

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: 160-22439-1

TestAmerica Sample Delivery Group: SL2524
Client Project/Site: F17-009

For:

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

Attn: Mr. Scot Fitzgerald



Authorized for release by:
6/8/2017 11:24:07 AM

Jayna Awalt, Project Manager II
(314)298-8566

jayna.awalt@testamericainc.com



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www.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.

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SAMPLE ISSUE RESOLUTION (SIR) REPORT

SIR Number: SIR17-0833
Rev. Number: 0
Date Initiated: 07/18/2017

SAMPLE EVENT INFORMATION

SAF NUM(S): F17-009
LABORATORY: TASL

SAMPLING INFORMATION

NUMBER OF SAMPLES: 1
SAMPLE NUMBERS: B39WT7
SAMPLE MATRIX: SOIL
SDG NUM(S): SL2524

ISSUE BACKGROUND

CLASS: Laboratory Issue
TYPE: Chain of Custody Issue
DESCRIPTION: COC F17-009-386, missing the final received information

RESOLUTION

PROPOSED RESOLUTION: DOCUMENT AND CLOSE
FINAL RESOLUTION: DOCUMENT AND CLOSE

SUBMITTED BY:

CUTSFORTH, EC

06/13/2017

ACCEPTED BY:

KILLAND, KE

07/18/2017



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Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-22439-1
SDG: SL2524

Job ID: 160-22439-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

CH2MHill Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352
June 8, 2017
Attention: Scot Fitzgerald

SDG : SL2524
Number of Samples : 9 samples
Sample Matrix : Soil
Data Deliverable : Summary
Date SDG Closed : May 20, 2017

II. Introduction

On May 20, 9 samples were received by TestAmerica - St. Louis for chemical analysis. The samples were received within temperature criteria. See the COC and receipt checklists for documentation of any variations on receipt conditions and temperature. Upon receipt, 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: F17-009

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 an LCS/LCS duplicate.

Note: For Metals analyses, per standard practice, all 6020 water and soil samples are initially prepared at 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner. These dilutions do not necessitate a narrative note; however, they are flagged "D" due to a limitation in the LIMS.

For solid matrices, all Metals analyses (including Hg) use a Standard Reference Material for the Laboratory Control Sample (LCS). Certificate for this source material may be obtained from TASL.

For Anion analysis, samples have been started at a 2x dilution per CHPRC direction. The samples are flagged accordingly with a "D" flag if sample concentration is above the MDL/RL. Non-conformance will be included in the below section only if dilution is greater than 2x.

For WTPH methods, the lab utilizes method 8015B. Per CHPRC direction, the method name in the electronic data has been modified to read WTPH in the place of 8015B.

Per CHPRC direction, due to the short hold times for Nitrate, Nitrite and Phosphate by IC (48 hours) as well as pH analysis (24 hours), a SIR request is not needed when samples are run outside 1x hold but within 2x hold. A narrative comment will be included below if a sample is run outside the lab-specified hold time for waters.

For extractable and volatile organic analyses, several analytes are considered poor performers and will not meet CHPRC QC limits. Per CHPRC direction, the lab's statistical limits have been reported. Excursions outside these statistical limits will include a non-conformance in the sections below.



Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-22439-1
SDG: SL2524

Job ID: 160-22439-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

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 MDL.
- **B** - For radiochemistry, Method Blank reported above the MDC. Sample activity is > 5% the method blank.
- **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/RL but not greater than 5% the MB.
- **D** - For all analyses, the sample result was obtained from the analysis of a dilution. For ICPMS Metals analyses, per standard practice, all samples are initially prepared at a 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner and will not be narrated below. Only dilutions above 2x will be narrated and considered a true dilution for these samples.
- **N** - For inorganics, rad 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.
- **P** - For organic analyses (PCB/Pests only), the aroclor target analyte has greater than 25% difference for detected concentrations between the two GC columns.
- **X**- Organics and Anions IC - Sample concentration over calibration and/or surrogate recovery outside QC limits.
- **X**- Inorganics - The analyte present in the original sample is > 4x the spike concentration.
- **X**- Radiochemistry - Carrier or Tracer recovery is outside limits.
- **Z**- Sample was prepped or analyzed beyond the specified sample holding time.
- **y** - RPD is outside established limits.

Volatiles

Batch: 310159

The matrix spike duplicate (MSD) recovery for preparation batch 160-310166 and analytical batch 160-310159 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control samples' (LCS/LCSD) recoveries were within acceptance limits. (160-22439-C-4-B MSD) This analyte has been qualified accordingly with a "T" flag in the associated samples.

The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 160-310166 and analytical batch 160-310159 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits. (160-22439-C-4-B MSD)

We certify that this data package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager or designee and the laboratory's client services representative as verified by their signature on this report.

