

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: 300-8450-1
TestAmerica Sample Delivery Group: WC3356
Client Project/Site: I19-002

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

Attn: CPP Sample Management



Authorized for release by:
10/16/2018 2:27:13 PM

Ashley Worthy, Project Manager I
(509)375-3131
ashley.worthy@testamericainc.com



LINKS

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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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Client: CH2M Hill Plateau Remediation Company
 Project/Site: I19-002

TestAmerica Job ID: 300-8450-1
 SDG: WC3356

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)



Client: CH2M Hill Plateau Remediation Company
Project/Site: I19-002

TestAmerica Job ID: 300-8450-1
SDG: WC3356

Job ID: 300-8450-1

Laboratory: TestAmerica Richland

Narrative

**Job Narrative
300-8450-1**

Comments

No additional comments.

Receipt

The samples were received on 10/15/2018 2:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.3° C.

HPLC/IC

Method(s) 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for <14915> were outside control limits Nitrate as N. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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



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CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # I19-002-165		
						Page 1 of 1		
Collector: CHRIS FULTON CHPRC		Contact/Requester: Karen Waters-Husted		Telephone No.: 509-376-4650				
SAF No.: I19-002		Sampling Origin: Hanford Site		Purchase Order/Charge Code: 300071				
Project Title: AEA, OCTOBER 2018		Logbook No.: HNF-N-506 / 01		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				
POSSIBLE SAMPLE HAZARDS/REMARK ** ** 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				SPECIAL INSTRUCTIONS N/A				
Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3LB17	N	W	OCT 15 2018	1035	1x125-mL P	300.0_ANIONS_IC: COMMON	48 Hours	Cool <=6C



300-8450 COC

8450
WC 3356

Relinquished By: CHRIS FULTON CHPRC <i>[Signature]</i> OCT 15 2018 <i>1225</i> Print First and Last Name Signature Date/Time	Received By: Jeff Lucas CHPRC <i>[Signature]</i> OCT 15 2018 <i>1225</i> Print First and Last Name Signature Date/Time	Matrix * 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: Jeff Lucas CHPRC <i>[Signature]</i> OCT 15 2018 <i>1425</i> Print First and Last Name Signature Date/Time	Received By: <i>[Signature]</i> OCT 15 2018 <i>1425</i> 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						
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process):		Disposed By:		Date/Time:	

CH2M Hill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # I19-002-168
Page 1 of 1		

Collector: CHRIS FULTON CHPRC	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650
SAF No.: I19-002	Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071
Project Title: AEA, OCTOBER 2018	Logbook No.: HNF-N-506 <i>101</i>	Ice Chest No.: N/A
Shipped To (Lab): <u>TestAmerica Incorporated, Rich</u>	Method of Shipment: GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.: N/A
Protocol: SURV	Priority: 30 Days	Offsite Property No.: N/A

POSSIBLE SAMPLE HAZARDS/REMARK ** ** 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	SPECIAL INSTRUCTIONS N/A
---	------------------------------------

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3LB18	N		<i>10/15/2018</i>	<i>10:35</i>	1x125-mL P	300.0_ANIONS_IC: COMMON	48 Hours	Cool <=6C

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8450
WC 3356

Relinquished By: CHRIS FULTON CHPRC <i>[Signature]</i> <i>OCT 15 2018 1225</i>	Received By: Jeff Lucas CHPRC <i>[Signature]</i> <i>OCT 15 2018 1225</i>	Matrix * 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: Jeff Lucas CHPRC <i>[Signature]</i> <i>OCT 15 2018 1425</i>	Received By: <i>[Signature]</i> <i>OCT 15 2018 1425</i>		
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		
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Client: CH2M Hill Plateau Remediation Company
 Project/Site: I19-002

TestAmerica Job ID: 300-8450-1
 SDG: WC3356

Client Sample ID: B3LB17

Lab Sample ID: 300-8450-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.5	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	5.9	D	0.056	0.028	mg/L	2		300.0	Total/NA
Fluoride	0.44	D	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	39	D	0.50	0.25	mg/L	2		300.0	Total/NA

Client Sample ID: B3LB18

Lab Sample ID: 300-8450-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.4	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	5.8	D	0.056	0.028	mg/L	2		300.0	Total/NA
Fluoride	0.44	D	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	39	D	0.50	0.25	mg/L	2		300.0	Total/NA

This Detection Summary does not include radiochemical test results.



