

8/18/2016

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: 300-3563-1
TestAmerica Sample Delivery Group: WC1300
Client Project/Site: X16-036

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

Attn: CPP Sample Management



Authorized for release by:
8/18/2016 8:37:38 AM
Steven Campbell, Project Mgmt. Assistant
steven.campbell@testamericainc.com

Designee for
Whitney Ritari, Project Manager I
(509)375-3131 ext164
whitney.ritari@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.



LINKS

Review your project results through
TotalAccess

Have a Question?



Visit us at:
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	7
Client Sample Results	8
QC Sample Results	9
QC Association Summary	11
Lab Chronicle	12
Method Summary	14
Sample Summary	15
Receipt Checklists	16

Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
Project/Site: X16-036

TestAmerica Job ID: 300-3563-1
SDG: WC1300

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
D	The reported value is from a dilution.
U	Analyzed for but not detected.
B	Estimated result. Result is less than the RL, but greater than MDL

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: X16-036

TestAmerica Job ID: 300-3563-1
SDG: WC1300

Job ID: 300-3563-1

Laboratory: TestAmerica Richland

Narrative

**Job Narrative
300-3563-1**

Comments

No additional comments.

Receipt

The samples were received on 7/25/2016 2:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 12.0° C.

HPLC/IC

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



CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #
X16-036-041
Page 1 of 1

Collector	J.R. Aguilar/CHPRC	Contact/Requester	WATERS-HUSTED, K	Telephone No.	376-4650			
SAF No.	X16-036	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303796			
Project Title	100-N Bioremediation Monitoring, July 2	Logbook No.	HNF-N-506 79 / 31	Ice Chest No.	N/A			
Shipped To (Lab)	TestAmerica Incorporated, Richland	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A			
Protocol	CERCLA	Priority:	30 Days	Offsite Property No.	N/A			
POSSIBLE SAMPLE HAZARDS/REMARKS			PRIORITY					
*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.			SPECIAL INSTRUCTIONS					
			Hold Time					
			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
B35LR9	N	W	JUL 25 2016	1122	1x500-mL P	300.0_ANIONS_IC: COMMON; 300.0_ANIONS_IC: GW 01	48 Hours	Cool <=6C

A 3563
WCE1362

300-3563 COC



Relinquished By	J.R. Aguilar/CHPRC	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
Relinquished By	Troy Bacon CHPRC			JUL 25 2016 1300	Troy Bacon CHPRC			JUL 25 2016 1300	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By					J. Bock, TARI			JUL 25 2016 1424	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other

Relinquished By	Date/Time	Received By	Date/Time
Relinquished By		Received By	
Relinquished By		Received By	

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.#
X16-036-040
Page 1 of 1

Collector	J.R. Aguilar/CHPRC		Contact/Requester	WATERS-HUSTED, K		Telephone No.	376-4650	
SAF No.	X16-036		Sampling Origin	Hanford Site		Purchase Order/Charge Code	303796	
Project Title	100-N Bioremediation Monitoring, July 2		Logbook No.	HNF-N-506 79/31		Ice Chest No.	N/A	
Shipped To (Lab)	TestAmerica Incorporated, Richland		Method of Shipment	GOVERNMENT VEHICLE		Bill of Lading/Air Bill No.	N/A	
Protocol	CERCLA		Priority:	30 Days		Offsite Property No.	N/A	
POSSIBLE SAMPLE HAZARDS/REMARKS				PRIORITY		Total Activity Exemption: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
*Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/ATA 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
B35LR6	N	W JUL 25 2016	0939	1x500-mL P	300.0 ANIONS_IC: COMMON; 300.0 ANIONS_IC: GW 01	48 Hours	Cool <=6C

3563
WC1350

Relinquished By			Date/Time	Received By		Date/Time	Matrix *
J.R. Aguilar/CHPRC	<i>[Signature]</i>	Sign	JUL 25 2016 1300	Troy Bacon/CHPRC	<i>[Signature]</i>	JUL 25 2016 1300	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By			Date/Time	Received By		Date/Time	DS = Drum Solids DL = Drum Liquids T = Tissue WT = Wipe L = Liquid V = Vegetation X = Other
Troy Bacon/CHPRC	<i>[Signature]</i>		JUL 25 2016 1425	J. Bock, TARL	<i>[Signature]</i>	JUL 25 2016 1425	
Relinquished By			Date/Time	Received By		Date/Time	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)
	Disposed By

