

April 11, 2016

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

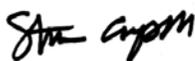
## ANALYTICAL REPORT

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

TestAmerica Job ID: 300-2648-1  
TestAmerica Sample Delivery Group: WC0935  
Client Project/Site: F15-011

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

Attn: CPP Sample Management



Authorized for release by:  
4/11/2016 11:15:29 AM  
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*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 elss than five times the MDL.*



### LINKS

Review your project results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

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Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: F15-011

TestAmerica Job ID: 300-2648-1  
 SDG: WC0935

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: F15-011

TestAmerica Job ID: 300-2648-1  
SDG: WC0935

Job ID: 300-2648-1

Laboratory: TestAmerica Richland

Narrative

Job Narrative  
300-2648-1

Comments

This job is associated with SDG # W07421. No additional comments.

Receipt

The sample was received on 3/21/2016 3:10 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.6° C.

General Chemistry

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

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CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-011-517	PAGE 1 OF 1
COLLECTOR DL Floyd/CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION C9506, I-003	PROJECT DESIGNATION 200-DV-1 Operable Unit Characterization of Waste Sites - Soil	FIELD LOGBOOK NO. HNF-N-645-3/51	ACTUAL SAMPLE DEPTH 10.0 to 12.5 ft	SAF NO. F15-011	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO.	OFFSITE PROPERTY NO.	COA 302632	METHOD OF SHIPMENT GOVERNMENT VEHICLE	<b>ORIGINAL</b>	
SHIPPED TO TestAmerica Incorporated, Richland		BILL OF LADING/AIR BILL NO.			

MATRIX*	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINERS(S)	VOLUME	SAMPLE ANALYSIS
MATRIX* A=Air DL=Drum L=Liquid DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Water X=Other	Cool <=6C None	30 Days 6 Months	G/P G/P	1 1	60ml 500ml	7196, 016: COMMON: SEE ITEM (1) IN SPECIAL INSTRUCTIONS
*Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/1ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1, NA						
SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TITR-B33W40- 3-18-16						
SAMPLE NO. B33W40	MATRIX*	SAMPLE DATE	SAMPLE TIME			
	SOIL	MAR 18 2016	0900			

300-2648 CO



Handwritten notes: 42049, WCO935, Da 4-5-16

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
DL Floyd/CHPRC	MAR 18 2016		RECEIVED BY/STORED IN SSV E 1	MAR 18 2016
RELINQUISHED BY/REMOVED FROM SSV #1	MAR 21 2016		RECEIVED BY/STORED IN Troy Bacon	MAR 21 2016
RELINQUISHED BY/REMOVED FROM Troy Bacon	MAR 21 2016		RECEIVED BY/STORED IN CHPRC	MAR 21 2016
RELINQUISHED BY/REMOVED FROM CHPRC	MAR 21 2016		RECEIVED BY/STORED IN L Anderson, TARI	MAR 21 2016
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

TRVL-16-025  
 (1) GAMMA GS: COMMON; AMCMISO\_EIE\_PLATE\_AEA: COMMON;  
 PUSO\_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 DATE/TIME

FINAL SAMPLE DISPOSITION DISPOSAL METHOD DATE/TIME

PRINTED ON 11/16/2015 FSR ID = FSR9977 TRVL NUM = TRVL-16-025

**April 11, 2016**

**Detection Summary**

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F15-011

TestAmerica Job ID: 300-2648-1  
SDG: WC0935

**Client Sample ID: B33W40**

**Lab Sample ID: 300-2648-1**

No Detections.

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This Detection Summary does not include radiochemical test results.

TestAmerica Richland

Client Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F15-011

TestAmerica Job ID: 300-2648-1  
SDG: WC0935

Client Sample ID: B33W40

Lab Sample ID: 300-2648-1

Date Collected: 03/18/16 09:00

Matrix: Solid

Date Received: 03/21/16 15:10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.15	U	2.0	0.15	mg/Kg		04/08/16 11:17	04/08/16 12:50	1

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QC Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F15-011

TestAmerica Job ID: 300-2648-1  
SDG: WC0935

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 300-3737/1-A  
Matrix: Solid  
Analysis Batch: 3744

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 3737

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.15	U	2.0	0.15	mg/Kg		04/08/16 11:17	04/08/16 12:16	1

Lab Sample ID: LCS 300-3737/2-A  
Matrix: Solid  
Analysis Batch: 3744

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 3737

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	20.0	18.53		mg/Kg		93	85 - 115

Lab Sample ID: 300-2648-1 MS  
Matrix: Solid  
Analysis Batch: 3744

Client Sample ID: B33W40  
Prep Type: Total/NA  
Prep Batch: 3737

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.15	U	29.9	26.73		mg/Kg		89	75 - 125

