FEBRUARY 7, 2014

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-5256-1
TestAmerica Sample Delivery Group: SL1421
Client Project/Site: F11-031

For:
CH2M Hill Plateau Remediation Company
PO BOX 1600, MS H8-41
Richland, Washington 99352

Attn: General Mailbox

Authorized for release by:
2/7/2014 4:00:51 PM

Jayna Awalt, Project Manager I
(314)298-8566
jayna.awalt@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: 160-5256-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

CH2MHill Plateau Remediation Company
P.O. Box 1600
MS B3-60
Richland, Washington 99352
February 7, 2014
Attention: Scot Fitzgerald

SDG	: SL1421
Number of Samples	: 2 samples
Sample Matrix	: Other Solid
Data Deliverable	: Summary
Date SDG Closed	: January 23, 2014

II. Introduction

On January 23, 2 Other Solid samples were received by TestAmerica - St. Louis for chemical analysis. The samples were received within temperature criteria. See the COC and receipt checklist for documentation of any variations on receipt conditions and temperature. Upon receipt, the samples were given laboratory Ids to correspond with specific client Ids. Please refer to the Sample Summary sheets attached to this case narrative. This report is incomplete without the narrative.

The following SAFs are associated with this SDG: F11-031

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. All results are based upon samples as they were received, i.e. wet weight, unless otherwise noted on the data sheets. See the attached Methods Summary Form for the methods used in this SDG.

MS/MSD/Dup analysis was done per the client requirements. Analytical batches that did not contain matrix QC were analyzed with a LCS/LCS duplicate.

Deviation from Request: None

IV. Definitions

QCBLK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike
DUP- Laboratory Duplicate
MS- Matrix Spike
MSD- Matrix Spike Duplicate

The term “Detection Limit” used in the analytical data report refers to either the lab’s standard reporting limits or contractually required reporting limits, whichever is applicable.

The following data qualifiers may be applicable to the results in this report, as appropriate.

- **B** - For inorganic analyses, the sample result is greater than the MDL but less than the RL.
- **B** - For organic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the

Job ID: 160-5256-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

MDL.

- **J** - For organic analyses, the sample is estimated and less than the RL.
- **C** - For inorganic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **D** - For all analyses, the sample result was obtained from the analysis of a dilution.
- **N** - For inorganics and GC analyses, the spike/spike duplicate recoveries are outside QC limits.
- **T** - For GCMS analyses, the spike/spike duplicate recoveries are outside QC limits.
- **O**- For all analyses, the LCS (LCSD) recoveries are outside QC limits.
- **M**- For inorganic analyses, the precision was outside control limits.
- **P** - For organic analyses (PCB/Pests only), the aroclor target analyte has greater than 25% difference for detected concentrations between the two GC columns.

TCLP Volatiles

Batch: 101580

Tetrachloroethene was detected in method blank LB 160-101089/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been flagged "B".

The continuing calibration verification (CCV) associated with batch 101580 recovered above the upper control limit for Chloromethane and 4-Methyl-2-pentanone. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: (160-5256-2 MS), (160-5256-2 MSD), (CCVIS 160-101580/2), (LB 160-101089/1-A), (LCS 160-101580/4-A), B2VW53 (160-5256-1), B2VW56 (160-5256-2).

Due to the high concentration of Carbon Tetrachloride, the matrix spke/matrix spike duplicate (MS/MSD) for batch 101580 could not be evaluated for accuracy and precision. The associated LCS met acceptance criteria. The sample was re-analyzed at a dilution for Carbon Tertachloride.

Batch: 101205

In batch 101205, the following sample was analyzed at reduced volume due to high concentrations of Carbon tetrachloride: B2VW56 (160-5256-2). The calculation was done using an initial volume adjustment of 20x rather than a dilution factor. The associated MS/MSD was originally analyzed on this sample at 10x; however, Carbon tetrachloride was over the linear range of the calibration and not reported until the 20x dilution. The reporting limits have been elevated by the appropriate factor.

