

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Knoxville

5815 Middlebrook Pike

Knoxville, TN 37921

Tel: (865)291-3000

TestAmerica Job ID: 140-10228-1

TestAmerica Sample Delivery Group: W07926

Client Project/Site: W18-012

Revision: 1

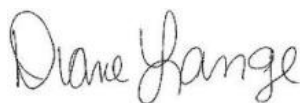
For:

CH2M Hill Plateau Remediation Company

PO BOX 1600, MS H8-41

Richland, Washington 99352

Attn: Ms. Karen Waters-Husted



Authorized for release by:

4/12/2018 3:25:00 PM

Diana Lange, Project Management Assistant II

diane.lange@testamericainc.com

Designee for

Jamie McKinney, Senior Project Manager

(865)291-3000

jamie.mckinney@testamericainc.com

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Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012

TestAmerica Job ID: 140-10228-1
SDG: W07926

Qualifiers

Dioxin

Qualifier	Qualifier Description
U	Analyzed for but not detected.
B	Analyte was found in the associated method blank as well as in the sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012

TestAmerica Job ID: 140-10228-1
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Job ID: 140-10228-1

Laboratory: TestAmerica Knoxville

Narrative

Job Narrative
140-10228-1
Revised

Comments

This report is being revised to include the SAF number and narrative.

Receipt

The samples were received on 12/14/2017 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.3° C and 0.4° C.

Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. Per client instructions, the firm responsible for delivery was filled in and dated by the sample receiving department on completion of the shipment. Relinquished date and time recorded is the same as laboratory receipt date and time.

Dioxin

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

Organic Prep

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

PROBLEM AND DISCREPANCY (P&D) REPORT		P&D Number: PD18-0161 Rev. Number: 1 Laboratory: TAKN SDG Number: W07926 Date Initiated: 04/10/2018
<u>SAMPLE EVENT INFORMATION</u>		
SAF NUM(S):	W18-012	
<u>SAMPLING INFORMATION</u>		
NUMBER OF SAMPLES:	4	
SAMPLE MATRIX:	WATER	
<u>ISSUE BACKGROUND</u>		
CLASS:	Narrative Issues	
TYPE:	Incomplete discussion/missing information	
DESCRIPTION:	The SAF number is missing in the data package. The narrative section is missing in the data package.	
<u>RESOLUTION</u>		
PROPOSED RESOLUTION:	Please correct the issue and resubmit the hard copy data package.	
FINAL RESOLUTION:		
SUBMITTED BY:		
KESSINGER, AL _____		04/10/2018 _____

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012

TestAmerica Job ID: 140-10228-1
SDG: W07926

Client Sample ID: B3FKC6

Lab Sample ID: 140-10228-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
OCDD	37.6	J B	94.5	0.25	pg/L	1		8290A	Total/NA

Client Sample ID: B3FKC5

Lab Sample ID: 140-10228-2

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
Total HxCDD	2.18	J	50.0	0.38	pg/L	1		8290A	Total/NA
OCDD	2.82	J B	100	0.37	pg/L	1		8290A	Total/NA

Client Sample ID: B3FKB3

Lab Sample ID: 140-10228-3

No Detections.

Client Sample ID: B3FJX2

Lab Sample ID: 140-10228-4

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
Total HxCDD	7.42	J	47.7	0.27	pg/L	1		8290A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Knoxville

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012TestAmerica Job ID: 140-10228-1
SDG: W07926

Client Sample ID: B3FKC6

Date Collected: 12/11/17 10:50

Date Received: 12/14/17 10:00

Lab Sample ID: 140-10228-1

Matrix: Water

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	2.56	U	9.45	2.56	pg/L		12/18/17 13:27	12/27/17 05:06	1
Total TCDD	2.56	U	9.45	2.56	pg/L		12/18/17 13:27	12/27/17 05:06	1
1,2,3,7,8-PeCDD	0.71	U	47.3	0.71	pg/L		12/18/17 13:27	12/27/17 05:06	1
Total PeCDD	0.71	U	47.3	0.71	pg/L		12/18/17 13:27	12/27/17 05:06	1
1,2,3,4,7,8-HxCDD	0.44	U	47.3	0.44	pg/L		12/18/17 13:27	12/27/17 05:06	1
1,2,3,6,7,8-HxCDD	0.44	U	47.3	0.44	pg/L		12/18/17 13:27	12/27/17 05:06	1
1,2,3,7,8,9-HxCDD	0.41	U	47.3	0.41	pg/L		12/18/17 13:27	12/27/17 05:06	1
Total HxCDD	0.44	U	47.3	0.44	pg/L		12/18/17 13:27	12/27/17 05:06	1
1,2,3,4,6,7,8-HpCDD	0.62	U	47.3	0.62	pg/L		12/18/17 13:27	12/27/17 05:06	1
Total HpCDD	0.62	U	47.3	0.62	pg/L		12/18/17 13:27	12/27/17 05:06	1
OCDD	37.6	J B	94.5	0.25	pg/L		12/18/17 13:27	12/27/17 05:06	1
2,3,7,8-TCDF	1.30	U	9.45	1.30	pg/L		12/18/17 13:27	12/27/17 05:06	1
Total TCDF	1.30	U	9.45	1.30	pg/L		12/18/17 13:27	12/27/17 05:06	1
1,2,3,7,8-PeCDF	0.53	U	47.3	0.53	pg/L		12/18/17 13:27	12/27/17 05:06	1
2,3,4,7,8-PeCDF	0.52	U	47.3	0.52	pg/L		12/18/17 13:27	12/27/17 05:06	1
Total PeCDF	0.53	U	47.3	0.53	pg/L		12/18/17 13:27	12/27/17 05:06	1
1,2,3,4,7,8-HxCDF	0.22	U	47.3	0.22	pg/L		12/18/17 13:27	12/27/17 05:06	1
1,2,3,6,7,8-HxCDF	0.21	U	47.3	0.21	pg/L		12/18/17 13:27	12/27/17 05:06	1
2,3,4,6,7,8-HxCDF	0.23	U	47.3	0.23	pg/L		12/18/17 13:27	12/27/17 05:06	1
1,2,3,7,8,9-HxCDF	0.25	U	47.3	0.25	pg/L		12/18/17 13:27	12/27/17 05:06	1
Total HxCDF	0.25	U	47.3	0.25	pg/L		12/18/17 13:27	12/27/17 05:06	1
1,2,3,4,6,7,8-HpCDF	0.15	U	47.3	0.15	pg/L		12/18/17 13:27	12/27/17 05:06	1
1,2,3,4,7,8,9-HpCDF	0.20	U	47.3	0.20	pg/L		12/18/17 13:27	12/27/17 05:06	1
Total HpCDF	0.20	U	47.3	0.20	pg/L		12/18/17 13:27	12/27/17 05:06	1
OCDF	0.96	U	94.5	0.96	pg/L		12/18/17 13:27	12/27/17 05:06	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	73		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-1,2,3,7,8-PeCDD	76		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-1,2,3,4,7,8-HxCDD	73		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-1,2,3,6,7,8-HxCDD	78		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-1,2,3,4,6,7,8-HpCDD	77		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-OCDD	83		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-2,3,7,8-TCDF	71		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-1,2,3,7,8-PeCDF	73		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-2,3,4,7,8-PeCDF	69		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-1,2,3,4,7,8-HxCDF	63		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-1,2,3,6,7,8-HxCDF	66		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-2,3,4,6,7,8-HxCDF	68		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-1,2,3,7,8,9-HxCDF	73		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-1,2,3,4,6,7,8-HpCDF	66		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-1,2,3,4,7,8,9-HpCDF	71		40 - 135				12/18/17 13:27	12/27/17 05:06	1
13C-OCDF	88		40 - 135				12/18/17 13:27	12/27/17 05:06	1

