

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Denver

4955 Yarrow Street

Arvada, CO 80002

Tel: (303)736-0100

TestAmerica Job ID: 280-110578-1

TestAmerica Sample Delivery Group: DN0390

Client Project/Site: S18-006

For:

CH2M Hill Plateau Remediation Company

PO BOX 1600, MS H8-41

Richland, Washington 99352

Attn: Mr. Scot Fitzgerald



Authorized for release by:

6/28/2018 7:25:49 PM

Darlene Bandy, Project Manager I

(303)736-0188

[darlene.bandy@testamericainc.com](mailto:darlene.bandy@testamericainc.com)



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*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*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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**Case Narrative**

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S18-006

TestAmerica Job ID: 280-110578-1  
SDG: DN0390

**Job ID: 280-110578-1**

**Laboratory: TestAmerica Denver**

**Narrative**

**CASE NARRATIVE**

**Client: CH2M Hill Plateau Remediation Company**

**Project: S18-006**

**Report Number: 280-110578-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

The laboratory is not able to achieve project specified Highest Allowable Practical Quantitation Limits (HAPQL limits) for Boron 6010D. All analytes met statistical limits, unless otherwise detailed in the individual sections below. As instructed by the client, the data is reported.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**

The samples were received on 6/6/2018 at 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3° C.

**TOTAL METALS (ICP)**

Samples B3J9R6 (280-110578-1), B3JBN4 (280-110578-2), B3J9P5 (280-110578-3) and B3JC18 (280-110578-4) were analyzed for Total Metals (ICP) in accordance with EPA SW846 6010D. The samples were prepared and analyzed on 06/26/2018.

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

**TOTAL METALS (ICP/MS)**

Samples B3J9R6 (280-110578-1), B3JBN4 (280-110578-2), B3J9P5 (280-110578-3) and B3JC18 (280-110578-4) were analyzed for Total Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared on 06/14/2018 and analyzed on 06/14/2018 and 06/15/2018.

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

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:

Darlene Bandy  
Project Manager

### Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 280-110578-1

SDG Number: DN0390

**Login Number: 110578**

**List Number: 1**

**Creator: Pottruff, Reed W**

**List Source: TestAmerica Denver**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	80 CPM
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	1.3 C
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 (excluding tests with immediate HTs)	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	



43 Lbs

**CH2M Hill Plateau Remediation Company**

**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**

C.O.C.# S18-006-403  
Page 1 of 1

Collector: Dan Woehle / CHEPC DWJ 6290  
Telephone No.: 509-376-4650

SAF No.: S18-006  
Purchase Order/Charge Code: 300071

Project Title: Surv, June 2018  
Logbook No.: HNF-N-506 ~ 98-94  
Ice Chest No.: 6005-6001

Shipped To (Lab): TestAmerica Denver  
Method of Shipment: Commercial Carrier  
Bill of Lading/Air Bill No.: 772402050715

Protocol: SURV  
Priority: 30 Days  
Offsite Property No.: 9520

**POSSIBLE SAMPLE HAZARDS/REMARK**  
 \*\* \*\* Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

**SPECIAL INSTRUCTIONS**  
 N/A

Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3J9R6	Y	JUN 05 2018	1101	1x500-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2
B3JEN4	N	JUN 05 2018	1101	1x500-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2



1.3 12.19 0.0 Transfer to 6-6-18

Relinquished By: Dan Woehle / CHEPC	Signature	JUN 05 2018	1116	Received By: Christina Aguilera / CHEPC	Signature	JUN 05 2018	1116
Relinquished By: Christina Aguilera / CHEPC	Signature	JUN 05 2018	1400	Received By: FEDEX	Signature		
Relinquished By: FedEx	Signature			Received By: Lead Polanski	Signature	6-6-18	0900

Disposal Method (e.g., Return to customer, per lab procedure, used in process):

Disposed By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Printed On 4/11/2018 FSR ID = FSR60536 A-6004-842 (REV 3)