Client: CH2M Hill Plateau Remediation Company
 Project/Site: I19-002

TestAmerica Job ID: 300-8450-1
 SDG: WC3356

Client Sample ID: B3LB17

Lab Sample ID: 300-8450-1

Date Collected: 10/15/18 10:35

Matrix: Water

Date Received: 10/15/18 14:25

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.5	D	0.40	0.20	mg/L			10/15/18 15:45	2
Nitrate as N	5.9	D	0.056	0.028	mg/L			10/15/18 15:45	2
Fluoride	0.44	D	0.10	0.050	mg/L			10/15/18 15:45	2
Nitrite as N	0.038	U D	0.076	0.038	mg/L			10/15/18 15:45	2
Sulfate	39	D	0.50	0.25	mg/L			10/15/18 15:45	2

Client Sample ID: B3LB18

Lab Sample ID: 300-8450-2

Date Collected: 10/15/18 10:35

Matrix: Water

Date Received: 10/15/18 14:25

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.4	D	0.40	0.20	mg/L			10/15/18 16:33	2
Nitrate as N	5.8	D	0.056	0.028	mg/L			10/15/18 16:33	2
Fluoride	0.44	D	0.10	0.050	mg/L			10/15/18 16:33	2
Nitrite as N	0.038	U D	0.076	0.038	mg/L			10/15/18 16:33	2
Sulfate	39	D	0.50	0.25	mg/L			10/15/18 16:33	2

Client: CH2M Hill Plateau Remediation Company
Project/Site: I19-002

TestAmerica Job ID: 300-8450-1
SDG: WC3356

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-14915/5
Matrix: Water
Analysis Batch: 14915

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			10/15/18 12:25	1
Nitrite as N	0.019	U	0.038	0.019	mg/L			10/15/18 12:25	1

Lab Sample ID: LCS 300-14915/6
Matrix: Water
Analysis Batch: 14915

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	2.28		mg/L		101	80 - 120
Nitrite as N	3.04	3.13		mg/L		103	80 - 120

Lab Sample ID: 300-8450-1 MS
Matrix: Water
Analysis Batch: 14915

Client Sample ID: B3LB17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	5.9	D	0.452	6.18	D	mg/L		69	75 - 125
Nitrite as N	0.038	U D	0.609	0.527	D	mg/L		87	75 - 125

Lab Sample ID: 300-8450-1 DU
Matrix: Water
Analysis Batch: 14915

Client Sample ID: B3LB17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	5.9	D	5.80	D	mg/L		1	20
Nitrite as N	0.038	U D	0.038	U D	mg/L		NC	20

Lab Sample ID: MB 300-14916/5
Matrix: Water
Analysis Batch: 14916

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			10/15/18 12:25	1
Fluoride	0.025	U	0.050	0.025	mg/L			10/15/18 12:25	1
Sulfate	0.13	U	0.25	0.13	mg/L			10/15/18 12:25	1

Lab Sample ID: LCS 300-14916/6
Matrix: Water
Analysis Batch: 14916

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	16.0		mg/L		100	80 - 120
Fluoride	4.00	4.07		mg/L		102	80 - 120
Sulfate	20.0	20.2		mg/L		101	80 - 120

Client: CH2M Hill Plateau Remediation Company
 Project/Site: I19-002

TestAmerica Job ID: 300-8450-1
 SDG: WC3356

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 300-8450-1 MS
 Matrix: Water
 Analysis Batch: 14916

Client Sample ID: B3LB17
 Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
Chloride	8.5	D	3.20	11.5	D	mg/L		94	75 - 125	
Fluoride	0.44	D	0.800	1.20	D	mg/L		95	75 - 125	
Sulfate	39	D	4.00	42.0	D	mg/L		78	75 - 125	

Lab Sample ID: 300-8450-1 DU
 Matrix: Water
 Analysis Batch: 14916

Client Sample ID: B3LB17
 Prep Type: Total/NA

Analyte	Sample	Sample	DU		Unit	D	RPD	RPD	
	Result	Qualifier	Result	Qualifier				Limit	Limit
Chloride	8.5	D	8.39	D	mg/L		1	20	
Fluoride	0.44	D	0.439	D	mg/L		1	20	
Sulfate	39	D	38.4	D	mg/L		2	20	

