

# 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: 300-6514-1  
TestAmerica Sample Delivery Group: WC2578  
Client Project/Site: I18-003

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

Attn: CPP Sample Management



Authorized for release by:  
12/20/2017 1:54:43 PM  
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### 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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## Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: I18-003

TestAmerica Job ID: 300-6514-1  
SDG: WC2578

### Qualifiers

#### HPLC/IC

Qualifier	Qualifier Description
D	The reported value is from a dilution.
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)

### Case Narrative

Client: CH2M Hill Plateau Remediation Company  
Project/Site: I18-003

TestAmerica Job ID: 300-6514-1  
SDG: WC2578

**Job ID: 300-6514-1**

**Laboratory: TestAmerica Richland**

**Narrative**

**Job Narrative  
300-6514-1**

**Receipt**

The samples were received on 12/6/2017 10:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0° C.

**HPLC/IC**

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

C.O.C.#  
I18-003-215  
Page 1 of 1

Collector: <b>KATHY TURNER</b> <small>CHRC</small>	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: I18-003	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: AEA, DECEMBER 2017	Logbook No.: HNF-N-506 -96 <i>PG. 67</i>	Ice Chest No.: N/A
Shipped To (Lab): <b>TestAmerica Incorporated, Rich</b>	Method of Shipment: GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.: N/A
Protocol: SUPRV	Priority: 15 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	Preservative
B3FFM6	N	12/6/17	14:33	1x125-mL P	300.0_ANTIONS_IC: COMMON	48 Hours	Cool <=6C

*WJL 12-06-17*  
*WJL 12-06-17*  
*WJL 12-06-17*

Relinquished By: <b>KATHY TURNER</b> <small>CHRC</small>	Signature: <i>Kathy Turner</i>	Date/Time: DEC 06 2017 10:30	Received By: <b>B. JORGENSEN</b> <small>CHRC</small>	Signature: <i>B. Jorgensen</i>	Date/Time: DEC 06 2017 10:50	Matrix * S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By: <i>WJL</i>	Signature: <i>WJL</i>	Date/Time: DEC 06 2017 10:55	Received By: <b>B. JORGENSEN</b>	Signature: <i>B. Jorgensen</i>	Date/Time: 12-06-17 10:55	
Relinquished By: <i>WJL</i>	Signature: <i>WJL</i>	Date/Time: <i>12-06-17</i>	Received By: <i>WJL</i>	Signature: <i>WJL</i>	Date/Time: <i>12-06-17</i>	
Relinquished By: <i>WJL</i>	Signature: <i>WJL</i>	Date/Time: <i>12-06-17</i>	Received By: <i>WJL</i>	Signature: <i>WJL</i>	Date/Time: <i>12-06-17</i>	
Relinquished By: <i>WJL</i>	Signature: <i>WJL</i>	Date/Time: <i>12-06-17</i>	Received By: <i>WJL</i>	Signature: <i>WJL</i>	Date/Time: <i>12-06-17</i>	
Relinquished By: <i>WJL</i>	Signature: <i>WJL</i>	Date/Time: <i>12-06-17</i>	Received By: <i>WJL</i>	Signature: <i>WJL</i>	Date/Time: <i>12-06-17</i>	

### Detection Summary

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: I18-003

TestAmerica Job ID: 300-6514-1  
 SDG: WC2578

**Client Sample ID: B3FFM2**

**Lab Sample ID: 300-6514-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	47	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	23	D	0.28	0.14	mg/L	10		300.0	Total/NA
Fluoride	0.25	D	0.10	0.050	mg/L	2		300.0	Total/NA
Nitrite as N	0.14	D	0.076	0.038	mg/L	2		300.0	Total/NA
Sulfate	55	D	0.50	0.25	mg/L	2		300.0	Total/NA

**Client Sample ID: B3FFM6**

**Lab Sample ID: 300-6514-2**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	58	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	39	D	0.56	0.28	mg/L	20		300.0	Total/NA
Fluoride	0.26	D	0.10	0.050	mg/L	2		300.0	Total/NA
Nitrite as N	0.16	D	0.076	0.038	mg/L	2		300.0	Total/NA
Sulfate	74	D	0.50	0.25	mg/L	2		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Richland

