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: 280-105901-1
TestAmerica Sample Delivery Group: DN0313
Client Project/Site: S18-001

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

Attn: Mr. Scot Fitzgerald

Darlene Bandy

Authorized for release by:
2/22/2018 10:28:51 PM

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LINKS

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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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Job ID: 280-105901-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: CH2M Hill Plateau Remediation Company

Project: S18-001

Report Number: 280-105901-1

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 Chain of Custody requests “6020_METALS_ICPMS: GW 01” analysis. Service List “6020_METALS_ICPMS: GW 01” includes Thorium, and while TestAmerica Denver holds Washington State (WDOE) accreditation for method 6020B, Thorium is not on the accreditation certificate at this time. Please note that Thorium is on TestAmerica Denver's primary ORELAP certification, and TestAmerica Denver is pursuing full WDOE accreditation for this element. As instructed by the client, the laboratory proceeded with the requested Thorium analyses by method 6020B.

The laboratory is not able to achieve project specified Highest Allowable Practical Quantitation Limits (HAPQL limits) for several analytes. These include: Boron 6010D, Beryllium 6020B, Silver 6020B, Tin 6020B. 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 1/30/2018 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.2º C.

DISSOLVED METALS (ICP)

Samples B3FWJ1 (280-105901-1) and B3FVV6 (280-105901-3) were analyzed for Dissolved Metals (ICP) in accordance with EPA SW846 6010D. The samples were prepared on 02/01/2018 and analyzed on 02/01/2018 and 02/02/2018.

Iron, Potassium, Sodium, Vanadium and Boron were detected in method blank MB 280-403487/1-A at levels that were above the method detection limit but below half the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL and the method blank concentration was greater than 5% of the sample concentration, the result has been flagged.

Calcium and Magnesium were detected in method blank MB 280-403487/1-A at levels exceeding the reporting limit. The associated sample concentrations were >20x the method blank concentration; therefore, corrective action is deemed unnecessary.

The continuing calibration verification (CCV) associated with analytical batch 280-403672 recovered above the upper control limit for Sodium (115% and 112%, limit 110%). The samples associated with these CCV were controlled instead to the CCVH for Sodium; therefore, the data have been reported. Only the method blank and serial dilution were affected: (CCV 280-403672/26), (CCV 280-403672/39), (MB 280-403487/1-A) and (280-105901-A-1-A SD). As Sodium was less than half the RL in the method blank and the serial dilution was within control limits, corrective action is deemed unnecessary.

Job ID: 280-105901-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

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

TOTAL METALS (ICP)

Samples B3FY13 (280-105901-2) and B3FVV5 (280-105901-4) were analyzed for Total Metals (ICP) in accordance with EPA SW846 6010D. The samples were prepared on 02/01/2018 and analyzed on 02/01/2018 and 02/02/2018.

Calcium, Magnesium and Sodium were detected in method blank MB 280-403507/1-A at levels that were above the method detection limit but below half the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL and the method blank concentration was greater than 5% of the sample concentration, the result has been flagged.

The continuing calibration verification (CCV) associated with analytical batch 280-403672 recovered above the upper control limit for Sodium (112% and 111%, limit 110%). The samples associated with these CCV were controlled instead to the CCVH for Sodium; therefore, the data have been reported. Only the method blank and serial dilution were affected: (CCV 280-403672/39), (CCV 280-403672/52), (MB 280-403507/1-A) and (280-105901-A-2-A SD). As Sodium was less than half the RL in the method blank and the serial dilution was within control limits, corrective action is deemed unnecessary.

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

DISSOLVED METALS (ICP-MS)

Samples B3FWJ1 (280-105901-1), B3FVV6 (280-105901-3), B3FWY8 (280-105901-6), B3FVL7 (280-105901-7) and B3FWD7 (280-105901-9) were analyzed for Dissolved Metals ICP-MS in accordance with SW846 6020B. The samples were prepared and analyzed on 02/01/2018.

The Chain of Custody requests “6020_METALS_ICPMS: GW 01” analysis. Service List “6020_METALS_ICPMS: GW 01” includes Thorium, and while TestAmerica Denver holds Washington State (WDOE) accreditation for method 6020B, Thorium is not on the accreditation certificate at this time. Please note that Thorium is on TestAmerica Denver's primary ORELAP certification, and TestAmerica Denver is pursuing full WDOE accreditation for this element. As instructed by the client, the laboratory proceeded with the requested Thorium analyses by method 6020B.

Zinc was detected in method blank MB 280-403491/1-A at a level that was above the method detection limit but below half the reporting limit. The value should be considered an estimates, and has been flagged. If the associated sample reported a result above the MDL and/or RL and the method blank concentration was greater than 5% of the sample concentration, the result has been flagged.

The accuracy and precision of Strontium in the MS/MSD performed on sample B3FWJ1 (280-105901-1) in prep batch 280-403491 could not be reliably calculated due to the sample concentration reading greater than four times the spike amount. Control limits are not applicable and the MS/MSD results have been flagged “X”.

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

TOTAL METALS (ICP/MS)

Samples B3FY13 (280-105901-2), B3FVV5 (280-105901-4), B3FWY5 (280-105901-5), B3FVL4 (280-105901-8) and B3FWD3 (280-105901-10) were analyzed for Total Metals (ICP/MS) in accordance with SW846 6020B. The samples were prepared and analyzed on 02/01/2018.

The Chain of Custody requests “6020_METALS_ICPMS: GW 01” analysis. Service List “6020_METALS_ICPMS: GW 01” includes Thorium, and while TestAmerica Denver holds Washington State (WDOE) accreditation for method 6020B, Thorium is not on the accreditation certificate at this time. Please note that Thorium is on TestAmerica Denver's primary ORELAP certification, and TestAmerica Denver is pursuing full WDOE accreditation for this element. As instructed by the client, the laboratory proceeded with the requested Thorium analyses by method 6020B.

Strontium and Tin were detected in method blank MB 280-403509/1-A at levels that were above the method detection limit but below half the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL and the method blank concentration was greater than 5% of the sample concentration, the result has been flagged.

Job ID: 280-105901-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

The accuracy and precision of Strontium in the MS/MSD performed on sample B3FY13 (280-105901-2) in prep batch 280-403509 could not be reliably calculated due to the sample concentration reading greater than four times the spike amount. Control limits are not applicable and the MS/MSD results have been flagged “X”.

