/31/18 05:52*	*1*
13C-OCDD	*41*		*17 - 157*	*08/27/18 15:30*	*08/31/18 05:52*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*125*		*35 - 197*	*08/27/18 15:30*	*08/31/18 05:52*	*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	0.0053	B	0.0012	0.00024	ug/Kg	☼	08/27/18 15:30	08/31/18 17:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*73*		*24 - 169*	*08/27/18 15:30*	*08/31/18 17:48*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*130*		*35 - 197*	*08/27/18 15:30*	*08/31/18 17:48*	*1*

Client Sample ID: PDI-SC-S230-2to4
Date Collected: 08/10/18 08:50
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-2
Matrix: Solid
Percent Solids: 48.9

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	0.55	B	0.0051	0.0018	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
1,2,3,4,6,7,8-HpCDF	0.13	B	0.0051	0.00085	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
1,2,3,4,7,8,9-HpCDF	0.0074	B	0.0051	0.0013	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
1,2,3,4,7,8-HxCDD	0.0045	J B	0.0051	0.00060	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
1,2,3,4,7,8-HxCDF	0.010		0.0051	0.0016	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
1,2,3,6,7,8-HxCDD	0.027		0.0051	0.00056	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
1,2,3,6,7,8-HxCDF	0.011		0.0051	0.0017	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
1,2,3,7,8,9-HxCDD	0.0097		0.0051	0.00053	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
1,2,3,7,8,9-HxCDF	ND		0.0051	0.00090	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
1,2,3,7,8-PeCDD	0.0025	J	0.0051	0.00023	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
1,2,3,7,8-PeCDF	0.0038	J	0.0051	0.00042	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
2,3,4,6,7,8-HxCDF	0.0023	J	0.0051	0.0015	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
2,3,4,7,8-PeCDF	0.0034	J	0.0051	0.00046	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
2,3,7,8-TCDD	0.0013		0.0010	0.000055	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
OCDD	6.9	E B	0.010	0.0014	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1
OCDF	0.37	B	0.010	0.00013	ug/Kg	☼	08/27/18 15:30	08/31/18 06:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*38*		*23 - 140*	*08/27/18 15:30*	*08/31/18 06:38*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*36*		*28 - 143*	*08/27/18 15:30*	*08/31/18 06:38*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*27*		*26 - 138*	*08/27/18 15:30*	*08/31/18 06:38*	*1*
13C-1,2,3,4,7,8-HxCDD	*48*		*32 - 141*	*08/27/18 15:30*	*08/31/18 06:38*	*1*
13C-1,2,3,4,7,8-HxCDF	*47*		*26 - 152*	*08/27/18 15:30*	*08/31/18 06:38*	*1*
13C-1,2,3,6,7,8-HxCDD	*47*		*28 - 130*	*08/27/18 15:30*	*08/31/18 06:38*	*1*
13C-1,2,3,6,7,8-HxCDF	*47*		*26 - 123*	*08/27/18 15:30*	*08/31/18 06:38*	*1*
13C-1,2,3,7,8,9-HxCDF	*51*		*29 - 147*	*08/27/18 15:30*	*08/31/18 06:38*	*1*
13C-1,2,3,7,8-PeCDD	*55*		*25 - 181*	*08/27/18 15:30*	*08/31/18 06:38*	*1*
13C-1,2,3,7,8-PeCDF	*53*		*24 - 185*	*08/27/18 15:30*	*08/31/18 06:38*	*1*
13C-2,3,4,6,7,8-HxCDF	*49*		*28 - 136*	*08/27/18 15:30*	*08/31/18 06:38*	*1*
13C-2,3,4,7,8-PeCDF	*54*		*21 - 178*	*08/27/18 15:30*	*08/31/18 06:38*	*1*
13C-2,3,7,8-TCDD	*58*		*25 - 164*	*08/27/18 15:30*	*08/31/18 06:38*	*1*
13C-OCDD	*31*		*17 - 157*	*08/27/18 15:30*	*08/31/18 06:38*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*120*		*35 - 197*	*08/27/18 15:30*	*08/31/18 06:38*	*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	B	0.0010	0.00061	ug/Kg	☼	08/27/18 15:30	08/31/18 18:26	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*68*		*24 - 169*	*08/27/18 15:30*	*08/31/18 18:26*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*132*		*35 - 197*	*08/27/18 15:30*	*08/31/18 18:26*	*1*

Client Sample ID: PDI-SC-S230-4to6
Date Collected: 08/10/18 08:55
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-3
Matrix: Solid
Percent Solids: 53.5

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.34	B	0.0047	0.0023	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
1,2,3,4,6,7,8-HpCDF	0.064	B	0.0047	0.00063	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
1,2,3,4,7,8,9-HpCDF	0.0042	J B	0.0047	0.00068	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
1,2,3,4,7,8-HxCDD	0.0030	J B	0.0047	0.00032	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
1,2,3,4,7,8-HxCDF	0.0046	J	0.0047	0.00069	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
1,2,3,6,7,8-HxCDD	0.018		0.0047	0.00029	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
1,2,3,6,7,8-HxCDF	0.0052		0.0047	0.00071	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
1,2,3,7,8,9-HxCDD	0.0077		0.0047	0.00028	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
1,2,3,7,8,9-HxCDF	0.00054	J B	0.0047	0.00040	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
1,2,3,7,8-PeCDD	0.0018	J	0.0047	0.00021	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
1,2,3,7,8-PeCDF	0.0017	J	0.0047	0.00035	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
2,3,4,6,7,8-HxCDF	0.0015	J	0.0047	0.00066	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
2,3,4,7,8-PeCDF	0.0016	J	0.0047	0.00036	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
2,3,7,8-TCDD	0.00093	J	0.00094	0.000046	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
OCDD	4.1	E B	0.0094	0.00097	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1
OCDF	0.20	B	0.0094	0.000099	ug/Kg	☼	08/27/18 15:30	08/31/18 07:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*44*		*23 - 140*	*08/27/18 15:30*	*08/31/18 07:24*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*42*		*28 - 143*	*08/27/18 15:30*	*08/31/18 07:24*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*41*		*26 - 138*	*08/27/18 15:30*	*08/31/18 07:24*	*1*
13C-1,2,3,4,7,8-HxCDD	*48*		*32 - 141*	*08/27/18 15:30*	*08/31/18 07:24*	*1*
13C-1,2,3,4,7,8-HxCDF	*48*		*26 - 152*	*08/27/18 15:30*	*08/31/18 07:24*	*1*
13C-1,2,3,6,7,8-HxCDD	*49*		*28 - 130*	*08/27/18 15:30*	*08/31/18 07:24*	*1*
13C-1,2,3,6,7,8-HxCDF	*48*		*26 - 123*	*08/27/18 15:30*	*08/31/18 07:24*	*1*
13C-1,2,3,7,8,9-HxCDF	*51*		*29 - 147*	*08/27/18 15:30*	*08/31/18 07:24*	*1*
13C-1,2,3,7,8-PeCDD	*52*		*25 - 181*	*08/27/18 15:30*	*08/31/18 07:24*	*1*
13C-1,2,3,7,8-PeCDF	*50*		*24 - 185*	*08/27/18 15:30*	*08/31/18 07:24*	*1*
13C-2,3,4,6,7,8-HxCDF	*48*		*28 - 136*	*08/27/18 15:30*	*08/31/18 07:24*	*1*
13C-2,3,4,7,8-PeCDF	*52*		*21 - 178*	*08/27/18 15:30*	*08/31/18 07:24*	*1*
13C-2,3,7,8-TCDD	*58*		*25 - 164*	*08/27/18 15:30*	*08/31/18 07:24*	*1*
13C-OCDD	*35*		*17 - 157*	*08/27/18 15:30*	*08/31/18 07:24*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*122*		*35 - 197*	*08/27/18 15:30*	*08/31/18 07:24*	*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	0.0023	B	0.00094	0.00034	ug/Kg	☼	08/27/18 15:30	08/31/18 19:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*60*		*24 - 169*	*08/27/18 15:30*	*08/31/18 19:03*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*115*		*35 - 197*	*08/27/18 15:30*	*08/31/18 19:03*	*1*

Client Sample ID: PDI-SC-S230-6to8
Date Collected: 08/10/18 09:00
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-4
Matrix: Solid
Percent Solids: 54.3

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	0.43	B	0.0046	0.0027	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
1,2,3,4,6,7,8-HpCDF	0.078	B	0.0046	0.00082	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
1,2,3,4,7,8,9-HpCDF	0.0052	B	0.0046	0.00093	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
1,2,3,4,7,8-HxCDD	0.0035	J B	0.0046	0.00050	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
1,2,3,4,7,8-HxCDF	0.0049		0.0046	0.00098	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
1,2,3,6,7,8-HxCDD	0.019		0.0046	0.00048	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
1,2,3,6,7,8-HxCDF	0.0075		0.0046	0.00098	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
1,2,3,7,8,9-HxCDD	0.0078		0.0046	0.00045	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
1,2,3,7,8,9-HxCDF	ND		0.0046	0.00055	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
1,2,3,7,8-PeCDD	0.0018	J	0.0046	0.00024	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
1,2,3,7,8-PeCDF	0.0022	J	0.0046	0.00033	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
2,3,4,6,7,8-HxCDF	0.0017	J	0.0046	0.00091	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
2,3,4,7,8-PeCDF	0.0019	J	0.0046	0.00035	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
2,3,7,8-TCDD	0.0014		0.00091	0.000042	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
OCDD	5.9	E B	0.0091	0.0015	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1
OCDF	0.27	B	0.0091	0.00011	ug/Kg	☼	08/27/18 15:30	08/31/18 08:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*41*		*23 - 140*	*08/27/18 15:30*	*08/31/18 08:10*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*40*		*28 - 143*	*08/27/18 15:30*	*08/31/18 08:10*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*38*		*26 - 138*	*08/27/18 15:30*	*08/31/18 08:10*	*1*
13C-1,2,3,4,7,8-HxCDD	*50*		*32 - 141*	*08/27/18 15:30*	*08/31/18 08:10*	*1*
13C-1,2,3,4,7,8-HxCDF	*48*		*26 - 152*	*08/27/18 15:30*	*08/31/18 08:10*	*1*
13C-1,2,3,6,7,8-HxCDD	*49*		*28 - 130*	*08/27/18 15:30*	*08/31/18 08:10*	*1*
13C-1,2,3,6,7,8-HxCDF	*49*		*26 - 123*	*08/27/18 15:30*	*08/31/18 08:10*	*1*
13C-1,2,3,7,8,9-HxCDF	*52*		*29 - 147*	*08/27/18 15:30*	*08/31/18 08:10*	*1*
13C-1,2,3,7,8-PeCDD	*53*		*25 - 181*	*08/27/18 15:30*	*08/31/18 08:10*	*1*
13C-1,2,3,7,8-PeCDF	*51*		*24 - 185*	*08/27/18 15:30*	*08/31/18 08:10*	*1*
13C-2,3,4,6,7,8-HxCDF	*49*		*28 - 136*	*08/27/18 15:30*	*08/31/18 08:10*	*1*
13C-2,3,4,7,8-PeCDF	*53*		*21 - 178*	*08/27/18 15:30*	*08/31/18 08:10*	*1*
13C-2,3,7,8-TCDD	*59*		*25 - 164*	*08/27/18 15:30*	*08/31/18 08:10*	*1*
13C-OCDD	*33*		*17 - 157*	*08/27/18 15:30*	*08/31/18 08:10*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*114*		*35 - 197*	*08/27/18 15:30*	*08/31/18 08:10*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0022	q B	0.00091	0.00021	ug/Kg	☼	08/27/18 15:30	08/31/18 19:41	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*65*		*24 - 169*	*08/27/18 15:30*	*08/31/18 19:41*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*118*		*35 - 197*	*08/27/18 15:30*	*08/31/18 19:41*	*1*

Client Sample ID: PDI-SC-S230-8to10.0
Date Collected: 08/10/18 09:05
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-5
Matrix: Solid
Percent Solids: 56.2

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.46	B	0.0044	0.0036	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
1,2,3,4,6,7,8-HpCDF	0.076	B	0.0044	0.00074	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
1,2,3,4,7,8,9-HpCDF	0.0053	B	0.0044	0.00091	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
1,2,3,4,7,8-HxCDD	0.0037	J B	0.0044	0.00058	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
1,2,3,4,7,8-HxCDF	0.0051		0.0044	0.00075	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
1,2,3,6,7,8-HxCDD	0.020		0.0044	0.00052	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
1,2,3,6,7,8-HxCDF	0.0071		0.0044	0.00078	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
1,2,3,7,8,9-HxCDD	0.0085		0.0044	0.00050	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
1,2,3,7,8,9-HxCDF	0.00046	J B	0.0044	0.00044	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
1,2,3,7,8-PeCDD	0.0018	J	0.0044	0.00021	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
1,2,3,7,8-PeCDF	0.0021	J	0.0044	0.00032	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
2,3,4,6,7,8-HxCDF	0.0018	J	0.0044	0.00074	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
2,3,4,7,8-PeCDF	0.0019	J	0.0044	0.00036	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
2,3,7,8-TCDD	0.0012		0.00089	0.000039	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
OCDD	6.7	E B	0.0089	0.0029	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1
OCDF	0.27	B	0.0089	0.000085	ug/Kg	☼	08/27/18 15:30	08/31/18 08:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*55*		*23 - 140*	*08/27/18 15:30*	*08/31/18 08:56*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*54*		*28 - 143*	*08/27/18 15:30*	*08/31/18 08:56*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*50*		*26 - 138*	*08/27/18 15:30*	*08/31/18 08:56*	*1*
13C-1,2,3,4,7,8-HxCDD	*57*		*32 - 141*	*08/27/18 15:30*	*08/31/18 08:56*	*1*
13C-1,2,3,4,7,8-HxCDF	*57*		*26 - 152*	*08/27/18 15:30*	*08/31/18 08:56*	*1*
13C-1,2,3,6,7,8-HxCDD	*58*		*28 - 130*	*08/27/18 15:30*	*08/31/18 08:56*	*1*
13C-1,2,3,6,7,8-HxCDF	*58*		*26 - 123*	*08/27/18 15:30*	*08/31/18 08:56*	*1*
13C-1,2,3,7,8,9-HxCDF	*60*		*29 - 147*	*08/27/18 15:30*	*08/31/18 08:56*	*1*
13C-1,2,3,7,8-PeCDD	*59*		*25 - 181*	*08/27/18 15:30*	*08/31/18 08:56*	*1*
13C-1,2,3,7,8-PeCDF	*56*		*24 - 185*	*08/27/18 15:30*	*08/31/18 08:56*	*1*
13C-2,3,4,6,7,8-HxCDF	*57*		*28 - 136*	*08/27/18 15:30*	*08/31/18 08:56*	*1*
13C-2,3,4,7,8-PeCDF	*55*		*21 - 178*	*08/27/18 15:30*	*08/31/18 08:56*	*1*
13C-2,3,7,8-TCDD	*62*		*25 - 164*	*08/27/18 15:30*	*08/31/18 08:56*	*1*
13C-OCDD	*45*		*17 - 157*	*08/27/18 15:30*	*08/31/18 08:56*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*120*		*35 - 197*	*08/27/18 15:30*	*08/31/18 08:56*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0025	B	0.00089	0.00018	ug/Kg	☼	08/27/18 15:30	08/31/18 20:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*61*		*24 - 169*	*08/27/18 15:30*	*08/31/18 20:19*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*113*		*35 - 197*	*08/27/18 15:30*	*08/31/18 20:19*	*1*

Client Sample ID: PDI-SC-S230-10.0to11.4
Date Collected: 08/10/18 09:10
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-6
Matrix: Solid
Percent Solids: 56.0

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.50	B	0.0044	0.0040	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
1,2,3,4,6,7,8-HpCDF	0.082	B	0.0044	0.00086	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
1,2,3,4,7,8,9-HpCDF	0.0058	B	0.0044	0.00098	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
1,2,3,4,7,8-HxCDD	0.0037	J B	0.0044	0.00040	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
1,2,3,4,7,8-HxCDF	0.0060		0.0044	0.00098	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
1,2,3,6,7,8-HxCDD	0.022		0.0044	0.00036	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
1,2,3,6,7,8-HxCDF	0.0078		0.0044	0.00097	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
1,2,3,7,8,9-HxCDD	0.0088		0.0044	0.00035	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
1,2,3,7,8,9-HxCDF	ND		0.0044	0.00054	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
1,2,3,7,8-PeCDD	0.0020	J	0.0044	0.00026	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
1,2,3,7,8-PeCDF	0.0022	J	0.0044	0.00036	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
2,3,4,6,7,8-HxCDF	0.0019	J	0.0044	0.00088	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
2,3,4,7,8-PeCDF	0.0023	J	0.0044	0.00039	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
2,3,7,8-TCDD	0.0013		0.00088	0.000048	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
OCDD	7.4	E B	0.0088	0.0023	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1
OCDF	0.31	B	0.0088	0.00011	ug/Kg	☼	08/27/18 15:30	08/31/18 09:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*48*		*23 - 140*	*08/27/18 15:30*	*08/31/18 09:42*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*44*		*28 - 143*	*08/27/18 15:30*	*08/31/18 09:42*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*45*		*26 - 138*	*08/27/18 15:30*	*08/31/18 09:42*	*1*
13C-1,2,3,4,7,8-HxCDD	*49*		*32 - 141*	*08/27/18 15:30*	*08/31/18 09:42*	*1*
13C-1,2,3,4,7,8-HxCDF	*49*		*26 - 152*	*08/27/18 15:30*	*08/31/18 09:42*	*1*
13C-1,2,3,6,7,8-HxCDD	*50*		*28 - 130*	*08/27/18 15:30*	*08/31/18 09:42*	*1*
13C-1,2,3,6,7,8-HxCDF	*49*		*26 - 123*	*08/27/18 15:30*	*08/31/18 09:42*	*1*
13C-1,2,3,7,8,9-HxCDF	*54*		*29 - 147*	*08/27/18 15:30*	*08/31/18 09:42*	*1*
13C-1,2,3,7,8-PeCDD	*56*		*25 - 181*	*08/27/18 15:30*	*08/31/18 09:42*	*1*
13C-1,2,3,7,8-PeCDF	*53*		*24 - 185*	*08/27/18 15:30*	*08/31/18 09:42*	*1*
13C-2,3,4,6,7,8-HxCDF	*52*		*28 - 136*	*08/27/18 15:30*	*08/31/18 09:42*	*1*
13C-2,3,4,7,8-PeCDF	*54*		*21 - 178*	*08/27/18 15:30*	*08/31/18 09:42*	*1*
13C-2,3,7,8-TCDD	*62*		*25 - 164*	*08/27/18 15:30*	*08/31/18 09:42*	*1*
13C-OCDD	*37*		*17 - 157*	*08/27/18 15:30*	*08/31/18 09:42*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*121*		*35 - 197*	*08/27/18 15:30*	*08/31/18 09:42*	*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	0.0028	B	0.00088	0.00043	ug/Kg	☼	08/27/18 15:30	08/31/18 20:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*63*		*24 - 169*	*08/27/18 15:30*	*08/31/18 20:57*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*119*		*35 - 197*	*08/27/18 15:30*	*08/31/18 20:57*	*1*

Client Sample ID: PDI-SC-S007-0to2
Date Collected: 08/10/18 10:45
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-7
Matrix: Solid
Percent Solids: 41.4

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	0.078	B	0.0060	0.00066	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
1,2,3,4,6,7,8-HpCDF	0.015	B	0.0060	0.00035	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
1,2,3,4,7,8,9-HpCDF	0.00091	J B	0.0060	0.00036	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
1,2,3,4,7,8-HxCDD	0.00089	J B	0.0060	0.00017	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
1,2,3,4,7,8-HxCDF	0.0016	J	0.0060	0.00027	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
1,2,3,6,7,8-HxCDD	0.0032	J	0.0060	0.00016	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
1,2,3,6,7,8-HxCDF	ND		0.0060	0.00026	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
1,2,3,7,8,9-HxCDD	0.0021	J	0.0060	0.00015	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
1,2,3,7,8,9-HxCDF	0.00029	J B	0.0060	0.00014	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
1,2,3,7,8-PeCDD	ND		0.0060	0.00011	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
1,2,3,7,8-PeCDF	0.00069	J	0.0060	0.00010	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
2,3,4,6,7,8-HxCDF	0.00041	J	0.0060	0.00024	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
2,3,4,7,8-PeCDF	0.00054	J	0.0060	0.00010	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
2,3,7,8-TCDD	0.00036	J q	0.0012	0.00012	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
OCDD	0.75	B	0.012	0.00058	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1
OCDF	0.062	B	0.012	0.00012	ug/Kg	☼	08/27/18 15:30	08/31/18 10:28	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*51*		*23 - 140*	*08/27/18 15:30*	*08/31/18 10:28*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*45*		*28 - 143*	*08/27/18 15:30*	*08/31/18 10:28*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*49*		*26 - 138*	*08/27/18 15:30*	*08/31/18 10:28*	*1*
13C-1,2,3,4,7,8-HxCDD	*51*		*32 - 141*	*08/27/18 15:30*	*08/31/18 10:28*	*1*
13C-1,2,3,4,7,8-HxCDF	*46*		*26 - 152*	*08/27/18 15:30*	*08/31/18 10:28*	*1*
13C-1,2,3,6,7,8-HxCDD	*50*		*28 - 130*	*08/27/18 15:30*	*08/31/18 10:28*	*1*
13C-1,2,3,6,7,8-HxCDF	*51*		*26 - 123*	*08/27/18 15:30*	*08/31/18 10:28*	*1*
13C-1,2,3,7,8,9-HxCDF	*55*		*29 - 147*	*08/27/18 15:30*	*08/31/18 10:28*	*1*
13C-1,2,3,7,8-PeCDD	*54*		*25 - 181*	*08/27/18 15:30*	*08/31/18 10:28*	*1*
13C-1,2,3,7,8-PeCDF	*53*		*24 - 185*	*08/27/18 15:30*	*08/31/18 10:28*	*1*
13C-2,3,4,6,7,8-HxCDF	*52*		*28 - 136*	*08/27/18 15:30*	*08/31/18 10:28*	*1*
13C-2,3,4,7,8-PeCDF	*54*		*21 - 178*	*08/27/18 15:30*	*08/31/18 10:28*	*1*
13C-2,3,7,8-TCDD	*54*		*25 - 164*	*08/27/18 15:30*	*08/31/18 10:28*	*1*
13C-OCDD	*41*		*17 - 157*	*08/27/18 15:30*	*08/31/18 10:28*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*112*		*35 - 197*	*08/27/18 15:30*	*08/31/18 10:28*	*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	ND		0.0012	0.00070	ug/Kg	☼	08/27/18 15:30	08/31/18 21:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*57*		*24 - 169*	*08/27/18 15:30*	*08/31/18 21:35*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*114*		*35 - 197*	*08/27/18 15:30*	*08/31/18 21:35*	*1*

Client Sample ID: PDI-SC-S007-2to4
Date Collected: 08/10/18 10:50
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-8
Matrix: Solid
Percent Solids: 50.3

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	0.077	B	0.0049	0.00063	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
1,2,3,4,6,7,8-HpCDF	0.013	B	0.0049	0.00030	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
1,2,3,4,7,8,9-HpCDF	0.00096	J B	0.0049	0.00030	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
1,2,3,4,7,8-HxCDD	0.00089	J B	0.0049	0.00016	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
1,2,3,4,7,8-HxCDF	0.0021	J	0.0049	0.00024	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
1,2,3,6,7,8-HxCDD	0.0036	J	0.0049	0.00015	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
1,2,3,6,7,8-HxCDF	0.00094	J	0.0049	0.00023	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
1,2,3,7,8,9-HxCDD	0.0024	J	0.0049	0.00014	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
1,2,3,7,8,9-HxCDF	0.00019	J B	0.0049	0.00013	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
1,2,3,7,8-PeCDD	0.00043	J	0.0049	0.000090	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
1,2,3,7,8-PeCDF	0.0011	J	0.0049	0.00011	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
2,3,4,6,7,8-HxCDF	0.00039	J	0.0049	0.00022	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
2,3,4,7,8-PeCDF	0.00070	J	0.0049	0.00013	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
2,3,7,8-TCDD	0.00029	J q	0.00098	0.000064	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
OCDD	0.78	B	0.0098	0.00076	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1
OCDF	0.051	B	0.0098	0.000065	ug/Kg	☼	08/27/18 15:30	08/31/18 11:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*52*		*23 - 140*	*08/27/18 15:30*	*08/31/18 11:14*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*45*		*28 - 143*	*08/27/18 15:30*	*08/31/18 11:14*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*51*		*26 - 138*	*08/27/18 15:30*	*08/31/18 11:14*	*1*
13C-1,2,3,4,7,8-HxCDD	*45*		*32 - 141*	*08/27/18 15:30*	*08/31/18 11:14*	*1*
13C-1,2,3,4,7,8-HxCDF	*45*		*26 - 152*	*08/27/18 15:30*	*08/31/18 11:14*	*1*
13C-1,2,3,6,7,8-HxCDD	*47*		*28 - 130*	*08/27/18 15:30*	*08/31/18 11:14*	*1*
13C-1,2,3,6,7,8-HxCDF	*49*		*26 - 123*	*08/27/18 15:30*	*08/31/18 11:14*	*1*
13C-1,2,3,7,8,9-HxCDF	*53*		*29 - 147*	*08/27/18 15:30*	*08/31/18 11:14*	*1*
13C-1,2,3,7,8-PeCDD	*51*		*25 - 181*	*08/27/18 15:30*	*08/31/18 11:14*	*1*
13C-1,2,3,7,8-PeCDF	*50*		*24 - 185*	*08/27/18 15:30*	*08/31/18 11:14*	*1*
13C-2,3,4,6,7,8-HxCDF	*49*		*28 - 136*	*08/27/18 15:30*	*08/31/18 11:14*	*1*
13C-2,3,4,7,8-PeCDF	*47*		*21 - 178*	*08/27/18 15:30*	*08/31/18 11:14*	*1*
13C-2,3,7,8-TCDD	*57*		*25 - 164*	*08/27/18 15:30*	*08/31/18 11:14*	*1*
13C-OCDD	*43*		*17 - 157*	*08/27/18 15:30*	*08/31/18 11:14*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*111*		*35 - 197*	*08/27/18 15:30*	*08/31/18 11:14*	*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	0.0018	B	0.00098	0.00012	ug/Kg	☼	08/27/18 15:30	08/31/18 22:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*55*		*24 - 169*	*08/27/18 15:30*	*08/31/18 22:13*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*113*		*35 - 197*	*08/27/18 15:30*	*08/31/18 22:13*	*1*

Client Sample ID: PDI-SC-S007-4to6
Date Collected: 08/10/18 10:55
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-9
Matrix: Solid
Percent Solids: 52.9

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	0.13	B	0.0048	0.00079	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
1,2,3,4,6,7,8-HpCDF	0.020	B	0.0048	0.00025	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
1,2,3,4,7,8,9-HpCDF	0.0015	J B	0.0048	0.00027	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
1,2,3,4,7,8-HxCDD	0.0014	J B	0.0048	0.00018	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
1,2,3,4,7,8-HxCDF	0.0035	J	0.0048	0.00023	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
1,2,3,6,7,8-HxCDD	0.0080		0.0048	0.00016	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
1,2,3,6,7,8-HxCDF	0.0018	J	0.0048	0.00023	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
1,2,3,7,8,9-HxCDD	0.0043	J	0.0048	0.00016	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
1,2,3,7,8,9-HxCDF	0.00031	J B	0.0048	0.00013	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
1,2,3,7,8-PeCDD	0.00086	J	0.0048	0.000093	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
1,2,3,7,8-PeCDF	0.0015	J	0.0048	0.00017	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
2,3,4,6,7,8-HxCDF	0.00070	J	0.0048	0.00022	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
2,3,4,7,8-PeCDF	0.0011	J	0.0048	0.00019	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
2,3,7,8-TCDD	0.00043	J q	0.00095	0.000045	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
OCDD	1.2	B	0.0095	0.00039	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1
OCDF	0.065	B	0.0095	0.000059	ug/Kg	☼	08/27/18 15:30	08/31/18 15:34	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*46*		*23 - 140*	*08/27/18 15:30*	*08/31/18 15:34*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*42*		*28 - 143*	*08/27/18 15:30*	*08/31/18 15:34*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*42*		*26 - 138*	*08/27/18 15:30*	*08/31/18 15:34*	*1*
13C-1,2,3,4,7,8-HxCDD	*47*		*32 - 141*	*08/27/18 15:30*	*08/31/18 15:34*	*1*
13C-1,2,3,4,7,8-HxCDF	*46*		*26 - 152*	*08/27/18 15:30*	*08/31/18 15:34*	*1*
13C-1,2,3,6,7,8-HxCDD	*47*		*28 - 130*	*08/27/18 15:30*	*08/31/18 15:34*	*1*
13C-1,2,3,6,7,8-HxCDF	*47*		*26 - 123*	*08/27/18 15:30*	*08/31/18 15:34*	*1*
13C-1,2,3,7,8,9-HxCDF	*50*		*29 - 147*	*08/27/18 15:30*	*08/31/18 15:34*	*1*
13C-1,2,3,7,8-PeCDD	*50*		*25 - 181*	*08/27/18 15:30*	*08/31/18 15:34*	*1*
13C-1,2,3,7,8-PeCDF	*49*		*24 - 185*	*08/27/18 15:30*	*08/31/18 15:34*	*1*
13C-2,3,4,6,7,8-HxCDF	*47*		*28 - 136*	*08/27/18 15:30*	*08/31/18 15:34*	*1*
13C-2,3,4,7,8-PeCDF	*51*		*21 - 178*	*08/27/18 15:30*	*08/31/18 15:34*	*1*
13C-2,3,7,8-TCDD	*56*		*25 - 164*	*08/27/18 15:30*	*08/31/18 15:34*	*1*
13C-OCDD	*36*		*17 - 157*	*08/27/18 15:30*	*08/31/18 15:34*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*114*		*35 - 197*	*08/27/18 15:30*	*08/31/18 15:34*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0050	B	0.00095	0.00041	ug/Kg	☼	08/27/18 15:30	09/06/18 15:15	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*56*		*24 - 169*	*08/27/18 15:30*	*09/06/18 15:15*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*111*		*35 - 197*	*08/27/18 15:30*	*09/06/18 15:15*	*1*

Client Sample ID: PDI-SC-S007-4to6D
Date Collected: 08/10/18 10:55
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-10
Matrix: Solid
Percent Solids: 52.4

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.17	B	0.0048	0.0013	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
1,2,3,4,6,7,8-HpCDF	0.026	B	0.0048	0.00033	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
1,2,3,4,7,8,9-HpCDF	0.0022	J B	0.0048	0.00036	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
1,2,3,4,7,8-HxCDD	0.0017	J B	0.0048	0.00023	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
1,2,3,4,7,8-HxCDF	0.0070		0.0048	0.00026	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
1,2,3,6,7,8-HxCDD	0.010		0.0048	0.00021	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
1,2,3,6,7,8-HxCDF	0.0031	J	0.0048	0.00024	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
1,2,3,7,8,9-HxCDD	0.0043	J	0.0048	0.00020	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
1,2,3,7,8,9-HxCDF	0.00040	J B	0.0048	0.00014	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
1,2,3,7,8-PeCDD	0.0010	J	0.0048	0.00013	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
1,2,3,7,8-PeCDF	0.0028	J	0.0048	0.00016	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
2,3,4,6,7,8-HxCDF	0.0014	J	0.0048	0.00024	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
2,3,4,7,8-PeCDF	0.0017	J	0.0048	0.00018	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
2,3,7,8-TCDD	0.00068	J	0.00097	0.000055	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
OCDD	1.7	B	0.0097	0.00052	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1
OCDF	0.089	B	0.0097	0.000073	ug/Kg	☼	08/27/18 15:30	08/31/18 16:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*47*		*23 - 140*	*08/27/18 15:30*	*08/31/18 16:20*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*44*		*28 - 143*	*08/27/18 15:30*	*08/31/18 16:20*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*44*		*26 - 138*	*08/27/18 15:30*	*08/31/18 16:20*	*1*
13C-1,2,3,4,7,8-HxCDD	*47*		*32 - 141*	*08/27/18 15:30*	*08/31/18 16:20*	*1*
13C-1,2,3,4,7,8-HxCDF	*47*		*26 - 152*	*08/27/18 15:30*	*08/31/18 16:20*	*1*
13C-1,2,3,6,7,8-HxCDD	*49*		*28 - 130*	*08/27/18 15:30*	*08/31/18 16:20*	*1*
13C-1,2,3,6,7,8-HxCDF	*50*		*26 - 123*	*08/27/18 15:30*	*08/31/18 16:20*	*1*
13C-1,2,3,7,8,9-HxCDF	*52*		*29 - 147*	*08/27/18 15:30*	*08/31/18 16:20*	*1*
13C-1,2,3,7,8-PeCDD	*53*		*25 - 181*	*08/27/18 15:30*	*08/31/18 16:20*	*1*
13C-1,2,3,7,8-PeCDF	*51*		*24 - 185*	*08/27/18 15:30*	*08/31/18 16:20*	*1*
13C-2,3,4,6,7,8-HxCDF	*50*		*28 - 136*	*08/27/18 15:30*	*08/31/18 16:20*	*1*
13C-2,3,4,7,8-PeCDF	*49*		*21 - 178*	*08/27/18 15:30*	*08/31/18 16:20*	*1*
13C-2,3,7,8-TCDD	*57*		*25 - 164*	*08/27/18 15:30*	*08/31/18 16:20*	*1*
13C-OCDD	*40*		*17 - 157*	*08/27/18 15:30*	*08/31/18 16:20*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*119*		*35 - 197*	*08/27/18 15:30*	*08/31/18 16:20*	*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	0.0060	B	0.00097	0.00027	ug/Kg	☼	08/27/18 15:30	09/06/18 15:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*53*		*24 - 169*	*08/27/18 15:30*	*09/06/18 15:53*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*111*		*35 - 197*	*08/27/18 15:30*	*09/06/18 15:53*	*1*

Client Sample ID: PDI-SC-S007-6to8
Date Collected: 08/10/18 11:00
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-11
Matrix: Solid
Percent Solids: 51.1

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	0.31	B	0.0048	0.0020	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
1,2,3,4,6,7,8-HpCDF	0.036	B	0.0048	0.00039	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
1,2,3,4,7,8,9-HpCDF	0.0025	J B	0.0048	0.00044	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
1,2,3,4,7,8-HxCDD	0.0026	J B	0.0048	0.00044	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
1,2,3,4,7,8-HxCDF	0.0053		0.0048	0.00059	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
1,2,3,6,7,8-HxCDD	0.021		0.0048	0.00040	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
1,2,3,6,7,8-HxCDF	0.0035	J	0.0048	0.00060	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
1,2,3,7,8,9-HxCDD	0.0058		0.0048	0.00039	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
1,2,3,7,8,9-HxCDF	ND		0.0048	0.00033	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
1,2,3,7,8-PeCDD	0.0016	J	0.0048	0.00013	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
1,2,3,7,8-PeCDF	0.0030	J	0.0048	0.00031	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
2,3,4,6,7,8-HxCDF	0.0016	J	0.0048	0.00056	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
2,3,4,7,8-PeCDF	0.0019	J	0.0048	0.00034	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
2,3,7,8-TCDD	0.00055	J q	0.00096	0.000053	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
OCDD	3.0	B	0.0096	0.00081	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1
OCDF	0.094	B	0.0096	0.000087	ug/Kg	☼	08/27/18 15:30	08/31/18 17:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*39*		*23 - 140*	*08/27/18 15:30*	*08/31/18 17:06*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*37*		*28 - 143*	*08/27/18 15:30*	*08/31/18 17:06*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*37*		*26 - 138*	*08/27/18 15:30*	*08/31/18 17:06*	*1*
13C-1,2,3,4,7,8-HxCDD	*44*		*32 - 141*	*08/27/18 15:30*	*08/31/18 17:06*	*1*
13C-1,2,3,4,7,8-HxCDF	*44*		*26 - 152*	*08/27/18 15:30*	*08/31/18 17:06*	*1*
13C-1,2,3,6,7,8-HxCDD	*44*		*28 - 130*	*08/27/18 15:30*	*08/31/18 17:06*	*1*
13C-1,2,3,6,7,8-HxCDF	*44*		*26 - 123*	*08/27/18 15:30*	*08/31/18 17:06*	*1*
13C-1,2,3,7,8,9-HxCDF	*47*		*29 - 147*	*08/27/18 15:30*	*08/31/18 17:06*	*1*
13C-1,2,3,7,8-PeCDD	*49*		*25 - 181*	*08/27/18 15:30*	*08/31/18 17:06*	*1*
13C-1,2,3,7,8-PeCDF	*47*		*24 - 185*	*08/27/18 15:30*	*08/31/18 17:06*	*1*
13C-2,3,4,6,7,8-HxCDF	*44*		*28 - 136*	*08/27/18 15:30*	*08/31/18 17:06*	*1*
13C-2,3,4,7,8-PeCDF	*49*		*21 - 178*	*08/27/18 15:30*	*08/31/18 17:06*	*1*
13C-2,3,7,8-TCDD	*55*		*25 - 164*	*08/27/18 15:30*	*08/31/18 17:06*	*1*
13C-OCDD	*31*		*17 - 157*	*08/27/18 15:30*	*08/31/18 17:06*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*119*		*35 - 197*	*08/27/18 15:30*	*08/31/18 17:06*	*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	0.0041	B	0.00096	0.00044	ug/Kg	☼	08/27/18 15:30	09/06/18 16:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*54*		*24 - 169*	*08/27/18 15:30*	*09/06/18 16:31*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*111*		*35 - 197*	*08/27/18 15:30*	*09/06/18 16:31*	*1*

Client Sample ID: PDI-SC-S007-8to10
Date Collected: 08/10/18 11:05
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-12
Matrix: Solid
Percent Solids: 55.0

