

July 5, 2017

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: 300-5662-1
TestAmerica Sample Delivery Group: WC2111
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:
7/5/2017 8:14:49 AM
Steven Campbell, Project Mgmt. Assistant
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Designee for
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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: F17-042

TestAmerica Job ID: 300-5662-1
SDG: WC2111

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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.
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
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Job ID: 300-5662-1

Laboratory: TestAmerica Richland

Narrative

**Job Narrative
300-5662-1**

Comments

No additional comments.

Receipt

The sample was received on 6/15/2017 9:45 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.3° C.

HPLC/IC

Method 300.0: The method blank for 8370 contained Nitrate as N above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or 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.

General Chemistry

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



COLLECTOR Malcorn Churnt 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	PROJECT DESIGNATION 200-BP-5 Transfer Line-Leak Sampling - Soil	FIELD LOGBOOK NO. HNF-N-507 38	ACTUAL SAMPLE DEPTH 0-6" 11	SAF NO. F17-042	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO. NA	OFFSITE PROPERTY NO. NA	COA 304234	BILL OF LADING/AIR BILL NO. NA	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO TestAmerica Incorporated, Richland					

MATRIX*	SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TLE TO: B3BB46	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SAMPLE DATE	SAMPLE TIME	REMARKS
B3BB58	SOIL	Cool <=6C	28 Days/48 Hours	G/P	1	40g		JUN 14 2017	1008	✓

5062
w/c 2111

300-5662 COC



July 5 2017

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM Malcorn Churnt CHPRC	RECEIVED BY/STORED IN SSU-1	TRVL-17-152; Co-sample with Department of Ecology, Contact Kin Welsch 509-372-4882 (1) 300.0 ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate};
DATE/TIME JUN 14 2017 1235	DATE/TIME JUN 14 2017 1235	
RELINQUISHED BY/REMOVED FROM SSU-1	RECEIVED BY/STORED IN Curt Hoffman CHPRC	
DATE/TIME JUN 15 2017 0700	DATE/TIME JUN 15 2017 0700	
RELINQUISHED BY/REMOVED FROM Curt Hoffman CHPRC	RECEIVED BY/STORED IN Leedy Ward CHPRC	
DATE/TIME JUN 15 2017 0705	DATE/TIME JUN 15 2017 0705	
RELINQUISHED BY/REMOVED FROM Leedy Ward CHPRC	RECEIVED BY/STORED IN A Rogers, TARI	
DATE/TIME JUN 15 2017 0945	DATE/TIME JUN 15 2017 0945	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
DATE/TIME	DATE/TIME	
LABORATORY SECTION	RECEIVED BY	TITLE
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DATE/TIME

~~July 5, 2017~~
Detection Summary

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

TestAmerica Job ID: 300-5662-1
SDG: WC2111

Client Sample ID: B3BB58

Lab Sample ID: 300-5662-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	11		2.0	1.0	mg/Kg	1		300.0	Soluble
Nitrate as N	43		0.28	0.14	mg/Kg	1		300.0	Soluble
Fluoride	1.6		0.50	0.25	mg/Kg	1		300.0	Soluble
Nitrite as N	0.29	B	0.38	0.19	mg/Kg	1		300.0	Soluble
Sulfate	47		2.5	1.2	mg/Kg	1		300.0	Soluble

This Detection Summary does not include radiochemical test results.

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July 5, 2017
Client Sample Results

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

TestAmerica Job ID: 300-5662-1
 SDG: WC2111

Client Sample ID: B3BB58
Date Collected: 06/14/17 10:08
Date Received: 06/15/17 09:45

Lab Sample ID: 300-5662-1
Matrix: Soil

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		2.0	1.0	mg/Kg			06/22/17 17:18	1
Nitrate as N	43		0.28	0.14	mg/Kg			06/22/17 17:18	1
Fluoride	1.6		0.50	0.25	mg/Kg			06/22/17 17:18	1
Nitrite as N	0.29	B	0.38	0.19	mg/Kg			06/22/17 17:18	1
Sulfate	47		2.5	1.2	mg/Kg			06/22/17 17:18	1

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July 5, 2017 QC Sample Results

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

TestAmerica Job ID: 300-5662-1
SDG: WC2111

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-8359/1-A
Matrix: Solid
Analysis Batch: 8370

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.224	B	0.28	0.14	mg/Kg			06/22/17 16:48	1
Nitrite as N	0.19	U	0.38	0.19	mg/Kg			06/22/17 16:48	1

Lab Sample ID: LCS 300-8359/2-A
Matrix: Solid
Analysis Batch: 8370

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	22.6	22.5		mg/Kg		100	80 - 120
Nitrite as N	30.4	31.0		mg/Kg		102	80 - 120

Lab Sample ID: 300-5662-1 MS
Matrix: Soil
Analysis Batch: 8370

Client Sample ID: B3BB58
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	0.29	B	30.3	32.2		mg/Kg		105	75 - 125

Lab Sample ID: 300-5662-1 MS
Matrix: Soil
Analysis Batch: 8370

Client Sample ID: B3BB58
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	43	D	22.5	66.7	D	mg/Kg		105	75 - 125

Lab Sample ID: 300-5662-1 DU
Matrix: Soil
Analysis Batch: 8370

Client Sample ID: B3BB58
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Nitrate as N	43		43.3		mg/Kg		0.4	30
Nitrite as N	0.29	B	0.278	B	mg/Kg		3	30

