

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: 300-6996-1
TestAmerica Sample Delivery Group: WC2817
Client Project/Site: W18-004

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

Attn: CPP Sample Management



Authorized for release by:
5/10/2018 3:06:56 PM

Ashley Worthy, 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.

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Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-004

TestAmerica Job ID: 300-6996-1
SDG: WC2817

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
B	Estimated result. Result is less than the RL, but greater than MDL
D	The reported value is from a dilution.
X	See case narrative notes for explanation of the 'X' flag
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	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: W18-004

TestAmerica Job ID: 300-6996-1
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Job ID: 300-6996-1

Laboratory: TestAmerica Richland

Narrative

**Job Narrative
300-6996-1**

Comments

No additional comments.

Receipt

The samples were received on 4/9/2018 2:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0° C.

HPLC/IC

Method(s) 300.0: The continuing calibration blank (CCB) for analytical batch 300-10897 contained Chloride above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

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



May 10, 2018
Detection Summary

Rev 0

Client: CH2M Hill Plateau Remediation Company
 Project/Site: W18-004

TestAmerica Job ID: 300-6996-1
 SDG: WC2817

Client Sample ID: B3HP83

Lab Sample ID: 300-6996-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	25	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	31	D	0.28	0.14	mg/L	10		300.0	Total/NA
Fluoride	0.27	D	0.10	0.050	mg/L	2		300.0	Total/NA
Nitrite as N	0.066	B D	0.076	0.038	mg/L	2		300.0	Total/NA
Sulfate	84	D	0.50	0.25	mg/L	2		300.0	Total/NA

Client Sample ID: B3HP74

Lab Sample ID: 300-6996-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	22	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	22	D	0.14	0.070	mg/L	5		300.0	Total/NA
Fluoride	0.27	D	0.10	0.050	mg/L	2		300.0	Total/NA
Nitrite as N	0.066	B D	0.076	0.038	mg/L	2		300.0	Total/NA
Sulfate	77	D	0.50	0.25	mg/L	2		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Richland



May 10, 2018
Client Sample Results

Rev 0

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-004

TestAmerica Job ID: 300-6996-1
SDG: WC2817

Client Sample ID: B3HP83
Date Collected: 04/09/18 11:46
Date Received: 04/09/18 14:25

Lab Sample ID: 300-6996-1
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	25	D	0.40	0.20	mg/L			04/09/18 18:20	2
Nitrate as N	31	D	0.28	0.14	mg/L			04/09/18 21:02	10
Fluoride	0.27	D	0.10	0.050	mg/L			04/09/18 18:20	2
Nitrite as N	0.066	B D	0.076	0.038	mg/L			04/09/18 18:20	2
Sulfate	84	D	0.50	0.25	mg/L			04/09/18 18:20	2

Client Sample ID: B3HP74
Date Collected: 04/09/18 11:00
Date Received: 04/09/18 14:25

Lab Sample ID: 300-6996-2
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	22	D	0.40	0.20	mg/L			04/09/18 18:37	2
Nitrate as N	22	D	0.14	0.070	mg/L			04/09/18 21:18	5
Fluoride	0.27	D	0.10	0.050	mg/L			04/09/18 18:37	2
Nitrite as N	0.066	B D	0.076	0.038	mg/L			04/09/18 18:37	2
Sulfate	77	D	0.50	0.25	mg/L			04/09/18 18:37	2

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May 10, 2018
QC Sample Results

Rev 0

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-004

TestAmerica Job ID: 300-6996-1
SDG: WC2817

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-10896/5
Matrix: Water
Analysis Batch: 10896

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			04/09/18 11:22	1
Nitrite as N	0.019	U	0.038	0.019	mg/L			04/09/18 11:22	1

Lab Sample ID: LCS 300-10896/6
Matrix: Water
Analysis Batch: 10896

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	2.45		mg/L		108	80 - 120
Nitrite as N	3.04	3.29		mg/L		108	80 - 120

Lab Sample ID: 300-6994-A-2 MS
Matrix: Water
Analysis Batch: 10896

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
Nitrite as N	0.078	D	0.609	0.588	D	mg/L		84	75 - 125

Lab Sample ID: 300-6994-A-2 MS
Matrix: Water
Analysis Batch: 10896

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	16	D	2.26	18.0	D	mg/L		97	75 - 125

Lab Sample ID: 300-6994-A-2 DU
Matrix: Water
Analysis Batch: 10896

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrite as N	0.078	D	0.0722	B D	mg/L		7	20

Lab Sample ID: 300-6994-A-2 DU
Matrix: Water
Analysis Batch: 10896

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	16	D	15.6	D	mg/L		1	20

Lab Sample ID: MB 300-10897/5
Matrix: Water
Analysis Batch: 10897

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			04/09/18 11:22	1
Fluoride	0.025	U	0.050	0.025	mg/L			04/09/18 11:22	1
Sulfate	0.13	U	0.25	0.13	mg/L			04/09/18 11:22	1

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Client: CH2M Hill Plateau Remediation Company
 Project/Site: W18-004

TestAmerica Job ID: 300-6996-1
 SDG: WC2817

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 300-10897/6
 Matrix: Water
 Analysis Batch: 10897

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	17.0		mg/L		106	80 - 120
Fluoride	4.00	4.29		mg/L		107	80 - 120
Sulfate	20.0	20.7		mg/L		103	80 - 120

Lab Sample ID: 300-6994-A-2 MS
 Matrix: Water
 Analysis Batch: 10897

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	20	D	3.20	23.8	D X	mg/L		112	75 - 125
Fluoride	0.48	D	0.800	1.33	D	mg/L		107	75 - 125