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.22	B	0.0046	0.0015	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
1,2,3,4,6,7,8-HpCDF	0.033	B	0.0046	0.00029	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
1,2,3,4,7,8,9-HpCDF	0.0025	J B	0.0046	0.00034	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
1,2,3,4,7,8-HxCDD	0.0019	J B	0.0046	0.00018	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
1,2,3,4,7,8-HxCDF	0.0054		0.0046	0.00047	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
1,2,3,6,7,8-HxCDD	0.013		0.0046	0.00017	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
1,2,3,6,7,8-HxCDF	0.0029	J	0.0046	0.00045	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
1,2,3,7,8,9-HxCDD	0.0046		0.0046	0.00016	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
1,2,3,7,8,9-HxCDF	0.00035	J B	0.0046	0.00026	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
1,2,3,7,8-PeCDD	0.0011	J	0.0046	0.00012	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
1,2,3,7,8-PeCDF	0.0036	J	0.0046	0.00018	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
2,3,4,6,7,8-HxCDF	0.0010	J	0.0046	0.00042	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
2,3,4,7,8-PeCDF	0.0024	J	0.0046	0.00020	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
2,3,7,8-TCDD	0.00054	J q	0.00091	0.000038	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
OCDD	2.2	B	0.0091	0.00049	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1
OCDF	0.089	B	0.0091	0.000052	ug/Kg	☼	08/27/18 15:30	08/31/18 17:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*54*		*23 - 140*	*08/27/18 15:30*	*08/31/18 17:52*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*52*		*28 - 143*	*08/27/18 15:30*	*08/31/18 17:52*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*49*		*26 - 138*	*08/27/18 15:30*	*08/31/18 17:52*	*1*
13C-1,2,3,4,7,8-HxCDD	*55*		*32 - 141*	*08/27/18 15:30*	*08/31/18 17:52*	*1*
13C-1,2,3,4,7,8-HxCDF	*55*		*26 - 152*	*08/27/18 15:30*	*08/31/18 17:52*	*1*
13C-1,2,3,6,7,8-HxCDD	*56*		*28 - 130*	*08/27/18 15:30*	*08/31/18 17:52*	*1*
13C-1,2,3,6,7,8-HxCDF	*56*		*26 - 123*	*08/27/18 15:30*	*08/31/18 17:52*	*1*
13C-1,2,3,7,8,9-HxCDF	*58*		*29 - 147*	*08/27/18 15:30*	*08/31/18 17:52*	*1*
13C-1,2,3,7,8-PeCDD	*60*		*25 - 181*	*08/27/18 15:30*	*08/31/18 17:52*	*1*
13C-1,2,3,7,8-PeCDF	*56*		*24 - 185*	*08/27/18 15:30*	*08/31/18 17:52*	*1*
13C-2,3,4,6,7,8-HxCDF	*56*		*28 - 136*	*08/27/18 15:30*	*08/31/18 17:52*	*1*
13C-2,3,4,7,8-PeCDF	*57*		*21 - 178*	*08/27/18 15:30*	*08/31/18 17:52*	*1*
13C-2,3,7,8-TCDD	*62*		*25 - 164*	*08/27/18 15:30*	*08/31/18 17:52*	*1*
13C-OCDD	*46*		*17 - 157*	*08/27/18 15:30*	*08/31/18 17:52*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*121*		*35 - 197*	*08/27/18 15:30*	*08/31/18 17:52*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0050	B	0.00091	0.00016	ug/Kg	☼	08/27/18 15:30	09/05/18 12:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*65*		*24 - 169*	*08/27/18 15:30*	*09/05/18 12:27*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*124*		*35 - 197*	*08/27/18 15:30*	*09/05/18 12:27*	*1*

Client Sample ID: PDI-SC-S007-10to12
Date Collected: 08/10/18 11:10
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-13
Matrix: Solid
Percent Solids: 58.2

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	0.22	B	0.0043	0.0016	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
1,2,3,4,6,7,8-HpCDF	0.040	B	0.0043	0.00044	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
1,2,3,4,7,8,9-HpCDF	0.0039	J B	0.0043	0.00047	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
1,2,3,4,7,8-HxCDD	0.0015	J B	0.0043	0.00023	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
1,2,3,4,7,8-HxCDF	0.0093		0.0043	0.00066	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
1,2,3,6,7,8-HxCDD	0.010		0.0043	0.00022	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
1,2,3,6,7,8-HxCDF	0.0047		0.0043	0.00052	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
1,2,3,7,8,9-HxCDD	0.0036	J	0.0043	0.00020	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
1,2,3,7,8,9-HxCDF	0.00044	J B	0.0043	0.00027	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
1,2,3,7,8-PeCDD	0.00071	J q	0.0043	0.00020	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
1,2,3,7,8-PeCDF	0.0063		0.0043	0.00034	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
2,3,4,6,7,8-HxCDF	0.0012	J	0.0043	0.00043	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
2,3,4,7,8-PeCDF	0.0039	J	0.0043	0.00036	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
2,3,7,8-TCDD	0.00044	J q	0.00087	0.000040	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
OCDD	2.6	B	0.0087	0.00065	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1
OCDF	0.13	B	0.0087	0.000079	ug/Kg	☼	08/27/18 15:30	08/31/18 18:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*45*		*23 - 140*	*08/27/18 15:30*	*08/31/18 18:38*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*43*		*28 - 143*	*08/27/18 15:30*	*08/31/18 18:38*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*44*		*26 - 138*	*08/27/18 15:30*	*08/31/18 18:38*	*1*
13C-1,2,3,4,7,8-HxCDD	*41*		*32 - 141*	*08/27/18 15:30*	*08/31/18 18:38*	*1*
13C-1,2,3,4,7,8-HxCDF	*43*		*26 - 152*	*08/27/18 15:30*	*08/31/18 18:38*	*1*
13C-1,2,3,6,7,8-HxCDD	*48*		*28 - 130*	*08/27/18 15:30*	*08/31/18 18:38*	*1*
13C-1,2,3,6,7,8-HxCDF	*48*		*26 - 123*	*08/27/18 15:30*	*08/31/18 18:38*	*1*
13C-1,2,3,7,8,9-HxCDF	*52*		*29 - 147*	*08/27/18 15:30*	*08/31/18 18:38*	*1*
13C-1,2,3,7,8-PeCDD	*53*		*25 - 181*	*08/27/18 15:30*	*08/31/18 18:38*	*1*
13C-1,2,3,7,8-PeCDF	*51*		*24 - 185*	*08/27/18 15:30*	*08/31/18 18:38*	*1*
13C-2,3,4,6,7,8-HxCDF	*49*		*28 - 136*	*08/27/18 15:30*	*08/31/18 18:38*	*1*
13C-2,3,4,7,8-PeCDF	*53*		*21 - 178*	*08/27/18 15:30*	*08/31/18 18:38*	*1*
13C-2,3,7,8-TCDD	*57*		*25 - 164*	*08/27/18 15:30*	*08/31/18 18:38*	*1*
13C-OCDD	*37*		*17 - 157*	*08/27/18 15:30*	*08/31/18 18:38*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*116*		*35 - 197*	*08/27/18 15:30*	*08/31/18 18:38*	*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	0.0078	B	0.00087	0.00025	ug/Kg	☼	08/27/18 15:30	09/05/18 13:05	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*64*		*24 - 169*	*08/27/18 15:30*	*09/05/18 13:05*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*120*		*35 - 197*	*08/27/18 15:30*	*09/05/18 13:05*	*1*

Client Sample ID: PDI-SC-S007-12to14
Date Collected: 08/10/18 11:15
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-14
Matrix: Solid
Percent Solids: 58.1

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	0.43	B	0.0043	0.0023	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
1,2,3,4,6,7,8-HpCDF	0.075	B	0.0043	0.00077	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
1,2,3,4,7,8,9-HpCDF	0.0060	B	0.0043	0.00091	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
1,2,3,4,7,8-HxCDD	0.0032	J B	0.0043	0.00028	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
1,2,3,4,7,8-HxCDF	0.016		0.0043	0.00062	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
1,2,3,6,7,8-HxCDD	0.017		0.0043	0.00025	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
1,2,3,6,7,8-HxCDF	0.0071		0.0043	0.00063	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
1,2,3,7,8,9-HxCDD	0.0073		0.0043	0.00024	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
1,2,3,7,8,9-HxCDF	0.00053	J B	0.0043	0.00035	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
1,2,3,7,8-PeCDD	0.0018	J	0.0043	0.00019	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
1,2,3,7,8-PeCDF	0.0067		0.0043	0.00034	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
2,3,4,6,7,8-HxCDF	0.0020	J	0.0043	0.00061	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
2,3,4,7,8-PeCDF	0.0036	J	0.0043	0.00036	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
2,3,7,8-TCDD	0.0017		0.00087	0.000044	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
OCDD	5.8	E B	0.0087	0.0014	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1
OCDF	0.24	B	0.0087	0.000089	ug/Kg	☼	08/27/18 15:30	08/31/18 19:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*42*		*23 - 140*	*08/27/18 15:30*	*08/31/18 19:24*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*40*		*28 - 143*	*08/27/18 15:30*	*08/31/18 19:24*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*38*		*26 - 138*	*08/27/18 15:30*	*08/31/18 19:24*	*1*
13C-1,2,3,4,7,8-HxCDD	*46*		*32 - 141*	*08/27/18 15:30*	*08/31/18 19:24*	*1*
13C-1,2,3,4,7,8-HxCDF	*45*		*26 - 152*	*08/27/18 15:30*	*08/31/18 19:24*	*1*
13C-1,2,3,6,7,8-HxCDD	*46*		*28 - 130*	*08/27/18 15:30*	*08/31/18 19:24*	*1*
13C-1,2,3,6,7,8-HxCDF	*46*		*26 - 123*	*08/27/18 15:30*	*08/31/18 19:24*	*1*
13C-1,2,3,7,8,9-HxCDF	*48*		*29 - 147*	*08/27/18 15:30*	*08/31/18 19:24*	*1*
13C-1,2,3,7,8-PeCDD	*51*		*25 - 181*	*08/27/18 15:30*	*08/31/18 19:24*	*1*
13C-1,2,3,7,8-PeCDF	*48*		*24 - 185*	*08/27/18 15:30*	*08/31/18 19:24*	*1*
13C-2,3,4,6,7,8-HxCDF	*46*		*28 - 136*	*08/27/18 15:30*	*08/31/18 19:24*	*1*
13C-2,3,4,7,8-PeCDF	*49*		*21 - 178*	*08/27/18 15:30*	*08/31/18 19:24*	*1*
13C-2,3,7,8-TCDD	*54*		*25 - 164*	*08/27/18 15:30*	*08/31/18 19:24*	*1*
13C-OCDD	*35*		*17 - 157*	*08/27/18 15:30*	*08/31/18 19:24*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*114*		*35 - 197*	*08/27/18 15:30*	*08/31/18 19:24*	*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	0.0078	B	0.00087	0.00077	ug/Kg	☼	08/27/18 15:30	09/05/18 13:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*54*		*24 - 169*	*08/27/18 15:30*	*09/05/18 13:42*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*108*		*35 - 197*	*08/27/18 15:30*	*09/05/18 13:42*	*1*

Client Sample ID: PDI-SC-S007-14to16
Date Collected: 08/10/18 11:20
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-15
Matrix: Solid
Percent Solids: 61.3

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	0.13	B	0.0041	0.0011	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
1,2,3,4,6,7,8-HpCDF	0.031	B	0.0041	0.00042	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
1,2,3,4,7,8,9-HpCDF	0.0029	J B	0.0041	0.00047	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
1,2,3,4,7,8-HxCDD	0.00075	J B	0.0041	0.00021	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
1,2,3,4,7,8-HxCDF	0.0061		0.0041	0.00035	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
1,2,3,6,7,8-HxCDD	0.0047		0.0041	0.00020	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
1,2,3,6,7,8-HxCDF	0.0040	J	0.0041	0.00036	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
1,2,3,7,8,9-HxCDD	0.0022	J	0.0041	0.00018	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
1,2,3,7,8,9-HxCDF	0.00038	J B	0.0041	0.00019	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
1,2,3,7,8-PeCDD	0.00046	J	0.0041	0.000069	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
1,2,3,7,8-PeCDF	0.0016	J	0.0041	0.00014	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
2,3,4,6,7,8-HxCDF	0.00074	J	0.0041	0.00032	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
2,3,4,7,8-PeCDF	0.00082	J	0.0041	0.00015	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
2,3,7,8-TCDD	0.00047	J q	0.00082	0.000033	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
OCDD	1.9	B	0.0082	0.00048	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1
OCDF	0.096	B	0.0082	0.000068	ug/Kg	☼	08/27/18 15:30	08/31/18 20:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*43*		*23 - 140*	*08/27/18 15:30*	*08/31/18 20:10*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*40*		*28 - 143*	*08/27/18 15:30*	*08/31/18 20:10*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*40*		*26 - 138*	*08/27/18 15:30*	*08/31/18 20:10*	*1*
13C-1,2,3,4,7,8-HxCDD	*46*		*32 - 141*	*08/27/18 15:30*	*08/31/18 20:10*	*1*
13C-1,2,3,4,7,8-HxCDF	*45*		*26 - 152*	*08/27/18 15:30*	*08/31/18 20:10*	*1*
13C-1,2,3,6,7,8-HxCDD	*46*		*28 - 130*	*08/27/18 15:30*	*08/31/18 20:10*	*1*
13C-1,2,3,6,7,8-HxCDF	*45*		*26 - 123*	*08/27/18 15:30*	*08/31/18 20:10*	*1*
13C-1,2,3,7,8,9-HxCDF	*49*		*29 - 147*	*08/27/18 15:30*	*08/31/18 20:10*	*1*
13C-1,2,3,7,8-PeCDD	*51*		*25 - 181*	*08/27/18 15:30*	*08/31/18 20:10*	*1*
13C-1,2,3,7,8-PeCDF	*50*		*24 - 185*	*08/27/18 15:30*	*08/31/18 20:10*	*1*
13C-2,3,4,6,7,8-HxCDF	*47*		*28 - 136*	*08/27/18 15:30*	*08/31/18 20:10*	*1*
13C-2,3,4,7,8-PeCDF	*51*		*21 - 178*	*08/27/18 15:30*	*08/31/18 20:10*	*1*
13C-2,3,7,8-TCDD	*57*		*25 - 164*	*08/27/18 15:30*	*08/31/18 20:10*	*1*
13C-OCDD	*34*		*17 - 157*	*08/27/18 15:30*	*08/31/18 20:10*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*120*		*35 - 197*	*08/27/18 15:30*	*08/31/18 20:10*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.00091	B	0.00082	0.00013	ug/Kg	☼	08/27/18 15:30	09/06/18 17:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*59*		*24 - 169*	*08/27/18 15:30*	*09/06/18 17:09*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*116*		*35 - 197*	*08/27/18 15:30*	*09/06/18 17:09*	*1*

Client Sample ID: PDI-SC-S010-0to2
Date Collected: 08/10/18 14:15
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-16
Matrix: Solid
Percent Solids: 50.7

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	0.16	B	0.0049	0.0016	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
1,2,3,4,6,7,8-HpCDF	0.018	B q	0.0049	0.00032	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
1,2,3,4,7,8,9-HpCDF	0.0016	J B	0.0049	0.00033	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
1,2,3,4,7,8-HxCDD	0.00093	J B	0.0049	0.00021	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
1,2,3,4,7,8-HxCDF	0.0044	J	0.0049	0.00026	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
1,2,3,6,7,8-HxCDD	0.0040	J	0.0049	0.00020	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
1,2,3,6,7,8-HxCDF	0.0018	J	0.0049	0.00026	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
1,2,3,7,8,9-HxCDD	0.0026	J	0.0049	0.00019	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
1,2,3,7,8,9-HxCDF	0.00032	J B	0.0049	0.00014	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
1,2,3,7,8-PeCDD	ND		0.0049	0.00017	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
1,2,3,7,8-PeCDF	0.0023	J	0.0049	0.00033	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
2,3,4,6,7,8-HxCDF	0.0016	J	0.0049	0.00025	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
2,3,4,7,8-PeCDF	0.0037	J	0.0049	0.00036	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
2,3,7,8-TCDD	0.00030	J q	0.00099	0.000054	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
OCDD	1.3	B	0.0099	0.00097	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1
OCDF	0.052	B	0.0099	0.000067	ug/Kg	☼	08/27/18 15:30	08/31/18 20:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*44*		*23 - 140*	*08/27/18 15:30*	*08/31/18 20:56*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*39*		*28 - 143*	*08/27/18 15:30*	*08/31/18 20:56*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*45*		*26 - 138*	*08/27/18 15:30*	*08/31/18 20:56*	*1*
13C-1,2,3,4,7,8-HxCDD	*45*		*32 - 141*	*08/27/18 15:30*	*08/31/18 20:56*	*1*
13C-1,2,3,4,7,8-HxCDF	*44*		*26 - 152*	*08/27/18 15:30*	*08/31/18 20:56*	*1*
13C-1,2,3,6,7,8-HxCDD	*44*		*28 - 130*	*08/27/18 15:30*	*08/31/18 20:56*	*1*
13C-1,2,3,6,7,8-HxCDF	*45*		*26 - 123*	*08/27/18 15:30*	*08/31/18 20:56*	*1*
13C-1,2,3,7,8,9-HxCDF	*49*		*29 - 147*	*08/27/18 15:30*	*08/31/18 20:56*	*1*
13C-1,2,3,7,8-PeCDD	*49*		*25 - 181*	*08/27/18 15:30*	*08/31/18 20:56*	*1*
13C-1,2,3,7,8-PeCDF	*47*		*24 - 185*	*08/27/18 15:30*	*08/31/18 20:56*	*1*
13C-2,3,4,6,7,8-HxCDF	*46*		*28 - 136*	*08/27/18 15:30*	*08/31/18 20:56*	*1*
13C-2,3,4,7,8-PeCDF	*49*		*21 - 178*	*08/27/18 15:30*	*08/31/18 20:56*	*1*
13C-2,3,7,8-TCDD	*56*		*25 - 164*	*08/27/18 15:30*	*08/31/18 20:56*	*1*
13C-OCDD	*33*		*17 - 157*	*08/27/18 15:30*	*08/31/18 20:56*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*112*		*35 - 197*	*08/27/18 15:30*	*08/31/18 20:56*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0066	B G	0.0023	0.0023	ug/Kg	☼	08/27/18 15:30	09/05/18 14:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*64*		*24 - 169*	*08/27/18 15:30*	*09/05/18 14:20*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*112*		*35 - 197*	*08/27/18 15:30*	*09/05/18 14:20*	*1*

Client Sample ID: PDI-SC-S010-2to4
Date Collected: 08/10/18 14:20
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-17
Matrix: Solid
Percent Solids: 60.8

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	0.094	B	0.0041	0.00085	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
1,2,3,4,6,7,8-HpCDF	0.042	B	0.0041	0.00032	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
1,2,3,4,7,8,9-HpCDF	0.0011	J B	0.0041	0.00033	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
1,2,3,4,7,8-HxCDD	0.0011	J B	0.0041	0.00015	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
1,2,3,4,7,8-HxCDF	0.0030	J	0.0041	0.00027	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
1,2,3,6,7,8-HxCDD	0.0050		0.0041	0.00013	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
1,2,3,6,7,8-HxCDF	0.0017	J	0.0041	0.00028	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
1,2,3,7,8,9-HxCDD	0.0026	J	0.0041	0.00013	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
1,2,3,7,8,9-HxCDF	0.00022	J B	0.0041	0.00015	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
1,2,3,7,8-PeCDD	0.00076	J	0.0041	0.00025	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
1,2,3,7,8-PeCDF	0.0022	J	0.0041	0.00032	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
2,3,4,6,7,8-HxCDF	0.0015	J	0.0041	0.00026	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
2,3,4,7,8-PeCDF	0.0037	J	0.0041	0.00035	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
2,3,7,8-TCDD	0.00032	J q	0.00082	0.000046	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
OCDD	0.85	B	0.0082	0.00051	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1
OCDF	0.050	B	0.0082	0.000047	ug/Kg	☼	08/27/18 15:30	08/31/18 21:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*52*		*23 - 140*	*08/27/18 15:30*	*08/31/18 21:42*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*49*		*28 - 143*	*08/27/18 15:30*	*08/31/18 21:42*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*50*		*26 - 138*	*08/27/18 15:30*	*08/31/18 21:42*	*1*
13C-1,2,3,4,7,8-HxCDD	*54*		*32 - 141*	*08/27/18 15:30*	*08/31/18 21:42*	*1*
13C-1,2,3,4,7,8-HxCDF	*52*		*26 - 152*	*08/27/18 15:30*	*08/31/18 21:42*	*1*
13C-1,2,3,6,7,8-HxCDD	*53*		*28 - 130*	*08/27/18 15:30*	*08/31/18 21:42*	*1*
13C-1,2,3,6,7,8-HxCDF	*54*		*26 - 123*	*08/27/18 15:30*	*08/31/18 21:42*	*1*
13C-1,2,3,7,8,9-HxCDF	*57*		*29 - 147*	*08/27/18 15:30*	*08/31/18 21:42*	*1*
13C-1,2,3,7,8-PeCDD	*57*		*25 - 181*	*08/27/18 15:30*	*08/31/18 21:42*	*1*
13C-1,2,3,7,8-PeCDF	*54*		*24 - 185*	*08/27/18 15:30*	*08/31/18 21:42*	*1*
13C-2,3,4,6,7,8-HxCDF	*53*		*28 - 136*	*08/27/18 15:30*	*08/31/18 21:42*	*1*
13C-2,3,4,7,8-PeCDF	*55*		*21 - 178*	*08/27/18 15:30*	*08/31/18 21:42*	*1*
13C-2,3,7,8-TCDD	*62*		*25 - 164*	*08/27/18 15:30*	*08/31/18 21:42*	*1*
13C-OCDD	*42*		*17 - 157*	*08/27/18 15:30*	*08/31/18 21:42*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*113*		*35 - 197*	*08/27/18 15:30*	*08/31/18 21:42*	*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	0.0064	B	0.00082	0.00036	ug/Kg	☼	08/27/18 15:30	09/05/18 14:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*63*		*24 - 169*	*08/27/18 15:30*	*09/05/18 14:58*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*112*		*35 - 197*	*08/27/18 15:30*	*09/05/18 14:58*	*1*

Client Sample ID: PDI-SC-S010-4to6.4
Date Collected: 08/10/18 14:25
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-18
Matrix: Solid
Percent Solids: 66.2

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	0.10	B	0.0037	0.00063	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
1,2,3,4,6,7,8-HpCDF	0.024	B	0.0037	0.00028	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
1,2,3,4,7,8,9-HpCDF	0.0015	J B	0.0037	0.00031	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
1,2,3,4,7,8-HxCDD	0.00089	J B	0.0037	0.00011	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
1,2,3,4,7,8-HxCDF	0.0029	J	0.0037	0.00018	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
1,2,3,6,7,8-HxCDD	0.0054		0.0037	0.00010	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
1,2,3,6,7,8-HxCDF	0.0022	J	0.0037	0.00018	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
1,2,3,7,8,9-HxCDD	0.0024	J	0.0037	0.000095	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
1,2,3,7,8,9-HxCDF	0.00022	J B	0.0037	0.00010	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
1,2,3,7,8-PeCDD	0.00045	J	0.0037	0.00012	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
1,2,3,7,8-PeCDF	0.0018	J	0.0037	0.00018	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
2,3,4,6,7,8-HxCDF	0.0012	J	0.0037	0.00016	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
2,3,4,7,8-PeCDF	0.0023	J	0.0037	0.00020	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
2,3,7,8-TCDD	0.00025	J q	0.00074	0.000038	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
OCDD	0.94	B	0.0074	0.00030	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1
OCDF	0.035	B	0.0074	0.000032	ug/Kg	☼	08/27/18 15:30	08/31/18 22:28	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*59*		*23 - 140*	*08/27/18 15:30*	*08/31/18 22:28*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*53*		*28 - 143*	*08/27/18 15:30*	*08/31/18 22:28*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*52*		*26 - 138*	*08/27/18 15:30*	*08/31/18 22:28*	*1*
13C-1,2,3,4,7,8-HxCDD	*54*		*32 - 141*	*08/27/18 15:30*	*08/31/18 22:28*	*1*
13C-1,2,3,4,7,8-HxCDF	*54*		*26 - 152*	*08/27/18 15:30*	*08/31/18 22:28*	*1*
13C-1,2,3,6,7,8-HxCDD	*54*		*28 - 130*	*08/27/18 15:30*	*08/31/18 22:28*	*1*
13C-1,2,3,6,7,8-HxCDF	*55*		*26 - 123*	*08/27/18 15:30*	*08/31/18 22:28*	*1*
13C-1,2,3,7,8,9-HxCDF	*59*		*29 - 147*	*08/27/18 15:30*	*08/31/18 22:28*	*1*
13C-1,2,3,7,8-PeCDD	*60*		*25 - 181*	*08/27/18 15:30*	*08/31/18 22:28*	*1*
13C-1,2,3,7,8-PeCDF	*57*		*24 - 185*	*08/27/18 15:30*	*08/31/18 22:28*	*1*
13C-2,3,4,6,7,8-HxCDF	*57*		*28 - 136*	*08/27/18 15:30*	*08/31/18 22:28*	*1*
13C-2,3,4,7,8-PeCDF	*56*		*21 - 178*	*08/27/18 15:30*	*08/31/18 22:28*	*1*
13C-2,3,7,8-TCDD	*65*		*25 - 164*	*08/27/18 15:30*	*08/31/18 22:28*	*1*
13C-OCDD	*47*		*17 - 157*	*08/27/18 15:30*	*08/31/18 22:28*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*123*		*35 - 197*	*08/27/18 15:30*	*08/31/18 22:28*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0042	B	0.00074	0.00033	ug/Kg	☼	08/27/18 15:30	09/05/18 15:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*68*		*24 - 169*	*08/27/18 15:30*	*09/05/18 15:36*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*117*		*35 - 197*	*08/27/18 15:30*	*09/05/18 15:36*	*1*

Client Sample ID: PDI-SC-S010-6.4to8.4
Date Collected: 08/10/18 14:30
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-19
Matrix: Solid
Percent Solids: 73.7

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.013	B	0.0034	0.00013	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
1,2,3,4,6,7,8-HpCDF	0.0074	B	0.0034	0.00010	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
1,2,3,4,7,8,9-HpCDF	ND		0.0034	0.00010	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
1,2,3,4,7,8-HxCDD	0.00016	J B q	0.0034	0.000049	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
1,2,3,4,7,8-HxCDF	ND		0.0034	0.000081	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
1,2,3,6,7,8-HxCDD	0.00059	J	0.0034	0.000043	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
1,2,3,6,7,8-HxCDF	0.00043	J q	0.0034	0.000079	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
1,2,3,7,8,9-HxCDD	0.00036	J	0.0034	0.000042	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
1,2,3,7,8,9-HxCDF	0.00021	J B	0.0034	0.000043	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
1,2,3,7,8-PeCDD	0.000087	J	0.0034	0.000027	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
1,2,3,7,8-PeCDF	0.00010	J q	0.0034	0.000049	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
2,3,4,6,7,8-HxCDF	0.00016	J	0.0034	0.000073	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
2,3,4,7,8-PeCDF	0.00013	J	0.0034	0.000055	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
2,3,7,8-TCDD	0.000073	J q	0.00068	0.000018	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
2,3,7,8-TCDF	0.00024	J B	0.00068	0.000044	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
OCDD	0.16	B	0.0068	0.000095	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1
OCDF	0.016	B	0.0068	0.000028	ug/Kg	☼	08/27/18 15:30	08/31/18 23:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*56*		*23 - 140*	*08/27/18 15:30*	*08/31/18 23:14*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*50*		*28 - 143*	*08/27/18 15:30*	*08/31/18 23:14*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*56*		*26 - 138*	*08/27/18 15:30*	*08/31/18 23:14*	*1*
13C-1,2,3,4,7,8-HxCDD	*46*		*32 - 141*	*08/27/18 15:30*	*08/31/18 23:14*	*1*
13C-1,2,3,4,7,8-HxCDF	*46*		*26 - 152*	*08/27/18 15:30*	*08/31/18 23:14*	*1*
13C-1,2,3,6,7,8-HxCDD	*50*		*28 - 130*	*08/27/18 15:30*	*08/31/18 23:14*	*1*
13C-1,2,3,6,7,8-HxCDF	*49*		*26 - 123*	*08/27/18 15:30*	*08/31/18 23:14*	*1*
13C-1,2,3,7,8,9-HxCDF	*54*		*29 - 147*	*08/27/18 15:30*	*08/31/18 23:14*	*1*
13C-1,2,3,7,8-PeCDD	*52*		*25 - 181*	*08/27/18 15:30*	*08/31/18 23:14*	*1*
13C-1,2,3,7,8-PeCDF	*50*		*24 - 185*	*08/27/18 15:30*	*08/31/18 23:14*	*1*
13C-2,3,4,6,7,8-HxCDF	*51*		*28 - 136*	*08/27/18 15:30*	*08/31/18 23:14*	*1*
13C-2,3,4,7,8-PeCDF	*49*		*21 - 178*	*08/27/18 15:30*	*08/31/18 23:14*	*1*
13C-2,3,7,8-TCDD	*58*		*25 - 164*	*08/27/18 15:30*	*08/31/18 23:14*	*1*
13C-2,3,7,8-TCDF	*55*		*24 - 169*	*08/27/18 15:30*	*08/31/18 23:14*	*1*
13C-OCDD	*47*		*17 - 157*	*08/27/18 15:30*	*08/31/18 23:14*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*116*		*35 - 197*	*08/27/18 15:30*	*08/31/18 23:14*	*1*

Client Sample ID: PDI-SC-S010-8.4to10.8
Date Collected: 08/10/18 14:35
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-20
Matrix: Solid
Percent Solids: 72.5

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.0027	J B	0.0035	0.000063	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
1,2,3,4,6,7,8-HpCDF	0.00064	J B q	0.0035	0.000036	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
1,2,3,4,7,8,9-HpCDF	0.00013	J B	0.0035	0.000038	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
1,2,3,4,7,8-HxCDD	0.00013	J B	0.0035	0.000041	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
1,2,3,4,7,8-HxCDF	0.000073	J q	0.0035	0.000030	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
1,2,3,6,7,8-HxCDD	0.00015	J	0.0035	0.000037	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
1,2,3,6,7,8-HxCDF	0.000057	J	0.0035	0.000032	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
1,2,3,7,8,9-HxCDD	0.00015	J	0.0035	0.000035	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
1,2,3,7,8,9-HxCDF	0.00017	J B	0.0035	0.000018	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
1,2,3,7,8-PeCDD	ND		0.0035	0.000026	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
1,2,3,7,8-PeCDF	0.000052	J	0.0035	0.000022	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
2,3,4,6,7,8-HxCDF	0.000037	J	0.0035	0.000029	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
2,3,4,7,8-PeCDF	ND		0.0035	0.000021	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
2,3,7,8-TCDD	0.00019	J q	0.00069	0.000027	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
2,3,7,8-TCDF	0.000072	J B	0.00069	0.000016	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
OCDD	0.031	B	0.0069	0.000061	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1
OCDF	0.0013	J B	0.0069	0.000031	ug/Kg	☼	08/27/18 17:23	09/01/18 00:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*55*		*23 - 140*	*08/27/18 17:23*	*09/01/18 00:10*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*48*		*28 - 143*	*08/27/18 17:23*	*09/01/18 00:10*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*55*		*26 - 138*	*08/27/18 17:23*	*09/01/18 00:10*	*1*
13C-1,2,3,4,7,8-HxCDD	*50*		*32 - 141*	*08/27/18 17:23*	*09/01/18 00:10*	*1*
13C-1,2,3,4,7,8-HxCDF	*51*		*26 - 152*	*08/27/18 17:23*	*09/01/18 00:10*	*1*
13C-1,2,3,6,7,8-HxCDD	*53*		*28 - 130*	*08/27/18 17:23*	*09/01/18 00:10*	*1*
13C-1,2,3,6,7,8-HxCDF	*52*		*26 - 123*	*08/27/18 17:23*	*09/01/18 00:10*	*1*
13C-1,2,3,7,8,9-HxCDF	*55*		*29 - 147*	*08/27/18 17:23*	*09/01/18 00:10*	*1*
13C-1,2,3,7,8-PeCDD	*55*		*25 - 181*	*08/27/18 17:23*	*09/01/18 00:10*	*1*
13C-1,2,3,7,8-PeCDF	*51*		*24 - 185*	*08/27/18 17:23*	*09/01/18 00:10*	*1*
13C-2,3,4,6,7,8-HxCDF	*53*		*28 - 136*	*08/27/18 17:23*	*09/01/18 00:10*	*1*
13C-2,3,4,7,8-PeCDF	*55*		*21 - 178*	*08/27/18 17:23*	*09/01/18 00:10*	*1*
13C-2,3,7,8-TCDD	*62*		*25 - 164*	*08/27/18 17:23*	*09/01/18 00:10*	*1*
13C-2,3,7,8-TCDF	*60*		*24 - 169*	*08/27/18 17:23*	*09/01/18 00:10*	*1*
13C-OCDD	*42*		*17 - 157*	*08/27/18 17:23*	*09/01/18 00:10*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*120*		*35 - 197*	*08/27/18 17:23*	*09/01/18 00:10*	*1*

Client Sample ID: PDI-SC-S010-10.8to13.4
Date Collected: 08/10/18 14:40
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-21
Matrix: Solid
Percent Solids: 67.7

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	**0.0015**	**J B**	0.0036	0.000037	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
1,2,3,4,6,7,8-HpCDF	**0.00042**	**J B**	0.0036	0.000039	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
1,2,3,4,7,8,9-HpCDF	**0.00041**	**J**	0.0036	0.000043	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
1,2,3,4,7,8-HxCDD	**0.00017**	**J**	0.0036	0.000058	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
1,2,3,4,7,8-HxCDF	ND		0.0036	0.000078	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
1,2,3,6,7,8-HxCDD	**0.00015**	**J q**	0.0036	0.000052	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
1,2,3,6,7,8-HxCDF	ND		0.0036	0.000075	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
1,2,3,7,8,9-HxCDD	**0.00033**	**J**	0.0036	0.000050	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
1,2,3,7,8,9-HxCDF	**0.00049**	**J B**	0.0036	0.000047	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
1,2,3,7,8-PeCDD	**0.000066**	**J q**	0.0036	0.000044	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
1,2,3,7,8-PeCDF	**0.00020**	**J**	0.0036	0.000036	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
2,3,4,6,7,8-HxCDF	ND		0.0036	0.000076	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
2,3,4,7,8-PeCDF	**0.00012**	**J**	0.0036	0.000037	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
2,3,7,8-TCDD	ND		0.00073	0.000029	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
2,3,7,8-TCDF	**0.00011**	**J B**	0.00073	0.000021	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
OCDD	**0.016**	**B**	0.0073	0.000060	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1
OCDF	**0.0014**	**J B**	0.0073	0.000048	ug/Kg	☼	08/28/18 13:33	09/04/18 15:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*41*		*23 - 140*	*08/28/18 13:33*	*09/04/18 15:50*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*35*		*28 - 143*	*08/28/18 13:33*	*09/04/18 15:50*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*41*		*26 - 138*	*08/28/18 13:33*	*09/04/18 15:50*	*1*
13C-1,2,3,4,7,8-HxCDD	*39*		*32 - 141*	*08/28/18 13:33*	*09/04/18 15:50*	*1*
13C-1,2,3,4,7,8-HxCDF	*37*		*26 - 152*	*08/28/18 13:33*	*09/04/18 15:50*	*1*
13C-1,2,3,6,7,8-HxCDD	*42*		*28 - 130*	*08/28/18 13:33*	*09/04/18 15:50*	*1*
13C-1,2,3,6,7,8-HxCDF	*43*		*26 - 123*	*08/28/18 13:33*	*09/04/18 15:50*	*1*
13C-1,2,3,7,8,9-HxCDF	*43*		*29 - 147*	*08/28/18 13:33*	*09/04/18 15:50*	*1*
13C-1,2,3,7,8-PeCDD	*43*		*25 - 181*	*08/28/18 13:33*	*09/04/18 15:50*	*1*
13C-1,2,3,7,8-PeCDF	*42*		*24 - 185*	*08/28/18 13:33*	*09/04/18 15:50*	*1*
13C-2,3,4,6,7,8-HxCDF	*41*		*28 - 136*	*08/28/18 13:33*	*09/04/18 15:50*	*1*
13C-2,3,4,7,8-PeCDF	*45*		*21 - 178*	*08/28/18 13:33*	*09/04/18 15:50*	*1*
13C-2,3,7,8-TCDD	*55*		*25 - 164*	*08/28/18 13:33*	*09/04/18 15:50*	*1*
13C-2,3,7,8-TCDF	*52*		*24 - 169*	*08/28/18 13:33*	*09/04/18 15:50*	*1*
13C-OCDD	*31*		*17 - 157*	*08/28/18 13:33*	*09/04/18 15:50*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*126*		*35 - 197*	*08/28/18 13:33*	*09/04/18 15:50*	*1*

Client Sample ID: PDI-SC-S010-13.4to14.4
Date Collected: 08/10/18 14:45
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-22
Matrix: Solid
Percent Solids: 71.3

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	**0.0011**	**J B**	0.0035	0.000027	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
1,2,3,4,6,7,8-HpCDF	**0.00013**	**J B**	0.0035	0.000022	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
1,2,3,4,7,8,9-HpCDF	**0.00015**	**J**	0.0035	0.000025	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
1,2,3,4,7,8-HxCDD	**0.00011**	**J**	0.0035	0.000042	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
1,2,3,4,7,8-HxCDF	ND		0.0035	0.000035	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
1,2,3,6,7,8-HxCDD	**0.000069**	**J**	0.0035	0.000038	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
1,2,3,6,7,8-HxCDF	**0.000037**	**J**	0.0035	0.000035	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
1,2,3,7,8,9-HxCDD	**0.00016**	**J**	0.0035	0.000037	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
1,2,3,7,8,9-HxCDF	**0.00029**	**J B**	0.0035	0.000022	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
1,2,3,7,8-PeCDD	ND		0.0035	0.000023	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
1,2,3,7,8-PeCDF	**0.000076**	**J**	0.0035	0.000021	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
2,3,4,6,7,8-HxCDF	ND		0.0035	0.000035	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
2,3,4,7,8-PeCDF	ND		0.0035	0.000022	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
2,3,7,8-TCDD	ND		0.00070	0.000025	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
2,3,7,8-TCDF	**0.000056**	**J B**	0.00070	0.000014	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
OCDD	**0.012**	**B**	0.0070	0.000034	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1
OCDF	**0.00039**	**J B**	0.0070	0.000027	ug/Kg	☼	08/28/18 13:33	09/04/18 16:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*55*		*23 - 140*	*08/28/18 13:33*	*09/04/18 16:36*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*48*		*28 - 143*	*08/28/18 13:33*	*09/04/18 16:36*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*53*		*26 - 138*	*08/28/18 13:33*	*09/04/18 16:36*	*1*
13C-1,2,3,4,7,8-HxCDD	*48*		*32 - 141*	*08/28/18 13:33*	*09/04/18 16:36*	*1*
13C-1,2,3,4,7,8-HxCDF	*48*		*26 - 152*	*08/28/18 13:33*	*09/04/18 16:36*	*1*
13C-1,2,3,6,7,8-HxCDD	*54*		*28 - 130*	*08/28/18 13:33*	*09/04/18 16:36*	*1*
13C-1,2,3,6,7,8-HxCDF	*53*		*26 - 123*	*08/28/18 13:33*	*09/04/18 16:36*	*1*
13C-1,2,3,7,8,9-HxCDF	*54*		*29 - 147*	*08/28/18 13:33*	*09/04/18 16:36*	*1*
13C-1,2,3,7,8-PeCDD	*55*		*25 - 181*	*08/28/18 13:33*	*09/04/18 16:36*	*1*
13C-1,2,3,7,8-PeCDF	*53*		*24 - 185*	*08/28/18 13:33*	*09/04/18 16:36*	*1*
13C-2,3,4,6,7,8-HxCDF	*52*		*28 - 136*	*08/28/18 13:33*	*09/04/18 16:36*	*1*
13C-2,3,4,7,8-PeCDF	*55*		*21 - 178*	*08/28/18 13:33*	*09/04/18 16:36*	*1*
13C-2,3,7,8-TCDD	*64*		*25 - 164*	*08/28/18 13:33*	*09/04/18 16:36*	*1*
13C-2,3,7,8-TCDF	*57*		*24 - 169*	*08/28/18 13:33*	*09/04/18 16:36*	*1*
13C-OCDD	*43*		*17 - 157*	*08/28/18 13:33*	*09/04/18 16:36*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*129*		*35 - 197*	*08/28/18 13:33*	*09/04/18 16:36*	*1*