Reviewed and approved:

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-22439-1
SDG: SL2524

Job ID: 160-22439-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Jayna Awalt
St. Louis Project Manager

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-22439-1

SDG Number: SL2524

Login Number: 22439

List Source: TestAmerica St. Louis

List Number: 1

Creator: Taylor, Kristene N

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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	3,2,2
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 $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CH2MHill Plateau Remediation Company
 COLLECTOR: Dave Wight, CHPRC
 SAMPLING LOCATION: C9513, Shallow Sample 1
 ICE CHEST NO.: GWS-392
 SHIPPED TO: TestAmerica St. Louis

COMPANY CONTACT: FITZGERALD, SL
 TELEPHONE NO.: 373-7495
 PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization of Waste Sites Sampling - Soil 20
 FIELD LOGBOOK NO.: HNF-N-645 5-35
 ACTUAL SAMPLE DEPTH: 0-2
 OFFSITE PROPERTY NO.: N/A

PROJECT COORDINATOR: FITZGERALD, SL
 SAF NO.: F17-009
 COA: 302632
 BILL OF LADING/AIR BILL NO.: 7791 8337 6531

F17-009-353
 PRICE CODE: 8H
 AIR QUALITY:
 METHOD OF SHIPMENT: FEDERAL EXPRESS
 DATA TURNAROUND: 30 Days / 30 Days
 ORIGINAL

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SAMPLE DATE	SAMPLE TIME
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 are not regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	Frozen/Cool <-7C and >-20C 14 Days	14 Days	Gs	5	40mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	MAY 18 2017	1022
	SPECIAL HANDLING AND/OR STORAGE -RADIOACTIVE THE TO-133WU1 N/A O 5-18-17								

RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
Dave Wight CHPRC	MAY 18 2017 1340		SSU-1	MAY 18 2017 1940
RELINQUISHED BY/REMOVED FROM	DATE/TIME		RECEIVED BY/STORED IN	DATE/TIME
Jessie Zunker CHPRC	MAY 19 2017 1500		Jessie Zunker CHPRC	MAY 19 2017 0700
RELINQUISHED BY/REMOVED FROM	DATE/TIME		RECEIVED BY/STORED IN	DATE/TIME
FED EX	MAY 19 2017 1400		FED EX	MAY 19 2017 0700
RELINQUISHED BY/REMOVED FROM	DATE/TIME		RECEIVED BY/STORED IN	DATE/TIME
			Kristine Taylor	5-28-17
RELINQUISHED BY/REMOVED FROM	DATE/TIME		RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME		RECEIVED BY/STORED IN	DATE/TIME
LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME	DATE/TIME

SPECIAL INSTRUCTIONS
 TRVL-17-119;
 * All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.
 ** The laboratory is to use one of the low level VOA bottles for moisture content determination.
 (1) 5035/8260_VOA: LOW LEVEL: COMMON {4-Methyl-2-pentanone};

FRS ID = FSR44397
 TRVL NUM = TRVL-17-119
 A-6003-618 (REV 2)



SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location:

200-DV-1 C9513 shallow #1

Sampler Initials and Date:

Dave Wight
CHPRC

MAY 18 2017

Time 1022

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B39WN4	K	29.87	38.09	8.22
↓	L	29.78	37.03	7.25
	M	29.50	36.77	7.27
	N	29.61	37.21	7.60
	P	29.93	38.04	8.11

¹ Enter sample number associated with the sampling event.

² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F17-009-358	PAGE 1 OF 1
COLLECTOR Dave Wight CHPRC	COMPANY CONTACT FITZGERALD, SL	TELEPHONE NO. 373-7495	PROJECT COORDINATOR FITZGERALD, SL	PRICE CODE 8H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION C9513, Shallow Sample 2	PROJECT DESIGNATION 200-DV-1 Operable Unit Characterization of Waste Sites Sampling - Soil 20	SAF NO. F17-009	COA 302632	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS
ICE CHEST NO. CWS39C	FIELD LOGBOOK NO. HNF-N-645 5-35	ACTUAL SAMPLE DEPTH 2-4	BILL OF LADING/AIR BILL NO. 779183376531	ORIGINAL	
SHIPPED TO TestAmerica St. Louis	OFFSITE PROPERTY NO. N/A				

MATRIX* A=Air DL=Drum 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 are not regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION Frozen/Cool <-7C and >-20C 14 Days
SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TO-830446 04 5-18-17 N/A	TYPE OF CONTAINER Gs	HOLDING TIME 14 Days
SAMPLE NO. 08B39WN9	NO. OF CONTAINER(S) 5	NO. OF CONTAINER(S) 5
MATRIX* SOIL	VOLUME 40mL	NO. OF CONTAINER(S) 5
SAMPLE DATE MAY 18 2017	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SAMPLE TIME 1022Z
		<input checked="" type="checkbox"/>

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM Dave Wight CHPRC	DATE/TIME MAY 18 2017 1540	RECEIVED BY/STORED IN SSU-1	DATE/TIME MAY 18 2017 1540	TRVL-17-119; * All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis. ** The laboratory is to use one of the low level VOA bottles for moisture content determination. (1) 5035/8260_VOA: LOW LEVEL: COMMON {4-Methyl-2-pentanone};	
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME MAY 19 2017 0700	RECEIVED BY/STORED IN Janella Zunker CHPRC	DATE/TIME MAY 19 2017 0700		
RELINQUISHED BY/REMOVED FROM Janella Zunker CHPRC	DATE/TIME MAY 19 2017 1400	RECEIVED BY/STORED IN Kirstene Taylor	DATE/TIME 5-20-17		
RELINQUISHED BY/REMOVED FROM FED EX	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		
LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME		
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME		



SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 200-DV-1 C9513 shallow sample 2

Sampler Initials and Date: Dave Wight
CHPRC MAY 18 2017 Time 1022

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B39WN9	K	29.61	38.42	9.01
↓	L	29.81	37.93	8.32
	M	30.00	37.85	7.85
	N	29.66	37.39	7.73
	P	29.86	37.31	7.45

