

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: 300-1675-1
TestAmerica Sample Delivery Group: WC0630
Client Project/Site: X16-016

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

Attn: CPP Sample Management



Authorized for release by:
12/8/2015 9:40:19 AM
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Designee for
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(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 elss than five times the MDL.



LINKS

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Qualifiers**HPLC/IC**

Qualifier	Qualifier Description
U	Analyzed for but not detected.
D	The reported value is from a dilution.

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: X16-016

TestAmerica Job ID: 300-1675-1
SDG: WC0630

Job ID: 300-1675-1

Laboratory: TestAmerica Richland

Narrative

**Job Narrative
300-1675-1**

Comments

No additional comments.

Receipt

The samples were received on 11/19/2015 2:55 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9° C.

HPLC/IC

Method 300.0: Manual integration was performed on the following samples for Orthophosphate as P: B33L79 (300-1675-2), B33L87 (300-1675-3) and B33L99 (300-1675-4).

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



CH2MHILL Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **X16-016-008**
Page 1 of 1

Collector	DL Foyel/CHPRC	Contact/Requester	WHITLEY, KM	Telephone No.	373-4929
SAF No.	X16-016	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300205
Project Title	Uranium Sequestration - Day 13	Logbook No.	HNF-N-506 81/45	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			SPECIAL INSTRUCTIONS		
*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.			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
B33L75	N	W 11/14/15	1057	1x500-ml P	300_0_ANIONS_IC: GW 01	48 Hours	Cool <=6C

#16NS
WCC01630



300-1675 COC

December 08, 2015

Relinquished By	DL Foyel/CHPRC	Print	<i>[Signature]</i>	Sign		Date/Time	NOV 19 2015	Received By	E.L. Kauer	Print	<i>[Signature]</i>	Sign		Date/Time	NOV 19 2015	Matrix *
Relinquished By	E.L. Kauer	Print	<i>[Signature]</i>	Sign		Date/Time	NOV 19 2015	Received By	J. Bock, TARL	Print	<i>[Signature]</i>	Sign		Date/Time	NOV 19 2015	Matrix *

- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solids
- DL = Drum Liquids
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetation
- X = Other

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. #
X16-016-009
Page 1 of 1

Collector	DL Floyd/CHPRC	Contact/Requestor	WHITLEY, KM	Telephone No.	373-4929
SAF No.	X16-016	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300205
Project Title	Uranium Sequestration - Day 13	Logbook No.	HNF-N-506 <u>SI / 45</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	CERCLA	Priority:	30 Days	Offsite Property No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS			SPECIAL INSTRUCTIONS		
*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.			N/A		
Sample No.	B33L79	Filter	N	Date	11/19/15
		* W		Time	1122
		No/Type Container	1x500-mL P	Sample Analysis	300.0_ANIONS_IC: GW 01
		Sample Analysis		Holding Time	48 Hours
		Preservative			Cool <=6C

#1695
used 0630

December 08, 2015

Relinquished By	DL Floyd/CHPRC	Print	Sign	Date/Time	NOV 19 2015 12:51	Received By	E.L. Kauer/CHPRC	Print	Sign	Date/Time	NOV 19 2015 12:51
Relinquished By	E.L. Kauer/CHPRC	Print	Sign	Date/Time	NOV 19 2015 1455	Received By	J. Bock, TARL	Print	Sign	Date/Time	NOV 19 2015 1455

- Matrix *
- S = Soil
 - SE = Sediment
 - SO = Solid
 - SL = Sludge
 - W = Water
 - O = Oil
 - A = Air
 - DS = Drum Solids
 - DL = Drum Liquids
 - T = Tissue
 - WI = Wipe
 - L = Liquid
 - V = Vegetation
 - X = Other

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #
X16-016-011
Page 1 of 1

Collector	DL Floyd/CHPRC		Contact/Requester	WHITELEY, KM		Telephone No.	373-4929	
SAF No.	X16-016		Sampling Origin	Hanford Site		Purchase Order/Charge Code	300205	
Project Title	Uranium Sequestration - Day 13		Logbook No.	HNF-N-506 81 / 44		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			SPECIAL INSTRUCTIONS			Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.			N/A					
Sample No.	Filter	*	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
B33187	N	W	11/19/15	1143	1x500-ml P	300.0_ANIONS_IC: GW 01	48 Hours	Cool <=6C

11/19/15
WCE0630

December 08, 2015

Relinquished By	DL Floyd/CHPRC	Print	Sign	Date/Time	NOV 19 2015	Received By	E.L. Kauer/CHPRC	Print	Sign	Date/Time	NOV 19 2015
Relinquished By	E.L. Kauer/CHPRC	Print	Sign	Date/Time	NOV 19 2015	Received By	J. Bock, TARL	Print	Sign	Date/Time	NOV 19 2015

- Matrix *
- S = Soil
 - SE = Sediment
 - SO = Solid
 - SL = Sludge
 - W = Water
 - O = Oil
 - A = Air
 - DS = Drum Solids
 - DL = Drum Liquids
 - T = Tissue
 - WI = Wipe
 - L = Liquid
 - V = Vegetation
 - X = Other

Final Sample Disposition	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Received By	Date/Time	Disposed By	Date/Time

Detection Summary

Client: CH2M Hill Plateau Remediation Company
 Project/Site: X16-016

TestAmerica Job ID: 300-1675-1
 SDG: WC0630

Client Sample ID: B33L75

Lab Sample ID: 300-1675-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Orthophosphate as P	350	D	16	8.2	mg/L	200		300.0	Total/NA

Client Sample ID: B33L79

Lab Sample ID: 300-1675-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Orthophosphate as P	1400	D	41	21	mg/L	500		300.0	Total/NA

Client Sample ID: B33L87

Lab Sample ID: 300-1675-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Orthophosphate as P	1600	D	41	21	mg/L	500		300.0	Total/NA

Client Sample ID: B33L99

Lab Sample ID: 300-1675-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Orthophosphate as P	860	D	16	8.2	mg/L	200		300.0	Total/NA

This Detection Summary does not include radiochemical test results.