<b>CH2MHill Plateau Remediation Company</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>		C.O.C.# <b>S18-006-398</b> Page 1 of 1			
Collector: Dan Weehle CHPRC	DWA0390	Contact/Requester: Karen Waters-Husted	Telephone No.: 509-376-4650				
SAF No.: S18-006		Sampling Origin: Hanford Site	Purchase Order/Charge Code: 300071				
Project Title: Surv, June 2018		Logbook No.: HNF-N-506-98-99	Ice Chest No.: GWS-601				
Shipped To (Lab): TestAmerica Denver		Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: 772402056715				
Protocol: SURV		Priority: 30 Days	Offsite Property No.: 9520				
<b>POSSIBLE SAMPLE HAZARDS/REMARK</b> ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1		<b>SPECIAL INSTRUCTIONS</b> N/A					
<b>Sample No.</b>	<b>Filter</b>	<b>Date</b>	<b>Time</b>	<b>No/Type Container</b>	<b>Sample Analysis</b>	<b>Holding Time</b>	<b>Preservative</b>
B3J9P5	N	JUN 05 2018	0850	1x500-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2
B3UC18	Y	JUN 05 2018	0955	1x500-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2

Relinquished By: Dan Weehle CHPRC	Signature JUN 05 2018	Date/Time 0850	Received By: Christina Aguilar JCHPRC	Signature JUN 05 2018	Date/Time 0850
Relinquished By: Christina Aguilar JCHPRC	Signature JUN 05 2018	Date/Time 0955	Received By: Leah West JCHPRC	Signature JUN 05 2018	Date/Time 0955
Relinquished By: Leah West JCHPRC	Signature JUN 05 2018	Date/Time 1400	Received By: FEDEX	Signature JUN 05 2018	Date/Time 0900
Relinquished By: FedEx	Signature JUN 05 2018	Date/Time 1400	Received By: Leah West JCHPRC	Signature JUN 05 2018	Date/Time 0900

Matrix \*

S = Soil	DS = Drum Solids
SE = Sediment	DL = Drum Liquid
SO = Solid	T = Tissue
SL = Sludge	WI = Wipe
W = Water	L = Liquid
O = Oil	V = Vegetation
A = Air	X = Other



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### FedEx® Tracking

**772402056715**

Ship date

**Tue 6/05/2018**

Actual delivery.

**Wed 6/06/2018 8:45 am**

Richland, WA US

**Delivered**

*Signed for by A GOMEZ*

ARVADA, CO US

#### Travel History

Date/Time	Activity	Location
- 6/06/2018 - Wednesday		
8:45 am	Delivered	ARVADA, CO
8:12 am	On FedEx vehicle for delivery	ARVADA, CO
7:51 am	At local FedEx facility	ARVADA, CO
5:08 am	At destination sort facility	DENVER, CO
4:07 am	Departed FedEx location	MEMPHIS, TN
12:29 am	Arrived at FedEx location	MEMPHIS, TN
- 6/05/2018 - Tuesday		
4:43 pm	Left FedEx origin facility	PASCO, WA
3:01 pm	Picked up	PASCO, WA
2:54 pm	Shipment information sent to FedEx	

#### Shipment Facts

<b>Tracking Number</b>	772402056715	<b>Service</b>	FedEx Priority Overnight
<b>Weight</b>	43 lbs / 19.5 kgs	<b>Signature services</b>	Direct signature required
<b>Delivered To</b>	Shipping/Receiving	<b>Total pieces</b>	1
<b>Total shipment weight</b>	43 lbs / 19.5 kgs	<b>Terms</b>	Third Party
<b>Shipper reference</b>	plr# 9520/cooler# gws-601	<b>Packaging</b>	Your Packaging
<b>Special handling section</b>	Deliver Weekday, Direct Signature Required	<b>Standard transit</b>	6/06/2018 by 10:30 am

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## Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: S18-006

TestAmerica Job ID: 280-110578-1  
 SDG: DN0390

### Qualifiers

#### Metals

Qualifier	Qualifier Description
B	Estimated result. Result is less than the RL, but greater than MDL
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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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)



# Method Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S18-006

TestAmerica Job ID: 280-110578-1  
SDG: DN0390

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	TAL DEN
6020B	Metals (ICP/MS)	SW846	TAL DEN
3010A	Preparation, Total Metals	SW846	TAL DEN
3020A	Preparation, Total Metals	SW846	TAL DEN

