

March 23, 2015

# 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: 160-10668-1

TestAmerica Sample Delivery Group: SL1767  
Client Project/Site: F13-047

For:

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

Attn: General Mailbox



Authorized for release by:  
3/23/2015 4:35:52 PM

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

[jayna.awalt@testamericainc.com](mailto:jayna.awalt@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?

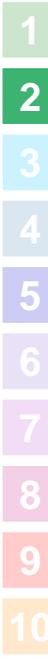


Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*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.*

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Chain of Custody . . . . .	7
Definitions/Glossary . . . . .	11
Method Summary . . . . .	12
Sample Summary . . . . .	13
Client Sample Results . . . . .	14
QC Sample Results . . . . .	15
QC Association Summary . . . . .	19

**Job ID: 160-10668-1**

**Laboratory: TestAmerica St. Louis**

**Narrative**

**CASE NARRATIVE**

CH2MHill Plateau Remediation Company  
P.O. Box 1600  
Richland, Washington 99352  
March 23, 2015  
Attention: Scot Fitzgerald

---

SDG : SL1767  
Number of Samples : 2 samples  
Sample Matrix : Water  
Data Deliverable : Summary  
Date SDG Closed : February 26, 2015

---

II. Introduction

On February 26, 2 samples were received by TestAmerica - St. Louis for chemical analysis. The samples were received within temperature criteria. See the COC and receipt checklists for documentation of any variations on receipt conditions and temperature. Upon receipt, 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: F13-047

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 an LCS/LCS duplicate.

Note: For Metals analyses, per standard practice, all 6020 water and soil samples are initially prepared at 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner. These dilutions do not necessitate flagging unless otherwise noted in the case narrative.

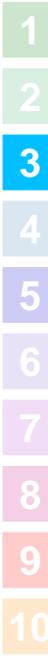
For Anion analysis, samples have been started at a 2x dilution per CHPRC direction. The samples are flagged accordingly with a "D" flag if sample concentration is above the MDL/RL. Non-conformance will be included in the below section only if dilution is greater than 2x.

For WTPH methods, the lab utilizes method 8015B. Per CHPRC direction, the method name in the electronic data has been modified to read WTPH in the place of 8015B.

Per CHPRC direction (June 2014), Boron will be reported for Metals using method 6010. Boron will no longer be reported by method 6020.

IV. Definitions

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



**Job ID: 160-10668-1 (Continued)**

**Laboratory: TestAmerica St. Louis (Continued)**

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 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. For Metals analyses, per standard practice, all solid samples are initially prepared at a 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner. These dilutions do not necessitate qualification unless otherwise noted in the case narrative.
- **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.

**Anions**

**Batch: 176206**

The following samples were diluted to bring the concentrations of target analytes within the calibration range in Anion batch 176206: B2YRV4 (160-10668-1). Elevated reporting limits (RLs) are provided. These analytes have been qualified accordingly with a "D" flag in the associated samples.

**Batch: 176207**

The following samples were diluted to bring the concentrations of target analytes within the calibration range in Anion batch 176206: B2YRV4 (160-10668-1). Elevated reporting limits (RLs) are provided. These analytes have been qualified accordingly with a "D" flag in the associated samples.

**ICP Metals**

**Batch: 179541**

The matrix spike (MS) recovery for calcium was outside control limits. Sample concentration is greater than 4x the amount spiked making spike result ineffective. No sample flagging is necessary.

**Alkalinity**

**Batch: 178880**

Sample B2YRV5 (160-10668-2) was analyzed outside 1x hold time but within 2x hold time due to lab error. Per SDR15-240, the sample data for analysis performed outside 1x hold has been reported.

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F13-047

TestAmerica Job ID: 160-10668-1  
SDG: SL1767

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

---

**Job ID: 160-10668-1 (Continued)**

---

**Laboratory: TestAmerica St. Louis (Continued)**

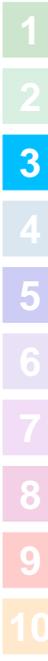
We certify that this data package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager or designee and the laboratory's client services representative as verified by their signature on this report.

