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: 300-3610-1
TestAmerica Sample Delivery Group: WC1311
Client Project/Site: I16-026

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

Attn: CPP Sample Management

Authorized for release by:
7/29/2016 4:41:29 PM
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LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: 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 desingee 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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Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-026

TestAmerica Job ID: 300-3610-1
SDG: WC1311

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Estimated result. Result is less than the RL, but greater than MDL
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)

Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-026

TestAmerica Job ID: 300-3610-1
SDG: WC1311

Job ID: 300-3610-1

Laboratory: TestAmerica Richland

Narrative

Job Narrative
300-3610-1

Comments
No additional comments.

Receipt
The samples were received on 7/28/2016 2:05 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 11.1º C.

General Chemistry
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. # I16-026-031 Page 1 of 1

Collector	Juan Aguilar /CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	I16-026	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	100-KR-4, JULY 2016	Logbook No.	HNF-N-506 86 /66	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	PRIORITY	Offsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS

** ** 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 **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A
Special Handling:N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B35W59	N	W	JUL 28 2016	0832	1x60-mL aG	7196_CR6: COMMON	24 Hours	Cool <=6C

3610
WC1311

300-3610 COC

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC			JUL 28 2016 1046	Troy Bacon CHPRC		Troy L. Bacon	JUL 28 2016 1046
Troy Bacon CHPRC		Troy L. Bacon	JUL 28 2016 1405		J. Bock, TARL	Bock	JUL 28 2016 1405
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			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

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

7/29/2016

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # I16-026-047 Page 1 of 1

Collector	Juan Aguilar /CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	I16-026	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	100-KR-4, JULY 2016	Logbook No.	HNF-N-506 86/66	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 **PRIORITY**	Offsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
** ** 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 **Hold Time** Total Activity Exemption: Yes ☑ No ☐
N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B35YT4	Y	W	JUL 28 2016	0918	1x60-mL aG	7196_CR6: COMMON	24 Hours	Cool <=6C
B35YT2	N	W	JUL 28 2016	0918	1x60-mL aG	7196_CR6: COMMON	24 Hours	Cool <=6C

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WC1311

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC			JUL 28 2016 1046	Troy Bacon CHPRC		Troy L. Bacon	JUL 28 2016 1046
Troy Bacon CHPRC	Troy L. Bacon		JUL 28 2016 1405		J. Bock, TARL		JUL 28 2016 1405
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			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		

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

PRINTED ON 6/8/2016 FSR ID = FSR32816 A-6004-842 (REV 2)

Detection Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-026

TestAmerica Job ID: 300-3610-1
SDG: WC1311

Client Sample ID: B35W59 — Lab Sample ID: 300-3610-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0076		0.0040	0.0015	mg/L	1		7196A	Total/NA

Client Sample ID: B35YT4 — Lab Sample ID: 300-3610-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0017	B	0.0040	0.0015	mg/L	1		7196A	Total/NA

Client Sample ID: B35YT2 — Lab Sample ID: 300-3610-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0016	B	0.0040	0.0015	mg/L	1		7196A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-026

TestAmerica Job ID: 300-3610-1
SDG: WC1311

Client Sample ID: B35W59

Lab Sample ID: 300-3610-1
Date Collected: 07/28/16 08:32
Matrix: Water
Date Received: 07/28/16 14:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0076		0.0040	0.0015	mg/L			07/28/16 17:31	1

Client Sample ID: B35YT4

Lab Sample ID: 300-3610-2
Date Collected: 07/28/16 09:18
Matrix: Water
Date Received: 07/28/16 14:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0017	B	0.0040	0.0015	mg/L			07/28/16 17:33	1

Client Sample ID: B35YT2

Lab Sample ID: 300-3610-3
Date Collected: 07/28/16 09:18
Matrix: Water
Date Received: 07/28/16 14:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0016	B	0.0040	0.0015	mg/L			07/28/16 17:35	1