I certify that this Summary Package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the signature on the cover page has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Jayna Awalt
St. Louis Project Manager

CH2MHill Plateau Remediation Company SL1421	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F11-031-063	PAGE 1 OF 1
COLLECTOR Kaur / Floyd	**COMPANY CONTACT** EVANS, RT	**TELEPHONE NO.** 373-7924	**PROJECT COORDINATOR** EVANS, RT	**PRICE CODE** 9C	**DATA TURNAROUND**
SAMPLING LOCATION 200-PW1-SET 1 GAC	**PROJECT DESIGNATION** 200-PW-1 & 200-ZP-1 Spent GAC Canisters and Filters		**SAF NO.** F11-031	**AIR QUALITY** ☐	15 Days / 15 Days
ICE CHEST NO. GWS-139-03	**FIELD LOGBOOK NO.** HNF-N-585-6/64	**ACTUAL SAMPLE DEPTH** N/A	**COA** 302853ES10	**METHOD OF SHIPMENT** FEDERAL EXPRESS	**ORIGINAL**
SHIPPED TO TestAmerica St. Louis	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** SEE PTR 4671 / 7976 9656 7075 ~~9413 4127~~ RAS 1/22/14		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	None
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	HOLDING TIME	14/14 Days
		TYPE OF CONTAINER	aGs
		NO. OF CONTAINER(S)	1
		VOLUME	120mL
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2VW53	OTHER SOLID	1-21-14	1030	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Erik Kaur	1-21-14 1145	550 #	1-21-14 1145
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
550 #1	1/22/14 0900	Roy A Shepard JAN 2 2 2014	0900
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Roy A Shepard JAN 2 2 2014	1400	FEDEX	JAN 2 2 2014
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Fed Ex		Brian Daniels	1/23/14 0945
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-14-042. COMPOSITE FROM CANISTERS ZP1-09-004, ZP1-09-005, ZP1-09-006, ZP1-09-007, ZP1-13-001 AND ZP1-13-002.
(1) 1311/8260_TCLP_VOA: COMMON {1,1,1-Trichloroethane, 1,1-Dichloroethane, 1,2-Dichloroethane, 2-Butanone, 4-Methyl-2-pentanone, Benzene, Bromodichloromethane, Carbon tetrachloride, Chlorobenzene, Chloroform, Chloromethane, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Xylenes (total)}; 1311/8260_TCLP_VOA: COMMON (Add-on) {1,1,1,2-Tetrachloroethane, trans-1,2-Dichloroethylene};

TRVL-14-042

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 1/13/2014

A-6003-618 (REV 2)

CH2MHill Plateau Remediation Company 81421	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F11-031-066	PAGE 1 OF 1
COLLECTOR Kraus/Floyd	**COMPANY CONTACT** EVANS, RT	**TELEPHONE NO.** 373-7924	**PROJECT COORDINATOR** EVANS, RT	**PRICE CODE** 9C	**DATA TURNAROUND**
SAMPLING LOCATION 200-ZP1-SET 1 GAC	**PROJECT DESIGNATION** 200-PW-1 & 200-ZP-1 Spent GAC Canisters and Filters		**SAF NO.** F11-031	**AIR QUALITY** ☐	15 Days / 15 Days
ICE CHEST NO. GWS-139-03	**FIELD LOGBOOK NO.** HNF-N-585-6/64	**ACTUAL SAMPLE DEPTH** N/A	**COA** 302853ES10	**METHOD OF SHIPMENT** FEDERAL EXPRESS	**ORIGINAL**
SHIPPED TO TestAmerica St. Louis	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** SEE PTR 4671 / ~~4677~~ 1/22/14 7976 9656 7075 ~~9643 1427~~ RAS 1/22/14		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
HOLDING TIME	14/14 Days
TYPE OF CONTAINER	aGs
NO. OF CONTAINER(S)	1
VOLUME	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2VW56	OTHER SOLID	1-21-14	0930	✓