Reviewed and approved:

Jayna Awalt  
St. Louis Project Manager

# SAMPLE ISSUE RESOLUTION

SIR NUM	SDR15-240
REV NUM	0
DATE INITIATED	3/16/2015



## SAMPLE EVENT INFORMATION

SAF NUM(S) F13-047  
 OPERABLE UNIT(S) 100-KR-4  
 PROJECT(S) 100-KR-4 RM ACT  
 SAMPLE EVENT TITLE(S) 100-K Area  
 LABORATORY TestAmerica St. Louis

## SAMPLING INFORMATION

NUMBER OF SAMPLES 1  
 SAMPLE NUMBERS B2YRV5  
 SAMPLE MATRIX WATER  
 COLLECTION DATE 2/24/2015 - 2/24/2015  
 SDG NUM SL1767

## ISSUE BACKGROUND

CLASS Laboratory Issue  
 TYPE Analysis Holding Time Exceeded

DESCRIPTION Sample is requesting 2320B Alkalinity. The new analyst missed the 1x hold due to error in only checking the 310.1 Alkalinity backlog.

## DISPOSITION

DESCRIPTION TASL PROPOSES TO REPORT DATA FOR ANALYSIS PERFORMED OUTSIDE 1X HOLD BUT WITHIN 2X HOLD AND NARRATE IN REPORT.  
 OR  
 CANCEL ANALYSIS

TASL PROPOSES TO REPORT DATA FOR ANALYSIS PERFORMED OUTSIDE 1X HOLD BUT WITHIN 2X HOLD AND NARRATE IN REPORT.  
 OR  
 CANCEL ANALYSIS

TASL PROPOSES TO REPORT DATA FOR ANALYSIS PERFORMED OUTSIDE 1X HOLD BUT WITHIN 2X HOLD AND NARRATE IN REPORT.  
 OR  
 CANCEL ANALYSIS

This error has been added to the already open corrective action for recent missed hold times and is being addressed by management. All backlogs are now being monitored by management in order to reduce these errors

JUSTIFICATION Final Disposition: Accept first proposal - Report result run out of hold and narrate in report.

SUBMITTED BY: Jayna Awalt DATE: 03/13/2015  
 ACCEPTED BY: Scot Fitzgerald DATE: 03/16/2015

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-10668-1

SDG Number: SL1767

Login Number: 10668

List Number: 1

Creator: Clarke, Jill C

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\neq</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	0.8
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.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

March 23, 2015

18165

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F13-047-111	PAGE 1 OF 1
COLLECTOR <i>E. Kavanagh</i>	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE	7H
SAMPLING LOCATION C8295, I-007 SPT	PROJECT DESIGNATION 100-KR-4 Long Term & Interim Action Monitoring - Water	SAF NO. F13-047	COA 300085	AIR QUALITY	<input type="checkbox"/>
ICE CHEST NO. <i>GWS-258273</i>	FIELD LOGBOOK NO. <i>HNF-N-645-2 p7</i>	ACTUAL SAMPLE DEPTH <i>59.6'</i>	BILL OF LADING/AIR BILL NO. <i>772999468 1680</i>	METHOD OF SHIPMENT FEDERAL EXPRESS	<b>ORIGINAL</b>
SHIPPED TO <i>TestAmerica St. Louis</i>					

MATRIX* A=Air DL=Drum L=Liquid DS=Drum 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 be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION Cool-AC	HOLDING TIME 48 Hours	TYPE OF CONTAINER P	NO. OF CONTAINER(S) 1	VOLUME 500mL	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS
SPECIAL HANDLING AND/OR STORAGE							
SAMPLE NO. B2YRV4	MATRIX* WATER	SAMPLE DATE 2-24-15	SAMPLE TIME 1459				

CHAIN OF POSSESSION		SIGN / PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>E. Kavanagh</i>	DATE/TIME 2-24-15 1535	RECEIVED BY/STORED IN <i>SSU-1</i>	DATE/TIME 2-24-15 1535	TRVL-14-190 (1) 300.0 ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Sulfate};	
RELINQUISHED BY/REMOVED FROM <i>SSU-1</i>	DATE/TIME FEB 25 2015 0800	RECEIVED BY/STORED IN <i>L.D. Wall</i>	DATE/TIME FEB 25 2015 0800	TRVL-14-190	
RELINQUISHED BY/REMOVED FROM <i>L.D. Wall</i>	DATE/TIME FEB 25 2015 1400	RECEIVED BY/STORED IN <i>FEDEX</i>	DATE/TIME FEB 25 2015 1400		
RELINQUISHED BY/REMOVED FROM <i>FEDEX</i>	DATE/TIME	RECEIVED BY/STORED IN <i>Del Clark</i>	DATE/TIME 2-26-15 1045		
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	
PRINTED ON 11/7/2014					



