

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Richland
2800 George Washington Way
Richland, WA 99352
Tel: (509)375-3131

TestAmerica Job ID: 300-3000-1
TestAmerica Sample Delivery Group: WC1050
Client Project/Site: F16-020

For:
CH2M Hill Plateau Remediation Company
PO BOX 1600
Mail Stop R3-50
Richland, Washington 99352

Attn: CPP Sample Management



Authorized for release by:
6/6/2016 4:10:46 PM
Steven Campbell, Quality Assurance Assistant
steven.campbell@testamericainc.com

Designee for
Whitney Ritari, Project Manager I
(509)375-3131 ext164
whitney.ritari@testamericainc.com

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed in this package. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the attached signature.

The laboratory is accredited to EPA 7196A in Solid and Chemical Materials, per Washington State Department of Ecology this is approved for non-discharge water samples. The sample/ sample duplicate RPD agreement is not applicable if one or both results are less than five times the MDL.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13



LINKS

Review your project results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-020

TestAmerica Job ID: 300-3000-1
SDG: WC1050



Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Chain of Custody	5
Detection Summary	8
Client Sample Results	9
QC Sample Results	10
QC Association Summary	11
Lab Chronicle	12
Method Summary	14
Sample Summary	15
Receipt Checklists	16

Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
 Project/Site: F16-020

TestAmerica Job ID: 300-3000-1
 SDG: WC1050

Qualifiers

General Chemistry

Qualifier	Qualifier Description
U	Analyzed for but not detected.
D	The reported value is from a dilution.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
⊞	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, 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)



Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-020

TestAmerica Job ID: 300-3000-1
SDG: WC1050

Job ID: 300-3000-1

Laboratory: TestAmerica Richland

Narrative

**Job Narrative
300-3000-1**

Comments

No additional comments.

Receipt

The samples were received on 5/5/2016 3:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 19.5° C.

General Chemistry

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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

SAMPLE ISSUE RESOLUTION

SIR NUM	SIR16-359
REV NUM	0
DATE INITIATED	5/18/2016

SAMPLE EVENT INFORMATION

SAF NUM(S) F16-020
OPERABLE UNIT(S) 200-DV-1
PROJECT(S) 200-DV-1
SAMPLE EVENT TITLE(S) 200-DV-1 OU Waste Sites
LABORATORY TestAmerica Incorporated, Richland

SAMPLING INFORMATION

NUMBER OF SAMPLES 3
SAMPLE NUMBERS B354H6, B35531, B35597
SAMPLE MATRIX SOIL
COLLECTION DATE 5/4/2016 - 5/5/2016
SDG NUM W07465, WC1050

ISSUE BACKGROUND

CLASS Chain of Custody Issue (Field)
TYPE Broken Chain of Custody
DESCRIPTION
 COC F16-020-693 SAMPLE B354H6
 NO SAMPLE DEPTH UNITS, COLLECTOR RELINQUISHED SAMPLE 1 DAY AFTER SAMPLE DATE WITHOUT GOING TO STORAGE.
 COC F16-020-696 SAMPLE B35531
 NO SAMPLE DEPTH UNITS
 COC F16-020-698 SAMPLE B35597
 NO SAMPLE DEPTH UNITS, CROSS OUT NOT INITIALED AND DATED

DISPOSITION

DESCRIPTION DOCUMENT AND CLOSE
JUSTIFICATION DOCUMENT AND CLOSE

SUBMITTED BY: Gayelyn Gibson DATE: 05/09/2016
 ACCEPTED BY: Kirsten Killand DATE: 05/18/2016



CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

COLLECTOR: *Antonio J. Santos*

SAMPLING LOCATION: C9552, Core 10, B34195

ICE CHEST NO.: *N/A*

SHIPPED TO: TestAmerica Incorporated, Richland

COMPANY CONTACT: TODAY, D 376-6427

PROJECT DESIGNATION: 200-DV-1 Operable Unit Characterization of Waste Sites Phase 3 Sampling

FIELD LOGBOOK NO.: *N/A*

OFFSITE PROPERTY NO.: *N/A*

ACTUAL SAMPLE DEPTH: 85.7 - 86.2

PROJECT COORDINATOR: TODAY, D

SAF NO.: F16-020

COA: 302632

BILL OF LADING/AIR BILL NO.: *N/A*

F16-020-698

PRICE CODE: 8H

AIR QUALITY:

METHOD OF SHIPMENT: ~~GOVERNMENT VEHICLE~~ **ORIGINAL**

PAGE 1 OF 1

DATA TURNAROUND: 30 Days / 30 Days

SAMPLE NO.	MATRIX*	SPECIAL HANDLING AND/OR STORAGE	SAMPLE DATE	SAMPLE TIME	NO. OF CONTAINER(S)		VOLUME	TYPE OF CONTAINER	PRESERVATION	HOLDING TIME	NO. OF CONTAINER(S)	VOLUME	TYPE OF CONTAINER
					1	1							
B35597	SOIL	<i>N/A</i>	<i>5-5-16</i>	<i>1200</i>	<i>X</i>	<i>X</i>	60ml	g/p	Cool <=6C	30 Days	1	60ml	g/p
							7196 CR6: COMMON?		None	6 Months	1	500ml	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

