

# 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: 300-2459-1  
TestAmerica Sample Delivery Group: WC0880  
Client Project/Site: F16-007

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

Attn: CPP Sample Management



Authorized for release by:  
3/31/2016 8:34:41 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.*

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### LINKS

Review your project results through  
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Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)



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**Definitions/Glossary**

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: F16-007

TestAmerica Job ID: 300-2459-1  
 SDG: WC0880



**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, 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: F16-007

TestAmerica Job ID: 300-2459-1  
SDG: WC0880

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**Job ID: 300-2459-1**

**Laboratory: TestAmerica Richland**

**Narrative**

**Job Narrative  
300-2459-1**

**Comments**

No additional comments.

**Receipt**

The sample was received on 3/3/2016 11:55 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.5° C.

**HPLC/IC**

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

**SAMPLE ISSUE RESOLUTION**

<b>SIR NUM</b>	SIR16-255
<b>REV NUM</b>	0
<b>DATE INITIATED</b>	3/21/2016

**SAMPLE EVENT INFORMATION**

**SAF NUM(S)** F16-007  
**OPERABLE UNIT(S)** 200-UP-1  
**PROJECT(S)** 200 AREA SGRP  
**SAMPLE EVENT TITLE(S)** 200-UP-1 Remedial Action Wells  
**LABORATORY** TestAmerica Incorporated, Richland

**SAMPLING INFORMATION**

**NUMBER OF SAMPLES** 1  
**SAMPLE NUMBERS** B349M1  
**SAMPLE MATRIX** WATER  
**COLLECTION DATE** 3/2/2016 - 3/2/2016  
**SDG NUM** WC0880

**ISSUE BACKGROUND**

**CLASS** Chain of Custody Issue (Field)  
**TYPE** No Logbook Number  
**DESCRIPTION** COC #F16-007-128, SAMPLE B349M1.  
 NO LOGBOOK NUMBER

**DISPOSITION**

**DESCRIPTION** DOCUMENT AND CLOSE

**JUSTIFICATION** DOCUMENT AND CLOSE

SUBMITTED BY: Gayelyn Gibson DATE: 03/03/2016  
 ACCEPTED BY: Kirsten Killand DATE: 03/21/2016

**SAMPLE ISSUE RESOLUTION**

<b>SIR NUM</b>	SIR16-255
<b>REV NUM</b>	1
<b>DATE INITIATED</b>	6/1/2016

**SAMPLE EVENT INFORMATION**

**SAF NUM(S)** F16-007  
**OPERABLE UNIT(S)** 200-UP-1  
**PROJECT(S)** 200 AREA SGRP  
**SAMPLE EVENT TITLE(S)** 200-UP-1 Remedial Action Wells  
**LABORATORY** TestAmerica Incorporated, Richland

**SAMPLING INFORMATION**

**NUMBER OF SAMPLES** 1  
**SAMPLE NUMBERS** B349M1  
**SAMPLE MATRIX** WATER  
**COLLECTION DATE** 3/2/2016 - 3/2/2016  
**SDG NUM** WC0880

**ISSUE BACKGROUND**

**CLASS** Chain of Custody Issue (Field)  
**TYPE** No Logbook Number  
**DESCRIPTION** COC #F16-007-128, SAMPLE B349M1.  
 03/21/2016: NO LOGBOOK NUMBER  
 REV. 1  
 06/01/2016: MISSING TIME IN FIRST RELINQUISHED BY AND RECEIVED BY BOX

**DISPOSITION**

**DESCRIPTION** DOCUMENT AND CLOSE  
**JUSTIFICATION** DOCUMENT AND CLOSE  
 SUBMITTED BY: Gayelyn Gibson DATE: 03/03/2016  
 ACCEPTED BY: Kirsten Killand DATE: 03/21/2016  
 REV.1  
 SUBMITTED BY: Sarah Nagel DATE: 05/25/2016  
 ACCEPTED BY: Kirsten Killand DATE: 06/01/2016

