

# 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: 300-1588-1  
TestAmerica Sample Delivery Group: WC0616  
Client Project/Site: CHPRC Chemical Hanford

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 8:39:16 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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December 08, 2015

Client: CH2M Hill Plateau Remediation Company  
Project/Site: CHPRC Chemical Hanford

TestAmerica Job ID: 300-1588-1  
SDG: WC0616

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

Qualifier	Qualifier Description
D	The reported value is from a dilution.
N	MS, MSD: Spike recovery is outside acceptance limits.
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, 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)

**Job ID: 300-1588-1**

**Laboratory: TestAmerica Richland**

**Narrative**

**Job Narrative  
300-1588-1**

**Comments**

No additional comments.

**Receipt**

The sample was received on 11/17/2015 1:10 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 6.2° C.

**HPLC/IC**

Method 300.0: The matrix spike (MS) recoveries for analytical batch 300-2027 were outside control limits for Chloride. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. The matrix spike (MS) recoveries for analytical batch 300-2026 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		F15-055-047	PAGE 1 OF 1
COLLECTOR	S.W. King/CHPRC	COMPANY CONTACT	WHITLEY, KM	TELEPHONE NO.	373-4929
SAMPLING LOCATION		PROJECT DESIGNATION	300-FE-5 Enhanced Attenuation - Stage A Phosphate Solution Injection - or	PROJECT COORDINATOR	WHITLEY, KM
SKID 2 INJECTION DAY 11		FIELD LOGBOOK NO.	300-FE-5 Enhanced Attenuation - Stage A Phosphate Solution Injection - or	SAF NO.	F15-055
ICE CHEST NO. <i>33 11/13/15</i>		ACTUAL SAMPLE DEPTH	(N/A)	AIR QUALITY	<input type="checkbox"/> 30 Days / 30 Days
SHIPPED TO		OFFSITE PROPERTY NO.	<i>HALE-W-50081/40</i>	METHOD OF SHIPMENT	GOVERNMENT VEHICLE
TestAmerica Incorporated, Richland		BILL OF LADING/AIR BILL NO.	<i>N/A</i>	<b>ORIGINAL</b>	

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	COOL <=6C
A=Air	*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. N/A	HOLDING TIME	28 Days/48 Hours
DL=Drum		TYPE OF CONTAINER	g/p
Liquids		NO. OF CONTAINER(S)	1
DS=Drum		VOLUME	500ml
Solids		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
L=Liquid			
O=Oil			
S=Soil			
SE=Sediment			
T=Tissue			
V=Vegetation			
W=Water			
WI=Wipe			
X=Other			

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	DATE/TIME	DATE/TIME
B33KY5	OTHER LIQUID	NOV 17 2015	5:17:15	NOV 17 2015	NOV 17 2015
SPECIAL HANDLING AND/OR STORAGE					
0855					
300-1588 COC					

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	* Offsite lab analyses will be a blend of river water and phosphate injection solution. TRVL-15-155	
<i>S.W. King/CHPRC</i>	NOV 17 2015	<i>L.D. Wain</i>	NOV 17 2015	(1) 300.0 ANIONS_IC: COMMON {Chloride, Sulfate};	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	(1) 300.0 ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate};	
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December 08, 2015

## Detection Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: CHPRC Chemical Hanford

TestAmerica Job ID: 300-1588-1  
SDG: WC0616

**Client Sample ID: B33KY5**

**Lab Sample ID: 300-1588-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Orthophosphate as P	2700	D N	41	21	mg/L	500		300.0	Total/NA

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This Detection Summary does not include radiochemical test results.

TestAmerica Richland

December 08, 2015

### Client Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: CHPRC Chemical Hanford

TestAmerica Job ID: 300-1588-1  
SDG: WC0616

**Client Sample ID: B33KY5**  
**Date Collected: 11/17/15 08:55**  
**Date Received: 11/17/15 13:10**

**Lab Sample ID: 300-1588-1**  
**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	50	U	100	50	mg/L			11/17/15 16:56	500
<b>Orthophosphate as P</b>	<b>2700</b>	<b>D N</b>	41	21	mg/L			11/17/15 16:56	500
Sulfate	63	U	130	63	mg/L			11/17/15 16:56	500

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Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-2026/5  
 Matrix: Water  
 Analysis Batch: 2026

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			11/17/15 12:20	1

Lab Sample ID: LCS 300-2026/6  
 Matrix: Water  
 Analysis Batch: 2026

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	6.87		mg/L		105	80 - 120

Lab Sample ID: 300-1529-A-1 MS  
 Matrix: Water  
 Analysis Batch: 2026

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	0.88	D N	1.31	1.07	D N	mg/L		15	75 - 125