TRVL-14-042

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	**DATE/TIME**	**RECEIVED BY/STORED IN**	**DATE/TIME**
Ed Kraus/Floyd	1-21-14 1145	SSU #1	1-21-14 1145
RELINQUISHED BY/REMOVED FROM	**DATE/TIME**	**RECEIVED BY/STORED IN**	**DATE/TIME**
SSU #1	1/22/14 0900	Roy A Shepard	JAN 22 2014 0900
RELINQUISHED BY/REMOVED FROM	**DATE/TIME**	**RECEIVED BY/STORED IN**	**DATE/TIME**
Roy A Shepard	JAN 22 2014 1400	FEDEX	JAN 22 2014
RELINQUISHED BY/REMOVED FROM	**DATE/TIME**	**RECEIVED BY/STORED IN**	**DATE/TIME**
FedEX		Brian Thomas	1/23/14 0945
RELINQUISHED BY/REMOVED FROM	**DATE/TIME**	**RECEIVED BY/STORED IN**	**DATE/TIME**
RELINQUISHED BY/REMOVED FROM	**DATE/TIME**	**RECEIVED BY/STORED IN**	**DATE/TIME**
RELINQUISHED BY/REMOVED FROM	**DATE/TIME**	**RECEIVED BY/STORED IN**	**DATE/TIME**

SPECIAL INSTRUCTIONS
The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-14-042. COMPOSITE FROM CANISTERS PW1-06-070, PW1-06-072, PW1-07-011, PW1-07-014, PW1-10-041, PW1-10-042, PW1-13-001, PW1-13-002
(1) 1311/8260_TCLP_VOA: COMMON {1,1,1-Trichloroethane, 1,1-Dichloroethane, 1,2-Dichloroethane, 2-Butanone, 4-Methyl-2-pentanone, Benzene, Bromodichloromethane, Carbon tetrachloride, Chlorobenzene, Chloroform, Chloromethane, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Xylenes (total)}; 1311/8260_TCLP_VOA: COMMON (Add-on) {1,1,1,2-Tetrachloroethane, trans-1,2-Dichloroethylene};

LABORATORY SECTION	**RECEIVED BY**	**TITLE**	**DATE/TIME**
FINAL SAMPLE DISPOSITION	**DISPOSAL METHOD**	**DISPOSED BY**	**DATE/TIME**

PRINTED ON 1/14/2014

A-6003-618 (REV 2)

IMPORTANT!
A winter storm is causing delays and disruptions in the eastern U.S. Learn More

FedEx

797696567075

Ship (P/U) date :
Wed 1/22/2014 3:51 pm
RICHLAND, WA US

Delivered
Signed for by: B.DANIELS

Actual delivery :
Thur 1/23/2014 9:41 am
EARTH CITY, MO US

Travel History

Date/Time	Activity	Location
- 1/23/2014 - Thursday		
9:41 am	Delivered	EARTH CITY, MO
7:05 am	On FedEx vehicle for delivery	EARTH CITY, MO
7:01 am	At local FedEx facility	EARTH CITY, MO
5:18 am	At destination sort facility	BERKELEY, MO
4:29 am	Departed FedEx location	MEMPHIS, TN
12:37 am	Arrived at FedEx location	MEMPHIS, TN
- 1/22/2014 - Wednesday		
5:07 pm	Left FedEx origin facility	PASCO, WA
3:51 pm	Picked up	PASCO, WA
1:15 pm	Shipment information sent to FedEx	

Local Scan Time

Shipment Facts

Tracking number	797696567075	Service	FedEx Priority Overnight
Weight	4 lbs	Dimensions	13x11x10 in.
Delivered To	Shipping/Receiving	Total pieces	1
Total shipment weight	4 lbs / 1.8 kgs	Shipper reference	GWS-139-03
Packaging	Your Packaging	Special handling section	Deliver Weekday, Additional Handling Surcharge

