

6/16/2016

# 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: 300-3154-1  
TestAmerica Sample Delivery Group: WC1112  
Client Project/Site: F16-039

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

Attn: CPP Sample Management



Authorized for release by:  
6/16/2016 11:13:29 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 less 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)

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Definitions/Glossary . . . . .	3
Case Narrative . . . . .	4
Chain of Custody . . . . .	5
Detection Summary . . . . .	10
Client Sample Results . . . . .	11
QC Sample Results . . . . .	12
QC Association Summary . . . . .	14
Lab Chronicle . . . . .	15
Method Summary . . . . .	18
Sample Summary . . . . .	19
Receipt Checklists . . . . .	20

## Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-039

TestAmerica Job ID: 300-3154-1  
SDG: WC1112

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
D	The reported value is from a dilution.
U	Analyzed for but not detected.

### 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.
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, 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: F16-039

TestAmerica Job ID: 300-3154-1  
SDG: WC1112

**Job ID: 300-3154-1**

**Laboratory: TestAmerica Richland**

## Narrative

### Job Narrative 300-3154-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 5/31/2016 1:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 9.7° C.

#### HPLC/IC

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

#### General Chemistry

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



6/16/2016

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		FIG-039-041	PAGE 1 OF 1
COLLECTOR <b>J.C. Fulton/CH2M</b>	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 7H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION C9584, screened interval	PROJECT DESIGNATION 1QJHR-3 Long Term & Interim Action Monitoring - Water	FIELD LOGBOOK NO. <b>HNF-N-6453</b>	SAF NO. FIG-039	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO. <b>N/A</b>	OFFSITE PROPERTY NO.	ACTUAL SAMPLE DEPTH <b>5-7</b>	COA 300115	BILL OF LADING/AIR BILL NO. <b>N/A</b>	
SHIPPED TO TestAmerica Incorporated, Richland		METHOD OF SHIPMENT GOVERNMENT VEHICLE <b>ORIGINAL</b>			

MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Soils L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation WI=Water X=Other	*Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/DATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	PRESERVATION	COOL-4C
		HOLDING TIME	24 Hours
		TYPE OF CONTAINER	ag
		NO. OF CONTAINER(S)	1
SPECIAL HANDLING AND/OR STORAGE		VOLUME	60ml
		7196, CR6: COMMON;	
SAMPLE NO. B35KH3	MATRIX* WATER	SAMPLE DATE MAY 31 2016	SAMPLE TIME 0932



300-3154 COC

#3154  
WEG112

CHAIN OF POSSESSION		SIGN/PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <b>J.C. Fulton/CH2M</b>	DATE/TIME MAY 31 2016	RECEIVED BY/STORED IN <b>C.M. Aquilander/CH2M</b>	DATE/TIME MAY 31 2016 1025		
RELINQUISHED BY/REMOVED FROM <b>C.M. Aquilander/CH2M</b>	DATE/TIME MAY 31 2016	RECEIVED BY/STORED IN <b>L. Anderson/TARL</b>	DATE/TIME MAY 31 2016 1310		
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		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME		
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME		

CH2MHILL Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		FIG-039-045	PAGE 1 OF 1
COLLECTOR	J.G. Futton/CHPRC	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE
SAMPLING LOCATION	C9584, screened interval	TODAK, D	376-6427	TODAK, D	7H
ICE CHEST NO.	N/A	PROJECT DESIGNATION	100-HR-3 Long Term & Interim Action Monitoring - Water	SAF NO.	AIR QUALITY
SHIPPED TO	TestAmerica Incorporated, Richland	FIELD LOGBOOK NO.	HNF-N-6453-0279	FIG-039	<input type="checkbox"/>
MATRIX*	Water	ACTUAL SAMPLE DEPTH	571	COA	METHOD OF SHIPMENT
Possible Sample Hazards/Remarks	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	OFFSITE PROPERTY NO.		300115	GOVERNMENT VEHICLE
NO. OF CONTAINER(S)	1	BILL OF LADING/AIR BILL NO.	N/A		ORIGINAL
HOLDING TIME	24 Hours				
TYPE OF CONTAINER	ag				
VOLUME	60ml				
SAMPLE ANALYSIS	7196, CR6-COMMON				

#3154  
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SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B36KH7	WATER	MAY 31 2016	0932

CHAIN OF POSSESSION	SIGN/PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
LABORATORY SECTION	RECEIVED BY	TITLE
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DATE/TIME

PRINTED ON 5/26/2016 FSR ID = FSR32173 TRVL NUM = TRVL-16-138 A-6003-618 (REV 2)