- ¹ Enter sample number associated with the sampling event.
- ² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.
- ³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.
- ⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: **200-DV-1 C9513 shallow Sample 3**

Sampler Initials and Date: Dave Wight
CHPRC **MAY 18 2017** Time **1022**

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B39WP4	K	29.55	37.40	7.85
↓	L	29.74	37.23	7.49
	M	29.78	36.81	7.03
	N	29.97	37.30	7.33
	P	29.70	37.72	8.02

¹ Enter sample number associated with the sampling event.
² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.
³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.
⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F17-009-368	PAGE 1 OF 1
COLLECTOR	Dave Wight CHPRC	COMPANY CONTACT	FITZGERALD, SL	PROJECT COORDINATOR	FITZGERALD, SL
SAMPLING LOCATION	C9513, Shallow Sample 4	PROJECT DESIGNATION	200-DV-1 Operable Unit Characterization of Waste Sites Sampling - Soil 20	SAF NO.	F17-009
ICE CHEST NO.	6WS-392	FIELD LOGBOOK NO.	HNF-N-645 5-35	COA	302632
SHIPPED TO	TestAmerica St. Louis	OFFSITE PROPERTY NO.	N/A	BILL OF LADING/AIR BILL NO.	779103376531
MATRIX*	A=Air DL=Drum L=Liquid DS=Drum S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	PRESERVATION	Frozen/Cool <-7C and > 20C	ACTUAL SAMPLE DEPTH	6-8
POSSIBLE SAMPLE HAZARDS/ REMARKS	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/DATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	HOLDING TIME	14 Days	METHOD OF SHIPMENT	FEDERAL EXPRESS
SPECIAL HANDLING AND/OR STORAGE	RADIOGRAPHIC TO-B39WP9, N/A	TYPE OF CONTAINER	Gs		ORIGINAL
		NO. OF CONTAINER(S)	5		
		VOLUME	40mL		
		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS		

DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RELINQUISHED BY/REMOVED FROM	DATE/TIME
Dave Wight	MAY 18 2017 13:40	SSU-1	MAY 18 2017 13:40	Janelle Zunker	MAY 19 2017 07:00
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RELINQUISHED BY/REMOVED FROM	DATE/TIME
SSU-1	MAY 19 2017 07:00	Janelle Zunker	MAY 19 2017 07:00	CHPRC	MAY 19 2017 14:00
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RELINQUISHED BY/REMOVED FROM	DATE/TIME
Janelle Zunker	MAY 19 2017 14:00	CHPRC	MAY 19 2017 14:00	FED EX	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RELINQUISHED BY/REMOVED FROM	DATE/TIME
		Kristene Taylor	5-20-17		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RELINQUISHED BY/REMOVED FROM	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RELINQUISHED BY/STORED IN	DATE/TIME

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME
PRINTED ON 4/25/2017	FSR ID = FSR44403	TRVL NUM = TRVL-17-119	A-6003-618 (REV 2)



SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: **ZOO-DV-1 C9513 shallow sample 4**

Sampler Initials and Date: Dave Wight
CHPRC **MAY 18 2017** Time **1131**

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B39WP9	K	29.72	37.48	7.76
↓	L	29.77	37.23	7.46
	M	29.78	36.90	7.12
	N	29.77	36.76	6.99
	P	29.77	37.71	7.94

- ¹ Enter sample number associated with the sampling event.
- ² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.
- ³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.
- ⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

CH2M Hill Plateau Remediation Company *55105*

COLLECTOR: Dave Wight *52524*
CHPRC

SAMPLING LOCATION: C9513, Shallow Sample 4 FXR

ICE CHEST NO. *6205-392*

COMPANY CONTACT: FITZGERALD, SL
TELEPHONE NO. 373-7495

PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization of Waste Sites Sampling - Soil 20

FIELD LOGBOOK NO. *HNF-N-645 5-35*

ACTUAL SAMPLE DEPTH (N/A)

OFFSITE PROPERTY NO. *N/A*

PROJECT COORDINATOR: FITZGERALD, SL

SAF NO. F17-009

COA 302632

BILL OF LADING/AIR BILL NO. *7791 8337 6531*

F17-009-369

PRICE CODE 8H

AIR QUALITY

METHOD OF SHIPMENT: FEDERAL EXPRESS

PAGE 1 OF 1

DATA TURNAROUND: 30 Days / 30 Days

ORIGINAL

Matrix*	Preservation	Holding Time	Type of Container	No. of Container(s)	Volume	Sample Analysis
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WF=Wipe X=Other	Frozen/Cool <-7C and > 20C	14 Days	Gs	5	40mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.						
SPECIAL HANDLING AND/OR STORAGE NA						
SAMPLE NO. <i>B39WR0</i>	MATRIX*	SAMPLE DATE	SAMPLE TIME			
	SOIL	MAY 18 2017	1131			

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM Dave Wight CHPRC		SSU-1	MAY 18 2017 1340
RELINQUISHED BY/REMOVED FROM SSU-1	Janelle Zank CHPRC	Janelle Zank CHPRC	MAY 19 2017 0700
RELINQUISHED BY/REMOVED FROM CHPRC		FEDEX	MAY 19 2017 1400
RELINQUISHED BY/REMOVED FROM FEDEX	Kristene Taylor	Kristene Taylor	MAY 19 2017 0800
RELINQUISHED BY/REMOVED FROM			
RELINQUISHED BY/REMOVED FROM			
RELINQUISHED BY/REMOVED FROM			
LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD		DATE/TIME

