

July 13, 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: 300-3413-1
TestAmerica Sample Delivery Group: WC1231
Client Project/Site: I16-021

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

Attn: CPP Sample Management



Authorized for release by:
7/13/2016 1:15:04 PM
Steven Campbell, Project Mgmt. Assistant
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Designee for
Whitney Ritari, Project Manager I
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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.



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Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
 Project/Site: I16-021

TestAmerica Job ID: 300-3413-1
 SDG: WC1231

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: I16-021

TestAmerica Job ID: 300-3413-1
SDG: WC1231

Job ID: 300-3413-1

Laboratory: TestAmerica Richland

Narrative

Job Narrative
300-3413-1

Comments

No additional comments.

Receipt

The sample was received on 7/5/2016 2:10 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 6.1° C.

HPLC/IC

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



CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **116-021-015**
Page 1 of 1

Collector	Juan Aguilar <i>CHPRC</i>	Contact/Requester	Karen Waters-Husted
SAF No.	116-021	Sampling Origin	Hanford Site
Project Title	200 UPL, MAY 2016	Logbook No.	HNF-N-506 <u>86 / 42</u>
Shipped To (Lab)	TestAmerica Incorporated, Richland	Method of Shipment	GOVERNMENT VEHICLE
Protocol	CERCLA	Priority:	30 Days PRIORITY
POSSIBLE SAMPLE HAZARDS/REMARKS		SPECIAL INSTRUCTIONS	Hold Time
*** 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		N/A Special Handling: N/A	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B34XY0	N	JUL 05 2016	0854	1x500-mL P	300.0_ANIONS_IC: COMMON	48 Hours	Cool <=6C

#341B
WFC 1231



300-3413 COC

Relinquished By Juan Aguilar <i>CHPRC</i> Print Sign Date/Time: JUL 05 2016 0930	Received By Janelle Zunker CHPRC Print Sign Date/Time: JUL 05 2016 0930
Relinquished By Janelle Zunker CHPRC Print Sign Date/Time: JUL 05 2016 1410	Received By L. Anderson, TARL CHPRC Print Sign Date/Time: JUL 05 2016 7/5/16 1410

S	= Soil	DS	= Drumm Solids
SE	= Sediment	DL	= Drumm Liquids
SO	= Solid	T	= Tissue
SL	= Sludge	WT	= Wipe
W	= Water	L	= Liquid
O	= Oil	V	= Vegetation
A	= Air	X	= Other

Relinquished By Date/Time	Received By Date/Time
Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By Date/Time

July 13, 2016

July 13, 2016

Detection Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-021

TestAmerica Job ID: 300-3413-1
SDG: WC1231

Client Sample ID: B34XY0

Lab Sample ID: 300-3413-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	26	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	11	D	0.14	0.070	mg/L	5		300.0	Total/NA
Fluoride	0.33	D	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	40	D	0.50	0.25	mg/L	2		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Richland

July 13, 2016

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-021

TestAmerica Job ID: 300-3413-1
SDG: WC1231

Client Sample ID: B34XY0

Lab Sample ID: 300-3413-1

Date Collected: 07/05/16 08:54

Matrix: Water

Date Received: 07/05/16 14:10

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26	D	0.40	0.20	mg/L			07/06/16 11:50	2
Nitrate as N	11	D	0.14	0.070	mg/L			07/06/16 13:35	5
Fluoride	0.33	D	0.10	0.050	mg/L			07/06/16 11:50	2
Nitrite as N	0.038	U D	0.076	0.038	mg/L			07/06/16 11:50	2
Sulfate	40	D	0.50	0.25	mg/L			07/06/16 11:50	2

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-021

TestAmerica Job ID: 300-3413-1
SDG: WC1231

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-4792/5
Matrix: Water
Analysis Batch: 4792

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			07/06/16 11:20	1
Nitrite as N	0.019	U	0.038	0.019	mg/L			07/06/16 11:20	1

Lab Sample ID: LCS 300-4792/6
Matrix: Water
Analysis Batch: 4792

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	2.36		mg/L		105	80 - 120
Nitrite as N	3.04	3.16		mg/L		104	80 - 120

Lab Sample ID: 300-3413-1 MS
Matrix: Water
Analysis Batch: 4792

Client Sample ID: B34XY0
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.038	U D	0.609	0.513	D	mg/L		84	75 - 125

Lab Sample ID: 300-3413-1 MS
Matrix: Water
Analysis Batch: 4792

Client Sample ID: B34XY0
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	11	D	1.13	11.9	D	mg/L		104	75 - 125

Lab Sample ID: 300-3413-1 DU
Matrix: Water
Analysis Batch: 4792

Client Sample ID: B34XY0
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrite as N	0.038	U D	0.038	U D	mg/L		NC	20

Lab Sample ID: 300-3413-1 DU
Matrix: Water
Analysis Batch: 4792

Client Sample ID: B34XY0
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	11	D	10.7	D	mg/L		0.5	20

Lab Sample ID: MB 300-4793/5
Matrix: Water
Analysis Batch: 4793

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			07/06/16 11:20	1
Fluoride	0.025	U	0.050	0.025	mg/L			07/06/16 11:20	1
Sulfate	0.13	U	0.25	0.13	mg/L			07/06/16 11:20	1