Client Sample ID: PDI-SC-S009-0to2
Date Collected: 08/10/18 15:50
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-23
Matrix: Solid
Percent Solids: 44.0

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.072	B	0.0056	0.0011	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
1,2,3,4,6,7,8-HpCDF	0.014	q B	0.0056	0.00064	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
1,2,3,4,7,8,9-HpCDF	0.0011	J	0.0056	0.00075	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
1,2,3,4,7,8-HxCDD	ND		0.0056	0.00045	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
1,2,3,4,7,8-HxCDF	0.0019	J	0.0056	0.00065	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
1,2,3,6,7,8-HxCDD	0.0030	J	0.0056	0.00040	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
1,2,3,6,7,8-HxCDF	0.00088	J	0.0056	0.00059	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
1,2,3,7,8,9-HxCDD	0.0023	J	0.0056	0.00039	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
1,2,3,7,8,9-HxCDF	ND		0.0056	0.00042	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
1,2,3,7,8-PeCDD	0.00040	J q	0.0056	0.00022	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
1,2,3,7,8-PeCDF	0.00088	J	0.0056	0.00020	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
2,3,4,6,7,8-HxCDF	ND		0.0056	0.00064	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
2,3,4,7,8-PeCDF	ND		0.0056	0.00024	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
2,3,7,8-TCDD	0.00053	J q	0.0011	0.00017	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
OCDD	0.67	B	0.011	0.0026	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1
OCDF	0.064	B	0.011	0.00030	ug/Kg	☼	08/28/18 13:33	09/04/18 17:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*49*		*23 - 140*	*08/28/18 13:33*	*09/04/18 17:22*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*42*		*28 - 143*	*08/28/18 13:33*	*09/04/18 17:22*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*47*		*26 - 138*	*08/28/18 13:33*	*09/04/18 17:22*	*1*
13C-1,2,3,4,7,8-HxCDD	*42*		*32 - 141*	*08/28/18 13:33*	*09/04/18 17:22*	*1*
13C-1,2,3,4,7,8-HxCDF	*43*		*26 - 152*	*08/28/18 13:33*	*09/04/18 17:22*	*1*
13C-1,2,3,6,7,8-HxCDD	*51*		*28 - 130*	*08/28/18 13:33*	*09/04/18 17:22*	*1*
13C-1,2,3,6,7,8-HxCDF	*51*		*26 - 123*	*08/28/18 13:33*	*09/04/18 17:22*	*1*
13C-1,2,3,7,8,9-HxCDF	*50*		*29 - 147*	*08/28/18 13:33*	*09/04/18 17:22*	*1*
13C-1,2,3,7,8-PeCDD	*50*		*25 - 181*	*08/28/18 13:33*	*09/04/18 17:22*	*1*
13C-1,2,3,7,8-PeCDF	*50*		*24 - 185*	*08/28/18 13:33*	*09/04/18 17:22*	*1*
13C-2,3,4,6,7,8-HxCDF	*49*		*28 - 136*	*08/28/18 13:33*	*09/04/18 17:22*	*1*
13C-2,3,4,7,8-PeCDF	*47*		*21 - 178*	*08/28/18 13:33*	*09/04/18 17:22*	*1*
13C-2,3,7,8-TCDD	*60*		*25 - 164*	*08/28/18 13:33*	*09/04/18 17:22*	*1*
13C-OCDD	*36*		*17 - 157*	*08/28/18 13:33*	*09/04/18 17:22*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*122*		*35 - 197*	*08/28/18 13:33*	*09/04/18 17:22*	*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	ND		0.0011	0.00045	ug/Kg	☼	08/28/18 13:33	09/05/18 16:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*66*		*24 - 169*	*08/28/18 13:33*	*09/05/18 16:14*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*128*		*35 - 197*	*08/28/18 13:33*	*09/05/18 16:14*	*1*

Client Sample ID: PDI-SC-S009-2to4
Date Collected: 08/10/18 15:55
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-24
Matrix: Solid
Percent Solids: 43.2

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	0.083	B	0.0057	0.0011	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
1,2,3,4,6,7,8-HpCDF	0.018	B	0.0057	0.00056	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
1,2,3,4,7,8,9-HpCDF	0.0016	J	0.0057	0.00067	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
1,2,3,4,7,8-HxCDD	ND		0.0057	0.00043	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
1,2,3,4,7,8-HxCDF	0.0058		0.0057	0.00058	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
1,2,3,6,7,8-HxCDD	0.0032	J	0.0057	0.00036	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
1,2,3,6,7,8-HxCDF	ND		0.0057	0.00055	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
1,2,3,7,8,9-HxCDD	0.0025	J	0.0057	0.00036	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
1,2,3,7,8,9-HxCDF	0.00039	J q B	0.0057	0.00039	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
1,2,3,7,8-PeCDD	0.00049	J	0.0057	0.00019	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
1,2,3,7,8-PeCDF	0.0014	J	0.0057	0.00020	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
2,3,4,6,7,8-HxCDF	ND		0.0057	0.00058	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
2,3,4,7,8-PeCDF	ND		0.0057	0.00021	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
2,3,7,8-TCDD	0.00055	J	0.0011	0.00016	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
OCDD	0.75	B	0.011	0.0020	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1
OCDF	0.075	B	0.011	0.00020	ug/Kg	☼	08/28/18 13:33	09/04/18 18:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*49*		*23 - 140*	*08/28/18 13:33*	*09/04/18 18:08*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*41*		*28 - 143*	*08/28/18 13:33*	*09/04/18 18:08*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*45*		*26 - 138*	*08/28/18 13:33*	*09/04/18 18:08*	*1*
13C-1,2,3,4,7,8-HxCDD	*40*		*32 - 141*	*08/28/18 13:33*	*09/04/18 18:08*	*1*
13C-1,2,3,4,7,8-HxCDF	*41*		*26 - 152*	*08/28/18 13:33*	*09/04/18 18:08*	*1*
13C-1,2,3,6,7,8-HxCDD	*46*		*28 - 130*	*08/28/18 13:33*	*09/04/18 18:08*	*1*
13C-1,2,3,6,7,8-HxCDF	*46*		*26 - 123*	*08/28/18 13:33*	*09/04/18 18:08*	*1*
13C-1,2,3,7,8,9-HxCDF	*46*		*29 - 147*	*08/28/18 13:33*	*09/04/18 18:08*	*1*
13C-1,2,3,7,8-PeCDD	*48*		*25 - 181*	*08/28/18 13:33*	*09/04/18 18:08*	*1*
13C-1,2,3,7,8-PeCDF	*46*		*24 - 185*	*08/28/18 13:33*	*09/04/18 18:08*	*1*
13C-2,3,4,6,7,8-HxCDF	*45*		*28 - 136*	*08/28/18 13:33*	*09/04/18 18:08*	*1*
13C-2,3,4,7,8-PeCDF	*48*		*21 - 178*	*08/28/18 13:33*	*09/04/18 18:08*	*1*
13C-2,3,7,8-TCDD	*57*		*25 - 164*	*08/28/18 13:33*	*09/04/18 18:08*	*1*
13C-OCDD	*38*		*17 - 157*	*08/28/18 13:33*	*09/04/18 18:08*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*125*		*35 - 197*	*08/28/18 13:33*	*09/04/18 18:08*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.00097	J B	0.0011	0.00050	ug/Kg	☼	08/28/18 13:33	09/05/18 16:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*64*		*24 - 169*	*08/28/18 13:33*	*09/05/18 16:52*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*133*		*35 - 197*	*08/28/18 13:33*	*09/05/18 16:52*	*1*

Client Sample ID: PDI-SC-S009-4to6
Date Collected: 08/10/18 16:00
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-25
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	0.046	B	0.0055	0.00047	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
1,2,3,4,6,7,8-HpCDF	0.0087	B	0.0055	0.00021	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
1,2,3,4,7,8,9-HpCDF	0.00066	J	0.0055	0.00026	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
1,2,3,4,7,8-HxCDD	0.00074	J	0.0055	0.00016	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
1,2,3,4,7,8-HxCDF	0.0011	J	0.0055	0.00023	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
1,2,3,6,7,8-HxCDD	0.0022	J	0.0055	0.00014	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
1,2,3,6,7,8-HxCDF	0.00057	J	0.0055	0.00022	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
1,2,3,7,8,9-HxCDD	0.0017	J	0.0055	0.00013	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
1,2,3,7,8,9-HxCDF	0.00037	J B	0.0055	0.00014	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
1,2,3,7,8-PeCDD	0.00038	J	0.0055	0.000092	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
1,2,3,7,8-PeCDF	0.00058	J	0.0055	0.000085	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
2,3,4,6,7,8-HxCDF	ND		0.0055	0.00024	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
2,3,4,7,8-PeCDF	0.00045	J	0.0055	0.000089	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
2,3,7,8-TCDD	0.00039	J q	0.0011	0.000062	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
OCDD	0.37	B	0.011	0.00030	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1
OCDF	0.033	B	0.011	0.000052	ug/Kg	☼	08/28/18 13:33	09/04/18 18:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*54*		*23 - 140*	*08/28/18 13:33*	*09/04/18 18:54*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*51*		*28 - 143*	*08/28/18 13:33*	*09/04/18 18:54*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*54*		*26 - 138*	*08/28/18 13:33*	*09/04/18 18:54*	*1*
13C-1,2,3,4,7,8-HxCDD	*49*		*32 - 141*	*08/28/18 13:33*	*09/04/18 18:54*	*1*
13C-1,2,3,4,7,8-HxCDF	*49*		*26 - 152*	*08/28/18 13:33*	*09/04/18 18:54*	*1*
13C-1,2,3,6,7,8-HxCDD	*56*		*28 - 130*	*08/28/18 13:33*	*09/04/18 18:54*	*1*
13C-1,2,3,6,7,8-HxCDF	*56*		*26 - 123*	*08/28/18 13:33*	*09/04/18 18:54*	*1*
13C-1,2,3,7,8,9-HxCDF	*55*		*29 - 147*	*08/28/18 13:33*	*09/04/18 18:54*	*1*
13C-1,2,3,7,8-PeCDD	*51*		*25 - 181*	*08/28/18 13:33*	*09/04/18 18:54*	*1*
13C-1,2,3,7,8-PeCDF	*51*		*24 - 185*	*08/28/18 13:33*	*09/04/18 18:54*	*1*
13C-2,3,4,6,7,8-HxCDF	*52*		*28 - 136*	*08/28/18 13:33*	*09/04/18 18:54*	*1*
13C-2,3,4,7,8-PeCDF	*51*		*21 - 178*	*08/28/18 13:33*	*09/04/18 18:54*	*1*
13C-2,3,7,8-TCDD	*62*		*25 - 164*	*08/28/18 13:33*	*09/04/18 18:54*	*1*
13C-OCDD	*47*		*17 - 157*	*08/28/18 13:33*	*09/04/18 18:54*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*126*		*35 - 197*	*08/28/18 13:33*	*09/04/18 18:54*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.00077	J q B	0.0011	0.00037	ug/Kg	☼	08/28/18 13:33	09/05/18 17:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*64*		*24 - 169*	*08/28/18 13:33*	*09/05/18 17:30*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*128*		*35 - 197*	*08/28/18 13:33*	*09/05/18 17:30*	*1*

Client Sample ID: PDI-SC-S009-6to8
Date Collected: 08/10/18 16:05
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-26
Matrix: Solid
Percent Solids: 49.1

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	0.078	B	0.0051	0.00060	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
1,2,3,4,6,7,8-HpCDF	0.015	q B	0.0051	0.00030	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
1,2,3,4,7,8,9-HpCDF	0.0012	J	0.0051	0.00034	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
1,2,3,4,7,8-HxCDD	0.00089	J	0.0051	0.00016	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
1,2,3,4,7,8-HxCDF	0.0024	J	0.0051	0.00025	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
1,2,3,6,7,8-HxCDD	0.0033	J	0.0051	0.00015	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
1,2,3,6,7,8-HxCDF	0.00096	J	0.0051	0.00024	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
1,2,3,7,8,9-HxCDD	0.0021	J	0.0051	0.00014	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
1,2,3,7,8,9-HxCDF	0.00038	J B	0.0051	0.00016	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
1,2,3,7,8-PeCDD	0.00032	J q	0.0051	0.000085	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
1,2,3,7,8-PeCDF	0.00094	J	0.0051	0.000079	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
2,3,4,6,7,8-HxCDF	ND		0.0051	0.00026	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
2,3,4,7,8-PeCDF	0.00058	J q	0.0051	0.000085	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
2,3,7,8-TCDD	0.00040	J q	0.0010	0.000052	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
OCDD	0.73	B	0.010	0.00052	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1
OCDF	0.064	B	0.010	0.000069	ug/Kg	☼	08/28/18 13:33	09/04/18 19:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*54*		*23 - 140*	*08/28/18 13:33*	*09/04/18 19:40*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*48*		*28 - 143*	*08/28/18 13:33*	*09/04/18 19:40*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*52*		*26 - 138*	*08/28/18 13:33*	*09/04/18 19:40*	*1*
13C-1,2,3,4,7,8-HxCDD	*52*		*32 - 141*	*08/28/18 13:33*	*09/04/18 19:40*	*1*
13C-1,2,3,4,7,8-HxCDF	*51*		*26 - 152*	*08/28/18 13:33*	*09/04/18 19:40*	*1*
13C-1,2,3,6,7,8-HxCDD	*54*		*28 - 130*	*08/28/18 13:33*	*09/04/18 19:40*	*1*
13C-1,2,3,6,7,8-HxCDF	*56*		*26 - 123*	*08/28/18 13:33*	*09/04/18 19:40*	*1*
13C-1,2,3,7,8,9-HxCDF	*55*		*29 - 147*	*08/28/18 13:33*	*09/04/18 19:40*	*1*
13C-1,2,3,7,8-PeCDD	*54*		*25 - 181*	*08/28/18 13:33*	*09/04/18 19:40*	*1*
13C-1,2,3,7,8-PeCDF	*53*		*24 - 185*	*08/28/18 13:33*	*09/04/18 19:40*	*1*
13C-2,3,4,6,7,8-HxCDF	*54*		*28 - 136*	*08/28/18 13:33*	*09/04/18 19:40*	*1*
13C-2,3,4,7,8-PeCDF	*54*		*21 - 178*	*08/28/18 13:33*	*09/04/18 19:40*	*1*
13C-2,3,7,8-TCDD	*62*		*25 - 164*	*08/28/18 13:33*	*09/04/18 19:40*	*1*
13C-OCDD	*45*		*17 - 157*	*08/28/18 13:33*	*09/04/18 19:40*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*126*		*35 - 197*	*08/28/18 13:33*	*09/04/18 19:40*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0017	B	0.0010	0.00013	ug/Kg	☼	08/28/18 13:33	09/05/18 18:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*62*		*24 - 169*	*08/28/18 13:33*	*09/05/18 18:07*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*127*		*35 - 197*	*08/28/18 13:33*	*09/05/18 18:07*	*1*

Client Sample ID: PDI-SC-S009-8to10
Date Collected: 08/10/18 16:10
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-27
Matrix: Solid
Percent Solids: 54.8

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	0.0045	0.00089	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
1,2,3,4,6,7,8-HpCDF	0.018	B	0.0045	0.00031	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
1,2,3,4,7,8,9-HpCDF	0.0013	J	0.0045	0.00036	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
1,2,3,4,7,8-HxCDD	0.00095	J	0.0045	0.00021	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
1,2,3,4,7,8-HxCDF	0.0023	J	0.0045	0.00029	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
1,2,3,6,7,8-HxCDD	0.0050		0.0045	0.00019	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
1,2,3,6,7,8-HxCDF	0.0013	J	0.0045	0.00029	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
1,2,3,7,8,9-HxCDD	0.0030	J	0.0045	0.00018	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
1,2,3,7,8,9-HxCDF	0.00035	J B	0.0045	0.00018	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
1,2,3,7,8-PeCDD	0.00057	J	0.0045	0.00011	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
1,2,3,7,8-PeCDF	0.00090	J	0.0045	0.000082	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
2,3,4,6,7,8-HxCDF	ND		0.0045	0.00030	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
2,3,4,7,8-PeCDF	0.00069	J	0.0045	0.000085	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
2,3,7,8-TCDD	0.00046	J q	0.00090	0.000045	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
OCDD	1.1	B	0.0090	0.0011	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1
OCDF	0.058	B	0.0090	0.000053	ug/Kg	☼	08/28/18 13:33	09/04/18 20:26	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*48*		*23 - 140*	*08/28/18 13:33*	*09/04/18 20:26*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*44*		*28 - 143*	*08/28/18 13:33*	*09/04/18 20:26*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*48*		*26 - 138*	*08/28/18 13:33*	*09/04/18 20:26*	*1*
13C-1,2,3,4,7,8-HxCDD	*49*		*32 - 141*	*08/28/18 13:33*	*09/04/18 20:26*	*1*
13C-1,2,3,4,7,8-HxCDF	*47*		*26 - 152*	*08/28/18 13:33*	*09/04/18 20:26*	*1*
13C-1,2,3,6,7,8-HxCDD	*51*		*28 - 130*	*08/28/18 13:33*	*09/04/18 20:26*	*1*
13C-1,2,3,6,7,8-HxCDF	*51*		*26 - 123*	*08/28/18 13:33*	*09/04/18 20:26*	*1*
13C-1,2,3,7,8,9-HxCDF	*52*		*29 - 147*	*08/28/18 13:33*	*09/04/18 20:26*	*1*
13C-1,2,3,7,8-PeCDD	*53*		*25 - 181*	*08/28/18 13:33*	*09/04/18 20:26*	*1*
13C-1,2,3,7,8-PeCDF	*52*		*24 - 185*	*08/28/18 13:33*	*09/04/18 20:26*	*1*
13C-2,3,4,6,7,8-HxCDF	*49*		*28 - 136*	*08/28/18 13:33*	*09/04/18 20:26*	*1*
13C-2,3,4,7,8-PeCDF	*55*		*21 - 178*	*08/28/18 13:33*	*09/04/18 20:26*	*1*
13C-2,3,7,8-TCDD	*61*		*25 - 164*	*08/28/18 13:33*	*09/04/18 20:26*	*1*
13C-OCDD	*41*		*17 - 157*	*08/28/18 13:33*	*09/04/18 20:26*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*129*		*35 - 197*	*08/28/18 13:33*	*09/04/18 20:26*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0020	B	0.00090	0.00012	ug/Kg	☼	08/28/18 13:33	09/05/18 18:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*62*		*24 - 169*	*08/28/18 13:33*	*09/05/18 18:45*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*127*		*35 - 197*	*08/28/18 13:33*	*09/05/18 18:45*	*1*

Client Sample ID: PDI-SC-S009-10to11.4
Date Collected: 08/10/18 16:15
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-28
Matrix: Solid
Percent Solids: 51.9

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	0.17	B	0.0048	0.0014	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
1,2,3,4,6,7,8-HpCDF	0.029	B	0.0048	0.00052	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
1,2,3,4,7,8,9-HpCDF	0.0019	J	0.0048	0.00059	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
1,2,3,4,7,8-HxCDD	0.0016	J	0.0048	0.00032	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
1,2,3,4,7,8-HxCDF	0.0042	J	0.0048	0.00051	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
1,2,3,6,7,8-HxCDD	0.0069		0.0048	0.00029	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
1,2,3,6,7,8-HxCDF	0.0020	J	0.0048	0.00051	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
1,2,3,7,8,9-HxCDD	0.0041	J	0.0048	0.00028	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
1,2,3,7,8,9-HxCDF	ND		0.0048	0.00031	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
1,2,3,7,8-PeCDD	0.00063	J q	0.0048	0.00017	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
1,2,3,7,8-PeCDF	0.0021	J	0.0048	0.00028	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
2,3,4,6,7,8-HxCDF	ND		0.0048	0.00053	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
2,3,4,7,8-PeCDF	0.0013	J	0.0048	0.00030	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
2,3,7,8-TCDD	0.00068	J	0.00097	0.000058	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
OCDD	1.5	B	0.0097	0.0017	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1
OCDF	0.15	B	0.0097	0.000087	ug/Kg	☼	08/28/18 13:33	09/04/18 21:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*46*		*23 - 140*	*08/28/18 13:33*	*09/04/18 21:12*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*42*		*28 - 143*	*08/28/18 13:33*	*09/04/18 21:12*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*46*		*26 - 138*	*08/28/18 13:33*	*09/04/18 21:12*	*1*
13C-1,2,3,4,7,8-HxCDD	*46*		*32 - 141*	*08/28/18 13:33*	*09/04/18 21:12*	*1*
13C-1,2,3,4,7,8-HxCDF	*44*		*26 - 152*	*08/28/18 13:33*	*09/04/18 21:12*	*1*
13C-1,2,3,6,7,8-HxCDD	*49*		*28 - 130*	*08/28/18 13:33*	*09/04/18 21:12*	*1*
13C-1,2,3,6,7,8-HxCDF	*49*		*26 - 123*	*08/28/18 13:33*	*09/04/18 21:12*	*1*
13C-1,2,3,7,8,9-HxCDF	*50*		*29 - 147*	*08/28/18 13:33*	*09/04/18 21:12*	*1*
13C-1,2,3,7,8-PeCDD	*49*		*25 - 181*	*08/28/18 13:33*	*09/04/18 21:12*	*1*
13C-1,2,3,7,8-PeCDF	*48*		*24 - 185*	*08/28/18 13:33*	*09/04/18 21:12*	*1*
13C-2,3,4,6,7,8-HxCDF	*48*		*28 - 136*	*08/28/18 13:33*	*09/04/18 21:12*	*1*
13C-2,3,4,7,8-PeCDF	*50*		*21 - 178*	*08/28/18 13:33*	*09/04/18 21:12*	*1*
13C-2,3,7,8-TCDD	*59*		*25 - 164*	*08/28/18 13:33*	*09/04/18 21:12*	*1*
13C-OCDD	*38*		*17 - 157*	*08/28/18 13:33*	*09/04/18 21:12*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*124*		*35 - 197*	*08/28/18 13:33*	*09/04/18 21:12*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0047	B	0.00097	0.00021	ug/Kg	☼	08/28/18 13:33	09/05/18 19:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*65*		*24 - 169*	*08/28/18 13:33*	*09/05/18 19:23*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*125*		*35 - 197*	*08/28/18 13:33*	*09/05/18 19:23*	*1*

Client Sample ID: PDI-SC-S011-0to2

Date Collected: 08/10/18 16:40
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-29

Matrix: Solid
Percent Solids: 43.4

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	0.080	B	0.0057	0.00090	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
1,2,3,4,6,7,8-HpCDF	0.014	B	0.0057	0.00022	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
1,2,3,4,7,8,9-HpCDF	0.0010	J	0.0057	0.00024	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
1,2,3,4,7,8-HxCDD	0.00090	J	0.0057	0.00015	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
1,2,3,4,7,8-HxCDF	0.0016	J	0.0057	0.00017	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
1,2,3,6,7,8-HxCDD	0.0029	J	0.0057	0.00014	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
1,2,3,6,7,8-HxCDF	0.00075	J q	0.0057	0.00017	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
1,2,3,7,8,9-HxCDD	0.0022	J	0.0057	0.00013	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
1,2,3,7,8,9-HxCDF	0.00078	J B	0.0057	0.00011	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
1,2,3,7,8-PeCDD	0.00040	J q	0.0057	0.000090	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
1,2,3,7,8-PeCDF	0.00068	J	0.0057	0.000092	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
2,3,4,6,7,8-HxCDF	0.00035	J q	0.0057	0.00018	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
2,3,4,7,8-PeCDF	0.00046	J	0.0057	0.00010	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
2,3,7,8-TCDD	0.00036	J q	0.0011	0.000052	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
OCDD	0.73	B	0.011	0.0021	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1
OCDF	0.050	B	0.011	0.000048	ug/Kg	☼	08/28/18 13:33	09/02/18 04:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*63*		*23 - 140*	*08/28/18 13:33*	*09/02/18 04:32*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*55*		*28 - 143*	*08/28/18 13:33*	*09/02/18 04:32*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*60*		*26 - 138*	*08/28/18 13:33*	*09/02/18 04:32*	*1*
13C-1,2,3,4,7,8-HxCDD	*53*		*32 - 141*	*08/28/18 13:33*	*09/02/18 04:32*	*1*
13C-1,2,3,4,7,8-HxCDF	*54*		*26 - 152*	*08/28/18 13:33*	*09/02/18 04:32*	*1*
13C-1,2,3,6,7,8-HxCDD	*56*		*28 - 130*	*08/28/18 13:33*	*09/02/18 04:32*	*1*
13C-1,2,3,6,7,8-HxCDF	*57*		*26 - 123*	*08/28/18 13:33*	*09/02/18 04:32*	*1*
13C-1,2,3,7,8,9-HxCDF	*57*		*29 - 147*	*08/28/18 13:33*	*09/02/18 04:32*	*1*
13C-1,2,3,7,8-PeCDD	*57*		*25 - 181*	*08/28/18 13:33*	*09/02/18 04:32*	*1*
13C-1,2,3,7,8-PeCDF	*53*		*24 - 185*	*08/28/18 13:33*	*09/02/18 04:32*	*1*
13C-2,3,4,6,7,8-HxCDF	*56*		*28 - 136*	*08/28/18 13:33*	*09/02/18 04:32*	*1*
13C-2,3,4,7,8-PeCDF	*54*		*21 - 178*	*08/28/18 13:33*	*09/02/18 04:32*	*1*
13C-2,3,7,8-TCDD	*63*		*25 - 164*	*08/28/18 13:33*	*09/02/18 04:32*	*1*
13C-OCDD	*55*		*17 - 157*	*08/28/18 13:33*	*09/02/18 04:32*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*125*		*35 - 197*	*08/28/18 13:33*	*09/02/18 04:32*	*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	0.00098	J B	0.0011	0.00036	ug/Kg	☼	08/28/18 13:33	09/06/18 17:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*66*		*24 - 169*	*08/28/18 13:33*	*09/06/18 17:47*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*130*		*35 - 197*	*08/28/18 13:33*	*09/06/18 17:47*	*1*

Client Sample ID: PDI-SC-S011-2to4
Date Collected: 08/10/18 16:45
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-30
Matrix: Solid
Percent Solids: 54.3

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	0.084	B	0.0046	0.00066	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
1,2,3,4,6,7,8-HpCDF	0.014	B	0.0046	0.00024	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
1,2,3,4,7,8,9-HpCDF	0.0012	J	0.0046	0.00026	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
1,2,3,4,7,8-HxCDD	0.00085	J	0.0046	0.00017	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
1,2,3,4,7,8-HxCDF	0.0042	J	0.0046	0.00025	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
1,2,3,6,7,8-HxCDD	0.0033	J	0.0046	0.00015	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
1,2,3,6,7,8-HxCDF	0.0014	J	0.0046	0.00025	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
1,2,3,7,8,9-HxCDD	0.0022	J	0.0046	0.00015	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
1,2,3,7,8,9-HxCDF	0.00023	J q B	0.0046	0.00015	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
1,2,3,7,8-PeCDD	0.00040	J q	0.0046	0.000075	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
1,2,3,7,8-PeCDF	0.0043	J	0.0046	0.00027	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
2,3,4,6,7,8-HxCDF	ND		0.0046	0.00026	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
2,3,4,7,8-PeCDF	0.0039	J	0.0046	0.00029	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
2,3,7,8-TCDD	0.00034	J q	0.00091	0.000044	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
OCDD	0.79	B	0.0091	0.00076	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1
OCDF	0.054	B	0.0091	0.000044	ug/Kg	☼	08/28/18 13:33	09/02/18 05:18	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*57*		*23 - 140*	*08/28/18 13:33*	*09/02/18 05:18*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*49*		*28 - 143*	*08/28/18 13:33*	*09/02/18 05:18*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*55*		*26 - 138*	*08/28/18 13:33*	*09/02/18 05:18*	*1*
13C-1,2,3,4,7,8-HxCDD	*50*		*32 - 141*	*08/28/18 13:33*	*09/02/18 05:18*	*1*
13C-1,2,3,4,7,8-HxCDF	*50*		*26 - 152*	*08/28/18 13:33*	*09/02/18 05:18*	*1*
13C-1,2,3,6,7,8-HxCDD	*54*		*28 - 130*	*08/28/18 13:33*	*09/02/18 05:18*	*1*
13C-1,2,3,6,7,8-HxCDF	*53*		*26 - 123*	*08/28/18 13:33*	*09/02/18 05:18*	*1*
13C-1,2,3,7,8,9-HxCDF	*55*		*29 - 147*	*08/28/18 13:33*	*09/02/18 05:18*	*1*
13C-1,2,3,7,8-PeCDD	*56*		*25 - 181*	*08/28/18 13:33*	*09/02/18 05:18*	*1*
13C-1,2,3,7,8-PeCDF	*53*		*24 - 185*	*08/28/18 13:33*	*09/02/18 05:18*	*1*
13C-2,3,4,6,7,8-HxCDF	*52*		*28 - 136*	*08/28/18 13:33*	*09/02/18 05:18*	*1*
13C-2,3,4,7,8-PeCDF	*55*		*21 - 178*	*08/28/18 13:33*	*09/02/18 05:18*	*1*
13C-2,3,7,8-TCDD	*63*		*25 - 164*	*08/28/18 13:33*	*09/02/18 05:18*	*1*
13C-OCDD	*47*		*17 - 157*	*08/28/18 13:33*	*09/02/18 05:18*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*124*		*35 - 197*	*08/28/18 13:33*	*09/02/18 05:18*	*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	0.016	B	0.00091	0.00035	ug/Kg	☼	08/28/18 13:33	09/05/18 00:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*70*		*24 - 169*	*08/28/18 13:33*	*09/05/18 00:48*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*135*		*35 - 197*	*08/28/18 13:33*	*09/05/18 00:48*	*1*

Client Sample ID: PDI-SC-S011-4to6
Date Collected: 08/10/18 16:50
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-31
Matrix: Solid
Percent Solids: 53.2

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	0.30	B	0.0046	0.0031	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
1,2,3,4,6,7,8-HpCDF	0.031	B	0.0046	0.00049	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
1,2,3,4,7,8,9-HpCDF	0.0014	J	0.0046	0.00055	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
1,2,3,4,7,8-HxCDD	0.00083	J	0.0046	0.00015	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
1,2,3,4,7,8-HxCDF	0.0021	J	0.0046	0.00022	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
1,2,3,6,7,8-HxCDD	0.0048		0.0046	0.00014	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
1,2,3,6,7,8-HxCDF	0.0011	J	0.0046	0.00021	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
1,2,3,7,8,9-HxCDD	0.0024	J	0.0046	0.00013	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
1,2,3,7,8,9-HxCDF	0.00039	J B	0.0046	0.00013	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
1,2,3,7,8-PeCDD	0.00044	J	0.0046	0.000071	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
1,2,3,7,8-PeCDF	0.0015	J	0.0046	0.00010	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
2,3,4,6,7,8-HxCDF	0.00033	J q	0.0046	0.00022	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
2,3,4,7,8-PeCDF	0.00068	J	0.0046	0.00011	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
2,3,7,8-TCDD	0.00037	J q	0.00092	0.000042	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
OCDD	4.6	E G B	0.011	0.011	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1
OCDF	0.46	B	0.0092	0.00012	ug/Kg	☼	08/28/18 13:33	09/02/18 06:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*62*		*23 - 140*	*08/28/18 13:33*	*09/02/18 06:04*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*55*		*28 - 143*	*08/28/18 13:33*	*09/02/18 06:04*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*58*		*26 - 138*	*08/28/18 13:33*	*09/02/18 06:04*	*1*
13C-1,2,3,4,7,8-HxCDD	*54*		*32 - 141*	*08/28/18 13:33*	*09/02/18 06:04*	*1*
13C-1,2,3,4,7,8-HxCDF	*52*		*26 - 152*	*08/28/18 13:33*	*09/02/18 06:04*	*1*
13C-1,2,3,6,7,8-HxCDD	*55*		*28 - 130*	*08/28/18 13:33*	*09/02/18 06:04*	*1*
13C-1,2,3,6,7,8-HxCDF	*56*		*26 - 123*	*08/28/18 13:33*	*09/02/18 06:04*	*1*
13C-1,2,3,7,8,9-HxCDF	*57*		*29 - 147*	*08/28/18 13:33*	*09/02/18 06:04*	*1*
13C-1,2,3,7,8-PeCDD	*56*		*25 - 181*	*08/28/18 13:33*	*09/02/18 06:04*	*1*
13C-1,2,3,7,8-PeCDF	*53*		*24 - 185*	*08/28/18 13:33*	*09/02/18 06:04*	*1*
13C-2,3,4,6,7,8-HxCDF	*55*		*28 - 136*	*08/28/18 13:33*	*09/02/18 06:04*	*1*
13C-2,3,4,7,8-PeCDF	*55*		*21 - 178*	*08/28/18 13:33*	*09/02/18 06:04*	*1*
13C-2,3,7,8-TCDD	*63*		*25 - 164*	*08/28/18 13:33*	*09/02/18 06:04*	*1*
13C-OCDD	*54*		*17 - 157*	*08/28/18 13:33*	*09/02/18 06:04*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*125*		*35 - 197*	*08/28/18 13:33*	*09/02/18 06:04*	*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	0.0018	B	0.00092	0.00035	ug/Kg	☼	08/28/18 13:33	09/05/18 01:26	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*65*		*24 - 169*	*08/28/18 13:33*	*09/05/18 01:26*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*135*		*35 - 197*	*08/28/18 13:33*	*09/05/18 01:26*	*1*

Client Sample ID: PDI-SC-S011-6to8
Date Collected: 08/10/18 16:55
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-32
Matrix: Solid
Percent Solids: 52.1

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	0.19	B	0.0048	0.0019	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
1,2,3,4,6,7,8-HpCDF	0.024	B	0.0048	0.00039	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
1,2,3,4,7,8,9-HpCDF	0.0017	J	0.0048	0.00042	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
1,2,3,4,7,8-HxCDD	0.0019	J	0.0048	0.00032	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
1,2,3,4,7,8-HxCDF	0.0043	J	0.0048	0.00050	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
1,2,3,6,7,8-HxCDD	0.014		0.0048	0.00030	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
1,2,3,6,7,8-HxCDF	0.0020	J	0.0048	0.00049	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
1,2,3,7,8,9-HxCDD	0.0047	J	0.0048	0.00028	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
1,2,3,7,8,9-HxCDF	0.00032	J B	0.0048	0.00030	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
1,2,3,7,8-PeCDD	0.0012	J	0.0048	0.00015	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
1,2,3,7,8-PeCDF	0.0020	J q	0.0048	0.00042	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
2,3,4,6,7,8-HxCDF	0.00096	J q	0.0048	0.00049	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
2,3,4,7,8-PeCDF	0.0011	J q	0.0048	0.00042	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
2,3,7,8-TCDD	0.00085	J	0.00096	0.000046	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
OCDD	1.6	B	0.0096	0.0015	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1
OCDF	0.069	B	0.0096	0.000059	ug/Kg	☼	08/28/18 13:33	09/02/18 06:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*55*		*23 - 140*	*08/28/18 13:33*	*09/02/18 06:50*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*50*		*28 - 143*	*08/28/18 13:33*	*09/02/18 06:50*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*53*		*26 - 138*	*08/28/18 13:33*	*09/02/18 06:50*	*1*
13C-1,2,3,4,7,8-HxCDD	*51*		*32 - 141*	*08/28/18 13:33*	*09/02/18 06:50*	*1*
13C-1,2,3,4,7,8-HxCDF	*51*		*26 - 152*	*08/28/18 13:33*	*09/02/18 06:50*	*1*
13C-1,2,3,6,7,8-HxCDD	*54*		*28 - 130*	*08/28/18 13:33*	*09/02/18 06:50*	*1*
13C-1,2,3,6,7,8-HxCDF	*54*		*26 - 123*	*08/28/18 13:33*	*09/02/18 06:50*	*1*
13C-1,2,3,7,8,9-HxCDF	*56*		*29 - 147*	*08/28/18 13:33*	*09/02/18 06:50*	*1*
13C-1,2,3,7,8-PeCDD	*55*		*25 - 181*	*08/28/18 13:33*	*09/02/18 06:50*	*1*
13C-1,2,3,7,8-PeCDF	*52*		*24 - 185*	*08/28/18 13:33*	*09/02/18 06:50*	*1*
13C-2,3,4,6,7,8-HxCDF	*53*		*28 - 136*	*08/28/18 13:33*	*09/02/18 06:50*	*1*
13C-2,3,4,7,8-PeCDF	*55*		*21 - 178*	*08/28/18 13:33*	*09/02/18 06:50*	*1*
13C-2,3,7,8-TCDD	*63*		*25 - 164*	*08/28/18 13:33*	*09/02/18 06:50*	*1*
13C-OCDD	*49*		*17 - 157*	*08/28/18 13:33*	*09/02/18 06:50*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*124*		*35 - 197*	*08/28/18 13:33*	*09/02/18 06:50*	*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	0.0053	B	0.00096	0.00086	ug/Kg	☼	08/28/18 13:33	09/05/18 02:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*71*		*24 - 169*	*08/28/18 13:33*	*09/05/18 02:04*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*141*		*35 - 197*	*08/28/18 13:33*	*09/05/18 02:04*	*1*

Client Sample ID: PDI-SC-S011-8to10
Date Collected: 08/10/18 17:00
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-33
Matrix: Solid
Percent Solids: 54.0

