

03/23/2018

REV.0

# 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: 300-6898-1  
TestAmerica Sample Delivery Group: WC2789  
Client Project/Site: F17-070

For:  
CH2M Hill Plateau Remediation Company  
825 Jadwin Avenue  
Richland, Washington 99352

Attn: CPP Sample Management



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Authorized for release by:  
3/23/2018 3:36:48 PM

Ashley Worthy, Project Manager I  
(509)375-3131  
[ashley.worthy@testamericainc.com](mailto:ashley.worthy@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



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

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Client: CH2M Hill Plateau Remediation Company  
Project/Site: F17-070TestAmerica Job ID: 300-6898-1  
SDG: WC2789

## Qualifiers

### General Chemistry

Qualifier	Qualifier Description
B	Estimated result. Result is less than the RL, but greater than MDL
U	Analyzed for but not detected.

## 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	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: F17-070

TestAmerica Job ID: 300-6898-1  
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**Job ID: 300-6898-1**

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**Laboratory: TestAmerica Richland**

**Narrative**

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**Job Narrative  
300-6898-1**

**Comments**

No additional comments.

**Receipt**

The sample was received on 3/21/2018 2:30 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.5° C.

**General Chemistry**

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

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CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F17-070-114	PAGE 1 OF 1
COLLECTOR Jeff Tucksen CHPRC	COMPANY CONTACT LYNCH, SA	TELEPHONE NO. 373-5586	PROJECT COORDINATOR LYNCH, SA		REQUIRED TAT 7 Days	
SAMPLING LOCATION CS608, POST DEV		PROJECT DESIGNATION 200-UP-1 Remedial Action Wells Sampling and Analysis - Water		SAF NO. F17-070	<b>ORIGINAL</b>	
ICE CHEST NO. N/A	FIELD LOGBOOK NO. HNF-N-645 <u>6-88</u>	ACTUAL SAMPLE DEPTH <u>296.45</u>	PURCHASE ORDER/CHARGE CODE 300192			
SHIPPED TO TestAmerica Incorporated, Richland		OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

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	<b>POSSIBLE SAMPLE HAZARDS/ REMARKS</b> *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.	<b>PRESERVATION</b>	Cool <=6C
		<b>HOLDING TIME</b>	24 Hours
		<b>TYPE OF CONTAINER</b>	aG
		<b>NO. OF CONTAINER(S)</b>	1
		<b>VOLUME</b>	60mL
<b>SPECIAL HANDLING AND/OR STORAGE</b> N/A		<b>SAMPLE ANALYSIS</b>	7196 CR6: COMMON;

6898  
WC 2789



300-6898 COC

03/23/2018

SAMPLE NO.	FILTERED	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B3H6X1	Yes	WATER	MAR 21 2018	1120	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
Jeff Tucksen CHPRC	MAR 21 2018 1215	Daniel Klug CHPRC	MAR 21 2018 1215	TRVL-18-056; Water samples to be purged until field readings of DO stabilize at or above 7,000 µg/L and REDOX potential is at least 200 rMV
Daniel Klug CHPRC	MAR 21 2018 1430	B. Jorgenson TARL	MAR 21 2018 32148/1430	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F17-070

TestAmerica Job ID: 300-6898-1  
SDG: WC2789

Client Sample ID: B3H6X1

Lab Sample ID: 300-6898-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0022	B	0.0040	0.0015	mg/L	1		7196A	Total/NA

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This Detection Summary does not include radiochemical test results.

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F17-070

TestAmerica Job ID: 300-6898-1  
SDG: WC2789

Client Sample ID: B3H6X1

Lab Sample ID: 300-6898-1

Date Collected: 03/21/18 11:20

Matrix: Water

Date Received: 03/21/18 14:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0022	B	0.0040	0.0015	mg/L			03/21/18 16:24	1

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Client: CH2M Hill Plateau Remediation Company  
 Project/Site: F17-070

TestAmerica Job ID: 300-6898-1  
 SDG: WC2789

**Method: 7196A - Chromium, Hexavalent**

**Lab Sample ID: MB 300-10676/3**  
**Matrix: Water**  
**Analysis Batch: 10676**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L			03/21/18 16:20	1

**Lab Sample ID: LCS 300-10676/4**  
**Matrix: Water**  
**Analysis Batch: 10676**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.250	0.258		mg/L		103	80 - 120

**Lab Sample ID: 300-6898-1 MS**  
**Matrix: Water**  
**Analysis Batch: 10676**

**Client Sample ID: B3H6X1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.0022	B	0.0501	0.0521		mg/L		100	75 - 125

**Lab Sample ID: 300-6898-1 DU**  
**Matrix: Water**  
**Analysis Batch: 10676**

**Client Sample ID: B3H6X1**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cr (VI)	0.0022	B	0.00180	B	mg/L		20	20

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F17-070

TestAmerica Job ID: 300-6898-1  
SDG: WC2789

General Chemistry

Analysis Batch: 10676

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-6898-1	B3H6X1	Total/NA	Water	7196A	
MB 300-10676/3	Method Blank	Total/NA	Water	7196A	
LCS 300-10676/4	Lab Control Sample	Total/NA	Water	7196A	
300-6898-1 MS	B3H6X1	Total/NA	Water	7196A	
300-6898-1 DU	B3H6X1	Total/NA	Water	7196A	

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Client: CH2M Hill Plateau Remediation Company  
Project/Site: F17-070

TestAmerica Job ID: 300-6898-1  
SDG: WC2789

**Client Sample ID: B3H6X1**  
Date Collected: 03/21/18 11:20  
Date Received: 03/21/18 14:30

**Lab Sample ID: 300-6898-1**  
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			10676	03/21/18 16:24	TRH	TAL RCH

**Client Sample ID: Method Blank**  
Date Collected: N/A  
Date Received: N/A

**Lab Sample ID: MB 300-10676/3**  
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			10676	03/21/18 16:20	TRH	TAL RCH

**Client Sample ID: Lab Control Sample**  
Date Collected: N/A  
Date Received: N/A

**Lab Sample ID: LCS 300-10676/4**  
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			10676	03/21/18 16:21	TRH	TAL RCH

**Client Sample ID: B3H6X1**  
Date Collected: 03/21/18 11:20  
Date Received: 03/21/18 14:30

**Lab Sample ID: 300-6898-1 MS**  
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			10676	03/21/18 16:21	TRH	TAL RCH

**Client Sample ID: B3H6X1**  
Date Collected: 03/21/18 11:20  
Date Received: 03/21/18 14:30

**Lab Sample ID: 300-6898-1 DU**  
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			10676	03/21/18 16:24	TRH	TAL RCH

**Laboratory References:**

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

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F17-070

TestAmerica Job ID: 300-6898-1  
SDG: WC2789

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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



Client: CH2M Hill Plateau Remediation Company  
Project/Site: F17-070

TestAmerica Job ID: 300-6898-1  
SDG: WC2789

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<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
300-6898-1	B3H6X1	Water	03/21/18 11:20	03/21/18 14:30

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## Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-6898-1

SDG Number: WC2789

Login Number: 6898

List Number: 1

Creator: Holm, Tina R

List Source: TestAmerica Richland

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