**Protocol References:**

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

**Laboratory References:**

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100



### Sample Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S18-006

TestAmerica Job ID: 280-110578-1  
SDG: DN0390

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-110578-1	B3J9R6	Water	06/05/18 11:01	06/06/18 09:00
280-110578-2	B3JBN4	Water	06/05/18 11:01	06/06/18 09:00
280-110578-3	B3J9P5	Water	06/05/18 08:31	06/06/18 09:00
280-110578-4	B3JC18	Water	06/05/18 08:31	06/06/18 09:00

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- 9
- 10
- 11

### Client Sample Results

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: S18-006

TestAmerica Job ID: 280-110578-1  
 SDG: DN0390

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

**Client Sample ID: B3J9R6**  
**Date Collected: 06/05/18 11:01**  
**Date Received: 06/06/18 09:00**

**Lab Sample ID: 280-110578-1**  
**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	45.9	B	100	4.4	ug/L		06/26/18 09:00	06/26/18 17:04	1
Calcium	59200		200	34.5	ug/L		06/26/18 09:00	06/26/18 17:04	1
Iron	22.0	U	100	22.0	ug/L		06/26/18 09:00	06/26/18 17:04	1
Magnesium	11100		200	10.7	ug/L		06/26/18 09:00	06/26/18 17:04	1
Potassium	6540		3000	237	ug/L		06/26/18 09:00	06/26/18 17:04	1
Sodium	20600		1000	117	ug/L		06/26/18 09:00	06/26/18 17:04	1
Vanadium	9.2	B	10.0	1.1	ug/L		06/26/18 09:00	06/26/18 17:04	1

**Client Sample ID: B3JBN4**  
**Date Collected: 06/05/18 11:01**  
**Date Received: 06/06/18 09:00**

**Lab Sample ID: 280-110578-2**  
**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	46.3	B	100	4.4	ug/L		06/26/18 09:00	06/26/18 17:21	1
Calcium	58800		200	34.5	ug/L		06/26/18 09:00	06/26/18 17:21	1
Iron	63.9	B	100	22.0	ug/L		06/26/18 09:00	06/26/18 17:21	1
Magnesium	11100		200	10.7	ug/L		06/26/18 09:00	06/26/18 17:21	1
Potassium	6510		3000	237	ug/L		06/26/18 09:00	06/26/18 17:21	1
Sodium	20500		1000	117	ug/L		06/26/18 09:00	06/26/18 17:21	1
Vanadium	9.3	B	10.0	1.1	ug/L		06/26/18 09:00	06/26/18 17:21	1

**Client Sample ID: B3J9P5**  
**Date Collected: 06/05/18 08:31**  
**Date Received: 06/06/18 09:00**

**Lab Sample ID: 280-110578-3**  
**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	83.7	B	100	4.4	ug/L		06/26/18 09:00	06/26/18 17:24	1
Calcium	50200		200	34.5	ug/L		06/26/18 09:00	06/26/18 17:24	1
Iron	934		100	22.0	ug/L		06/26/18 09:00	06/26/18 17:24	1
Magnesium	10400		200	10.7	ug/L		06/26/18 09:00	06/26/18 17:24	1
Potassium	6310		3000	237	ug/L		06/26/18 09:00	06/26/18 17:24	1
Sodium	24800		1000	117	ug/L		06/26/18 09:00	06/26/18 17:24	1
Vanadium	8.9	B	10.0	1.1	ug/L		06/26/18 09:00	06/26/18 17:24	1

**Client Sample ID: B3JC18**  
**Date Collected: 06/05/18 08:31**  
**Date Received: 06/06/18 09:00**

**Lab Sample ID: 280-110578-4**  
**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	83.5	B	100	4.4	ug/L		06/26/18 09:00	06/26/18 17:27	1
Calcium	50100		200	34.5	ug/L		06/26/18 09:00	06/26/18 17:27	1
Iron	38.1	B	100	22.0	ug/L		06/26/18 09:00	06/26/18 17:27	1
Magnesium	10400		200	10.7	ug/L		06/26/18 09:00	06/26/18 17:27	1
Potassium	6270		3000	237	ug/L		06/26/18 09:00	06/26/18 17:27	1
Sodium	24800		1000	117	ug/L		06/26/18 09:00	06/26/18 17:27	1
Vanadium	8.6	B	10.0	1.1	ug/L		06/26/18 09:00	06/26/18 17:27	1

