

August 10, 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: 300-3679-1

TestAmerica Sample Delivery Group: WC1346

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:

8/10/2016 1:01:52 PM

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Designee for

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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. 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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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)



August 10, 2016

Case Narrative

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

TestAmerica Job ID: 300-3679-1
SDG: WC1346

Job ID: 300-3679-1

Laboratory: TestAmerica Richland

Narrative

Job Narrative 300-3679-1

Comments

No additional comments.

Receipt

The sample was received on 8/8/2016 1:35 PM; the sample 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 300.0: The following sample required filtration to reduce matrix interferences: B36L00 (300-3679-1).

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

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CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F16-039-121	PAGE 1 OF 1
COLLECTOR <i>Juan Aguilar</i> ICHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 373-5586	PROJECT COORDINATOR TODAK, D	PRICE CODE 1A	DATA TURNAROUND 24 Hours / 15 Days
SAMPLING LOCATION C9613, OPTIONAL 1	PROJECT DESIGNATION 100-HR-3 Long Term & Interim Action Monitoring - Water	FIELD LOGBOOK NO. H2F-2-64S-5/17	ACTUAL SAMPLE DEPTH 96.71'	AIR QUALITY <input type="checkbox"/>	ORIGINAL
ICE CHEST NO. N/A	NO. OF CONTAINER(S) 1	OFFSITE PROPERTY NO. N/A	BILL OF LADING/AIR BILL NO. N/A	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO Testamerica Incorporated, Richland	NO. OF CONTAINER(S) 1	VOLUME 500ml	SEE ITEM (1) IN SPECIAL INSTRUCTIONS		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool <=-6C
A=Air	*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.	HOLDING TIME	48 Hours
DL=Drum		TYPE OF CONTAINER	P
Liquids			
DS=Drum			
Solids			
L=Liquid			
O=Oil			
S=Soil			
SE=Sediment			
T=Tissue			
V=Vegetation			
W=Water			
WI=Wipe			
X=Other			

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	✓
B36L00	WATER	AUG 08 2016	0832	

#3699
WU1344



300-3679 COC

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM <i>Juan Aguilar</i> RELINQUISHED BY/REMOVED FROM <i>Be Bridges</i> CHPRC	RECEIVED BY/STORED IN <i>Be Bridges</i> CHPRC RECEIVED BY/STORED IN <i>J. Bock, TARA</i>	Preliminary data to be reported by email as soon as possible. (1) 300.0 ANIONS_IC: COMMON {Chloride, Nitrogen in Nitrate, Sulfate}; 300.0 ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};
DATE/TIME AUG 08 2016 0905	DATE/TIME AUG 08 2016 0905	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
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DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	

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

August 10, 2016 Detection Summary

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

TestAmerica Job ID: 300-3679-1
SDG: WC1346

Client Sample ID: B36L00

Lab Sample ID: 300-3679-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	21	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	5.0	D	0.056	0.028	mg/L	2		300.0	Total/NA
Sulfate	120	D	2.5	1.3	mg/L	10		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Richland

August 10, 2016

Client Sample Results

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

TestAmerica Job ID: 300-3679-1
SDG: WC1346

Client Sample ID: B36L00

Lab Sample ID: 300-3679-1

Date Collected: 08/08/16 08:32

Matrix: Water

Date Received: 08/08/16 13:35

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	21	D	0.40	0.20	mg/L			08/09/16 17:03	2
Nitrate as N	5.0	D	0.056	0.028	mg/L			08/09/16 17:03	2
Orthophosphate as P	0.082	U D	0.16	0.082	mg/L			08/09/16 17:03	2
Sulfate	120	D	2.5	1.3	mg/L			08/09/16 18:04	10

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QC Sample Results

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

TestAmerica Job ID: 300-3679-1
 SDG: WC1346

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-5197/15

Matrix: Water

Analysis Batch: 5197

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			08/09/16 15:46	1
Orthophosphate as P	0.041	U	0.082	0.041	mg/L			08/09/16 15:46	1