**SAMPLE ISSUE RESOLUTION**

<b>SIR NUM</b>	SIR16-256
<b>REV NUM</b>	0
<b>DATE INITIATED</b>	3/21/2016

**SAMPLE EVENT INFORMATION**

**SAF NUM(S)** F15-015  
**OPERABLE UNIT(S)** 100-HR-3  
**PROJECT(S)** 100-HR-3 RM ACT  
**SAMPLE EVENT TITLE(S)** 100 H Area  
**LABORATORY** TestAmerica Incorporated, Richland

**SAMPLING INFORMATION**

**NUMBER OF SAMPLES** 2  
**SAMPLE NUMBERS** B34FV6, B34H28  
**SAMPLE MATRIX** WATER  
**COLLECTION DATE** 3/7/2016 - 3/7/2016  
**SDG NUM** WC0888

**ISSUE BACKGROUND**

**CLASS** Chain of Custody Issue (Field)  
**TYPE** Sample Depth Data is Missing or Not Marked NA  
**DESCRIPTION** COC F15-015-175, SAMPLE B34FV6.  
 COC F15-015-177, SAMPLE B34H28.  
 NO ACTUAL SAMPLE DEPTH INFORMATION.

**DISPOSITION**

**DESCRIPTION** DOCUMENT AND CLOSE  
**JUSTIFICATION** DOCUMENT AND CLOSE

SUBMITTED BY: Gayelyn Gibson DATE: 03/10/2016  
 ACCEPTED BY: Kirsten Killand DATE: 03/21/2016



CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		FL16-007-128	PAGE 1 OF 1
COLLECTOR Don Brotherton CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 7H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION C9415, I-005	PROJECT DESIGNATION FZ2016 200-UP-1 Remedial Action Wells Sampling and Analysis - Water	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH 336.48'	SAF NO. F16-007	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO.	OFFSITE PROPERTY NO.	COA 300192	BILL OF LADING/AIR BILL NO.	METHOD OF SHIPMENT GOVERNMENT VEHICLE	<b>ORIGINAL</b>
SHIPPED TO TestAmerica Incorporated, Richland					

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/JAFA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. NA	PRESERVATION Cool <=6C	HOLDING TIME 48 Hours	NO. OF CONTAINER(S) 1	VOLUME 500ml	300.0 ANIONS-IC: COMMON (Nitrogen in Nitrate);
A=Air D1=Drum Liquids D5=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Trussure V=Vegetation W=Water WI=Wipe X=Other	SPECIAL HANDLING AND/OR STORAGE					
SAMPLE NO. B349M1	MATRIX* WATER	SAMPLE DATE MAR 02 2016	SAMPLE TIME 1530	2459 WCD880  300-2459 CO		

**FILTER**

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM Don Brotherton	DATE/TIME MAR 02 2016	RECEIVED BY/STORED IN SSU #1	DATE/TIME MAR 02 2016	FILTER	
RELINQUISHED BY/REMOVED FROM SSU #1	DATE/TIME MAR 03 2016	RECEIVED BY/STORED IN Frank Hall	DATE/TIME MAR 03 2016	FILTER	
RELINQUISHED BY/REMOVED FROM Frank Hall CHPRC	DATE/TIME MAR 03 2016	RECEIVED BY/STORED IN J. Bock, TARI	DATE/TIME MAR 03 2016	FILTER	
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		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD		

PRINTED ON 1/13/2016 FSR ID = FSR20443 TRVL NUM = TRVL-16-062 A-6003-618 (REV 2)

### Detection Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-007

TestAmerica Job ID: 300-2459-1  
SDG: WC0880

**Client Sample ID: B349M1**

**Lab Sample ID: 300-2459-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrate as N	4.9	D	0.056	0.028	mg/L	2		300.0	Total/NA

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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: F16-007

TestAmerica Job ID: 300-2459-1  
SDG: WC0880

**Client Sample ID: B349M1**

**Lab Sample ID: 300-2459-1**

**Date Collected: 03/02/16 15:30**

**Matrix: Water**

**Date Received: 03/03/16 11:55**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	4.9	D	0.056	0.028	mg/L			03/03/16 14:23	2

