

11/30/2018

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: 300-8850-1

TestAmerica Sample Delivery Group: RL8850-1

Client Project/Site: S19-011

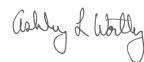
For:

CH2M Hill Plateau Remediation Company

825 Jadwin Avenue

Richland, Washington 99352

Attn: CPP Sample Management



Authorized for release by:

11/30/2018 6:29:57 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.*

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Definitions/Glossary . . . . .	3
Case Narrative . . . . .	4
Chain of Custody . . . . .	5
Detection Summary . . . . .	7
Client Sample Results . . . . .	8
QC Sample Results . . . . .	9
QC Association Summary . . . . .	10
Lab Chronicle . . . . .	11
Method Summary . . . . .	13
Sample Summary . . . . .	14
Receipt Checklists . . . . .	15



Client: CH2M Hill Plateau Remediation Company  
Project/Site: S19-011

TestAmerica Job ID: 300-8850-1  
SDG: RL8850-1

## Qualifiers

### General Chemistry

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

## 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: S19-011

TestAmerica Job ID: 300-8850-1  
SDG: RL8850-1

**Job ID: 300-8850-1**

**Laboratory: TestAmerica Richland**

**Narrative**

**Job Narrative  
300-8850-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 11/29/2018 2:35 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.1° 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

REV.0

11/30/2018

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # S19-011-317	
Collector: Juan Aguilar /CHPRC		Contact/Requester: Karen Waters-Husted		Telephone No.: 509-376-4650			
SAF No.: S19-011		Sampling Origin: Hanford Site		Purchase Order/Charge Code: 300071			
Project Title: SURV, NOVEMBER 2018		Logbook No.: HNF-N-506 -104/41		Ice Chest No.: N/A			
Shipped To (Lab): TestAmerica Incorporated, Rich		Method of Shipment: GOVERNMENT VEHICLE		Bill of Lading/Air Bill No.: N/A			
Protocol: SURV		Priority: 30 Days		Offsite Property No.: N/A			
<b>POSSIBLE SAMPLE HAZARDS/REMARK</b> ** ** 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				<b>SPECIAL INSTRUCTIONS</b> N/A			
Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time
B3LVJ8	Y	W	11-29-18	1015	1x60-mL aG	7196_CR6: COMMON	24 Hours
B3LWM2	N	W	11-29-18	1015	1x60-mL aG	7196_CR6: COMMON	24 Hours
						Preservative	
						Cool <=6C	
						Cool <=6C	

8850



300-8850 COC

11/30/2018  
5 of 15

Page 5 of 15

Relinquished By: Juan Aguilar /CHPRC Print First and Last Name Signature Date/Time			Received By: Roger Friesz Jr. /CHPRC Print First and Last Name Signature Date/Time			<b>Matrix *</b> S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other			
Relinquished By: Roger Friesz Jr. /CHPRC Print First and Last Name Signature Date/Time			Received By: Print First and Last Name Signature Date/Time						
Relinquished By: Print First and Last Name Signature Date/Time			Received By: Print First and Last Name Signature Date/Time						
Relinquished By: Print First and Last Name Signature Date/Time			Received By: Print First and Last Name Signature Date/Time						
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method (e.g., Return to customer, per lab procedure, used in process):				Disposed By:		Date/Time:	



REV.0

11/30/2018

11/30/2018  
6 of 15

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # S19-011-318	
Collector: Juan Aguilar /CHPRC		Contact/Requester: Karen Waters-Husted		Telephone No.: 509-376-4650			
SAF No.: S19-011		Sampling Origin: Hanford Site		Purchase Order/Charge Code: 300071			
Project Title: SURV, NOVEMBER 2018		Logbook No.: HNF-N-506-104141		Ice Chest No.: N/A			
Shipped To (Lab): TestAmerica Incorporated, Rich		Method of Shipment: GOVERNMENT VEHICLE		Bill of Lading/Air Bill No.: N/A			
Protocol: SURV		Priority: 30 Days		Offsite Property No.: N/A			
<b>POSSIBLE SAMPLE HAZARDS/REMARK</b> ** ** 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				<b>SPECIAL INSTRUCTIONS</b> N/A			
Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time
B3LVJ9	Y	W	11-29-18	1134	1x60-mL aG	7196_CR6: COMMON	24 Hours
B3LVH5	N	W	11-29-18	1134	1x60-mL aG	7196_CR6: COMMON	24 Hours
						Preservative	
						Cool <=6C	
						Cool <=6C	