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.26	B	0.0046	0.0018	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
1,2,3,4,6,7,8-HpCDF	0.035	B	0.0046	0.00040	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
1,2,3,4,7,8,9-HpCDF	0.0024	J	0.0046	0.00045	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
1,2,3,4,7,8-HxCDD	0.0024	J	0.0046	0.00036	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
1,2,3,4,7,8-HxCDF	0.0043	J	0.0046	0.00050	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
1,2,3,6,7,8-HxCDD	0.018		0.0046	0.00034	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
1,2,3,6,7,8-HxCDF	0.0026	J	0.0046	0.00049	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
1,2,3,7,8,9-HxCDD	0.0056		0.0046	0.00032	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
1,2,3,7,8,9-HxCDF	0.00046	J B	0.0046	0.00028	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
1,2,3,7,8-PeCDD	0.0014	J	0.0046	0.00014	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
1,2,3,7,8-PeCDF	0.0024	J	0.0046	0.00030	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
2,3,4,6,7,8-HxCDF	0.0013	J	0.0046	0.00048	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
2,3,4,7,8-PeCDF	0.0016	J	0.0046	0.00033	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
2,3,7,8-TCDD	0.00058	J q	0.00092	0.000040	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
OCDD	2.7	B	0.0092	0.0031	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1
OCDF	0.10	B	0.0092	0.000066	ug/Kg	☼	08/28/18 13:33	09/02/18 07:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*53*		*23 - 140*	*08/28/18 13:33*	*09/02/18 07:36*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*48*		*28 - 143*	*08/28/18 13:33*	*09/02/18 07:36*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*49*		*26 - 138*	*08/28/18 13:33*	*09/02/18 07:36*	*1*
13C-1,2,3,4,7,8-HxCDD	*50*		*32 - 141*	*08/28/18 13:33*	*09/02/18 07:36*	*1*
13C-1,2,3,4,7,8-HxCDF	*49*		*26 - 152*	*08/28/18 13:33*	*09/02/18 07:36*	*1*
13C-1,2,3,6,7,8-HxCDD	*51*		*28 - 130*	*08/28/18 13:33*	*09/02/18 07:36*	*1*
13C-1,2,3,6,7,8-HxCDF	*52*		*26 - 123*	*08/28/18 13:33*	*09/02/18 07:36*	*1*
13C-1,2,3,7,8,9-HxCDF	*54*		*29 - 147*	*08/28/18 13:33*	*09/02/18 07:36*	*1*
13C-1,2,3,7,8-PeCDD	*53*		*25 - 181*	*08/28/18 13:33*	*09/02/18 07:36*	*1*
13C-1,2,3,7,8-PeCDF	*52*		*24 - 185*	*08/28/18 13:33*	*09/02/18 07:36*	*1*
13C-2,3,4,6,7,8-HxCDF	*51*		*28 - 136*	*08/28/18 13:33*	*09/02/18 07:36*	*1*
13C-2,3,4,7,8-PeCDF	*53*		*21 - 178*	*08/28/18 13:33*	*09/02/18 07:36*	*1*
13C-2,3,7,8-TCDD	*60*		*25 - 164*	*08/28/18 13:33*	*09/02/18 07:36*	*1*
13C-OCDD	*45*		*17 - 157*	*08/28/18 13:33*	*09/02/18 07:36*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*124*		*35 - 197*	*08/28/18 13:33*	*09/02/18 07:36*	*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	B	0.00092	0.00077	ug/Kg	☼	08/28/18 13:33	09/05/18 02:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*62*		*24 - 169*	*08/28/18 13:33*	*09/05/18 02:42*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*133*		*35 - 197*	*08/28/18 13:33*	*09/05/18 02:42*	*1*

Client Sample ID: PDI-SC-S011-10to12
Date Collected: 08/10/18 17:05
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-34
Matrix: Solid
Percent Solids: 58.2

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	0.21	B	0.0043	0.0018	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
1,2,3,4,6,7,8-HpCDF	0.031	B	0.0043	0.00044	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
1,2,3,4,7,8,9-HpCDF	0.0022	J	0.0043	0.00047	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
1,2,3,4,7,8-HxCDD	0.0018	J	0.0043	0.00029	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
1,2,3,4,7,8-HxCDF	0.0044		0.0043	0.00047	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
1,2,3,6,7,8-HxCDD	0.012		0.0043	0.00027	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
1,2,3,6,7,8-HxCDF	0.0029	J	0.0043	0.00046	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
1,2,3,7,8,9-HxCDD	0.0042	J	0.0043	0.00025	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
1,2,3,7,8,9-HxCDF	0.00044	J B	0.0043	0.00027	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
1,2,3,7,8-PeCDD	0.00082	J q	0.0043	0.00022	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
1,2,3,7,8-PeCDF	0.0028	J	0.0043	0.00022	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
2,3,4,6,7,8-HxCDF	0.00094	J	0.0043	0.00046	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
2,3,4,7,8-PeCDF	0.0018	J	0.0043	0.00023	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
2,3,7,8-TCDD	0.00073	J	0.00087	0.000044	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
OCDD	2.3	B	0.0087	0.0035	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1
OCDF	0.089	B	0.0087	0.000060	ug/Kg	☼	08/28/18 13:33	09/02/18 08:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*47*		*23 - 140*	*08/28/18 13:33*	*09/02/18 08:22*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*42*		*28 - 143*	*08/28/18 13:33*	*09/02/18 08:22*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*45*		*26 - 138*	*08/28/18 13:33*	*09/02/18 08:22*	*1*
13C-1,2,3,4,7,8-HxCDD	*45*		*32 - 141*	*08/28/18 13:33*	*09/02/18 08:22*	*1*
13C-1,2,3,4,7,8-HxCDF	*44*		*26 - 152*	*08/28/18 13:33*	*09/02/18 08:22*	*1*
13C-1,2,3,6,7,8-HxCDD	*47*		*28 - 130*	*08/28/18 13:33*	*09/02/18 08:22*	*1*
13C-1,2,3,6,7,8-HxCDF	*46*		*26 - 123*	*08/28/18 13:33*	*09/02/18 08:22*	*1*
13C-1,2,3,7,8,9-HxCDF	*49*		*29 - 147*	*08/28/18 13:33*	*09/02/18 08:22*	*1*
13C-1,2,3,7,8-PeCDD	*49*		*25 - 181*	*08/28/18 13:33*	*09/02/18 08:22*	*1*
13C-1,2,3,7,8-PeCDF	*48*		*24 - 185*	*08/28/18 13:33*	*09/02/18 08:22*	*1*
13C-2,3,4,6,7,8-HxCDF	*46*		*28 - 136*	*08/28/18 13:33*	*09/02/18 08:22*	*1*
13C-2,3,4,7,8-PeCDF	*49*		*21 - 178*	*08/28/18 13:33*	*09/02/18 08:22*	*1*
13C-2,3,7,8-TCDD	*58*		*25 - 164*	*08/28/18 13:33*	*09/02/18 08:22*	*1*
13C-OCDD	*39*		*17 - 157*	*08/28/18 13:33*	*09/02/18 08:22*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*125*		*35 - 197*	*08/28/18 13:33*	*09/02/18 08:22*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0036	B	0.00087	0.00029	ug/Kg	☼	08/28/18 13:33	09/05/18 03:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*63*		*24 - 169*	*08/28/18 13:33*	*09/05/18 03:20*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*138*		*35 - 197*	*08/28/18 13:33*	*09/05/18 03:20*	*1*

Client Sample ID: PDI-SC-S011-12to14.5
Date Collected: 08/10/18 17:10
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-35
Matrix: Solid
Percent Solids: 59.7

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.20	B	0.0042	0.0025	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
1,2,3,4,6,7,8-HpCDF	0.033	B	0.0042	0.00050	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
1,2,3,4,7,8,9-HpCDF	0.0028	J	0.0042	0.00051	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
1,2,3,4,7,8-HxCDD	0.0014	J	0.0042	0.00027	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
1,2,3,4,7,8-HxCDF	0.010		0.0042	0.00048	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
1,2,3,6,7,8-HxCDD	0.011		0.0042	0.00026	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
1,2,3,6,7,8-HxCDF	0.0038	J	0.0042	0.00048	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
1,2,3,7,8,9-HxCDD	0.0034	J	0.0042	0.00025	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
1,2,3,7,8,9-HxCDF	0.00040	J B	0.0042	0.00029	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
1,2,3,7,8-PeCDD	0.00069	J	0.0042	0.00019	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
1,2,3,7,8-PeCDF	0.0050		0.0042	0.00056	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
2,3,4,6,7,8-HxCDF	0.0010	J	0.0042	0.00049	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
2,3,4,7,8-PeCDF	0.0027	J	0.0042	0.00057	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
2,3,7,8-TCDD	0.00042	J q	0.00084	0.000035	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
OCDD	2.2	B	0.0084	0.0031	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1
OCDF	0.088	B	0.0084	0.000057	ug/Kg	☼	08/28/18 13:33	09/02/18 09:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*49*		*23 - 140*	*08/28/18 13:33*	*09/02/18 09:08*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*44*		*28 - 143*	*08/28/18 13:33*	*09/02/18 09:08*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*48*		*26 - 138*	*08/28/18 13:33*	*09/02/18 09:08*	*1*
13C-1,2,3,4,7,8-HxCDD	*47*		*32 - 141*	*08/28/18 13:33*	*09/02/18 09:08*	*1*
13C-1,2,3,4,7,8-HxCDF	*45*		*26 - 152*	*08/28/18 13:33*	*09/02/18 09:08*	*1*
13C-1,2,3,6,7,8-HxCDD	*47*		*28 - 130*	*08/28/18 13:33*	*09/02/18 09:08*	*1*
13C-1,2,3,6,7,8-HxCDF	*48*		*26 - 123*	*08/28/18 13:33*	*09/02/18 09:08*	*1*
13C-1,2,3,7,8,9-HxCDF	*50*		*29 - 147*	*08/28/18 13:33*	*09/02/18 09:08*	*1*
13C-1,2,3,7,8-PeCDD	*50*		*25 - 181*	*08/28/18 13:33*	*09/02/18 09:08*	*1*
13C-1,2,3,7,8-PeCDF	*48*		*24 - 185*	*08/28/18 13:33*	*09/02/18 09:08*	*1*
13C-2,3,4,6,7,8-HxCDF	*47*		*28 - 136*	*08/28/18 13:33*	*09/02/18 09:08*	*1*
13C-2,3,4,7,8-PeCDF	*51*		*21 - 178*	*08/28/18 13:33*	*09/02/18 09:08*	*1*
13C-2,3,7,8-TCDD	*57*		*25 - 164*	*08/28/18 13:33*	*09/02/18 09:08*	*1*
13C-OCDD	*41*		*17 - 157*	*08/28/18 13:33*	*09/02/18 09:08*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*126*		*35 - 197*	*08/28/18 13:33*	*09/02/18 09:08*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0052	B G	0.00090	0.00090	ug/Kg	☼	08/28/18 13:33	09/05/18 03:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*63*		*24 - 169*	*08/28/18 13:33*	*09/05/18 03:58*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*141*		*35 - 197*	*08/28/18 13:33*	*09/05/18 03:58*	*1*

Client Sample ID: PDI-SC-S011-14.5to16.8
Date Collected: 08/10/18 17:15
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-36
Matrix: Solid
Percent Solids: 57.5

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.44	B	0.0043	0.0030	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
1,2,3,4,6,7,8-HpCDF	0.082	B	0.0043	0.0010	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
1,2,3,4,7,8,9-HpCDF	0.0072		0.0043	0.0011	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
1,2,3,4,7,8-HxCDD	0.0030	J	0.0043	0.00038	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
1,2,3,4,7,8-HxCDF	0.024		0.0043	0.00077	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
1,2,3,6,7,8-HxCDD	0.018		0.0043	0.00036	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
1,2,3,6,7,8-HxCDF	0.0090		0.0043	0.00077	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
1,2,3,7,8,9-HxCDD	0.0064		0.0043	0.00034	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
1,2,3,7,8,9-HxCDF	ND		0.0043	0.00044	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
1,2,3,7,8-PeCDD	0.0014	J q	0.0043	0.00037	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
1,2,3,7,8-PeCDF	0.011		0.0043	0.00048	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
2,3,4,6,7,8-HxCDF	0.0021	J	0.0043	0.00073	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
2,3,4,7,8-PeCDF	0.0055		0.0043	0.00051	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
2,3,7,8-TCDD	0.00097	q	0.00087	0.000052	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
OCDD	5.4	E B	0.0087	0.0014	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1
OCDF	0.31	B	0.0087	0.00011	ug/Kg	☼	08/28/18 13:33	09/02/18 09:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*40*		*23 - 140*	*08/28/18 13:33*	*09/02/18 09:54*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*36*		*28 - 143*	*08/28/18 13:33*	*09/02/18 09:54*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*37*		*26 - 138*	*08/28/18 13:33*	*09/02/18 09:54*	*1*
13C-1,2,3,4,7,8-HxCDD	*43*		*32 - 141*	*08/28/18 13:33*	*09/02/18 09:54*	*1*
13C-1,2,3,4,7,8-HxCDF	*42*		*26 - 152*	*08/28/18 13:33*	*09/02/18 09:54*	*1*
13C-1,2,3,6,7,8-HxCDD	*43*		*28 - 130*	*08/28/18 13:33*	*09/02/18 09:54*	*1*
13C-1,2,3,6,7,8-HxCDF	*43*		*26 - 123*	*08/28/18 13:33*	*09/02/18 09:54*	*1*
13C-1,2,3,7,8,9-HxCDF	*45*		*29 - 147*	*08/28/18 13:33*	*09/02/18 09:54*	*1*
13C-1,2,3,7,8-PeCDD	*48*		*25 - 181*	*08/28/18 13:33*	*09/02/18 09:54*	*1*
13C-1,2,3,7,8-PeCDF	*46*		*24 - 185*	*08/28/18 13:33*	*09/02/18 09:54*	*1*
13C-2,3,4,6,7,8-HxCDF	*44*		*28 - 136*	*08/28/18 13:33*	*09/02/18 09:54*	*1*
13C-2,3,4,7,8-PeCDF	*49*		*21 - 178*	*08/28/18 13:33*	*09/02/18 09:54*	*1*
13C-2,3,7,8-TCDD	*54*		*25 - 164*	*08/28/18 13:33*	*09/02/18 09:54*	*1*
13C-OCDD	*33*		*17 - 157*	*08/28/18 13:33*	*09/02/18 09:54*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*125*		*35 - 197*	*08/28/18 13:33*	*09/02/18 09:54*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.013	B	0.00087	0.00078	ug/Kg	☼	08/28/18 13:33	09/05/18 04:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*61*		*24 - 169*	*08/28/18 13:33*	*09/05/18 04:36*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*136*		*35 - 197*	*08/28/18 13:33*	*09/05/18 04:36*	*1*

Client Sample ID: PDI-SC-S011-14.5to16.8D
Date Collected: 08/10/18 17:15
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-37
Matrix: Solid
Percent Solids: 57.3

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	0.53	B	0.0043	0.0035	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
1,2,3,4,6,7,8-HpCDF	0.088	B	0.0043	0.00088	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
1,2,3,4,7,8,9-HpCDF	0.0072		0.0043	0.00099	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
1,2,3,4,7,8-HxCDD	0.0034	J	0.0043	0.00029	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
1,2,3,4,7,8-HxCDF	0.023		0.0043	0.0010	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
1,2,3,6,7,8-HxCDD	0.021		0.0043	0.00028	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
1,2,3,6,7,8-HxCDF	0.0084		0.0043	0.00096	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
1,2,3,7,8,9-HxCDD	0.0074		0.0043	0.00026	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
1,2,3,7,8,9-HxCDF	0.00074	J B	0.0043	0.00056	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
1,2,3,7,8-PeCDD	0.0017	J q	0.0043	0.00034	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
1,2,3,7,8-PeCDF	0.010		0.0043	0.00042	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
2,3,4,6,7,8-HxCDF	0.0020	J	0.0043	0.00093	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
2,3,4,7,8-PeCDF	0.0051		0.0043	0.00043	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
2,3,7,8-TCDD	0.0011		0.00085	0.000044	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
OCDD	6.2	E B	0.0085	0.0013	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1
OCDF	0.32	B	0.0085	0.00010	ug/Kg	☼	08/28/18 14:48	09/02/18 10:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*47*		*23 - 140*	*08/28/18 14:48*	*09/02/18 10:40*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*43*		*28 - 143*	*08/28/18 14:48*	*09/02/18 10:40*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*41*		*26 - 138*	*08/28/18 14:48*	*09/02/18 10:40*	*1*
13C-1,2,3,4,7,8-HxCDD	*50*		*32 - 141*	*08/28/18 14:48*	*09/02/18 10:40*	*1*
13C-1,2,3,4,7,8-HxCDF	*48*		*26 - 152*	*08/28/18 14:48*	*09/02/18 10:40*	*1*
13C-1,2,3,6,7,8-HxCDD	*49*		*28 - 130*	*08/28/18 14:48*	*09/02/18 10:40*	*1*
13C-1,2,3,6,7,8-HxCDF	*49*		*26 - 123*	*08/28/18 14:48*	*09/02/18 10:40*	*1*
13C-1,2,3,7,8,9-HxCDF	*51*		*29 - 147*	*08/28/18 14:48*	*09/02/18 10:40*	*1*
13C-1,2,3,7,8-PeCDD	*56*		*25 - 181*	*08/28/18 14:48*	*09/02/18 10:40*	*1*
13C-1,2,3,7,8-PeCDF	*51*		*24 - 185*	*08/28/18 14:48*	*09/02/18 10:40*	*1*
13C-2,3,4,6,7,8-HxCDF	*50*		*28 - 136*	*08/28/18 14:48*	*09/02/18 10:40*	*1*
13C-2,3,4,7,8-PeCDF	*54*		*21 - 178*	*08/28/18 14:48*	*09/02/18 10:40*	*1*
13C-2,3,7,8-TCDD	*57*		*25 - 164*	*08/28/18 14:48*	*09/02/18 10:40*	*1*
13C-OCDD	*39*		*17 - 157*	*08/28/18 14:48*	*09/02/18 10:40*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*122*		*35 - 197*	*08/28/18 14:48*	*09/02/18 10:40*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.010	B	0.00085	0.00033	ug/Kg	☼	08/28/18 14:48	09/05/18 05:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*63*		*24 - 169*	*08/28/18 14:48*	*09/05/18 05:13*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*140*		*35 - 197*	*08/28/18 14:48*	*09/05/18 05:13*	*1*

Client Sample ID: PDI-SC-S011-16.8to17.9
Date Collected: 08/10/18 17:20
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-38
Matrix: Solid
Percent Solids: 70.7

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	0.090	B	0.0036	0.00096	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
1,2,3,4,6,7,8-HpCDF	0.033	B	0.0036	0.00033	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
1,2,3,4,7,8,9-HpCDF	0.0039		0.0036	0.00035	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
1,2,3,4,7,8-HxCDD	0.00070	J	0.0036	0.00019	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
1,2,3,4,7,8-HxCDF	0.014		0.0036	0.00043	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
1,2,3,6,7,8-HxCDD	0.0035	J	0.0036	0.00017	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
1,2,3,6,7,8-HxCDF	0.0052		0.0036	0.00043	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
1,2,3,7,8,9-HxCDD	0.0020	J	0.0036	0.00017	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
1,2,3,7,8,9-HxCDF	0.00046	J B	0.0036	0.00025	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
1,2,3,7,8-PeCDD	0.00094	J	0.0036	0.000078	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
1,2,3,7,8-PeCDF	0.0026	J	0.0036	0.00016	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
2,3,4,6,7,8-HxCDF	0.00054	J	0.0036	0.00043	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
2,3,4,7,8-PeCDF	0.00087	J	0.0036	0.00018	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
2,3,7,8-TCDD	0.0012		0.00071	0.000055	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
OCDD	1.4	B	0.0071	0.0016	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1
OCDF	0.076	B	0.0071	0.000063	ug/Kg	☼	08/28/18 14:48	09/02/18 11:26	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*45*		*23 - 140*	*08/28/18 14:48*	*09/02/18 11:26*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*40*		*28 - 143*	*08/28/18 14:48*	*09/02/18 11:26*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*45*		*26 - 138*	*08/28/18 14:48*	*09/02/18 11:26*	*1*
13C-1,2,3,4,7,8-HxCDD	*45*		*32 - 141*	*08/28/18 14:48*	*09/02/18 11:26*	*1*
13C-1,2,3,4,7,8-HxCDF	*44*		*26 - 152*	*08/28/18 14:48*	*09/02/18 11:26*	*1*
13C-1,2,3,6,7,8-HxCDD	*46*		*28 - 130*	*08/28/18 14:48*	*09/02/18 11:26*	*1*
13C-1,2,3,6,7,8-HxCDF	*46*		*26 - 123*	*08/28/18 14:48*	*09/02/18 11:26*	*1*
13C-1,2,3,7,8,9-HxCDF	*49*		*29 - 147*	*08/28/18 14:48*	*09/02/18 11:26*	*1*
13C-1,2,3,7,8-PeCDD	*50*		*25 - 181*	*08/28/18 14:48*	*09/02/18 11:26*	*1*
13C-1,2,3,7,8-PeCDF	*47*		*24 - 185*	*08/28/18 14:48*	*09/02/18 11:26*	*1*
13C-2,3,4,6,7,8-HxCDF	*46*		*28 - 136*	*08/28/18 14:48*	*09/02/18 11:26*	*1*
13C-2,3,4,7,8-PeCDF	*49*		*21 - 178*	*08/28/18 14:48*	*09/02/18 11:26*	*1*
13C-2,3,7,8-TCDD	*56*		*25 - 164*	*08/28/18 14:48*	*09/02/18 11:26*	*1*
13C-OCDD	*35*		*17 - 157*	*08/28/18 14:48*	*09/02/18 11:26*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*127*		*35 - 197*	*08/28/18 14:48*	*09/02/18 11:26*	*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	0.0018	B	0.00071	0.00031	ug/Kg	☼	08/28/18 14:48	09/05/18 05:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*60*		*24 - 169*	*08/28/18 14:48*	*09/05/18 05:51*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*135*		*35 - 197*	*08/28/18 14:48*	*09/05/18 05:51*	*1*

Client Sample ID: PDI-SC-S011-17.9to18.9
Date Collected: 08/10/18 17:25
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-39
Matrix: Solid
Percent Solids: 69.3

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	0.090	B	0.0036	0.00091	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
1,2,3,4,6,7,8-HpCDF	0.060	B	0.0036	0.00047	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
1,2,3,4,7,8,9-HpCDF	0.0023	J	0.0036	0.00051	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
1,2,3,4,7,8-HxCDD	0.00073	J q	0.0036	0.00016	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
1,2,3,4,7,8-HxCDF	0.0033	J	0.0036	0.00049	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
1,2,3,6,7,8-HxCDD	0.0041		0.0036	0.00014	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
1,2,3,6,7,8-HxCDF	0.0054		0.0036	0.00047	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
1,2,3,7,8,9-HxCDD	0.0021	J	0.0036	0.00014	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
1,2,3,7,8,9-HxCDF	0.00036	J q B	0.0036	0.00027	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
1,2,3,7,8-PeCDD	0.00064	J	0.0036	0.000077	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
1,2,3,7,8-PeCDF	0.0026	J	0.0036	0.00043	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
2,3,4,6,7,8-HxCDF	0.0014	J	0.0036	0.00046	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
2,3,4,7,8-PeCDF	0.0017	J	0.0036	0.00048	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
2,3,7,8-TCDD	0.00047	J q	0.00072	0.000027	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
OCDD	1.6	B	0.0072	0.00097	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1
OCDF	0.099	B	0.0072	0.000059	ug/Kg	☼	08/28/18 14:48	09/02/18 12:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*42*		*23 - 140*	*08/28/18 14:48*	*09/02/18 12:12*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*38*		*28 - 143*	*08/28/18 14:48*	*09/02/18 12:12*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*38*		*26 - 138*	*08/28/18 14:48*	*09/02/18 12:12*	*1*
13C-1,2,3,4,7,8-HxCDD	*43*		*32 - 141*	*08/28/18 14:48*	*09/02/18 12:12*	*1*
13C-1,2,3,4,7,8-HxCDF	*42*		*26 - 152*	*08/28/18 14:48*	*09/02/18 12:12*	*1*
13C-1,2,3,6,7,8-HxCDD	*44*		*28 - 130*	*08/28/18 14:48*	*09/02/18 12:12*	*1*
13C-1,2,3,6,7,8-HxCDF	*44*		*26 - 123*	*08/28/18 14:48*	*09/02/18 12:12*	*1*
13C-1,2,3,7,8,9-HxCDF	*46*		*29 - 147*	*08/28/18 14:48*	*09/02/18 12:12*	*1*
13C-1,2,3,7,8-PeCDD	*48*		*25 - 181*	*08/28/18 14:48*	*09/02/18 12:12*	*1*
13C-1,2,3,7,8-PeCDF	*46*		*24 - 185*	*08/28/18 14:48*	*09/02/18 12:12*	*1*
13C-2,3,4,6,7,8-HxCDF	*44*		*28 - 136*	*08/28/18 14:48*	*09/02/18 12:12*	*1*
13C-2,3,4,7,8-PeCDF	*47*		*21 - 178*	*08/28/18 14:48*	*09/02/18 12:12*	*1*
13C-2,3,7,8-TCDD	*53*		*25 - 164*	*08/28/18 14:48*	*09/02/18 12:12*	*1*
13C-OCDD	*33*		*17 - 157*	*08/28/18 14:48*	*09/02/18 12:12*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*122*		*35 - 197*	*08/28/18 14:48*	*09/02/18 12:12*	*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	0.0025	B	0.00072	0.00031	ug/Kg	☼	08/28/18 14:48	09/05/18 06:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*57*		*24 - 169*	*08/28/18 14:48*	*09/05/18 06:29*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*138*		*35 - 197*	*08/28/18 14:48*	*09/05/18 06:29*	*1*

Client Sample ID: PDI-SC-S004-0to2
Date Collected: 08/10/18 18:30
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-40
Matrix: Solid
Percent Solids: 60.4

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.11	B	0.0041	0.0014	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
1,2,3,4,6,7,8-HpCDF	0.015	B	0.0041	0.00023	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
1,2,3,4,7,8,9-HpCDF	0.0012	J	0.0041	0.00024	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
1,2,3,4,7,8-HxCDD	0.0011	J	0.0041	0.00020	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
1,2,3,4,7,8-HxCDF	0.0028	J	0.0041	0.00028	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
1,2,3,6,7,8-HxCDD	0.0070		0.0041	0.00019	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
1,2,3,6,7,8-HxCDF	0.0015	J	0.0041	0.00028	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
1,2,3,7,8,9-HxCDD	0.0030	J	0.0041	0.00018	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
1,2,3,7,8,9-HxCDF	0.00034	J B	0.0041	0.00018	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
1,2,3,7,8-PeCDD	0.00045	J q	0.0041	0.00018	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
1,2,3,7,8-PeCDF	0.0016	J	0.0041	0.00013	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
2,3,4,6,7,8-HxCDF	ND		0.0041	0.00030	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
2,3,4,7,8-PeCDF	0.0013	J	0.0041	0.00013	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
2,3,7,8-TCDD	0.00030	J q	0.00082	0.000029	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
OCDD	1.1	B	0.0082	0.0016	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1
OCDF	0.045	B	0.0082	0.000035	ug/Kg	☼	08/28/18 14:48	09/02/18 21:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*62*		*23 - 140*	*08/28/18 14:48*	*09/02/18 21:55*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*53*		*28 - 143*	*08/28/18 14:48*	*09/02/18 21:55*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*58*		*26 - 138*	*08/28/18 14:48*	*09/02/18 21:55*	*1*
13C-1,2,3,4,7,8-HxCDD	*54*		*32 - 141*	*08/28/18 14:48*	*09/02/18 21:55*	*1*
13C-1,2,3,4,7,8-HxCDF	*52*		*26 - 152*	*08/28/18 14:48*	*09/02/18 21:55*	*1*
13C-1,2,3,6,7,8-HxCDD	*56*		*28 - 130*	*08/28/18 14:48*	*09/02/18 21:55*	*1*
13C-1,2,3,6,7,8-HxCDF	*56*		*26 - 123*	*08/28/18 14:48*	*09/02/18 21:55*	*1*
13C-1,2,3,7,8,9-HxCDF	*56*		*29 - 147*	*08/28/18 14:48*	*09/02/18 21:55*	*1*
13C-1,2,3,7,8-PeCDD	*56*		*25 - 181*	*08/28/18 14:48*	*09/02/18 21:55*	*1*
13C-1,2,3,7,8-PeCDF	*53*		*24 - 185*	*08/28/18 14:48*	*09/02/18 21:55*	*1*
13C-2,3,4,6,7,8-HxCDF	*54*		*28 - 136*	*08/28/18 14:48*	*09/02/18 21:55*	*1*
13C-2,3,4,7,8-PeCDF	*54*		*21 - 178*	*08/28/18 14:48*	*09/02/18 21:55*	*1*
13C-2,3,7,8-TCDD	*64*		*25 - 164*	*08/28/18 14:48*	*09/02/18 21:55*	*1*
13C-OCDD	*53*		*17 - 157*	*08/28/18 14:48*	*09/02/18 21:55*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*124*		*35 - 197*	*08/28/18 14:48*	*09/02/18 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	0.0027	B	0.00082	0.00018	ug/Kg	☼	08/28/18 14:48	09/05/18 07:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*69*		*24 - 169*	*08/28/18 14:48*	*09/05/18 07:07*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*137*		*35 - 197*	*08/28/18 14:48*	*09/05/18 07:07*	*1*

Client Sample ID: PDI-SC-S004-2to4
Date Collected: 08/10/18 18:35
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-41
Matrix: Solid
Percent Solids: 64.4

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	0.0019	J B	0.0039	0.000034	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
1,2,3,4,6,7,8-HpCDF	0.00021	J	0.0039	0.000028	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
1,2,3,4,7,8,9-HpCDF	0.00013	J q B	0.0039	0.000030	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
1,2,3,4,7,8-HxCDD	0.00016	J B	0.0039	0.000044	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
1,2,3,4,7,8-HxCDF	0.000060	J	0.0039	0.000031	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
1,2,3,6,7,8-HxCDD	0.00013	J	0.0039	0.000041	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
1,2,3,6,7,8-HxCDF	0.000059	J	0.0039	0.000030	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
1,2,3,7,8,9-HxCDD	0.00025	J	0.0039	0.000039	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
1,2,3,7,8,9-HxCDF	0.00042	J B	0.0039	0.000020	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
1,2,3,7,8-PeCDD	ND		0.0039	0.000030	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
1,2,3,7,8-PeCDF	0.00015	J B	0.0039	0.000018	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
2,3,4,6,7,8-HxCDF	ND		0.0039	0.000033	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
2,3,4,7,8-PeCDF	0.000053	J	0.0039	0.000019	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
2,3,7,8-TCDD	ND		0.00079	0.000018	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
2,3,7,8-TCDF	0.000078	J B	0.00079	0.0000080	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
OCDD	0.021	B	0.0079	0.000043	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1
OCDF	0.00057	J B	0.0079	0.000017	ug/Kg	☼	08/30/18 14:05	09/02/18 22:41	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*62*		*23 - 140*	*08/30/18 14:05*	*09/02/18 22:41*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*58*		*28 - 143*	*08/30/18 14:05*	*09/02/18 22:41*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*61*		*26 - 138*	*08/30/18 14:05*	*09/02/18 22:41*	*1*
13C-1,2,3,4,7,8-HxCDD	*51*		*32 - 141*	*08/30/18 14:05*	*09/02/18 22:41*	*1*
13C-1,2,3,4,7,8-HxCDF	*52*		*26 - 152*	*08/30/18 14:05*	*09/02/18 22:41*	*1*
13C-1,2,3,6,7,8-HxCDD	*56*		*28 - 130*	*08/30/18 14:05*	*09/02/18 22:41*	*1*
13C-1,2,3,6,7,8-HxCDF	*56*		*26 - 123*	*08/30/18 14:05*	*09/02/18 22:41*	*1*
13C-1,2,3,7,8,9-HxCDF	*56*		*29 - 147*	*08/30/18 14:05*	*09/02/18 22:41*	*1*
13C-1,2,3,7,8-PeCDD	*56*		*25 - 181*	*08/30/18 14:05*	*09/02/18 22:41*	*1*
13C-1,2,3,7,8-PeCDF	*53*		*24 - 185*	*08/30/18 14:05*	*09/02/18 22:41*	*1*
13C-2,3,4,6,7,8-HxCDF	*54*		*28 - 136*	*08/30/18 14:05*	*09/02/18 22:41*	*1*
13C-2,3,4,7,8-PeCDF	*53*		*21 - 178*	*08/30/18 14:05*	*09/02/18 22:41*	*1*
13C-2,3,7,8-TCDD	*62*		*25 - 164*	*08/30/18 14:05*	*09/02/18 22:41*	*1*
13C-2,3,7,8-TCDF	*56*		*24 - 169*	*08/30/18 14:05*	*09/02/18 22:41*	*1*
13C-OCDD	*55*		*17 - 157*	*08/30/18 14:05*	*09/02/18 22:41*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*125*		*35 - 197*	*08/30/18 14:05*	*09/02/18 22:41*	*1*

Client Sample ID: PDI-SC-S004-4to6
Date Collected: 08/10/18 18:40
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-42
Matrix: Solid
Percent Solids: 68.0

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.0022	J B	0.0037	0.000035	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
1,2,3,4,6,7,8-HpCDF	0.00016	J	0.0037	0.000022	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
1,2,3,4,7,8,9-HpCDF	0.00013	J B	0.0037	0.000024	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
1,2,3,4,7,8-HxCDD	0.00013	J B	0.0037	0.000037	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
1,2,3,4,7,8-HxCDF	ND		0.0037	0.000031	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
1,2,3,6,7,8-HxCDD	0.00011	J	0.0037	0.000033	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
1,2,3,6,7,8-HxCDF	ND		0.0037	0.000031	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
1,2,3,7,8,9-HxCDD	0.00020	J q	0.0037	0.000032	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
1,2,3,7,8,9-HxCDF	0.00051	J B	0.0037	0.000019	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
1,2,3,7,8-PeCDD	0.000042	J q	0.0037	0.000026	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
1,2,3,7,8-PeCDF	0.00017	J B	0.0037	0.000016	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
2,3,4,6,7,8-HxCDF	ND		0.0037	0.000032	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
2,3,4,7,8-PeCDF	0.000049	J q	0.0037	0.000017	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
2,3,7,8-TCDD	ND		0.00074	0.000018	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
2,3,7,8-TCDF	0.000084	J B	0.00074	0.0000074	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
OCDD	0.023	B	0.0074	0.000042	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1
OCDF	0.00041	J B	0.0074	0.000016	ug/Kg	☼	08/30/18 14:05	09/02/18 23:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*61*		*23 - 140*	*08/30/18 14:05*	*09/02/18 23:27*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*56*		*28 - 143*	*08/30/18 14:05*	*09/02/18 23:27*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*63*		*26 - 138*	*08/30/18 14:05*	*09/02/18 23:27*	*1*
13C-1,2,3,4,7,8-HxCDD	*55*		*32 - 141*	*08/30/18 14:05*	*09/02/18 23:27*	*1*
13C-1,2,3,4,7,8-HxCDF	*53*		*26 - 152*	*08/30/18 14:05*	*09/02/18 23:27*	*1*
13C-1,2,3,6,7,8-HxCDD	*59*		*28 - 130*	*08/30/18 14:05*	*09/02/18 23:27*	*1*
13C-1,2,3,6,7,8-HxCDF	*58*		*26 - 123*	*08/30/18 14:05*	*09/02/18 23:27*	*1*
13C-1,2,3,7,8,9-HxCDF	*58*		*29 - 147*	*08/30/18 14:05*	*09/02/18 23:27*	*1*
13C-1,2,3,7,8-PeCDD	*57*		*25 - 181*	*08/30/18 14:05*	*09/02/18 23:27*	*1*
13C-1,2,3,7,8-PeCDF	*54*		*24 - 185*	*08/30/18 14:05*	*09/02/18 23:27*	*1*
13C-2,3,4,6,7,8-HxCDF	*56*		*28 - 136*	*08/30/18 14:05*	*09/02/18 23:27*	*1*
13C-2,3,4,7,8-PeCDF	*55*		*21 - 178*	*08/30/18 14:05*	*09/02/18 23:27*	*1*
13C-2,3,7,8-TCDD	*67*		*25 - 164*	*08/30/18 14:05*	*09/02/18 23:27*	*1*
13C-2,3,7,8-TCDF	*60*		*24 - 169*	*08/30/18 14:05*	*09/02/18 23:27*	*1*
13C-OCDD	*54*		*17 - 157*	*08/30/18 14:05*	*09/02/18 23:27*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*131*		*35 - 197*	*08/30/18 14:05*	*09/02/18 23:27*	*1*

Client Sample ID: PDI-SC-S004-6to7.3
Date Collected: 08/10/18 18:45
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-43
Matrix: Solid
Percent Solids: 68.7

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	**0.0014**	**J B**	0.0036	0.000033	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
1,2,3,4,6,7,8-HpCDF	**0.000095**	**J**	0.0036	0.000027	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
1,2,3,4,7,8,9-HpCDF	**0.00010**	**J B**	0.0036	0.000029	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
1,2,3,4,7,8-HxCDD	**0.00013**	**J q B**	0.0036	0.000040	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
1,2,3,4,7,8-HxCDF	ND		0.0036	0.000024	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
1,2,3,6,7,8-HxCDD	**0.000059**	**J q**	0.0036	0.000036	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
1,2,3,6,7,8-HxCDF	ND		0.0036	0.000024	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
1,2,3,7,8,9-HxCDD	**0.00024**	**J**	0.0036	0.000035	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
1,2,3,7,8,9-HxCDF	**0.00043**	**J B**	0.0036	0.000015	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
1,2,3,7,8-PeCDD	ND		0.0036	0.000030	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
1,2,3,7,8-PeCDF	**0.00014**	**J B**	0.0036	0.000021	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
2,3,4,6,7,8-HxCDF	ND		0.0036	0.000025	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
2,3,4,7,8-PeCDF	ND		0.0036	0.000023	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
2,3,7,8-TCDD	ND		0.00072	0.000049	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
2,3,7,8-TCDF	**0.000054**	**J q B**	0.00072	0.0000062	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
OCDD	**0.015**	**B**	0.0072	0.000041	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1
OCDF	**0.00019**	**J B**	0.0072	0.000015	ug/Kg	☼	08/30/18 14:05	09/03/18 00:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*59*		*23 - 140*	*08/30/18 14:05*	*09/03/18 00:13*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*51*		*28 - 143*	*08/30/18 14:05*	*09/03/18 00:13*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*58*		*26 - 138*	*08/30/18 14:05*	*09/03/18 00:13*	*1*
13C-1,2,3,4,7,8-HxCDD	*48*		*32 - 141*	*08/30/18 14:05*	*09/03/18 00:13*	*1*
13C-1,2,3,4,7,8-HxCDF	*48*		*26 - 152*	*08/30/18 14:05*	*09/03/18 00:13*	*1*
13C-1,2,3,6,7,8-HxCDD	*53*		*28 - 130*	*08/30/18 14:05*	*09/03/18 00:13*	*1*
13C-1,2,3,6,7,8-HxCDF	*53*		*26 - 123*	*08/30/18 14:05*	*09/03/18 00:13*	*1*
13C-1,2,3,7,8,9-HxCDF	*54*		*29 - 147*	*08/30/18 14:05*	*09/03/18 00:13*	*1*
13C-1,2,3,7,8-PeCDD	*53*		*25 - 181*	*08/30/18 14:05*	*09/03/18 00:13*	*1*
13C-1,2,3,7,8-PeCDF	*50*		*24 - 185*	*08/30/18 14:05*	*09/03/18 00:13*	*1*
13C-2,3,4,6,7,8-HxCDF	*51*		*28 - 136*	*08/30/18 14:05*	*09/03/18 00:13*	*1*
13C-2,3,4,7,8-PeCDF	*51*		*21 - 178*	*08/30/18 14:05*	*09/03/18 00:13*	*1*
13C-2,3,7,8-TCDD	*64*		*25 - 164*	*08/30/18 14:05*	*09/03/18 00:13*	*1*
13C-2,3,7,8-TCDF	*58*		*24 - 169*	*08/30/18 14:05*	*09/03/18 00:13*	*1*
13C-OCDD	*49*		*17 - 157*	*08/30/18 14:05*	*09/03/18 00:13*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*131*		*35 - 197*	*08/30/18 14:05*	*09/03/18 00:13*	*1*