SPECIAL INSTRUCTIONS
 TRVL-17-119;
 * All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.
 ** The laboratory is to use one of the low level VOA bottles for moisture content determination.
 (1) 5035/8260_VOA: LOW LEVEL: COMMON (4-Methyl-2-pentanone);

FRIDAY 6/8/2017

PRINTED ON 4/25/2017

FSR ID = FSR44404

TRVL NUM = TRVL-17-119

A-6003-618 (REV 2)



SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 200-DV-1 C9513 shallow Sample 4 FXR

Sampler Initials and Date: Dave Wight
CHPRO MAY 18 2017 Time 1131

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B39WRO	K	29.78	36.57	6.79
↓	L	29.75	36.71	6.96
	M	29.58	37.44	7.86
	N	29.49	37.27	7.78
	P	29.61	36.89	7.28

- ¹ Enter sample number associated with the sampling event.
- ² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.
- ³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.
- ⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F17-009-373	PAGE 1 OF 1
COLLECTOR	Dave Wight CHPRC	COMPANY CONTACT	FITZGERALD, SL	TELEPHONE NO.	373-7495
SAMPLING LOCATION	C9513, Shallow Sample 5	PROJECT DESIGNATION	200-DV-1 Operable Unit Characterization of Waste Sites Sampling - Soil 20	PROJECT COORDINATOR	FITZGERALD, SL
ICE CHEST NO.	6WS-400	FIELD LOGBOOK NO.	INF-N-645 5-35	SAF NO.	F17-009
SHIPPED TO	TestAmerica St. Louis	OFFSITE PROPERTY NO.	N/A	COA	302632
MATRIX*	A=Air DL=Drum L=Liquid S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	PRESERVATION	Frozen/Cool <-7C and >- 20C 14 Days	BILL OF LADING/AIR BILL NO.	7791 8336 0290
POSSIBLE SAMPLE HAZARDS/ REMARKS	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	HOLDING TIME	Gs	METHOD OF SHIPMENT	FEDERAL EXPRESS
SPECIAL HANDLING AND/OR STORAGE	RADIOACTIVE TIE TO: B39WR4/14 08 5-18-17	TYPE OF CONTAINER	5		ORIGINAL
		NO. OF CONTAINER(S)	40mL		
		VOLUME	SEE ITEM (1) IN SPECIAL INSTRUCTIONS		

SAMPLE NO.	MATRIX*	DATE/TIME	RECEIVED BY/STORAGE IN	DATE/TIME	SIGN/ PRINT NAMES
B39WR4	SOIL	MAY 18 2017 1340	SSU-1	MAY 18 2017 1340	
		MAY 19 2017 0700	Janelle Zunker	MAY 19 2017 0700	
		MAY 19 2017 1400	CHPRC	MAY 19 2017 1400	
			RECEIVED BY/STORAGE IN		FEDEX
			RECEIVED BY/STORAGE IN		Kristene Taylor
			RECEIVED BY/STORAGE IN		
			RECEIVED BY/STORAGE IN		

SPECIAL INSTRUCTIONS	
TRVL-17-119;	
* All VOA samples will be collected using EPA Method 5035A and will include 5 bottles for low level analysis.	
** The laboratory is to use one of the low level VOA bottles for moisture content determination.	
(1) 5035/8260_VOA: LOW LEVEL: COMMON {4-Methyl-2-pentanone};	
LABORATORY SECTION	RECEIVED BY
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD
TITLE	
DATE/TIME	
DISPOSED BY	
DATE/TIME	



SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location:

200-DV-1 C9513 shallow sample 5

Sampler Initials and Date:

Dave Wight
CHPRC

MAY 18 2017

Time 1131

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B39WR4	K	29.68	37.75	8.07
↓	L	29.89	38.13	8.24
	M	29.70	37.89	8.19
	N	29.59	37.25	7.66
	P	29.57	37.99	8.42

¹ Enter sample number associated with the sampling event.

² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 200-DV-1 C9513 shallow sample 6

Sampler Initials and Date: Dave Wight GHPRG MAY 18 2017 Time 1131

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B39WR9	K	29.57	37.47	7.90
↓	L	29.68	38.33	8.65
	M	29.59	37.85	8.26
	N	29.71	37.85	8.14
	P	29.83	38.36	8.53

- ¹ Enter sample number associated with the sampling event.
- ² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.
- ³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.
- ⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F17-009-383	PAGE 1 OF 1
COLLECTOR	Dave Wight CHPRC	COMPANY CONTACT	FITZGERALD, SL	PROJECT COORDINATOR	FITZGERALD, SL
SAMPLING LOCATION	C9513, Shallow Sample 7	PROJECT DESIGNATION	200-DV-1 Operable Unit Characterization of Waste Sites Sampling - Soil 20	PRICE CODE	8H
ICE CHEST NO.	82524	FIELD LOGBOOK NO.	4NF-N-645 5-35	AIR QUALITY	<input type="checkbox"/>
SHIPPED TO	TestAmerica St. Louis	OFFSITE PROPERTY NO.	12-15	METHOD OF SHIPMENT	FEDERAL EXPRESS
					ORIGINAL
					BILL OF LADING/AIR BILL NO. 17791 8336 0290