Lab Sample ID: 300-6994-A-2 MS
 Matrix: Water
 Analysis Batch: 10897

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	140	D	20.0	158	D	mg/L		86	75 - 125

Lab Sample ID: 300-6994-A-2 DU
 Matrix: Water
 Analysis Batch: 10897

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	20	D	20.2	D	mg/L		0.2	20
Fluoride	0.48	D	0.480	D	mg/L		1	20

Lab Sample ID: 300-6994-A-2 DU
 Matrix: Water
 Analysis Batch: 10897

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	140	D	139	D	mg/L		1	20

May 10, 2018
QC Association Summary

Rev 0

Client: CH2M Hill Plateau Remediation Company
 Project/Site: W18-004

TestAmerica Job ID: 300-6996-1
 SDG: WC2817

HPLC/IC

Analysis Batch: 10896

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-6996-1	B3HP83	Total/NA	Water	300.0	
300-6996-1	B3HP83	Total/NA	Water	300.0	
300-6996-2	B3HP74	Total/NA	Water	300.0	
300-6996-2	B3HP74	Total/NA	Water	300.0	
MB 300-10896/5	Method Blank	Total/NA	Water	300.0	
LCS 300-10896/6	Lab Control Sample	Total/NA	Water	300.0	
300-6994-A-2 MS	Matrix Spike	Total/NA	Water	300.0	
300-6994-A-2 MS	Matrix Spike	Total/NA	Water	300.0	
300-6994-A-2 DU	Duplicate	Total/NA	Water	300.0	
300-6994-A-2 DU	Duplicate	Total/NA	Water	300.0	

Analysis Batch: 10897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-6996-1	B3HP83	Total/NA	Water	300.0	
300-6996-2	B3HP74	Total/NA	Water	300.0	
MB 300-10897/5	Method Blank	Total/NA	Water	300.0	
LCS 300-10897/6	Lab Control Sample	Total/NA	Water	300.0	
300-6994-A-2 MS	Matrix Spike	Total/NA	Water	300.0	
300-6994-A-2 MS	Matrix Spike	Total/NA	Water	300.0	
300-6994-A-2 DU	Duplicate	Total/NA	Water	300.0	
300-6994-A-2 DU	Duplicate	Total/NA	Water	300.0	



Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-004

TestAmerica Job ID: 300-6996-1
SDG: WC2817

Client Sample ID: B3HP83

Date Collected: 04/09/18 11:46

Date Received: 04/09/18 14:25

Lab Sample ID: 300-6996-1

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			10896	04/09/18 18:20	RTQ	TAL RCH
Total/NA	Analysis	300.0		2			10897	04/09/18 18:20	RTQ	TAL RCH
Total/NA	Analysis	300.0		10			10896	04/09/18 21:02	RTQ	TAL RCH

Client Sample ID: B3HP74

Date Collected: 04/09/18 11:00

Date Received: 04/09/18 14:25

Lab Sample ID: 300-6996-2

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			10896	04/09/18 18:37	RTQ	TAL RCH
Total/NA	Analysis	300.0		2			10897	04/09/18 18:37	RTQ	TAL RCH
Total/NA	Analysis	300.0		5			10896	04/09/18 21:18	RTQ	TAL RCH

Client Sample ID: Method Blank

Date Collected: N/A

Date Received: N/A

Lab Sample ID: MB 300-10896/5

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			10896	04/09/18 11:22	RTQ	TAL RCH

Client Sample ID: Method Blank

Date Collected: N/A

Date Received: N/A

Lab Sample ID: MB 300-10897/5

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			10897	04/09/18 11:22	RTQ	TAL RCH

Client Sample ID: Lab Control Sample

Date Collected: N/A

Date Received: N/A

Lab Sample ID: LCS 300-10896/6

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			10896	04/09/18 11:38	RTQ	TAL RCH

Client Sample ID: Lab Control Sample

Date Collected: N/A

Date Received: N/A

Lab Sample ID: LCS 300-10897/6

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			10897	04/09/18 11:38	RTQ	TAL RCH

Client: CH2M Hill Plateau Remediation Company
Project/Site: W18-004

TestAmerica Job ID: 300-6996-1
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Client Sample ID: Matrix Spike

Lab Sample ID: 300-6994-A-2 MS

Date Collected: 04/09/18 11:17

Matrix: Water

Date Received: 04/09/18 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			10896	04/09/18 17:00	RTQ	TAL RCH
Total/NA	Analysis	300.0		2			10897	04/09/18 17:00	RTQ	TAL RCH
Total/NA	Analysis	300.0		10			10896	04/09/18 19:41	RTQ	TAL RCH
Total/NA	Analysis	300.0		10			10897	04/09/18 19:41	RTQ	TAL RCH

Client Sample ID: Duplicate

Lab Sample ID: 300-6994-A-2 DU

Date Collected: 04/09/18 11:17

Matrix: Water

Date Received: 04/09/18 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			10896	04/09/18 17:16	RTQ	TAL RCH
Total/NA	Analysis	300.0		2			10897	04/09/18 17:16	RTQ	TAL RCH
Total/NA	Analysis	300.0		10			10896	04/09/18 19:57	RTQ	TAL RCH
Total/NA	Analysis	300.0		10			10897	04/09/18 19:57	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: W18-004

TestAmerica Job ID: 300-6996-1
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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: W18-004

TestAmerica Job ID: 300-6996-1
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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-6996-1	B3HP83	Water	04/09/18 11:46	04/09/18 14:25
300-6996-2	B3HP74	Water	04/09/18 11:00	04/09/18 14:25

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-6996-1

SDG Number: WC2817

Login Number: 6996

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.	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.	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	