Client Sample ID: PDI-SC-S004-7.3to9.1
Date Collected: 08/10/18 18:50
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-44
Matrix: Solid
Percent Solids: 70.3

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	**0.0013**	**J B**	0.0036	0.000029	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
1,2,3,4,6,7,8-HpCDF	**0.000079**	**J q**	0.0036	0.000026	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
1,2,3,4,7,8,9-HpCDF	**0.000089**	**J q B**	0.0036	0.000024	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
1,2,3,4,7,8-HxCDD	**0.000088**	**J q B**	0.0036	0.000047	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
1,2,3,4,7,8-HxCDF	ND		0.0036	0.000025	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
1,2,3,6,7,8-HxCDD	**0.000078**	**J**	0.0036	0.000042	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
1,2,3,6,7,8-HxCDF	ND		0.0036	0.000025	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
1,2,3,7,8,9-HxCDD	**0.00019**	**J**	0.0036	0.000041	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
1,2,3,7,8,9-HxCDF	**0.00043**	**J B**	0.0036	0.000016	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
1,2,3,7,8-PeCDD	ND		0.0036	0.000020	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
1,2,3,7,8-PeCDF	**0.00013**	**J B**	0.0036	0.000016	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
2,3,4,6,7,8-HxCDF	ND		0.0036	0.000026	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
2,3,4,7,8-PeCDF	ND		0.0036	0.000016	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
2,3,7,8-TCDD	ND		0.00072	0.000053	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
2,3,7,8-TCDF	**0.000039**	**J q B**	0.00072	0.0000064	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
OCDD	**0.013**	**B**	0.0072	0.000089	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1
OCDF	**0.00014**	**J q B**	0.0072	0.000017	ug/Kg	☼	08/30/18 14:05	09/03/18 04:33	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*54*		*23 - 140*	*08/30/18 14:05*	*09/03/18 04:33*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*46*		*28 - 143*	*08/30/18 14:05*	*09/03/18 04:33*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*58*		*26 - 138*	*08/30/18 14:05*	*09/03/18 04:33*	*1*
13C-1,2,3,4,7,8-HxCDD	*49*		*32 - 141*	*08/30/18 14:05*	*09/03/18 04:33*	*1*
13C-1,2,3,4,7,8-HxCDF	*49*		*26 - 152*	*08/30/18 14:05*	*09/03/18 04:33*	*1*
13C-1,2,3,6,7,8-HxCDD	*55*		*28 - 130*	*08/30/18 14:05*	*09/03/18 04:33*	*1*
13C-1,2,3,6,7,8-HxCDF	*54*		*26 - 123*	*08/30/18 14:05*	*09/03/18 04:33*	*1*
13C-1,2,3,7,8,9-HxCDF	*56*		*29 - 147*	*08/30/18 14:05*	*09/03/18 04:33*	*1*
13C-1,2,3,7,8-PeCDD	*55*		*25 - 181*	*08/30/18 14:05*	*09/03/18 04:33*	*1*
13C-1,2,3,7,8-PeCDF	*52*		*24 - 185*	*08/30/18 14:05*	*09/03/18 04:33*	*1*
13C-2,3,4,6,7,8-HxCDF	*52*		*28 - 136*	*08/30/18 14:05*	*09/03/18 04:33*	*1*
13C-2,3,4,7,8-PeCDF	*54*		*21 - 178*	*08/30/18 14:05*	*09/03/18 04:33*	*1*
13C-2,3,7,8-TCDD	*66*		*25 - 164*	*08/30/18 14:05*	*09/03/18 04:33*	*1*
13C-2,3,7,8-TCDF	*59*		*24 - 169*	*08/30/18 14:05*	*09/03/18 04:33*	*1*
13C-OCDD	*41*		*17 - 157*	*08/30/18 14:05*	*09/03/18 04:33*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*124*		*35 - 197*	*08/30/18 14:05*	*09/03/18 04:33*	*1*

Client Sample ID: PDI-SC-S004-9.1to10.3
Date Collected: 08/10/18 18:55
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-45
Matrix: Solid
Percent Solids: 76.7

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	0.00071	J B	0.0032	0.000017	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
1,2,3,4,6,7,8-HpCDF	0.000068	J	0.0032	0.000015	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
1,2,3,4,7,8,9-HpCDF	0.000086	J q B	0.0032	0.000017	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
1,2,3,4,7,8-HxCDD	0.00010	J B	0.0032	0.000029	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
1,2,3,4,7,8-HxCDF	ND		0.0032	0.000020	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
1,2,3,6,7,8-HxCDD	0.000040	J q	0.0032	0.000026	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
1,2,3,6,7,8-HxCDF	ND		0.0032	0.000021	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
1,2,3,7,8,9-HxCDD	0.00014	J	0.0032	0.000025	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
1,2,3,7,8,9-HxCDF	0.00039	J B	0.0032	0.000014	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
1,2,3,7,8-PeCDD	0.000038	J	0.0032	0.000020	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
1,2,3,7,8-PeCDF	0.00014	J B	0.0032	0.000014	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
2,3,4,6,7,8-HxCDF	ND		0.0032	0.000023	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
2,3,4,7,8-PeCDF	0.000047	J	0.0032	0.000015	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
2,3,7,8-TCDD	ND		0.00064	0.000012	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
2,3,7,8-TCDF	0.000044	J B	0.00064	0.0000063	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
OCDD	0.0069	B	0.0064	0.000023	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1
OCDF	0.00011	J q B	0.0064	0.0000093	ug/Kg	☼	08/30/18 14:05	09/03/18 05:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*70*		*23 - 140*	*08/30/18 14:05*	*09/03/18 05:19*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*63*		*28 - 143*	*08/30/18 14:05*	*09/03/18 05:19*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*69*		*26 - 138*	*08/30/18 14:05*	*09/03/18 05:19*	*1*
13C-1,2,3,4,7,8-HxCDD	*57*		*32 - 141*	*08/30/18 14:05*	*09/03/18 05:19*	*1*
13C-1,2,3,4,7,8-HxCDF	*57*		*26 - 152*	*08/30/18 14:05*	*09/03/18 05:19*	*1*
13C-1,2,3,6,7,8-HxCDD	*63*		*28 - 130*	*08/30/18 14:05*	*09/03/18 05:19*	*1*
13C-1,2,3,6,7,8-HxCDF	*63*		*26 - 123*	*08/30/18 14:05*	*09/03/18 05:19*	*1*
13C-1,2,3,7,8,9-HxCDF	*61*		*29 - 147*	*08/30/18 14:05*	*09/03/18 05:19*	*1*
13C-1,2,3,7,8-PeCDD	*58*		*25 - 181*	*08/30/18 14:05*	*09/03/18 05:19*	*1*
13C-1,2,3,7,8-PeCDF	*54*		*24 - 185*	*08/30/18 14:05*	*09/03/18 05:19*	*1*
13C-2,3,4,6,7,8-HxCDF	*60*		*28 - 136*	*08/30/18 14:05*	*09/03/18 05:19*	*1*
13C-2,3,4,7,8-PeCDF	*55*		*21 - 178*	*08/30/18 14:05*	*09/03/18 05:19*	*1*
13C-2,3,7,8-TCDD	*67*		*25 - 164*	*08/30/18 14:05*	*09/03/18 05:19*	*1*
13C-2,3,7,8-TCDF	*59*		*24 - 169*	*08/30/18 14:05*	*09/03/18 05:19*	*1*
13C-OCDD	*62*		*17 - 157*	*08/30/18 14:05*	*09/03/18 05:19*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*124*		*35 - 197*	*08/30/18 14:05*	*09/03/18 05:19*	*1*

Client Sample ID: PDI-SC-S015-0to2
Date Collected: 08/13/18 09:05
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-46
Matrix: Solid
Percent Solids: 43.8

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	0.086	B	0.0057	0.00092	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
1,2,3,4,6,7,8-HpCDF	0.013	q	0.0057	0.00025	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
1,2,3,4,7,8,9-HpCDF	0.0011	J B	0.0057	0.00026	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
1,2,3,4,7,8-HxCDD	0.00096	J B	0.0057	0.00018	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
1,2,3,4,7,8-HxCDF	0.0024	J	0.0057	0.00023	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
1,2,3,6,7,8-HxCDD	0.0031	J	0.0057	0.00017	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
1,2,3,6,7,8-HxCDF	ND		0.0057	0.00023	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
1,2,3,7,8,9-HxCDD	0.0022	J	0.0057	0.00016	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
1,2,3,7,8,9-HxCDF	0.00078	J B	0.0057	0.00014	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
1,2,3,7,8-PeCDD	0.00041	J q	0.0057	0.000086	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
1,2,3,7,8-PeCDF	0.00091	J q B	0.0057	0.000089	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
2,3,4,6,7,8-HxCDF	ND		0.0057	0.00025	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
2,3,4,7,8-PeCDF	0.00073	J	0.0057	0.00010	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
2,3,7,8-TCDD	ND		0.0011	0.000047	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
OCDD	0.74	B	0.011	0.0011	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1
OCDF	0.047	B	0.011	0.000039	ug/Kg	☼	08/30/18 14:05	09/03/18 06:05	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*61*		*23 - 140*	*08/30/18 14:05*	*09/03/18 06:05*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*55*		*28 - 143*	*08/30/18 14:05*	*09/03/18 06:05*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*58*		*26 - 138*	*08/30/18 14:05*	*09/03/18 06:05*	*1*
13C-1,2,3,4,7,8-HxCDD	*51*		*32 - 141*	*08/30/18 14:05*	*09/03/18 06:05*	*1*
13C-1,2,3,4,7,8-HxCDF	*51*		*26 - 152*	*08/30/18 14:05*	*09/03/18 06:05*	*1*
13C-1,2,3,6,7,8-HxCDD	*55*		*28 - 130*	*08/30/18 14:05*	*09/03/18 06:05*	*1*
13C-1,2,3,6,7,8-HxCDF	*55*		*26 - 123*	*08/30/18 14:05*	*09/03/18 06:05*	*1*
13C-1,2,3,7,8,9-HxCDF	*56*		*29 - 147*	*08/30/18 14:05*	*09/03/18 06:05*	*1*
13C-1,2,3,7,8-PeCDD	*56*		*25 - 181*	*08/30/18 14:05*	*09/03/18 06:05*	*1*
13C-1,2,3,7,8-PeCDF	*53*		*24 - 185*	*08/30/18 14:05*	*09/03/18 06:05*	*1*
13C-2,3,4,6,7,8-HxCDF	*53*		*28 - 136*	*08/30/18 14:05*	*09/03/18 06:05*	*1*
13C-2,3,4,7,8-PeCDF	*54*		*21 - 178*	*08/30/18 14:05*	*09/03/18 06:05*	*1*
13C-2,3,7,8-TCDD	*65*		*25 - 164*	*08/30/18 14:05*	*09/03/18 06:05*	*1*
13C-OCDD	*53*		*17 - 157*	*08/30/18 14:05*	*09/03/18 06:05*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*126*		*35 - 197*	*08/30/18 14:05*	*09/03/18 06:05*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0012	B	0.0011	0.00041	ug/Kg	☼	08/30/18 14:05	09/06/18 18:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*64*		*24 - 169*	*08/30/18 14:05*	*09/06/18 18:24*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*125*		*35 - 197*	*08/30/18 14:05*	*09/06/18 18:24*	*1*

Client Sample ID: PDI-SC-S015-2to4
Date Collected: 08/13/18 09:10
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-47
Matrix: Solid
Percent Solids: 51.4

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.11	B	0.0048	0.0014	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
1,2,3,4,6,7,8-HpCDF	0.018		0.0048	0.00029	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
1,2,3,4,7,8,9-HpCDF	0.0012	J B	0.0048	0.00029	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
1,2,3,4,7,8-HxCDD	0.0011	J B	0.0048	0.00018	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
1,2,3,4,7,8-HxCDF	0.0021	J	0.0048	0.00022	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
1,2,3,6,7,8-HxCDD	0.0039	J	0.0048	0.00016	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
1,2,3,6,7,8-HxCDF	0.0010	J	0.0048	0.00022	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
1,2,3,7,8,9-HxCDD	0.0029	J	0.0048	0.00015	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
1,2,3,7,8,9-HxCDF	0.00054	J B	0.0048	0.00013	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
1,2,3,7,8-PeCDD	0.00055	J	0.0048	0.000074	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
1,2,3,7,8-PeCDF	0.0010	J B	0.0048	0.000089	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
2,3,4,6,7,8-HxCDF	ND		0.0048	0.00023	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
2,3,4,7,8-PeCDF	0.00060	J	0.0048	0.000097	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
2,3,7,8-TCDD	0.00029	J q	0.00095	0.000039	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
OCDD	0.97	B	0.0095	0.0016	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1
OCDF	0.060	B	0.0095	0.000037	ug/Kg	☼	08/30/18 14:05	09/03/18 06:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*61*		*23 - 140*	*08/30/18 14:05*	*09/03/18 06:51*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*54*		*28 - 143*	*08/30/18 14:05*	*09/03/18 06:51*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*58*		*26 - 138*	*08/30/18 14:05*	*09/03/18 06:51*	*1*
13C-1,2,3,4,7,8-HxCDD	*55*		*32 - 141*	*08/30/18 14:05*	*09/03/18 06:51*	*1*
13C-1,2,3,4,7,8-HxCDF	*54*		*26 - 152*	*08/30/18 14:05*	*09/03/18 06:51*	*1*
13C-1,2,3,6,7,8-HxCDD	*58*		*28 - 130*	*08/30/18 14:05*	*09/03/18 06:51*	*1*
13C-1,2,3,6,7,8-HxCDF	*57*		*26 - 123*	*08/30/18 14:05*	*09/03/18 06:51*	*1*
13C-1,2,3,7,8,9-HxCDF	*60*		*29 - 147*	*08/30/18 14:05*	*09/03/18 06:51*	*1*
13C-1,2,3,7,8-PeCDD	*60*		*25 - 181*	*08/30/18 14:05*	*09/03/18 06:51*	*1*
13C-1,2,3,7,8-PeCDF	*58*		*24 - 185*	*08/30/18 14:05*	*09/03/18 06:51*	*1*
13C-2,3,4,6,7,8-HxCDF	*56*		*28 - 136*	*08/30/18 14:05*	*09/03/18 06:51*	*1*
13C-2,3,4,7,8-PeCDF	*59*		*21 - 178*	*08/30/18 14:05*	*09/03/18 06:51*	*1*
13C-2,3,7,8-TCDD	*70*		*25 - 164*	*08/30/18 14:05*	*09/03/18 06:51*	*1*
13C-OCDD	*54*		*17 - 157*	*08/30/18 14:05*	*09/03/18 06:51*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*126*		*35 - 197*	*08/30/18 14:05*	*09/03/18 06:51*	*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	q B	0.00095	0.00053	ug/Kg	☼	08/30/18 14:05	09/06/18 02:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*69*		*24 - 169*	*08/30/18 14:05*	*09/06/18 02:44*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*120*		*35 - 197*	*08/30/18 14:05*	*09/06/18 02:44*	*1*

Client Sample ID: PDI-SC-S015-4to6
Date Collected: 08/13/18 09:15
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-48
Matrix: Solid
Percent Solids: 53.3

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	0.16	B	0.0047	0.0014	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
1,2,3,4,6,7,8-HpCDF	0.018		0.0047	0.00031	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
1,2,3,4,7,8,9-HpCDF	0.0013	J B	0.0047	0.00034	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
1,2,3,4,7,8-HxCDD	0.0015	J B	0.0047	0.00029	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
1,2,3,4,7,8-HxCDF	0.0030	J	0.0047	0.00037	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
1,2,3,6,7,8-HxCDD	0.010		0.0047	0.00027	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
1,2,3,6,7,8-HxCDF	0.0015	J	0.0047	0.00037	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
1,2,3,7,8,9-HxCDD	0.0041	J	0.0047	0.00026	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
1,2,3,7,8,9-HxCDF	0.00059	J B	0.0047	0.00022	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
1,2,3,7,8-PeCDD	0.00094	J	0.0047	0.00011	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
1,2,3,7,8-PeCDF	0.0012	J q B	0.0047	0.00019	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
2,3,4,6,7,8-HxCDF	ND		0.0047	0.00040	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
2,3,4,7,8-PeCDF	0.00073	J q	0.0047	0.00021	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
2,3,7,8-TCDD	0.00043	J q	0.00094	0.000031	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
OCDD	1.4	B	0.0094	0.0024	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1
OCDF	0.055	B	0.0094	0.000046	ug/Kg	☼	08/30/18 14:05	09/03/18 07:37	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*57*		*23 - 140*	*08/30/18 14:05*	*09/03/18 07:37*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*52*		*28 - 143*	*08/30/18 14:05*	*09/03/18 07:37*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*55*		*26 - 138*	*08/30/18 14:05*	*09/03/18 07:37*	*1*
13C-1,2,3,4,7,8-HxCDD	*52*		*32 - 141*	*08/30/18 14:05*	*09/03/18 07:37*	*1*
13C-1,2,3,4,7,8-HxCDF	*51*		*26 - 152*	*08/30/18 14:05*	*09/03/18 07:37*	*1*
13C-1,2,3,6,7,8-HxCDD	*55*		*28 - 130*	*08/30/18 14:05*	*09/03/18 07:37*	*1*
13C-1,2,3,6,7,8-HxCDF	*55*		*26 - 123*	*08/30/18 14:05*	*09/03/18 07:37*	*1*
13C-1,2,3,7,8,9-HxCDF	*56*		*29 - 147*	*08/30/18 14:05*	*09/03/18 07:37*	*1*
13C-1,2,3,7,8-PeCDD	*55*		*25 - 181*	*08/30/18 14:05*	*09/03/18 07:37*	*1*
13C-1,2,3,7,8-PeCDF	*52*		*24 - 185*	*08/30/18 14:05*	*09/03/18 07:37*	*1*
13C-2,3,4,6,7,8-HxCDF	*52*		*28 - 136*	*08/30/18 14:05*	*09/03/18 07:37*	*1*
13C-2,3,4,7,8-PeCDF	*53*		*21 - 178*	*08/30/18 14:05*	*09/03/18 07:37*	*1*
13C-2,3,7,8-TCDD	*63*		*25 - 164*	*08/30/18 14:05*	*09/03/18 07:37*	*1*
13C-OCDD	*50*		*17 - 157*	*08/30/18 14:05*	*09/03/18 07:37*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*124*		*35 - 197*	*08/30/18 14:05*	*09/03/18 07:37*	*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	0.0028	B	0.00094	0.00017	ug/Kg	☼	08/30/18 14:05	09/06/18 03:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*61*		*24 - 169*	*08/30/18 14:05*	*09/06/18 03:22*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*121*		*35 - 197*	*08/30/18 14:05*	*09/06/18 03:22*	*1*

Client Sample ID: PDI-SC-S015-6to8
Date Collected: 08/13/18 09:20
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-49
Matrix: Solid
Percent Solids: 55.7

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	0.49	B	0.0045	0.0042	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
1,2,3,4,6,7,8-HpCDF	0.060		0.0045	0.00067	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
1,2,3,4,7,8,9-HpCDF	0.0050	B	0.0045	0.00070	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
1,2,3,4,7,8-HxCDD	0.0040	J B	0.0045	0.00082	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
1,2,3,4,7,8-HxCDF	0.019		0.0045	0.00096	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
1,2,3,6,7,8-HxCDD	0.032		0.0045	0.00075	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
1,2,3,6,7,8-HxCDF	0.0061		0.0045	0.00098	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
1,2,3,7,8,9-HxCDD	0.010		0.0045	0.00072	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
1,2,3,7,8,9-HxCDF	0.00075	J B	0.0045	0.00056	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
1,2,3,7,8-PeCDD	0.0024	J	0.0045	0.00019	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
1,2,3,7,8-PeCDF	0.0068	B	0.0045	0.00068	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
2,3,4,6,7,8-HxCDF	0.0018	J	0.0045	0.0010	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
2,3,4,7,8-PeCDF	0.0033	J	0.0045	0.00076	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
2,3,7,8-TCDD	0.00080	J	0.00089	0.000041	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
OCDD	4.6	E B	0.0089	0.0073	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1
OCDF	0.14	B	0.0089	0.000059	ug/Kg	☼	08/30/18 14:05	09/03/18 08:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*53*		*23 - 140*	*08/30/18 14:05*	*09/03/18 08:23*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*46*		*28 - 143*	*08/30/18 14:05*	*09/03/18 08:23*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*49*		*26 - 138*	*08/30/18 14:05*	*09/03/18 08:23*	*1*
13C-1,2,3,4,7,8-HxCDD	*51*		*32 - 141*	*08/30/18 14:05*	*09/03/18 08:23*	*1*
13C-1,2,3,4,7,8-HxCDF	*50*		*26 - 152*	*08/30/18 14:05*	*09/03/18 08:23*	*1*
13C-1,2,3,6,7,8-HxCDD	*51*		*28 - 130*	*08/30/18 14:05*	*09/03/18 08:23*	*1*
13C-1,2,3,6,7,8-HxCDF	*52*		*26 - 123*	*08/30/18 14:05*	*09/03/18 08:23*	*1*
13C-1,2,3,7,8,9-HxCDF	*55*		*29 - 147*	*08/30/18 14:05*	*09/03/18 08:23*	*1*
13C-1,2,3,7,8-PeCDD	*55*		*25 - 181*	*08/30/18 14:05*	*09/03/18 08:23*	*1*
13C-1,2,3,7,8-PeCDF	*53*		*24 - 185*	*08/30/18 14:05*	*09/03/18 08:23*	*1*
13C-2,3,4,6,7,8-HxCDF	*51*		*28 - 136*	*08/30/18 14:05*	*09/03/18 08:23*	*1*
13C-2,3,4,7,8-PeCDF	*54*		*21 - 178*	*08/30/18 14:05*	*09/03/18 08:23*	*1*
13C-2,3,7,8-TCDD	*62*		*25 - 164*	*08/30/18 14:05*	*09/03/18 08:23*	*1*
13C-OCDD	*44*		*17 - 157*	*08/30/18 14:05*	*09/03/18 08:23*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*127*		*35 - 197*	*08/30/18 14:05*	*09/03/18 08:23*	*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	0.0064	B	0.00089	0.00038	ug/Kg	☼	08/30/18 14:05	09/06/18 04:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*65*		*24 - 169*	*08/30/18 14:05*	*09/06/18 04:00*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*126*		*35 - 197*	*08/30/18 14:05*	*09/06/18 04:00*	*1*

Client Sample ID: PDI-SC-S015-8to10
Date Collected: 08/13/18 09:25
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-50
Matrix: Solid
Percent Solids: 56.0

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.33	B	0.0045	0.0018	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
1,2,3,4,6,7,8-HpCDF	0.058		0.0045	0.00057	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
1,2,3,4,7,8,9-HpCDF	0.0049	B	0.0045	0.00060	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
1,2,3,4,7,8-HxCDD	0.0021	J B	0.0045	0.00042	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
1,2,3,4,7,8-HxCDF	0.013		0.0045	0.00051	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
1,2,3,6,7,8-HxCDD	0.019		0.0045	0.00038	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
1,2,3,6,7,8-HxCDF	0.0057		0.0045	0.00048	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
1,2,3,7,8,9-HxCDD	0.0061		0.0045	0.00037	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
1,2,3,7,8,9-HxCDF	0.00082	J B	0.0045	0.00027	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
1,2,3,7,8-PeCDD	0.0013	J	0.0045	0.000099	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
1,2,3,7,8-PeCDF	0.0056	B	0.0045	0.00019	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
2,3,4,6,7,8-HxCDF	0.0015	J	0.0045	0.00050	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
2,3,4,7,8-PeCDF	0.0028	J	0.0045	0.00022	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
2,3,7,8-TCDD	0.00066	J	0.00089	0.000023	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
OCDD	3.8	E B	0.0089	0.0053	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1
OCDF	0.15	B	0.0089	0.000063	ug/Kg	☼	08/30/18 14:05	09/03/18 09:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*53*		*23 - 140*	*08/30/18 14:05*	*09/03/18 09:09*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*45*		*28 - 143*	*08/30/18 14:05*	*09/03/18 09:09*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*49*		*26 - 138*	*08/30/18 14:05*	*09/03/18 09:09*	*1*
13C-1,2,3,4,7,8-HxCDD	*48*		*32 - 141*	*08/30/18 14:05*	*09/03/18 09:09*	*1*
13C-1,2,3,4,7,8-HxCDF	*48*		*26 - 152*	*08/30/18 14:05*	*09/03/18 09:09*	*1*
13C-1,2,3,6,7,8-HxCDD	*50*		*28 - 130*	*08/30/18 14:05*	*09/03/18 09:09*	*1*
13C-1,2,3,6,7,8-HxCDF	*50*		*26 - 123*	*08/30/18 14:05*	*09/03/18 09:09*	*1*
13C-1,2,3,7,8,9-HxCDF	*55*		*29 - 147*	*08/30/18 14:05*	*09/03/18 09:09*	*1*
13C-1,2,3,7,8-PeCDD	*57*		*25 - 181*	*08/30/18 14:05*	*09/03/18 09:09*	*1*
13C-1,2,3,7,8-PeCDF	*55*		*24 - 185*	*08/30/18 14:05*	*09/03/18 09:09*	*1*
13C-2,3,4,6,7,8-HxCDF	*52*		*28 - 136*	*08/30/18 14:05*	*09/03/18 09:09*	*1*
13C-2,3,4,7,8-PeCDF	*53*		*21 - 178*	*08/30/18 14:05*	*09/03/18 09:09*	*1*
13C-2,3,7,8-TCDD	*63*		*25 - 164*	*08/30/18 14:05*	*09/03/18 09:09*	*1*
13C-OCDD	*43*		*17 - 157*	*08/30/18 14:05*	*09/03/18 09:09*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*126*		*35 - 197*	*08/30/18 14:05*	*09/03/18 09:09*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	0.0049	B	0.00089	0.00013	ug/Kg	☼	08/30/18 14:05	09/06/18 04:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*65*		*24 - 169*	*08/30/18 14:05*	*09/06/18 04:38*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*128*		*35 - 197*	*08/30/18 14:05*	*09/06/18 04:38*	*1*

Client Sample ID: PDI-SC-S015-10to11.4
Date Collected: 08/13/18 09:30
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-51
Matrix: Solid
Percent Solids: 58.7

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	0.36	B	0.0042	0.0025	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
1,2,3,4,6,7,8-HpCDF	0.066		0.0042	0.00066	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
1,2,3,4,7,8,9-HpCDF	0.0059	B	0.0042	0.00076	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
1,2,3,4,7,8-HxCDD	0.0023	J B	0.0042	0.00024	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
1,2,3,4,7,8-HxCDF	0.019		0.0042	0.00056	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
1,2,3,6,7,8-HxCDD	0.015		0.0042	0.00023	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
1,2,3,6,7,8-HxCDF	0.0071		0.0042	0.00053	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
1,2,3,7,8,9-HxCDD	0.0055		0.0042	0.00022	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
1,2,3,7,8,9-HxCDF	0.00080	J B	0.0042	0.00032	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
1,2,3,7,8-PeCDD	0.0010	J q	0.0042	0.00026	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
1,2,3,7,8-PeCDF	0.0083	B	0.0042	0.00040	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
2,3,4,6,7,8-HxCDF	0.0016	J	0.0042	0.00056	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
2,3,4,7,8-PeCDF	0.0039	J	0.0042	0.00044	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
2,3,7,8-TCDD	0.00084		0.00084	0.000034	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
OCDD	4.4	E B	0.0084	0.00088	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1
OCDF	0.26	B	0.0084	0.000089	ug/Kg	☼	08/30/18 14:05	09/03/18 09:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*55*		*23 - 140*	*08/30/18 14:05*	*09/03/18 09:55*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*51*		*28 - 143*	*08/30/18 14:05*	*09/03/18 09:55*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*49*		*26 - 138*	*08/30/18 14:05*	*09/03/18 09:55*	*1*
13C-1,2,3,4,7,8-HxCDD	*59*		*32 - 141*	*08/30/18 14:05*	*09/03/18 09:55*	*1*
13C-1,2,3,4,7,8-HxCDF	*56*		*26 - 152*	*08/30/18 14:05*	*09/03/18 09:55*	*1*
13C-1,2,3,6,7,8-HxCDD	*59*		*28 - 130*	*08/30/18 14:05*	*09/03/18 09:55*	*1*
13C-1,2,3,6,7,8-HxCDF	*59*		*26 - 123*	*08/30/18 14:05*	*09/03/18 09:55*	*1*
13C-1,2,3,7,8,9-HxCDF	*60*		*29 - 147*	*08/30/18 14:05*	*09/03/18 09:55*	*1*
13C-1,2,3,7,8-PeCDD	*62*		*25 - 181*	*08/30/18 14:05*	*09/03/18 09:55*	*1*
13C-1,2,3,7,8-PeCDF	*60*		*24 - 185*	*08/30/18 14:05*	*09/03/18 09:55*	*1*
13C-2,3,4,6,7,8-HxCDF	*59*		*28 - 136*	*08/30/18 14:05*	*09/03/18 09:55*	*1*
13C-2,3,4,7,8-PeCDF	*60*		*21 - 178*	*08/30/18 14:05*	*09/03/18 09:55*	*1*
13C-2,3,7,8-TCDD	*66*		*25 - 164*	*08/30/18 14:05*	*09/03/18 09:55*	*1*
13C-OCDD	*48*		*17 - 157*	*08/30/18 14:05*	*09/03/18 09:55*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*129*		*35 - 197*	*08/30/18 14:05*	*09/03/18 09:55*	*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	0.0089	B	0.00084	0.00034	ug/Kg	☼	08/30/18 14:05	09/06/18 05:15	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*64*		*24 - 169*	*08/30/18 14:05*	*09/06/18 05:15*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*127*		*35 - 197*	*08/30/18 14:05*	*09/06/18 05:15*	*1*

Client Sample ID: PDI-SC-S015-11.4to12.4
Date Collected: 08/13/18 09:35
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-52
Matrix: Solid
Percent Solids: 63.0

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.46	B	0.0039	0.0019	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
1,2,3,4,6,7,8-HpCDF	0.077		0.0039	0.00071	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
1,2,3,4,7,8,9-HpCDF	0.0074	B	0.0039	0.0010	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
1,2,3,4,7,8-HxCDD	0.0029	J B	0.0039	0.00020	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
1,2,3,4,7,8-HxCDF	0.025		0.0039	0.00085	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
1,2,3,6,7,8-HxCDD	0.017		0.0039	0.00019	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
1,2,3,6,7,8-HxCDF	0.0072		0.0039	0.00086	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
1,2,3,7,8,9-HxCDD	0.0064		0.0039	0.00018	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
1,2,3,7,8,9-HxCDF	0.00074	J B	0.0039	0.00046	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
1,2,3,7,8-PeCDD	0.0018	J	0.0039	0.00013	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
1,2,3,7,8-PeCDF	0.010	B	0.0039	0.00027	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
2,3,4,6,7,8-HxCDF	0.0019	J	0.0039	0.00067	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
2,3,4,7,8-PeCDF	0.0054		0.0039	0.00031	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
2,3,7,8-TCDD	0.0017		0.00079	0.000034	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
OCDD	5.9	E B	0.0079	0.0010	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1
OCDF	0.26	B	0.0079	0.000085	ug/Kg	☼	08/30/18 14:05	09/03/18 10:41	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*50*		*23 - 140*	*08/30/18 14:05*	*09/03/18 10:41*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*47*		*28 - 143*	*08/30/18 14:05*	*09/03/18 10:41*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*39*		*26 - 138*	*08/30/18 14:05*	*09/03/18 10:41*	*1*
13C-1,2,3,4,7,8-HxCDD	*58*		*32 - 141*	*08/30/18 14:05*	*09/03/18 10:41*	*1*
13C-1,2,3,4,7,8-HxCDF	*59*		*26 - 152*	*08/30/18 14:05*	*09/03/18 10:41*	*1*
13C-1,2,3,6,7,8-HxCDD	*56*		*28 - 130*	*08/30/18 14:05*	*09/03/18 10:41*	*1*
13C-1,2,3,6,7,8-HxCDF	*59*		*26 - 123*	*08/30/18 14:05*	*09/03/18 10:41*	*1*
13C-1,2,3,7,8,9-HxCDF	*59*		*29 - 147*	*08/30/18 14:05*	*09/03/18 10:41*	*1*
13C-1,2,3,7,8-PeCDD	*62*		*25 - 181*	*08/30/18 14:05*	*09/03/18 10:41*	*1*
13C-1,2,3,7,8-PeCDF	*55*		*24 - 185*	*08/30/18 14:05*	*09/03/18 10:41*	*1*
13C-2,3,4,6,7,8-HxCDF	*56*		*28 - 136*	*08/30/18 14:05*	*09/03/18 10:41*	*1*
13C-2,3,4,7,8-PeCDF	*59*		*21 - 178*	*08/30/18 14:05*	*09/03/18 10:41*	*1*
13C-2,3,7,8-TCDD	*58*		*25 - 164*	*08/30/18 14:05*	*09/03/18 10:41*	*1*
13C-OCDD	*44*		*17 - 157*	*08/30/18 14:05*	*09/03/18 10:41*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*119*		*35 - 197*	*08/30/18 14:05*	*09/03/18 10:41*	*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	0.00079	0.00034	ug/Kg	☼	08/30/18 14:05	09/06/18 05:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*65*		*24 - 169*	*08/30/18 14:05*	*09/06/18 05:53*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*125*		*35 - 197*	*08/30/18 14:05*	*09/06/18 05:53*	*1*

Client Sample ID: PDI-RB-SS-180810-1200
Date Collected: 08/10/18 12:00
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-53
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	**2.2**	**J B**	47	0.13	pg/L		08/28/18 08:43	09/01/18 07:36	1
1,2,3,4,6,7,8-HpCDF	**0.70**	**J q B**	47	0.17	pg/L		08/28/18 08:43	09/01/18 07:36	1
1,2,3,4,7,8,9-HpCDF	**1.2**	**J B**	47	0.18	pg/L		08/28/18 08:43	09/01/18 07:36	1
1,2,3,4,7,8-HxCDD	**1.4**	**J B**	47	0.24	pg/L		08/28/18 08:43	09/01/18 07:36	1
1,2,3,4,7,8-HxCDF	ND		47	0.23	pg/L		08/28/18 08:43	09/01/18 07:36	1
1,2,3,6,7,8-HxCDD	**0.29**	**J q B**	47	0.23	pg/L		08/28/18 08:43	09/01/18 07:36	1
1,2,3,6,7,8-HxCDF	ND		47	0.23	pg/L		08/28/18 08:43	09/01/18 07:36	1
1,2,3,7,8,9-HxCDD	ND		47	0.21	pg/L		08/28/18 08:43	09/01/18 07:36	1
1,2,3,7,8,9-HxCDF	**1.3**	**J q B**	47	0.14	pg/L		08/28/18 08:43	09/01/18 07:36	1
1,2,3,7,8-PeCDD	ND		47	0.15	pg/L		08/28/18 08:43	09/01/18 07:36	1
1,2,3,7,8-PeCDF	ND		47	0.13	pg/L		08/28/18 08:43	09/01/18 07:36	1
2,3,4,6,7,8-HxCDF	ND		47	0.23	pg/L		08/28/18 08:43	09/01/18 07:36	1
2,3,4,7,8-PeCDF	ND		47	0.14	pg/L		08/28/18 08:43	09/01/18 07:36	1
2,3,7,8-TCDD	ND		9.5	0.14	pg/L		08/28/18 08:43	09/01/18 07:36	1
2,3,7,8-TCDF	**0.33**	**J q B**	9.5	0.064	pg/L		08/28/18 08:43	09/01/18 07:36	1
OCDD	**39**	**J B**	95	0.23	pg/L		08/28/18 08:43	09/01/18 07:36	1
OCDF	**2.8**	**J B**	95	0.14	pg/L		08/28/18 08:43	09/01/18 07:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*94*		*23 - 140*	*08/28/18 08:43*	*09/01/18 07:36*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*87*		*28 - 143*	*08/28/18 08:43*	*09/01/18 07:36*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*90*		*26 - 138*	*08/28/18 08:43*	*09/01/18 07:36*	*1*
13C-1,2,3,4,7,8-HxCDD	*77*		*32 - 141*	*08/28/18 08:43*	*09/01/18 07:36*	*1*
13C-1,2,3,4,7,8-HxCDF	*77*		*26 - 152*	*08/28/18 08:43*	*09/01/18 07:36*	*1*
13C-1,2,3,6,7,8-HxCDD	*82*		*28 - 130*	*08/28/18 08:43*	*09/01/18 07:36*	*1*
13C-1,2,3,6,7,8-HxCDF	*83*		*26 - 123*	*08/28/18 08:43*	*09/01/18 07:36*	*1*
13C-1,2,3,7,8,9-HxCDF	*80*		*29 - 147*	*08/28/18 08:43*	*09/01/18 07:36*	*1*
13C-1,2,3,7,8-PeCDD	*78*		*25 - 181*	*08/28/18 08:43*	*09/01/18 07:36*	*1*
13C-1,2,3,7,8-PeCDF	*72*		*24 - 185*	*08/28/18 08:43*	*09/01/18 07:36*	*1*
13C-2,3,4,6,7,8-HxCDF	*78*		*28 - 136*	*08/28/18 08:43*	*09/01/18 07:36*	*1*
13C-2,3,4,7,8-PeCDF	*71*		*21 - 178*	*08/28/18 08:43*	*09/01/18 07:36*	*1*
13C-2,3,7,8-TCDD	*84*		*25 - 164*	*08/28/18 08:43*	*09/01/18 07:36*	*1*
13C-2,3,7,8-TCDF	*75*		*24 - 169*	*08/28/18 08:43*	*09/01/18 07:36*	*1*
13C-OCDD	*85*		*17 - 157*	*08/28/18 08:43*	*09/01/18 07:36*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*117*		*35 - 197*	*08/28/18 08:43*	*09/01/18 07:36*	*1*