Detection Summary

Client: CH2M Hill Plateau Remediation Company
 Project/Site: X16-036

TestAmerica Job ID: 300-3563-1
 SDG: WC1300

Client Sample ID: B35LR9

Lab Sample ID: 300-3563-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	0.92	D	0.40	0.20	mg/L	2		300.0	Total/NA
Fluoride	0.087	B D	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	13	D	0.50	0.25	mg/L	2		300.0	Total/NA

Client Sample ID: B35LR6

Lab Sample ID: 300-3563-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	33	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	8.3	D	0.056	0.028	mg/L	2		300.0	Total/NA
Fluoride	0.14	D	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	67	D	0.50	0.25	mg/L	2		300.0	Total/NA

This Detection Summary does not include radiochemical test results.



Client Sample Results

Client: CH2M Hill Plateau Remediation Company
 Project/Site: X16-036

TestAmerica Job ID: 300-3563-1
 SDG: WC1300

Client Sample ID: B35LR9

Lab Sample ID: 300-3563-1

Date Collected: 07/25/16 11:22

Matrix: Water

Date Received: 07/25/16 14:25

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.92	D	0.40	0.20	mg/L			07/26/16 15:31	2
Nitrate as N	0.028	U D	0.056	0.028	mg/L			07/26/16 15:31	2
Fluoride	0.087	B D	0.10	0.050	mg/L			07/26/16 15:31	2
Nitrite as N	0.038	U D	0.076	0.038	mg/L			07/26/16 15:31	2
Orthophosphate as P	0.082	U D	0.16	0.082	mg/L			07/26/16 15:31	2
Sulfate	13	D	0.50	0.25	mg/L			07/26/16 15:31	2

Client Sample ID: B35LR6

Lab Sample ID: 300-3563-2

Date Collected: 07/25/16 09:39

Matrix: Water

Date Received: 07/25/16 14:25

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	33	D	0.40	0.20	mg/L			07/26/16 15:46	2
Nitrate as N	8.3	D	0.056	0.028	mg/L			07/26/16 15:46	2
Fluoride	0.14	D	0.10	0.050	mg/L			07/26/16 15:46	2
Nitrite as N	0.038	U D	0.076	0.038	mg/L			07/26/16 15:46	2
Orthophosphate as P	0.082	U D	0.16	0.082	mg/L			07/26/16 15:46	2
Sulfate	67	D	0.50	0.25	mg/L			07/26/16 15:46	2

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: X16-036

TestAmerica Job ID: 300-3563-1
SDG: WC1300

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-5032/5

Matrix: Water

Analysis Batch: 5032

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			07/26/16 13:30	1
Nitrite as N	0.019	U	0.038	0.019	mg/L			07/26/16 13:30	1
Orthophosphate as P	0.041	U	0.082	0.041	mg/L			07/26/16 13:30	1

Lab Sample ID: LCS 300-5032/6

Matrix: Water

Analysis Batch: 5032

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	2.34		mg/L		103	80 - 120
Nitrite as N	3.04	3.19		mg/L		105	80 - 120
Orthophosphate as P	6.53	6.72		mg/L		103	80 - 120

Lab Sample ID: 300-3562-A-15 MS

Matrix: Water

Analysis Batch: 5032

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	2.5	D	0.452	2.94	D	mg/L		103	75 - 125
Nitrite as N	0.038	U D	0.609	0.550	D	mg/L		90	75 - 125
Orthophosphate as P	0.082	U D	1.31	1.13	D	mg/L		87	75 - 125

Lab Sample ID: 300-3562-A-15 DU

Matrix: Water

Analysis Batch: 5032

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	2.5	D	2.45	D	mg/L		0.9	20
Nitrite as N	0.038	U D	0.038	U D	mg/L		NC	20
Orthophosphate as P	0.082	U D	0.082	U D	mg/L		NC	20

Lab Sample ID: MB 300-5033/5

Matrix: Water

Analysis Batch: 5033

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			07/26/16 13:30	1
Fluoride	0.025	U	0.050	0.025	mg/L			07/26/16 13:30	1
Sulfate	0.13	U	0.25	0.13	mg/L			07/26/16 13:30	1

Lab Sample ID: LCS 300-5033/6

Matrix: Water

Analysis Batch: 5033

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	16.3		mg/L		102	80 - 120
Fluoride	4.00	4.11		mg/L		103	80 - 120
Sulfate	20.0	20.6		mg/L		103	80 - 120