CH2M Hill Plateau Remediation Company *SH1707*

COLLECTOR *E. Kaver* *chpac*

SAMPLING LOCATION *C8295, I-007 SPT*

ICE CHEST NO. *GWS-258 273*

COMPANY CONTACT *CH2M Hill*

PROJECT COORDINATOR *TODAK, D*

PHONE NO. *376-6427*

PROJECT DESIGNATION *100-KR-4 Long Term & Interim Action Monitoring - Water*

FIELD LOGBOOK NO. *172K-N-645-2*

ACTUAL SAMPLE DEPTH *59.6'*

OFFSITE PROPERTY NO. *N/A*

PRICE CODE *7H*

AIR QUALITY

METHOD OF SHIPMENT *FEDERAL EXPRESS*

F13-047-112

PAGE 1 OF 1

DATA TURNAROUND *30 Days / 30 Days*

**ORIGINAL**

BILL OF LADING/AIR BILL NO. *772994681680*

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	HNO3 to pH	Cool~4C
A=Air	*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.		<2	14 Days
DL=Drum			6 Months	G/P
DS=Drum			G/P	1
Solids			1	500mL
L=Liquid			SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS
O=Oil				
S=Soil				
SF=Sediment				
T=Tissue				
V=Vegetation				
W=Water				
WI=Wipe				
X=Other				

SAMPLE NO.	MATRIX*	WATER	SAMPLE DATE	SAMPLE TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
B2YRV5			2-24-15	1459	<i>SSV B</i>	2-24-15	<i>L.D. Wall</i>	FEB 25 2015 0800
					<i>FEDEX</i>		<i>Jill Clark</i>	FEB 26 2015 1045

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM *Chpac* DATE/TIME *2-24-15*

RELINQUISHED BY/REMOVED FROM *SSU-1* DATE/TIME *FEB 25 2015 0800*

RELINQUISHED BY/REMOVED FROM *L.D. Wall* DATE/TIME *FEB 25 2015 1400*

RELINQUISHED BY/REMOVED FROM *FED EX* DATE/TIME

RELINQUISHED BY/REMOVED FROM DATE/TIME

RELINQUISHED BY/REMOVED FROM DATE/TIME

RELINQUISHED BY/REMOVED FROM DATE/TIME

SPECIAL INSTRUCTIONS

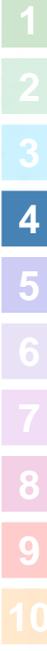
TRVL-14-190

(1) 6010\_METALS\_ICP (Supertrace): COMMON {Chromium};

6010\_METALS\_ICP (Supertrace): COMMON (Add-on) {Calcium, Magnesium, Potassium, Sodium};

(2) 2320\_ALKALINITY: COMMON (Add-on) {Bicarbonate, Carbonate alkalinity};

TRVL-14-190



March 23, 2015

My Profile | Support | Locations | English | Search | Subr



Ship | Track | Manage | Learn | FedEx Office®

Login

**IMPORTANT!**

FedEx is closely monitoring the winter storm in the midwest and northeastern U.S. [Learn More](#)

FedEx® Tracking

<b>772994681680</b>			
Ship (P/U) date : <b>Wed 2/25/2015 3:32 pm</b>		Actual delivery : <b>Thur 2/26/2015 10:40 am</b>	
RICHLAND, WA US	<b>Delivered</b>	EARTH CITY, MO US	
<i>Signed for by: B DANIELS</i>			
<b>Travel History</b>			
<b>Date/Time</b>	<b>Activity</b>	<b>Location</b>	
- 2/26/2015 - Thursday			
10:40 am	Delivered	EARTH CITY, MO	
7:26 am	On FedEx vehicle for delivery	EARTH CITY, MO	
7:12 am	At local FedEx facility	EARTH CITY, MO	
6:05 am	At destination sort facility	BERKELEY, MO	
5:16 am	Departed FedEx location	MEMPHIS, TN	
12:19 am	Arrived at FedEx location	MEMPHIS, TN	
- 2/25/2015 - Wednesday			
5:16 pm	Left FedEx origin facility	PASCO, WA	
3:32 pm	Picked up	PASCO, WA	
3:28 pm	Shipment information sent to FedEx		
<b>Shipment Facts</b>			
<b>Tracking number</b>	772994681680	<b>Service</b>	FedEx Priority Overnight
<b>Weight</b>	18 lbs / 8.16 kgs	<b>Dimensions</b>	15x13x10 in.
<b>Delivered To</b>	Shipping/Receiving	<b>Total pieces</b>	1
<b>Total shipment weight</b>	18 lbs / 8.16 kgs	<b>Shipper reference</b>	gws-273
<b>Packaging</b>	Your Packaging	<b>Special handling section</b>	Deliver Weekday



