

# 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: 300-1488-1  
TestAmerica Sample Delivery Group: WC0589  
Client Project/Site: X15-063

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

Attn: CPP Sample Management



Authorized for release by:  
12/7/2015 11:56:18 AM  
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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 elss than five times the MDL.*



### LINKS

Review your project results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

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**Qualifiers****HPLC/IC**

Qualifier	Qualifier Description
U	Analyzed for but not detected.
D	The reported value is from a dilution.
N	MS, MSD: Spike recovery is outside acceptance limits.

**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: X15-063

TestAmerica Job ID: 300-1488-1  
SDG: WC0589

**Job ID: 300-1488-1**

**Laboratory: TestAmerica Richland**

**Narrative**

**Job Narrative  
300-1488-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 11/12/2015 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8° C.

**HPLC/IC**

Method 300.0: The matrix spike (MS) recoveries for analytical batch 300-1967 were outside control limits for Orthophosphate as P. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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



**CH2M Hill Plateau Remediation Company**

**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**

C.O.C. #

**X15-063-008**

Page 1 of 1

Collector	S.W. King/CH2RC	Contact/Requester	WHITLEY, KM	Telephone No.	373-4929
SAF No.	X15-063	Sampling Origin	HANFORD SITE	Purchase Order/Charge Code	300205
Project Title	Uranium Sequestration - Day 7	Logbook No.	HNF-N-506 <u>81 / 30</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
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b>			<b>SPECIAL INSTRUCTIONS</b>		
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CER/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
B32VV1	N	NOV 12 2015	0915	1x500-mL P	300.0_ANIONS_IC: GW/ 01	48 Hours	Cool <=6C



#1488

W00589

300-1488 COC

December 07 2015

Relinquished By	Print Sign	Date/Time	Received By	Print Sign	Date/Time	Matrix *
S.W. King/CH2RC	<i>[Signature]</i>	NOV 17 2015 0945	L.D. WALL (CH2RC)	<i>[Signature]</i>	NOV 12 2015 0915	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By	Print Sign	Date/Time	Received By	Print Sign	Date/Time	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
L.D. WALL (CH2RC)	<i>[Signature]</i>	11/12/15 0955	J. Friesz, TARL	<i>[Signature]</i>	11/12/15 0955	
Relinquished By	Print Sign	Date/Time	Received By	Print Sign	Date/Time	

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. #

X15-063-011

Page 1 of 1

Collector	DL Floyd/CHRC	Contact/Requester	WHITLEY, KM	Telephone No.	373-4929
SAF No.	X15-063	Sampling Origin	HANFORD SITE	Purchase Order/Charge Code	300205
Project Title	Uranium Sequestration - Day 7	Logbook No.	HNF-N-50680 / 21e	Ice Chest No.	N/A
Shipped To (Lab)	Test/America 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
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b>		<b>SPECIAL INSTRUCTIONS</b>		<b>Total Activity Exemption:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CER/LATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.					
Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis
B32YW3	N	NOV 17 2015	09:50	1x500-mL P	300_0_ANIONS_IC: GW 01
					Holding Time
					48 Hours
					Preservative
					Cool <--6C

#1488  
W C O S 8 9

December 07 2015

Relinquished By	DL Floyd/CHRC	Print	Sign	Date/Time	NOV 12 2015	09:45	Received By	LD, Well	Print	Sign	Date/Time	NOV 12 2015	09:45	Matrix * S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids DL = Drum Liquids T = Tissue WT = Wipe L = Liquid V = Vegetation X = Other
Relinquished By	CH/RC	Print	Sign	Date/Time	NOV 12 2015	09:55	Received By	J. Friesz, TARL	Print	Sign	Date/Time	NOV 12 2015	09:55	
Relinquished By				Date/Time			Received By				Date/Time			

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **X15-063-014**  
Page 1 of 1

