

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: 300-1430-1
TestAmerica Sample Delivery Group: WC0562
Client Project/Site: CH2M Hill Chemical

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

Attn: CPP Sample Management



Authorized for release by:
11/19/2015 4:07:54 PM
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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?



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www.testamericainc.com

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Definitions/Glossary

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

TestAmerica Job ID: 300-1430-1
 SDG: WC0562

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)

Case Narrative

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

TestAmerica Job ID: 300-1430-1
SDG: WC0562

Job ID: 300-1430-1

Laboratory: TestAmerica Richland

Narrative

Job Narrative
300-1430-1

Comments

No additional comments.

Receipt

The sample was received on 11/8/2015 11:10 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 10.6° C.

HPLC/IC

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		F15-055-020	PAGE 1 OF 1
COLLECTOR D.W. Brotherton/CHPRS	COMPANY CONTACT WHITLEY, KM	TELEPHONE NO. 373-4929	PROJECT COORDINATOR WHITLEY, KM	PRICE CODE 9H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION SKID 2 INFILTRATION DAV 2	PROJECT DESIGNATION 300-FF-5 Enhanced Attenuation - Stage A Phosphate Solution Injection - ot	FIELD LOGBOOK NO. HOF-2-506-81 #21	ACTUAL SAMPLE DEPTH N/A	SAF NO. F15-055	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO. N/A	OFFSITE PROPERTY NO. N/A	COA 300205	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL	
SHIPPED TO TestAmerica Incorporated, Richland	BILL OF LADING/AIR BILL NO. N/A				

MATRIX* 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	POSSIBLE SAMPLE HAZARDS/ REMARKS *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. N/A	PRESERVATION Cool <=6C	HOLDING TIME 28 Days/48 Hours	TYPE OF CONTAINER G/P	NO. OF CONTAINER(S) 1	VOLUME 500ml	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS	
		SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
		B32L05	OTHER LIQUID	NOV 07 2015	0950			

#1430
W05162



300-1430 COC

CHAIN OF POSSESSION		SIGN / PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM D.W. Brotherton/CHPRS	DATE/TIME NOV 07 2015 1350	RECEIVED BY/STORED IN SSV #	DATE/TIME NOV 07 2015 1350	** Offsite lab analyses will be a blend of river water and phosphate injection solution. TRVL-15-155 (1) 300.0_ANIONS_IC: COMMON {Chloride, Sulfate}; 300.0_ANIONS_IC: COMMON (Add-on) {Phosphorus In phosphate};	
RELINQUISHED BY/REMOVED FROM SSV #	DATE/TIME NOV 08 2015 0645	RECEIVED BY/STORED IN RECEIVED BY/STORED IN	DATE/TIME NOV 08 2015 0645		
RELINQUISHED BY/REMOVED FROM LAB. WHEEL	DATE/TIME NOV 08 2015 1110	RECEIVED BY/STORED IN J. Friesz, TARL	DATE/TIME NOV 08 2015 1110		
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	

Detection Summary

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

TestAmerica Job ID: 300-1430-1
 SDG: WC0562

Client Sample ID: B32L05

Lab Sample ID: 300-1430-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Orthophosphate as P	4000	D	41	21	mg/L	500		300.0	Total/NA

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This Detection Summary does not include radiochemical test results.

Client Sample Results

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

TestAmerica Job ID: 300-1430-1
 SDG: WC0562

Client Sample ID: B32L05
 Date Collected: 11/07/15 09:50
 Date Received: 11/08/15 11:10

Lab Sample ID: 300-1430-1
 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			11/08/15 21:20	500
Orthophosphate as P	4000	D	41	21	mg/L			11/08/15 21:20	500
Sulfate	63	U	130	63	mg/L			11/08/15 21:20	500

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QC Sample Results

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

TestAmerica Job ID: 300-1430-1
 SDG: WC0562

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-1900/5
 Matrix: Water
 Analysis Batch: 1900

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			11/08/15 15:37	1

Lab Sample ID: LCS 300-1900/6
 Matrix: Water
 Analysis Batch: 1900

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	6.67		mg/L		102	80 - 120

Lab Sample ID: 300-1429-A-1 MS
 Matrix: Water
 Analysis Batch: 1900

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	0.21	U	3.26	2.82	D	mg/L		86	75 - 125