Specimens

W01050

30000: W01050

M8L69

6/6/16

CHAIN OF POSSESSION

SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
<i>Antonio Santos</i>	<i>5-5-16/1545</i>	<i>Paul Stobert</i>	<i>5-5-16/1545</i>
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
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

Sample From HEIS #: *B 34195* Actual Aliquot Collection

Depth: *83.7-86.2*

(1) GAMMA_GS: COMMON; AMCMISO_EIE_PLATE_AEA: COMMON;

PUISO_PLATE_AEA: COMMON {Plutonium-238, Plutonium-239/240};

UISO_PLATE_AEA: COMMON {Uranium-233/234, Uranium-235, Uranium-238};

C14_LSC: COMMON; I129_SEP_LEPS_GS: COMMON; NI63_LSC: COMMON; NP237_LLE_PLATE_AEA: COMMON;

SRTOT_SEP_PRECIP_GPC: COMMON {Total beta radiostrontium};

TC99_ETVDSK_LSC: COMMON; TRITIUM_DIST_LSC: COMMON;

LABORATORY SECTION: RECEIVED BY

FINAL SAMPLE DISPOSITION: DISPOSAL METHOD

PRINTED ON 5/4/2016

FSR ID = FSR32132

TRVL NUM = TRVL-16-136

DATE/TIME

DATE/TIME

Detection Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-020

TestAmerica Job ID: 300-3000-1
SDG: WC1050

Client Sample ID: B354H6

Lab Sample ID: 300-3000-1

No Detections.

Client Sample ID: B35531

Lab Sample ID: 300-3000-2

No Detections.

Client Sample ID: B35597

Lab Sample ID: 300-3000-3

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

This Detection Summary does not include radiochemical test results.

TestAmerica Richland

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
 Project/Site: F16-020

TestAmerica Job ID: 300-3000-1
 SDG: WC1050

Client Sample ID: B354H6
Date Collected: 05/04/16 16:30
Date Received: 05/05/16 15:45

Lab Sample ID: 300-3000-1
Matrix: Soil

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.15	U	2.0	0.15	mg/Kg	-	05/25/16 09:03	05/25/16 17:25	1

Client Sample ID: B35531
Date Collected: 05/05/16 11:30
Date Received: 05/05/16 15:45

Lab Sample ID: 300-3000-2
Matrix: Soil

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.15	U	2.0	0.15	mg/Kg	-	05/25/16 09:03	05/25/16 17:25	1

Client Sample ID: B35597
Date Collected: 05/05/16 12:00
Date Received: 05/05/16 15:45

Lab Sample ID: 300-3000-3
Matrix: Soil

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.15	U	2.0	0.15	mg/Kg	-	05/25/16 09:03	05/25/16 17:25	1



QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-020

TestAmerica Job ID: 300-3000-1
SDG: WC1050

Method: 7196A - Chromium, Hexavalent

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Lab Sample ID: MB 300-4306/1-A
Matrix: Solid
Analysis Batch: 4358

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 4306

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.15	U	2.0	0.15	mg/Kg		05/25/16 09:03	05/25/16 17:25	1

Lab Sample ID: LCS 300-4306/2-A
Matrix: Solid
Analysis Batch: 4358

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 4306

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	20.0	19.50		mg/Kg		98	85 - 115

Lab Sample ID: 300-3025-A-1-B MS
Matrix: Solid
Analysis Batch: 4358

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 4306

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.15	U	30.0	26.98		mg/Kg		90	75 - 125

Lab Sample ID: 300-3025-A-1-D MSI
Matrix: Solid
Analysis Batch: 4358

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 4306

Analyte	Sample Result	Sample Qualifier	Spike Added	MSI Result	MSI Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.15	U	714	731.9	D	mg/Kg		102	

Lab Sample ID: 300-3025-A-1-C DU
Matrix: Solid
Analysis Batch: 4358

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 4306

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cr (VI)	0.15	U	0.15	U	mg/Kg		NC	35

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
 Project/Site: F16-020

TestAmerica Job ID: 300-3000-1
 SDG: WC1050

General Chemistry

Prep Batch: 4306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3000-1	B354H6	Total/NA	Soil	3060A	
300-3000-2	B35531	Total/NA	Soil	3060A	
300-3000-3	B35597	Total/NA	Soil	3060A	
300-3025-A-1-B MS	Matrix Spike	Total/NA	Solid	3060A	
300-3025-A-1-C DU	Duplicate	Total/NA	Solid	3060A	
300-3025-A-1-D MSI	Matrix Spike	Total/NA	Solid	3060A	
LCS 300-4306/2-A	Lab Control Sample	Total/NA	Solid	3060A	
MB 300-4306/1-A	Method Blank	Total/NA	Solid	3060A	