Collector	S.W. King/CHPRC	Contact/Requester	WHITLEY, KM	Telephone No.	373-4929
SAF No.	X15-063	Sampling Origin	HANFORD SITE	Purchase Order/Charge Code	300205
Project Title	Uranium Sequestration - Day 7	Logbook No.	HNF-N-50681 / 30	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
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b>			<b>SPECIAL INSTRUCTIONS</b>		
*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/ATA 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
B32YX5	N	NOV 12 2015	0840	1x500-mL P	300.0_ANIONS_IC: GW 01
					Holding Time
					48 Hours
					Preservative
					Cool <=6C

December 07 2015

Relinquished By	Print Sign	Date/Time	Received By	Print Sign	Date/Time	Matrix *
S.W. King/CHPRC	<i>[Signature]</i>	NOV 12 2015 0945	L. WAH10 (CHPRC)	<i>[Signature]</i>	NOV 12 2015 0945	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By		Date/Time	Received By		Date/Time	DS = Drum Solids DL = Drum Liquids T = Tissue WT = Wipe L = Liquid V = Vegetation X = Other
L. WAH10 (CHPRC)	<i>[Signature]</i>	11/21/15 0955	J. Friesz, TARK	<i>[Signature]</i>	11/21/15 0955	
Relinquished By		Date/Time	Received By		Date/Time	

#1488  
W0589

Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

### Detection Summary

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: X15-063

TestAmerica Job ID: 300-1488-1  
 SDG: WC0589

**Client Sample ID: B32YV1**

**Lab Sample ID: 300-1488-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Orthophosphate as P	0.24	D N	0.16	0.082	mg/L	2		300.0	Total/NA

**Client Sample ID: B32YW3**

**Lab Sample ID: 300-1488-2**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Orthophosphate as P	2.9	D N	0.16	0.082	mg/L	2		300.0	Total/NA

**Client Sample ID: B32YX5**

**Lab Sample ID: 300-1488-3**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Orthophosphate as P	210	D	4.1	2.1	mg/L	50		300.0	Total/NA

This Detection Summary does not include radiochemical test results.



Client Sample Results

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: X15-063

TestAmerica Job ID: 300-1488-1  
 SDG: WC0589

**Client Sample ID: B32YV1**  
**Date Collected: 11/12/15 09:15**  
**Date Received: 11/12/15 09:55**

**Lab Sample ID: 300-1488-1**  
**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Orthophosphate as P	0.24	D N	0.16	0.082	mg/L			11/12/15 17:29	2

**Client Sample ID: B32YW3**  
**Date Collected: 11/12/15 09:30**  
**Date Received: 11/12/15 09:55**

**Lab Sample ID: 300-1488-2**  
**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Orthophosphate as P	2.9	D N	0.16	0.082	mg/L			11/12/15 17:44	2

**Client Sample ID: B32YX5**  
**Date Collected: 11/12/15 08:40**  
**Date Received: 11/12/15 09:55**

**Lab Sample ID: 300-1488-3**  
**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Orthophosphate as P	210	D	4.1	2.1	mg/L			11/13/15 13:36	50

**Method: 300.0 - Anions, Ion Chromatography**

Lab Sample ID: MB 300-1967/13  
 Matrix: Water  
 Analysis Batch: 1967

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			11/12/15 14:14	1

Lab Sample ID: LCS 300-1967/14  
 Matrix: Water  
 Analysis Batch: 1967

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	6.81		mg/L		104	80 - 120

Lab Sample ID: 300-1485-A-15 MS  
 Matrix: Water  
 Analysis Batch: 1967

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	0.082	U N	1.31	0.472	D N	mg/L		36	75 - 125

Lab Sample ID: 300-1485-A-15 DU  
 Matrix: Water  
 Analysis Batch: 1967

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	0.082	U N	0.082	U	mg/L		NC	20

Lab Sample ID: 300-1488-3 MS  
 Matrix: Water  
 Analysis Batch: 1988

Client Sample ID: B32YX5  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Orthophosphate as P	210	D	32.6	242	D	mg/L		106	75 - 125