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
 Project/Site: I16-021

TestAmerica Job ID: 300-3413-1
 SDG: WC1231

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 300-4793/6
 Matrix: Water
 Analysis Batch: 4793

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	16.4		mg/L		103	80 - 120
Fluoride	4.00	4.13		mg/L		103	80 - 120
Sulfate	20.0	20.6		mg/L		103	80 - 120

Lab Sample ID: 300-3413-1 MS
 Matrix: Water
 Analysis Batch: 4793

Client Sample ID: B34XY0
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	26	D	3.20	28.7	D	mg/L		83	75 - 125
Fluoride	0.33	D	0.800	1.07	D	mg/L		92	75 - 125
Sulfate	40	D	4.00	42.8	D	mg/L		82	75 - 125

Lab Sample ID: 300-3413-1 DU
 Matrix: Water
 Analysis Batch: 4793

Client Sample ID: B34XY0
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	26	D	25.9	D	mg/L		0.7	20
Fluoride	0.33	D	0.329	D	mg/L		1	20
Sulfate	40	D	39.2	D	mg/L		0.8	20

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
 Project/Site: I16-021

TestAmerica Job ID: 300-3413-1
 SDG: WC1231

HPLC/IC

Analysis Batch: 4792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3413-1	B34XY0	Total/NA	Water	300.0	
300-3413-1	B34XY0	Total/NA	Water	300.0	
300-3413-1 DU	B34XY0	Total/NA	Water	300.0	
300-3413-1 DU	B34XY0	Total/NA	Water	300.0	
300-3413-1 MS	B34XY0	Total/NA	Water	300.0	
300-3413-1 MS	B34XY0	Total/NA	Water	300.0	
LCS 300-4792/6	Lab Control Sample	Total/NA	Water	300.0	
MB 300-4792/5	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 4793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3413-1	B34XY0	Total/NA	Water	300.0	
300-3413-1 DU	B34XY0	Total/NA	Water	300.0	
300-3413-1 MS	B34XY0	Total/NA	Water	300.0	
LCS 300-4793/6	Lab Control Sample	Total/NA	Water	300.0	
MB 300-4793/5	Method Blank	Total/NA	Water	300.0	

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Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-021

TestAmerica Job ID: 300-3413-1
SDG: WC1231

Client Sample ID: B34XY0

Date Collected: 07/05/16 08:54

Date Received: 07/05/16 14:10

Lab Sample ID: 300-3413-1

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	10 mL		4792	07/06/16 11:50	CPM	TAL RCH
Total/NA	Analysis	300.0		2	10 mL		4793	07/06/16 11:50	CPM	TAL RCH
Total/NA	Analysis	300.0		5	10 mL		4792	07/06/16 13:35	CPM	TAL RCH

Client Sample ID: B34XY0

Date Collected: 07/05/16 08:54

Date Received: 07/05/16 14:10

Lab Sample ID: 300-3413-1 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	300.0		2	10 mL		4792	07/06/16 12:20	CPM	TAL RCH
Total/NA	Analysis	300.0		2	10 mL		4793	07/06/16 12:20	CPM	TAL RCH
Total/NA	Analysis	300.0		5	10 mL		4792	07/06/16 14:05	CPM	TAL RCH

Client Sample ID: Lab Control Sample

Date Collected: N/A

Date Received: N/A

Lab Sample ID: LCS 300-4792/6

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	10 mL		4792	07/06/16 11:35	CPM	TAL RCH

Client Sample ID: Lab Control Sample

Date Collected: N/A

Date Received: N/A

Lab Sample ID: LCS 300-4793/6

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	10 mL		4793	07/06/16 11:35	CPM	TAL RCH

Client Sample ID: Method Blank

Date Collected: N/A

Date Received: N/A

Lab Sample ID: MB 300-4792/5

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		1	10 mL		4792	07/06/16 11:20	CPM	TAL RCH

Client Sample ID: Method Blank

Date Collected: N/A

Date Received: N/A

Lab Sample ID: MB 300-4793/5

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		1	10 mL		4793	07/06/16 11:20	CPM	TAL RCH

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-021

TestAmerica Job ID: 300-3413-1
SDG: WC1231

Client Sample ID: B34XY0

Lab Sample ID: 300-3413-1 MS

Date Collected: 07/05/16 08:54

Matrix: Water

Date Received: 07/05/16 14:10

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		4792	07/06/16 12:05	CPM	TAL RCH
Total/NA	Analysis	300.0		2	10 mL		4793	07/06/16 12:05	CPM	TAL RCH
Total/NA	Analysis	300.0		5	10 mL		4792	07/06/16 13:50	CPM	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: I16-021

TestAmerica Job ID: 300-3413-1
SDG: WC1231

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



July 13, 2016

Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-021

TestAmerica Job ID: 300-3413-1
SDG: WC1231

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-3413-1	B34XY0	Water	07/05/16 08:54	07/05/16 14:10

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-3413-1

SDG Number: WC1231

Login Number: 3413

List Number: 1

Creator: Anderson, Lori 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.	N/A	
Residual Chlorine Checked.	N/A	