8850

Page 6 of 15

Relinquished By: Juan Aguilar /CHPRC Print First and Last Name Signature Date/Time			Received By: Roger Friesz Jr. /CHPRC Print First and Last Name Signature Date/Time			<b>Matrix *</b> S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other	
Relinquished By: Roger Friesz Jr. /CHPRC Print First and Last Name Signature Date/Time			Received By: [Signature] Print First and Last Name Signature Date/Time				
Relinquished By: Print First and Last Name Signature Date/Time			Received By: Print First and Last Name Signature Date/Time				
Relinquished By: Print First and Last Name Signature Date/Time			Received By: Print First and Last Name Signature Date/Time				
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method (e.g., Return to customer, per lab procedure, used in process):				Disposed By:	Date/Time:

11/30/2018  
**Detection Summary**

REV.0

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S19-011

TestAmerica Job ID: 300-8850-1  
SDG: RL8850-1

**Client Sample ID: B3LVJ8**

**Lab Sample ID: 300-8850-1**

No Detections.

**Client Sample ID: B3LWM2**

**Lab Sample ID: 300-8850-2**

No Detections.

**Client Sample ID: B3LVJ9**

**Lab Sample ID: 300-8850-3**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0033	B	0.0040	0.0015	mg/L	1		7196A	Total/NA

**Client Sample ID: B3LVH5**

**Lab Sample ID: 300-8850-4**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0038	B	0.0040	0.0015	mg/L	1		7196A	Total/NA

This Detection Summary does not include radiochemical test results.

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# Client Sample Results

11/30/2018

REV.0

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S19-011

TestAmerica Job ID: 300-8850-1  
SDG: RL8850-1

**Client Sample ID: B3LVJ8**

**Date Collected: 11/29/18 10:15**

**Date Received: 11/29/18 14:35**

**Lab Sample ID: 300-8850-1**

**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L	-		11/29/18 17:54	1

**Client Sample ID: B3LWM2**

**Date Collected: 11/29/18 10:15**

**Date Received: 11/29/18 14:35**

**Lab Sample ID: 300-8850-2**

**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L	-		11/29/18 17:56	1

**Client Sample ID: B3LVJ9**

**Date Collected: 11/29/18 11:34**

**Date Received: 11/29/18 14:35**

**Lab Sample ID: 300-8850-3**

**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0033	B	0.0040	0.0015	mg/L	-		11/29/18 17:57	1

**Client Sample ID: B3LVH5**

**Date Collected: 11/29/18 11:34**

**Date Received: 11/29/18 14:35**

**Lab Sample ID: 300-8850-4**

**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0038	B	0.0040	0.0015	mg/L	-		11/29/18 17:57	1

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# QC Sample Results

11/30/2018

REV.0

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S19-011

TestAmerica Job ID: 300-8850-1  
SDG: RL8850-1

## Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 300-16227/3

Matrix: Water

Analysis Batch: 16227

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	-		11/29/18 17:44	1

Lab Sample ID: LCS 300-16227/4

Matrix: Water

Analysis Batch: 16227

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	0.252		mg/L	-	101	80 - 120

Lab Sample ID: 300-8848-A-15 MS

Matrix: Water

Analysis Batch: 16227

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.014		0.0501	0.0656		mg/L	-	103	75 - 125

Lab Sample ID: 300-8848-A-15 DU

Matrix: Water

Analysis Batch: 16227

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cr (VI)	0.014		0.0137		mg/L	-	1	20