Lab Sample ID: 300-1488-3 DU  
 Matrix: Water  
 Analysis Batch: 1988

Client Sample ID: B32YX5  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Orthophosphate as P	210	D	208	D	mg/L		0.07	20

HPLC/IC

Analysis Batch: 1967

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-1485-A-15 DU	Duplicate	Total/NA	Water	300.0	
300-1485-A-15 MS	Matrix Spike	Total/NA	Water	300.0	
300-1488-1	B32YV1	Total/NA	Water	300.0	
300-1488-2	B32YW3	Total/NA	Water	300.0	
LCS 300-1967/14	Lab Control Sample	Total/NA	Water	300.0	
MB 300-1967/13	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 1988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-1488-3	B32YX5	Total/NA	Water	300.0	
300-1488-3 DU	B32YX5	Total/NA	Water	300.0	
300-1488-3 MS	B32YX5	Total/NA	Water	300.0	



Client: CH2M Hill Plateau Remediation Company  
 Project/Site: X15-063

TestAmerica Job ID: 300-1488-1  
 SDG: WC0589

**Client Sample ID: B32YV1**

Date Collected: 11/12/15 09:15

Date Received: 11/12/15 09:55

**Lab Sample ID: 300-1488-1**

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	10 mL		1967	11/12/15 17:29	CPM	TAL RCH

**Client Sample ID: B32YW3**

Date Collected: 11/12/15 09:30

Date Received: 11/12/15 09:55

**Lab Sample ID: 300-1488-2**

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	10 mL		1967	11/12/15 17:44	CPM	TAL RCH

**Client Sample ID: B32YX5**

Date Collected: 11/12/15 08:40

Date Received: 11/12/15 09:55

**Lab Sample ID: 300-1488-3**

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		50	10 mL		1988	11/13/15 13:36	CPM	TAL RCH

**Client Sample ID: Duplicate**

Date Collected: 11/11/15 13:48

Date Received: 11/12/15 09:55

**Lab Sample ID: 300-1485-A-15 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		2	10 mL		1967	11/12/15 15:14	CPM	TAL RCH

**Client Sample ID: B32YX5**

Date Collected: 11/12/15 08:40

Date Received: 11/12/15 09:55

**Lab Sample ID: 300-1488-3 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		50	10 mL		1988	11/13/15 14:06	CPM	TAL RCH

**Client Sample ID: Lab Control Sample**

Date Collected: N/A

Date Received: N/A

**Lab Sample ID: LCS 300-1967/14**

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		1967	11/12/15 14:29	CPM	TAL RCH

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: X15-063

TestAmerica Job ID: 300-1488-1  
 SDG: WC0589

**Client Sample ID: Method Blank**

**Lab Sample ID: MB 300-1967/13**

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		1967	11/12/15 14:14	CPM	TAL RCH

**Client Sample ID: Matrix Spike**

**Lab Sample ID: 300-1485-A-15 MS**

Date Collected: 11/11/15 13:48

Matrix: Water

Date Received: 11/12/15 09:55

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		2	10 mL		1967	11/12/15 14:59	CPM	TAL RCH

**Client Sample ID: B32YX5**

**Lab Sample ID: 300-1488-3 MS**

Date Collected: 11/12/15 08:40

Matrix: Water

Date Received: 11/12/15 09:55

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		50	10 mL		1988	11/13/15 13:51	CPM	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: X15-063

TestAmerica Job ID: 300-1488-1  
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Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL RCH

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**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



Client: CH2M Hill Plateau Remediation Company  
Project/Site: X15-063

TestAmerica Job ID: 300-1488-1  
SDG: WC0589

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-1488-1	B32YV1	Water	11/12/15 09:15	11/12/15 09:55
300-1488-2	B32YW3	Water	11/12/15 09:30	11/12/15 09:55
300-1488-3	B32YX5	Water	11/12/15 08:40	11/12/15 09:55

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### Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-1488-1

SDG Number: WC0589

**Login Number: 1488**

**List Number: 1**

**Creator: Friesz, Jordan D**

**List Source: TestAmerica Richland**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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 <math><6\text{mm}</math> (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	