Search | Subr

**Customer Focus**

New Customer Center  
Small Business Center  
Service Guide  
Customer Support

**Company Information**

About FedEx  
Careers  
Investor Relations

**Featured Services**

FedEx One Rate  
FedEx SameDay  
FedEx Home Delivery  
Healthcare Solutions  
Online Retail Solutions  
Packaging Services  
Ancillary Clearance Services

**Other Resources**

FedEx Compatible  
Developer Resource Center  
FedEx Ship Manager Software  
FedEx Mobile

**Companies**

FedEx Express  
FedEx Ground  
FedEx Office  
FedEx Freight  
FedEx Custom Critical  
FedEx Trade Networks  
FedEx SupplyChain  
FedEx TechConnect

**Follow FedEx**

United States - English

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
B	Estimated result. Result is less than the RL, but greater than MDL
D	The reported value is from a dilution.
U	Analyzed for but not detected.

### Metals

Qualifier	Qualifier Description
B	Estimated result. Result is less than the RL, but greater than MDL
U	Analyzed for but not detected.

### General Chemistry

Qualifier	Qualifier Description
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)

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F13-047

TestAmerica Job ID: 160-10668-1  
SDG: SL1767

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SL
6010C	Metals (ICP)	SW846	TAL SL
SM 2320B	Alkalinity	SM	TAL SL

**Protocol References:**

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

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

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



March 23, 2015  
Sample Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F13-047

TestAmerica Job ID: 160-10668-1  
SDG: SL1767

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-10668-1	B2YRV4	Water	02/24/15 14:59	02/26/15 10:45
160-10668-2	B2YRV5	Water	02/24/15 14:59	02/26/15 10:45

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

March 23, 2015  
Client Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F13-047

TestAmerica Job ID: 160-10668-1  
SDG: SL1767

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

Client Sample ID: B2YRV4  
Date Collected: 02/24/15 14:59  
Date Received: 02/26/15 10:45

Lab Sample ID: 160-10668-1  
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	4.9	D	0.40	0.080	mg/L			02/26/15 15:32	20

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

Client Sample ID: B2YRV4  
Date Collected: 02/24/15 14:59  
Date Received: 02/26/15 10:45

Lab Sample ID: 160-10668-1  
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.17	B D	0.20	0.020	mg/L			02/26/15 15:15	2

**Method: 300.0 - Anions, Ion Chromatography - DL2**

Client Sample ID: B2YRV4  
Date Collected: 02/24/15 14:59  
Date Received: 02/26/15 10:45

Lab Sample ID: 160-10668-1  
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	50	D	10	1.0	mg/L			02/26/15 15:32	20
Chloride	19	D	4.0	0.40	mg/L			02/26/15 15:32	20

**Method: 6010C - Metals (ICP)**

Client Sample ID: B2YRV5  
Date Collected: 02/24/15 14:59  
Date Received: 02/26/15 10:45

Lab Sample ID: 160-10668-2  
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	56300		1000	54.2	ug/L		03/10/15 13:14	03/16/15 13:55	1
Chromium	23.9		10.0	3.4	ug/L		03/10/15 13:14	03/16/15 13:55	1
Potassium	4550	B	5000	456	ug/L		03/10/15 13:14	03/16/15 13:55	1
Magnesium	8960		1000	50.5	ug/L		03/10/15 13:14	03/16/15 13:55	1
Sodium	13800		1000	105	ug/L		03/10/15 13:14	03/16/15 13:55	1

**General Chemistry**

Client Sample ID: B2YRV5  
Date Collected: 02/24/15 14:59  
Date Received: 02/26/15 10:45

Lab Sample ID: 160-10668-2  
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO3	0.54	U	5.0	0.54	mg/L			03/12/15 09:25	1
Bicarbonate Alkalinity as CaCO3	102		5.0	0.54	mg/L			03/12/15 09:25	1

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F13-047

TestAmerica Job ID: 160-10668-1  
SDG: SL1767

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

Lab Sample ID: MB 160-176206/3  
Matrix: Water  
Analysis Batch: 176206

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.010	U	0.10	0.010	mg/L			02/26/15 14:41	1
Sulfate	0.050	U	0.50	0.050	mg/L			02/26/15 14:41	1
Chloride	0.020	U	0.20	0.020	mg/L			02/26/15 14:41	1