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-5256-1
SDG Number: SL1421

Login Number: 5256
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

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.	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	

Client: CH2M Hill Plateau Remediation Company
Project/Site: F11-031

TestAmerica Job ID: 160-5256-1
SDG: SL1421

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
E	Result exceeded calibration range.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Method Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F11-031

TestAmerica Job ID: 160-5256-1
SDG: SL1421

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SL

Protocol References:

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

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F11-031

TestAmerica Job ID: 160-5256-1
SDG: SL1421

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5256-1	B2VW53	Solid	01/21/14 10:30	01/23/14 09:45
160-5256-2	B2VW56	Solid	01/21/14 09:30	01/23/14 09:45

Detection Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F11-031

TestAmerica Job ID: 160-5256-1
SDG: SL1421

Client Sample ID: B2VW53 — Lab Sample ID: 160-5256-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon tetrachloride	830		50	3.6	ug/L	1		8260C	TCLP
Chloroform	56		50	0.92	ug/L	1		8260C	TCLP

Client Sample ID: B2VW56 — Lab Sample ID: 160-5256-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon tetrachloride	2200		100	7.2	ug/L	1		8260C	TCLP
Chloroform	18	J	50	0.92	ug/L	1		8260C	TCLP

This Detection Summary does not include radiochemical test results.

Client: CH2M Hill Plateau Remediation Company
Project/Site: F11-031

TestAmerica Job ID: 160-5256-1
SDG: SL1421

Client Sample ID: B2VW53

Date Collected: 01/21/14 10:30
Date Received: 01/23/14 09:45

Lab Sample ID: 160-5256-1

Matrix: Solid

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	2.4	U	50	2.4	ug/L			01/26/14 22:43	1
1,1,1-Trichloroethane	2.9	U	50	2.9	ug/L			01/26/14 22:43	1
1,1-Dichloroethane	3.9	U	50	3.9	ug/L			01/26/14 22:43	1
1,2-Dichloroethane	3.7	U	50	3.7	ug/L			01/26/14 22:43	1
2-Butanone (MEK)	3.9	U	50	3.9	ug/L			01/26/14 22:43	1
4-Methyl-2-pentanone (MIBK)	3.3	U	200	3.3	ug/L			01/26/14 22:43	1
Benzene	2.5	U	50	2.5	ug/L			01/26/14 22:43	1
Bromodichloromethane	2.5	U	50	2.5	ug/L			01/26/14 22:43	1
Carbon tetrachloride	**830**		50	3.6	ug/L			01/26/14 22:43	1
Chlorobenzene	3.8	U	50	3.8	ug/L			01/26/14 22:43	1
Chloroform	**56**		50	0.92	ug/L			01/26/14 22:43	1
Chloromethane	5.5	U	100	5.5	ug/L			01/26/14 22:43	1
Ethylbenzene	3.0	U	50	3.0	ug/L			01/26/14 22:43	1
Methylene Chloride	8.0	U	50	8.0	ug/L			01/26/14 22:43	1
Tetrachloroethene	2.8	U	50	2.8	ug/L			01/26/14 22:43	1
Toluene	3.0	U	50	3.0	ug/L			01/26/14 22:43	1
trans-1,2-Dichloroethene	1.8	U	50	1.8	ug/L			01/26/14 22:43	1
Trichloroethene	2.9	U	50	2.9	ug/L			01/26/14 22:43	1
Xylenes, Total	8.5	U	100	8.5	ug/L			01/26/14 22:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*83 - 117*		*01/26/14 22:43*	*1*
4-Bromofluorobenzene (Surr)	*100*		*84 - 120*		*01/26/14 22:43*	*1*
Dibromofluoromethane (Surr)	*93*		*85 - 115*		*01/26/14 22:43*	*1*
Toluene-d8 (Surr)	*97*		*85 - 115*		*01/26/14 22:43*	*1*