- 1
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QC Sample Results

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: F16-007

TestAmerica Job ID: 300-2459-1  
 SDG: WC0880

Method: 300.0 - Anions, Ion Chromatography

<b>Lab Sample ID: MB 300-3263/5</b> <b>Matrix: Water</b> <b>Analysis Batch: 3263</b>										<b>Client Sample ID: Method Blank</b> <b>Prep Type: Total/NA</b>	
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			03/03/16 10:50	1		
<b>Lab Sample ID: LCS 300-3263/6</b> <b>Matrix: Water</b> <b>Analysis Batch: 3263</b>										<b>Client Sample ID: Lab Control Sample</b> <b>Prep Type: Total/NA</b>	
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits				
Nitrate as N	2.26	2.31		mg/L		102	80 - 120				
<b>Lab Sample ID: 300-2447-A-1 MS</b> <b>Matrix: Water</b> <b>Analysis Batch: 3263</b>										<b>Client Sample ID: Matrix Spike</b> <b>Prep Type: Total/NA</b>	
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N	2.0	D	0.452	2.44	D	mg/L		99	75 - 125		
<b>Lab Sample ID: 300-2447-A-1 DU</b> <b>Matrix: Water</b> <b>Analysis Batch: 3263</b>										<b>Client Sample ID: Duplicate</b> <b>Prep Type: Total/NA</b>	
Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit			
Nitrate as N	2.0	D	1.96	D	mg/L		2	20			

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### QC Association Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-007

TestAmerica Job ID: 300-2459-1  
SDG: WC0880

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#### HPLC/IC

#### Analysis Batch: 3263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-2447-A-1 DU	Duplicate	Total/NA	Water	300.0	
300-2447-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
300-2459-1	B349M1	Total/NA	Water	300.0	
LCS 300-3263/6	Lab Control Sample	Total/NA	Water	300.0	
MB 300-3263/5	Method Blank	Total/NA	Water	300.0	

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-007

TestAmerica Job ID: 300-2459-1  
SDG: WC0880

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**Client Sample ID: B349M1**

**Lab Sample ID: 300-2459-1**

Date Collected: 03/02/16 15:30

Matrix: Water

Date Received: 03/03/16 11:55

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	10 mL		3263	03/03/16 14:23	CPM	TAL RCH

**Client Sample ID: Duplicate**

**Lab Sample ID: 300-2447-A-1 DU**

Date Collected: 03/01/16 13:24

Matrix: Water

Date Received: 03/02/16 11:50

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	10 mL		3263	03/03/16 11:50	CPM	TAL RCH

**Client Sample ID: Lab Control Sample**

**Lab Sample ID: LCS 300-3263/6**

Date Collected: N/A

Matrix: Water

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	Analysis	300.0		1	10 mL		3263	03/03/16 11:05	CPM	TAL RCH

**Client Sample ID: Method Blank**

**Lab Sample ID: MB 300-3263/5**

Date Collected: N/A

Matrix: Water

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	Analysis	300.0		1	10 mL		3263	03/03/16 10:50	CPM	TAL RCH

**Client Sample ID: Matrix Spike**

**Lab Sample ID: 300-2447-A-1 MS**

Date Collected: 03/01/16 13:24

Matrix: Water

Date Received: 03/02/16 11:50

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	10 mL		3263	03/03/16 11:35	CPM	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: F16-007

TestAmerica Job ID: 300-2459-1  
SDG: WC0880



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

### Sample Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-007

TestAmerica Job ID: 300-2459-1  
SDG: WC0880

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-2459-1	B349M1	Water	03/02/16 15:30	03/03/16 11:55

**Login Sample Receipt Checklist**

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Client: CH2M Hill Plateau Remediation Company

Job Number: 300-2459-1  
SDG Number: WC0880

**Login Number: 2459**  
**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	