Lab Sample ID: MB 300-8359/1-A
Matrix: Solid
Analysis Batch: 8371

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			06/22/17 16:48	1
Fluoride	0.25	U	0.49	0.25	mg/Kg			06/22/17 16:48	1
Sulfate	1.2	U	2.5	1.2	mg/Kg			06/22/17 16:48	1

Lab Sample ID: LCS 300-8359/2-A
Matrix: Solid
Analysis Batch: 8371

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	160	159		mg/Kg		99	80 - 120
Fluoride	40.0	39.0		mg/Kg		98	80 - 120

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July 5, 2017 QC Sample Results

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

TestAmerica Job ID: 300-5662-1
SDG: WC2111

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 300-8359/2-A
Matrix: Solid
Analysis Batch: 8371

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	200	203		mg/Kg		101	80 - 120

Lab Sample ID: 300-5662-1 MS
Matrix: Soil
Analysis Batch: 8371

Client Sample ID: B3BB58
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	11		159	177		mg/Kg		105	75 - 125
Fluoride	1.6		39.8	39.6		mg/Kg		95	75 - 125
Sulfate	47		199	258		mg/Kg		106	75 - 125

Lab Sample ID: 300-5662-1 DU
Matrix: Soil
Analysis Batch: 8371

Client Sample ID: B3BB58
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	11		11.1		mg/Kg		0.4	30
Fluoride	1.6		1.59		mg/Kg		1	30
Sulfate	47		50.0		mg/Kg		6	30

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QC Association Summary

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

TestAmerica Job ID: 300-5662-1
 SDG: WC2111

HPLC/IC

Leach Batch: 8359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-5662-1	B3BB58	Soluble	Soil	DI Leach	
MB 300-8359/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 300-8359/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
300-5662-1 MS	B3BB58	Soluble	Soil	DI Leach	
300-5662-1 DU	B3BB58	Soluble	Soil	DI Leach	

Analysis Batch: 8370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-5662-1	B3BB58	Soluble	Soil	300.0	8359
MB 300-8359/1-A	Method Blank	Soluble	Solid	300.0	8359
LCS 300-8359/2-A	Lab Control Sample	Soluble	Solid	300.0	8359
300-5662-1 MS	B3BB58	Soluble	Soil	300.0	8359
300-5662-1 MS	B3BB58	Soluble	Soil	300.0	8359
300-5662-1 DU	B3BB58	Soluble	Soil	300.0	8359

Analysis Batch: 8371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-5662-1	B3BB58	Soluble	Soil	300.0	8359
MB 300-8359/1-A	Method Blank	Soluble	Solid	300.0	8359
LCS 300-8359/2-A	Lab Control Sample	Soluble	Solid	300.0	8359
300-5662-1 MS	B3BB58	Soluble	Soil	300.0	8359
300-5662-1 DU	B3BB58	Soluble	Soil	300.0	8359



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

TestAmerica Job ID: 300-5662-1
SDG: WC2111

Client Sample ID: B3BB58
Date Collected: 06/14/17 10:08
Date Received: 06/15/17 09:45

Lab Sample ID: 300-5662-1
Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.0103 g	50 mL	8359	06/21/17 11:58	ALR	TAL RCH
Soluble	Analysis	300.0		1			8370	06/22/17 17:18	ALR	TAL RCH
Soluble	Leach	DI Leach			5.0103 g	50 mL	8359	06/21/17 11:58	ALR	TAL RCH
Soluble	Analysis	300.0		1			8371	06/22/17 17:18	ALR	TAL RCH

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

Lab Sample ID: MB 300-8359/1-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			5.0557 g	50 mL	8359	06/21/17 11:58	ALR	TAL RCH
Soluble	Analysis	300.0		1			8370	06/22/17 16:48	ALR	TAL RCH
Soluble	Leach	DI Leach			5.0557 g	50 mL	8359	06/21/17 11:58	ALR	TAL RCH
Soluble	Analysis	300.0		1			8371	06/22/17 16:48	ALR	TAL RCH

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

Lab Sample ID: LCS 300-8359/2-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			5.0001 g	50 mL	8359	06/21/17 11:58	ALR	TAL RCH
Soluble	Analysis	300.0		1			8370	06/22/17 17:03	ALR	TAL RCH
Soluble	Leach	DI Leach			5.0001 g	50 mL	8359	06/21/17 11:58	ALR	TAL RCH
Soluble	Analysis	300.0		1			8371	06/22/17 17:03	ALR	TAL RCH

Client Sample ID: B3BB58
Date Collected: 06/14/17 10:08
Date Received: 06/15/17 09:45

Lab Sample ID: 300-5662-1 MS
Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.0245 g	50 mL	8359	06/21/17 11:58	ALR	TAL RCH
Soluble	Analysis	300.0		1			8370	06/22/17 17:48	ALR	TAL RCH
Soluble	Leach	DI Leach			5.0245 g	50 mL	8359	06/21/17 11:58	ALR	TAL RCH
Soluble	Analysis	300.0		1			8371	06/22/17 17:48	ALR	TAL RCH
Soluble	Leach	DI Leach			5.0245 g	50 mL	8359	06/21/17 11:58	ALR	TAL RCH
Soluble	Analysis	300.0		2			8370	06/22/17 18:03	ALR	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: F17-042

TestAmerica Job ID: 300-5662-1
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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



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Sample Summary

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

TestAmerica Job ID: 300-5662-1
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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-5662-1	B3BB58	Soil	06/14/17 10:08	06/15/17 09:45

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-5662-1

SDG Number: WC2111

Login Number: 5662

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.	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 <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	