Lab Sample ID: LCS 300-5197/16

Matrix: Water

Analysis Batch: 5197

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	6.61		mg/L		101	80 - 120

Lab Sample ID: 300-3678-A-1 MS

Matrix: Water

Analysis Batch: 5197

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	0.99	D	0.452	1.43	D	mg/L		98	75 - 125
Orthophosphate as P	0.082	U D	1.31	1.11	D	mg/L		85	75 - 125

Lab Sample ID: 300-3678-A-1 DU

Matrix: Water

Analysis Batch: 5197

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	0.99	D	0.452	0.977	D	mg/L		0.8	20
Orthophosphate as P	0.082	U D	1.31	0.082	U D	mg/L		NC	20

Lab Sample ID: MB 300-5198/15

Matrix: Water

Analysis Batch: 5198

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			08/09/16 15:46	1
Sulfate	0.13	U	0.25	0.13	mg/L			08/09/16 15:46	1

Lab Sample ID: LCS 300-5198/16

Matrix: Water

Analysis Batch: 5198

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
Sulfate	20.0	20.1		mg/L		101	80 - 120

Lab Sample ID: 300-3678-A-1 MS

Matrix: Water

Analysis Batch: 5198

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	7.6	D	3.20	10.7	D	mg/L		96	75 - 125

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QC Sample Results

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

TestAmerica Job ID: 300-3679-1
 SDG: WC1346

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 300-3678-A-1 MS
Matrix: Water
Analysis Batch: 5198

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
Sulfate	21	D	4.00	24.9	D	mg/L		93	75 - 125

Lab Sample ID: 300-3678-A-1 DU
Matrix: Water
Analysis Batch: 5198

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	7.6	D	7.57	D	mg/L		0.6	20
Sulfate	21	D	21.0	D	mg/L		0.7	20

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QC Association Summary

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

TestAmerica Job ID: 300-3679-1
SDG: WC1346

HPLC/IC

Analysis Batch: 5197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3679-1	B36L00	Total/NA	Water	300.0	
MB 300-5197/15	Method Blank	Total/NA	Water	300.0	
LCS 300-5197/16	Lab Control Sample	Total/NA	Water	300.0	
300-3678-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
300-3678-A-1 DU	Duplicate	Total/NA	Water	300.0	

Analysis Batch: 5198

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3679-1	B36L00	Total/NA	Water	300.0	
300-3679-1	B36L00	Total/NA	Water	300.0	
MB 300-5198/15	Method Blank	Total/NA	Water	300.0	
LCS 300-5198/16	Lab Control Sample	Total/NA	Water	300.0	
300-3678-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
300-3678-A-1 DU	Duplicate	Total/NA	Water	300.0	

August 10, 2016 Lab Chronicle

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

TestAmerica Job ID: 300-3679-1
SDG: WC1346

Client Sample ID: B36L00

Lab Sample ID: 300-3679-1

Date Collected: 08/08/16 08:32

Matrix: Water

Date Received: 08/08/16 13:35

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			5197	08/09/16 17:03	RLC	TAL RCH
Total/NA	Analysis	300.0		2			5198	08/09/16 17:03	RLC	TAL RCH
Total/NA	Analysis	300.0		10			5198	08/09/16 18:04	RLC	TAL RCH

Client Sample ID: Method Blank

Lab Sample ID: MB 300-5197/15

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			5197	08/09/16 15:46	RLC	TAL RCH

Client Sample ID: Method Blank

Lab Sample ID: MB 300-5198/15

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			5198	08/09/16 15:46	RLC	TAL RCH

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 300-5197/16

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			5197	08/09/16 16:01	RLC	TAL RCH

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 300-5198/16

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			5198	08/09/16 16:01	RLC	TAL RCH

Client Sample ID: Matrix Spike

Lab Sample ID: 300-3678-A-1 MS

Date Collected: 08/08/16 10:07

Matrix: Water

Date Received: 08/08/16 13:35

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			5197	08/09/16 16:32	RLC	TAL RCH
Total/NA	Analysis	300.0		2			5198	08/09/16 16:32	RLC	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: F16-039

TestAmerica Job ID: 300-3679-1
SDG: WC1346

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: F16-039

TestAmerica Job ID: 300-3679-1
SDG: WC1346

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-3679-1	B36L00	Water	08/08/16 08:32	08/08/16 13:35

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-3679-1

SDG Number: WC1346

Login Number: 3679

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.	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	