No additional 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: 280-105901-1
SDG Number: DN0313

Login Number: 105901
List Number: 1
Creator: True, Joshua A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	70 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	1.2 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.	N/A	
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	

CH2MHill Plateau Remediation Company	43 lbs	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S18-001-359 Page 1 of 1

Collector:	Larry Rosane CHPRC DN0313	**Contact/Requester:**	Karen Waters-Husted	**Telephone No.:**	509-376-4650
SAF No.:	S18-001	**Sampling Origin:**	Hanford Site	**Purchase Order/Charge Code:**	300071
Project Title:	SURV, JANUARY 2018	**Logbook No.:**	HNF-N-506 98/30	**Ice Chest No.:**	EWS-728
Shipped To (Lab):	TestAmerica Denver	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.:**	7713 9155 8272
Protocol	SURV	**Priority:**	30 Days	**Offsite Property No.:**	9004

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
B3FWJ1	Y	W	1-24-18	1242	1x500-mL G/P	6010_METALS_ICP: GW 09; 6020_METALS_ICPMS: GW 04	6 Months	HNO3 to pH <2
B3FY13	N	W	1-24-18	1242	1x500-mL G/P	6010_METALS_ICP: GW 09; 6020_METALS_ICPMS: GW 04; 6020_METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2

280-105901 Chain of Custody

1.1+0.1 IR#05 transferred by JT 1-30-18 JT 1-30-18

Relinquished By / Print First and Last Name	Signature	Date/Time	Received By / Print First and Last Name	Signature	Date/Time
Larry Rosane CHPRC	Larry Rosane	JAN 24 2018 1320	SSU-1		JAN 24 2018 1320
SSU-1 Troy Bacon CHPRC TLB 1-29-18	Troy L. Bacon	JAN 29 2018 1400 1140 TLB 1-29-18	FEDEX Troy Bacon CHPRC TLB 1-29-18	Troy L. Bacon	JAN 29 2018 1146
Relinquished By: Troy Bacon CHPRC	Troy L. Bacon	JAN 29 2018 1400	Received By: FEDEX		
Relinquished By: FedEx			Received By: Josh True		1-30-18 0920

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 11/21/2017 FSR ID = FSR53854 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S18-001-316 Page 1 of 1

Collector: Kevin Patterson CHPRC DN0313	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650
SAF No.: S18-001	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: SURV, JANUARY 2018	**Logbook No.:** HNF-N-506 96 / 87	**Ice Chest No.:** GWS-728
Shipped To (Lab): TestAmerica Denver	**Method of Shipment** Commercial Carrier	**Bill of Lading/Air Bill No.:** 7713 5558 8272
Protocol SURV	**Priority:** 30 Days	**Offsite Property No.:** 9004

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
Low Volume Wells. Do not use for QC.

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B3FVV6	Y	W	JAN 25 2018	0854	1x125-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01	6 Months	HNO3 to pH <2
B3FVV5	N	W			1x125-mL G/P	6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01	6 Months	HNO3 to pH <2

Relinquished By / Print First and Last Name	Signature	Date/Time	Received By / Print First and Last Name	Signature	Date/Time
Kevin Patterson CHPRC		JAN 25 2018 0940	SSU-1		JAN 25 2018 0940
SSU-1 Troy Bacon CHPRC	Troy L Bacon	~~JAN 29 2018~~ TCB 1-29-18 1140	FEDEX Troy Bacon CHPRC	Troy L Bacon	JAN 29 2018 1140
Troy Bacon CHPRC	Troy L Bacon	JAN 29 2018 ~~JAN 29 2018~~ TCB 1-29-18 1400	FEDEX		
FedEx			Josh True		1-30-18 0700

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

1-30-18

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 1/23/2018 FSR ID = FSR55089 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C.# S18-001-134 Page 1 of 1

Collector:	Juan Aguilar /CHPRC 1N0313	Contact/Requester:	Karen Waters-Husted	Telephone No.:	509-376-4650
SAF No.:	S18-001	Sampling Origin:	Hanford Site	Purchase Order/Charge Code:	300071
Project Title:	SURV, JANUARY 2018	Logbook No.:	HNF-N-506 -97152	Ice Chest No.:	G WS-728
Shipped To (Lab):	TestAmerica Denver	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.:	771351558272
Protocol	SURV	Priority:	30 Days	Offsite Property No.:	9004

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
B3FWY5	N	W	1-29-18	0910	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2
B3FWY8	Y	W	1-29-18	0910	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
	Juan Aguilar /CHPRC		JAN 29 2018 1100		Troy Bacon CHPRC	Troy L. Bacon	JAN 29 2018 1100
Relinquished By:	Troy Bacon CHPRC	Troy L. Bacon	JAN 29 2018 1400	Received By:	FEDEX		
Relinquished By:	FedEx	1-30-18		Received By:	Josh True		01-30-18 0920
Relinquished By:	Josh True	1-30-18		Received By:			

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 11/21/2017 FSR ID = FSR53915 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S18-001-135 Page 1 of 1

Collector: Juan Aguilar /CHPRC DN0313	**Contact/Requester:** Karen Waters-Husted	**Telephone No.:** 509-376-4650
SAF No.: S18-001	**Sampling Origin:** Hanford Site	**Purchase Order/Charge Code:** 300071
Project Title: SURV, JANUARY 2018	**Logbook No.:** HNF-N-506 -97152	**Ice Chest No.:** GWS-728
Shipped To (Lab): TestAmerica Denver	**Method of Shipment** Commercial Carrier	**Bill of Lading/Air Bill No.:** 771351558270
Protocol SURV	**Priority:** 30 Days	**Offsite Property No.:** 9004

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
B3FVL7	Y	W	1-29-18	0850	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2
B3FVL4	N	W	1-29-18	0850	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
Juan Aguilar /CHPRC		JAN 29 2018	1100	Troy Bacon CHPRC	Troy L. Bacon	JAN 29 2018	1100
Troy Bacon CHPRC	Troy L. Bacon	JAN 29 2018	1400	FEDEX			
FedEx				Josh True		01-30-18	0920

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 11/21/2017 FSR ID = FSR53924 A-6004-842 (REV 3)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C.# S18-001-003 Page 1 of 1

Collector:	Juan Aguilar /CHPRC DM0313	**Contact/Requester:**	Karen Waters-Husted	**Telephone No.:**	509-376-4650
SAF No.:	S18-001	**Sampling Origin:**	Hanford Site	**Purchase Order/Charge Code:**	300071
Project Title:	SURV, JANUARY 2018	**Logbook No.:**	HNF-N-506 -97152	**Ice Chest No.:**	GWS-728
Shipped To (Lab):	TestAmerica Denver	**Method of Shipment**	Commercial Carrier	**Bill of Lading/Air Bill No.:**	771351558272
Protocol	SURV	**Priority:**	30 Days	**Offsite Property No.:**	9004

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
B3FWD7	Y	W	1-29-18	0838	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2
B3FWD3	N	W	1-29-18	0838	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2

Relinquished By	Print First and Last Name	Signature	Date/Time	Received By	Print First and Last Name	Signature	Date/Time
Juan Aguilar /CHPRC		JAN 29 2018	1100	Troy Bacon CHPRC		Troy L. Bacon JAN 29 2018	1100
Troy Bacon CHPRC		Troy L. Bacon JAN 29 2018	1400	FEDEX			
Josh True		FedEx		Josh True		01-30-18	0920
		JS 1-30-18					

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

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process):	Disposed By:	Date/Time:

Printed On 11/21/2017 FSR ID = FSR53904 A-6004-842 (REV 3)

IMPORTANT!
FedEx will be operating in the Minneapolis metro area during Super Bowl LII. Learn More