Client: CH2M Hill Plateau Remediation Company
Project/Site: X16-016

TestAmerica Job ID: 300-1675-1
SDG: WC0630

Client Sample ID: B33L75

Date Collected: 11/19/15 10:57

Date Received: 11/19/15 14:55

Lab Sample ID: 300-1675-1

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Orthophosphate as P	350	D	16	8.2	mg/L			11/19/15 21:45	200

Client Sample ID: B33L79

Date Collected: 11/19/15 11:22

Date Received: 11/19/15 14:55

Lab Sample ID: 300-1675-2

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Orthophosphate as P	1400	D	41	21	mg/L			11/19/15 22:00	500

Client Sample ID: B33L87

Date Collected: 11/19/15 11:43

Date Received: 11/19/15 14:55

Lab Sample ID: 300-1675-3

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Orthophosphate as P	1600	D	41	21	mg/L			11/19/15 22:15	500

Client Sample ID: B33L99

Date Collected: 11/19/15 10:19

Date Received: 11/19/15 14:55

Lab Sample ID: 300-1675-4

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Orthophosphate as P	860	D	16	8.2	mg/L			11/19/15 22:31	200

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-2069/5
 Matrix: Water
 Analysis Batch: 2069

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Orthophosphate as P	0.041	U	0.082	0.041	mg/L			11/19/15 13:59	1

Lab Sample ID: LCS 300-2069/6
 Matrix: Water
 Analysis Batch: 2069

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Orthophosphate as P	6.53	7.03		mg/L		108	80 - 120

Lab Sample ID: 300-1669-A-1 MS
 Matrix: Water
 Analysis Batch: 2069

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
Orthophosphate as P	0.82	U	13.1	11.2	D	mg/L		86	75 - 125

Lab Sample ID: 300-1669-A-1 DU
 Matrix: Water
 Analysis Batch: 2069

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Orthophosphate as P	0.82	U	0.82	U	mg/L		NC	20

HPLC/IC

Analysis Batch: 2069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-1669-A-1 DU	Duplicate	Total/NA	Water	300.0	
300-1669-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
300-1675-1	B33L75	Total/NA	Water	300.0	
300-1675-2	B33L79	Total/NA	Water	300.0	
300-1675-3	B33L87	Total/NA	Water	300.0	
300-1675-4	B33L99	Total/NA	Water	300.0	
LCS 300-2069/6	Lab Control Sample	Total/NA	Water	300.0	
MB 300-2069/5	Method Blank	Total/NA	Water	300.0	



Client: CH2M Hill Plateau Remediation Company
 Project/Site: X16-016

TestAmerica Job ID: 300-1675-1
 SDG: WC0630

Client Sample ID: B33L75

Date Collected: 11/19/15 10:57

Date Received: 11/19/15 14:55

Lab Sample ID: 300-1675-1

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		200	10 mL		2069	11/19/15 21:45	CPM	TAL RCH

Client Sample ID: B33L79

Date Collected: 11/19/15 11:22

Date Received: 11/19/15 14:55

Lab Sample ID: 300-1675-2

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		500	10 mL		2069	11/19/15 22:00	CPM	TAL RCH

Client Sample ID: B33L87

Date Collected: 11/19/15 11:43

Date Received: 11/19/15 14:55

Lab Sample ID: 300-1675-3

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		500	10 mL		2069	11/19/15 22:15	CPM	TAL RCH

Client Sample ID: B33L99

Date Collected: 11/19/15 10:19

Date Received: 11/19/15 14:55

Lab Sample ID: 300-1675-4

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		200	10 mL		2069	11/19/15 22:31	CPM	TAL RCH

Client Sample ID: Duplicate

Date Collected: 11/19/15 10:41

Date Received: 11/19/15 14:55

Lab Sample ID: 300-1669-A-1 DU

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		20	10 mL		2069	11/19/15 20:30	CPM	TAL RCH

Client Sample ID: Lab Control Sample

Date Collected: N/A

Date Received: N/A

Lab Sample ID: LCS 300-2069/6

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	10 mL		2069	11/19/15 14:14	CPM	TAL RCH

Client: CH2M Hill Plateau Remediation Company
 Project/Site: X16-016

TestAmerica Job ID: 300-1675-1
 SDG: WC0630

Client Sample ID: Method Blank

Lab Sample ID: MB 300-2069/5

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	10 mL		2069	11/19/15 13:59	CPM	TAL RCH

Client Sample ID: Matrix Spike

Lab Sample ID: 300-1669-A-1 MS

Date Collected: 11/19/15 10:41

Matrix: Water

Date Received: 11/19/15 14:55

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		20	10 mL		2069	11/19/15 20:15	CPM	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: X16-016

TestAmerica Job ID: 300-1675-1
SDG: WC0630

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: X16-016

TestAmerica Job ID: 300-1675-1
SDG: WC0630

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-1675-1	B33L75	Water	11/19/15 10:57	11/19/15 14:55
300-1675-2	B33L79	Water	11/19/15 11:22	11/19/15 14:55
300-1675-3	B33L87	Water	11/19/15 11:43	11/19/15 14:55
300-1675-4	B33L99	Water	11/19/15 10:19	11/19/15 14:55

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-1675-1

SDG Number: WC0630

Login Number: 1675

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.	True	
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.	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	