TestAmerica Knoxville

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012TestAmerica Job ID: 140-10228-1
SDG: W07926

Client Sample ID: B3FKC5

Lab Sample ID: 140-10228-2

Date Collected: 12/11/17 08:30

Matrix: Water

Date Received: 12/14/17 10:00

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	1.72	U	10.0	1.72	pg/L		12/18/17 13:27	12/27/17 06:06	1
Total TCDD	1.72	U	10.0	1.72	pg/L		12/18/17 13:27	12/27/17 06:06	1
1,2,3,7,8-PeCDD	0.62	U	50.0	0.62	pg/L		12/18/17 13:27	12/27/17 06:06	1
Total PeCDD	0.62	U	50.0	0.62	pg/L		12/18/17 13:27	12/27/17 06:06	1
1,2,3,4,7,8-HxCDD	0.41	U	50.0	0.41	pg/L		12/18/17 13:27	12/27/17 06:06	1
1,2,3,6,7,8-HxCDD	0.37	U	50.0	0.37	pg/L		12/18/17 13:27	12/27/17 06:06	1
1,2,3,7,8,9-HxCDD	0.36	U	50.0	0.36	pg/L		12/18/17 13:27	12/27/17 06:06	1
Total HxCDD	2.18	J	50.0	0.38	pg/L		12/18/17 13:27	12/27/17 06:06	1
1,2,3,4,6,7,8-HpCDD	0.67	U	50.0	0.67	pg/L		12/18/17 13:27	12/27/17 06:06	1
Total HpCDD	0.67	U	50.0	0.67	pg/L		12/18/17 13:27	12/27/17 06:06	1
OCDD	2.82	J B	100	0.37	pg/L		12/18/17 13:27	12/27/17 06:06	1
2,3,7,8-TCDF	0.95	U	10.0	0.95	pg/L		12/18/17 13:27	12/27/17 06:06	1
Total TCDF	0.95	U	10.0	0.95	pg/L		12/18/17 13:27	12/27/17 06:06	1
1,2,3,7,8-PeCDF	0.55	U	50.0	0.55	pg/L		12/18/17 13:27	12/27/17 06:06	1
2,3,4,7,8-PeCDF	0.56	U	50.0	0.56	pg/L		12/18/17 13:27	12/27/17 06:06	1
Total PeCDF	0.56	U	50.0	0.56	pg/L		12/18/17 13:27	12/27/17 06:06	1
1,2,3,4,7,8-HxCDF	0.21	U	50.0	0.21	pg/L		12/18/17 13:27	12/27/17 06:06	1
1,2,3,6,7,8-HxCDF	0.22	U	50.0	0.22	pg/L		12/18/17 13:27	12/27/17 06:06	1
2,3,4,6,7,8-HxCDF	0.23	U	50.0	0.23	pg/L		12/18/17 13:27	12/27/17 06:06	1
1,2,3,7,8,9-HxCDF	0.25	U	50.0	0.25	pg/L		12/18/17 13:27	12/27/17 06:06	1
Total HxCDF	0.25	U	50.0	0.25	pg/L		12/18/17 13:27	12/27/17 06:06	1
1,2,3,4,6,7,8-HpCDF	0.072	U	50.0	0.072	pg/L		12/18/17 13:27	12/27/17 06:06	1
1,2,3,4,7,8,9-HpCDF	0.092	U	50.0	0.092	pg/L		12/18/17 13:27	12/27/17 06:06	1
Total HpCDF	0.092	U	50.0	0.092	pg/L		12/18/17 13:27	12/27/17 06:06	1
OCDF	0.77	U	100	0.77	pg/L		12/18/17 13:27	12/27/17 06:06	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	76		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-1,2,3,7,8-PeCDD	77		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-1,2,3,4,7,8-HxCDD	78		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-1,2,3,6,7,8-HxCDD	78		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-1,2,3,4,6,7,8-HpCDD	81		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-OCDD	83		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-2,3,7,8-TCDF	77		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-1,2,3,7,8-PeCDF	76		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-2,3,4,7,8-PeCDF	71		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-1,2,3,4,7,8-HxCDF	72		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-1,2,3,6,7,8-HxCDF	72		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-2,3,4,6,7,8-HxCDF	77		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-1,2,3,7,8,9-HxCDF	79		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-1,2,3,4,6,7,8-HpCDF	68		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-1,2,3,4,7,8,9-HpCDF	73		40 - 135				12/18/17 13:27	12/27/17 06:06	1
13C-OCDF	91		40 - 135				12/18/17 13:27	12/27/17 06:06	1

TestAmerica Knoxville

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012TestAmerica Job ID: 140-10228-1
SDG: W07926