FedEx® Tracking

771351558272

Ship date.		Actual delivery:
Mon 1/29/2018		**Tue 1/30/2018 9:12 am**
Richland, WA US	**Delivered** *Signed for by F.TRUE*	ARVADA, CO US

Travel History

Date/Time	Activity	Location
1/30/2018 - Tuesday		
9:12 am	Delivered	ARVADA, CO
9:12 am	Delivered	ARVADA, CO
8:49 am	On FedEx vehicle for delivery	ARVADA, CO
8:12 am	At local FedEx facility	ARVADA, CO
5:25 am	At destination sort facility	DENVER, CO
4:13 am	Departed FedEx location	MEMPHIS, TN
12:14 am	Arrived at FedEx location	MEMPHIS, TN
1/29/2018 - Monday		
4:53 pm	Left FedEx origin facility	PASCO, WA
3:20 pm	Shipment information sent to FedEx	
3:17 pm	Picked up	PASCO, WA

Shipment Facts

Tracking Number	771351558272	**Service**	FedEx Priority Overnight
Weight	43 lbs / 19.5 kgs	**Dimensions**	16x16x17 in.
Signature services	Direct signature required	**Delivered To**	Shipping/Receiving
Total pieces	1	**Total shipment weight**	43 lbs / 19.5 kgs
Terms	Third Party	**Shipper reference**	9004
Packaging	Your Packaging	**Special handling section**	Deliver Weekday, Additional Handling Surcharge, Direct Signature Required
Standard transit	1/30/2018 by 10:30 am		

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Qualifiers

Metals

Qualifier	Qualifier Description
B	Estimated result. Result is less than the RL, but greater than MDL
C	The analyte was detected in both the sample and the associated QC blank, and the sample concentration was </= 5X the blank concentration.
U	Analyzed for but not detected.
X	See case narrative notes for explanation of the 'X' flag

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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: S18-001

TestAmerica Job ID: 280-105901-1
SDG: DN0313

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	TAL DEN
6020B	Metals (ICP/MS)	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: S18-001

TestAmerica Job ID: 280-105901-1
SDG: DN0313

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-105901-1	B3FWJ1	Water	01/24/18 12:42	01/30/18 09:20
280-105901-2	B3FY13	Water	01/24/18 12:42	01/30/18 09:20
280-105901-3	B3FVV6	Water	01/25/18 08:54	01/30/18 09:20
280-105901-4	B3FVV5	Water	01/25/18 08:54	01/30/18 09:20
280-105901-5	B3FWY5	Water	01/29/18 09:10	01/30/18 09:20
280-105901-6	B3FWY8	Water	01/29/18 09:10	01/30/18 09:20
280-105901-7	B3FVL7	Water	01/29/18 08:50	01/30/18 09:20
280-105901-8	B3FVL4	Water	01/29/18 08:50	01/30/18 09:20
280-105901-9	B3FWD7	Water	01/29/18 08:38	01/30/18 09:20
280-105901-10	B3FWD3	Water	01/29/18 08:38	01/30/18 09:20

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S18-001

TestAmerica Job ID: 280-105901-1
SDG: DN0313

Method: 6010D - Metals (ICP)

Client Sample ID: B3FY13 — **Lab Sample ID: 280-105901-2**
Date Collected: 01/24/18 12:42 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	26.8	B	100	22.0	ug/L		02/01/18 07:52	02/01/18 21:56	1
Magnesium	13900		200	10.7	ug/L		02/01/18 07:52	02/01/18 21:56	1
Potassium	7630		3000	237	ug/L		02/01/18 07:52	02/01/18 21:56	1
Sodium	29800		1000	117	ug/L		02/01/18 07:52	02/01/18 21:56	1

Client Sample ID: B3FVV5 — **Lab Sample ID: 280-105901-4**
Date Collected: 01/25/18 08:54 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	32.1	B	100	4.4	ug/L		02/01/18 07:52	02/02/18 14:57	1
Calcium	25800		200	34.5	ug/L		02/01/18 07:52	02/01/18 22:08	1
Iron	7500		100	22.0	ug/L		02/01/18 07:52	02/01/18 22:08	1
Magnesium	15900		200	10.7	ug/L		02/01/18 07:52	02/01/18 22:08	1
Potassium	14600		3000	237	ug/L		02/01/18 07:52	02/01/18 22:08	1
Sodium	117000		1000	117	ug/L		02/01/18 07:52	02/01/18 22:08	1
Vanadium	16.8		10.0	1.1	ug/L		02/01/18 07:52	02/01/18 22:08	1

Method: 6010D - Metals (ICP) - Dissolved

Client Sample ID: B3FWJ1 — **Lab Sample ID: 280-105901-1**
Date Collected: 01/24/18 12:42 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	28.0	B C	100	22.0	ug/L		02/01/18 07:52	02/01/18 21:23	1
Magnesium	13300		200	10.7	ug/L		02/01/18 07:52	02/01/18 21:23	1
Potassium	7200	C	3000	237	ug/L		02/01/18 07:52	02/01/18 21:23	1
Sodium	28000		1000	117	ug/L		02/01/18 07:52	02/01/18 21:23	1

Client Sample ID: B3FVV6 — **Lab Sample ID: 280-105901-3**
Date Collected: 01/25/18 08:54 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	39.7	B C	100	4.4	ug/L		02/01/18 07:52	02/02/18 14:24	1
Calcium	26800		200	34.5	ug/L		02/01/18 07:52	02/01/18 21:35	1
Iron	51.9	B C	100	22.0	ug/L		02/01/18 07:52	02/01/18 21:35	1
Magnesium	16800		200	10.7	ug/L		02/01/18 07:52	02/01/18 21:35	1
Potassium	15500		3000	237	ug/L		02/01/18 07:52	02/01/18 21:35	1
Sodium	124000		1000	117	ug/L		02/01/18 07:52	02/01/18 21:35	1
Vanadium	11.9	C	10.0	1.1	ug/L		02/01/18 07:52	02/01/18 21:35	1

Method: 6020B - Metals (ICP/MS)

Client Sample ID: B3FY13 — **Lab Sample ID: 280-105901-2**
Date Collected: 01/24/18 12:42 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	9.2	U	50.0	9.2	ug/L		02/01/18 07:52	02/01/18 18:20	1
Antimony	0.40	U	2.0	0.40	ug/L		02/01/18 07:52	02/01/18 18:20	1
Cobalt	0.077	B	1.0	0.054	ug/L		02/01/18 07:52	02/01/18 18:20	1
Manganese	0.67	B	1.0	0.31	ug/L		02/01/18 07:52	02/01/18 18:20	1

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

Client Sample ID: B3FY13 — **Lab Sample ID: 280-105901-2**
Date Collected: 01/24/18 12:42 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	2.3		2.0	0.30	ug/L		02/01/18 07:52	02/01/18 18:20	1
Thallium	0.050	U	1.0	0.050	ug/L		02/01/18 07:52	02/01/18 18:20	1
Uranium	9.5		1.0	0.050	ug/L		02/01/18 07:52	02/01/18 18:20	1
Zinc	2.0	U	10.0	2.0	ug/L		02/01/18 07:52	02/01/18 18:20	1

