

July 19, 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: 300-3346-1

TestAmerica Sample Delivery Group: WC1195

Client Project/Site: S16-006

For:

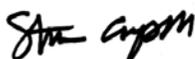
CH2M Hill Plateau Remediation Company

PO BOX 1600

Mail Stop R3-50

Richland, Washington 99352

Attn: CPP Sample Management



Authorized for release by:

7/19/2016 3:39:03 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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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.
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, 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)



Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-006

TestAmerica Job ID: 300-3346-1
SDG: WC1195

Job ID: 300-3346-1

Laboratory: TestAmerica Richland

Narrative

Job Narrative
300-3346-1

Comments

No additional comments.

Receipt

The samples were received on 6/24/2016 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9° C.

HPLC/IC

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

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#
S16-006-588
Page 1 of 1

Collector	Dan Woehle CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S16-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, JUNE 2016	Logbook No.	HNF-N-506 <u>86/36</u>	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	SURV	Priority:	30 Days	Offsite Property No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS		PRIORITY		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 438.1		SPECIAL INSTRUCTIONS		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
		N/A			

Sample No.	Filter	*	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
B35DH8	N	W	6/23/16	1255	1x500-ml P	300.0_ANIONS_IC: COMMON	48 Hours	Cool <=6C

#3346
WFC1195



300-3346 COC

July 19, 2016

Relinquished By	Dan Woehle CHPRC	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
	<i>Dan Woehle</i>			JUN 23 2016 1410	SSU-1			JUN 23 2016 1410	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By	SSU-1			JUN 24 2016 0760	Received By Janelle Zunker CHPRC			JUN 24 2016 0760	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By	Janelle Zunker CHPRC			JUN 24 2016 0830	Received By L Anderson, TARI			JUN 24 2016 0830	
Relinquished By					Received By				
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By		Date/Time		

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#
S16-006-589
Page 1 of 1

Collector	Dan Woehle CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S16-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, JUNE 2016	Logbook No.	HNF-N-506 86 / 36	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	SURV	Priority:	30 Days	Offsite Property No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS			SPECIAL INSTRUCTIONS		
*** 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 438.1			Hold Time		
			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
B35DH9	N	W	6-23-16	1955	1x500-ml P	300 0_ ANIONS_IC: COMMON	48 Hours	Cool <=6C

#324105
W/C 1105

July 19, 2016

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
Dan Woehle CHPRC		<i>[Signature]</i>	JUN 23 2016 1410	SSU-1			JUN 23 2016 1410	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By			JUN 24 2016 0700	Janelle Zunker CHPRC	<i>[Signature]</i>		JUN 24 2016 0700	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By			JUN 24 2016 0830	L. Anderson, TARI CHPRC	<i>[Signature]</i>		JUN 24 2016 0830	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
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July 19, 2016
Detection Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-006

TestAmerica Job ID: 300-3346-1
SDG: WC1195

Client Sample ID: B35DH8

Lab Sample ID: 300-3346-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	28	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	3.2	D	0.056	0.028	mg/L	2		300.0	Total/NA
Fluoride	0.068	B D	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	58	D	0.50	0.25	mg/L	2		300.0	Total/NA

Client Sample ID: B35DH9

Lab Sample ID: 300-3346-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	29	D	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	3.2	D	0.056	0.028	mg/L	2		300.0	Total/NA
Fluoride	0.068	B D	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	58	D	0.50	0.25	mg/L	2		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Richland

July 19, 2016
Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-006

TestAmerica Job ID: 300-3346-1
SDG: WC1195

Client Sample ID: B35DH8

Lab Sample ID: 300-3346-1

Date Collected: 06/23/16 12:55

Matrix: Water

Date Received: 06/24/16 08:30

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	28	D	0.40	0.20	mg/L			06/24/16 15:27	2
Nitrate as N	3.2	D	0.056	0.028	mg/L			06/24/16 15:27	2
Fluoride	0.068	B D	0.10	0.050	mg/L			06/24/16 15:27	2
Nitrite as N	0.038	U D	0.076	0.038	mg/L			06/24/16 15:27	2
Sulfate	58	D	0.50	0.25	mg/L			06/24/16 15:27	2

Client Sample ID: B35DH9

Lab Sample ID: 300-3346-2

Date Collected: 06/23/16 12:55

Matrix: Water

Date Received: 06/24/16 08:30

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	29	D	0.40	0.20	mg/L			06/24/16 16:13	2
Nitrate as N	3.2	D	0.056	0.028	mg/L			06/24/16 16:13	2
Fluoride	0.068	B D	0.10	0.050	mg/L			06/24/16 16:13	2
Nitrite as N	0.038	U D	0.076	0.038	mg/L			06/24/16 16:13	2
Sulfate	58	D	0.50	0.25	mg/L			06/24/16 16:13	2

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-006

TestAmerica Job ID: 300-3346-1
SDG: WC1195

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-4691/5
Matrix: Water
Analysis Batch: 4691

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			06/24/16 13:12	1
Nitrite as N	0.019	U	0.038	0.019	mg/L			06/24/16 13:12	1

Lab Sample ID: LCS 300-4691/6
Matrix: Water
Analysis Batch: 4691

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	2.26		mg/L		100	80 - 120
Nitrite as N	3.04	3.05		mg/L		100	80 - 120