Analysis Batch: 4358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3000-1	B354H6	Total/NA	Soil	7196A	4306
300-3000-2	B35531	Total/NA	Soil	7196A	4306
300-3000-3	B35597	Total/NA	Soil	7196A	4306
300-3025-A-1-B MS	Matrix Spike	Total/NA	Solid	7196A	4306
300-3025-A-1-C DU	Duplicate	Total/NA	Solid	7196A	4306
300-3025-A-1-D MSI	Matrix Spike	Total/NA	Solid	7196A	4306
LCS 300-4306/2-A	Lab Control Sample	Total/NA	Solid	7196A	4306
MB 300-4306/1-A	Method Blank	Total/NA	Solid	7196A	4306



Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-020

TestAmerica Job ID: 300-3000-1
SDG: WC1050

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Client Sample ID: B354H6

Lab Sample ID: 300-3000-1

Date Collected: 05/04/16 16:30

Matrix: Soil

Date Received: 05/05/16 15:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3060A			2.5035 g	100 mL	4306	05/25/16 09:03	HR	TAL RCH
Total/NA	Analysis	7196A		1	2.5035 g	100 mL	4358	05/25/16 17:25	TDA	TAL RCH

Client Sample ID: B35531

Lab Sample ID: 300-3000-2

Date Collected: 05/05/16 11:30

Matrix: Soil

Date Received: 05/05/16 15:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3060A			2.5183 g	100 mL	4306	05/25/16 09:03	HR	TAL RCH
Total/NA	Analysis	7196A		1	2.5183 g	100 mL	4358	05/25/16 17:25	TDA	TAL RCH

Client Sample ID: B35597

Lab Sample ID: 300-3000-3

Date Collected: 05/05/16 12:00

Matrix: Soil

Date Received: 05/05/16 15:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3060A			2.5155 g	100 mL	4306	05/25/16 09:03	HR	TAL RCH
Total/NA	Analysis	7196A		1	2.5155 g	100 mL	4358	05/25/16 17:25	TDA	TAL RCH

Client Sample ID: Duplicate

Lab Sample ID: 300-3025-A-1-C DU

Date Collected: 05/09/16 16:30

Matrix: Solid

Date Received: 05/10/16 16:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3060A			2.5019 g	100 mL	4306	05/25/16 09:03	HR	TAL RCH
Total/NA	Analysis	7196A		1	2.5019 g	100 mL	4358	05/25/16 17:25	TDA	TAL RCH

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 300-4306/2-A

Date Collected: N/A

Matrix: Solid

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	3060A			2.5 g	100 mL	4306	05/25/16 09:03	HR	TAL RCH
Total/NA	Analysis	7196A		1	2.5 g	100 mL	4358	05/25/16 17:25	TDA	TAL RCH

Client Sample ID: Method Blank

Lab Sample ID: MB 300-4306/1-A

Date Collected: N/A

Matrix: Solid

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	3060A			2.5 g	100 mL	4306	05/25/16 09:03	HR	TAL RCH
Total/NA	Analysis	7196A		1	2.5 g	100 mL	4358	05/25/16 17:25	TDA	TAL RCH

TestAmerica Richland

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
 Project/Site: F16-020

TestAmerica Job ID: 300-3000-1
 SDG: WC1050

Client Sample ID: Matrix Spike

Lab Sample ID: 300-3025-A-1-B MS

Date Collected: 05/09/16 16:30

Matrix: Solid

Date Received: 05/10/16 16:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3060A			2.5025 g	100 mL	4306	05/25/16 09:03	HR	TAL RCH
Total/NA	Analysis	7196A		1	2.5025 g	100 mL	4358	05/25/16 17:25	TDA	TAL RCH

Client Sample ID: Matrix Spike

Lab Sample ID: 300-3025-A-1-D MSI

Date Collected: 05/09/16 16:30

Matrix: Solid

Date Received: 05/10/16 16:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3060A			2.5006 g	100 mL	4306	05/25/16 09:03	HR	TAL RCH
Total/NA	Analysis	7196A		20	2.5006 g	100 mL	4358	05/25/16 17:25	TDA	TAL RCH

Laboratory References:

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131



Method Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-020

TestAmerica Job ID: 300-3000-1
SDG: WC1050

Method	Method Description	Protocol	Laboratory
7196A	Chromium, Hexavalent	SW846	TAL RCH

Protocol References:

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

Laboratory References:

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131



Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-020

TestAmerica Job ID: 300-3000-1
SDG: WC1050

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-3000-1	B354H6	Soil	05/04/16 16:30	05/05/16 15:45
300-3000-2	B35531	Soil	05/05/16 11:30	05/05/16 15:45
300-3000-3	B35597	Soil	05/05/16 12:00	05/05/16 15:45



Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-3000-1
SDG Number: WC1050

Login Number: 3000
List Number: 1
Creator: Bock, Julie A

List Source: TestAmerica Richland

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.	N/A	
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.	False	Asked client about ice, indicated he had just taken samples out of fridge.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13