Lab Sample ID: LCS 160-176206/4  
Matrix: Water  
Analysis Batch: 176206

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	0.966		mg/L		97	90 - 110
Sulfate	8.00	7.70		mg/L		96	90 - 110
Chloride	2.00	1.94		mg/L		97	90 - 110

Lab Sample ID: MB 160-176207/3  
Matrix: Water  
Analysis Batch: 176207

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.0040	U	0.020	0.0040	mg/L			02/26/15 14:41	1

Lab Sample ID: LCS 160-176207/4  
Matrix: Water  
Analysis Batch: 176207

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.400	0.413		mg/L		103	90 - 110

Lab Sample ID: 160-10668-1 DU  
Matrix: Water  
Analysis Batch: 176207

Client Sample ID: B2YRV4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	4.9	D	4.84	D	mg/L		2	20

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

Lab Sample ID: 160-10668-1 MS  
Matrix: Water  
Analysis Batch: 176206

Client Sample ID: B2YRV4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride - DL	0.17	B D	4.00	4.26	D	mg/L		102	90 - 110

Lab Sample ID: 160-10668-1 DU  
Matrix: Water  
Analysis Batch: 176206

Client Sample ID: B2YRV4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Fluoride - DL	0.17	B D	0.164	B D	mg/L		3	20

TestAmerica St. Louis

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F13-047

TestAmerica Job ID: 160-10668-1  
SDG: SL1767

**Method: 300.0 - Anions, Ion Chromatography - DL2**

Lab Sample ID: 160-10668-1 MS  
Matrix: Water  
Analysis Batch: 176206

Client Sample ID: B2YRV4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate - DL2	50	D	80.0	128	D	mg/L		97	90 - 110
Chloride - DL2	19	D	40.0	58.8	D	mg/L		100	90 - 110

Lab Sample ID: 160-10668-1 DU  
Matrix: Water  
Analysis Batch: 176206

Client Sample ID: B2YRV4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate - DL2	50	D	50.5	D	mg/L		0	20
Chloride - DL2	19	D	18.9	D	mg/L		1	20

Lab Sample ID: 160-10668-1 MS  
Matrix: Water  
Analysis Batch: 176207

Client Sample ID: B2YRV4  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N - DL2	4.9	D	8.00	13.2	D	mg/L		104	90 - 110

**Method: 6010C - Metals (ICP)**

Lab Sample ID: MB 160-178136/1-A  
Matrix: Water  
Analysis Batch: 179541

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 178136

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	54.2	U	1000	54.2	ug/L		03/10/15 13:14	03/16/15 13:47	1
Chromium	3.4	U	10.0	3.4	ug/L		03/10/15 13:14	03/16/15 13:47	1
Potassium	456	U	5000	456	ug/L		03/10/15 13:14	03/16/15 13:47	1
Magnesium	50.5	U	1000	50.5	ug/L		03/10/15 13:14	03/16/15 13:47	1
Sodium	105	U	1000	105	ug/L		03/10/15 13:14	03/16/15 13:47	1

Lab Sample ID: LCS 160-178136/2-A  
Matrix: Water  
Analysis Batch: 179541

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 178136

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	10000	10560		ug/L		106	80 - 120
Chromium	1000	1044		ug/L		104	80 - 120
Potassium	10000	9984		ug/L		100	80 - 120
Magnesium	10000	9289		ug/L		93	80 - 120
Sodium	10000	9956		ug/L		100	80 - 120

Lab Sample ID: 160-10668-2 MS  
Matrix: Water  
Analysis Batch: 179541

Client Sample ID: B2YRV5  
Prep Type: Total/NA  
Prep Batch: 178136

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	56300		10000	62440		ug/L		61	75 - 125
Chromium	23.9		1000	1059		ug/L		104	75 - 125

TestAmerica St. Louis

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F13-047

TestAmerica Job ID: 160-10668-1  
SDG: SL1767

**Method: 6010C - Metals (ICP) (Continued)**

Lab Sample ID: 160-10668-2 MS  
Matrix: Water  
Analysis Batch: 179541

Client Sample ID: B2YRV5  
Prep Type: Total/NA  
Prep Batch: 178136

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Potassium	4550	B	10000	14690		ug/L		101	75 - 125
Magnesium	8960		10000	17620		ug/L		87	75 - 125
Sodium	13800		10000	23900		ug/L		101	75 - 125