Lab Sample ID: 300-3342-A-7 MS
Matrix: Water
Analysis Batch: 4691

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	5.4	D	0.452	5.86	D	mg/L		94	75 - 125
Nitrite as N	0.038	U D	0.609	0.525	D	mg/L		86	75 - 125

Lab Sample ID: 300-3342-A-7 DU
Matrix: Water
Analysis Batch: 4691

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	5.4	D	5.43	D	mg/L		0.1	20
Nitrite as N	0.038	U D	0.038	U D	mg/L		NC	20

Lab Sample ID: MB 300-4692/5
Matrix: Water
Analysis Batch: 4692

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			06/24/16 13:12	1
Fluoride	0.025	U	0.050	0.025	mg/L			06/24/16 13:12	1
Sulfate	0.13	U	0.25	0.13	mg/L			06/24/16 13:12	1

Lab Sample ID: LCS 300-4692/6
Matrix: Water
Analysis Batch: 4692

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	15.7		mg/L		98	80 - 120
Fluoride	4.00	3.95		mg/L		99	80 - 120
Sulfate	20.0	19.8		mg/L		99	80 - 120

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-006

TestAmerica Job ID: 300-3346-1
SDG: WC1195

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 300-3342-A-7 MS

Matrix: Water

Analysis Batch: 4692

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
Chloride	12	D	3.20	15.6	D	mg/L		99	75 - 125
Fluoride	0.22	D	0.800	0.959	D	mg/L		92	75 - 125
Sulfate	68	D	4.00	71.4	D	mg/L		88	75 - 125

Lab Sample ID: 300-3342-A-7 DU

Matrix: Water

Analysis Batch: 4692

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample	Sample	DU		Unit	D	RPD	RPD	
	Result	Qualifier	Result	Qualifier				RPD	Limit
Chloride	12	D	12.4	D	mg/L		0.2	20	
Fluoride	0.22	D	0.222	D	mg/L		0.1	20	
Sulfate	68	D	67.8	D	mg/L		0.2	20	



July 19, 2016
QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-006

TestAmerica Job ID: 300-3346-1
SDG: WC1195

HPLC/IC

Analysis Batch: 4691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3346-1	B35DH8	Total/NA	Water	300.0	
300-3346-2	B35DH9	Total/NA	Water	300.0	
MB 300-4691/5	Method Blank	Total/NA	Water	300.0	
LCS 300-4691/6	Lab Control Sample	Total/NA	Water	300.0	
300-3342-A-7 MS	Matrix Spike	Total/NA	Water	300.0	
300-3342-A-7 DU	Duplicate	Total/NA	Water	300.0	

Analysis Batch: 4692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3346-1	B35DH8	Total/NA	Water	300.0	
300-3346-2	B35DH9	Total/NA	Water	300.0	
MB 300-4692/5	Method Blank	Total/NA	Water	300.0	
LCS 300-4692/6	Lab Control Sample	Total/NA	Water	300.0	
300-3342-A-7 MS	Matrix Spike	Total/NA	Water	300.0	
300-3342-A-7 DU	Duplicate	Total/NA	Water	300.0	

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Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-006

TestAmerica Job ID: 300-3346-1
SDG: WC1195

Client Sample ID: B35DH8
Date Collected: 06/23/16 12:55
Date Received: 06/24/16 08:30

Lab Sample ID: 300-3346-1
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			4691	06/24/16 15:27	RLC	TAL RCH
Total/NA	Analysis	300.0		2			4692	06/24/16 15:27	RLC	TAL RCH

Client Sample ID: B35DH9
Date Collected: 06/23/16 12:55
Date Received: 06/24/16 08:30

Lab Sample ID: 300-3346-2
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			4691	06/24/16 16:13	RLC	TAL RCH
Total/NA	Analysis	300.0		2			4692	06/24/16 16:13	RLC	TAL RCH

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

Lab Sample ID: MB 300-4691/5
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			4691	06/24/16 13:12	RLC	TAL RCH

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

Lab Sample ID: MB 300-4692/5
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			4692	06/24/16 13:12	RLC	TAL RCH

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

Lab Sample ID: LCS 300-4691/6
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			4691	06/24/16 13:27	RLC	TAL RCH

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

Lab Sample ID: LCS 300-4692/6
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			4692	06/24/16 13:27	RLC	TAL RCH

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-006

TestAmerica Job ID: 300-3346-1
SDG: WC1195

Client Sample ID: Matrix Spike

Lab Sample ID: 300-3342-A-7 MS

Date Collected: 06/23/16 09:22

Matrix: Water

Date Received: 06/23/16 14:30

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			4691	06/24/16 13:57	RLC	TAL RCH
Total/NA	Analysis	300.0		2			4692	06/24/16 13:57	RLC	TAL RCH

Laboratory References:

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

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Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-006

TestAmerica Job ID: 300-3346-1
SDG: WC1195

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 19, 2016
Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S16-006

TestAmerica Job ID: 300-3346-1
SDG: WC1195

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-3346-1	B35DH8	Water	06/23/16 12:55	06/24/16 08:30
300-3346-2	B35DH9	Water	06/23/16 12:55	06/24/16 08:30

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-3346-1

SDG Number: WC1195

Login Number: 3346

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	