Client Sample ID: B3FVV5 — **Lab Sample ID: 280-105901-4**
Date Collected: 01/25/18 08:54 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1400		50.0	9.2	ug/L		02/01/18 07:52	02/01/18 18:44	1
Antimony	0.50	B	2.0	0.40	ug/L		02/01/18 07:52	02/01/18 18:44	1
Arsenic	4.1	B	5.0	0.33	ug/L		02/01/18 07:52	02/01/18 18:44	1
Barium	112		1.0	0.29	ug/L		02/01/18 07:52	02/01/18 18:44	1
Beryllium	0.16	B	1.0	0.080	ug/L		02/01/18 07:52	02/01/18 18:44	1
Cadmium	0.39	B	1.0	0.27	ug/L		02/01/18 07:52	02/01/18 18:44	1
Chromium	414		2.0	0.50	ug/L		02/01/18 07:52	02/01/18 18:44	1
Cobalt	2.0		1.0	0.054	ug/L		02/01/18 07:52	02/01/18 18:44	1
Copper	29.1		2.0	0.56	ug/L		02/01/18 07:52	02/01/18 18:44	1
Lead	18.9		1.0	0.18	ug/L		02/01/18 07:52	02/01/18 18:44	1
Manganese	200		1.0	0.31	ug/L		02/01/18 07:52	02/01/18 18:44	1
Molybdenum	15.5		2.0	0.14	ug/L		02/01/18 07:52	02/01/18 18:44	1
Nickel	28.6		2.0	0.30	ug/L		02/01/18 07:52	02/01/18 18:44	1
Selenium	17.9		5.0	0.70	ug/L		02/01/18 07:52	02/01/18 18:44	1
Silver	0.48	B	5.0	0.033	ug/L		02/01/18 07:52	02/01/18 18:44	1
Strontium	284		10.0	0.30	ug/L		02/01/18 07:52	02/01/18 18:44	1
Thallium	0.10	B	1.0	0.050	ug/L		02/01/18 07:52	02/01/18 18:44	1
Thorium	1.2	U	5.0	1.2	ug/L		02/01/18 07:52	02/01/18 18:44	1
Tin	3.0	B C	10.0	0.77	ug/L		02/01/18 07:52	02/01/18 18:44	1
Uranium	6.3		1.0	0.050	ug/L		02/01/18 07:52	02/01/18 18:44	1
Zinc	408		10.0	2.0	ug/L		02/01/18 07:52	02/01/18 18:44	1

Client Sample ID: B3FWY5 — **Lab Sample ID: 280-105901-5**
Date Collected: 01/29/18 09:10 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	13.2		2.0	0.50	ug/L		02/01/18 07:52	02/01/18 18:47	1

Client Sample ID: B3FVL4 — **Lab Sample ID: 280-105901-8**
Date Collected: 01/29/18 08:50 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	15.5		2.0	0.50	ug/L		02/01/18 07:52	02/01/18 18:50	1

Client Sample ID: B3FWD3 — **Lab Sample ID: 280-105901-10**
Date Collected: 01/29/18 08:38 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	33.5		2.0	0.50	ug/L		02/01/18 07:52	02/01/18 18:54	1

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S18-001

TestAmerica Job ID: 280-105901-1
SDG: DN0313

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

Client Sample ID: B3FWJ1 — **Lab Sample ID: 280-105901-1**
Date Collected: 01/24/18 12:42 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	19.2	B	50.0	9.2	ug/L		02/01/18 07:52	02/01/18 19:15	1
Antimony	1.3	B	2.0	0.40	ug/L		02/01/18 07:52	02/01/18 19:15	1
Cobalt	0.093	B	1.0	0.054	ug/L		02/01/18 07:52	02/01/18 19:15	1
Manganese	0.42	B	1.0	0.31	ug/L		02/01/18 07:52	02/01/18 19:15	1
Nickel	1.5	B	2.0	0.30	ug/L		02/01/18 07:52	02/01/18 19:15	1
Thallium	0.050	U	1.0	0.050	ug/L		02/01/18 07:52	02/01/18 19:15	1

Client Sample ID: B3FVV6 — **Lab Sample ID: 280-105901-3**
Date Collected: 01/25/18 08:54 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	10.4	B	50.0	9.2	ug/L		02/01/18 07:52	02/01/18 19:40	1
Antimony	0.40	U	2.0	0.40	ug/L		02/01/18 07:52	02/01/18 19:40	1
Arsenic	2.2	B	5.0	0.33	ug/L		02/01/18 07:52	02/01/18 19:40	1
Barium	49.9		1.0	0.29	ug/L		02/01/18 07:52	02/01/18 19:40	1
Beryllium	0.080	U	1.0	0.080	ug/L		02/01/18 07:52	02/01/18 19:40	1
Cadmium	0.27	U	1.0	0.27	ug/L		02/01/18 07:52	02/01/18 19:40	1
Chromium	385		2.0	0.50	ug/L		02/01/18 07:52	02/01/18 19:40	1
Cobalt	0.054	U	1.0	0.054	ug/L		02/01/18 07:52	02/01/18 19:40	1
Copper	0.94	B	2.0	0.56	ug/L		02/01/18 07:52	02/01/18 19:40	1
Lead	0.18	U	1.0	0.18	ug/L		02/01/18 07:52	02/01/18 19:40	1
Manganese	1.3		1.0	0.31	ug/L		02/01/18 07:52	02/01/18 19:40	1
Molybdenum	20.9		2.0	0.14	ug/L		02/01/18 07:52	02/01/18 19:40	1
Nickel	0.88	B	2.0	0.30	ug/L		02/01/18 07:52	02/01/18 19:40	1
Selenium	17.4		5.0	0.70	ug/L		02/01/18 07:52	02/01/18 19:40	1
Silver	0.033	U	5.0	0.033	ug/L		02/01/18 07:52	02/01/18 19:40	1
Strontium	251		10.0	0.30	ug/L		02/01/18 07:52	02/01/18 19:40	1
Thallium	0.050	U	1.0	0.050	ug/L		02/01/18 07:52	02/01/18 19:40	1
Thorium	1.2	U	5.0	1.2	ug/L		02/01/18 07:52	02/01/18 19:40	1
Tin	0.77	U	10.0	0.77	ug/L		02/01/18 07:52	02/01/18 19:40	1
Uranium	5.0		1.0	0.050	ug/L		02/01/18 07:52	02/01/18 19:40	1
Zinc	4.8	B C	10.0	2.0	ug/L		02/01/18 07:52	02/01/18 19:40	1

Client Sample ID: B3FWY8 — **Lab Sample ID: 280-105901-6**
Date Collected: 01/29/18 09:10 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	12.4		2.0	0.50	ug/L		02/01/18 07:52	02/01/18 19:43	1

Client Sample ID: B3FVL7 — **Lab Sample ID: 280-105901-7**
Date Collected: 01/29/18 08:50 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	16.3		2.0	0.50	ug/L		02/01/18 07:52	02/01/18 19:46	1

