

NOVEMBER 19, 2013

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-4365-1

TestAmerica Sample Delivery Group: SL1411
Client Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

For:

CH2M Hill Plateau Remediation Company
PO BOX 1600, MS H8-41
Richland, Washington 99352

Attn: General Mailbox



Authorized for release by:
11/19/2013 9:51:05 AM

Jayna Awalt, Project Manager I
(314)298-8566

jayna.awalt@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-4365-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

CH2MHill Plateau Remediation Company
P.O. Box 1600
MS B3-60
Richland, Washington 99352
November 19, 2013
Attention: Scot Fitzgerald

SDG : SL1411
Number of Samples : 4 samples
Sample Matrix : Water
Data Deliverable : Summary
Date SDG Closed : November 6, 2013

II. Introduction

On November 6, 2013, 4 water samples were received by TestAmerica - St. Louis for chemical analysis. The samples were received within temperature criteria. See the COC and receipt checklist for documentation of any variations on receipt conditions and temperature. Upon receipt, the samples were given laboratory Ids to correspond with specific client Ids. Please refer to the Sample Summary sheets attached to this case narrative. This report is incomplete without the narrative.

The following SAFs are associated with this SDG: W13-008

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. All results are based upon samples as they were received, i.e. wet weight, unless otherwise noted on the data sheets. See the attached Methods Summary Form for the methods used in this SDG.

MS/MSD/Dup analysis was done per the client requirements. Analytical batches that did not contain matrix QC were analyzed with a LCS/LCS duplicate.

Deviation from Request: None

IV. Definitions

QCBLK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike
DUP- Laboratory Duplicate
MS- Matrix Spike
MSD- Matrix Spike Duplicate

The term "Detection Limit" used in the analytical data report refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

The following data qualifiers may be applicable to the results in this report, as appropriate.

- B - For inorganic analyses, the sample result is greater than the MDL but less than the RL.
- B - For organic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the



Job ID: 160-4365-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

MDL.

- **J** - For organic analyses, the sample is estimated and less than the RL.
- **C** - For inorganic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **D** - For all analyses, the sample result was obtained from the analysis of a dilution.
- **N** - For inorganics and GC analyses, the spike/spike duplicate recoveries are outside QC limits.
- **T** - For GCMS analyses, the spike/spike duplicate recoveries are outside QC limits.
- **O** - For all analyses, the LCS (LCSD) recoveries are outside QC limits.
- **M** - For inorganic analyses, the precision was outside control limits.
- **P** - For organic analyses (PCB/Pests only), the aroclor target analyte has greater than 25% difference for detected concentrations between the two GC columns.

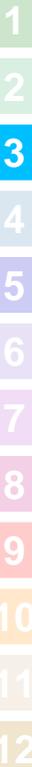
There were no observations or nonconformances for the following methods:

pH

I certify that this Summary Package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the signature on the cover page has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Jayna Awalt
St. Louis Project Manager



CH2M Hill Plateau Remediation Company
 C.O.C. # **W13-008-093**
 Page 1 of 1

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Contact/Requester: Karen Waters-Husted
 Telephone No. 509-376-4650

Sampling Origin: Hanford Site
 Purchase Order/Charge Code: 300071ES20

Logbook No. HNF-N-506 58/30
 Ice Chest No. GWS-098

Method of Shipment: Commercial Carrier
 Bill of Lading/Air Bill No. 79708895613

Priority: 15 Days
 Offsite Property No. N/A

PRIORITY

SPECIAL INSTRUCTIONS Hold Time: Total Activity Exemption: Yes No
 Site Wide Generator Knowledge Information Form applies.
 The CACN for all analytical work at WSCF is 401647.

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2R2L8	N	W	NOV 04 2013	1931	1x125-mL G/P	150.1_PH: pH (1)	ASAP	None
B2R2L7	N	W			1x125-mL G/P	150.1_PH: pH (1)	ASAP	None
B2R2L6	N	W			1x125-mL G/P	150.1_PH: pH (1)	ASAP	None
B2R2L6	N	W			1x20-mL P	Activity Scan	6 Months	None
B2R2L9	N	W			1x125-mL G/P	150.1_PH: pH (1)	ASAP	None

POSSIBLE SAMPLE HAZARDS/REMARKS
 *** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	Matrix *
SCOTT KING	<i>Scott King</i>		NOV 04 2013 1510	SSU #1			NOV 04 2013 1510	S = Soil, SE = Sediment, SO = Solid, SL = Sludge, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other
SSU-1			NOV 05 2013 0720	L.D. Wall	<i>L.D. Wall</i>		NOV 05 2013 0720	
LD Wall			NOV 05 2013 1400	FEDEX				
LD Wall		<i>FedEx</i>		Brian Daniels	<i>Brian Daniels</i>		NOV 16 2013 0910	