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CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		FIG-039-047	PAGE 1 OF 1
COLLECTOR	J.G. Fudon/CH2M	COMPANY CONTACT	TODAK, D	PROJECT COORDINATOR	PRICE CODE 7H
SAMPLING LOCATION	C9584, screened Internal FTB	PROJECT DESIGNATION	100-HR-3 Long Term & Interim Action Monitoring - Water	SAF NO. F16-039	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO.	N/A	FIELD LOGBOOK NO.	HNF-N-645 2-9479	COA 300115	METHOD OF SHIPMENT GOVERNMENT VEHICLE
SHIPPED TO	TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.	N/A
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=Wipe X=Other	PRESERVATION	Cool-4C		
	*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. N/A	HOLDING TIME	24 Hours		
		TYPE OF CONTAINER	3G		
		NO. OF CONTAINER(S)	1		
		VOLUME	60ml		
		SAMPLE ANALYSIS	7196 CR6; COMMON;		
SAMPLE NO.	B35KH9	MATRIX*	WATER	SAMPLE DATE	MAY 31 2016 0850
				SAMPLE TIME	

#3154  
WCE112

CHAIN OF POSSESSION		SIGN / PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	MAY 31 2016 TROY BACON CH2M HILL	RECEIVED BY/STORED IN	MAY 31 2016 1025 TROY BACON CH2M HILL		
RELINQUISHED BY/REMOVED FROM	MAY 31 2016 1310 TROY BACON CH2M HILL	RECEIVED BY/STORED IN	MAY 31 2016 1310 L. ANDERSON, TARI CH2M HILL		
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN			
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN			
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN			
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN			
LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME		
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME		

PRINTED ON 5/26/2016

FSR ID = FSR32168

TRVL NUM = TRVL-16-138

A-6003-618 (REV 2)

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CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F16-039-042	PAGE 1 OF 1
COLLECTOR	<b>J.C. Fulton/CHPRC</b>	COMPANY CONTACT	TODAK, D	TELEPHONE NO.	376-6427
SAMPLING LOCATION	C9584, screened interval	PROJECT DESIGNATION	100-HR-3 Long Term & Interim Action Monitoring - Water		
ICE CHEST NO.	<i>plp</i>	FIELD LOGBOOK NO.	<b>HNF-N-645-3</b>	ACTUAL SAMPLE DEPTH	<i>5-7'</i>
SHIPPED TO	TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.	<i>plp</i>
MATRIX*	A=Air DL=Drum L=Drum DS=Drum S=Soil O=Oil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	PRESERVATION	Cool <=6C	PROJECT COORDINATOR	F16-039-042
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	SPECIAL HANDLING AND/OR STORAGE	HOLDING TIME	48 Hours	PRICE CODE	7H
		TYPE OF CONTAINER	P	AIR QUALITY	<input type="checkbox"/>
		NO. OF CONTAINER(S)	1	METHOD OF SHIPMENT	GOVERNMENT VEHICLE
		VOLUME	500ml	TURNAROUND	30 Days / 30 Days
B35KH4	WATER	SAMPLE DATE	<b>MAY 31 2016 0932</b>		

#3154  
WCE112

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM <b>J.C. Fulton/CHPRC</b>	RECEIVED BY/STORED IN <b>C.M. Aguilera/CHPRC</b>	(1) 300.0 ANIONS_IC: COMMON {Chloride, Nitrogen in Nitrate, Sulfate}; 300.0 ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
DATE/TIME <b>MAY 31 2016 1025</b>	DATE/TIME <b>MAY 31 2016 1025</b>	
RELINQUISHED BY/REMOVED FROM <b>C.M. Aguilera/CHPRC</b>	RECEIVED BY/STORED IN <b>L. Anderson, MAIL</b>	
DATE/TIME <b>MAY 31 2016 1510</b>	DATE/TIME <b>MAY 31 2016 1510</b>	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
LABORATORY SECTION	RECEIVED BY	TITLE
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY



CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		FL6-039-048	PAGE 1 OF 1
COLLECTOR	J.C. Fulton/CHPRC	COMPANY CONTACT	TODAK, D	PROJECT COORDINATOR	TODAK, D
SAMPLING LOCATION	C9584, screened Interval FTB	PROJECT DESIGNATION	100-HR-3 Long Term & Interim Action Monitoring - Water	SAF NO.	FL6-039
ICE CHEST NO.	N/A	FIELD LOGBOOK NO.	HNF-N-645	COA	300115
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	PRESERVATION	Cool <=6C	PRICE CODE	7H
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/LATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	48 Hours		AIR QUALITY	<input type="checkbox"/>
	TYPE OF CONTAINER	P		METHOD OF SHIPMENT	GOVERNMENT VEHICLE
	NO. OF CONTAINER(S)	1			
	VOLUME	500mL			
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS	SEE ITEM (I) IN SPECIAL INSTRUCTIONS		
SAMPLE NO.	B35KU0	SAMPLE DATE	MAY 31 2016		
	WATER	SAMPLE TIME	0050		

# 3154  
WFC1112

CHAIN OF POSSESSION	SIGN/PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	RECEIVED BY/STORED IN C.M. Aguilera/CHPRC	(1) 300.0 ANIONS_IC: COMMON {Chloride, Nitrogen in Nitrate, Sulfate}; 300.0 ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
DATE/TIME MAY 31 2016 1025	DATE/TIME MAY 31 2016 1025	
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	RECEIVED BY/STORED IN L. Anderson, TARI	
DATE/TIME MAY 31 2016 1310	DATE/TIME MAY 31 2016 1310	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
LABORATORY SECTION	RECEIVED BY	TITLE
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY

## Detection Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-039

TestAmerica Job ID: 300-3154-1  
SDG: WC1112

## Client Sample ID: B35KH3

Lab Sample ID: 300-3154-1

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

## Client Sample ID: B35KH7

Lab Sample ID: 300-3154-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0045		0.0040	0.0015	mg/L	1		7196A	Total/NA

## Client Sample ID: B35KH9

Lab Sample ID: 300-3154-3

No Detections.

## Client Sample ID: B35KH4

Lab Sample ID: 300-3154-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	13	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	2.5	D	0.056	0.028	mg/L	2		300.0	Total/NA
Sulfate	55	D	0.50	0.25	mg/L	2		300.0	Total/NA

## Client Sample ID: B35KJ0

Lab Sample ID: 300-3154-5

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Richland

## Client Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-039

TestAmerica Job ID: 300-3154-1  
SDG: WC1112

## Client Sample ID: B35KH3

Lab Sample ID: 300-3154-1

Date Collected: 05/31/16 09:32

Matrix: Water

Date Received: 05/31/16 13:10

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0038	B	0.0040	0.0015	mg/L			05/31/16 17:37	1

## Client Sample ID: B35KH7

Lab Sample ID: 300-3154-2

Date Collected: 05/31/16 09:32

Matrix: Water

Date Received: 05/31/16 13:10

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0045		0.0040	0.0015	mg/L			05/31/16 17:37	1

## Client Sample ID: B35KH9

Lab Sample ID: 300-3154-3

Date Collected: 05/31/16 08:50

Matrix: Water

Date Received: 05/31/16 13:10

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L			05/31/16 17:38	1

## Client Sample ID: B35KH4

Lab Sample ID: 300-3154-4

Date Collected: 05/31/16 09:32

Matrix: Water

Date Received: 05/31/16 13:10

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13	D	0.40	0.20	mg/L			06/01/16 15:14	2
Nitrate as N	2.5	D	0.056	0.028	mg/L			06/01/16 15:14	2
Orthophosphate as P	0.082	U D	0.16	0.082	mg/L			06/01/16 15:14	2
Sulfate	55	D	0.50	0.25	mg/L			06/01/16 15:14	2

## Client Sample ID: B35KJ0

Lab Sample ID: 300-3154-5

Date Collected: 05/31/16 08:50

Matrix: Water

Date Received: 05/31/16 13:10

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.20	U D	0.40	0.20	mg/L			06/01/16 15:59	2
Nitrate as N	0.028	U D	0.056	0.028	mg/L			06/01/16 15:59	2
Orthophosphate as P	0.082	U D	0.16	0.082	mg/L			06/01/16 15:59	2
Sulfate	0.25	U D	0.50	0.25	mg/L			06/01/16 15:59	2

TestAmerica Richland

QC Sample Results

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: F16-039

TestAmerica Job ID: 300-3154-1  
 SDG: WC1112

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-4385/5  
 Matrix: Water  
 Analysis Batch: 4385

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			06/01/16 14:44	1
Orthophosphate as P	0.041	U	0.082	0.041	mg/L			06/01/16 14:44	1

Lab Sample ID: LCS 300-4385/6  
 Matrix: Water  
 Analysis Batch: 4385

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	2.27		mg/L		101	80 - 120
Orthophosphate as P	6.53	6.53		mg/L		100	80 - 120