Client Sample ID: B3FWD7 — **Lab Sample ID: 280-105901-9**
Date Collected: 01/29/18 08:38 — **Matrix: Water**
Date Received: 01/30/18 09:20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	32.0		2.0	0.50	ug/L		02/01/18 07:52	02/01/18 19:50	1

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: S18-001

TestAmerica Job ID: 280-105901-1
SDG: DN0313

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 280-403507/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403672 — **Prep Batch: 403507**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	41.69	B	200	34.5	ug/L		02/01/18 07:52	02/01/18 21:48	1
Iron	22.0	U	100	22.0	ug/L		02/01/18 07:52	02/01/18 21:48	1
Magnesium	46.64	B	200	10.7	ug/L		02/01/18 07:52	02/01/18 21:48	1
Potassium	237	U	3000	237	ug/L		02/01/18 07:52	02/01/18 21:48	1
Sodium	192.3	B	1000	117	ug/L		02/01/18 07:52	02/01/18 21:48	1
Vanadium	1.1	U	10.0	1.1	ug/L		02/01/18 07:52	02/01/18 21:48	1

Lab Sample ID: MB 280-403507/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403813 — **Prep Batch: 403507**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	4.4	U	100	4.4	ug/L		02/01/18 07:52	02/02/18 14:37	1

Lab Sample ID: LCS 280-403507/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403672 — **Prep Batch: 403507**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	50000	51010		ug/L		102	80 - 120
Iron	1000	985.5		ug/L		99	80 - 120
Magnesium	50000	53040		ug/L		106	80 - 120
Potassium	50000	57570		ug/L		115	80 - 120
Sodium	50000	58510		ug/L		117	80 - 120
Vanadium	500	535.2		ug/L		107	80 - 120

Lab Sample ID: LCS 280-403507/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403813 — **Prep Batch: 403507**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1000	1116		ug/L		112	80 - 120

Lab Sample ID: LCSD 280-403507/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403672 — **Prep Batch: 403507**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	50000	51240		ug/L		102	80 - 120	0	20
Iron	1000	990.0		ug/L		99	80 - 120	0	20
Magnesium	50000	52660		ug/L		105	80 - 120	1	20
Potassium	50000	57780		ug/L		116	80 - 120	0	20
Sodium	50000	58270		ug/L		117	80 - 120	0	20
Vanadium	500	539.8		ug/L		108	80 - 120	1	20

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

Lab Sample ID: LCSD 280-403507/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403813 — **Prep Batch: 403507**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron			1000	1091		ug/L		109	80 - 120	2	20

Lab Sample ID: 280-105901-2 MS — **Client Sample ID: B3FY13**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403672 — **Prep Batch: 403507**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	43500		50000	91470		ug/L		96	75 - 125
Iron	26.8	B	1000	984.1		ug/L		96	75 - 125
Magnesium	13900		50000	65840		ug/L		104	75 - 125
Potassium	7630		50000	63700		ug/L		112	75 - 125
Sodium	29800		50000	84860		ug/L		110	75 - 125
Vanadium	18.3		500	545.5		ug/L		105	75 - 125

Lab Sample ID: 280-105901-2 MS — **Client Sample ID: B3FY13**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403813 — **Prep Batch: 403507**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	47.6	B	1000	1152		ug/L		110	75 - 125

Lab Sample ID: 280-105901-2 MSD — **Client Sample ID: B3FY13**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403672 — **Prep Batch: 403507**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	43500		50000	91700		ug/L		96	75 - 125	0	20
Iron	26.8	B	1000	993.5		ug/L		97	75 - 125	1	20
Magnesium	13900		50000	64790		ug/L		102	75 - 125	2	20
Potassium	7630		50000	64280		ug/L		113	75 - 125	1	20
Sodium	29800		50000	85650		ug/L		112	75 - 125	1	20
Vanadium	18.3		500	546.0		ug/L		106	75 - 125	0	20

Lab Sample ID: 280-105901-2 MSD — **Client Sample ID: B3FY13**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403813 — **Prep Batch: 403507**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	47.6	B	1000	1123		ug/L		108	75 - 125	3	20

Lab Sample ID: MB 280-403487/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 403672 — **Prep Batch: 403487**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	240.1		200	34.5	ug/L		02/01/18 07:52	02/01/18 21:15	1
Iron	31.97	B	100	22.0	ug/L		02/01/18 07:52	02/01/18 21:15	1
Magnesium	255.4		200	10.7	ug/L		02/01/18 07:52	02/01/18 21:15	1
Potassium	378.4	B	3000	237	ug/L		02/01/18 07:52	02/01/18 21:15	1

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

Lab Sample ID: MB 280-403487/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 403672 — **Prep Batch: 403487**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	473.4	B	1000	117	ug/L		02/01/18 07:52	02/01/18 21:15	1
Vanadium	2.39	B	10.0	1.1	ug/L		02/01/18 07:52	02/01/18 21:15	1

Lab Sample ID: MB 280-403487/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 403813 — **Prep Batch: 403487**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	9.66	B	100	4.4	ug/L		02/01/18 07:52	02/02/18 14:04	1

Lab Sample ID: LCS 280-403487/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 403672 — **Prep Batch: 403487**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	50000	51820		ug/L		104	80 - 120
Iron	1000	1002		ug/L		100	80 - 120
Magnesium	50000	54050		ug/L		108	80 - 120
Potassium	50000	58450		ug/L		117	80 - 120
Sodium	50000	58950		ug/L		118	80 - 120
Vanadium	500	543.4		ug/L		109	80 - 120

Lab Sample ID: LCS 280-403487/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 403813 — **Prep Batch: 403487**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1000	1118		ug/L		112	80 - 120

Lab Sample ID: LCSD 280-403487/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 403672 — **Prep Batch: 403487**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	50000	49910		ug/L		100	80 - 120	4	20
Iron	1000	964.2		ug/L		96	80 - 120	4	20
Magnesium	50000	52100		ug/L		104	80 - 120	4	20
Potassium	50000	56260		ug/L		113	80 - 120	4	20
Sodium	50000	56820		ug/L		114	80 - 120	4	20
Vanadium	500	523.0		ug/L		105	80 - 120	4	20

Lab Sample ID: LCSD 280-403487/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 403813 — **Prep Batch: 403487**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	1000	1075		ug/L		108	80 - 120	4	20

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

Lab Sample ID: 280-105901-1 MS — **Client Sample ID: B3FWJ1**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 403672 — **Prep Batch: 403487**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	41200		50000	93340		ug/L		104	75 - 125
Iron	28.0	B C	1000	997.5		ug/L		97	75 - 125
Magnesium	13300		50000	66160		ug/L		106	75 - 125
Potassium	7200	C	50000	65090		ug/L		116	75 - 125
Sodium	28000		50000	86420		ug/L		117	75 - 125
Vanadium	17.1	C	500	552.2		ug/L		107	75 - 125

Lab Sample ID: 280-105901-1 MS — **Client Sample ID: B3FWJ1**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 403813 — **Prep Batch: 403487**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	50.1	B	1000	1144		ug/L		109	75 - 125