Client Sample ID: B2VW56

Date Collected: 01/21/14 09:30
Date Received: 01/23/14 09:45

Lab Sample ID: 160-5256-2

Matrix: Solid

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	2.4	U	50	2.4	ug/L			01/26/14 23:08	1
1,1,1-Trichloroethane	2.9	U	50	2.9	ug/L			01/26/14 23:08	1
1,1-Dichloroethane	3.9	U	50	3.9	ug/L			01/26/14 23:08	1
1,2-Dichloroethane	3.7	U	50	3.7	ug/L			01/26/14 23:08	1
2-Butanone (MEK)	3.9	U	50	3.9	ug/L			01/26/14 23:08	1
4-Methyl-2-pentanone (MIBK)	3.3	U	200	3.3	ug/L			01/26/14 23:08	1
Benzene	2.5	U	50	2.5	ug/L			01/26/14 23:08	1
Bromodichloromethane	2.5	U	50	2.5	ug/L			01/26/14 23:08	1
Carbon tetrachloride	**2200**		100	7.2	ug/L			01/27/14 09:39	1
Chlorobenzene	3.8	U	50	3.8	ug/L			01/26/14 23:08	1
Chloroform	**18**	**J**	50	0.92	ug/L			01/26/14 23:08	1
Chloromethane	5.5	U	100	5.5	ug/L			01/26/14 23:08	1
Ethylbenzene	3.0	U	50	3.0	ug/L			01/26/14 23:08	1
Methylene Chloride	8.0	U	50	8.0	ug/L			01/26/14 23:08	1
Tetrachloroethene	2.8	U	50	2.8	ug/L			01/26/14 23:08	1
Toluene	3.0	U	50	3.0	ug/L			01/26/14 23:08	1
trans-1,2-Dichloroethene	1.8	U	50	1.8	ug/L			01/26/14 23:08	1
Trichloroethene	2.9	U	50	2.9	ug/L			01/26/14 23:08	1

Client: CH2M Hill Plateau Remediation Company
Project/Site: F11-031

TestAmerica Job ID: 160-5256-1
SDG: SL1421

Client Sample ID: B2VW56
Date Collected: 01/21/14 09:30
Date Received: 01/23/14 09:45

Lab Sample ID: 160-5256-2
Matrix: Solid

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	8.5	U	100	8.5	ug/L			01/26/14 23:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*83 - 117*		*01/26/14 23:08*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*83 - 117*		*01/27/14 09:39*	*1*
4-Bromofluorobenzene (Surr)	*103*		*84 - 120*		*01/26/14 23:08*	*1*
4-Bromofluorobenzene (Surr)	*98*		*84 - 120*		*01/27/14 09:39*	*1*
Dibromofluoromethane (Surr)	*101*		*85 - 115*		*01/26/14 23:08*	*1*
Dibromofluoromethane (Surr)	*99*		*85 - 115*		*01/27/14 09:39*	*1*
Toluene-d8 (Surr)	*101*		*85 - 115*		*01/26/14 23:08*	*1*
Toluene-d8 (Surr)	*102*		*85 - 115*		*01/27/14 09:39*	*1*

Client: CH2M Hill Plateau Remediation Company
Project/Site: F11-031

TestAmerica Job ID: 160-5256-1
SDG: SL1421

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: LCS 160-101580/4-A
Matrix: Solid
Analysis Batch: 101580

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	500	494		ug/L		99	70 - 130
1,2-Dichloroethane	500	509		ug/L		102	80 - 115
2-Butanone (MEK)	500	543		ug/L		109	64 - 117
Benzene	500	494		ug/L		99	85 - 115
Carbon tetrachloride	500	489		ug/L		98	79 - 119
Chlorobenzene	500	496		ug/L		99	85 - 115
Chloroform	500	495		ug/L		99	85 - 115
Ethylbenzene	500	510		ug/L		102	80 - 120
Tetrachloroethene	500	501		ug/L		100	79 - 116
Toluene	500	500		ug/L		100	70 - 130
Trichloroethene	500	475		ug/L		95	85 - 115
Xylenes, Total	1000	998		ug/L		100	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*83 - 117*
4-Bromofluorobenzene (Surr)	*98*		*84 - 120*
Dibromofluoromethane (Surr)	*95*		*85 - 115*
Toluene-d8 (Surr)	*101*		*85 - 115*