Client Sample ID: PDI-RB-SS-180810-1730
Date Collected: 08/10/18 17:30
Date Received: 08/13/18 15:00

Lab Sample ID: 580-79555-54
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	**3.1**	**J B**	48	0.14	pg/L		08/28/18 08:43	09/01/18 06:50	1
1,2,3,4,6,7,8-HpCDF	**1.0**	**J q B**	48	0.24	pg/L		08/28/18 08:43	09/01/18 06:50	1
1,2,3,4,7,8,9-HpCDF	**1.4**	**J q B**	48	0.26	pg/L		08/28/18 08:43	09/01/18 06:50	1
1,2,3,4,7,8-HxCDD	**1.5**	**J B**	48	0.32	pg/L		08/28/18 08:43	09/01/18 06:50	1
1,2,3,4,7,8-HxCDF	ND		48	0.35	pg/L		08/28/18 08:43	09/01/18 06:50	1
1,2,3,6,7,8-HxCDD	ND		48	0.28	pg/L		08/28/18 08:43	09/01/18 06:50	1
1,2,3,6,7,8-HxCDF	ND		48	0.34	pg/L		08/28/18 08:43	09/01/18 06:50	1
1,2,3,7,8,9-HxCDD	**0.76**	**J q**	48	0.28	pg/L		08/28/18 08:43	09/01/18 06:50	1
1,2,3,7,8,9-HxCDF	**1.9**	**J B**	48	0.22	pg/L		08/28/18 08:43	09/01/18 06:50	1
1,2,3,7,8-PeCDD	ND		48	0.19	pg/L		08/28/18 08:43	09/01/18 06:50	1
1,2,3,7,8-PeCDF	**0.68**	**J B**	48	0.20	pg/L		08/28/18 08:43	09/01/18 06:50	1
2,3,4,6,7,8-HxCDF	ND		48	0.34	pg/L		08/28/18 08:43	09/01/18 06:50	1
2,3,4,7,8-PeCDF	**0.49**	**J q B**	48	0.22	pg/L		08/28/18 08:43	09/01/18 06:50	1
2,3,7,8-TCDD	ND		9.6	0.17	pg/L		08/28/18 08:43	09/01/18 06:50	1
2,3,7,8-TCDF	**0.44**	**J B**	9.6	0.099	pg/L		08/28/18 08:43	09/01/18 06:50	1
OCDD	**39**	**J B**	96	0.27	pg/L		08/28/18 08:43	09/01/18 06:50	1
OCDF	**3.8**	**J B**	96	0.16	pg/L		08/28/18 08:43	09/01/18 06:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*95*		*23 - 140*	*08/28/18 08:43*	*09/01/18 06:50*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*87*		*28 - 143*	*08/28/18 08:43*	*09/01/18 06:50*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*91*		*26 - 138*	*08/28/18 08:43*	*09/01/18 06:50*	*1*
13C-1,2,3,4,7,8-HxCDD	*73*		*32 - 141*	*08/28/18 08:43*	*09/01/18 06:50*	*1*
13C-1,2,3,4,7,8-HxCDF	*74*		*26 - 152*	*08/28/18 08:43*	*09/01/18 06:50*	*1*
13C-1,2,3,6,7,8-HxCDD	*79*		*28 - 130*	*08/28/18 08:43*	*09/01/18 06:50*	*1*
13C-1,2,3,6,7,8-HxCDF	*79*		*26 - 123*	*08/28/18 08:43*	*09/01/18 06:50*	*1*
13C-1,2,3,7,8,9-HxCDF	*77*		*29 - 147*	*08/28/18 08:43*	*09/01/18 06:50*	*1*
13C-1,2,3,7,8-PeCDD	*75*		*25 - 181*	*08/28/18 08:43*	*09/01/18 06:50*	*1*
13C-1,2,3,7,8-PeCDF	*69*		*24 - 185*	*08/28/18 08:43*	*09/01/18 06:50*	*1*
13C-2,3,4,6,7,8-HxCDF	*75*		*28 - 136*	*08/28/18 08:43*	*09/01/18 06:50*	*1*
13C-2,3,4,7,8-PeCDF	*68*		*21 - 178*	*08/28/18 08:43*	*09/01/18 06:50*	*1*
13C-2,3,7,8-TCDD	*79*		*25 - 164*	*08/28/18 08:43*	*09/01/18 06:50*	*1*
13C-2,3,7,8-TCDF	*70*		*24 - 169*	*08/28/18 08:43*	*09/01/18 06:50*	*1*
13C-OCDD	*87*		*17 - 157*	*08/28/18 08:43*	*09/01/18 06:50*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*113*		*35 - 197*	*08/28/18 08:43*	*09/01/18 06:50*	*1*

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

Lab Sample ID: MB 320-242378/1-A
Matrix: Solid
Analysis Batch: 243224

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 242378

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.000106	J	0.0050	0.000012	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
1,2,3,4,6,7,8-HpCDF	0.0000625	J	0.0050	0.000021	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
1,2,3,4,7,8,9-HpCDF	0.000151	J	0.0050	0.000024	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
1,2,3,4,7,8-HxCDD	0.000175	J	0.0050	0.000029	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
1,2,3,4,7,8-HxCDF	ND		0.0050	0.000021	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
1,2,3,6,7,8-HxCDD	ND		0.0050	0.000026	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
1,2,3,6,7,8-HxCDF	ND		0.0050	0.000021	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
1,2,3,7,8,9-HxCDD	ND		0.0050	0.000025	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
1,2,3,7,8,9-HxCDF	0.000213	J	0.0050	0.000013	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
1,2,3,7,8-PeCDD	ND		0.0050	0.000020	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
1,2,3,7,8-PeCDF	ND		0.0050	0.000016	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
2,3,4,6,7,8-HxCDF	ND		0.0050	0.000021	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
2,3,4,7,8-PeCDF	ND		0.0050	0.000018	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
2,3,7,8-TCDD	ND		0.0010	0.000014	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
2,3,7,8-TCDF	0.0000197	J	0.0010	0.0000081	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
OCDD	0.000664	J	0.010	0.000018	ug/Kg		08/27/18 15:30	08/31/18 03:34	1
OCDF	0.0000983	J q	0.010	0.000015	ug/Kg		08/27/18 15:30	08/31/18 03:34	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*87*		*23 - 140*	*08/27/18 15:30*	*08/31/18 03:34*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*81*		*28 - 143*	*08/27/18 15:30*	*08/31/18 03:34*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*83*		*26 - 138*	*08/27/18 15:30*	*08/31/18 03:34*	*1*
13C-1,2,3,4,7,8-HxCDD	*68*		*32 - 141*	*08/27/18 15:30*	*08/31/18 03:34*	*1*
13C-1,2,3,4,7,8-HxCDF	*70*		*26 - 152*	*08/27/18 15:30*	*08/31/18 03:34*	*1*
13C-1,2,3,6,7,8-HxCDD	*73*		*28 - 130*	*08/27/18 15:30*	*08/31/18 03:34*	*1*
13C-1,2,3,6,7,8-HxCDF	*74*		*26 - 123*	*08/27/18 15:30*	*08/31/18 03:34*	*1*
13C-1,2,3,7,8,9-HxCDF	*71*		*29 - 147*	*08/27/18 15:30*	*08/31/18 03:34*	*1*
13C-1,2,3,7,8-PeCDD	*68*		*25 - 181*	*08/27/18 15:30*	*08/31/18 03:34*	*1*
13C-1,2,3,7,8-PeCDF	*63*		*24 - 185*	*08/27/18 15:30*	*08/31/18 03:34*	*1*
13C-2,3,4,6,7,8-HxCDF	*70*		*28 - 136*	*08/27/18 15:30*	*08/31/18 03:34*	*1*
13C-2,3,4,7,8-PeCDF	*62*		*21 - 178*	*08/27/18 15:30*	*08/31/18 03:34*	*1*
13C-2,3,7,8-TCDD	*74*		*25 - 164*	*08/27/18 15:30*	*08/31/18 03:34*	*1*
13C-2,3,7,8-TCDF	*65*		*24 - 169*	*08/27/18 15:30*	*08/31/18 03:34*	*1*
13C-OCDD	*78*		*17 - 157*	*08/27/18 15:30*	*08/31/18 03:34*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*118*		*35 - 197*	*08/27/18 15:30*	*08/31/18 03:34*	*1*

Lab Sample ID: LCS 320-242378/2-A
Matrix: Solid
Analysis Batch: 243224

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 242378

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,6,7,8-HpCDD	0.100	0.0988		ug/Kg		99	70 - 140
1,2,3,4,6,7,8-HpCDF	0.100	0.105		ug/Kg		105	82 - 122
1,2,3,4,7,8,9-HpCDF	0.100	0.108		ug/Kg		108	78 - 138
1,2,3,4,7,8-HxCDD	0.100	0.107		ug/Kg		107	70 - 164
1,2,3,4,7,8-HxCDF	0.100	0.108		ug/Kg		108	72 - 134

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

Lab Sample ID: LCS 320-242378/2-A
Matrix: Solid
Analysis Batch: 243224

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 242378

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,6,7,8-HxCDD	0.100	0.106		ug/Kg		106	76 - 134
1,2,3,6,7,8-HxCDF	0.100	0.107		ug/Kg		107	84 - 130
1,2,3,7,8,9-HxCDD	0.100	0.115		ug/Kg		115	64 - 162
1,2,3,7,8,9-HxCDF	0.100	0.108		ug/Kg		108	78 - 130
1,2,3,7,8-PeCDD	0.100	0.102		ug/Kg		102	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	0.108		ug/Kg		108	70 - 156
2,3,4,7,8-PeCDF	0.100	0.106		ug/Kg		106	68 - 160
2,3,7,8-TCDD	0.0200	0.0184		ug/Kg		92	67 - 158
2,3,7,8-TCDF	0.0200	0.0210		ug/Kg		105	75 - 158
OCDD	0.200	0.204		ug/Kg		102	78 - 144
OCDF	0.200	0.221		ug/Kg		110	63 - 170

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*83*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*74*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*78*		*20 - 186*
13C-1,2,3,4,7,8-HxCDD	*60*		*21 - 193*
13C-1,2,3,4,7,8-HxCDF	*62*		*19 - 202*
13C-1,2,3,6,7,8-HxCDD	*66*		*25 - 163*
13C-1,2,3,6,7,8-HxCDF	*67*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*68*		*17 - 205*
13C-1,2,3,7,8-PeCDD	*64*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*60*		*21 - 192*
13C-2,3,4,6,7,8-HxCDF	*66*		*22 - 176*
13C-2,3,4,7,8-PeCDF	*57*		*13 - 328*
13C-2,3,7,8-TCDD	*70*		*20 - 175*
13C-2,3,7,8-TCDF	*62*		*22 - 152*
13C-OCDD	*74*		*13 - 199*

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*120*		*31 - 191*

Lab Sample ID: LCSD 320-242378/3-A
Matrix: Solid
Analysis Batch: 243224

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 242378

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	0.0976		ug/Kg		98	70 - 140	1	50
1,2,3,4,6,7,8-HpCDF	0.100	0.104		ug/Kg		104	82 - 122	1	50
1,2,3,4,7,8,9-HpCDF	0.100	0.109		ug/Kg		109	78 - 138	1	50
1,2,3,4,7,8-HxCDD	0.100	0.103		ug/Kg		103	70 - 164	4	50
1,2,3,4,7,8-HxCDF	0.100	0.107		ug/Kg		107	72 - 134	1	50
1,2,3,6,7,8-HxCDD	0.100	0.106		ug/Kg		106	76 - 134	0	50
1,2,3,6,7,8-HxCDF	0.100	0.107		ug/Kg		107	84 - 130	0	50
1,2,3,7,8,9-HxCDD	0.100	0.107		ug/Kg		107	64 - 162	8	50
1,2,3,7,8,9-HxCDF	0.100	0.108		ug/Kg		108	78 - 130	1	50
1,2,3,7,8-PeCDD	0.100	0.100		ug/Kg		100	70 - 142	2	50

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

Lab Sample ID: LCSD 320-242378/3-A
Matrix: Solid
Analysis Batch: 243224

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 242378

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3,7,8-PeCDF			0.100	0.106		ug/Kg		106	80 - 134	1	50
2,3,4,6,7,8-HxCDF			0.100	0.106		ug/Kg		106	70 - 156	2	50
2,3,4,7,8-PeCDF			0.100	0.106		ug/Kg		106	68 - 160	0	50
2,3,7,8-TCDD			0.0200	0.0184		ug/Kg		92	67 - 158	0	50
2,3,7,8-TCDF			0.0200	0.0209		ug/Kg		104	75 - 158	0	50
OCDD			0.200	0.205		ug/Kg		102	78 - 144	1	50
OCDF			0.200	0.222		ug/Kg		111	63 - 170	1	50

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*87*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*79*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*81*		*20 - 186*
13C-1,2,3,4,7,8-HxCDD	*69*		*21 - 193*
13C-1,2,3,4,7,8-HxCDF	*70*		*19 - 202*
13C-1,2,3,6,7,8-HxCDD	*71*		*25 - 163*
13C-1,2,3,6,7,8-HxCDF	*72*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*70*		*17 - 205*
13C-1,2,3,7,8-PeCDD	*67*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*62*		*21 - 192*
13C-2,3,4,6,7,8-HxCDF	*69*		*22 - 176*
13C-2,3,4,7,8-PeCDF	*63*		*13 - 328*
13C-2,3,7,8-TCDD	*73*		*20 - 175*
13C-2,3,7,8-TCDF	*64*		*22 - 152*
13C-OCDD	*78*		*13 - 199*

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*120*		*31 - 191*

Lab Sample ID: MB 320-242488/1-A
Matrix: Water
Analysis Batch: 243696

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 242488

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	2.92	J	50	0.21	pg/L		08/28/18 08:43	09/01/18 04:32	1
1,2,3,4,6,7,8-HpCDF	1.72	J	50	0.25	pg/L		08/28/18 08:43	09/01/18 04:32	1
1,2,3,4,7,8,9-HpCDF	1.99	J	50	0.27	pg/L		08/28/18 08:43	09/01/18 04:32	1
1,2,3,4,7,8-HxCDD	1.57	J q	50	0.38	pg/L		08/28/18 08:43	09/01/18 04:32	1
1,2,3,4,7,8-HxCDF	0.860	J	50	0.50	pg/L		08/28/18 08:43	09/01/18 04:32	1
1,2,3,6,7,8-HxCDD	0.863	J	50	0.35	pg/L		08/28/18 08:43	09/01/18 04:32	1
1,2,3,6,7,8-HxCDF	ND		50	0.49	pg/L		08/28/18 08:43	09/01/18 04:32	1
1,2,3,7,8,9-HxCDD	ND		50	0.34	pg/L		08/28/18 08:43	09/01/18 04:32	1
1,2,3,7,8,9-HxCDF	2.72	J	50	0.28	pg/L		08/28/18 08:43	09/01/18 04:32	1
1,2,3,7,8-PeCDD	0.775	J	50	0.25	pg/L		08/28/18 08:43	09/01/18 04:32	1
1,2,3,7,8-PeCDF	0.793	J q	50	0.23	pg/L		08/28/18 08:43	09/01/18 04:32	1
2,3,4,6,7,8-HxCDF	ND		50	0.47	pg/L		08/28/18 08:43	09/01/18 04:32	1
2,3,4,7,8-PeCDF	0.974	J q	50	0.25	pg/L		08/28/18 08:43	09/01/18 04:32	1
2,3,7,8-TCDD	ND		10	0.22	pg/L		08/28/18 08:43	09/01/18 04:32	1
2,3,7,8-TCDF	0.856	J	10	0.13	pg/L		08/28/18 08:43	09/01/18 04:32	1

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

Lab Sample ID: MB 320-242488/1-A
Matrix: Water
Analysis Batch: 243696

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 242488

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
OCDD	29.4	J	100	0.40	pg/L		08/28/18 08:43	09/01/18 04:32	1
OCDF	4.43	J	100	0.20	pg/L		08/28/18 08:43	09/01/18 04:32	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*75*		*23 - 140*	*08/28/18 08:43*	*09/01/18 04:32*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*67*		*28 - 143*	*08/28/18 08:43*	*09/01/18 04:32*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*70*		*26 - 138*	*08/28/18 08:43*	*09/01/18 04:32*	*1*
13C-1,2,3,4,7,8-HxCDD	*58*		*32 - 141*	*08/28/18 08:43*	*09/01/18 04:32*	*1*
13C-1,2,3,4,7,8-HxCDF	*57*		*26 - 152*	*08/28/18 08:43*	*09/01/18 04:32*	*1*
13C-1,2,3,6,7,8-HxCDD	*62*		*28 - 130*	*08/28/18 08:43*	*09/01/18 04:32*	*1*
13C-1,2,3,6,7,8-HxCDF	*62*		*26 - 123*	*08/28/18 08:43*	*09/01/18 04:32*	*1*
13C-1,2,3,7,8,9-HxCDF	*65*		*29 - 147*	*08/28/18 08:43*	*09/01/18 04:32*	*1*
13C-1,2,3,7,8-PeCDD	*63*		*25 - 181*	*08/28/18 08:43*	*09/01/18 04:32*	*1*
13C-1,2,3,7,8-PeCDF	*58*		*24 - 185*	*08/28/18 08:43*	*09/01/18 04:32*	*1*
13C-2,3,4,6,7,8-HxCDF	*61*		*28 - 136*	*08/28/18 08:43*	*09/01/18 04:32*	*1*
13C-2,3,4,7,8-PeCDF	*56*		*21 - 178*	*08/28/18 08:43*	*09/01/18 04:32*	*1*
13C-2,3,7,8-TCDD	*70*		*25 - 164*	*08/28/18 08:43*	*09/01/18 04:32*	*1*
13C-2,3,7,8-TCDF	*62*		*24 - 169*	*08/28/18 08:43*	*09/01/18 04:32*	*1*
13C-OCDD	*69*		*17 - 157*	*08/28/18 08:43*	*09/01/18 04:32*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*122*		*35 - 197*	*08/28/18 08:43*	*09/01/18 04:32*	*1*

Lab Sample ID: LCS 320-242488/2-A
Matrix: Water
Analysis Batch: 243696

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 242488

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,6,7,8-HpCDD	1000	995		pg/L		99	70 - 140
1,2,3,4,6,7,8-HpCDF	1000	1060		pg/L		106	82 - 122
1,2,3,4,7,8,9-HpCDF	1000	1050		pg/L		105	78 - 138
1,2,3,4,7,8-HxCDD	1000	1110		pg/L		111	70 - 164
1,2,3,4,7,8-HxCDF	1000	1110		pg/L		111	72 - 134
1,2,3,6,7,8-HxCDD	1000	1110		pg/L		111	76 - 134
1,2,3,6,7,8-HxCDF	1000	1100		pg/L		110	84 - 130
1,2,3,7,8,9-HxCDD	1000	1110		pg/L		111	64 - 162
1,2,3,7,8,9-HxCDF	1000	1100		pg/L		110	78 - 130
1,2,3,7,8-PeCDD	1000	1130		pg/L		113	70 - 142
1,2,3,7,8-PeCDF	1000	1190		pg/L		119	80 - 134
2,3,4,6,7,8-HxCDF	1000	1090		pg/L		109	70 - 156
2,3,4,7,8-PeCDF	1000	1170		pg/L		117	68 - 160
2,3,7,8-TCDD	200	211		pg/L		105	67 - 158
2,3,7,8-TCDF	200	242		pg/L		121	75 - 158
OCDD	2000	1990		pg/L		100	78 - 144
OCDF	2000	2160		pg/L		108	63 - 170

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*53*		*26 - 166*

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

Lab Sample ID: LCS 320-242488/2-A
Matrix: Water
Analysis Batch: 243696

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 242488

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDF	49		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	51		20 - 186
13C-1,2,3,4,7,8-HxCDD	42		21 - 193
13C-1,2,3,4,7,8-HxCDF	43		19 - 202
13C-1,2,3,6,7,8-HxCDD	45		25 - 163
13C-1,2,3,6,7,8-HxCDF	47		21 - 159
13C-1,2,3,7,8,9-HxCDF	46		17 - 205
13C-1,2,3,7,8-PeCDD	47		21 - 227
13C-1,2,3,7,8-PeCDF	44		21 - 192
13C-2,3,4,6,7,8-HxCDF	46		22 - 176
13C-2,3,4,7,8-PeCDF	45		13 - 328
13C-2,3,7,8-TCDD	56		20 - 175
13C-2,3,7,8-TCDF	53		22 - 152
13C-OCDD	48		13 - 199

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	119		31 - 191

Lab Sample ID: LCSD 320-242488/3-A
Matrix: Water
Analysis Batch: 243696

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 242488

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3,4,6,7,8-HpCDD			1000	1090		pg/L		109	70 - 140	9	50
1,2,3,4,6,7,8-HpCDF			1000	1150		pg/L		115	82 - 122	8	50
1,2,3,4,7,8,9-HpCDF			1000	1180		pg/L		118	78 - 138	12	50
1,2,3,4,7,8-HxCDD			1000	1170		pg/L		117	70 - 164	5	50
1,2,3,4,7,8-HxCDF			1000	1180		pg/L		118	72 - 134	6	50
1,2,3,6,7,8-HxCDD			1000	1180		pg/L		118	76 - 134	6	50
1,2,3,6,7,8-HxCDF			1000	1180		pg/L		118	84 - 130	7	50
1,2,3,7,8,9-HxCDD			1000	1210		pg/L		121	64 - 162	8	50
1,2,3,7,8,9-HxCDF			1000	1180		pg/L		118	78 - 130	7	50
1,2,3,7,8-PeCDD			1000	1110		pg/L		111	70 - 142	2	50
1,2,3,7,8-PeCDF			1000	1180		pg/L		118	80 - 134	1	50
2,3,4,6,7,8-HxCDF			1000	1180		pg/L		118	70 - 156	8	50
2,3,4,7,8-PeCDF			1000	1150		pg/L		115	68 - 160	1	50
2,3,7,8-TCDD			200	199		pg/L		100	67 - 158	6	50
2,3,7,8-TCDF			200	227		pg/L		114	75 - 158	7	50
OCDD			2000	2210		pg/L		110	78 - 144	10	50
OCDF			2000	2390		pg/L		119	63 - 170	10	50

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDD	85		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	78		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	80		20 - 186
13C-1,2,3,4,7,8-HxCDD	67		21 - 193
13C-1,2,3,4,7,8-HxCDF	68		19 - 202
13C-1,2,3,6,7,8-HxCDD	71		25 - 163

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

Lab Sample ID: LCSD 320-242488/3-A
Matrix: Water
Analysis Batch: 243696

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 242488

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-1,2,3,6,7,8-HxCDF	72		21 - 159
13C-1,2,3,7,8,9-HxCDF	71		17 - 205
13C-1,2,3,7,8-PeCDD	69		21 - 227
13C-1,2,3,7,8-PeCDF	63		21 - 192
13C-2,3,4,6,7,8-HxCDF	70		22 - 176
13C-2,3,4,7,8-PeCDF	64		13 - 328
13C-2,3,7,8-TCDD	74		20 - 175
13C-2,3,7,8-TCDF	65		22 - 152
13C-OCDD	78		13 - 199

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
37Cl4-2,3,7,8-TCDD	123		31 - 191

Lab Sample ID: MB 320-242573/1-A
Matrix: Solid
Analysis Batch: 243771

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 242573

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.000645	J	0.0050	0.00010	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
1,2,3,4,6,7,8-HpCDF	0.000359	J	0.0050	0.00013	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
1,2,3,4,7,8,9-HpCDF	ND		0.0050	0.00018	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
1,2,3,4,7,8-HxCDD	ND		0.0050	0.00018	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
1,2,3,4,7,8-HxCDF	ND		0.0050	0.00019	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
1,2,3,6,7,8-HxCDD	ND		0.0050	0.00015	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
1,2,3,6,7,8-HxCDF	ND		0.0050	0.00017	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
1,2,3,7,8,9-HxCDD	ND		0.0050	0.00015	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
1,2,3,7,8,9-HxCDF	0.000445	J	0.0050	0.00014	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
1,2,3,7,8-PeCDD	ND		0.0050	0.00015	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
1,2,3,7,8-PeCDF	ND		0.0050	0.00017	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
2,3,4,6,7,8-HxCDF	ND		0.0050	0.00020	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
2,3,4,7,8-PeCDF	ND		0.0050	0.00018	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
2,3,7,8-TCDD	ND		0.0010	0.00017	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
2,3,7,8-TCDF	0.000129	J q	0.0010	0.00011	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
OCDD	0.00979	J	0.010	0.00015	ug/Kg		08/28/18 13:33	09/04/18 13:32	1
OCDF	0.00143	J	0.010	0.00014	ug/Kg		08/28/18 13:33	09/04/18 13:32	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-1,2,3,4,6,7,8-HpCDD	87		23 - 140	08/28/18 13:33	09/04/18 13:32	1
13C-1,2,3,4,6,7,8-HpCDF	81		28 - 143	08/28/18 13:33	09/04/18 13:32	1
13C-1,2,3,4,7,8,9-HpCDF	76		26 - 138	08/28/18 13:33	09/04/18 13:32	1
13C-1,2,3,4,7,8-HxCDD	58		32 - 141	08/28/18 13:33	09/04/18 13:32	1
13C-1,2,3,4,7,8-HxCDF	63		26 - 152	08/28/18 13:33	09/04/18 13:32	1
13C-1,2,3,6,7,8-HxCDD	83		28 - 130	08/28/18 13:33	09/04/18 13:32	1
13C-1,2,3,6,7,8-HxCDF	81		26 - 123	08/28/18 13:33	09/04/18 13:32	1
13C-1,2,3,7,8,9-HxCDF	67		29 - 147	08/28/18 13:33	09/04/18 13:32	1
13C-1,2,3,7,8-PeCDD	69		25 - 181	08/28/18 13:33	09/04/18 13:32	1
13C-1,2,3,7,8-PeCDF	63		24 - 185	08/28/18 13:33	09/04/18 13:32	1
13C-2,3,4,6,7,8-HxCDF	69		28 - 136	08/28/18 13:33	09/04/18 13:32	1

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

Lab Sample ID: MB 320-242573/1-A
Matrix: Solid
Analysis Batch: 243771

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 242573

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,4,7,8-PeCDF	62		21 - 178	08/28/18 13:33	09/04/18 13:32	1
13C-2,3,7,8-TCDD	78		25 - 164	08/28/18 13:33	09/04/18 13:32	1
13C-2,3,7,8-TCDF	63		24 - 169	08/28/18 13:33	09/04/18 13:32	1
13C-OCDD	75		17 - 157	08/28/18 13:33	09/04/18 13:32	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	126		35 - 197	08/28/18 13:33	09/04/18 13:32	1

Lab Sample ID: LCS 320-242573/2-A
Matrix: Solid
Analysis Batch: 243771

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 242573

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,6,7,8-HpCDD	0.100	0.109		ug/Kg		109	70 - 140
1,2,3,4,6,7,8-HpCDF	0.100	0.117		ug/Kg		117	82 - 122
1,2,3,4,7,8,9-HpCDF	0.100	0.122		ug/Kg		122	78 - 138
1,2,3,4,7,8-HxCDD	0.100	0.117		ug/Kg		117	70 - 164
1,2,3,4,7,8-HxCDF	0.100	0.118		ug/Kg		118	72 - 134
1,2,3,6,7,8-HxCDD	0.100	0.118		ug/Kg		118	76 - 134
1,2,3,6,7,8-HxCDF	0.100	0.120		ug/Kg		120	84 - 130
1,2,3,7,8,9-HxCDD	0.100	0.119		ug/Kg		119	64 - 162
1,2,3,7,8,9-HxCDF	0.100	0.117		ug/Kg		117	78 - 130
1,2,3,7,8-PeCDD	0.100	0.111		ug/Kg		111	70 - 142
1,2,3,7,8-PeCDF	0.100	0.117		ug/Kg		117	80 - 134
2,3,4,6,7,8-HxCDF	0.100	0.118		ug/Kg		118	70 - 156
2,3,4,7,8-PeCDF	0.100	0.117		ug/Kg		117	68 - 160
2,3,7,8-TCDD	0.0200	0.0194		ug/Kg		97	67 - 158
2,3,7,8-TCDF	0.0200	0.0229		ug/Kg		114	75 - 158
OCDD	0.200	0.225		ug/Kg		112	78 - 144
OCDF	0.200	0.238		ug/Kg		119	63 - 170

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDD	80		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	77		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	73		20 - 186
13C-1,2,3,4,7,8-HxCDD	63		21 - 193
13C-1,2,3,4,7,8-HxCDF	64		19 - 202
13C-1,2,3,6,7,8-HxCDD	74		25 - 163
13C-1,2,3,6,7,8-HxCDF	74		21 - 159
13C-1,2,3,7,8,9-HxCDF	69		17 - 205
13C-1,2,3,7,8-PeCDD	70		21 - 227
13C-1,2,3,7,8-PeCDF	64		21 - 192
13C-2,3,4,6,7,8-HxCDF	67		22 - 176
13C-2,3,4,7,8-PeCDF	63		13 - 328
13C-2,3,7,8-TCDD	71		20 - 175
13C-2,3,7,8-TCDF	63		22 - 152
13C-OCDD	77		13 - 199

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

Lab Sample ID: LCS 320-242573/2-A
Matrix: Solid
Analysis Batch: 243771

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 242573

Surrogate	LCS %Recovery	LCS Qualifier	Limits
37Cl4-2,3,7,8-TCDD	*125*		*31 - 191*

Lab Sample ID: LCSD 320-242573/3-A
Matrix: Solid
Analysis Batch: 243771

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 242573

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	0.106		ug/Kg		106	70 - 140	3	50
1,2,3,4,6,7,8-HpCDF			0.100	0.114		ug/Kg		114	82 - 122	3	50
1,2,3,4,7,8,9-HpCDF			0.100	0.111		ug/Kg		111	78 - 138	10	50
1,2,3,4,7,8-HxCDD			0.100	0.115		ug/Kg		115	70 - 164	2	50
1,2,3,4,7,8-HxCDF			0.100	0.115		ug/Kg		115	72 - 134	2	50
1,2,3,6,7,8-HxCDD			0.100	0.114		ug/Kg		114	76 - 134	4	50
1,2,3,6,7,8-HxCDF			0.100	0.116		ug/Kg		116	84 - 130	3	50
1,2,3,7,8,9-HxCDD			0.100	0.118		ug/Kg		118	64 - 162	1	50
1,2,3,7,8,9-HxCDF			0.100	0.115		ug/Kg		115	78 - 130	1	50
1,2,3,7,8-PeCDD			0.100	0.109		ug/Kg		109	70 - 142	2	50
1,2,3,7,8-PeCDF			0.100	0.114		ug/Kg		114	80 - 134	3	50
2,3,4,6,7,8-HxCDF			0.100	0.116		ug/Kg		116	70 - 156	2	50
2,3,4,7,8-PeCDF			0.100	0.114		ug/Kg		114	68 - 160	3	50
2,3,7,8-TCDD			0.0200	0.0199		ug/Kg		99	67 - 158	2	50
2,3,7,8-TCDF			0.0200	0.0226		ug/Kg		113	75 - 158	1	50
OCDD			0.200	0.217		ug/Kg		109	78 - 144	3	50
OCDF			0.200	0.232		ug/Kg		116	63 - 170	3	50

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-1,2,3,4,6,7,8-HpCDD	*85*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*77*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*79*		*20 - 186*
13C-1,2,3,4,7,8-HxCDD	*66*		*21 - 193*
13C-1,2,3,4,7,8-HxCDF	*69*		*19 - 202*
13C-1,2,3,6,7,8-HxCDD	*76*		*25 - 163*
13C-1,2,3,6,7,8-HxCDF	*77*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*72*		*17 - 205*
13C-1,2,3,7,8-PeCDD	*70*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*66*		*21 - 192*
13C-2,3,4,6,7,8-HxCDF	*71*		*22 - 176*
13C-2,3,4,7,8-PeCDF	*65*		*13 - 328*
13C-2,3,7,8-TCDD	*72*		*20 - 175*
13C-2,3,7,8-TCDF	*62*		*22 - 152*
13C-OCDD	*76*		*13 - 199*

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
37Cl4-2,3,7,8-TCDD	*124*		*31 - 191*

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

Lab Sample ID: MB 320-243160/1-A
Matrix: Solid
Analysis Batch: 243705

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 243160

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.000109	J	0.0050	0.000015	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
1,2,3,4,6,7,8-HpCDF	ND		0.0050	0.000027	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
1,2,3,4,7,8,9-HpCDF	0.000124	J	0.0050	0.000030	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
1,2,3,4,7,8-HxCDD	0.000121	J q	0.0050	0.000032	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
1,2,3,4,7,8-HxCDF	ND		0.0050	0.000035	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
1,2,3,6,7,8-HxCDD	ND		0.0050	0.000028	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
1,2,3,6,7,8-HxCDF	ND		0.0050	0.000035	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
1,2,3,7,8,9-HxCDD	ND		0.0050	0.000027	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
1,2,3,7,8,9-HxCDF	0.000506	J	0.0050	0.000022	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
1,2,3,7,8-PeCDD	ND		0.0050	0.000020	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
1,2,3,7,8-PeCDF	0.000178	J	0.0050	0.000021	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
2,3,4,6,7,8-HxCDF	ND		0.0050	0.000034	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
2,3,4,7,8-PeCDF	ND		0.0050	0.000025	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
2,3,7,8-TCDD	ND		0.0010	0.000014	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
2,3,7,8-TCDF	0.0000547	J	0.0010	0.0000061	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
OCDD	0.00165	J	0.010	0.000030	ug/Kg		08/30/18 14:05	09/02/18 19:37	1
OCDF	0.000212	J	0.010	0.000014	ug/Kg		08/30/18 14:05	09/02/18 19:37	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-1,2,3,4,6,7,8-HpCDD	*95*		*23 - 140*	*08/30/18 14:05*	*09/02/18 19:37*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*82*		*28 - 143*	*08/30/18 14:05*	*09/02/18 19:37*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*89*		*26 - 138*	*08/30/18 14:05*	*09/02/18 19:37*	*1*
13C-1,2,3,4,7,8-HxCDD	*65*		*32 - 141*	*08/30/18 14:05*	*09/02/18 19:37*	*1*
13C-1,2,3,4,7,8-HxCDF	*66*		*26 - 152*	*08/30/18 14:05*	*09/02/18 19:37*	*1*
13C-1,2,3,6,7,8-HxCDD	*73*		*28 - 130*	*08/30/18 14:05*	*09/02/18 19:37*	*1*
13C-1,2,3,6,7,8-HxCDF	*74*		*26 - 123*	*08/30/18 14:05*	*09/02/18 19:37*	*1*
13C-1,2,3,7,8,9-HxCDF	*75*		*29 - 147*	*08/30/18 14:05*	*09/02/18 19:37*	*1*
13C-1,2,3,7,8-PeCDD	*75*		*25 - 181*	*08/30/18 14:05*	*09/02/18 19:37*	*1*
13C-1,2,3,7,8-PeCDF	*69*		*24 - 185*	*08/30/18 14:05*	*09/02/18 19:37*	*1*
13C-2,3,4,6,7,8-HxCDF	*73*		*28 - 136*	*08/30/18 14:05*	*09/02/18 19:37*	*1*
13C-2,3,4,7,8-PeCDF	*64*		*21 - 178*	*08/30/18 14:05*	*09/02/18 19:37*	*1*
13C-2,3,7,8-TCDD	*79*		*25 - 164*	*08/30/18 14:05*	*09/02/18 19:37*	*1*
13C-2,3,7,8-TCDF	*70*		*24 - 169*	*08/30/18 14:05*	*09/02/18 19:37*	*1*
13C-OCDD	*87*		*17 - 157*	*08/30/18 14:05*	*09/02/18 19:37*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*127*		*35 - 197*	*08/30/18 14:05*	*09/02/18 19:37*	*1*

Lab Sample ID: LCS 320-243160/2-A
Matrix: Solid
Analysis Batch: 243705

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 243160

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,4,6,7,8-HpCDD	0.100	0.0980		ug/Kg		98	70 - 140
1,2,3,4,6,7,8-HpCDF	0.100	0.104		ug/Kg		104	82 - 122
1,2,3,4,7,8,9-HpCDF	0.100	0.112		ug/Kg		112	78 - 138
1,2,3,4,7,8-HxCDD	0.100	0.104		ug/Kg		104	70 - 164
1,2,3,4,7,8-HxCDF	0.100	0.105		ug/Kg		105	72 - 134

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

Lab Sample ID: LCS 320-243160/2-A
Matrix: Solid
Analysis Batch: 243705

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 243160

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,2,3,6,7,8-HxCDD			0.100	0.105		ug/Kg		105	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	0.105		ug/Kg		105	64 - 162		
1,2,3,7,8,9-HxCDF			0.100	0.106		ug/Kg		106	78 - 130		
1,2,3,7,8-PeCDD			0.100	0.100		ug/Kg		100	70 - 142		
1,2,3,7,8-PeCDF			0.100	0.105		ug/Kg		105	80 - 134		
2,3,4,6,7,8-HxCDF			0.100	0.106		ug/Kg		106	70 - 156		
2,3,4,7,8-PeCDF			0.100	0.105		ug/Kg		105	68 - 160		
2,3,7,8-TCDD			0.0200	0.0179		ug/Kg		90	67 - 158		
2,3,7,8-TCDF			0.0200	0.0206		ug/Kg		103	75 - 158		
OCDD			0.200	0.201		ug/Kg		100	78 - 144		
OCDF			0.200	0.213		ug/Kg		106	63 - 170		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*86*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*80*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*78*		*20 - 186*
13C-1,2,3,4,7,8-HxCDD	*69*		*21 - 193*
13C-1,2,3,4,7,8-HxCDF	*69*		*19 - 202*
13C-1,2,3,6,7,8-HxCDD	*73*		*25 - 163*
13C-1,2,3,6,7,8-HxCDF	*74*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*72*		*17 - 205*
13C-1,2,3,7,8-PeCDD	*70*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*65*		*21 - 192*
13C-2,3,4,6,7,8-HxCDF	*70*		*22 - 176*
13C-2,3,4,7,8-PeCDF	*65*		*13 - 328*
13C-2,3,7,8-TCDD	*76*		*20 - 175*
13C-2,3,7,8-TCDF	*65*		*22 - 152*
13C-OCDD	*82*		*13 - 199*