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-026

TestAmerica Job ID: 300-3610-1
SDG: WC1311

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 300-5090/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5090

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L			07/28/16 17:16	1

Lab Sample ID: MB 300-5090/31 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5090

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L			07/28/16 17:34	1

Lab Sample ID: LCS 300-5090/32 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5090

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.250	0.253		mg/L		101	80 - 120

Lab Sample ID: LCS 300-5090/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5090

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.250	0.253		mg/L		101	80 - 120

Lab Sample ID: 300-3610-3 MS — **Client Sample ID: B35YT2**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5090

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.0016	B	0.0500	0.0518		mg/L		100	75 - 125

Lab Sample ID: 300-3610-3 DU — **Client Sample ID: B35YT2**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5090

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cr (VI)	0.0016	B	0.00170	B	mg/L		6	20

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-026

TestAmerica Job ID: 300-3610-1
SDG: WC1311

General Chemistry

Analysis Batch: 5090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-3610-1	B35W59	Total/NA	Water	7196A	
300-3610-2	B35YT4	Total/NA	Water	7196A	
300-3610-3	B35YT2	Total/NA	Water	7196A	
MB 300-5090/3	Method Blank	Total/NA	Water	7196A	
MB 300-5090/31	Method Blank	Total/NA	Water	7196A	
LCS 300-5090/32	Lab Control Sample	Total/NA	Water	7196A	
LCS 300-5090/4	Lab Control Sample	Total/NA	Water	7196A	
300-3610-3 MS	B35YT2	Total/NA	Water	7196A	
300-3610-3 DU	B35YT2	Total/NA	Water	7196A	

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-026

TestAmerica Job ID: 300-3610-1
SDG: WC1311

Client Sample ID: B35W59 — Lab Sample ID: 300-3610-1

Date Collected: 07/28/16 08:32 — **Matrix: Water**
Date Received: 07/28/16 14:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			5090	07/28/16 17:31	RLC	TAL RCH

Client Sample ID: B35YT4 — Lab Sample ID: 300-3610-2

Date Collected: 07/28/16 09:18 — **Matrix: Water**
Date Received: 07/28/16 14:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			5090	07/28/16 17:33	RLC	TAL RCH

Client Sample ID: B35YT2 — Lab Sample ID: 300-3610-3

Date Collected: 07/28/16 09:18 — **Matrix: Water**
Date Received: 07/28/16 14:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			5090	07/28/16 17:35	RLC	TAL RCH

Client Sample ID: Method Blank — Lab Sample ID: MB 300-5090/3

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	7196A		1			5090	07/28/16 17:16	RLC	TAL RCH

Client Sample ID: Method Blank — Lab Sample ID: MB 300-5090/31

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	7196A		1			5090	07/28/16 17:34	RLC	TAL RCH

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 300-5090/32

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	7196A		1			5090	07/28/16 17:34	RLC	TAL RCH

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-026

TestAmerica Job ID: 300-3610-1
SDG: WC1311

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 300-5090/4

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	7196A		1			5090	07/28/16 17:16	RLC	TAL RCH

Client Sample ID: B35YT2

Lab Sample ID: 300-3610-3 MS

Date Collected: 07/28/16 09:18
Matrix: Water
Date Received: 07/28/16 14:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			5090	07/28/16 17:34	RLC	TAL RCH

Laboratory References:

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

Method Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: I16-026

TestAmerica Job ID: 300-3610-1
SDG: WC1311

Method	Method Description	Protocol	Laboratory
7196A	Chromium, Hexavalent	SW846	TAL RCH

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

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: I16-026

TestAmerica Job ID: 300-3610-1
SDG: WC1311

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-3610-1	B35W59	Water	07/28/16 08:32	07/28/16 14:05
300-3610-2	B35YT4	Water	07/28/16 09:18	07/28/16 14:05
300-3610-3	B35YT2	Water	07/28/16 09:18	07/28/16 14:05

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-3610-1
SDG Number: WC1311

Login Number: 3610
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	