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Client: CH2M Hill Plateau Remediation Company
 Project/Site: I19-002

TestAmerica Job ID: 300-8450-1
 SDG: WC3356

HPLC/IC

Analysis Batch: 14915

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-8450-1	B3LB17	Total/NA	Water	300.0	
300-8450-2	B3LB18	Total/NA	Water	300.0	
MB 300-14915/5	Method Blank	Total/NA	Water	300.0	
LCS 300-14915/6	Lab Control Sample	Total/NA	Water	300.0	
300-8450-1 MS	B3LB17	Total/NA	Water	300.0	
300-8450-1 DU	B3LB17	Total/NA	Water	300.0	

Analysis Batch: 14916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-8450-1	B3LB17	Total/NA	Water	300.0	
300-8450-2	B3LB18	Total/NA	Water	300.0	
MB 300-14916/5	Method Blank	Total/NA	Water	300.0	
LCS 300-14916/6	Lab Control Sample	Total/NA	Water	300.0	
300-8450-1 MS	B3LB17	Total/NA	Water	300.0	
300-8450-1 DU	B3LB17	Total/NA	Water	300.0	

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Client: CH2M Hill Plateau Remediation Company
 Project/Site: I19-002

TestAmerica Job ID: 300-8450-1
 SDG: WC3356

Client Sample ID: B3LB17
 Date Collected: 10/15/18 10:35
 Date Received: 10/15/18 14:25

Lab Sample ID: 300-8450-1
 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			14915	10/15/18 15:45	RTQ	TAL RCH
Total/NA	Analysis	300.0		2			14916	10/15/18 15:45	RTQ	TAL RCH

Client Sample ID: B3LB18
 Date Collected: 10/15/18 10:35
 Date Received: 10/15/18 14:25

Lab Sample ID: 300-8450-2
 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			14915	10/15/18 16:33	RTQ	TAL RCH
Total/NA	Analysis	300.0		2			14916	10/15/18 16:33	RTQ	TAL RCH

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

Lab Sample ID: MB 300-14915/5
 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			14915	10/15/18 12:25	RTQ	TAL RCH

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

Lab Sample ID: MB 300-14916/5
 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			14916	10/15/18 12:25	RTQ	TAL RCH

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

Lab Sample ID: LCS 300-14915/6
 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			14915	10/15/18 12:41	RTQ	TAL RCH

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

Lab Sample ID: LCS 300-14916/6
 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			14916	10/15/18 12:41	RTQ	TAL RCH

Client: CH2M Hill Plateau Remediation Company
 Project/Site: I19-002

TestAmerica Job ID: 300-8450-1
 SDG: WC3356

Client Sample ID: B3LB17

Lab Sample ID: 300-8450-1 MS

Date Collected: 10/15/18 10:35

Matrix: Water

Date Received: 10/15/18 14:25

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			14915	10/15/18 16:01	RTQ	TAL RCH
Total/NA	Analysis	300.0		2			14916	10/15/18 16:01	RTQ	TAL RCH

Client Sample ID: B3LB17

Lab Sample ID: 300-8450-1 DU

Date Collected: 10/15/18 10:35

Matrix: Water

Date Received: 10/15/18 14:25

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			14915	10/15/18 16:17	RTQ	TAL RCH
Total/NA	Analysis	300.0		2			14916	10/15/18 16:17	RTQ	TAL RCH

Laboratory References:

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

Client: CH2M Hill Plateau Remediation Company
Project/Site: I19-002

TestAmerica Job ID: 300-8450-1
SDG: WC3356

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



Client: CH2M Hill Plateau Remediation Company
Project/Site: I19-002

TestAmerica Job ID: 300-8450-1
SDG: WC3356

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-8450-1	B3LB17	Water	10/15/18 10:35	10/15/18 14:25
300-8450-2	B3LB18	Water	10/15/18 10:35	10/15/18 14:25

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-8450-1

SDG Number: WC3356

Login Number: 8450

List Number: 1

Creator: Holm, Tina R

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.	False	Received same day of collection; chilling process has begun.
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.	N/A	
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	