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	Preservation	Frozen/Cool <-7C and >-20C
A=Air	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/1ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	Holding Time	14 Days
DL=Drum		Type of Container	Gs
DS=Drum		No. of Container(s)	5
L=Liquid		Volume	40mL
O=Oil		Sample Analysis	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
S=Soil		Sample Date	MAY 18 2017
SE=Sediment		Sample Time	1255
T=Tissue			
V=Vegetation			
W=Water			
WI=Wipe			
X=Other			

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM Dave Wight CHPRC		RECEIVED BY/STORED IN SSU-1	DATE/TIME MAY 18 2017 1340
RELINQUISHED BY/REMOVED FROM SSU-1		RECEIVED BY/STORED IN Janelle Zunker CHPRC	DATE/TIME MAY 19 2017 0700
RELINQUISHED BY/REMOVED FROM Janelle Zunker CHPRC		RECEIVED BY/STORED IN FED EX	DATE/TIME MAY 19 2017 1400
RELINQUISHED BY/REMOVED FROM FED EX		RECEIVED BY/STORED IN Kristine Tylkay CHPRC	DATE/TIME MAY 19 2017 0816
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	DATE/TIME
LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME



SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 200-DV-1 C9513 shallow Sample 7

Sampler Initials and Date: Dave Wight
CHPRC MAY 18 2017 Time 1255

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B39WT4	K	29.95	37.87	7.92
↓	L	29.89	38.42	8.53
	M	29.65	37.60	7.95
	N	29.93	37.75	7.82
	P	29.58	37.79	8.21

¹ Enter sample number associated with the sampling event.

² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.

³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.

⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F17-009-386	PAGE 1 OF 1
COLLECTOR	Dave Wight CHPRC	COMPANY CONTACT	FITZGERALD, SL	PROJECT COORDINATOR	FITZGERALD, SL
SAMPLING LOCATION	C9513, Shallow Sample 7 FTB	PROJECT DESIGNATION	200-DV-1 Operable Unit Characterization of Waste Sites Sampling - Soil 20	SAF NO.	F17-009
ICE CHEST NO.	GWS-400	FIELD LOG/BOOK NO.	35	COA	302632
SHIPPED TO	TestAmerica St. Louis	OFFSITE PROPERTY NO.	7791	BILL OF LADING/AIR BILL NO.	83360290

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESCRIPTION	Frozen/Cool <-7C and >- 20C
A=Air	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	HOLDING TIME	14 Days
DL=Drum		TYPE OF CONTAINER	Gs
DS=Drum		NO. OF CONTAINER(S)	5
L=Liquid		VOLUME	40ml
O=Oil		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
S=Soil		SAMPLE DATE	MAY 18 2017
SE=Sediment		SAMPLE TIME	1225
T=Tissue			
V=Vegetation			
W=Water			
WF=Wipe			
X=Other			

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM CHPRC	SSU-1	MAY 18 2017	RECEIVED BY/STORED IN Janelle Zunker CHPRC	MAY 18 2017 1340
RELINQUISHED BY/REMOVED FROM SSU-1	Janelle Zunker CHPRC	MAY 19 2017 0700	RECEIVED BY/STORED IN FEDEX	MAY 19 2017 0700
RELINQUISHED BY/REMOVED FROM			RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM			RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM			RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM			RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM			RECEIVED BY/STORED IN	
LABORATORY SECTION	RECEIVED BY	DATE/TIME	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DATE/TIME	DISPOSED BY	DATE/TIME



SAMPLE RECORD SHEET FOR VOC SAMPLE COLLECTION

Location: 200-DV-1 C9513 shallow Sample 7

Sampler Initials and Date: Dave Wight
CHPRC MAY 18 2017

Sample Number ¹	Sample Suffix	Initial Weight ² (grams)	Total Weight ³ (grams)	Soil Weight ⁴ (grams)
B39WT7	K	29.51	37.95	8.44
↓	L	29.66	38.79	9.13
	M	29.84	36.42	6.58
	N	29.55	37.70	8.15
	P	29.74	37.39	7.65

- ¹ Enter sample number associated with the sampling event.
- ² Initial weight is to include all labels, stickers, bags, spin bars (for samples with suffix K, L, M, N and P) and anything else that will be associated with the bottle when it is weighed with the sample.
- ³ Ensure that everything weighed for the empty bottle and no additional items (besides the sample) is weighed.
- ⁴ Soil weight is the vial with sample minus Initial Weight.