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

Lab Sample ID: LCSD 320-243160/3-A
Matrix: Solid
Analysis Batch: 243705

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 243160

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	0.0957		ug/Kg		96	70 - 140	2	50
1,2,3,4,6,7,8-HpCDF			0.100	0.104		ug/Kg		104	82 - 122	1	50
1,2,3,4,7,8,9-HpCDF			0.100	0.106		ug/Kg		106	78 - 138	5	50
1,2,3,4,7,8-HxCDD			0.100	0.104		ug/Kg		104	70 - 164	0	50
1,2,3,4,7,8-HxCDF			0.100	0.104		ug/Kg		104	72 - 134	1	50
1,2,3,6,7,8-HxCDD			0.100	0.102		ug/Kg		102	76 - 134	3	50
1,2,3,6,7,8-HxCDF			0.100	0.105		ug/Kg		105	84 - 130	2	50
1,2,3,7,8,9-HxCDD			0.100	0.106		ug/Kg		106	64 - 162	1	50
1,2,3,7,8,9-HxCDF			0.100	0.106		ug/Kg		106	78 - 130	1	50
1,2,3,7,8-PeCDD			0.100	0.0991		ug/Kg		99	70 - 142	1	50

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

Lab Sample ID: LCSD 320-243160/3-A
Matrix: Solid
Analysis Batch: 243705

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 243160

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,3,7,8-PeCDF			0.100	0.104		ug/Kg		104	80 - 134	1	50
2,3,4,6,7,8-HxCDF			0.100	0.104		ug/Kg		104	70 - 156	3	50
2,3,4,7,8-PeCDF			0.100	0.104		ug/Kg		104	68 - 160	0	50
2,3,7,8-TCDD			0.0200	0.0177		ug/Kg		88	67 - 158	1	50
2,3,7,8-TCDF			0.0200	0.0204		ug/Kg		102	75 - 158	1	50
OCDD			0.200	0.200		ug/Kg		100	78 - 144	0	50
OCDF			0.200	0.213		ug/Kg		107	63 - 170	0	50

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C-1,2,3,4,6,7,8-HpCDD	*78*		*26 - 166*
13C-1,2,3,4,6,7,8-HpCDF	*71*		*21 - 158*
13C-1,2,3,4,7,8,9-HpCDF	*73*		*20 - 186*
13C-1,2,3,4,7,8-HxCDD	*62*		*21 - 193*
13C-1,2,3,4,7,8-HxCDF	*62*		*19 - 202*
13C-1,2,3,6,7,8-HxCDD	*65*		*25 - 163*
13C-1,2,3,6,7,8-HxCDF	*65*		*21 - 159*
13C-1,2,3,7,8,9-HxCDF	*63*		*17 - 205*
13C-1,2,3,7,8-PeCDD	*63*		*21 - 227*
13C-1,2,3,7,8-PeCDF	*58*		*21 - 192*
13C-2,3,4,6,7,8-HxCDF	*62*		*22 - 176*
13C-2,3,4,7,8-PeCDF	*58*		*13 - 328*
13C-2,3,7,8-TCDD	*66*		*20 - 175*
13C-2,3,7,8-TCDF	*56*		*22 - 152*
13C-OCDD	*71*		*13 - 199*

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
37Cl4-2,3,7,8-TCDD	*130*		*31 - 191*

Client Sample ID: PDI-SC-S230-0to2

Lab Sample ID: 580-79555-1
Date Collected: 08/10/18 08:45
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 41.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243224	08/31/18 05:52	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243536	08/31/18 17:48	ALM	TAL SAC

Client Sample ID: PDI-SC-S230-2to4

Lab Sample ID: 580-79555-2
Date Collected: 08/10/18 08:50
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 48.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243224	08/31/18 06:38	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243536	08/31/18 18:26	ALM	TAL SAC

Client Sample ID: PDI-SC-S230-4to6

Lab Sample ID: 580-79555-3
Date Collected: 08/10/18 08:55
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 53.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243224	08/31/18 07:24	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243536	08/31/18 19:03	ALM	TAL SAC

Client Sample ID: PDI-SC-S230-6to8

Lab Sample ID: 580-79555-4
Date Collected: 08/10/18 09:00
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 54.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243224	08/31/18 08:10	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243536	08/31/18 19:41	ALM	TAL SAC

Client Sample ID: PDI-SC-S230-8to10.0

Lab Sample ID: 580-79555-5
Date Collected: 08/10/18 09:05
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 56.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243224	08/31/18 08:56	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 580-79555-2

Client Sample ID: PDI-SC-S230-8to10.0

Lab Sample ID: 580-79555-5
Date Collected: 08/10/18 09:05
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 56.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1613B	RA	1	243536	08/31/18 20:19	ALM	TAL SAC

Client Sample ID: PDI-SC-S230-10.0to11.4

Lab Sample ID: 580-79555-6
Date Collected: 08/10/18 09:10
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 56.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243224	08/31/18 09:42	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243536	08/31/18 20:57	ALM	TAL SAC

Client Sample ID: PDI-SC-S007-0to2

Lab Sample ID: 580-79555-7
Date Collected: 08/10/18 10:45
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 41.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243224	08/31/18 10:28	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243536	08/31/18 21:35	ALM	TAL SAC

Client Sample ID: PDI-SC-S007-2to4

Lab Sample ID: 580-79555-8
Date Collected: 08/10/18 10:50
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 50.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243224	08/31/18 11:14	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243536	08/31/18 22:13	ALM	TAL SAC

Client Sample ID: PDI-SC-S007-4to6

Lab Sample ID: 580-79555-9
Date Collected: 08/10/18 10:55
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 52.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243510	08/31/18 15:34	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244307	09/06/18 15:15	ALM	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 580-79555-2

Client Sample ID: PDI-SC-S007-4to6D — Lab Sample ID: 580-79555-10

Date Collected: 08/10/18 10:55 — **Matrix: Solid**
Date Received: 08/13/18 15:00 — **Percent Solids: 52.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243510	08/31/18 16:20	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244307	09/06/18 15:53	ALM	TAL SAC

Client Sample ID: PDI-SC-S007-6to8 — Lab Sample ID: 580-79555-11

Date Collected: 08/10/18 11:00 — **Matrix: Solid**
Date Received: 08/13/18 15:00 — **Percent Solids: 51.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243510	08/31/18 17:06	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244307	09/06/18 16:31	ALM	TAL SAC

Client Sample ID: PDI-SC-S007-8to10 — Lab Sample ID: 580-79555-12

Date Collected: 08/10/18 11:05 — **Matrix: Solid**
Date Received: 08/13/18 15:00 — **Percent Solids: 55.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243510	08/31/18 17:52	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244066	09/05/18 12:27	ALM	TAL SAC

Client Sample ID: PDI-SC-S007-10to12 — Lab Sample ID: 580-79555-13

Date Collected: 08/10/18 11:10 — **Matrix: Solid**
Date Received: 08/13/18 15:00 — **Percent Solids: 58.2**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243510	08/31/18 18:38	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244066	09/05/18 13:05	ALM	TAL SAC

Client Sample ID: PDI-SC-S007-12to14 — Lab Sample ID: 580-79555-14

Date Collected: 08/10/18 11:15 — **Matrix: Solid**
Date Received: 08/13/18 15:00 — **Percent Solids: 58.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243510	08/31/18 19:24	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC

Client Sample ID: PDI-SC-S007-12to14

Lab Sample ID: 580-79555-14
Date Collected: 08/10/18 11:15
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 58.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1613B	RA	1	244066	09/05/18 13:42	ALM	TAL SAC

Client Sample ID: PDI-SC-S007-14to16

Lab Sample ID: 580-79555-15
Date Collected: 08/10/18 11:20
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 61.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243510	08/31/18 20:10	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244307	09/06/18 17:09	ALM	TAL SAC

Client Sample ID: PDI-SC-S010-0to2

Lab Sample ID: 580-79555-16
Date Collected: 08/10/18 14:15
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 50.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243510	08/31/18 20:56	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244066	09/05/18 14:20	ALM	TAL SAC

Client Sample ID: PDI-SC-S010-2to4

Lab Sample ID: 580-79555-17
Date Collected: 08/10/18 14:20
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 60.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243510	08/31/18 21:42	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244066	09/05/18 14:58	ALM	TAL SAC

Client Sample ID: PDI-SC-S010-4to6.4

Lab Sample ID: 580-79555-18
Date Collected: 08/10/18 14:25
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 66.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243510	08/31/18 22:28	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244066	09/05/18 15:36	ALM	TAL SAC

Client Sample ID: PDI-SC-S010-6.4to8.4

Lab Sample ID: 580-79555-19
Date Collected: 08/10/18 14:30
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 73.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 15:30	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243510	08/31/18 23:14	AS	TAL SAC

Client Sample ID: PDI-SC-S010-8.4to10.8

Lab Sample ID: 580-79555-20
Date Collected: 08/10/18 14:35
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 72.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242378	08/27/18 17:23	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243510	09/01/18 00:10	AS	TAL SAC

Client Sample ID: PDI-SC-S010-10.8to13.4

Lab Sample ID: 580-79555-21
Date Collected: 08/10/18 14:40
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 67.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243771	09/04/18 15:50	AS	TAL SAC

Client Sample ID: PDI-SC-S010-13.4to14.4

Lab Sample ID: 580-79555-22
Date Collected: 08/10/18 14:45
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 71.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243771	09/04/18 16:36	AS	TAL SAC

Client Sample ID: PDI-SC-S009-0to2

Lab Sample ID: 580-79555-23
Date Collected: 08/10/18 15:50
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 44.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243771	09/04/18 17:22	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244066	09/05/18 16:14	ALM	TAL SAC

Client Sample ID: PDI-SC-S009-2to4

Lab Sample ID: 580-79555-24
Date Collected: 08/10/18 15:55
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 43.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 580-79555-2

Client Sample ID: PDI-SC-S009-2to4

Lab Sample ID: 580-79555-24
Date Collected: 08/10/18 15:55
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 43.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1613B		1	243771	09/04/18 18:08	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244066	09/05/18 16:52	ALM	TAL SAC

Client Sample ID: PDI-SC-S009-4to6

Lab Sample ID: 580-79555-25
Date Collected: 08/10/18 16:00
Matrix: Solid
Date Received: 08/13/18 15:00
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			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243771	09/04/18 18:54	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244066	09/05/18 17:30	ALM	TAL SAC

Client Sample ID: PDI-SC-S009-6to8

Lab Sample ID: 580-79555-26
Date Collected: 08/10/18 16:05
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 49.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243771	09/04/18 19:40	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244066	09/05/18 18:07	ALM	TAL SAC

Client Sample ID: PDI-SC-S009-8to10

Lab Sample ID: 580-79555-27
Date Collected: 08/10/18 16:10
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 54.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243771	09/04/18 20:26	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244066	09/05/18 18:45	ALM	TAL SAC

Client Sample ID: PDI-SC-S009-10to11.4

Lab Sample ID: 580-79555-28
Date Collected: 08/10/18 16:15
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 51.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243771	09/04/18 21:12	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244066	09/05/18 19:23	ALM	TAL SAC

Client Sample ID: PDI-SC-S011-0to2

Lab Sample ID: 580-79555-29
Date Collected: 08/10/18 16:40
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 43.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243698	09/02/18 04:32	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244307	09/06/18 17:47	ALM	TAL SAC

Client Sample ID: PDI-SC-S011-2to4

Lab Sample ID: 580-79555-30
Date Collected: 08/10/18 16:45
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 54.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243698	09/02/18 05:18	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243921	09/05/18 00:48	AS	TAL SAC

Client Sample ID: PDI-SC-S011-4to6

Lab Sample ID: 580-79555-31
Date Collected: 08/10/18 16:50
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 53.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243698	09/02/18 06:04	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243921	09/05/18 01:26	AS	TAL SAC

Client Sample ID: PDI-SC-S011-6to8

Lab Sample ID: 580-79555-32
Date Collected: 08/10/18 16:55
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 52.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243698	09/02/18 06:50	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243921	09/05/18 02:04	AS	TAL SAC

Client Sample ID: PDI-SC-S011-8to10

Lab Sample ID: 580-79555-33
Date Collected: 08/10/18 17:00
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 54.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243698	09/02/18 07:36	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 13:33	SR1	TAL SAC

Client Sample ID: PDI-SC-S011-8to10

Lab Sample ID: 580-79555-33
Date Collected: 08/10/18 17:00
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 54.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1613B	RA	1	243921	09/05/18 02:42	AS	TAL SAC

Client Sample ID: PDI-SC-S011-10to12

Lab Sample ID: 580-79555-34
Date Collected: 08/10/18 17:05
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 58.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243698	09/02/18 08:22	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243921	09/05/18 03:20	AS	TAL SAC

Client Sample ID: PDI-SC-S011-12to14.5

Lab Sample ID: 580-79555-35
Date Collected: 08/10/18 17:10
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 59.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243698	09/02/18 09:08	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243921	09/05/18 03:58	AS	TAL SAC

Client Sample ID: PDI-SC-S011-14.5to16.8

Lab Sample ID: 580-79555-36
Date Collected: 08/10/18 17:15
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 57.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243698	09/02/18 09:54	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 13:33	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243921	09/05/18 04:36	AS	TAL SAC

Client Sample ID: PDI-SC-S011-14.5to16.8D

Lab Sample ID: 580-79555-37
Date Collected: 08/10/18 17:15
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 57.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 14:48	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243698	09/02/18 10:40	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 14:48	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243921	09/05/18 05:13	AS	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 580-79555-2

Client Sample ID: PDI-SC-S011-16.8to17.9

Lab Sample ID: 580-79555-38
Date Collected: 08/10/18 17:20
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 70.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 14:48	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243698	09/02/18 11:26	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 14:48	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243921	09/05/18 05:51	AS	TAL SAC

Client Sample ID: PDI-SC-S011-17.9to18.9

Lab Sample ID: 580-79555-39
Date Collected: 08/10/18 17:25
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 69.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 14:48	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243698	09/02/18 12:12	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 14:48	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243921	09/05/18 06:29	AS	TAL SAC

Client Sample ID: PDI-SC-S004-0to2

Lab Sample ID: 580-79555-40
Date Collected: 08/10/18 18:30
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 60.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			242573	08/28/18 14:48	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243705	09/02/18 21:55	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		242573	08/28/18 14:48	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	243921	09/05/18 07:07	AS	TAL SAC

Client Sample ID: PDI-SC-S004-2to4

Lab Sample ID: 580-79555-41
Date Collected: 08/10/18 18:35
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 64.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243705	09/02/18 22:41	AS	TAL SAC

Client Sample ID: PDI-SC-S004-4to6

Lab Sample ID: 580-79555-42
Date Collected: 08/10/18 18:40
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 68.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243705	09/02/18 23:27	AS	TAL SAC

Client Sample ID: PDI-SC-S004-6to7.3

Lab Sample ID: 580-79555-43
Date Collected: 08/10/18 18:45
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 68.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243705	09/03/18 00:13	AS	TAL SAC

Client Sample ID: PDI-SC-S004-7.3to9.1

Lab Sample ID: 580-79555-44
Date Collected: 08/10/18 18:50
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 70.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243706	09/03/18 04:33	AS	TAL SAC

Client Sample ID: PDI-SC-S004-9.1to10.3

Lab Sample ID: 580-79555-45
Date Collected: 08/10/18 18:55
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 76.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243706	09/03/18 05:19	AS	TAL SAC

Client Sample ID: PDI-SC-S015-0to2

Lab Sample ID: 580-79555-46
Date Collected: 08/13/18 09:05
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 43.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243706	09/03/18 06:05	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244307	09/06/18 18:24	ALM	TAL SAC

Client Sample ID: PDI-SC-S015-2to4

Lab Sample ID: 580-79555-47
Date Collected: 08/13/18 09:10
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 51.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243706	09/03/18 06:51	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244215	09/06/18 02:44	AS	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 580-79555-2

Client Sample ID: PDI-SC-S015-4to6

Lab Sample ID: 580-79555-48
Date Collected: 08/13/18 09:15
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 53.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243706	09/03/18 07:37	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244215	09/06/18 03:22	AS	TAL SAC

Client Sample ID: PDI-SC-S015-6to8

Lab Sample ID: 580-79555-49
Date Collected: 08/13/18 09:20
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 55.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243706	09/03/18 08:23	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244215	09/06/18 04:00	AS	TAL SAC

Client Sample ID: PDI-SC-S015-8to10

Lab Sample ID: 580-79555-50
Date Collected: 08/13/18 09:25
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 56.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243706	09/03/18 09:09	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244215	09/06/18 04:38	AS	TAL SAC

Client Sample ID: PDI-SC-S015-10to11.4

Lab Sample ID: 580-79555-51
Date Collected: 08/13/18 09:30
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 58.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243706	09/03/18 09:55	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B	RA	1	244215	09/06/18 05:15	AS	TAL SAC

Client Sample ID: PDI-SC-S015-11.4to12.4

Lab Sample ID: 580-79555-52
Date Collected: 08/13/18 09:35
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 63.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	HRMS-Sox			243160	08/30/18 14:05	SR1	TAL SAC
Total/NA	Analysis	1613B		1	243706	09/03/18 10:41	AS	TAL SAC
Total/NA	Prep	HRMS-Sox	RA		243160	08/30/18 14:05	SR1	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 580-79555-2

Client Sample ID: PDI-SC-S015-11.4to12.4

Lab Sample ID: 580-79555-52
Date Collected: 08/13/18 09:35
Matrix: Solid
Date Received: 08/13/18 15:00
Percent Solids: 63.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1613B	RA	1	244215	09/06/18 05:53	AS	TAL SAC

Client Sample ID: PDI-RB-SS-180810-1200

Lab Sample ID: 580-79555-53
Date Collected: 08/10/18 12:00
Matrix: Water
Date Received: 08/13/18 15:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			242488	08/28/18 08:43	ITH	TAL SAC
Total/NA	Analysis	1613B		1	243696	09/01/18 07:36	AS	TAL SAC

Client Sample ID: PDI-RB-SS-180810-1730

Lab Sample ID: 580-79555-54
Date Collected: 08/10/18 17:30
Matrix: Water
Date Received: 08/13/18 15:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			242488	08/28/18 08:43	ITH	TAL SAC
Total/NA	Analysis	1613B		1	243696	09/01/18 06:50	AS	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: AECOM
TestAmerica Job ID: 580-79555-2
Project/Site: Portland Harbor Pre-Remedial Design

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-19
ANAB	DoD ELAP		L2236	01-19-19
ANAB	ISO/IEC 17025		L2236	01-19-19
California	State Program	9	2901	11-05-18
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-18
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-19

Laboratory: TestAmerica Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

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

Sample Summary

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

TestAmerica Job ID: 580-79555-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79555-1	PDI-SC-S230-0to2	Solid	08/10/18 08:45	08/13/18 15:00
580-79555-2	PDI-SC-S230-2to4	Solid	08/10/18 08:50	08/13/18 15:00
580-79555-3	PDI-SC-S230-4to6	Solid	08/10/18 08:55	08/13/18 15:00
580-79555-4	PDI-SC-S230-6to8	Solid	08/10/18 09:00	08/13/18 15:00
580-79555-5	PDI-SC-S230-8to10.0	Solid	08/10/18 09:05	08/13/18 15:00
580-79555-6	PDI-SC-S230-10.0to11.4	Solid	08/10/18 09:10	08/13/18 15:00
580-79555-7	PDI-SC-S007-0to2	Solid	08/10/18 10:45	08/13/18 15:00
580-79555-8	PDI-SC-S007-2to4	Solid	08/10/18 10:50	08/13/18 15:00
580-79555-9	PDI-SC-S007-4to6	Solid	08/10/18 10:55	08/13/18 15:00
580-79555-10	PDI-SC-S007-4to6D	Solid	08/10/18 10:55	08/13/18 15:00
580-79555-11	PDI-SC-S007-6to8	Solid	08/10/18 11:00	08/13/18 15:00
580-79555-12	PDI-SC-S007-8to10	Solid	08/10/18 11:05	08/13/18 15:00
580-79555-13	PDI-SC-S007-10to12	Solid	08/10/18 11:10	08/13/18 15:00
580-79555-14	PDI-SC-S007-12to14	Solid	08/10/18 11:15	08/13/18 15:00
580-79555-15	PDI-SC-S007-14to16	Solid	08/10/18 11:20	08/13/18 15:00
580-79555-16	PDI-SC-S010-0to2	Solid	08/10/18 14:15	08/13/18 15:00
580-79555-17	PDI-SC-S010-2to4	Solid	08/10/18 14:20	08/13/18 15:00
580-79555-18	PDI-SC-S010-4to6.4	Solid	08/10/18 14:25	08/13/18 15:00
580-79555-19	PDI-SC-S010-6.4to8.4	Solid	08/10/18 14:30	08/13/18 15:00
580-79555-20	PDI-SC-S010-8.4to10.8	Solid	08/10/18 14:35	08/13/18 15:00
580-79555-21	PDI-SC-S010-10.8to13.4	Solid	08/10/18 14:40	08/13/18 15:00
580-79555-22	PDI-SC-S010-13.4to14.4	Solid	08/10/18 14:45	08/13/18 15:00
580-79555-23	PDI-SC-S009-0to2	Solid	08/10/18 15:50	08/13/18 15:00
580-79555-24	PDI-SC-S009-2to4	Solid	08/10/18 15:55	08/13/18 15:00
580-79555-25	PDI-SC-S009-4to6	Solid	08/10/18 16:00	08/13/18 15:00
580-79555-26	PDI-SC-S009-6to8	Solid	08/10/18 16:05	08/13/18 15:00
580-79555-27	PDI-SC-S009-8to10	Solid	08/10/18 16:10	08/13/18 15:00
580-79555-28	PDI-SC-S009-10to11.4	Solid	08/10/18 16:15	08/13/18 15:00
580-79555-29	PDI-SC-S011-0to2	Solid	08/10/18 16:40	08/13/18 15:00
580-79555-30	PDI-SC-S011-2to4	Solid	08/10/18 16:45	08/13/18 15:00
580-79555-31	PDI-SC-S011-4to6	Solid	08/10/18 16:50	08/13/18 15:00
580-79555-32	PDI-SC-S011-6to8	Solid	08/10/18 16:55	08/13/18 15:00
580-79555-33	PDI-SC-S011-8to10	Solid	08/10/18 17:00	08/13/18 15:00
580-79555-34	PDI-SC-S011-10to12	Solid	08/10/18 17:05	08/13/18 15:00
580-79555-35	PDI-SC-S011-12to14.5	Solid	08/10/18 17:10	08/13/18 15:00
580-79555-36	PDI-SC-S011-14.5to16.8	Solid	08/10/18 17:15	08/13/18 15:00
580-79555-37	PDI-SC-S011-14.5to16.8D	Solid	08/10/18 17:15	08/13/18 15:00
580-79555-38	PDI-SC-S011-16.8to17.9	Solid	08/10/18 17:20	08/13/18 15:00
580-79555-39	PDI-SC-S011-17.9to18.9	Solid	08/10/18 17:25	08/13/18 15:00
580-79555-40	PDI-SC-S004-0to2	Solid	08/10/18 18:30	08/13/18 15:00
580-79555-41	PDI-SC-S004-2to4	Solid	08/10/18 18:35	08/13/18 15:00
580-79555-42	PDI-SC-S004-4to6	Solid	08/10/18 18:40	08/13/18 15:00
580-79555-43	PDI-SC-S004-6to7.3	Solid	08/10/18 18:45	08/13/18 15:00
580-79555-44	PDI-SC-S004-7.3to9.1	Solid	08/10/18 18:50	08/13/18 15:00
580-79555-45	PDI-SC-S004-9.1to10.3	Solid	08/10/18 18:55	08/13/18 15:00
580-79555-46	PDI-SC-S015-0to2	Solid	08/13/18 09:05	08/13/18 15:00
580-79555-47	PDI-SC-S015-2to4	Solid	08/13/18 09:10	08/13/18 15:00
580-79555-48	PDI-SC-S015-4to6	Solid	08/13/18 09:15	08/13/18 15:00
580-79555-49	PDI-SC-S015-6to8	Solid	08/13/18 09:20	08/13/18 15:00
580-79555-50	PDI-SC-S015-8to10	Solid	08/13/18 09:25	08/13/18 15:00
580-79555-51	PDI-SC-S015-10to11.4	Solid	08/13/18 09:30	08/13/18 15:00
580-79555-52	PDI-SC-S015-11.4to12.4	Solid	08/13/18 09:35	08/13/18 15:00
580-79555-53	PDI-RB-SS-180810-1200	Water	08/10/18 12:00	08/13/18 15:00

Sample Summary

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

TestAmerica Job ID: 580-79555-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79555-54	PDI-RB-SS-180810-1730	Water	08/10/18 17:30	08/13/18 15:00

SUBSURFACE 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** **Laboratory Contact: Elaine-Walker**	**Date: 8/13/18** **Carrier: Courier**	COC No: 1 ____ of ____ pages
Client Contact AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Subsurface Sediment Sample Type:	**Analysis Turnaround Time** Calendar (C) or Work Days (W) _W____ [x] 21 days [ ] Other _____			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S230 - 0 to 2	8/10/2018	8:45	SC		ED	4		x	x	x	x		
PDI-SC-S230 - 2 to 4	8/10/2018	8:50	SC		ED	4		x	x	x	x		
PDI-SC-S230 - 4 to 6	8/10/2018	8:55	SC		ED	4		x	x	x	x		
PDI-SC-S230 - 6 to 8	8/10/2018	9:00	SC	MS/MSD	ED	6		x	x	x	x		
PDI-SC-S230 - 8 to ~~10.4~~ 10.0 LE	8/10/2018	9:05	SC		ED	4		x	x	x	x		
PDI-SC-S230 - ~~10.4~~ 10.0 to 11.4 LE	8/10/2018	9:10	SC		ED	4		x	x	x	x		
PDI-SC-S007 - 0 to 2	8/10/2018	10:45	SC		ED	4		x	x	x	x		
PDI-SC-S007 - 2 to 4	8/10/2018	10:50	SC		ED	5		x	x	x	x	x	
PDI-SC-S007 - 4 to 6	8/10/2018	~~10:50~~ 10:55 LE	SC		ED	4		x	x	x	x		
PDI-SC-S007 - 4 to 6D	8/10/2018	10:55	SC		ED	LE 3		x	x		x		
PDI-SC-S007 - 6 to 8	8/10/2018	11:00	SC		ED	4		x	x	x	x		
PDI-SC-S007 - 8 to 10	8/10/2018	11:05	SC		ED	4		x	x	x	x		
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Col								AG	AG	WMG	WMG	AG	

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

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

Sample Disposal

[ ] *Return To Client* [X] *sposal By Lab* [X] *rchive For 12 Months*

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

0.7, 2.5, 3.6, 1.0, 0.5, 0.8, 2.2, 2.1

Relinquished by: Erin Dunbar		Company: GeoSyntec	Date/Time: 8/13/18 1423	Received by:	Company: M.E.	Date/Time: 8/13/18 1425
Relinquished by:		Company: M.E.	Date/Time: 8/13/18 1500	Received by:	Company: TAL OR	Date/Time: 8/13/18 1500
Relinquished by:		Company:	Date/Time:	Received by:	Company:	Date/Time:

SUBSURFACE 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) W	**Site Contact: Jennifer Ray** **Laboratory Contact: Elaine-Walker**	**Date: 8/13/18** **Carrier: Courier**	COC No: 1 ____ of ____ pages

Client Contact
AECOM
1111 3rd Ave Suite 1600
Seattle, WA 98101
Phone: (206) 438-2700 Fax: 1+(866) 495-5288
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Portland, OR
Project #: 60566335 Study: Subsurface Sediment
Sample Type:

[x] 21 days
[ ] Other _____

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S007 - 10 to 12	8/10/2018	11:10	SC		ED	4		x	x	x	x		
PDI-SC-S007 - 12 to 14	8/10/2018	11:15	SC		ED	4		x	x	x	x		
PDI-SC-S007 - 14 to 16	8/10/2018	11:20	SC		ED	4		x	x	x	x		
PDI-SC-S010 - 0 to 2	8/10/2018	14:15	SC		ED	4		x	x	x	x		
PDI-SC-S010 - 2 to 4	8/10/2018	14:20	SC		ED	4		x	x	x	x		
PDI-SC-S010 - 4 to 6.4	8/10/2018	14:25	SC		ED	4		x	x	x	x		
PDI-SC-S010 - 6.4 to 8.4	8/10/2018	14:30	SC		ED	4		x	x	x	x		
PDI-SC-S010 - 8.4 to 10.8	8/10/2018	14:35	SC		ED	4		x	x	x	x		
PDI-SC-S010 - 10.8 to 13.4	8/10/2018	14:40	SC		ED	4		x	x	x	x		
PDI-SC-S010 - 13.4 to 14.4	8/10/2018	14:45	SC		ED	4		x	x	x	x		
PDI-SC-S009 - 0 to 2	8/10/2018	15:50	SC		ED	4		x	x	x	x		
PDI-SC-S009 - 2 to 4	8/10/2018	15:55	SC		ED	4		x	x	x	x		
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Col								AG	AG	WMG	WMG	AG	

Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid
Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)

Sample Disposal
[ ] *Return To Client* [X] *sposal By Lab* [X] *rchive For 12 Months*

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

Relinquished by: Erin Dunbar		Company: Geosyntec	Date/Time: 8/13/18 1423	Received by: Jessica M	Company: M.E.	Date/Time: 8/13/18 1425
Relinquished by: Jessica M		Company: M.E.	Date/Time: 8/13/18 1500	Received by:	Company: TAPOR	Date/Time: 8/13/18 1500
Relinquished by:		Company:	Date/Time:	Received by:	Company:	Date/Time:

SUBSURFACE 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** **Laboratory Contact: Elaine-Walker**	**Date: 8/13/18** **Carrier: Courier**	COC No: 1 ____ of ____ pages
Client Contact AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Subsurface Sediment Sample Type:	**Analysis Turnaround Time** Calendar (C) or Work Days (W) _W_ [x] 21 days [ ] Other _____			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S009 - 4 to 6	8/10/2018	16:00	SC		ED	4		x	x	x	x		
PDI-SC-S009 - 6 to 8	8/10/2018	16:05	SC	MS/MSD	ED	6		x	x	x	x		
PDI-SC-S009 - 8 to 10	8/10/2018	16:10	SC		ED	4		x	x	x	x		
PDI-SC-S009 - 10 to 11.4	8/10/2018	16:15	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 0 to 2	8/10/2018	16:40	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 2 to 4	8/10/2018	16:45	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 4 to 6	8/10/2018	16:50	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 6 to 8	8/10/2018	16:55	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 8 to 10	8/10/2018	17:00	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 10 to 12	8/10/2018	17:05	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 12 to 14.5	8/10/2018	17:10	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 14.5 to 16.8	8/10/2018	17:15	SC		ED	4		x	x	x	x		
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Col								AG	AG	WMG	WMG	AG	
Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid													

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

Sample Disposal
[ ] *Return To Client* [X] *sposal By Lab* [X] *rchive For 12 Months*

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

Relinquished by: Erin Dunbar	Company: Geosyntec	Date/Time: 8/13/18 1423	Received by:	Company: M.E.	Date/Time: 8/13/18 1425
Relinquished by:	Company: M.E.	Date/Time: 8/13/18 1500	Received by:	Company: TAPOR	Date/Time: 8/13/18 1500
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

9/7/2018

SUBSURFACE 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** **Laboratory Contact: Elaine-Walker**	**Date: 8/13/18** **Carrier: Courier**	COC No: 1 ____ of ____ pages
Client Contact AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Subsurface Sediment Sample Type:	**Analysis Turnaround Time** Calendar (C) or Work Days (W) W [x] 21 days [ ] Other _____			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S011 - 14.5 to 16.8D	8/10/2018	17:15	SC		ED	~~4~~ 3		x	x	x	x		
PDI-SC-S011 - 16.8 to 17.9	8/10/2018	17:20	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 17.9 to 18.9	8/10/2018	17:25	SC		ED	4		x	x	x	x		
PDI-SC-S004 - 0 to 2	8/10/2018	18:30	SC		ED	4		x	x	x	x		
PDI-SC-S004 - 2 to 4	8/10/2018	18:35	SC		ED	4		x	x	x	x		
PDI-SC-S004 - 4 to 6	8/10/2018	18:40	SC		ED	4		x	x	x	x		
PDI-SC-S004 - 6 to 7.3	8/10/2018	18:45	SC		ED	4		x	x	x	x		
PDI-SC-S004 - 7.3 to 9.1	8/10/2018	18:50	SC		ED	4		x	x	x	x		
PDI-SC-S004 - 9.1 to 10.3	8/10/2018	18:55	SC		ED	4		x	x	x	x		
PDI-SC-S015 - 0 to 2	8/13/2018	9:05	SC		ED	4		x	x	x	x		
PDI-SC-S015 - 2 to 4	8/13/2018	9:10	SC	MS/MSD	ED	6		x	x	x	x		
PDI-SC-S015 - 4 to 6	8/13/2018	9:15	SC		ED	4		x	x	x	x		
								AG	AG	WMG	WMG	AG	

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

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

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

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

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

Relinquished by: Erin Dunbar		Company: Geosyntec	Date/Time: 8/13/1423	Received by: Jessica M	Company: M.E.	Date/Time: 8/13/18 1425
Relinquished by:		Company: M.E.	Date/Time: 8/13/18 1500	Received by:	Company: TAPOR	Date/Time: 8/13/18 1500
Relinquished by:		Company:	Date/Time:	Received by:	Company:	Date/Time:

SUBSURFACE 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** **Laboratory Contact: Elaine-Walker**	**Date: 8/13/18** **Carrier: Courier**	COC No: 1 ____ of ____ pages

Client Contact	Analysis Turnaround Time
AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Subsurface Sediment Sample Type:	Calendar (C) or Work Days (W) _W____ [x] 21 days [ ] Other _____

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	WQ-PCBA	WQ-PAHs	WQ-D/F	WQ-TOC	Sample Specific Notes:
PDI-SC-S015 - 6 to 8	8/13/2018	9:20	SC		ED	4		x	x	x	x						
PDI-SC-S015 - 8 to 10	8/13/2018	9:25	SC		ED	4		x	x	x	x						
PDI-SC-S015 - 10 to 11.4	8/13/2018	9:30	SC		ED	4		x	x	x	x						
PDI-SC-S015 - 11.4 to 12.4	8/13/2018	9:35	SC		ED	4		x	x	x	x						
PDIRB-SS-180810-1200	8/10/2018	12:00	W		ED	7							x	x	x	x	
PDIRB-SS-180810-1730	8/10/2018	17:30	W		ED	7							x	x	x	x	
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Col								AG	AG	WMG	WMG	AG					

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

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

Sample Disposal
[ ] *Return To Client* [X] *sposal By Lab* [X] *rchive For 12 Months*

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

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Erin Dunbar	Geosyntec	8/13/18 1423		M.E.	8/13/18 1425
	M.E.	8/13/18 1500		TAPOR	8/13/18 1500

9/7/2018

SUBSURFACE SEDIMENT
CHAIN OF CUSTODY

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

Client Contact
AECOM
1111 3rd Ave Suite 1600
Seattle, WA 98101
Phone: (206) 438-2700 Fax: 1+(866) 495-5288
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Portland, OR
Project #: 60566335 Study: **Subsurface Sediment**
Sample Type:

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

Site Contact: Jennifer Ray
Laboratory Contact: Elaine-Walker
Date: 8/13/18
Carrier: Courier
COC No: 1
of pages

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S230 - 0 to 2	8/10/2018	8:45	SC		ED	4		x	x	x	x		
PDI-SC-S230 - 2 to 4	8/10/2018	8:50	SC		ED	4		x	x	x	x		
PDI-SC-S230 - 4 to 6	8/10/2018	8:55	SC		ED	4		x	x	x	x		
PDI-SC-S230 - 6 to 8	8/10/2018	9:00	SC	MS/MSD	ED	6		x	x	x	x		
PDI-SC-S230 - 8 to ~~10.4~~ L.E. 10.0	8/10/2018	9:05	SC		ED	4		x	x	x	x		
PDI-SC-S230 - 10.0 ~~10.4~~ LE to 11.4	8/10/2018	9:10	SC		ED	4		x	x	x	x		
PDI-SC-S007 - 0 to 2	8/10/2018	10:45	SC		ED	4		x	x	x	x		
PDI-SC-S007 - 2 to 4	8/10/2018	10:50	SC		ED	5		x	x	x	x	x	
PDI-SC-S007 - 4 to 6	8/10/2018	~~10:50~~ 10:55 LE	SC		ED	4		x	x	x	x		
PDI-SC-S007 - 4 to 6D	8/10/2018	10:55	SC		ED	LE 3		x	x		x		
PDI-SC-S007 - 6 to 8	8/10/2018	11:00	SC		ED	4		x	x	x	x		
PDI-SC-S007 - 8 to 10	8/10/2018	11:05	SC		ED	4		x	x	x	x		
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Col								AG	AG	WMG	WMG	AG	

Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid
Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)

580-79555 Chain of Custody

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

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

07, 25, 36, 10, 05, 08, 22, 21

Relinquished by: Erin Dunbar	Company: GeoSyntec	Date/Time: 8/13/18 1423	Received by:	Company: M.E.	Date/Time: 8/13/18 1425
Relinquished by:	Company: M.E.	Date/Time: 8/13/18 1500	Received by:	Company: TAPOR	Date/Time: 8/13/18 1500
Relinquished by:	Company: TAPOR	Date/Time: 8/14/18 1635	Received by: B. Lin	Company: Shealy	Date/Time: 8/15/18 0935