Lab Sample ID: LB 160-101089/1-A
Matrix: Solid
Analysis Batch: 101580

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	2.4	U	50	2.4	ug/L			01/26/14 22:18	1
1,1,1-Trichloroethane	2.9	U	50	2.9	ug/L			01/26/14 22:18	1
1,1-Dichloroethane	3.9	U	50	3.9	ug/L			01/26/14 22:18	1
1,2-Dichloroethane	3.7	U	50	3.7	ug/L			01/26/14 22:18	1
2-Butanone (MEK)	3.9	U	50	3.9	ug/L			01/26/14 22:18	1
4-Methyl-2-pentanone (MIBK)	3.3	U	200	3.3	ug/L			01/26/14 22:18	1
Benzene	2.5	U	50	2.5	ug/L			01/26/14 22:18	1
Bromodichloromethane	2.5	U	50	2.5	ug/L			01/26/14 22:18	1
Carbon tetrachloride	3.6	U	50	3.6	ug/L			01/26/14 22:18	1
Chlorobenzene	3.8	U	50	3.8	ug/L			01/26/14 22:18	1
Chloroform	0.92	U	50	0.92	ug/L			01/26/14 22:18	1
Chloromethane	5.5	U	100	5.5	ug/L			01/26/14 22:18	1
Ethylbenzene	3.0	U	50	3.0	ug/L			01/26/14 22:18	1
Methylene Chloride	8.0	U	50	8.0	ug/L			01/26/14 22:18	1
Tetrachloroethene	5.35	J	50	2.8	ug/L			01/26/14 22:18	1
Toluene	3.0	U	50	3.0	ug/L			01/26/14 22:18	1
trans-1,2-Dichloroethene	1.8	U	50	1.8	ug/L			01/26/14 22:18	1
Trichloroethene	2.9	U	50	2.9	ug/L			01/26/14 22:18	1
Xylenes, Total	8.5	U	100	8.5	ug/L			01/26/14 22:18	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*83 - 117*		*01/26/14 22:18*	*1*
4-Bromofluorobenzene (Surr)	*103*		*84 - 120*		*01/26/14 22:18*	*1*

Client: CH2M Hill Plateau Remediation Company
Project/Site: F11-031

TestAmerica Job ID: 160-5256-1
SDG: SL1421

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LB 160-101089/1-A
Matrix: Solid
Analysis Batch: 101580

Client Sample ID: Method Blank
Prep Type: TCLP

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	92		85 - 115		01/26/14 22:18	1
Toluene-d8 (Surr)	100		85 - 115		01/26/14 22:18	1

Lab Sample ID: 160-5256-2 MS
Matrix: Solid
Analysis Batch: 101580

Client Sample ID: B2VW56
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	2.9	U	500	494		ug/L		99	70 - 130
1,2-Dichloroethane	3.7	U	500	519		ug/L		104	85 - 115
2-Butanone (MEK)	3.9	U	500	549		ug/L		110	67 - 117
Benzene	2.5	U	500	493		ug/L		99	85 - 115
Carbon tetrachloride	2400	E	500	2610	E	ug/L		47	79 - 117
Chlorobenzene	3.8	U	500	492		ug/L		98	85 - 115
Chloroform	18	J	500	504		ug/L		97	85 - 115
Ethylbenzene	3.0	U	500	495		ug/L		99	80 - 120
Tetrachloroethene	2.8	U	500	497		ug/L		99	82 - 115
Toluene	3.0	U	500	499		ug/L		100	50 - 150
Trichloroethene	2.9	U	500	473		ug/L		95	84 - 115
Xylenes, Total	8.5	U	1000	999		ug/L		100	80 - 120