Lab Sample ID: 280-105901-1 MSD — **Client Sample ID: B3FWJ1**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 403672 — **Prep Batch: 403487**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	41200		50000	92770		ug/L		103	75 - 125	1	20
Iron	28.0	B C	1000	1014		ug/L		99	75 - 125	2	20
Magnesium	13300		50000	66530		ug/L		106	75 - 125	1	20
Potassium	7200	C	50000	65840		ug/L		117	75 - 125	1	20
Sodium	28000		50000	86270		ug/L		117	75 - 125	0	20
Vanadium	17.1	C	500	559.0		ug/L		108	75 - 125	1	20

Lab Sample ID: 280-105901-1 MSD — **Client Sample ID: B3FWJ1**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 403813 — **Prep Batch: 403487**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	50.1	B	1000	1122		ug/L		107	75 - 125	2	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 280-403509/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403675 — **Prep Batch: 403509**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	9.2	U	50.0	9.2	ug/L		02/01/18 07:52	02/01/18 18:09	1
Antimony	0.40	U	2.0	0.40	ug/L		02/01/18 07:52	02/01/18 18:09	1
Arsenic	0.33	U	5.0	0.33	ug/L		02/01/18 07:52	02/01/18 18:09	1
Barium	0.29	U	1.0	0.29	ug/L		02/01/18 07:52	02/01/18 18:09	1
Beryllium	0.080	U	1.0	0.080	ug/L		02/01/18 07:52	02/01/18 18:09	1
Cadmium	0.27	U	1.0	0.27	ug/L		02/01/18 07:52	02/01/18 18:09	1
Chromium	0.50	U	2.0	0.50	ug/L		02/01/18 07:52	02/01/18 18:09	1
Cobalt	0.054	U	1.0	0.054	ug/L		02/01/18 07:52	02/01/18 18:09	1
Copper	0.56	U	2.0	0.56	ug/L		02/01/18 07:52	02/01/18 18:09	1

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

Lab Sample ID: MB 280-403509/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403675 — **Prep Batch: 403509**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.18	U	1.0	0.18	ug/L		02/01/18 07:52	02/01/18 18:09	1
Manganese	0.31	U	1.0	0.31	ug/L		02/01/18 07:52	02/01/18 18:09	1
Molybdenum	0.14	U	2.0	0.14	ug/L		02/01/18 07:52	02/01/18 18:09	1
Nickel	0.30	U	2.0	0.30	ug/L		02/01/18 07:52	02/01/18 18:09	1
Selenium	0.70	U	5.0	0.70	ug/L		02/01/18 07:52	02/01/18 18:09	1
Silver	0.033	U	5.0	0.033	ug/L		02/01/18 07:52	02/01/18 18:09	1
Strontium	0.460	B	10.0	0.30	ug/L		02/01/18 07:52	02/01/18 18:09	1
Thallium	0.050	U	1.0	0.050	ug/L		02/01/18 07:52	02/01/18 18:09	1
Thorium	1.2	U	5.0	1.2	ug/L		02/01/18 07:52	02/01/18 18:09	1
Tin	1.25	B	10.0	0.77	ug/L		02/01/18 07:52	02/01/18 18:09	1
Uranium	0.050	U	1.0	0.050	ug/L		02/01/18 07:52	02/01/18 18:09	1
Zinc	2.0	U	10.0	2.0	ug/L		02/01/18 07:52	02/01/18 18:09	1

Lab Sample ID: LCS 280-403509/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403675 — **Prep Batch: 403509**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	400	404.5		ug/L		101	80 - 120
Antimony	40.0	39.30		ug/L		98	80 - 120
Arsenic	40.0	40.77		ug/L		102	80 - 120
Barium	40.0	40.18		ug/L		100	80 - 120
Beryllium	40.0	38.94		ug/L		97	80 - 120
Cadmium	40.0	39.32		ug/L		98	80 - 120
Chromium	40.0	41.76		ug/L		104	80 - 120
Cobalt	40.0	41.52		ug/L		104	80 - 120
Copper	40.0	42.53		ug/L		106	80 - 120
Lead	40.0	39.62		ug/L		99	80 - 120
Manganese	40.0	42.44		ug/L		106	80 - 120
Molybdenum	40.0	41.15		ug/L		103	80 - 120
Nickel	40.0	41.15		ug/L		103	80 - 120
Selenium	40.0	40.25		ug/L		101	80 - 120
Silver	40.0	39.87		ug/L		100	80 - 120
Strontium	40.0	40.71		ug/L		102	80 - 120
Thallium	40.0	40.04		ug/L		100	80 - 120
Thorium	40.0	38.87		ug/L		97	80 - 120
Tin	40.0	40.58		ug/L		101	80 - 120
Uranium	40.0	39.72		ug/L		99	80 - 120
Zinc	40.0	45.29		ug/L		113	80 - 120

Lab Sample ID: LCSD 280-403509/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403675 — **Prep Batch: 403509**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	400	460.3		ug/L		115	80 - 120	13	20
Antimony	40.0	39.67		ug/L		99	80 - 120	1	20
Arsenic	40.0	41.29		ug/L		103	80 - 120	1	20
Barium	40.0	40.96		ug/L		102	80 - 120	2	20

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

Lab Sample ID: LCSD 280-403509/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403675 — **Prep Batch: 403509**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Beryllium	40.0	41.07		ug/L		103	80 - 120	5	20
Cadmium	40.0	40.55		ug/L		101	80 - 120	3	20
Chromium	40.0	42.53		ug/L		106	80 - 120	2	20
Cobalt	40.0	42.21		ug/L		106	80 - 120	2	20
Copper	40.0	43.15		ug/L		108	80 - 120	1	20
Lead	40.0	40.62		ug/L		102	80 - 120	2	20
Manganese	40.0	43.95		ug/L		110	80 - 120	4	20
Molybdenum	40.0	41.36		ug/L		103	80 - 120	1	20
Nickel	40.0	42.35		ug/L		106	80 - 120	3	20
Selenium	40.0	41.04		ug/L		103	80 - 120	2	20
Silver	40.0	38.69		ug/L		97	80 - 120	3	20
Strontium	40.0	42.05		ug/L		105	80 - 120	3	20
Thallium	40.0	40.37		ug/L		101	80 - 120	1	20
Thorium	40.0	39.74		ug/L		99	80 - 120	2	20
Tin	40.0	40.52		ug/L		101	80 - 120	0	20
Uranium	40.0	39.92		ug/L		100	80 - 120	0	20
Zinc	40.0	41.13		ug/L		103	80 - 120	10	20