### Client Sample Results

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: I18-003

TestAmerica Job ID: 300-6514-1  
 SDG: WC2578

**Client Sample ID: B3FFM2**  
**Date Collected: 12/06/17 09:26**  
**Date Received: 12/06/17 10:55**

**Lab Sample ID: 300-6514-1**  
**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	47	D	0.40	0.20	mg/L			12/06/17 20:32	2
Nitrate as N	23	D	0.28	0.14	mg/L			12/06/17 23:48	10
Fluoride	0.25	D	0.10	0.050	mg/L			12/06/17 20:32	2
Nitrite as N	0.14	D	0.076	0.038	mg/L			12/06/17 20:32	2
Sulfate	55	D	0.50	0.25	mg/L			12/06/17 20:32	2

**Client Sample ID: B3FFM6**  
**Date Collected: 12/06/17 10:13**  
**Date Received: 12/06/17 10:55**

**Lab Sample ID: 300-6514-2**  
**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	58	D	0.40	0.20	mg/L			12/06/17 20:47	2
Nitrate as N	39	D	0.56	0.28	mg/L			12/07/17 00:03	20
Fluoride	0.26	D	0.10	0.050	mg/L			12/06/17 20:47	2
Nitrite as N	0.16	D	0.076	0.038	mg/L			12/06/17 20:47	2
Sulfate	74	D	0.50	0.25	mg/L			12/06/17 20:47	2

QC Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: I18-003

TestAmerica Job ID: 300-6514-1  
SDG: WC2578

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-9874/15  
Matrix: Water  
Analysis Batch: 9874

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.014	U	0.028	0.014	mg/L			12/06/17 17:31	1
Nitrite as N	0.019	U	0.038	0.019	mg/L			12/06/17 17:31	1

Lab Sample ID: LCS 300-9874/16  
Matrix: Water  
Analysis Batch: 9874

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.26	2.18		mg/L		97	80 - 120
Nitrite as N	3.04	3.12		mg/L		103	80 - 120

Lab Sample ID: 300-6509-A-7 MS  
Matrix: Water  
Analysis Batch: 9874

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
Nitrate as N	2.9	D	0.452	3.38	D	mg/L		115	75 - 125
Nitrite as N	0.082	D	0.609	0.610	D	mg/L		87	75 - 125

Lab Sample ID: 300-6509-A-7 DU  
Matrix: Water  
Analysis Batch: 9874

Client Sample ID: Duplicate  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	2.9	D	2.87	D	mg/L		0.3	20
Nitrite as N	0.082	D	0.0826	D	mg/L		0.3	20

Lab Sample ID: MB 300-9875/15  
Matrix: Water  
Analysis Batch: 9875

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.10	U	0.20	0.10	mg/L			12/06/17 17:31	1
Fluoride	0.025	U	0.050	0.025	mg/L			12/06/17 17:31	1
Sulfate	0.13	U	0.25	0.13	mg/L			12/06/17 17:31	1

Lab Sample ID: LCS 300-9875/16  
Matrix: Water  
Analysis Batch: 9875

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	16.0	15.9		mg/L		99	80 - 120
Fluoride	4.00	4.02		mg/L		100	80 - 120
Sulfate	20.0	19.9		mg/L		99	80 - 120

QC Sample Results

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: I18-003

TestAmerica Job ID: 300-6514-1  
 SDG: WC2578

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 300-6509-A-7 MS  
 Matrix: Water  
 Analysis Batch: 9875

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
Chloride	6.4	D	3.20	9.87	D	mg/L		107	75 - 125
Fluoride	0.40	D	0.800	1.20	D	mg/L		101	75 - 125
Sulfate	31	D	4.00	35.8	D	mg/L		111	75 - 125

Lab Sample ID: 300-6509-A-7 DU  
 Matrix: Water  
 Analysis Batch: 9875

Client Sample ID: Duplicate  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	6.4	D	6.43	D	mg/L		0.3	20
Fluoride	0.40	D	0.395	D	mg/L		0.9	20
Sulfate	31	D	30.9	D	mg/L		2	20

