

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: 300-5701-1
TestAmerica Sample Delivery Group: WC2130
Client Project/Site: F17-042

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

Attn: CPP Sample Management



Authorized for release by:
7/12/2017 5:36:34 PM

Whitney Ritari, Project Manager I
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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.

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Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-042

TestAmerica Job ID: 300-5701-1
SDG: WC2130

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
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)

Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-042

TestAmerica Job ID: 300-5701-1
SDG: WC2130

Job ID: 300-5701-1

Laboratory: TestAmerica Richland

Narrative

**Job Narrative
300-5701-1**

Comments

No additional comments.

Receipt

The sample was received on 6/23/2017 10:20 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 7.7° C.

HPLC/IC

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

General Chemistry

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

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CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F17-042-018	PAGE 1 OF 1
COLLECTOR KATHY TURNER CHPRC	COMPANY CONTACT KILLAND, KE	TELEPHONE NO. 373-0221	PROJECT COORDINATOR KILLAND, KE	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 200-BP-5 TRANSFER LINE EXCAVATION	PROJECT DESIGNATION 200-BP-5 Transfer Line Leak Sampling - Soil	FIELD LOGBOOK NO. HNF-A1507-28-17	ACTUAL SAMPLE DEPTH 8 ft.	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE ORIGINAL
ICE CHEST NO. N/A	OFFSITE PROPERTY NO. N/A	SAF NO. F17-042	COA 304234	BILL OF LADING/AIR BILL NO. N/A	
SHIPPED TO Testamerica Incorporated, Richland					

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	COOL <= 6C
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	*Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/DATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	HOLDING TIME 28 Days/48 Hours	
	NO. OF CONTAINER(S)	TYPE OF CONTAINER	1 G/P
	VOLUME		60ml
	SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B3BB63	SOIL	JUN 22 2017	1402

5701
W2A130



300-5701 COC

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM KATHY TURNER	DATE/TIME JUN 22 2017 1530	RECEIVED BY/STORED IN SSU-1	DATE/TIME JUN 22 2017 1530	TRVL-17-152 (1) 300.0 ANIONS IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate};	
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME JUN 23 2017 0710	RECEIVED BY/STORED IN Janelle Zunker CHPRC	DATE/TIME JUN 23 2017 0710		
RELINQUISHED BY/REMOVED FROM Janelle Zunker CHPRC	DATE/TIME JUN 23 2017 1020	RECEIVED BY/STORED IN A. ROGERS	DATE/TIME JUN 23 2017 1020		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

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

PRINTED ON 6/19/2017 FSR ID = FSR46904 TRVL NUM = TRVL-17-152 A-6003-618 (REV 2)

Detection Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-042

TestAmerica Job ID: 300-5701-1
SDG: WC2130

Client Sample ID: B3BB63

Lab Sample ID: 300-5701-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.6		2.1	1.1	mg/Kg	1	☼	300.0	Soluble
Nitrate as N	7.6		0.30	0.15	mg/Kg	1	☼	300.0	Soluble
Fluoride	1.7		0.54	0.27	mg/Kg	1	☼	300.0	Soluble
Sulfate	22		2.7	1.3	mg/Kg	1	☼	300.0	Soluble

This Detection Summary does not include radiochemical test results.

TestAmerica Richland

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
 Project/Site: F17-042

TestAmerica Job ID: 300-5701-1
 SDG: WC2130

Client Sample ID: B3BB63

Lab Sample ID: 300-5701-1

Date Collected: 06/22/17 14:02

Matrix: Solid

Date Received: 06/23/17 10:20

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.6		2.1	1.1	mg/Kg	☼		06/23/17 15:36	1
Nitrate as N	7.6		0.30	0.15	mg/Kg	☼		06/23/17 15:36	1
Fluoride	1.7		0.54	0.27	mg/Kg	☼		06/23/17 15:36	1
Nitrite as N	0.20	U	0.41	0.20	mg/Kg	☼		06/23/17 15:36	1
Sulfate	22		2.7	1.3	mg/Kg	☼		06/23/17 15:36	1

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QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-042

TestAmerica Job ID: 300-5701-1
SDG: WC2130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-8391/1-A

Matrix: Solid

Analysis Batch: 8385

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.14	U	0.28	0.14	mg/Kg			06/23/17 15:06	1
Nitrite as N	0.19	U	0.38	0.19	mg/Kg			06/23/17 15:06	1

Lab Sample ID: LCS 300-8391/2-A

Matrix: Solid

Analysis Batch: 8385

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	22.5	21.4		mg/Kg		95	80 - 120
Nitrite as N	30.4	29.6		mg/Kg		97	80 - 120

Lab Sample ID: 300-5701-1 MS

Matrix: Solid

Analysis Batch: 8385

Client Sample ID: B3BB63

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	7.6		23.7	30.7		mg/Kg	☼	98	75 - 125
Nitrite as N	0.20	U	31.9	31.0		mg/Kg	☼	97	75 - 125

Lab Sample ID: 300-5701-1 DU

Matrix: Solid

Analysis Batch: 8385

Client Sample ID: B3BB63

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Nitrate as N	7.6		7.58		mg/Kg	☼	0.7	30
Nitrite as N	0.20	U	0.20	U	mg/Kg	☼	NC	30

Lab Sample ID: MB 300-8391/1-A

Matrix: Solid

Analysis Batch: 8386

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.99	U	2.0	0.99	mg/Kg			06/23/17 15:06	1
Fluoride	0.25	U	0.50	0.25	mg/Kg			06/23/17 15:06	1
Sulfate	1.2	U	2.5	1.2	mg/Kg			06/23/17 15:06	1