Lab Sample ID: 280-105901-2 MS — **Client Sample ID: B3FY13**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 403675 — **Prep Batch: 403509**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	9.2	U	400	423.8		ug/L		106	75 - 125
Antimony	0.40	U	40.0	41.63		ug/L		104	75 - 125
Arsenic	5.3		40.0	46.76		ug/L		104	75 - 125
Barium	44.0		40.0	83.68		ug/L		99	75 - 125
Beryllium	0.080	U	40.0	39.60		ug/L		99	75 - 125
Cadmium	0.27	U	40.0	41.04		ug/L		103	75 - 125
Chromium	7.1		40.0	49.08		ug/L		105	75 - 125
Cobalt	0.077	B	40.0	42.52		ug/L		106	75 - 125
Copper	0.56	U	40.0	43.16		ug/L		108	75 - 125
Lead	0.18	U	40.0	39.67		ug/L		99	75 - 125
Manganese	0.67	B	40.0	43.34		ug/L		107	75 - 125
Molybdenum	6.1		40.0	48.25		ug/L		105	75 - 125
Nickel	2.3		40.0	43.30		ug/L		103	75 - 125
Selenium	4.8	B	40.0	44.18		ug/L		99	75 - 125
Silver	0.034	B	40.0	40.85		ug/L		102	75 - 125
Strontium	223		40.0	255.0	X	ug/L		80	75 - 125
Thallium	0.050	U	40.0	40.26		ug/L		101	75 - 125
Thorium	1.2	U	40.0	39.86		ug/L		100	75 - 125
Tin	0.77	U	40.0	41.46		ug/L		104	75 - 125
Uranium	9.5		40.0	47.78		ug/L		96	75 - 125
Zinc	2.0	U	40.0	41.29		ug/L		103	75 - 125

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

Lab Sample ID: 280-105901-2 MSD
Matrix: Water
Analysis Batch: 403675

Client Sample ID: B3FY13
Prep Type: Total/NA
Prep Batch: 403509

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	9.2	U	400	431.0		ug/L		108	75 - 125	2	20
Antimony	0.40	U	40.0	41.49		ug/L		104	75 - 125	0	20
Arsenic	5.3		40.0	46.28		ug/L		102	75 - 125	1	20
Barium	44.0		40.0	84.27		ug/L		101	75 - 125	1	20
Beryllium	0.080	U	40.0	41.61		ug/L		104	75 - 125	5	20
Cadmium	0.27	U	40.0	39.88		ug/L		100	75 - 125	3	20
Chromium	7.1		40.0	47.31		ug/L		101	75 - 125	4	20
Cobalt	0.077	B	40.0	40.29		ug/L		101	75 - 125	5	20
Copper	0.56	U	40.0	42.58		ug/L		106	75 - 125	1	20
Lead	0.18	U	40.0	40.54		ug/L		101	75 - 125	2	20
Manganese	0.67	B	40.0	42.80		ug/L		105	75 - 125	1	20
Molybdenum	6.1		40.0	48.09		ug/L		105	75 - 125	0	20
Nickel	2.3		40.0	42.51		ug/L		101	75 - 125	2	20
Selenium	4.8	B	40.0	44.40		ug/L		99	75 - 125	0	20
Silver	0.034	B	40.0	39.67		ug/L		99	75 - 125	3	20
Strontium	223		40.0	256.7	X	ug/L		85	75 - 125	1	20
Thallium	0.050	U	40.0	40.95		ug/L		102	75 - 125	2	20
Thorium	1.2	U	40.0	40.50		ug/L		101	75 - 125	2	20
Tin	0.77	U	40.0	42.04		ug/L		105	75 - 125	1	20
Uranium	9.5		40.0	51.26		ug/L		104	75 - 125	7	20
Zinc	2.0	U	40.0	42.82		ug/L		107	75 - 125	4	20

Lab Sample ID: MB 280-403491/1-A
Matrix: Water
Analysis Batch: 403675

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 403491

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	9.2	U	50.0	9.2	ug/L		02/01/18 07:52	02/01/18 19:04	1
Antimony	0.40	U	2.0	0.40	ug/L		02/01/18 07:52	02/01/18 19:04	1
Arsenic	0.33	U	5.0	0.33	ug/L		02/01/18 07:52	02/01/18 19:04	1
Barium	0.29	U	1.0	0.29	ug/L		02/01/18 07:52	02/01/18 19:04	1
Beryllium	0.080	U	1.0	0.080	ug/L		02/01/18 07:52	02/01/18 19:04	1
Cadmium	0.27	U	1.0	0.27	ug/L		02/01/18 07:52	02/01/18 19:04	1
Chromium	0.50	U	2.0	0.50	ug/L		02/01/18 07:52	02/01/18 19:04	1
Cobalt	0.054	U	1.0	0.054	ug/L		02/01/18 07:52	02/01/18 19:04	1
Copper	0.56	U	2.0	0.56	ug/L		02/01/18 07:52	02/01/18 19:04	1
Lead	0.18	U	1.0	0.18	ug/L		02/01/18 07:52	02/01/18 19:04	1
Manganese	0.31	U	1.0	0.31	ug/L		02/01/18 07:52	02/01/18 19:04	1
Molybdenum	0.14	U	2.0	0.14	ug/L		02/01/18 07:52	02/01/18 19:04	1
Nickel	0.30	U	2.0	0.30	ug/L		02/01/18 07:52	02/01/18 19:04	1
Selenium	0.70	U	5.0	0.70	ug/L		02/01/18 07:52	02/01/18 19:04	1
Silver	0.033	U	5.0	0.033	ug/L		02/01/18 07:52	02/01/18 19:04	1
Strontium	0.30	U	10.0	0.30	ug/L		02/01/18 07:52	02/01/18 19:04	1
Thallium	0.050	U	1.0	0.050	ug/L		02/01/18 07:52	02/01/18 19:04	1
Thorium	1.2	U	5.0	1.2	ug/L		02/01/18 07:52	02/01/18 19:04	1
Tin	0.77	U	10.0	0.77	ug/L		02/01/18 07:52	02/01/18 19:04	1
Uranium	0.050	U	1.0	0.050	ug/L		02/01/18 07:52	02/01/18 19:04	1
Zinc	2.31	B	10.0	2.0	ug/L		02/01/18 07:52	02/01/18 19:04	1

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

Lab Sample ID: LCS 280-403491/2-A
Matrix: Water
Analysis Batch: 403675

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 403491

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	400	438.8		ug/L		110	80 - 120
Antimony	40.0	41.57		ug/L		104	80 - 120
Arsenic	40.0	41.49		ug/L		104	80 - 120
Barium	40.0	41.46		ug/L		104	80 - 120
Beryllium	40.0	40.28		ug/L		101	80 - 120
Cadmium	40.0	42.70		ug/L		107	80 - 120
Chromium	40.0	41.91		ug/L		105	80 - 120
Cobalt	40.0	43.04		ug/L		108	80 - 120
Copper	40.0	43.65		ug/L		109	80 - 120
Lead	40.0	41.29		ug/L		103	80 - 120
Manganese	40.0	44.08		ug/L		110	80 - 120
Molybdenum	40.0	41.68		ug/L		104	80 - 120
Nickel	40.0	42.16		ug/L		105	80 - 120
Selenium	40.0	41.72		ug/L		104	80 - 120
Silver	40.0	41.41		ug/L		104	80 - 120
Strontium	40.0	39.34		ug/L		98	80 - 120
Thallium	40.0	42.00		ug/L		105	80 - 120
Thorium	40.0	39.71		ug/L		99	80 - 120
Tin	40.0	42.03		ug/L		105	80 - 120
Uranium	40.0	40.46		ug/L		101	80 - 120
Zinc	40.0	44.30		ug/L		111	80 - 120