Client Sample ID: B3FKB3

Lab Sample ID: 140-10228-3

Date Collected: 12/11/17 13:03

Matrix: Water

Date Received: 12/14/17 10:00

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	2.19	U	9.68	2.19	pg/L		12/18/17 13:27	12/27/17 07:07	1
Total TCDD	2.19	U	9.68	2.19	pg/L		12/18/17 13:27	12/27/17 07:07	1
1,2,3,7,8-PeCDD	0.83	U	48.4	0.83	pg/L		12/18/17 13:27	12/27/17 07:07	1
Total PeCDD	0.83	U	48.4	0.83	pg/L		12/18/17 13:27	12/27/17 07:07	1
1,2,3,4,7,8-HxCDD	0.25	U	48.4	0.25	pg/L		12/18/17 13:27	12/27/17 07:07	1
1,2,3,6,7,8-HxCDD	0.27	U	48.4	0.27	pg/L		12/18/17 13:27	12/27/17 07:07	1
1,2,3,7,8,9-HxCDD	0.24	U	48.4	0.24	pg/L		12/18/17 13:27	12/27/17 07:07	1
Total HxCDD	0.27	U	48.4	0.27	pg/L		12/18/17 13:27	12/27/17 07:07	1
1,2,3,4,6,7,8-HpCDD	0.43	U	48.4	0.43	pg/L		12/18/17 13:27	12/27/17 07:07	1
Total HpCDD	0.43	U	48.4	0.43	pg/L		12/18/17 13:27	12/27/17 07:07	1
OCDD	0.20	U	96.8	0.20	pg/L		12/18/17 13:27	12/27/17 07:07	1
2,3,7,8-TCDF	1.39	U	9.68	1.39	pg/L		12/18/17 13:27	12/27/17 07:07	1
Total TCDF	1.39	U	9.68	1.39	pg/L		12/18/17 13:27	12/27/17 07:07	1
1,2,3,7,8-PeCDF	0.26	U	48.4	0.26	pg/L		12/18/17 13:27	12/27/17 07:07	1
2,3,4,7,8-PeCDF	0.24	U	48.4	0.24	pg/L		12/18/17 13:27	12/27/17 07:07	1
Total PeCDF	0.26	U	48.4	0.26	pg/L		12/18/17 13:27	12/27/17 07:07	1
1,2,3,4,7,8-HxCDF	0.12	U	48.4	0.12	pg/L		12/18/17 13:27	12/27/17 07:07	1
1,2,3,6,7,8-HxCDF	0.12	U	48.4	0.12	pg/L		12/18/17 13:27	12/27/17 07:07	1
2,3,4,6,7,8-HxCDF	0.12	U	48.4	0.12	pg/L		12/18/17 13:27	12/27/17 07:07	1
1,2,3,7,8,9-HxCDF	0.15	U	48.4	0.15	pg/L		12/18/17 13:27	12/27/17 07:07	1
Total HxCDF	0.15	U	48.4	0.15	pg/L		12/18/17 13:27	12/27/17 07:07	1
1,2,3,4,6,7,8-HpCDF	0.065	U	48.4	0.065	pg/L		12/18/17 13:27	12/27/17 07:07	1
1,2,3,4,7,8,9-HpCDF	0.084	U	48.4	0.084	pg/L		12/18/17 13:27	12/27/17 07:07	1
Total HpCDF	0.084	U	48.4	0.084	pg/L		12/18/17 13:27	12/27/17 07:07	1
OCDF	0.85	U	96.8	0.85	pg/L		12/18/17 13:27	12/27/17 07:07	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	79		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-1,2,3,7,8-PeCDD	78		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-1,2,3,4,7,8-HxCDD	78		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-1,2,3,6,7,8-HxCDD	84		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-1,2,3,4,6,7,8-HpCDD	84		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-OCDD	84		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-2,3,7,8-TCDF	76		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-1,2,3,7,8-PeCDF	77		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-2,3,4,7,8-PeCDF	75		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-1,2,3,4,7,8-HxCDF	72		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-1,2,3,6,7,8-HxCDF	75		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-2,3,4,6,7,8-HxCDF	78		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-1,2,3,7,8,9-HxCDF	80		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-1,2,3,4,6,7,8-HpCDF	70		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-1,2,3,4,7,8,9-HpCDF	75		40 - 135				12/18/17 13:27	12/27/17 07:07	1
13C-OCDF	93		40 - 135				12/18/17 13:27	12/27/17 07:07	1

TestAmerica Knoxville

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012TestAmerica Job ID: 140-10228-1
SDG: W07926