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		83 - 117
4-Bromofluorobenzene (Surr)	97		84 - 120
Dibromofluoromethane (Surr)	101		85 - 115
Toluene-d8 (Surr)	101		85 - 115

Lab Sample ID: 160-5256-2 MSD
Matrix: Solid
Analysis Batch: 101580

Client Sample ID: B2VW56
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	2.9	U	500	492		ug/L		98	70 - 130	0	20
1,2-Dichloroethane	3.7	U	500	512		ug/L		102	85 - 115	1	20
2-Butanone (MEK)	3.9	U	500	557		ug/L		111	67 - 117	1	20
Benzene	2.5	U	500	491		ug/L		98	85 - 115	0	20
Carbon tetrachloride	2400	E	500	2620	E	ug/L		48	79 - 117	0	20
Chlorobenzene	3.8	U	500	489		ug/L		98	85 - 115	1	20
Chloroform	18	J	500	512		ug/L		99	85 - 115	2	20
Ethylbenzene	3.0	U	500	489		ug/L		98	80 - 120	1	20
Tetrachloroethene	2.8	U	500	487		ug/L		97	82 - 115	2	20
Toluene	3.0	U	500	496		ug/L		99	50 - 150	1	20
Trichloroethene	2.9	U	500	475		ug/L		95	84 - 115	0	20
Xylenes, Total	8.5	U	1000	987		ug/L		99	80 - 120	1	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		83 - 117

Client: CH2M Hill Plateau Remediation Company
Project/Site: F11-031

TestAmerica Job ID: 160-5256-1
SDG: SL1421

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 160-5256-2 MSD
Matrix: Solid
Analysis Batch: 101580

Client Sample ID: B2VW56
Prep Type: TCLP

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		84 - 120
Dibromofluoromethane (Surr)	99		85 - 115
Toluene-d8 (Surr)	100		85 - 115

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F11-031

TestAmerica Job ID: 160-5256-1
SDG: SL1421

GC/MS VOA

Leach Batch: 101089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5256-1	B2VW53	TCLP	Solid	1311	
160-5256-2	B2VW56	TCLP	Solid	1311	
160-5256-2 MS	B2VW56	TCLP	Solid	1311	
160-5256-2 MSD	B2VW56	TCLP	Solid	1311	
LB 160-101089/1-A	Method Blank	TCLP	Solid	1311	

Analysis Batch: 101205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5256-2	B2VW56	TCLP	Solid	8260C	101089

Analysis Batch: 101580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5256-1	B2VW53	TCLP	Solid	8260C	101089
160-5256-2	B2VW56	TCLP	Solid	8260C	101089
160-5256-2 MS	B2VW56	TCLP	Solid	8260C	101089
160-5256-2 MSD	B2VW56	TCLP	Solid	8260C	101089
LB 160-101089/1-A	Method Blank	TCLP	Solid	8260C	101089
LCS 160-101580/4-A	Lab Control Sample	Total/NA	Solid	8260C	

Surrogate Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F11-031

TestAmerica Job ID: 160-5256-1
SDG: SL1421

Method: 8260C - Volatile Organic Compounds by GC/MS

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

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(83-117)	(84-120)	(85-115)	(85-115)
LCS 160-101580/4-A	Lab Control Sample	100	98	95	101

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(83-117)	(84-120)	(85-115)	(85-115)
160-5256-1	B2VW53	95	100	93	97
160-5256-2	B2VW56	95	98	99	102
160-5256-2	B2VW56	100	103	101	101
160-5256-2 MS	B2VW56	100	97	101	101
160-5256-2 MSD	B2VW56	99	98	99	100
LB 160-101089/1-A	Method Blank	99	103	92	100

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)