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11/30/2018  
**QC Association Summary**

REV.0

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S19-011

TestAmerica Job ID: 300-8850-1  
SDG: RL8850-1

**General Chemistry**

**Analysis Batch: 16227**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-8850-1	B3LVJ8	Total/NA	Water	7196A	
300-8850-2	B3LWM2	Total/NA	Water	7196A	
300-8850-3	B3LVJ9	Total/NA	Water	7196A	
300-8850-4	B3LVH5	Total/NA	Water	7196A	
MB 300-16227/3	Method Blank	Total/NA	Water	7196A	
LCS 300-16227/4	Lab Control Sample	Total/NA	Water	7196A	
300-8848-A-15 MS	Matrix Spike	Total/NA	Water	7196A	
300-8848-A-15 DU	Duplicate	Total/NA	Water	7196A	

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Client: CH2M Hill Plateau Remediation Company  
Project/Site: S19-011

TestAmerica Job ID: 300-8850-1  
SDG: RL8850-1

**Client Sample ID: B3LVJ8****Date Collected: 11/29/18 10:15****Date Received: 11/29/18 14:35****Lab Sample ID: 300-8850-1****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			16227	11/29/18 17:54	TRH	TAL RCH

**Client Sample ID: B3LWM2****Date Collected: 11/29/18 10:15****Date Received: 11/29/18 14:35****Lab Sample ID: 300-8850-2****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			16227	11/29/18 17:56	TRH	TAL RCH

**Client Sample ID: B3LVJ9****Date Collected: 11/29/18 11:34****Date Received: 11/29/18 14:35****Lab Sample ID: 300-8850-3****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			16227	11/29/18 17:57	TRH	TAL RCH

**Client Sample ID: B3LVH5****Date Collected: 11/29/18 11:34****Date Received: 11/29/18 14:35****Lab Sample ID: 300-8850-4****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			16227	11/29/18 17:57	TRH	TAL RCH

**Client Sample ID: Method Blank****Date Collected: N/A****Date Received: N/A****Lab Sample ID: MB 300-16227/3****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			16227	11/29/18 17:44	TRH	TAL RCH

**Client Sample ID: Lab Control Sample****Date Collected: N/A****Date Received: N/A****Lab Sample ID: LCS 300-16227/4****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			16227	11/29/18 17:47	TRH	TAL RCH

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S19-011

TestAmerica Job ID: 300-8850-1  
SDG: RL8850-1

**Client Sample ID: Matrix Spike****Lab Sample ID: 300-8848-A-15 MS****Date Collected: 11/29/18 10:53****Matrix: Water****Date Received: 11/29/18 14:35**

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			16227	11/29/18 17:44	TRH	TAL RCH

**Client Sample ID: Duplicate****Lab Sample ID: 300-8848-A-15 DU****Date Collected: 11/29/18 10:53****Matrix: Water****Date Received: 11/29/18 14:35**

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			16227	11/29/18 17:47	TRH	TAL RCH

**Laboratory References:**

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

11/30/2018  
**Method Summary**

REV.0

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S19-011

TestAmerica Job ID: 300-8850-1  
SDG: RL8850-1

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

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11/30/2018  
**Sample Summary**

REV.0

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S19-011

TestAmerica Job ID: 300-8850-1  
SDG: RL8850-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-8850-1	B3LVJ8	Water	11/29/18 10:15	11/29/18 14:35
300-8850-2	B3LWM2	Water	11/29/18 10:15	11/29/18 14:35
300-8850-3	B3LVJ9	Water	11/29/18 11:34	11/29/18 14:35
300-8850-4	B3LVH5	Water	11/29/18 11:34	11/29/18 14:35

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## Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-8850-1

SDG Number: RL8850-1

Login Number: 8850

List Number: 1

Creator: Burghard, Charlette JA

List Source: TestAmerica Richland

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.	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.	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").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	