A-6005-526 (REV 0)



FedEx® Tracking

779183376531

Ship date:

Fri 5/19/2017

RICHLAND, WA US

Actual delivery:

Sat 5/20/2017 8:24 am

EARTH CITY, MO US

Delivered

Signed for by: J. CLARKE

Travel History

Date/Time	Activity	Location
5/20/2017 - Saturday		
8:24 am	Delivered	EARTH CITY, MO
7:33 am	On FedEx vehicle for delivery	EARTH CITY, MO
7:30 am	At local FedEx facility	EARTH CITY, MO
5:52 am	At destination sort facility	BERKELEY, MO
4:47 am	Departed FedEx location	MEMPHIS, TN
12:43 am	Arrived at FedEx location	MEMPHIS, TN
5/19/2017 - Friday		
4:46 pm	Left FedEx origin facility	PASCO, WA
3:17 pm	Picked up	PASCO, WA
10:21 am	Shipment information sent to FedEx	

Shipment Facts

Tracking number	779183376531	Service	FedEx Priority Overnight
Weight	55 lbs / 24.95 kgs	Delivered To	Shipping/Receiving
Total pieces	1	Total shipment weight	55 lbs / 24.95 kgs
Terms	Recipient	Shipper reference	GWS-392
Packaging	Your Packaging	Special handling section	For Saturday Delivery
Standard transit	5/20/2017 by 12:00 pm		



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779183360290

Ship date: Fri 5/19/2017

Actual delivery: Sat 5/20/2017 8:24 am

RICHLAND, WA US

Delivered Signed for by: J. CLARKE

EARTH CITY, MO US

Travel History

Table with columns: Date/Time, Activity, Location. Rows include dates 5/20/2017 - Saturday and 5/19/2017 - Friday with various activity logs.

Shipment Facts

Table with columns: Tracking number, Weight, Total pieces, Terms, Packaging, Standard transit, Service, Delivered To, Total shipment weight, Shipper reference, Special handling section.



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Ask FedEx

Client: CH2M Hill Plateau Remediation Company
 Project/Site: F17-009

TestAmerica Job ID: 160-22439-1
 SDG: SL2524

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
T	MS, MSD: Recovery exceeds upper or lower control limits.
U	Analyzed for but not detected.
y	Duplicate analysis not within control limits.

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: F17-009

TestAmerica Job ID: 160-22439-1
SDG: SL2524

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

Protocol References:

EPA = US Environmental Protection Agency
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



~~06/08/2017~~
Sample Summary

REV. 1

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-22439-1
SDG: SL2524

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-22439-1	B39WN4	Soil	05/18/17 10:22	05/20/17 08:40
160-22439-2	B39WN9	Soil	05/18/17 10:22	05/20/17 08:40
160-22439-3	B39WP4	Soil	05/18/17 10:22	05/20/17 08:40
160-22439-4	B39WP9	Soil	05/18/17 11:31	05/20/17 08:40
160-22439-5	B39WR0	Soil	05/18/17 11:31	05/20/17 08:40
160-22439-6	B39WR4	Soil	05/18/17 11:31	05/20/17 08:40
160-22439-7	B39WR9	Soil	05/18/17 11:31	05/20/17 08:40
160-22439-8	B39WT4	Soil	05/18/17 12:55	05/20/17 08:40
160-22439-9	B39WT7	Soil	05/18/17 12:55	05/20/17 08:40



06/08/2017
Client Sample Results

REV. 1

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-22439-1
SDG: SL2524

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

Client Sample ID: B39WN4
Date Collected: 05/18/17 10:22
Date Received: 05/20/17 08:40

Lab Sample ID: 160-22439-1
Matrix: Soil
Percent Solids: 95.0

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	0.53	U T	15	0.53	ug/Kg	☼	05/23/17 20:30	05/23/17 23:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		67 - 132				05/23/17 20:30	05/23/17 23:23	1
4-Bromofluorobenzene (Surr)	81		59 - 150				05/23/17 20:30	05/23/17 23:23	1
Dibromofluoromethane (Surr)	90		53 - 143				05/23/17 20:30	05/23/17 23:23	1
Toluene-d8 (Surr)	87		74 - 135				05/23/17 20:30	05/23/17 23:23	1

Client Sample ID: B39WN9
Date Collected: 05/18/17 10:22
Date Received: 05/20/17 08:40

Lab Sample ID: 160-22439-2
Matrix: Soil
Percent Solids: 93.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	0.53	U T	14	0.53	ug/Kg	☼	05/23/17 20:30	05/23/17 23:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		67 - 132				05/23/17 20:30	05/23/17 23:48	1
4-Bromofluorobenzene (Surr)	101		59 - 150				05/23/17 20:30	05/23/17 23:48	1
Dibromofluoromethane (Surr)	106		53 - 143				05/23/17 20:30	05/23/17 23:48	1
Toluene-d8 (Surr)	103		74 - 135				05/23/17 20:30	05/23/17 23:48	1

Client Sample ID: B39WP4
Date Collected: 05/18/17 10:22
Date Received: 05/20/17 08:40

Lab Sample ID: 160-22439-3
Matrix: Soil
Percent Solids: 94.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	0.55	U T	15	0.55	ug/Kg	☼	05/23/17 20:30	05/24/17 00:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		67 - 132				05/23/17 20:30	05/24/17 00:13	1
4-Bromofluorobenzene (Surr)	100		59 - 150				05/23/17 20:30	05/24/17 00:13	1
Dibromofluoromethane (Surr)	104		53 - 143				05/23/17 20:30	05/24/17 00:13	1
Toluene-d8 (Surr)	103		74 - 135				05/23/17 20:30	05/24/17 00:13	1

Client Sample ID: B39WP9
Date Collected: 05/18/17 11:31
Date Received: 05/20/17 08:40

Lab Sample ID: 160-22439-4
Matrix: Soil
Percent Solids: 93.0

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	0.53	U T	14	0.53	ug/Kg	☼	05/23/17 20:30	05/24/17 00:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		67 - 132				05/23/17 20:30	05/24/17 00:38	1
4-Bromofluorobenzene (Surr)	99		59 - 150				05/23/17 20:30	05/24/17 00:38	1
Dibromofluoromethane (Surr)	106		53 - 143				05/23/17 20:30	05/24/17 00:38	1
Toluene-d8 (Surr)	103		74 - 135				05/23/17 20:30	05/24/17 00:38	1