Lab Sample ID: 300-1529-A-1 DU  
 Matrix: Water  
 Analysis Batch: 2026

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	0.88	D N	0.889	D	mg/L		1	20

Lab Sample ID: MB 300-2027/5  
 Matrix: Water  
 Analysis Batch: 2027

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.10	U	0.20	0.10	mg/L			11/17/15 12:20	1
Sulfate	0.13	U	0.25	0.13	mg/L			11/17/15 12:20	1

Lab Sample ID: LCS 300-2027/6  
 Matrix: Water  
 Analysis Batch: 2027

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	16.0	16.7		mg/L		104	80 - 120
Sulfate	20.0	21.1		mg/L		106	80 - 120

Lab Sample ID: 300-1529-A-1 MS  
 Matrix: Water  
 Analysis Batch: 2027

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
Chloride	50	D	3.20	51.9	D	mg/L		71	75 - 125
Sulfate	65	D	4.00	68.5	D	mg/L		78	75 - 125

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: CHPRC Chemical Hanford

TestAmerica Job ID: 300-1588-1  
 SDG: WC0616

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 300-1529-A-1 DU  
 Matrix: Water  
 Analysis Batch: 2027

Client Sample ID: Duplicate  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	50	D	49.7	D	mg/L		0	20
Sulfate	65	D	65.4	D	mg/L		0	20

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Analysis Batch: 2026

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-1529-A-1 DU	Duplicate	Total/NA	Water	300.0	
300-1529-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
300-1588-1	B33KY5	Total/NA	Water	300.0	
LCS 300-2026/6	Lab Control Sample	Total/NA	Water	300.0	
MB 300-2026/5	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 2027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-1529-A-1 DU	Duplicate	Total/NA	Water	300.0	
300-1529-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
300-1588-1	B33KY5	Total/NA	Water	300.0	
LCS 300-2027/6	Lab Control Sample	Total/NA	Water	300.0	
MB 300-2027/5	Method Blank	Total/NA	Water	300.0	



**Client Sample ID: B33KY5**

Date Collected: 11/17/15 08:55

Date Received: 11/17/15 13:10

**Lab Sample ID: 300-1588-1**

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		500	10 mL		2026	11/17/15 16:56	CPM	TAL RCH
Total/NA	Analysis	300.0		500	10 mL		2027	11/17/15 16:56	CPM	TAL RCH

**Client Sample ID: Duplicate**

Date Collected: 11/16/15 10:18

Date Received: 11/16/15 11:10

**Lab Sample ID: 300-1529-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		2	10 mL		2026	11/17/15 13:20	CPM	TAL RCH
Total/NA	Analysis	300.0		2	10 mL		2027	11/17/15 13:20	CPM	TAL RCH

**Client Sample ID: Lab Control Sample**

Date Collected: N/A

Date Received: N/A

**Lab Sample ID: LCS 300-2026/6**

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		2026	11/17/15 12:35	CPM	TAL RCH

**Client Sample ID: Lab Control Sample**

Date Collected: N/A

Date Received: N/A

**Lab Sample ID: LCS 300-2027/6**

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		2027	11/17/15 12:35	CPM	TAL RCH

**Client Sample ID: Method Blank**

Date Collected: N/A

Date Received: N/A

**Lab Sample ID: MB 300-2026/5**

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		2026	11/17/15 12:20	CPM	TAL RCH

**Client Sample ID: Method Blank**

Date Collected: N/A

Date Received: N/A

**Lab Sample ID: MB 300-2027/5**

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		2027	11/17/15 12:20	CPM	TAL RCH

Client: CH2M Hill Plateau Remediation Company  
Project/Site: CHPRC Chemical Hanford

TestAmerica Job ID: 300-1588-1  
SDG: WC0616

**Client Sample ID: Matrix Spike**

**Lab Sample ID: 300-1529-A-1 MS**

**Date Collected: 11/16/15 10:18**

**Matrix: Water**

**Date Received: 11/16/15 11:10**

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		2026	11/17/15 13:05	CPM	TAL RCH
Total/NA	Analysis	300.0		2	10 mL		2027	11/17/15 13:05	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: CHPRC Chemical Hanford

TestAmerica Job ID: 300-1588-1  
SDG: WC0616

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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



December 08, 2015

## Sample Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: CHPRC Chemical Hanford

TestAmerica Job ID: 300-1588-1  
SDG: WC0616

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-1588-1	B33KY5	Water	11/17/15 08:55	11/17/15 13:10

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-1588-1  
SDG Number: WC0616

**Login Number: 1588**  
**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	