Client Sample ID: B3FJX2

Lab Sample ID: 140-10228-4

Date Collected: 12/12/17 08:48

Matrix: Water

Date Received: 12/14/17 10:00

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	2.10	U	9.53	2.10	pg/L		12/18/17 13:27	12/27/17 13:12	1
Total TCDD	2.10	U	9.53	2.10	pg/L		12/18/17 13:27	12/27/17 13:12	1
1,2,3,7,8-PeCDD	0.71	U	47.7	0.71	pg/L		12/18/17 13:27	12/27/17 13:12	1
Total PeCDD	0.71	U	47.7	0.71	pg/L		12/18/17 13:27	12/27/17 13:12	1
1,2,3,4,7,8-HxCDD	0.27	U	47.7	0.27	pg/L		12/18/17 13:27	12/27/17 13:12	1
1,2,3,6,7,8-HxCDD	0.29	U	47.7	0.29	pg/L		12/18/17 13:27	12/27/17 13:12	1
1,2,3,7,8,9-HxCDD	0.26	U	47.7	0.26	pg/L		12/18/17 13:27	12/27/17 13:12	1
Total HxCDD	7.42	J	47.7	0.27	pg/L		12/18/17 13:27	12/27/17 13:12	1
1,2,3,4,6,7,8-HpCDD	0.078	U	47.7	0.078	pg/L		12/18/17 13:27	12/27/17 13:12	1
Total HpCDD	0.078	U	47.7	0.078	pg/L		12/18/17 13:27	12/27/17 13:12	1
OCDD	0.10	U	95.3	0.10	pg/L		12/18/17 13:27	12/27/17 13:12	1
2,3,7,8-TCDF	1.02	U	9.53	1.02	pg/L		12/18/17 13:27	12/27/17 13:12	1
Total TCDF	1.02	U	9.53	1.02	pg/L		12/18/17 13:27	12/27/17 13:12	1
1,2,3,7,8-PeCDF	0.33	U	47.7	0.33	pg/L		12/18/17 13:27	12/27/17 13:12	1
2,3,4,7,8-PeCDF	0.32	U	47.7	0.32	pg/L		12/18/17 13:27	12/27/17 13:12	1
Total PeCDF	0.33	U	47.7	0.33	pg/L		12/18/17 13:27	12/27/17 13:12	1
1,2,3,4,7,8-HxCDF	0.23	U	47.7	0.23	pg/L		12/18/17 13:27	12/27/17 13:12	1
1,2,3,6,7,8-HxCDF	0.24	U	47.7	0.24	pg/L		12/18/17 13:27	12/27/17 13:12	1
2,3,4,6,7,8-HxCDF	0.23	U	47.7	0.23	pg/L		12/18/17 13:27	12/27/17 13:12	1
1,2,3,7,8,9-HxCDF	0.28	U	47.7	0.28	pg/L		12/18/17 13:27	12/27/17 13:12	1
Total HxCDF	0.28	U	47.7	0.28	pg/L		12/18/17 13:27	12/27/17 13:12	1
1,2,3,4,6,7,8-HpCDF	0.37	U	47.7	0.37	pg/L		12/18/17 13:27	12/27/17 13:12	1
1,2,3,4,7,8,9-HpCDF	0.51	U	47.7	0.51	pg/L		12/18/17 13:27	12/27/17 13:12	1
Total HpCDF	0.51	U	47.7	0.51	pg/L		12/18/17 13:27	12/27/17 13:12	1
OCDF	0.85	U	95.3	0.85	pg/L		12/18/17 13:27	12/27/17 13:12	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	77		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-1,2,3,7,8-PeCDD	83		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-1,2,3,4,7,8-HxCDD	78		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-1,2,3,6,7,8-HxCDD	80		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-1,2,3,4,6,7,8-HpCDD	81		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-OCDD	92		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-2,3,7,8-TCDF	73		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-1,2,3,7,8-PeCDF	74		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-2,3,4,7,8-PeCDF	71		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-1,2,3,4,7,8-HxCDF	68		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-1,2,3,6,7,8-HxCDF	70		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-2,3,4,6,7,8-HxCDF	74		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-1,2,3,7,8,9-HxCDF	76		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-1,2,3,4,6,7,8-HpCDF	68		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-1,2,3,4,7,8,9-HpCDF	75		40 - 135	12/18/17 13:27	12/27/17 13:12	1
13C-OCDF	94		40 - 135	12/18/17 13:27	12/27/17 13:12	1

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012

TestAmerica Job ID: 140-10228-1
SDG: W07926

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Prep: 8290

Analyte	RL	Units	Method
1,2,3,4,6,7,8-HpCDD	50.0	pg/L	8290A
1,2,3,4,6,7,8-HpCDF	50.0	pg/L	8290A
1,2,3,4,7,8,9-HpCDF	50.0	pg/L	8290A
1,2,3,4,7,8-HxCDD	50.0	pg/L	8290A
1,2,3,4,7,8-HxCDF	50.0	pg/L	8290A
1,2,3,6,7,8-HxCDD	50.0	pg/L	8290A
1,2,3,6,7,8-HxCDF	50.0	pg/L	8290A
1,2,3,7,8,9-HxCDD	50.0	pg/L	8290A
1,2,3,7,8,9-HxCDF	50.0	pg/L	8290A
1,2,3,7,8-PeCDD	50.0	pg/L	8290A
1,2,3,7,8-PeCDF	50.0	pg/L	8290A
2,3,4,6,7,8-HxCDF	50.0	pg/L	8290A
2,3,4,7,8-PeCDF	50.0	pg/L	8290A
2,3,7,8-TCDD	10.0	pg/L	8290A
2,3,7,8-TCDF	10.0	pg/L	8290A
OCDD	100	pg/L	8290A
OCDF	100	pg/L	8290A
Total HpCDD	50.0	pg/L	8290A
Total HpCDF	50.0	pg/L	8290A
Total HxCDD	50.0	pg/L	8290A
Total HxCDF	50.0	pg/L	8290A
Total PeCDD	50.0	pg/L	8290A
Total PeCDF	50.0	pg/L	8290A
Total TCDD	10.0	pg/L	8290A
Total TCDF	10.0	pg/L	8290A

Isotope Dilution Summary

04/12/2018

REV.0

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012

TestAmerica Job ID: 140-10228-1
SDG: W07926

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (40-135)	PeCDD (40-135)	HxCDD (40-135)	HxDD (40-135)	HpCDD (40-135)	OCDD (40-135)	TCDF (40-135)	PeCDF (40-135)
140-10228-1	B3FKC6	73	76	73	78	77	83	71	73
140-10228-2	B3FKC5	76	77	78	78	81	83	77	76
140-10228-3	B3FKB3	79	78	78	84	84	84	76	77
140-10228-4	B3FJX2	77	83	78	80	81	92	73	74
140-10228-4 DU	B3FJX2	76	76	78	80	82	90	71	71
LCS 140-16910/17-A	Lab Control Sample	61	72	71	71	81	80	58	67
MB 140-16910/16-A	Method Blank	76	76	76	75	76	74	74	77

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PeCF (40-135)	HxCDF (40-135)	HxDF (40-135)	13CHxCF (40-135)	HxCF (40-135)	HpCDF (40-135)	HpCDF2 (40-135)	13C-OCDF (40-135)
140-10228-1	B3FKC6	69	63	66	68	73	66	71	88
140-10228-2	B3FKC5	71	72	72	77	79	68	73	91
140-10228-3	B3FKB3	75	72	75	78	80	70	75	93
140-10228-4	B3FJX2	71	68	70	74	76	68	75	94
140-10228-4 DU	B3FJX2	69	68	71	74	76	69	73	96
LCS 140-16910/17-A	Lab Control Sample	64	64	65	65	69	70	73	84
MB 140-16910/16-A	Method Blank	72	67	69	74	90	69	69	84

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
PeCDD = 13C-1,2,3,7,8-PeCDD
HxCDD = 13C-1,2,3,4,7,8-HxCDD
HxDD = 13C-1,2,3,6,7,8-HxCDD
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
OCDD = 13C-OCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDF = 13C-1,2,3,7,8-PeCDF
PeCF = 13C-2,3,4,7,8-PeCDF
HxCDF = 13C-1,2,3,4,7,8-HxCDF
HxDF = 13C-1,2,3,6,7,8-HxCDF
13CHxCF = 13C-2,3,4,6,7,8-HxCDF
HxCF = 13C-1,2,3,7,8,9-HxCDF
HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
13C-OCDF = 13C-OCDF