Client Sample ID: B39WR0
Date Collected: 05/18/17 11:31
Date Received: 05/20/17 08:40

Lab Sample ID: 160-22439-5
Matrix: Soil
Percent Solids: 100.0

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	0.54	U T	15	0.54	ug/Kg	☼	05/23/17 20:30	05/24/17 01:53	1

TestAmerica St. Louis

06/08/2017
Client Sample Results

REV. 1

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-009

TestAmerica Job ID: 160-22439-1
SDG: SL2524

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		67 - 132	05/23/17 20:30	05/24/17 01:53	1
4-Bromofluorobenzene (Surr)	94		59 - 150	05/23/17 20:30	05/24/17 01:53	1
Dibromofluoromethane (Surr)	97		53 - 143	05/23/17 20:30	05/24/17 01:53	1
Toluene-d8 (Surr)	94		74 - 135	05/23/17 20:30	05/24/17 01:53	1

Client Sample ID: B39WR4
Date Collected: 05/18/17 11:31
Date Received: 05/20/17 08:40

Lab Sample ID: 160-22439-6
Matrix: Soil
Percent Solids: 93.6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	0.51	U T	14	0.51	ug/Kg	☼	05/23/17 20:30	05/24/17 02:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		67 - 132	05/23/17 20:30	05/24/17 02:18	1
4-Bromofluorobenzene (Surr)	104		59 - 150	05/23/17 20:30	05/24/17 02:18	1
Dibromofluoromethane (Surr)	103		53 - 143	05/23/17 20:30	05/24/17 02:18	1
Toluene-d8 (Surr)	106		74 - 135	05/23/17 20:30	05/24/17 02:18	1

Client Sample ID: B39WR9
Date Collected: 05/18/17 11:31
Date Received: 05/20/17 08:40

Lab Sample ID: 160-22439-7
Matrix: Soil
Percent Solids: 93.1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	0.50	U T	14	0.50	ug/Kg	☼	05/23/17 20:30	05/24/17 02:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		67 - 132	05/23/17 20:30	05/24/17 02:43	1
4-Bromofluorobenzene (Surr)	101		59 - 150	05/23/17 20:30	05/24/17 02:43	1
Dibromofluoromethane (Surr)	101		53 - 143	05/23/17 20:30	05/24/17 02:43	1
Toluene-d8 (Surr)	102		74 - 135	05/23/17 20:30	05/24/17 02:43	1

Client Sample ID: B39WT4
Date Collected: 05/18/17 12:55
Date Received: 05/20/17 08:40

Lab Sample ID: 160-22439-8
Matrix: Soil
Percent Solids: 93.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	0.49	U T	14	0.49	ug/Kg	☼	05/23/17 20:30	05/24/17 03:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		67 - 132	05/23/17 20:30	05/24/17 03:08	1
4-Bromofluorobenzene (Surr)	113		59 - 150	05/23/17 20:30	05/24/17 03:08	1
Dibromofluoromethane (Surr)	112		53 - 143	05/23/17 20:30	05/24/17 03:08	1
Toluene-d8 (Surr)	114		74 - 135	05/23/17 20:30	05/24/17 03:08	1

Client Sample ID: B39WT7
Date Collected: 05/18/17 12:55
Date Received: 05/20/17 08:40

Lab Sample ID: 160-22439-9
Matrix: Soil
Percent Solids: 100.0

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	0.55	U T	15	0.55	ug/Kg	☼	05/23/17 20:30	05/24/17 03:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		67 - 132	05/23/17 20:30	05/24/17 03:32	1
4-Bromofluorobenzene (Surr)	101		59 - 150	05/23/17 20:30	05/24/17 03:32	1
Dibromofluoromethane (Surr)	109		53 - 143	05/23/17 20:30	05/24/17 03:32	1
Toluene-d8 (Surr)	103		74 - 135	05/23/17 20:30	05/24/17 03:32	1

TestAmerica St. Louis

Client: CH2M Hill Plateau Remediation Company
 Project/Site: F17-009

TestAmerica Job ID: 160-22439-1
 SDG: SL2524

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

Lab Sample ID: MB 160-310166/1-A
Matrix: Solid
Analysis Batch: 310159

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 310166

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	0.73	U	20	0.73	ug/Kg		05/23/17 17:18	05/23/17 19:13	1

Surrogate	%Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		67 - 132	05/23/17 17:18	05/23/17 19:13	1
4-Bromofluorobenzene (Surr)	98		59 - 150	05/23/17 17:18	05/23/17 19:13	1
Dibromofluoromethane (Surr)	98		53 - 143	05/23/17 17:18	05/23/17 19:13	1
Toluene-d8 (Surr)	101		74 - 135	05/23/17 17:18	05/23/17 19:13	1

Lab Sample ID: LCS 160-310166/2-A
Matrix: Solid
Analysis Batch: 310159

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 310166

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
4-Methyl-2-pentanone (MIBK)	50.0	53.3		ug/Kg		107	67 - 130

Surrogate	%Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		67 - 132
4-Bromofluorobenzene (Surr)	102		59 - 150
Dibromofluoromethane (Surr)	93		53 - 143
Toluene-d8 (Surr)	101		74 - 135