## QC Association Summary

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: I18-003

TestAmerica Job ID: 300-6514-1  
 SDG: WC2578

## HPLC/IC

## Analysis Batch: 9874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-6514-1	B3FFM2	Total/NA	Water	300.0	
300-6514-1	B3FFM2	Total/NA	Water	300.0	
300-6514-2	B3FFM6	Total/NA	Water	300.0	
300-6514-2	B3FFM6	Total/NA	Water	300.0	
MB 300-9874/15	Method Blank	Total/NA	Water	300.0	
LCS 300-9874/16	Lab Control Sample	Total/NA	Water	300.0	
300-6509-A-7 MS	Matrix Spike	Total/NA	Water	300.0	
300-6509-A-7 DU	Duplicate	Total/NA	Water	300.0	

## Analysis Batch: 9875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-6514-1	B3FFM2	Total/NA	Water	300.0	
300-6514-2	B3FFM6	Total/NA	Water	300.0	
MB 300-9875/15	Method Blank	Total/NA	Water	300.0	
LCS 300-9875/16	Lab Control Sample	Total/NA	Water	300.0	
300-6509-A-7 MS	Matrix Spike	Total/NA	Water	300.0	
300-6509-A-7 DU	Duplicate	Total/NA	Water	300.0	

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: I18-003

TestAmerica Job ID: 300-6514-1  
 SDG: WC2578

**Client Sample ID: B3FFM2**  
**Date Collected: 12/06/17 09:26**  
**Date Received: 12/06/17 10:55**

**Lab Sample ID: 300-6514-1**  
**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	300.0		2			9874	12/06/17 20:32	RTQ	TAL RCH
Total/NA	Analysis	300.0		2			9875	12/06/17 20:32	RTQ	TAL RCH
Total/NA	Analysis	300.0		10			9874	12/06/17 23:48	RTQ	TAL RCH

**Client Sample ID: B3FFM6**  
**Date Collected: 12/06/17 10:13**  
**Date Received: 12/06/17 10:55**

**Lab Sample ID: 300-6514-2**  
**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	300.0		2			9874	12/06/17 20:47	RTQ	TAL RCH
Total/NA	Analysis	300.0		2			9875	12/06/17 20:47	RTQ	TAL RCH
Total/NA	Analysis	300.0		20			9874	12/07/17 00:03	RTQ	TAL RCH

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

**Lab Sample ID: MB 300-9874/15**  
**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	300.0		1			9874	12/06/17 17:31	RTQ	TAL RCH

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

**Lab Sample ID: MB 300-9875/15**  
**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	300.0		1			9875	12/06/17 17:31	RTQ	TAL RCH

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

**Lab Sample ID: LCS 300-9874/16**  
**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	300.0		1			9874	12/06/17 17:46	RTQ	TAL RCH

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

**Lab Sample ID: LCS 300-9875/16**  
**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	300.0		1			9875	12/06/17 17:46	RTQ	TAL RCH

### Lab Chronicle

Client: CH2M Hill Plateau Remediation Company  
Project/Site: I18-003

TestAmerica Job ID: 300-6514-1  
SDG: WC2578

**Client Sample ID: Matrix Spike**

**Lab Sample ID: 300-6509-A-7 MS**

**Date Collected: 12/05/17 09:12**

**Matrix: Water**

**Date Received: 12/05/17 14:15**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2			9874	12/06/17 18:16	RTQ	TAL RCH
Total/NA	Analysis	300.0		2			9875	12/06/17 18:16	RTQ	TAL RCH

**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: I18-003

TestAmerica Job ID: 300-6514-1  
SDG: WC2578

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL RCH

**Protocol References:**

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

**Laboratory References:**

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

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### Sample Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: I18-003

TestAmerica Job ID: 300-6514-1  
SDG: WC2578

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-6514-1	B3FFM2	Water	12/06/17 09:26	12/06/17 10:55
300-6514-2	B3FFM6	Water	12/06/17 10:13	12/06/17 10:55

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### Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-6514-1

SDG Number: WC2578

**Login Number: 6514**

**List Number: 1**

**Creator: Jorgenson, Briana F**

**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.	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	

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