TestAmerica Knoxville

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012

TestAmerica Job ID: 140-10228-1
SDG: W07926

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 140-16910/16-A

Matrix: Water

Analysis Batch: 17066

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 16910

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	2.26	U	10.0	2.26	pg/L		12/18/17 13:27	12/27/17 02:04	1
Total TCDD	3.388	J	10.0	2.26	pg/L		12/18/17 13:27	12/27/17 02:04	1
1,2,3,7,8-PeCDD	1.09	U	50.0	1.09	pg/L		12/18/17 13:27	12/27/17 02:04	1
Total PeCDD	1.09	U	50.0	1.09	pg/L		12/18/17 13:27	12/27/17 02:04	1
1,2,3,4,7,8-HxCDD	0.60	U	50.0	0.60	pg/L		12/18/17 13:27	12/27/17 02:04	1
1,2,3,6,7,8-HxCDD	0.63	U	50.0	0.63	pg/L		12/18/17 13:27	12/27/17 02:04	1
1,2,3,7,8,9-HxCDD	0.57	U	50.0	0.57	pg/L		12/18/17 13:27	12/27/17 02:04	1
Total HxCDD	0.63	U	50.0	0.63	pg/L		12/18/17 13:27	12/27/17 02:04	1
1,2,3,4,6,7,8-HpCDD	0.48	U	50.0	0.48	pg/L		12/18/17 13:27	12/27/17 02:04	1
Total HpCDD	0.48	U	50.0	0.48	pg/L		12/18/17 13:27	12/27/17 02:04	1
OCDD	1.864	J	100	0.23	pg/L		12/18/17 13:27	12/27/17 02:04	1
2,3,7,8-TCDF	1.44	U	10.0	1.44	pg/L		12/18/17 13:27	12/27/17 02:04	1
Total TCDF	1.44	U	10.0	1.44	pg/L		12/18/17 13:27	12/27/17 02:04	1
1,2,3,7,8-PeCDF	0.69	U	50.0	0.69	pg/L		12/18/17 13:27	12/27/17 02:04	1
2,3,4,7,8-PeCDF	0.65	U	50.0	0.65	pg/L		12/18/17 13:27	12/27/17 02:04	1
Total PeCDF	0.69	U	50.0	0.69	pg/L		12/18/17 13:27	12/27/17 02:04	1
1,2,3,4,7,8-HxCDF	0.24	U	50.0	0.24	pg/L		12/18/17 13:27	12/27/17 02:04	1
1,2,3,6,7,8-HxCDF	0.24	U	50.0	0.24	pg/L		12/18/17 13:27	12/27/17 02:04	1
2,3,4,6,7,8-HxCDF	0.25	U	50.0	0.25	pg/L		12/18/17 13:27	12/27/17 02:04	1
1,2,3,7,8,9-HxCDF	0.26	U	50.0	0.26	pg/L		12/18/17 13:27	12/27/17 02:04	1
Total HxCDF	0.26	U	50.0	0.26	pg/L		12/18/17 13:27	12/27/17 02:04	1
1,2,3,4,6,7,8-HpCDF	0.30	U	50.0	0.30	pg/L		12/18/17 13:27	12/27/17 02:04	1
1,2,3,4,7,8,9-HpCDF	0.42	U	50.0	0.42	pg/L		12/18/17 13:27	12/27/17 02:04	1
Total HpCDF	0.42	U	50.0	0.42	pg/L		12/18/17 13:27	12/27/17 02:04	1
OCDF	0.73	U	100	0.73	pg/L		12/18/17 13:27	12/27/17 02:04	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	76		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-1,2,3,7,8-PeCDD	76		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-1,2,3,4,7,8-HxCDD	76		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-1,2,3,6,7,8-HxCDD	75		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-1,2,3,4,6,7,8-HpCDD	76		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-OCDD	74		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-2,3,7,8-TCDF	74		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-1,2,3,7,8-PeCDF	77		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-2,3,4,7,8-PeCDF	72		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-1,2,3,4,7,8-HxCDF	67		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-1,2,3,6,7,8-HxCDF	69		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-2,3,4,6,7,8-HxCDF	74		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-1,2,3,7,8,9-HxCDF	90		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-1,2,3,4,6,7,8-HpCDF	69		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-1,2,3,4,7,8,9-HpCDF	69		40 - 135	12/18/17 13:27	12/27/17 02:04	1
13C-OCDF	84		40 - 135	12/18/17 13:27	12/27/17 02:04	1

TestAmerica Knoxville

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012

TestAmerica Job ID: 140-10228-1
SDG: W07926

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 140-16910/17-A

Matrix: Water

Analysis Batch: 17066

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 16910

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	200	196.0		pg/L		98	71 - 125
1,2,3,7,8-PeCDD	1000	960.2		pg/L		96	76 - 121
1,2,3,4,7,8-HxCDD	1000	979.3		pg/L		98	80 - 126
1,2,3,6,7,8-HxCDD	1000	937.9		pg/L		94	78 - 134
1,2,3,7,8,9-HxCDD	1000	1031		pg/L		103	76 - 137
1,2,3,4,6,7,8-HpCDD	1000	924.2		pg/L		92	79 - 122
OCDD	2000	1881		pg/L		94	81 - 135
2,3,7,8-TCDF	200	207.0		pg/L		104	72 - 138
1,2,3,7,8-PeCDF	1000	884.1		pg/L		88	82 - 130
2,3,4,7,8-PeCDF	1000	940.8		pg/L		94	77 - 129
1,2,3,4,7,8-HxCDF	1000	946.0		pg/L		95	80 - 130
1,2,3,6,7,8-HxCDF	1000	951.8		pg/L		95	79 - 131
2,3,4,6,7,8-HxCDF	1000	941.2		pg/L		94	81 - 130
1,2,3,7,8,9-HxCDF	1000	938.2		pg/L		94	83 - 130
1,2,3,4,6,7,8-HpCDF	1000	989.9		pg/L		99	81 - 130
1,2,3,4,7,8,9-HpCDF	1000	955.0		pg/L		95	77 - 128
OCDF	2000	1719		pg/L		86	66 - 150

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,7,8-TCDD	61		40 - 135
13C-1,2,3,7,8-PeCDD	72		40 - 135
13C-1,2,3,4,7,8-HxCDD	71		40 - 135
13C-1,2,3,6,7,8-HxCDD	71		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	81		40 - 135
13C-OCDD	80		40 - 135
13C-2,3,7,8-TCDF	58		40 - 135
13C-1,2,3,7,8-PeCDF	67		40 - 135
13C-2,3,4,7,8-PeCDF	64		40 - 135
13C-1,2,3,4,7,8-HxCDF	64		40 - 135
13C-1,2,3,6,7,8-HxCDF	65		40 - 135
13C-2,3,4,6,7,8-HxCDF	65		40 - 135
13C-1,2,3,7,8,9-HxCDF	69		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	70		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	73		40 - 135
13C-OCDF	84		40 - 135