### Client Sample Results

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: S18-006

TestAmerica Job ID: 280-110578-1  
 SDG: DN0390

**Method: 6020B - Metals (ICP/MS)**

**Client Sample ID: B3J9R6**  
**Date Collected: 06/05/18 11:01**  
**Date Received: 06/06/18 09:00**

**Lab Sample ID: 280-110578-1**  
**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	3.7		1.0	0.050	ug/L		06/14/18 08:35	06/14/18 15:30	1

**Client Sample ID: B3JBN4**  
**Date Collected: 06/05/18 11:01**  
**Date Received: 06/06/18 09:00**

**Lab Sample ID: 280-110578-2**  
**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	27.6		1.0	0.050	ug/L		06/14/18 08:35	06/14/18 15:54	1

**Client Sample ID: B3J9P5**  
**Date Collected: 06/05/18 08:31**  
**Date Received: 06/06/18 09:00**

**Lab Sample ID: 280-110578-3**  
**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	61.8		1.0	0.050	ug/L		06/14/18 08:35	06/14/18 15:58	1

**Client Sample ID: B3JC18**  
**Date Collected: 06/05/18 08:31**  
**Date Received: 06/06/18 09:00**

**Lab Sample ID: 280-110578-4**  
**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	64.2		1.0	0.050	ug/L		06/14/18 08:35	06/14/18 16:01	1

### QC Sample Results

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: S18-006

TestAmerica Job ID: 280-110578-1  
 SDG: DN0390

#### Method: 6010D - Metals (ICP)

Lab Sample ID: MB 280-419738/1-A  
 Matrix: Water  
 Analysis Batch: 420185

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 419738

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	4.4	U	100	4.4	ug/L		06/26/18 09:00	06/26/18 16:43	1
Calcium	34.5	U	200	34.5	ug/L		06/26/18 09:00	06/26/18 16:43	1
Iron	22.0	U	100	22.0	ug/L		06/26/18 09:00	06/26/18 16:43	1
Magnesium	10.7	U	200	10.7	ug/L		06/26/18 09:00	06/26/18 16:43	1
Potassium	237	U	3000	237	ug/L		06/26/18 09:00	06/26/18 16:43	1
Sodium	117	U	1000	117	ug/L		06/26/18 09:00	06/26/18 16:43	1
Vanadium	1.1	U	10.0	1.1	ug/L		06/26/18 09:00	06/26/18 16:43	1

Lab Sample ID: LCS 280-419738/2-A  
 Matrix: Water  
 Analysis Batch: 420185

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 419738

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Boron	1000	1058		ug/L		106	80 - 120
Calcium	50000	51970		ug/L		104	80 - 120
Iron	1000	1054		ug/L		105	80 - 120
Magnesium	50000	51110		ug/L		102	80 - 120
Potassium	50000	52340		ug/L		105	80 - 120
Sodium	50000	52390		ug/L		105	80 - 120
Vanadium	500	524.3		ug/L		105	80 - 120

Lab Sample ID: 280-110578-1 MS  
 Matrix: Water  
 Analysis Batch: 420185

Client Sample ID: B3J9R6  
 Prep Type: Total/NA  
 Prep Batch: 419738

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Boron	45.9	B	1000	1116		ug/L		107	75 - 125
Calcium	59200		50000	108300		ug/L		98	75 - 125
Iron	22.0	U	1000	1040		ug/L		104	75 - 125
Magnesium	11100		50000	61590		ug/L		101	75 - 125
Potassium	6540		50000	58320		ug/L		104	75 - 125
Sodium	20600		50000	72980		ug/L		105	75 - 125
Vanadium	9.2	B	500	528.7		ug/L		104	75 - 125

Lab Sample ID: 280-110578-1 MSD  
 Matrix: Water  
 Analysis Batch: 420185

Client Sample ID: B3J9R6  
 Prep Type: Total/NA  
 Prep Batch: 419738

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Boron	45.9	B	1000	1082		ug/L		104	75 - 125	3	20
Calcium	59200		50000	106700		ug/L		95	75 - 125	1	20
Iron	22.0	U	1000	1019		ug/L		102	75 - 125	2	20
Magnesium	11100		50000	60230		ug/L		98	75 - 125	2	20
Potassium	6540		50000	57020		ug/L		101	75 - 125	2	20
Sodium	20600		50000	71680		ug/L		102	75 - 125	2	20
Vanadium	9.2	B	500	514.8		ug/L		101	75 - 125	3	20