797082956113

Ship (P/U) date : Tues 11/05/2013 3:45 pm RICHLAND, WA US	 Delivered <i>Signed for by: J.CLARK</i>	Actual delivery : Wed 11/06/2013 9:16 am EARTH CITY, MO US
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Travel History

Date/Time	Activity	Location
- 11/06/2013 - Wednesday		
9:16 am	Delivered	EARTH CITY, MO
7:10 am	On FedEx vehicle for delivery	EARTH CITY, MO
7:03 am	At local FedEx facility	EARTH CITY, MO
5:07 am	At destination sort facility	BERKELEY, MO
4:16 am	Departed FedEx location	MEMPHIS, TN
12:48 am	Arrived at FedEx location	MEMPHIS, TN
- 11/05/2013 - Tuesday		
5:12 pm	Left FedEx origin facility	PASCO, WA
3:45 pm	Picked up	PASCO, WA
1:12 pm	Shipment information sent to FedEx	

Local Scan Time

Shipment Facts

Tracking number	797082956113	Service	FedEx Priority Overnight
Weight	47 lbs	Dimensions	16x16x18 in.
Delivered To	Shipping/Receiving	Total pieces	1
Total shipment weight	47 lbs / 21.3 kgs	Shipper reference	GWS-098
Packaging	Your Packaging	Special handling section	Deliver Weekday, Additional Handling Surcharge



Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-4365-1

SDG Number: SL1411

Login Number: 4365

List Number: 1

Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

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.	N/A	
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.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



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
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: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-4365-1
SDG: SL1411

Method	Method Description	Protocol	Laboratory
150.1	pH (Electrometric)	MCAWW	TAL SL

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



NOVEMBER 19, 2013
Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-4365-1
SDG: SL1411

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-4365-1	B2R2L8	Water	11/04/13 14:31	11/06/13 09:10
160-4365-2	B2R2L7	Water	11/04/13 14:31	11/06/13 09:10
160-4365-3	B2R2L6	Water	11/04/13 14:31	11/06/13 09:10
160-4365-4	B2R2L9	Water	11/04/13 14:31	11/06/13 09:10

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NOVEMBER 19, 2013
Detection Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-4365-1
SDG: SL1411

Client Sample ID: B2R2L8

Lab Sample ID: 160-4365-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH	7.37		0.100	0.100	SU	1		150.1	Total/NA

Client Sample ID: B2R2L7

Lab Sample ID: 160-4365-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH	7.47		0.100	0.100	SU	1		150.1	Total/NA

Client Sample ID: B2R2L6

Lab Sample ID: 160-4365-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH	7.48		0.100	0.100	SU	1		150.1	Total/NA

Client Sample ID: B2R2L9

Lab Sample ID: 160-4365-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
pH	7.47		0.100	0.100	SU	1		150.1	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica St. Louis

NOVEMBER 19, 2013
Client Sample Results

Client: CH2M Hill Plateau Remediation Company
 Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-4365-1
 SDG: SL1411

Client Sample ID: B2R2L8
 Date Collected: 11/04/13 14:31
 Date Received: 11/06/13 09:10

Lab Sample ID: 160-4365-1
 Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.37		0.100	0.100	SU			11/06/13 12:26	1

Client Sample ID: B2R2L7
 Date Collected: 11/04/13 14:31
 Date Received: 11/06/13 09:10

Lab Sample ID: 160-4365-2
 Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.47		0.100	0.100	SU			11/06/13 12:30	1

Client Sample ID: B2R2L6
 Date Collected: 11/04/13 14:31
 Date Received: 11/06/13 09:10

Lab Sample ID: 160-4365-3
 Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.48		0.100	0.100	SU			11/06/13 12:31	1

Client Sample ID: B2R2L9
 Date Collected: 11/04/13 14:31
 Date Received: 11/06/13 09:10

Lab Sample ID: 160-4365-4
 Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.47		0.100	0.100	SU			11/06/13 12:33	1

Client: CH2M Hill Plateau Remediation Company
Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-4365-1
SDG: SL1411

Method: 150.1 - pH (Electrometric)

Lab Sample ID: LCS 160-83795/5
Matrix: Water
Analysis Batch: 83795

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.020		SU		100	99.0 - 101.0

Lab Sample ID: 160-4365-1 DU
Matrix: Water
Analysis Batch: 83795

Client Sample ID: B2R2L8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.37		7.390		SU		0.3	5



NOVEMBER 19, 2013
QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S,W,I,A ,X SAFS- GROUNDWATER

TestAmerica Job ID: 160-4365-1
SDG: SL1411

General Chemistry

Analysis Batch: 83795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-4365-1	B2R2L8	Total/NA	Water	150.1	
160-4365-1 DU	B2R2L8	Total/NA	Water	150.1	
160-4365-2	B2R2L7	Total/NA	Water	150.1	
160-4365-3	B2R2L6	Total/NA	Water	150.1	
160-4365-4	B2R2L9	Total/NA	Water	150.1	
LCS 160-83795/5	Lab Control Sample	Total/NA	Water	150.1	

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