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
 Project/Site: X16-036

TestAmerica Job ID: 300-3563-1
 SDG: WC1300

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 300-3562-A-15 MS

Matrix: Water

Analysis Batch: 5033

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
Chloride	6.8	D	3.20	10.1	D	mg/L		102	75 - 125	
Fluoride	0.26	D	0.800	1.03	D	mg/L		97	75 - 125	
Sulfate	40	D	4.00	44.0	D	mg/L		93	75 - 125	

Lab Sample ID: 300-3562-A-15 DU

Matrix: Water

Analysis Batch: 5033

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample	Sample	DU		Unit	D	RPD	RPD	
	Result	Qualifier	Result	Qualifier				Limit	Limit
Chloride	6.8	D	6.76	D	mg/L		0.9	20	
Fluoride	0.26	D	0.261	D	mg/L		0.5	20	
Sulfate	40	D	39.9	D	mg/L		0.9	20	

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: X16-036

TestAmerica Job ID: 300-3563-1
SDG: WC1300

HPLC/IC

Analysis Batch: 5032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3563-1	B35LR9	Total/NA	Water	300.0	
300-3563-2	B35LR6	Total/NA	Water	300.0	
MB 300-5032/5	Method Blank	Total/NA	Water	300.0	
LCS 300-5032/6	Lab Control Sample	Total/NA	Water	300.0	
300-3562-A-15 MS	Matrix Spike	Total/NA	Water	300.0	
300-3562-A-15 DU	Duplicate	Total/NA	Water	300.0	

Analysis Batch: 5033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3563-1	B35LR9	Total/NA	Water	300.0	
300-3563-2	B35LR6	Total/NA	Water	300.0	
MB 300-5033/5	Method Blank	Total/NA	Water	300.0	
LCS 300-5033/6	Lab Control Sample	Total/NA	Water	300.0	
300-3562-A-15 MS	Matrix Spike	Total/NA	Water	300.0	
300-3562-A-15 DU	Duplicate	Total/NA	Water	300.0	

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
 Project/Site: X16-036

TestAmerica Job ID: 300-3563-1
 SDG: WC1300

Client Sample ID: B35LR9

Lab Sample ID: 300-3563-1

Date Collected: 07/25/16 11:22

Matrix: Water

Date Received: 07/25/16 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			5032	07/26/16 15:31	RLC	TAL RCH
Total/NA	Analysis	300.0		2			5033	07/26/16 15:31	RLC	TAL RCH

Client Sample ID: B35LR6

Lab Sample ID: 300-3563-2

Date Collected: 07/25/16 09:39

Matrix: Water

Date Received: 07/25/16 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			5032	07/26/16 15:46	RLC	TAL RCH
Total/NA	Analysis	300.0		2			5033	07/26/16 15:46	RLC	TAL RCH

Client Sample ID: Method Blank

Lab Sample ID: MB 300-5032/5

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			5032	07/26/16 13:30	RLC	TAL RCH

Client Sample ID: Method Blank

Lab Sample ID: MB 300-5033/5

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			5033	07/26/16 13:30	RLC	TAL RCH

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 300-5032/6

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			5032	07/26/16 13:45	RLC	TAL RCH

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 300-5033/6

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			5033	07/26/16 13:45	RLC	TAL RCH

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
 Project/Site: X16-036

TestAmerica Job ID: 300-3563-1
 SDG: WC1300

Client Sample ID: Matrix Spike

Lab Sample ID: 300-3562-A-15 MS

Date Collected: 07/25/16 09:32

Matrix: Water

Date Received: 07/25/16 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			5032	07/26/16 14:16	RLC	TAL RCH
Total/NA	Analysis	300.0		2			5033	07/26/16 14:16	RLC	TAL RCH

Laboratory References:

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

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

Method Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: X16-036

TestAmerica Job ID: 300-3563-1
SDG: WC1300

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



Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: X16-036

TestAmerica Job ID: 300-3563-1
SDG: WC1300

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-3563-1	B35LR9	Water	07/25/16 11:22	07/25/16 14:25
300-3563-2	B35LR6	Water	07/25/16 09:39	07/25/16 14:25

- 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: 300-3563-1

SDG Number: WC1300

Login Number: 3563

List Number: 1

Creator: Bock, Julie A

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.	True	
Residual Chlorine Checked.	N/A	