Lab Sample ID: 160-10668-2 MSD  
Matrix: Water  
Analysis Batch: 179541

Client Sample ID: B2YRV5  
Prep Type: Total/NA  
Prep Batch: 178136

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Calcium	56300		10000	65040		ug/L		87	75 - 125	4	20
Chromium	23.9		1000	1099		ug/L		108	75 - 125	4	20
Potassium	4550	B	10000	15090		ug/L		105	75 - 125	3	20
Magnesium	8960		10000	18750		ug/L		98	75 - 125	6	20
Sodium	13800		10000	24010		ug/L		102	75 - 125	0	20

**Method: SM 2320B - Alkalinity**

Lab Sample ID: MB 160-178880/1  
Matrix: Water  
Analysis Batch: 178880

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO3	0.54	U	5.0	0.54	mg/L			03/12/15 09:25	1
Bicarbonate Alkalinity as CaCO3	0.54	U	5.0	0.54	mg/L			03/12/15 09:25	1

Lab Sample ID: HLCS 160-178880/3  
Matrix: Water  
Analysis Batch: 178880

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

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bicarbonate Alkalinity as CaCO3	400	377.0		mg/L		94	90 - 110

Lab Sample ID: LCS 160-178880/2  
Matrix: Water  
Analysis Batch: 178880

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bicarbonate Alkalinity as CaCO3	200	190.0		mg/L		95	90 - 110

Lab Sample ID: 160-10778-F-3 MS  
Matrix: Water  
Analysis Batch: 178880

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
Bicarbonate Alkalinity as CaCO3	532		100	620.0		mg/L		88	80 - 120

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F13-047

TestAmerica Job ID: 160-10668-1  
SDG: SL1767

**Method: SM 2320B - Alkalinity (Continued)**

Lab Sample ID: 160-10778-F-3 MSD  
Matrix: Water  
Analysis Batch: 178880

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bicarbonate Alkalinity as CaCO3	532		100	622.0		mg/L		90	80 - 120	0	20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F13-047

TestAmerica Job ID: 160-10668-1  
SDG: SL1767

**HPLC/IC**

**Analysis Batch: 176206**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-10668-1 - DL	B2YRV4	Total/NA	Water	300.0	
160-10668-1 - DL2	B2YRV4	Total/NA	Water	300.0	
160-10668-1 DU - DL	B2YRV4	Total/NA	Water	300.0	
160-10668-1 DU - DL2	B2YRV4	Total/NA	Water	300.0	
160-10668-1 MS - DL	B2YRV4	Total/NA	Water	300.0	
160-10668-1 MS - DL2	B2YRV4	Total/NA	Water	300.0	
LCS 160-176206/4	Lab Control Sample	Total/NA	Water	300.0	
MB 160-176206/3	Method Blank	Total/NA	Water	300.0	

**Analysis Batch: 176207**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-10668-1	B2YRV4	Total/NA	Water	300.0	
160-10668-1 DU	B2YRV4	Total/NA	Water	300.0	
160-10668-1 MS - DL2	B2YRV4	Total/NA	Water	300.0	
LCS 160-176207/4	Lab Control Sample	Total/NA	Water	300.0	
MB 160-176207/3	Method Blank	Total/NA	Water	300.0	

**Metals**

**Prep Batch: 178136**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-10668-2	B2YRV5	Total/NA	Water	3010A	
160-10668-2 MS	B2YRV5	Total/NA	Water	3010A	
160-10668-2 MSD	B2YRV5	Total/NA	Water	3010A	
LCS 160-178136/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 160-178136/1-A	Method Blank	Total/NA	Water	3010A	

**Analysis Batch: 179541**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-10668-2	B2YRV5	Total/NA	Water	6010C	178136
160-10668-2 MS	B2YRV5	Total/NA	Water	6010C	178136
160-10668-2 MSD	B2YRV5	Total/NA	Water	6010C	178136
LCS 160-178136/2-A	Lab Control Sample	Total/NA	Water	6010C	178136
MB 160-178136/1-A	Method Blank	Total/NA	Water	6010C	178136

**General Chemistry**

**Analysis Batch: 178880**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-10668-2	B2YRV5	Total/NA	Water	SM 2320B	
160-10778-F-3 MS	Matrix Spike	Total/NA	Water	SM 2320B	
160-10778-F-3 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 2320B	
HLCS 160-178880/3	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 160-178880/2	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 160-178880/1	Method Blank	Total/NA	Water	SM 2320B	