Lab Sample ID: 300-3154-4 MS  
 Matrix: Water  
 Analysis Batch: 4385

Client Sample ID: B35KH4  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.5	D	0.452	2.95	D	mg/L		95	75 - 125
Orthophosphate as P	0.082	U D	1.31	1.08	D	mg/L		83	75 - 125

Lab Sample ID: 300-3154-4 DU  
 Matrix: Water  
 Analysis Batch: 4385

Client Sample ID: B35KH4  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Nitrate as N	2.5	D	2.51	D	mg/L		0.3	20
Orthophosphate as P	0.082	U D	0.082	U D	mg/L		NC	20

Lab Sample ID: MB 300-4386/5  
 Matrix: Water  
 Analysis Batch: 4386

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			06/01/16 14:44	1
Sulfate	0.13	U	0.25	0.13	mg/L			06/01/16 14:44	1

Lab Sample ID: LCS 300-4386/6  
 Matrix: Water  
 Analysis Batch: 4386

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	15.8		mg/L		99	80 - 120
Sulfate	20.0	19.9		mg/L		99	80 - 120

Lab Sample ID: 300-3154-4 MS  
 Matrix: Water  
 Analysis Batch: 4386

Client Sample ID: B35KH4  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	13	D	3.20	16.1	D	mg/L		91	75 - 125

TestAmerica Richland

QC Sample Results

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: F16-039

TestAmerica Job ID: 300-3154-1  
 SDG: WC1112

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 300-3154-4 MS  
 Matrix: Water  
 Analysis Batch: 4386

Client Sample ID: B35KH4  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	55	D	4.00	58.7	D	mg/L		84	75 - 125

Lab Sample ID: 300-3154-4 DU  
 Matrix: Water  
 Analysis Batch: 4386

Client Sample ID: B35KH4  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	13	D	13.1	D	mg/L		0.2	20
Sulfate	55	D	55.3	D	mg/L		0.2	20

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 300-4381/3  
 Matrix: Water  
 Analysis Batch: 4381

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			05/31/16 17:33	1

Lab Sample ID: LCS 300-4381/4  
 Matrix: Water  
 Analysis Batch: 4381

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	0.253		mg/L		101	80 - 120

Lab Sample ID: 300-3154-1 MS  
 Matrix: Water  
 Analysis Batch: 4381

Client Sample ID: B35KH3  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.0038	B	0.0500	0.0541		mg/L		101	75 - 125

Lab Sample ID: 300-3154-1 DU  
 Matrix: Water  
 Analysis Batch: 4381

Client Sample ID: B35KH3  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cr (VI)	0.0038	B	0.00450		mg/L		17	20

## QC Association Summary

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: F16-039

TestAmerica Job ID: 300-3154-1  
 SDG: WC1112

## HPLC/IC

## Analysis Batch: 4385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3154-4	B35KH4	Total/NA	Water	300.0	
300-3154-4 DU	B35KH4	Total/NA	Water	300.0	
300-3154-4 MS	B35KH4	Total/NA	Water	300.0	
300-3154-5	B35KJ0	Total/NA	Water	300.0	
LCS 300-4385/6	Lab Control Sample	Total/NA	Water	300.0	
MB 300-4385/5	Method Blank	Total/NA	Water	300.0	

## Analysis Batch: 4386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3154-4	B35KH4	Total/NA	Water	300.0	
300-3154-4 DU	B35KH4	Total/NA	Water	300.0	
300-3154-4 MS	B35KH4	Total/NA	Water	300.0	
300-3154-5	B35KJ0	Total/NA	Water	300.0	
LCS 300-4386/6	Lab Control Sample	Total/NA	Water	300.0	
MB 300-4386/5	Method Blank	Total/NA	Water	300.0	

## General Chemistry

## Analysis Batch: 4381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3154-1	B35KH3	Total/NA	Water	7196A	
300-3154-1 DU	B35KH3	Total/NA	Water	7196A	
300-3154-1 MS	B35KH3	Total/NA	Water	7196A	
300-3154-2	B35KH7	Total/NA	Water	7196A	
300-3154-3	B35KH9	Total/NA	Water	7196A	
LCS 300-4381/4	Lab Control Sample	Total/NA	Water	7196A	
MB 300-4381/3	Method Blank	Total/NA	Water	7196A	

## Lab Chronicle

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-039

TestAmerica Job ID: 300-3154-1  
SDG: WC1112

**Client Sample ID: B35KH3**

Date Collected: 05/31/16 09:32

Date Received: 05/31/16 13:10

**Lab Sample ID: 300-3154-1**

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			4381	05/31/16 17:37	RLC	TAL RCH