IRS = 4.8/4.8 w/c.s.
5.7/5.7
4.0/4.0 4.2/4.2

SUBSURFACE SEDIMENT
CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 **Ph: 253-922-2310 Fax: 253-922-5047**			
Client Contact	**Project Contact: Amy Dahl / Chelsey Cook**	**Site Contact: Jennifer Ray**	**Date: 8/13/18**
AECOM	**Tel: (206) 438-2261 / (206) 438-2010**	**Laboratory Contact: Elaine-Walker**	**Carrier: Courier**
1111 3rd Ave Suite 1600	**Analysis Turnaround Time**		COC No: 1
Seattle, WA 98101	Calendar (C) or Work Days (W) W		of pages
Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR	[x] 21 days [ ] Other _____		
Project #: 60566335 Study: **Subsurface Sediment**			
Sample Type:			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S007 - 10 to 12	8/10/2018	11:10	SC		ED	4		x	x	x	x		
PDI-SC-S007 - 12 to 14	8/10/2018	11:15	SC		ED	4		x	x	x	x		
PDI-SC-S007 - 14 to 16	8/10/2018	11:20	SC		ED	4		x	x	x	x		
PDI-SC-S010 - 0 to 2	8/10/2018	14:15	SC		ED	4		x	x	x	x		
PDI-SC-S010 - 2 to 4	8/10/2018	14:20	SC		ED	4		x	x	x	x		
PDI-SC-S010 - 4 to 6.4	8/10/2018	14:25	SC		ED	4		x	x	x	x		
PDI-SC-S010 - 6.4 to 8.4	8/10/2018	14:30	SC		ED	4		x	x	x	x		
PDI-SC-S010 - 8.4 to 10.8	8/10/2018	14:35	SC		ED	4		x	x	x	x		
PDI-SC-S010 - 10.8 to 13.4	8/10/2018	14:40	SC		ED	4		x	x	x	x		
PDI-SC-S010 - 13.4 to 14.4	8/10/2018	14:45	SC		ED	4		x	x	x	x		
PDI-SC-S009 - 0 to 2	8/10/2018	15:50	SC		ED	4		x	x	x	x		
PDI-SC-S009 - 2 to 4	8/10/2018	15:55	SC		ED	4		x	x	x	x		
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Co								AG	AG	WMG	WMG	AG	

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

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

Sample Disposal

[ ] *Return To Client* [X] *sposal By Lab* [X] *rchive For 12 Months*

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

Relinquished by: Erin Dunbar	Company: Geosyntec	Date/Time: 8/13/18 1423	Received by: Jessica M	Company: M.E.	Date/Time: 8/13/18 1425
Relinquished by:	Company: M.E.	Date/Time: 8/13/18 1500	Received by:	Company: TAPOR	Date/Time: 8/13/18 1500
Relinquished by:	Company: TAPOR	Date/Time: 8/14/18 1635	Received by: B.	Company: SEA TA	Date/Time: 8/15/18 0935

SUBSURFACE SEDIMENT
CHAIN OF CUSTODY

TestAmerica-Seattle 5755-8th-Street-East Tacoma, WA 98424-1317 **Ph: 253-922-2310 Fax: 253-922-5047**			
Client Contact	**Project Contact: Amy Dahl / Chelsey Cook**	**Site Contact: Jennifer Ray**	**Date: 8/13/18**
AECOM	**Tel: (206) 438-2261 / (206) 438-2010**	**Laboratory Contact: Elaine-Walker**	**Carrier: Courier**
1111 3rd Ave Suite 1600	**Analysis Turnaround Time**		COC No: 1
Seattle, WA 98101	Calendar (C) or Work Days (W) W		of pages
Phone: (206) 438-2700 Fax: 1-(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR	[x] 21 days [ ] Other		
Project #: 60566335 Study: **Subsurface Sediment**			
Sample Type:			

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S009 - 4 to 6	8/10/2018	16:00	SC		ED	4		x	x	x	x		
PDI-SC-S009 - 6 to 8	8/10/2018	16:05	SC	MS/MSD	ED	6		x	x	x	x		
PDI-SC-S009 - 8 to 10	8/10/2018	16:10	SC		ED	4		x	x	x	x		
PDI-SC-S009 - 10 to 11.4	8/10/2018	16:15	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 0 to 2	8/10/2018	16:40	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 2 to 4	8/10/2018	16:45	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 4 to 6	8/10/2018	16:50	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 6 to 8	8/10/2018	16:55	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 8 to 10	8/10/2018	17:00	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 10 to 12	8/10/2018	17:05	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 12 to 14.5	8/10/2018	17:10	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 14.5 to 16.8	8/10/2018	17:15	SC		ED	4		x	x	x	x		
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Col								AG	AG	WMG	WMG	AG	

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

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

Sample Disposal

[ ] *Return To Client* [X] *sposal By Lab* [X] *rchive For 12 Months*

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

Relinquished by: Erin Dunbar	Company: Geosyntec	Date/Time: 8/13/18 1423	Received by:	Company: M.E.	Date/Time: 8/13/18 1425
Relinquished by:	Company: M.E.	Date/Time: 8/13/18 1500	Received by:	Company: TAPOC	Date/Time: 8/13/18 1500
Relinquished by:	Company: TAPOC	Date/Time: 8/14/18 1635	Received by:	Company: SEA TA	Date/Time: 8/15/18 0935

SUBSURFACE SEDIMENT
CHAIN OF CUSTODY

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

Client Contact	Project Contact: Amy Dahl / Chelsey Cook	Site Contact: Jennifer Ray	Date: 8/13/18	COC No: 1
AECOM	Tel: (206) 438-2261 / (206) 438-2010	Laboratory Contact: Elaine-Walker	Carrier: Courier	of pages
1111 3rd Ave Suite 1600	Analysis Turnaround Time			
Seattle, WA 98101	Calendar (C) or Work Days (W) W			
Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR	[x] 21 days [ ] Other _____			
Project #: 60566335 Study: **Subsurface Sediment**				
Sample Type:				

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	Sample Specific Notes:
PDI-SC-S011 - 14.5 to 16.8D	8/10/2018	17:15	SC		ED	~~4~~ 3		x	x	x	x		
PDI-SC-S011 - 16.8 to 17.9	8/10/2018	17:20	SC		ED	4		x	x	x	x		
PDI-SC-S011 - 17.9 to 18.9	8/10/2018	17:25	SC		ED	4		x	x	x	x		
PDI-SC-S004 - 0 to 2	8/10/2018	18:30	SC		ED	4		x	x	x	x		
PDI-SC-S004 - 2 to 4	8/10/2018	18:35	SC		ED	4		x	x	x	x		
PDI-SC-S004 - 4 to 6	8/10/2018	18:40	SC		ED	4		x	x	x	x		
PDI-SC-S004 - 6 to 7.3	8/10/2018	18:45	SC		ED	4		x	x	x	x		
PDI-SC-S004 - 7.3 to 9.1	8/10/2018	18:50	SC		ED	4		x	x	x	x		
PDI-SC-S004 - 9.1 to 10.3	8/10/2018	18:55	SC		ED	4		x	x	x	x		
PDI-SC-S015 - 0 to 2	8/13/2018	9:05	SC		ED	4		x	x	x	x		
PDI-SC-S015 - 2 to 4	8/13/2018	9:10	SC	MS/MSD	ED	6		x	x	x	x		
PDI-SC-S015 - 4 to 6	8/13/2018	9:15	SC		ED	4		x	x	x	x		
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Cof								AG	AG	WMG	WMG	AG	
Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid													
Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)													

Sample Disposal
[ ] *Return To Client* [X] *sposal By Lab* [X] *rchive For 12 Months*

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

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Egn Dunbar	Geosyntec	8/13/1423		M.E.	8/13/18 1425
	M.E.	8/13/18 1500		TAPOR	8/13/18 1500
	TAPOR	8/14/18 1035		Sea Tra	8/15/18 0935

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

SUBSURFACE SEDIMENT
CHAIN OF CUSTODY

Client Contact	Project Contact: Amy Dahl / Chelsey Cook	Site Contact: Jennifer Ray	Date: 8/13/18	COC No: 1
AECOM	Tel: (206) 438-2261 / (206) 438-2010	Laboratory Contact: Elaine-Walker	Carrier: Courier	of pages
1111 3rd Ave Suite 1600	Analysis Turnaround Time			
Seattle, WA 98101	Calendar (C) or Work Days (W) W			
Phone: (206) 438-2700 Fax: 1+(866) 495-5288	[x] 21 days			
Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling	[ ] Other			
Portland, OR				
Project #: 60566335 Study: **Subsurface Sediment**				
Sample Type:				

Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	PCDD/Fs 1613B	Archive	Grain size ASTM D7928/D6913	PCB Aroclors, PAHs, Total Organic Carbon, Total Solids 8082A, 8270D-SIM, 9060, 160.3	Atterberg Limits ASTM D4318	WQ-PCBA	WQ-PAHs	WQ-D/F	WQ-TOC									Sample Specific Notes:
PDI-SC-S015 - 6 to 8	8/13/2018	9:20	SC		ED	4		x	x	x	x														
PDI-SC-S015 - 8 to 10	8/13/2018	9:25	SC		ED	4		x	x	x	x														
PDI-SC-S015 - 10 to 11.4	8/13/2018	9:30	SC		ED	4		x	x	x	x														
PDI-SC-S015 - 11.4 to 12.4	8/13/2018	9:35	SC		ED	4		x	x	x	x														
PDI-RB-SS-180810 -1200	8/10/2018	12:00	W		ED	4							x	x	x	x									
PDI-RB-SS-180810-1730	8/10/2018	17:30	W		ED	4							x	x	x	x									
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Col								AG	AG	WMG	WMG	AG													

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

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

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

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

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Erin Dunbar	Geosyntec	8/13/18 1423		M.E.	8/13/18 1425
	M.E.	8/13/18 1500		TAPOR	8/13/18 1500
	TAPOR	8/14/18 1635		SEA TR	8/15/18 0835

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: 580-58124.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 1 of 6
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-79555-2
Address: 880 Riverside Parkway, ,	Due Date Requested: 8/29/2018			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Portland Harbor Pre-Remedial Design	Project #: 58012120			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/HRMS_Sox_P (MOD) Full List w/o Totals	1613B/1613B_Sox_Sep_P (MOD) Full List w/o Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PDI-SC-S230-0to2 (580-79555-1)	8/10/18	08:45 Pacific		Solid			X		1	
PDI-SC-S230-2to4 (580-79555-2)	8/10/18	08:50 Pacific		Solid			X		1	
PDI-SC-S230-4to6 (580-79555-3)	8/10/18	08:55 Pacific		Solid			X		1	
PDI-SC-S230-6to8 (580-79555-4)	8/10/18	09:00 Pacific		Solid			X		1	
PDI-SC-S230-8to10.0 (580-79555-5)	8/10/18	09:05 Pacific		Solid			X		1	
PDI-SC-S230-10.0to11.4 (580-79555-6)	8/10/18	09:10 Pacific		Solid			X		1	
PDI-SC-S007-0to2 (580-79555-7)	8/10/18	10:45 Pacific		Solid			X		1	
PDI-SC-S007-2to4 (580-79555-8)	8/10/18	10:50 Pacific		Solid			X		1	
PDI-SC-S007-4to6 (580-79555-9)	8/10/18	10:55 Pacific		Solid			X		1	

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		8/14/18 1630	TAOR		8/15/18 935	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: ☐ Yes ☐ No	Custody Seal No.: Seal	Cooler Temperature(s) °C and Other Remarks: 4.4

Ver: 09/20/2016

9/7/2018

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: 580-58124.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 2 of 6
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-79555-2
Address: 880 Riverside Parkway, ,	Due Date Requested: 8/29/2018			
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 (MOD) Full List w/o Totals	1613B/1613B_Sox_Sep_P (MOD) Full List w/o Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PDI-SC-S007-4to6D (580-79555-10)	8/10/18	10:55 Pacific		Solid			X		1	
PDI-SC-S007-6to8 (580-79555-11)	8/10/18	11:00 Pacific		Solid			X		1	
PDI-SC-S007-8to10 (580-79555-12)	8/10/18	11:05 Pacific		Solid			X		1	
PDI-SC-S007-10to12 (580-79555-13)	8/10/18	11:10 Pacific		Solid			X		1	
PDI-SC-S007-12to14 (580-79555-14)	8/10/18	11:15 Pacific		Solid			X		1	
PDI-SC-S007-14to16 (580-79555-15)	8/10/18	11:20 Pacific		Solid			X		1	
PDI-SC-S010-0to2 (580-79555-16)	8/10/18	14:15 Pacific		Solid			X		1	
PDI-SC-S010-2to4 (580-79555-17)	8/10/18	14:20 Pacific		Solid			X		1	
PDI-SC-S010-4to6.4 (580-79555-18)	8/10/18	14:25 Pacific		Solid			X		1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. I

Possible Hazard Identification	*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]	8/14/18 1630	TAPOR	[signature]	8/15/18 935	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: ☒ Yes ☐ No	Custody Seal No.: Seal	Cooler Temperature(s) °C and Other Remarks: 4.4

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: 580-58124.3
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 3 of 6
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-79555-2
Address: 880 Riverside Parkway, ,	Due Date Requested: 8/29/2018			
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 (MOD) Full List w/o Totals	1613B/1613B_Sox_Sep_P (MOD) Full List w/o Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PDI-SC-S010-6.4to8.4 (580-79555-19)	8/10/18	14:30 Pacific		Solid			X		1	
PDI-SC-S010-8.4to10.8 (580-79555-20)	8/10/18	14:35 Pacific		Solid			X		1	
PDI-SC-S010-10.8to13.4 (580-79555-21)	8/10/18	14:40 Pacific		Solid			X		1	
PDI-SC-S010-13.4to14.4 (580-79555-22)	8/10/18	14:45 Pacific		Solid			X		1	
PDI-SC-S009-0to2 (580-79555-23)	8/10/18	15:50 Pacific		Solid			X		1	
PDI-SC-S009-2to4 (580-79555-24)	8/10/18	15:55 Pacific		Solid			X		1	
PDI-SC-S009-4to6 (580-79555-25)	8/10/18	16:00 Pacific		Solid			X		1	
PDI-SC-S009-6to8 (580-79555-26)	8/10/18	16:05 Pacific		Solid			X		1	
PDI-SC-S009-8to10 (580-79555-27)	8/10/18	16:10 Pacific		Solid			X		1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. I

Possible Hazard Identification	*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: 8/14/18 1630	Company TA POR	Received by:	Date/Time: 8/15/18 935	Company TA-Sac
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☒ Yes △ No	Custody Seal No.: Seal	Cooler Temperature(s) °C and Other Remarks: 4.4

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: 580-58124.4
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 4 of 6
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-79555-2
Address: 880 Riverside Parkway, ,	Due Date Requested: 8/29/2018			
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 (MOD) Full List w/o Totals	1613B/1613B_Sox_Sep_P (MOD) Full List w/o Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PDI-SC-S009-10to11.4 (580-79555-28)	8/10/18	16:15 Pacific		Solid			X		1	
PDI-SC-S011-0to2 (580-79555-29)	8/10/18	16:40 Pacific		Solid			X		1	
PDI-SC-S011-2to4 (580-79555-30)	8/10/18	16:45 Pacific		Solid			X		1	
PDI-SC-S011-4to6 (580-79555-31)	8/10/18	16:50 Pacific		Solid			X		1	
PDI-SC-S011-6to8 (580-79555-32)	8/10/18	16:55 Pacific		Solid			X		1	
PDI-SC-S011-8to10 (580-79555-33)	8/10/18	17:00 Pacific		Solid			X		1	
PDI-SC-S011-10to12 (580-79555-34)	8/10/18	17:05 Pacific		Solid			X		1	
PDI-SC-S011-12to14.5 (580-79555-35)	8/10/18	17:10 Pacific		Solid			X		1	
PDI-SC-S011-14.5to16.8 (580-79555-36)	8/10/18	17:15 Pacific		Solid			X		1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. I

Possible Hazard Identification	*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: 8/14/18 1630	Company: TAPOR	Received by:	Date/Time: 8/15/18 935	Company: TA-Sac
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☒ Yes △ No	Custody Seal No.: Seal	Cooler Temperature(s) °C and Other Remarks: 4.4

Ver: 09/20/2016

9/7/2018

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: 580-58124.5
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 5 of 6
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-79555-2
Address: 880 Riverside Parkway, ,	Due Date Requested: 8/29/2018			
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 (MOD) Full List w/o Totals	1613B/1613B_Sox_Sep_P (MOD) Full List w/o Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PDI-SC-S011-14.5to16.8D (580-79555-37)	8/10/18	17:15 Pacific		Solid			X		1	
PDI-SC-S011-16.8to17.9 (580-79555-38)	8/10/18	17:20 Pacific		Solid			X		1	
PDI-SC-S011-17.9to18.9 (580-79555-39)	8/10/18	17:25 Pacific		Solid			X		1	
PDI-SC-S004-0to2 (580-79555-40)	8/10/18	18:30 Pacific		Solid			X		1	
PDI-SC-S004-2to4 (580-79555-41)	8/10/18	18:35 Pacific		Solid			X		1	
PDI-SC-S004-4to6 (580-79555-42)	8/10/18	18:40 Pacific		Solid			X		1	
PDI-SC-S004-6to7.3 (580-79555-43)	8/10/18	18:45 Pacific		Solid			X		1	
PDI-SC-S004-7.3to9.1 (580-79555-44)	8/10/18	18:50 Pacific		Solid			X		1	
PDI-SC-S004-9.1to10.3 (580-79555-45)	8/10/18	18:55 Pacific		Solid			X		1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. I

Possible Hazard Identification	*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: 8/14/18 1630	Company: TAOR	Received by:	Date/Time: 8/15/18 935	Company: TA-Sac
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☑ Yes ☐ No	Custody Seal No.: Seal	Cooler Temperature(s) °C and Other Remarks: 4.4

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: 580-58124.6
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Oregon	Page: Page 6 of 6
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-79555-2
Address: 880 Riverside Parkway, ,	Due Date Requested: 8/29/2018			
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 (MOD) Full List w/o Totals	1613B/1613B_Sox_Sep_P (MOD) Full List w/o Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
PDI-SC-S015-0to2 (580-79555-46)	8/13/18	09:05 Pacific		Solid			X		1	
PDI-SC-S015-2to4 (580-79555-47)	8/13/18	09:10 Pacific		Solid			X		1	
PDI-SC-S015-4to6 (580-79555-48)	8/13/18	09:15 Pacific		Solid			X		1	
PDI-SC-S015-6to8 (580-79555-49)	8/13/18	09:20 Pacific		Solid			X		1	
PDI-SC-S015-8to10 (580-79555-50)	8/13/18	09:25 Pacific		Solid			X		1	
PDI-SC-S015-10to11.4 (580-79555-51)	8/13/18	09:30 Pacific		Solid			X		1	
PDI-SC-S015-11.4to12.4 (580-79555-52)	8/13/18	09:35 Pacific		Solid			X		1	
PDI-RB-SS-180810-1200 (580-79555-53)	8/10/18	12:00 Pacific		Water				X	2	
PDI-RB-SS-180810-1730 (580-79555-54)	8/10/18	17:30 Pacific		Water				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. I

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
	8/14/18 1630	TAL-SAC		8/15/18 935	TA-Sac
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: √ Yes Δ No	Custody Seal No.: Seal	Cooler Temperature(s) °C and Other Remarks: 4.4

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-79555-2

Login Number: 79555
List Number: 1
Creator: Antonson, Angeline D

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: 580-79555-2

Login Number: 79555
List Number: 2
Creator: Gooch, Mayce

List Source: TestAmerica Sacramento
List Creation: 08/15/18 01:36 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	4.4c 0.9c
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.	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: 580-79555-2

Login Number: 79555
List Number: 3
Creator: Gooch, Mayce

List Source: TestAmerica Sacramento
List Creation: 08/15/18 03:00 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	0.9c 4.4c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Sample Receiving Notes

Job: 580-79555 Field Sheet

Tracking # 4423 0750 9218 SO / PO / FO / 2-Day / Ground / UPS / Courier / GSO / OnTrac / Goldstreak / USPS / Other _____

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

Notes: Sample #11, #9 were recieved w/ cracked lids. MG 8/15/18
#23 #17 MG 8/15/18

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

Ice Y Wet Y Gel ____ Other ____

Cooler Custody Seal: Seal

Sample Custody Seal: —

Cooler ID: 1 of 2

Temp: Observed 4.4 Corrected 4.4

From: Temp Blank ☐ Sample ☒

NCM Filed: Yes ☐ No ☐

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

Initials: MG Date: 8/15/18

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

F81 C @ 1425
W21E

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Sample Receiving Notes

Job: _____

Tracking # 4423 0750 9229 SO / PO / FO / 2-Day / Ground / UPS / Courier / GSO / OnTrac / Goldstreak / USPS / Other _____

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

Notes: _____

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

Ice Y Wet Y Gel _____ Other _____

Cooler Custody Seal: seal

Sample Custody Seal: —

Cooler ID: 2 of 2

Temp: Observed 0.9 Corrected 0.9

From: Temp Blank ☐ Sample ☒

NCM Filed: Yes ☐ No ☐

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

Initials: MG Date: ~~8/12~~ 8/15/18

*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: 580-79555-2

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)
580-79555-1	PDI-SC-S230-0to2	54	49	44	55	54	53	53	57
580-79555-1 - RA	PDI-SC-S230-0to2								
580-79555-2	PDI-SC-S230-2to4	38	36	27	48	47	47	47	51
580-79555-2 - RA	PDI-SC-S230-2to4								
580-79555-3	PDI-SC-S230-4to6	44	42	41	48	48	49	48	51
580-79555-3 - RA	PDI-SC-S230-4to6								
580-79555-4	PDI-SC-S230-6to8	41	40	38	50	48	49	49	52
580-79555-4 - RA	PDI-SC-S230-6to8								
580-79555-5	PDI-SC-S230-8to10.0	55	54	50	57	57	58	58	60
580-79555-5 - RA	PDI-SC-S230-8to10.0								
580-79555-6	PDI-SC-S230-10.0to11.4	48	44	45	49	49	50	49	54
580-79555-6 - RA	PDI-SC-S230-10.0to11.4								
580-79555-7	PDI-SC-S007-0to2	51	45	49	51	46	50	51	55
580-79555-7 - RA	PDI-SC-S007-0to2								
580-79555-8	PDI-SC-S007-2to4	52	45	51	45	45	47	49	53
580-79555-8 - RA	PDI-SC-S007-2to4								
580-79555-9	PDI-SC-S007-4to6	46	42	42	47	46	47	47	50
580-79555-9 - RA	PDI-SC-S007-4to6								
580-79555-10	PDI-SC-S007-4to6D	47	44	44	47	47	49	50	52
580-79555-10 - RA	PDI-SC-S007-4to6D								
580-79555-11	PDI-SC-S007-6to8	39	37	37	44	44	44	44	47
580-79555-11 - RA	PDI-SC-S007-6to8								
580-79555-12	PDI-SC-S007-8to10	54	52	49	55	55	56	56	58
580-79555-12 - RA	PDI-SC-S007-8to10								
580-79555-13	PDI-SC-S007-10to12	45	43	44	41	43	48	48	52
580-79555-13 - RA	PDI-SC-S007-10to12								
580-79555-14	PDI-SC-S007-12to14	42	40	38	46	45	46	46	48
580-79555-14 - RA	PDI-SC-S007-12to14								
580-79555-15	PDI-SC-S007-14to16	43	40	40	46	45	46	45	49
580-79555-15 - RA	PDI-SC-S007-14to16								
580-79555-16	PDI-SC-S010-0to2	44	39	45	45	44	44	45	49
580-79555-16 - RA	PDI-SC-S010-0to2								
580-79555-17	PDI-SC-S010-2to4	52	49	50	54	52	53	54	57
580-79555-17 - RA	PDI-SC-S010-2to4								
580-79555-18	PDI-SC-S010-4to6.4	59	53	52	54	54	54	55	59
580-79555-18 - RA	PDI-SC-S010-4to6.4								
580-79555-19	PDI-SC-S010-6.4to8.4	56	50	56	46	46	50	49	54
580-79555-20	PDI-SC-S010-8.4to10.8	55	48	55	50	51	53	52	55
580-79555-21	PDI-SC-S010-10.8to13.4	41	35	41	39	37	42	43	43
580-79555-22	PDI-SC-S010-13.4to14.4	55	48	53	48	48	54	53	54
580-79555-23	PDI-SC-S009-0to2	49	42	47	42	43	51	51	50
580-79555-23 - RA	PDI-SC-S009-0to2								
580-79555-24	PDI-SC-S009-2to4	49	41	45	40	41	46	46	46
580-79555-24 - RA	PDI-SC-S009-2to4								
580-79555-25	PDI-SC-S009-4to6	54	51	54	49	49	56	56	55
580-79555-25 - RA	PDI-SC-S009-4to6								
580-79555-26	PDI-SC-S009-6to8	54	48	52	52	51	54	56	55
580-79555-26 - RA	PDI-SC-S009-6to8								
580-79555-27	PDI-SC-S009-8to10	48	44	48	49	47	51	51	52

Isotope Dilution Summary

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

TestAmerica Job ID: 580-79555-2

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

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	HxCDD (32-141)	HxCDF (26-152)	HxDD (28-130)	HxDF (26-123)	HxCF (29-147)
580-79555-27 - RA	PDI-SC-S009-8to10								
580-79555-28	PDI-SC-S009-10to11.4	46	42	46	46	44	49	49	50
580-79555-28 - RA	PDI-SC-S009-10to11.4								
580-79555-29	PDI-SC-S011-0to2	63	55	60	53	54	56	57	57
580-79555-29 - RA	PDI-SC-S011-0to2								
580-79555-30	PDI-SC-S011-2to4	57	49	55	50	50	54	53	55
580-79555-30 - RA	PDI-SC-S011-2to4								
580-79555-31	PDI-SC-S011-4to6	62	55	58	54	52	55	56	57
580-79555-31 - RA	PDI-SC-S011-4to6								
580-79555-32	PDI-SC-S011-6to8	55	50	53	51	51	54	54	56
580-79555-32 - RA	PDI-SC-S011-6to8								
580-79555-33	PDI-SC-S011-8to10	53	48	49	50	49	51	52	54
580-79555-33 - RA	PDI-SC-S011-8to10								
580-79555-34	PDI-SC-S011-10to12	47	42	45	45	44	47	46	49
580-79555-34 - RA	PDI-SC-S011-10to12								
580-79555-35	PDI-SC-S011-12to14.5	49	44	48	47	45	47	48	50
580-79555-35 - RA	PDI-SC-S011-12to14.5								
580-79555-36	PDI-SC-S011-14.5to16.8	40	36	37	43	42	43	43	45
580-79555-36 - RA	PDI-SC-S011-14.5to16.8								
580-79555-37	PDI-SC-S011-14.5to16.8D	47	43	41	50	48	49	49	51
580-79555-37 - RA	PDI-SC-S011-14.5to16.8D								
580-79555-38	PDI-SC-S011-16.8to17.9	45	40	45	45	44	46	46	49
580-79555-38 - RA	PDI-SC-S011-16.8to17.9								
580-79555-39	PDI-SC-S011-17.9to18.9	42	38	38	43	42	44	44	46
580-79555-39 - RA	PDI-SC-S011-17.9to18.9								
580-79555-40	PDI-SC-S004-0to2	62	53	58	54	52	56	56	56
580-79555-40 - RA	PDI-SC-S004-0to2								
580-79555-41	PDI-SC-S004-2to4	62	58	61	51	52	56	56	56
580-79555-42	PDI-SC-S004-4to6	61	56	63	55	53	59	58	58
580-79555-43	PDI-SC-S004-6to7.3	59	51	58	48	48	53	53	54
580-79555-44	PDI-SC-S004-7.3to9.1	54	46	58	49	49	55	54	56
580-79555-45	PDI-SC-S004-9.1to10.3	70	63	69	57	57	63	63	61
580-79555-46	PDI-SC-S015-0to2	61	55	58	51	51	55	55	56
580-79555-46 - RA	PDI-SC-S015-0to2								
580-79555-47	PDI-SC-S015-2to4	61	54	58	55	54	58	57	60
580-79555-47 - RA	PDI-SC-S015-2to4								
580-79555-48	PDI-SC-S015-4to6	57	52	55	52	51	55	55	56
580-79555-48 - RA	PDI-SC-S015-4to6								
580-79555-49	PDI-SC-S015-6to8	53	46	49	51	50	51	52	55
580-79555-49 - RA	PDI-SC-S015-6to8								
580-79555-50	PDI-SC-S015-8to10	53	45	49	48	48	50	50	55
580-79555-50 - RA	PDI-SC-S015-8to10								
580-79555-51	PDI-SC-S015-10to11.4	55	51	49	59	56	59	59	60
580-79555-51 - RA	PDI-SC-S015-10to11.4								
580-79555-52	PDI-SC-S015-11.4to12.4	50	47	39	58	59	56	59	59
580-79555-52 - RA	PDI-SC-S015-11.4to12.4								
MB 320-242378/1-A	Method Blank	87	81	83	68	70	73	74	71
MB 320-242573/1-A	Method Blank	87	81	76	58	63	83	81	67
MB 320-243160/1-A	Method Blank	95	82	89	65	66	73	74	75

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)
580-79555-1	PDI-SC-S230-0to2	58	56	54	58	64		41
580-79555-1 - RA	PDI-SC-S230-0to2						73	
580-79555-2	PDI-SC-S230-2to4	55	53	49	54	58		31
580-79555-2 - RA	PDI-SC-S230-2to4						68	
580-79555-3	PDI-SC-S230-4to6	52	50	48	52	58		35
580-79555-3 - RA	PDI-SC-S230-4to6						60	
580-79555-4	PDI-SC-S230-6to8	53	51	49	53	59		33
580-79555-4 - RA	PDI-SC-S230-6to8						65	
580-79555-5	PDI-SC-S230-8to10.0	59	56	57	55	62		45
580-79555-5 - RA	PDI-SC-S230-8to10.0						61	
580-79555-6	PDI-SC-S230-10.0to11.4	56	53	52	54	62		37
580-79555-6 - RA	PDI-SC-S230-10.0to11.4						63	
580-79555-7	PDI-SC-S007-0to2	54	53	52	54	54		41
580-79555-7 - RA	PDI-SC-S007-0to2						57	
580-79555-8	PDI-SC-S007-2to4	51	50	49	47	57		43
580-79555-8 - RA	PDI-SC-S007-2to4						55	
580-79555-9	PDI-SC-S007-4to6	50	49	47	51	56		36
580-79555-9 - RA	PDI-SC-S007-4to6						56	
580-79555-10	PDI-SC-S007-4to6D	53	51	50	49	57		40
580-79555-10 - RA	PDI-SC-S007-4to6D						53	
580-79555-11	PDI-SC-S007-6to8	49	47	44	49	55		31
580-79555-11 - RA	PDI-SC-S007-6to8						54	
580-79555-12	PDI-SC-S007-8to10	60	56	56	57	62		46
580-79555-12 - RA	PDI-SC-S007-8to10						65	
580-79555-13	PDI-SC-S007-10to12	53	51	49	53	57		37
580-79555-13 - RA	PDI-SC-S007-10to12						64	
580-79555-14	PDI-SC-S007-12to14	51	48	46	49	54		35
580-79555-14 - RA	PDI-SC-S007-12to14						54	
580-79555-15	PDI-SC-S007-14to16	51	50	47	51	57		34
580-79555-15 - RA	PDI-SC-S007-14to16						59	
580-79555-16	PDI-SC-S010-0to2	49	47	46	49	56		33
580-79555-16 - RA	PDI-SC-S010-0to2						64	
580-79555-17	PDI-SC-S010-2to4	57	54	53	55	62		42
580-79555-17 - RA	PDI-SC-S010-2to4						63	
580-79555-18	PDI-SC-S010-4to6.4	60	57	57	56	65		47
580-79555-18 - RA	PDI-SC-S010-4to6.4						68	
580-79555-19	PDI-SC-S010-6.4to8.4	52	50	51	49	58	55	47
580-79555-20	PDI-SC-S010-8.4to10.8	55	51	53	55	62	60	42
580-79555-21	PDI-SC-S010-10.8to13.4	43	42	41	45	55	52	31
580-79555-22	PDI-SC-S010-13.4to14.4	55	53	52	55	64	57	43
580-79555-23	PDI-SC-S009-0to2	50	50	49	47	60		36
580-79555-23 - RA	PDI-SC-S009-0to2						66	
580-79555-24	PDI-SC-S009-2to4	48	46	45	48	57		38
580-79555-24 - RA	PDI-SC-S009-2to4						64	
580-79555-25	PDI-SC-S009-4to6	51	51	52	51	62		47
580-79555-25 - RA	PDI-SC-S009-4to6						64	
580-79555-26	PDI-SC-S009-6to8	54	53	54	54	62		45
580-79555-26 - RA	PDI-SC-S009-6to8						62	
580-79555-27	PDI-SC-S009-8to10	53	52	49	55	61		41

Isotope Dilution Summary

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

TestAmerica Job ID: 580-79555-2

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)
580-79555-27 - RA	PDI-SC-S009-8to10						62	
580-79555-28	PDI-SC-S009-10to11.4	49	48	48	50	59		38
580-79555-28 - RA	PDI-SC-S009-10to11.4						65	
580-79555-29	PDI-SC-S011-0to2	57	53	56	54	63		55
580-79555-29 - RA	PDI-SC-S011-0to2						66	
580-79555-30	PDI-SC-S011-2to4	56	53	52	55	63		47
580-79555-30 - RA	PDI-SC-S011-2to4						70	
580-79555-31	PDI-SC-S011-4to6	56	53	55	55	63		54
580-79555-31 - RA	PDI-SC-S011-4to6						65	
580-79555-32	PDI-SC-S011-6to8	55	52	53	55	63		49
580-79555-32 - RA	PDI-SC-S011-6to8						71	
580-79555-33	PDI-SC-S011-8to10	53	52	51	53	60		45
580-79555-33 - RA	PDI-SC-S011-8to10						62	
580-79555-34	PDI-SC-S011-10to12	49	48	46	49	58		39
580-79555-34 - RA	PDI-SC-S011-10to12						63	
580-79555-35	PDI-SC-S011-12to14.5	50	48	47	51	57		41
580-79555-35 - RA	PDI-SC-S011-12to14.5						63	
580-79555-36	PDI-SC-S011-14.5to16.8	48	46	44	49	54		33
580-79555-36 - RA	PDI-SC-S011-14.5to16.8						61	
580-79555-37	PDI-SC-S011-14.5to16.8D	56	51	50	54	57		39
580-79555-37 - RA	PDI-SC-S011-14.5to16.8D						63	
580-79555-38	PDI-SC-S011-16.8to17.9	50	47	46	49	56		35
580-79555-38 - RA	PDI-SC-S011-16.8to17.9						60	
580-79555-39	PDI-SC-S011-17.9to18.9	48	46	44	47	53		33
580-79555-39 - RA	PDI-SC-S011-17.9to18.9						57	
580-79555-40	PDI-SC-S004-0to2	56	53	54	54	64		53
580-79555-40 - RA	PDI-SC-S004-0to2						69	
580-79555-41	PDI-SC-S004-2to4	56	53	54	53	62	56	55
580-79555-42	PDI-SC-S004-4to6	57	54	56	55	67	60	54
580-79555-43	PDI-SC-S004-6to7.3	53	50	51	51	64	58	49
580-79555-44	PDI-SC-S004-7.3to9.1	55	52	52	54	66	59	41
580-79555-45	PDI-SC-S004-9.1to10.3	58	54	60	55	67	59	62
580-79555-46	PDI-SC-S015-0to2	56	53	53	54	65		53
580-79555-46 - RA	PDI-SC-S015-0to2						64	
580-79555-47	PDI-SC-S015-2to4	60	58	56	59	70		54
580-79555-47 - RA	PDI-SC-S015-2to4						69	
580-79555-48	PDI-SC-S015-4to6	55	52	52	53	63		50
580-79555-48 - RA	PDI-SC-S015-4to6						61	
580-79555-49	PDI-SC-S015-6to8	55	53	51	54	62		44
580-79555-49 - RA	PDI-SC-S015-6to8						65	
580-79555-50	PDI-SC-S015-8to10	57	55	52	53	63		43
580-79555-50 - RA	PDI-SC-S015-8to10						65	
580-79555-51	PDI-SC-S015-10to11.4	62	60	59	60	66		48
580-79555-51 - RA	PDI-SC-S015-10to11.4						64	
580-79555-52	PDI-SC-S015-11.4to12.4	62	55	56	59	58		44
580-79555-52 - RA	PDI-SC-S015-11.4to12.4						65	
MB 320-242378/1-A	Method Blank	68	63	70	62	74	65	78
MB 320-242573/1-A	Method Blank	69	63	69	62	78	63	75
MB 320-243160/1-A	Method Blank	75	69	73	64	79	70	87

Surrogate Legend

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

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

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	HxCDD (21-193)	HxCDF (19-202)	HxDD (25-163)	HxDF (21-159)	HxCF (17-205)
LCS 320-242378/2-A	Lab Control Sample	83	74	78	60	62	66	67	68
LCS 320-242573/2-A	Lab Control Sample	80	77	73	63	64	74	74	69
LCS 320-243160/2-A	Lab Control Sample	86	80	78	69	69	73	74	72
LCSD 320-242378/3-A	Lab Control Sample Dup	87	79	81	69	70	71	72	70
LCSD 320-242573/3-A	Lab Control Sample Dup	85	77	79	66	69	76	77	72
LCSD 320-243160/3-A	Lab Control Sample Dup	78	71	73	62	62	65	65	63

		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 320-242378/2-A	Lab Control Sample	64	60	66	57	70	62	74
LCS 320-242573/2-A	Lab Control Sample	70	64	67	63	71	63	77
LCS 320-243160/2-A	Lab Control Sample	70	65	70	65	76	65	82
LCSD 320-242378/3-A	Lab Control Sample Dup	67	62	69	63	73	64	78
LCSD 320-242573/3-A	Lab Control Sample Dup	70	66	71	65	72	62	76
LCSD 320-243160/3-A	Lab Control Sample Dup	63	58	62	58	66	56	71

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: 580-79555-2

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)
580-79555-53	PDI-RB-SS-180810-1200	94	87	90	77	77	82	83	80
580-79555-54	PDI-RB-SS-180810-1730	95	87	91	73	74	79	79	77
MB 320-242488/1-A	Method Blank	75	67	70	58	57	62	62	65

		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)	
580-79555-53	PDI-RB-SS-180810-1200	78	72	78	71	84	75	85	
580-79555-54	PDI-RB-SS-180810-1730	75	69	75	68	79	70	87	
MB 320-242488/1-A	Method Blank	63	58	61	56	70	62	69	

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 320-242488/2-A	Lab Control Sample	53	49	51	42	43	45	47	46
LCSD 320-242488/3-A	Lab Control Sample Dup	85	78	80	67	68	71	72	71

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PeCDD (21-227)	PeCDF (21-192)	13CHxCF (22-176)	PeCF (13-328)	TCDD (20-175)	TCDF (22-152)	OCDD (13-199)	
LCS 320-242488/2-A	Lab Control Sample	47	44	46	45	56	53	48	
LCSD 320-242488/3-A	Lab Control Sample Dup	69	63	70	64	74	65	78	

Surrogate Legend

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

Isotope Dilution Summary

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

TestAmerica Job ID: 580-79555-2

HxCF = 13C-1,2,3,7,8,9-HxCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF = 13C-1,2,3,7,8-PeCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
PeCF = 13C-2,3,4,7,8-PeCDF
TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
OCDD = 13C-OCDD