Lab Sample ID: LCS 300-8391/2-A

Matrix: Solid

Analysis Batch: 8386

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	160	152		mg/Kg		95	80 - 120
Fluoride	39.9	37.4		mg/Kg		94	80 - 120
Sulfate	200	195		mg/Kg		98	80 - 120

TestAmerica Richland

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
 Project/Site: F17-042

TestAmerica Job ID: 300-5701-1
 SDG: WC2130

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 300-5701-1 MS
 Matrix: Solid
 Analysis Batch: 8386

Client Sample ID: B3BB63
 Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.6		168	165		mg/Kg	☼	95	75 - 125
Fluoride	1.7		41.9	38.7		mg/Kg	☼	88	75 - 125
Sulfate	22		210	223		mg/Kg	☼	96	75 - 125

Lab Sample ID: 300-5701-1 DU
 Matrix: Solid
 Analysis Batch: 8386

Client Sample ID: B3BB63
 Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	5.6		5.60		mg/Kg	☼	0.3	30
Fluoride	1.7		1.77		mg/Kg	☼	2	30
Sulfate	22		23.3		mg/Kg	☼	4	30

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
 Project/Site: F17-042

TestAmerica Job ID: 300-5701-1
 SDG: WC2130

HPLC/IC

Analysis Batch: 8385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-5701-1	B3BB63	Soluble	Solid	300.0	8391
MB 300-8391/1-A	Method Blank	Soluble	Solid	300.0	8391
LCS 300-8391/2-A	Lab Control Sample	Soluble	Solid	300.0	8391
300-5701-1 MS	B3BB63	Soluble	Solid	300.0	8391
300-5701-1 DU	B3BB63	Soluble	Solid	300.0	8391

Analysis Batch: 8386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-5701-1	B3BB63	Soluble	Solid	300.0	8391
MB 300-8391/1-A	Method Blank	Soluble	Solid	300.0	8391
LCS 300-8391/2-A	Lab Control Sample	Soluble	Solid	300.0	8391
300-5701-1 MS	B3BB63	Soluble	Solid	300.0	8391
300-5701-1 DU	B3BB63	Soluble	Solid	300.0	8391

Leach Batch: 8391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-5701-1	B3BB63	Soluble	Solid	DI Leach	
MB 300-8391/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 300-8391/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
300-5701-1 MS	B3BB63	Soluble	Solid	DI Leach	
300-5701-1 DU	B3BB63	Soluble	Solid	DI Leach	

General Chemistry

Analysis Batch: 8396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-5701-1	B3BB63	Total/NA	Solid	Moisture	

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-042

TestAmerica Job ID: 300-5701-1
SDG: WC2130

Client Sample ID: B3BB63**Date Collected: 06/22/17 14:02****Date Received: 06/23/17 10:20****Lab Sample ID: 300-5701-1****Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.0371 g	50 mL	8391	06/23/17 12:16	DRM	TAL RCH
Soluble	Analysis	300.0		1			8385	06/23/17 15:36	TDA	TAL RCH
Soluble	Leach	DI Leach			5.0371 g	50 mL	8391	06/23/17 12:16	DRM	TAL RCH
Soluble	Analysis	300.0		1			8386	06/23/17 15:36	DRM	TAL RCH
Total/NA	Analysis	Moisture		1			8396	06/23/17 15:20	DRM	TAL RCH

Client Sample ID: Method Blank**Date Collected: N/A****Date Received: N/A****Lab Sample ID: MB 300-8391/1-A****Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.0464 g	50 mL	8391	06/23/17 12:16	DRM	TAL RCH
Soluble	Analysis	300.0		1			8385	06/23/17 15:06	TDA	TAL RCH
Soluble	Leach	DI Leach			5.0464 g	50 mL	8391	06/23/17 12:16	DRM	TAL RCH
Soluble	Analysis	300.0		1			8386	06/23/17 15:06	DRM	TAL RCH

Client Sample ID: Lab Control Sample**Date Collected: N/A****Date Received: N/A****Lab Sample ID: LCS 300-8391/2-A****Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.0088 g	50 mL	8391	06/23/17 12:16	DRM	TAL RCH
Soluble	Analysis	300.0		1			8385	06/23/17 15:21	TDA	TAL RCH
Soluble	Leach	DI Leach			5.0088 g	50 mL	8391	06/23/17 12:16	DRM	TAL RCH
Soluble	Analysis	300.0		1			8386	06/23/17 15:21	DRM	TAL RCH

Client Sample ID: B3BB63**Date Collected: 06/22/17 14:02****Date Received: 06/23/17 10:20****Lab Sample ID: 300-5701-1 MS****Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.1443 g	50 mL	8391	06/23/17 12:16	DRM	TAL RCH
Soluble	Analysis	300.0		1			8385	06/23/17 16:06	TDA	TAL RCH
Soluble	Leach	DI Leach			5.1443 g	50 mL	8391	06/23/17 12:16	DRM	TAL RCH
Soluble	Analysis	300.0		1			8386	06/23/17 16:06	DRM	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: F17-042

TestAmerica Job ID: 300-5701-1
SDG: WC2130

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL RCH
Moisture	Percent Moisture	EPA	TAL RCH

Protocol References:

EPA = US Environmental Protection Agency

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: F17-042

TestAmerica Job ID: 300-5701-1
SDG: WC2130

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-5701-1	B3BB63	Solid	06/22/17 14:02	06/23/17 10:20

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-5701-1

SDG Number: WC2130

Login Number: 5701**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.	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 <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	