Lab Sample ID: 300-1429-A-1 DU
 Matrix: Water
 Analysis Batch: 1900

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	0.21	U	0.21	U	mg/L		NC	20

Lab Sample ID: MB 300-1901/5
 Matrix: Water
 Analysis Batch: 1901

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			11/08/15 15:37	1
Sulfate	0.13	U	0.25	0.13	mg/L			11/08/15 15:37	1

Lab Sample ID: LCS 300-1901/6
 Matrix: Water
 Analysis Batch: 1901

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	16.5		mg/L		103	80 - 120
Sulfate	20.0	20.8		mg/L		104	80 - 120

Lab Sample ID: 300-1429-A-1 MS
 Matrix: Water
 Analysis Batch: 1901

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	18	D	8.00	27.1	D	mg/L		112	75 - 125
Sulfate	60	D	10.0	72.2	D	mg/L		119	75 - 125

QC Sample Results

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

TestAmerica Job ID: 300-1430-1
 SDG: WC0562

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 300-1429-A-1 DU
 Matrix: Water
 Analysis Batch: 1901

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	18	D	18.1	D	mg/L		0	20
Sulfate	60	D	60.4	D	mg/L		0.2	20

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QC Association Summary

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

TestAmerica Job ID: 300-1430-1
 SDG: WC0562

HPLC/IC

Analysis Batch: 1900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-1429-A-1 DU	Duplicate	Total/NA	Water	300.0	
300-1429-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
300-1430-1	B32L05	Total/NA	Water	300.0	
LCS 300-1900/6	Lab Control Sample	Total/NA	Water	300.0	
MB 300-1900/5	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 1901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-1429-A-1 DU	Duplicate	Total/NA	Water	300.0	
300-1429-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
300-1430-1	B32L05	Total/NA	Water	300.0	
LCS 300-1901/6	Lab Control Sample	Total/NA	Water	300.0	
MB 300-1901/5	Method Blank	Total/NA	Water	300.0	

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Lab Chronicle

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

TestAmerica Job ID: 300-1430-1
 SDG: WC0562

Client Sample ID: B32L05
Date Collected: 11/07/15 09:50
Date Received: 11/08/15 11:10

Lab Sample ID: 300-1430-1
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		1900	11/08/15 21:20	RLC	TAL RCH
Total/NA	Analysis	300.0		500	10 mL		1901	11/08/15 21:20	RLC	TAL RCH

Client Sample ID: Duplicate
Date Collected: 11/08/15 08:47
Date Received: 11/08/15 11:10

Lab Sample ID: 300-1429-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		5	10 mL		1900	11/08/15 19:04	RLC	TAL RCH
Total/NA	Analysis	300.0		5	10 mL		1901	11/08/15 19:04	RLC	TAL RCH

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

Lab Sample ID: LCS 300-1900/6
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		1900	11/08/15 15:52	RLC	TAL RCH

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

Lab Sample ID: LCS 300-1901/6
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		1901	11/08/15 15:52	RLC	TAL RCH

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

Lab Sample ID: MB 300-1900/5
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		1900	11/08/15 15:37	RLC	TAL RCH

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

Lab Sample ID: MB 300-1901/5
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		1901	11/08/15 15:37	RLC	TAL RCH

Lab Chronicle

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

TestAmerica Job ID: 300-1430-1
 SDG: WC0562

Client Sample ID: Matrix Spike

Lab Sample ID: 300-1429-A-1 MS

Date Collected: 11/08/15 08:47

Matrix: Water

Date Received: 11/08/15 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		5	10 mL		1900	11/08/15 18:49	RLC	TAL RCH
Total/NA	Analysis	300.0		5	10 mL		1901	11/08/15 18:49	RLC	TAL RCH

Laboratory References:

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

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Method Summary

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

TestAmerica Job ID: 300-1430-1
 SDG: WC0562

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: CH2M Hill Chemical

TestAmerica Job ID: 300-1430-1
SDG: WC0562

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-1430-1	B32L05	Water	11/07/15 09:50	11/08/15 11:10

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-1430-1
SDG Number: WC0562

Login Number: 1430
List Number: 1
Creator: Friesz, Jordan D

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.	N/A	
Residual Chlorine Checked.	N/A	