**Client Sample ID: B35KH7**

Date Collected: 05/31/16 09:32

Date Received: 05/31/16 13:10

**Lab Sample ID: 300-3154-2**

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			4381	05/31/16 17:37	RLC	TAL RCH

**Client Sample ID: B35KH9**

Date Collected: 05/31/16 08:50

Date Received: 05/31/16 13:10

**Lab Sample ID: 300-3154-3**

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			4381	05/31/16 17:38	RLC	TAL RCH

**Client Sample ID: B35KH4**

Date Collected: 05/31/16 09:32

Date Received: 05/31/16 13:10

**Lab Sample ID: 300-3154-4**

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	300.0		2	10 mL		4385	06/01/16 15:14	CPM	TAL RCH
Total/NA	Analysis	300.0		2	10 mL		4386	06/01/16 15:14	CPM	TAL RCH

**Client Sample ID: B35KJ0**

Date Collected: 05/31/16 08:50

Date Received: 05/31/16 13:10

**Lab Sample ID: 300-3154-5**

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	10 mL		4385	06/01/16 15:59	CPM	TAL RCH
Total/NA	Analysis	300.0		2	10 mL		4386	06/01/16 15:59	CPM	TAL RCH

**Client Sample ID: B35KH3**

Date Collected: 05/31/16 09:32

Date Received: 05/31/16 13:10

**Lab Sample ID: 300-3154-1 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			4381	05/31/16 17:37	RLC	TAL RCH

TestAmerica Richland

## Lab Chronicle

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-039

TestAmerica Job ID: 300-3154-1  
SDG: WC1112

## Client Sample ID: B35KH4

Lab Sample ID: 300-3154-4 DU

Date Collected: 05/31/16 09:32

Matrix: Water

Date Received: 05/31/16 13:10

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		4385	06/01/16 15:44	CPM	TAL RCH
Total/NA	Analysis	300.0		2	10 mL		4386	06/01/16 15:44	CPM	TAL RCH

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 300-4381/4

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	7196A		1			4381	05/31/16 17:34	RLC	TAL RCH

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 300-4385/6

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		4385	06/01/16 14:59	CPM	TAL RCH

## Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 300-4386/6

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		4386	06/01/16 14:59	CPM	TAL RCH

## Client Sample ID: Method Blank

Lab Sample ID: MB 300-4381/3

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	7196A		1			4381	05/31/16 17:33	RLC	TAL RCH

## Client Sample ID: Method Blank

Lab Sample ID: MB 300-4385/5

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		4385	06/01/16 14:44	CPM	TAL RCH

TestAmerica Richland

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: F16-039

TestAmerica Job ID: 300-3154-1  
 SDG: WC1112

**Client Sample ID: Method Blank**

**Lab Sample ID: MB 300-4386/5**

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		4386	06/01/16 14:44	CPM	TAL RCH

**Client Sample ID: B35KH3**

**Lab Sample ID: 300-3154-1 MS**

Date Collected: 05/31/16 09:32

Matrix: Water

Date Received: 05/31/16 13:10

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		3.0 mL	4381	05/31/16 17:34	RLC	TAL RCH

**Client Sample ID: B35KH4**

**Lab Sample ID: 300-3154-4 MS**

Date Collected: 05/31/16 09:32

Matrix: Water

Date Received: 05/31/16 13:10

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		4385	06/01/16 15:29	CPM	TAL RCH
Total/NA	Analysis	300.0		2	10 mL		4386	06/01/16 15:29	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: F16-039

TestAmerica Job ID: 300-3154-1  
SDG: WC1112

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL RCH
7196A	Chromium, Hexavalent	SW846	TAL RCH

**Protocol References:**

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

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: F16-039

TestAmerica Job ID: 300-3154-1  
SDG: WC1112

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-3154-1	B35KH3	Water	05/31/16 09:32	05/31/16 13:10
300-3154-2	B35KH7	Water	05/31/16 09:32	05/31/16 13:10
300-3154-3	B35KH9	Water	05/31/16 08:50	05/31/16 13:10
300-3154-4	B35KH4	Water	05/31/16 09:32	05/31/16 13:10
300-3154-5	B35KJ0	Water	05/31/16 08:50	05/31/16 13:10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

## Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-3154-1

SDG Number: WC1112

Login Number: 3154

List Number: 1

Creator: Anderson, Lori F

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.	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 $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	