Lab Sample ID: 140-10228-4 DU

Matrix: Water

Analysis Batch: 17077

Client Sample ID: B3FJX2

Prep Type: Total/NA

Prep Batch: 16910

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
2,3,7,8-TCDD	2.10	U	2.45	U	pg/L		NC	15
Total TCDD	2.10	U	2.45	U	pg/L		NC	
1,2,3,7,8-PeCDD	0.71	U	0.69	U	pg/L		NC	15
Total PeCDD	0.71	U	0.69	U	pg/L		NC	
1,2,3,4,7,8-HxCDD	0.27	U	0.22	U	pg/L		NC	15
1,2,3,6,7,8-HxCDD	0.29	U	0.24	U	pg/L		NC	15
1,2,3,7,8,9-HxCDD	0.26	U	0.22	U	pg/L		NC	15

TestAmerica Knoxville

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012

TestAmerica Job ID: 140-10228-1
SDG: W07926

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: 140-10228-4 DU

Matrix: Water

Analysis Batch: 17077

Client Sample ID: B3FJX2

Prep Type: Total/NA

Prep Batch: 16910

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total HxCDD	7.42	J	5.318	J	pg/L		33	
1,2,3,4,6,7,8-HpCDD	0.078	U	0.30	U	pg/L		NC	15
Total HpCDD	0.078	U	0.30	U	pg/L		NC	
OCDD	0.10	U	0.26	U	pg/L		NC	15
2,3,7,8-TCDF	1.02	U	1.45	U	pg/L		NC	15
Total TCDF	1.02	U	1.45	U	pg/L		NC	
1,2,3,7,8-PeCDF	0.33	U	0.45	U	pg/L		NC	15
2,3,4,7,8-PeCDF	0.32	U	0.43	U	pg/L		NC	15
Total PeCDF	0.33	U	0.45	U	pg/L		NC	
1,2,3,4,7,8-HxCDF	0.23	U	0.27	U	pg/L		NC	15
1,2,3,6,7,8-HxCDF	0.24	U	0.25	U	pg/L		NC	15
2,3,4,6,7,8-HxCDF	0.23	U	0.27	U	pg/L		NC	15
1,2,3,7,8,9-HxCDF	0.28	U	0.31	U	pg/L		NC	15
Total HxCDF	0.28	U	0.31	U	pg/L		NC	
1,2,3,4,6,7,8-HpCDF	0.37	U	0.27	U	pg/L		NC	15
1,2,3,4,7,8,9-HpCDF	0.51	U	0.36	U	pg/L		NC	15
Total HpCDF	0.51	U	0.36	U	pg/L		NC	
OCDF	0.85	U	1.14	U	pg/L		NC	15

Isotope Dilution	%Recovery	Qualifier	Limits
13C-2,3,7,8-TCDD	76		40 - 135
13C-1,2,3,7,8-PeCDD	76		40 - 135
13C-1,2,3,4,7,8-HxCDD	78		40 - 135
13C-1,2,3,6,7,8-HxCDD	80		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	82		40 - 135
13C-OCDD	90		40 - 135
13C-2,3,7,8-TCDF	71		40 - 135
13C-1,2,3,7,8-PeCDF	71		40 - 135
13C-2,3,4,7,8-PeCDF	69		40 - 135
13C-1,2,3,4,7,8-HxCDF	68		40 - 135
13C-1,2,3,6,7,8-HxCDF	71		40 - 135
13C-2,3,4,6,7,8-HxCDF	74		40 - 135
13C-1,2,3,7,8,9-HxCDF	76		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	69		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	73		40 - 135
13C-OCDF	96		40 - 135

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012

TestAmerica Job ID: 140-10228-1
SDG: W07926

Specialty Organics

Prep Batch: 16910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10228-1	B3FKC6	Total/NA	Water	8290	
140-10228-2	B3FKC5	Total/NA	Water	8290	
140-10228-3	B3FKB3	Total/NA	Water	8290	
140-10228-4	B3FJX2	Total/NA	Water	8290	
MB 140-16910/16-A	Method Blank	Total/NA	Water	8290	
LCS 140-16910/17-A	Lab Control Sample	Total/NA	Water	8290	
140-10228-4 DU	B3FJX2	Total/NA	Water	8290	

Analysis Batch: 17066

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10228-1	B3FKC6	Total/NA	Water	8290A	16910
140-10228-2	B3FKC5	Total/NA	Water	8290A	16910
140-10228-3	B3FKB3	Total/NA	Water	8290A	16910
MB 140-16910/16-A	Method Blank	Total/NA	Water	8290A	16910
LCS 140-16910/17-A	Lab Control Sample	Total/NA	Water	8290A	16910

Analysis Batch: 17077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10228-4	B3FJX2	Total/NA	Water	8290A	16910
140-10228-4 DU	B3FJX2	Total/NA	Water	8290A	16910

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012

TestAmerica Job ID: 140-10228-1
SDG: W07926

Client Sample ID: B3FKC6**Date Collected: 12/11/17 10:50****Date Received: 12/14/17 10:00****Lab Sample ID: 140-10228-1****Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8290			1057.7 mL	20 uL	16910	12/18/17 13:27	SMA	TAL KNX
Total/NA	Analysis	8290A		1			17066	12/27/17 05:06	KBL	TAL KNX
Instrument ID: M2A										

Client Sample ID: B3FKC5**Date Collected: 12/11/17 08:30****Date Received: 12/14/17 10:00****Lab Sample ID: 140-10228-2****Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8290			1000.1 mL	20 uL	16910	12/18/17 13:27	SMA	TAL KNX
Total/NA	Analysis	8290A		1			17066	12/27/17 06:06	KBL	TAL KNX
Instrument ID: M2A										

Client Sample ID: B3FKB3**Date Collected: 12/11/17 13:03****Date Received: 12/14/17 10:00****Lab Sample ID: 140-10228-3****Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8290			1032.7 mL	20 uL	16910	12/18/17 13:27	SMA	TAL KNX
Total/NA	Analysis	8290A		1			17066	12/27/17 07:07	KBL	TAL KNX
Instrument ID: M2A										