TestAmerica Denver

### QC Sample Results

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: S18-006

TestAmerica Job ID: 280-110578-1  
 SDG: DN0390

**Method: 6020B - Metals (ICP/MS)**

**Lab Sample ID: MB 280-418176/1-A**  
**Matrix: Water**  
**Analysis Batch: 418672**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 418176**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Uranium	0.050	U	1.0	0.050	ug/L		06/14/18 08:35	06/14/18 15:23	1

**Lab Sample ID: LCS 280-418176/2-A**  
**Matrix: Water**  
**Analysis Batch: 418672**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 418176**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Uranium	40.0	43.57		ug/L		109	80 - 120

**Lab Sample ID: 280-110578-1 MS**  
**Matrix: Water**  
**Analysis Batch: 418672**

**Client Sample ID: B3J9R6**  
**Prep Type: Total/NA**  
**Prep Batch: 418176**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Uranium	3.7		40.0	44.72		ug/L		103	75 - 125

**Lab Sample ID: 280-110578-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 418672**

**Client Sample ID: B3J9R6**  
**Prep Type: Total/NA**  
**Prep Batch: 418176**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Uranium	3.7		40.0	45.13		ug/L		104	75 - 125	1	20

### QC Association Summary

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: S18-006

TestAmerica Job ID: 280-110578-1  
 SDG: DN0390

#### Metals

##### Prep Batch: 418176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-110578-1	B3J9R6	Total/NA	Water	3020A	
280-110578-2	B3JBN4	Total/NA	Water	3020A	
280-110578-3	B3J9P5	Total/NA	Water	3020A	
280-110578-4	B3JC18	Total/NA	Water	3020A	
MB 280-418176/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-418176/2-A	Lab Control Sample	Total/NA	Water	3020A	
280-110578-1 MS	B3J9R6	Total/NA	Water	3020A	
280-110578-1 MSD	B3J9R6	Total/NA	Water	3020A	

##### Analysis Batch: 418672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-110578-1	B3J9R6	Total/NA	Water	6020B	418176
280-110578-2	B3JBN4	Total/NA	Water	6020B	418176
280-110578-3	B3J9P5	Total/NA	Water	6020B	418176
280-110578-4	B3JC18	Total/NA	Water	6020B	418176
MB 280-418176/1-A	Method Blank	Total/NA	Water	6020B	418176
LCS 280-418176/2-A	Lab Control Sample	Total/NA	Water	6020B	418176
280-110578-1 MS	B3J9R6	Total/NA	Water	6020B	418176
280-110578-1 MSD	B3J9R6	Total/NA	Water	6020B	418176

##### Prep Batch: 419738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-110578-1	B3J9R6	Total/NA	Water	3010A	
280-110578-2	B3JBN4	Total/NA	Water	3010A	
280-110578-3	B3J9P5	Total/NA	Water	3010A	
280-110578-4	B3JC18	Total/NA	Water	3010A	
MB 280-419738/1-A	Method Blank	Total/NA	Water	3010A	
LCS 280-419738/2-A	Lab Control Sample	Total/NA	Water	3010A	
280-110578-1 MS	B3J9R6	Total/NA	Water	3010A	
280-110578-1 MSD	B3J9R6	Total/NA	Water	3010A	

##### Analysis Batch: 420185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-110578-1	B3J9R6	Total/NA	Water	6010D	419738
280-110578-2	B3JBN4	Total/NA	Water	6010D	419738
280-110578-3	B3J9P5	Total/NA	Water	6010D	419738
280-110578-4	B3JC18	Total/NA	Water	6010D	419738
MB 280-419738/1-A	Method Blank	Total/NA	Water	6010D	419738
LCS 280-419738/2-A	Lab Control Sample	Total/NA	Water	6010D	419738
280-110578-1 MS	B3J9R6	Total/NA	Water	6010D	419738
280-110578-1 MSD	B3J9R6	Total/NA	Water	6010D	419738