Lab Sample ID: 300-2648-1 MSI  
Matrix: Solid  
Analysis Batch: 3744

Client Sample ID: B33W40  
Prep Type: Total/NA  
Prep Batch: 3737

Analyte	Sample Result	Sample Qualifier	Spike Added	MSI Result	MSI Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.15	U	699	732.1	D	mg/Kg		105	

Lab Sample ID: 300-2648-1 DU  
Matrix: Solid  
Analysis Batch: 3744

Client Sample ID: B33W40  
Prep Type: Total/NA  
Prep Batch: 3737

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: F15-011

TestAmerica Job ID: 300-2648-1  
 SDG: WC0935

General Chemistry

Prep Batch: 3737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-2648-1	B33W40	Total/NA	Solid	3060A	
300-2648-1 DU	B33W40	Total/NA	Solid	3060A	
300-2648-1 MS	B33W40	Total/NA	Solid	3060A	
300-2648-1 MSI	B33W40	Total/NA	Solid	3060A	
LCS 300-3737/2-A	Lab Control Sample	Total/NA	Solid	3060A	
MB 300-3737/1-A	Method Blank	Total/NA	Solid	3060A	

Analysis Batch: 3744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-2648-1	B33W40	Total/NA	Solid	7196A	3737
300-2648-1 DU	B33W40	Total/NA	Solid	7196A	3737
300-2648-1 MS	B33W40	Total/NA	Solid	7196A	3737
300-2648-1 MSI	B33W40	Total/NA	Solid	7196A	3737
LCS 300-3737/2-A	Lab Control Sample	Total/NA	Solid	7196A	3737
MB 300-3737/1-A	Method Blank	Total/NA	Solid	7196A	3737

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Lab Chronicle

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: F15-011

TestAmerica Job ID: 300-2648-1  
 SDG: WC0935

**Client Sample ID: B33W40**

**Lab Sample ID: 300-2648-1**

Date Collected: 03/18/16 09:00

Matrix: Solid

Date Received: 03/21/16 15:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3060A			2.5081 g	100 mL	3737	04/08/16 11:17	HR	TAL RCH
Total/NA	Analysis	7196A		1	2.5081 g	100 mL	3744	04/08/16 12:50	HR	TAL RCH

**Client Sample ID: B33W40**

**Lab Sample ID: 300-2648-1 DU**

Date Collected: 03/18/16 09:00

Matrix: Solid

Date Received: 03/21/16 15:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3060A			2.5041 g	100 mL	3737	04/08/16 11:17	HR	TAL RCH
Total/NA	Analysis	7196A		1	2.5041 g	100 mL	3744	04/08/16 13:25	HR	TAL RCH

**Client Sample ID: Lab Control Sample**

**Lab Sample ID: LCS 300-3737/2-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	3737	04/08/16 11:17	HR	TAL RCH
Total/NA	Analysis	7196A		1	2.5 g	100 mL	3744	04/08/16 12:33	HR	TAL RCH

**Client Sample ID: Method Blank**

**Lab Sample ID: MB 300-3737/1-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	3737	04/08/16 11:17	HR	TAL RCH
Total/NA	Analysis	7196A		1	2.5 g	100 mL	3744	04/08/16 12:16	HR	TAL RCH

**Client Sample ID: B33W40**

**Lab Sample ID: 300-2648-1 MS**

Date Collected: 03/18/16 09:00

Matrix: Solid

Date Received: 03/21/16 15:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3060A			2.5044 g	100 mL	3737	04/08/16 11:17	HR	TAL RCH
Total/NA	Analysis	7196A		1	2.5044 g	100 mL	3744	04/08/16 13:08	HR	TAL RCH

**Client Sample ID: B33W40**

**Lab Sample ID: 300-2648-1 MSI**

Date Collected: 03/18/16 09:00

Matrix: Solid

Date Received: 03/21/16 15:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3060A			2.5087 g	100 mL	3737	04/08/16 11:17	HR	TAL RCH
Total/NA	Analysis	7196A		20	2.5087 g	100 mL	3744	04/08/16 13:42	HR	TAL RCH

**April 11, 2016**

**Lab Chronicle**

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F15-011

TestAmerica Job ID: 300-2648-1  
SDG: WC0935

**Laboratory References:**

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

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Method Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F15-011

TestAmerica Job ID: 300-2648-1  
SDG: WC0935

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

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**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: F15-011

TestAmerica Job ID: 300-2648-1  
SDG: WC0935

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-2648-1	B33W40	Solid	03/18/16 09:00	03/21/16 15:10

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-2648-1

SDG Number: WC0935

Login Number: 2648

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