Client Sample ID: B3FJX2**Date Collected: 12/12/17 08:48****Date Received: 12/14/17 10:00****Lab Sample ID: 140-10228-4****Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8290			1049 mL	20 uL	16910	12/18/17 13:27	SMA	TAL KNX
Total/NA	Analysis	8290A		1			17077	12/27/17 13:12	KBL	TAL KNX
Instrument ID: M2A										

Client Sample ID: Method Blank**Date Collected: N/A****Date Received: N/A****Lab Sample ID: MB 140-16910/16-A****Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8290			1000 mL	20 uL	16910	12/18/17 13:27	SMA	TAL KNX
Total/NA	Analysis	8290A		1			17066	12/27/17 02:04	KBL	TAL KNX
Instrument ID: M2A										

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012

TestAmerica Job ID: 140-10228-1
SDG: W07926

Client Sample ID: Lab Control Sample**Lab Sample ID: LCS 140-16910/17-A****Date Collected: N/A****Matrix: Water****Date Received: N/A**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8290			1000 mL	20 uL	16910	12/18/17 13:29	SMA	TAL KNX
Total/NA	Analysis	8290A		1			17066	12/27/17 00:23	KBL	TAL KNX
Instrument ID: M2A										

Client Sample ID: B3FJX2**Lab Sample ID: 140-10228-4 DU****Date Collected: 12/12/17 08:48****Matrix: Water****Date Received: 12/14/17 10:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8290			1049.6 mL	20 uL	16910	12/18/17 13:27	SMA	TAL KNX
Total/NA	Analysis	8290A		1			17077	12/27/17 14:12	KBL	TAL KNX
Instrument ID: M2A										

Laboratory References:

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012

TestAmerica Job ID: 140-10228-1
SDG: W07926

Method	Method Description	Protocol	Laboratory
8290A	Dioxins and Furans (HRGC/HRMS)	SW846	TAL KNX

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-012

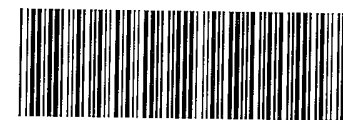
TestAmerica Job ID: 140-10228-1
SDG: W07926

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-10228-1	B3FKC6	Water	12/11/17 10:50	12/14/17 10:00
140-10228-2	B3FKC5	Water	12/11/17 08:30	12/14/17 10:00
140-10228-3	B3FKB3	Water	12/11/17 13:03	12/14/17 10:00
140-10228-4	B3FJX2	Water	12/12/17 08:48	12/14/17 10:00

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- 2
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- 10
- 11
- 12
- 13
- 14

CH2Mhill Plateau Remediation Company		57163 CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C.# W18-012-102		
Collector: Juan Aguilar JCHPRC		Contact/Requester: Karen Waters-Husted		Telephone No.: 509-376-4650				
SAF No.: W18-012		Sampling Origin: Hanford Site		Purchase Order/Charge Code: 300071				
Project Title: RCRA, DECEMBER 2017		Logbook No.: HNF-N-506-97132		Ice Chest No.: GWS-921217 347 720				
Shipped To (Lab): TestAmerica Knoxville		Method of Shipment: Commercial Carrier		Bill of Lading/Air Bill No.: 77096237822				
Protocol: RCRA		Priority: 15 Days PRIORITY		Offsite Property No.: N/A				
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1				SPECIAL INSTRUCTIONS N/A				
Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3FKC6	N	W	12-11-17	10SD	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

SDG# W07926
 RT: 0.4°C, 0.5°C CT: 0.3°C, 0.4°C, Fedex So
 2 coolers, trK# 7709 8537 0210
 " 6237 8232
 Custody real intact, KW 12/14/17



140-10228 Chain of Custody

Relinquished By: Juan Aguilar JCHPRC DEC 11 2017 1120 Print First and Last Name Signature Date/Time			Received By: Jeff Tuckson JCHPRC DEC 11 2017 1120 Print First and Last Name Signature Date/Time			Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other		
Relinquished By: Jeff Tuckson JCHPRC DEC 11 2017 1400 Print First and Last Name Signature Date/Time			Received By: FEDEX Print First and Last Name Signature Date/Time					
Relinquished By: FED EX 12/14/17 1000 ENTERED BY TESTAMERICA RH Print First and Last Name Signature Date/Time			Received By: RYAN HENRY 12/14/17 1000 Print First and Last Name Signature Date/Time					
Relinquished By: Print First and Last Name Signature Date/Time			Received By: Print First and Last Name Signature Date/Time					
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process):				Disposed By:		Date/Time:

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C.# W18-012-101		
						Page 1 of 1		
Collector: Juan Aguilar ICHPRC			Contact/Requester: Karen Waters-Husted			Telephone No.: 509-376-4650		
SAF No.: W18-012			Sampling Origin: Hanford Site			Purchase Order/Charge Code: 300071		
Project Title: RCRA, DECEMBER 2017			Logbook No.: HNF-N-506-97132			Ice Chest No.: 6212417 720		
Shipped To (Lab): TestAmerica Knoxville			Method of Shipment: Commercial Carrier			Bill of Lading/Air Bill No.: 7709 62378232		
Protocol: RCRA			Priority: 15 Days PRIORITY			Offsite Property No.: N/A		
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1					SPECIAL INSTRUCTIONS N/A			
Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3FKC5	N	W	12-11-17	0830	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

SD 6# W07926

Relinquished By: Juan Aguilar ICHPRC DEC 11 2017 0900 Print First and Last Name Signature Date/Time			Received By: SSU-1 DEC 11 2017 0900 Print First and Last Name Signature Date/Time			Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other		
Relinquished By: SSU-1 DEC 11 2017 1125 Print First and Last Name Signature Date/Time			Received By: Janelle Zunker CHPRC DEC 11 2017 1125 Print First and Last Name Signature Date/Time					
Relinquished By: Janelle Zunker CHPRC DEC 11 2017 1400 Print First and Last Name Signature Date/Time			Received By: FEDEX DEC 11 2017 1400 Print First and Last Name Signature Date/Time					
Relinquished By: FEDEX DEC 14 2017 1000 ENTERED BY TESTAMERICA AH Print First and Last Name Signature Date/Time			Received By: RYAN HENRY DEC 14 2017 1000 Print First and Last Name Signature Date/Time					
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process):				Disposed By:		Date/Time:

04165

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			C.O.C. # W18-012-099	
					Page 1 of 1	
Collector: Juan Aguilar CHPRC		Contact/Requester: Karen Waters-Husted		Telephone No.: 509-376-4650		
SAF No.: W18-012		Sampling Origin: Hanford Site		Purchase Order/Charge Code: 300071		
Project Title: RCRA, DECEMBER 2017		Logbook No.: HNF-N-506 -97/32		Ice Chest No.: GWS-660		
Shipped To (Lab): TestAmerica Knoxville		Method of Shipment: Commercial Carrier		Bill of Lading/Air Bill No.: 7709 8537 0210		
Protocol: RCRA		Priority: 15 Days PRIORITY		Offsite Property No.: N/A		
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1				SPECIAL INSTRUCTIONS N/A		
Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis
B3FKB3	N	W	12-11-17	1303	4x1-L aG	8290_DIOXINS_GCMS: COMMON
						Holding Time
						30/45 Days
						Preservative
						Cool <=6C

SDG# W07926

Relinquished By: Juan Aguilar CHPRC Print First and Last Name Signature Date/Time			Received By: SSU-1 Print First and Last Name Signature Date/Time			Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other	
Relinquished By: SSU-1 Print First and Last Name Signature Date/Time			Received By: Jeff Tuckson CHPRC Print First and Last Name Signature Date/Time				
Relinquished By: Jeff Tuckson CHPRC Print First and Last Name Signature Date/Time			Received By: FEDEX Print First and Last Name Signature Date/Time				
Relinquished By: Fed Ex Print First and Last Name Signature Date/Time			Received By: RYAN HENRY Print First and Last Name Signature Date/Time				
Relinquished By: ENTERED BY TESTAMERICA Print First and Last Name Signature Date/Time			Received By: RYAN HENRY Print First and Last Name Signature Date/Time				
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process):				Disposed By:	Date/Time:

64 lbs

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C.# W18-012-108		
						Page 1 of 2		
Collector: Juan Aguilar CHPRC			Contact/Requester: Karen Waters-Husted			Telephone No.: 509-376-4650		
SAF No.: W18-012			Sampling Origin: Hanford Site			Purchase Order/Charge Code: 300071		
Project Title: RCRA, DECEMBER 2017			Logbook No.: HNF-N-506-97/33			Ice Chest No.: GWS-660		
Shipped To (Lab): TestAmerica Knoxville			Method of Shipment: Commercial Carrier			Bill of Lading/Air Bill No.: 7709 8537 0210		
Protocol: RCRA			Priority: 15 Days PRIORITY			Offsite Property No.:		
POSSIBLE SAMPLE HAZARDS/REMARK ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1					SPECIAL INSTRUCTIONS N/A			
Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3FJX2	N	W	12-12-17	0848	4x1-L aG	8290_DIOXINS_GCMS: COMMON	30/45 Days	Cool <=6C

SDG # W07926

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Relinquished By: Juan Aguilar CHPRC Print First and Last Name Signature Date/Time: DEC 12 2017 1036			Received By: Jeff Tuckson CHPRC Print First and Last Name Signature Date/Time: DEC 12 2017 1036			Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other		
Relinquished By: Jeff Tuckson CHPRC Print First and Last Name Signature Date/Time: DEC 12 2017 1055			Received By: SSU-1 Print First and Last Name Signature Date/Time: DEC 12 2017 1055					
Relinquished By: SSU-1 Print First and Last Name Signature Date/Time: DEC 13 2017 0810			Received By: Jeff Tuckson CHPRC Print First and Last Name Signature Date/Time: DEC 13 2017 0810					
Relinquished By: Jeff Tuckson CHPRC Print First and Last Name Signature Date/Time: DEC 13 2017 1400			Received By: FEDEX Print First and Last Name Signature Date/Time:					
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process):				Disposed By:		Date/Time:

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A-6003-962 (03/05)

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4/12/2018 (Rev. 1)

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Log In Number:

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Are the shipping containers intact?	/		/	☐ Containers, Broken	
2. Were ambient air containers received intact?			/	☐ Checked in lab	
3. The coolers/containers custody seal if present, is it intact?	/			☐ Yes ☐ NA	
4. Is the cooler temperature within limits? (> freezing temp. of water to 6°C, VOST: 10°C) Thermometer ID : <u>5667</u> Correction factor: <u>-0.1</u>	/			☐ Cooler Out of Temp, Client Contacted, Proceed/Cancel ☐ Cooler Out of Temp, Same Day Receipt	
5. Were all of the sample containers received intact?	/			☐ Containers, Broken	
6. Were samples received in appropriate containers?	/			☐ Containers, Improper; Client Contacted; Proceed/Cancel	
7. Do sample container labels match COC? (IDs, Dates, Times)	/			☐ COC & Samples Do Not Match ☐ COC Incorrect/Incomplete ☐ COC Not Received	
8. Were all of the samples listed on the COC received?	/			☐ Sample Received, Not on COC ☐ Sample on COC, Not Received	
9. Is the date/time of sample collection noted?	/			☐ COC; No Date/Time; Client Contacted	Labeling Verified by: _____ Date: _____
10. Was the sampler identified on the COC?	/			☐ Sampler Not Listed on COC	pH test strip lot number: _____
11. Is the client and project name/# identified?	/			☐ COC Incorrect/Incomplete	
12. Are tests/parameters listed for each sample?	/			☐ COC No tests on COC	
13. Is the matrix of the samples noted?	/			☐ COC Incorrect/Incomplete	
14. Was COC relinquished? (Signed/Dated/Timed)	/			☐ COC Incorrect/Incomplete	Box 16A: pH Preservation Box 18A: Residual Chlorine
15. Were samples received within holding time?	/			☐ Holding Time - Receipt	Preservative: _____
16. Were samples received with correct chemical preservative (excluding Encore)?			/	☐ pH Adjusted, pH Included (See box 16A) ☐ Incorrect Preservative	Lot Number: _____
17. Were VOA samples received without headspace?			/	☐ Headspace (VOA only)	Exp Date: _____
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number: _____			/	☐ Residual Chlorine	Analyst: _____
19. For 1613B water samples is pH<9?			/	☐ If no, lab will adjust	Date: _____
20. For rad samples was sample activity info. Provided?			/	☐ Project missing info	Time: _____
Project #: _____ PM Instructions: _____					

Sample Receiving Associate: *[Signature]* Date: 12-15-17

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REV.0