Lab Sample ID: LCSD 160-310166/3-A
Matrix: Solid
Analysis Batch: 310159

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310166

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
4-Methyl-2-pentanone (MIBK)	50.0	52.7		ug/Kg		105	67 - 130	1	20

Surrogate	%Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		67 - 132
4-Bromofluorobenzene (Surr)	101		59 - 150
Dibromofluoromethane (Surr)	92		53 - 143
Toluene-d8 (Surr)	102		74 - 135

Lab Sample ID: 160-22439-4 MS
Matrix: Soil
Analysis Batch: 310159

Client Sample ID: B39WP9
Prep Type: Total/NA
Prep Batch: 310166

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
4-Methyl-2-pentanone (MIBK)	0.53	U T	37.8	37.7		ug/Kg	☼	100	73 - 125

Surrogate	%Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		67 - 132
4-Bromofluorobenzene (Surr)	103		59 - 150
Dibromofluoromethane (Surr)	94		53 - 143
Toluene-d8 (Surr)	100		74 - 135

Client: CH2M Hill Plateau Remediation Company
 Project/Site: F17-009

TestAmerica Job ID: 160-22439-1
 SDG: SL2524

GC/MS VOA

Analysis Batch: 310159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-22439-1	B39WN4	Total/NA	Soil	8260C	310166
160-22439-2	B39WN9	Total/NA	Soil	8260C	310166
160-22439-3	B39WP4	Total/NA	Soil	8260C	310166
160-22439-4	B39WP9	Total/NA	Soil	8260C	310166
160-22439-5	B39WR0	Total/NA	Soil	8260C	310166
160-22439-6	B39WR4	Total/NA	Soil	8260C	310166
160-22439-7	B39WR9	Total/NA	Soil	8260C	310166
160-22439-8	B39WT4	Total/NA	Soil	8260C	310166
160-22439-9	B39WT7	Total/NA	Soil	8260C	310166
MB 160-310166/1-A	Method Blank	Total/NA	Solid	8260C	310166
LCS 160-310166/2-A	Lab Control Sample	Total/NA	Solid	8260C	310166
LCSD 160-310166/3-A	Lab Control Sample Dup	Total/NA	Solid	8260C	310166
160-22439-4 MS	B39WP9	Total/NA	Soil	8260C	310166
160-22439-4 MSD	B39WP9	Total/NA	Soil	8260C	310166

Prep Batch: 310166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-22439-1	B39WN4	Total/NA	Soil	5035	
160-22439-2	B39WN9	Total/NA	Soil	5035	
160-22439-3	B39WP4	Total/NA	Soil	5035	
160-22439-4	B39WP9	Total/NA	Soil	5035	
160-22439-5	B39WR0	Total/NA	Soil	5035	
160-22439-6	B39WR4	Total/NA	Soil	5035	
160-22439-7	B39WR9	Total/NA	Soil	5035	
160-22439-8	B39WT4	Total/NA	Soil	5035	
160-22439-9	B39WT7	Total/NA	Soil	5035	
MB 160-310166/1-A	Method Blank	Total/NA	Solid	5035	
LCS 160-310166/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 160-310166/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	
160-22439-4 MS	B39WP9	Total/NA	Soil	5035	
160-22439-4 MSD	B39WP9	Total/NA	Soil	5035	

General Chemistry

Analysis Batch: 310490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-22439-1	B39WN4	Total/NA	Soil	Moisture	
160-22439-2	B39WN9	Total/NA	Soil	Moisture	
160-22439-3	B39WP4	Total/NA	Soil	Moisture	
160-22439-4	B39WP9	Total/NA	Soil	Moisture	
160-22439-5	B39WR0	Total/NA	Soil	Moisture	
160-22439-6	B39WR4	Total/NA	Soil	Moisture	
160-22439-7	B39WR9	Total/NA	Soil	Moisture	
160-22439-8	B39WT4	Total/NA	Soil	Moisture	
160-22439-9	B39WT7	Total/NA	Soil	Moisture	
160-22439-1 DU	B39WN4	Total/NA	Soil	Moisture	

Client: CH2M Hill Plateau Remediation Company
 Project/Site: F17-009

TestAmerica Job ID: 160-22439-1
 SDG: SL2524

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

Matrix: Soil

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (67-132)	BFB (59-150)	DBFM (53-143)	TOL (74-135)
160-22439-1	B39WN4	92	81	90	87
160-22439-2	B39WN9	106	101	106	103
160-22439-3	B39WP4	104	100	104	103
160-22439-4	B39WP9	108	99	106	103
160-22439-4 MS	B39WP9	93	103	94	100
160-22439-4 MSD	B39WP9	118	140	121	132
160-22439-5	B39WR0	98	94	97	94
160-22439-6	B39WR4	104	104	103	106
160-22439-7	B39WR9	103	101	101	102
160-22439-8	B39WT4	114	113	112	114
160-22439-9	B39WT7	115	101	109	103

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: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (67-132)	BFB (59-150)	DBFM (53-143)	TOL (74-135)
LCS 160-310166/2-A	Lab Control Sample	90	102	93	101
LCSD 160-310166/3-A	Lab Control Sample Dup	90	101	92	102
MB 160-310166/1-A	Method Blank	97	98	98	101

Surrogate Legend

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