Lab Sample ID: LCSD 280-403491/3-A
Matrix: Water
Analysis Batch: 403675

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 403491

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	400	430.3		ug/L		108	80 - 120	2	20
Antimony	40.0	41.00		ug/L		102	80 - 120	1	20
Arsenic	40.0	41.22		ug/L		103	80 - 120	1	20
Barium	40.0	42.53		ug/L		106	80 - 120	3	20
Beryllium	40.0	39.50		ug/L		99	80 - 120	2	20
Cadmium	40.0	40.97		ug/L		102	80 - 120	4	20
Chromium	40.0	42.25		ug/L		106	80 - 120	1	20
Cobalt	40.0	43.12		ug/L		108	80 - 120	0	20
Copper	40.0	43.27		ug/L		108	80 - 120	1	20
Lead	40.0	41.14		ug/L		103	80 - 120	0	20
Manganese	40.0	44.65		ug/L		112	80 - 120	1	20
Molybdenum	40.0	41.98		ug/L		105	80 - 120	1	20
Nickel	40.0	42.97		ug/L		107	80 - 120	2	20
Selenium	40.0	40.81		ug/L		102	80 - 120	2	20
Silver	40.0	39.47		ug/L		99	80 - 120	5	20
Strontium	40.0	39.91		ug/L		100	80 - 120	1	20
Thallium	40.0	41.13		ug/L		103	80 - 120	2	20
Thorium	40.0	40.13		ug/L		100	80 - 120	1	20
Tin	40.0	41.32		ug/L		103	80 - 120	2	20
Uranium	40.0	40.94		ug/L		102	80 - 120	1	20
Zinc	40.0	44.92		ug/L		112	80 - 120	1	20

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

Lab Sample ID: 280-105901-1 MS | **Client Sample ID: B3FWJ1**
Matrix: Water | **Prep Type: Dissolved**
Analysis Batch: 403675 | **Prep Batch: 403491**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	19.2	B	400	418.7		ug/L		100	75 - 125
Antimony	1.3	B	40.0	41.03		ug/L		99	75 - 125
Arsenic	5.5		40.0	45.74		ug/L		101	75 - 125
Barium	44.3		40.0	86.08		ug/L		104	75 - 125
Beryllium	0.080	U	40.0	40.56		ug/L		101	75 - 125
Cadmium	0.27	U	40.0	39.44		ug/L		99	75 - 125
Chromium	3.6		40.0	44.49		ug/L		102	75 - 125
Cobalt	0.093	B	40.0	41.42		ug/L		103	75 - 125
Copper	0.56	U	40.0	42.28		ug/L		106	75 - 125
Lead	0.18	U	40.0	40.53		ug/L		101	75 - 125
Manganese	0.42	B	40.0	40.79		ug/L		101	75 - 125
Molybdenum	7.5		40.0	48.12		ug/L		102	75 - 125
Nickel	1.5	B	40.0	41.76		ug/L		101	75 - 125
Selenium	4.7	B	40.0	45.97		ug/L		103	75 - 125
Silver	0.033	U	40.0	39.17		ug/L		98	75 - 125
Strontium	223		40.0	257.3	X	ug/L		86	75 - 125
Thallium	0.050	U	40.0	40.65		ug/L		102	75 - 125
Thorium	1.2	U	40.0	40.44		ug/L		101	75 - 125
Tin	1.2	B	40.0	41.53		ug/L		101	75 - 125
Uranium	9.4		40.0	49.80		ug/L		101	75 - 125
Zinc	2.0	U	40.0	42.21		ug/L		106	75 - 125

Lab Sample ID: 280-105901-1 MSD | **Client Sample ID: B3FWJ1**
Matrix: Water | **Prep Type: Dissolved**
Analysis Batch: 403675 | **Prep Batch: 403491**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	19.2	B	400	439.0		ug/L		105	75 - 125	5	20
Antimony	1.3	B	40.0	40.79		ug/L		99	75 - 125	1	20
Arsenic	5.5		40.0	45.94		ug/L		101	75 - 125	0	20
Barium	44.3		40.0	80.89		ug/L		91	75 - 125	6	20
Beryllium	0.080	U	40.0	40.01		ug/L		100	75 - 125	1	20
Cadmium	0.27	U	40.0	38.72		ug/L		97	75 - 125	2	20
Chromium	3.6		40.0	43.26		ug/L		99	75 - 125	3	20
Cobalt	0.093	B	40.0	40.83		ug/L		102	75 - 125	1	20
Copper	0.56	U	40.0	40.48		ug/L		101	75 - 125	4	20
Lead	0.18	U	40.0	38.83		ug/L		97	75 - 125	4	20
Manganese	0.42	B	40.0	39.62		ug/L		98	75 - 125	3	20
Molybdenum	7.5		40.0	48.27		ug/L		102	75 - 125	0	20
Nickel	1.5	B	40.0	39.89		ug/L		96	75 - 125	5	20
Selenium	4.7	B	40.0	44.65		ug/L		100	75 - 125	3	20
Silver	0.033	U	40.0	38.62		ug/L		97	75 - 125	1	20
Strontium	223		40.0	257.4	X	ug/L		87	75 - 125	0	20
Thallium	0.050	U	40.0	39.18		ug/L		98	75 - 125	4	20
Thorium	1.2	U	40.0	38.99		ug/L		97	75 - 125	4	20
Tin	1.2	B	40.0	40.78		ug/L		99	75 - 125	2	20
Uranium	9.4		40.0	49.14		ug/L		99	75 - 125	1	20
Zinc	2.0	U	40.0	42.73		ug/L		107	75 - 125	1	20

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S18-001

TestAmerica Job ID: 280-105901-1
SDG: DN0313

Metals

Prep Batch: 403487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-105901-1	B3FWJ1	Dissolved	Water	3005A	
280-105901-3	B3FVV6	Dissolved	Water	3005A	
MB 280-403487/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-403487/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 280-403487/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	
280-105901-1 MS	B3FWJ1	Dissolved	Water	3005A	
280-105901-1 MSD	B3FWJ1	Dissolved	Water	3005A	

Prep Batch: 403491

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-105901-1	B3FWJ1	Dissolved	Water	3005A	
280-105901-3	B3FVV6	Dissolved	Water	3005A	
280-105901-6	B3FWY8	Dissolved	Water	3005A	
280-105901-7	B3FVL7	Dissolved	Water	3005A	
280-105901-9	B3FWD7	Dissolved	Water	3005A	
MB 280-403491/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-403491/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 280-403491/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	
280-105901-1 MS	B3FWJ1	Dissolved	Water	3005A	
280-105901-1 MSD	B3FWJ1	Dissolved	Water	3005A	

Prep Batch: 403507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-105901-2	B3FY13	Total/NA	Water	3010A	
280-105901-4	B3FVV5	Total/NA	Water	3010A	
MB 280-403507/1-A	Method Blank	Total/NA	Water	3010A	
LCS 280-403507/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 280-403507/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	
280-105901-2 MS	B3FY13	Total/NA	Water	3010A	
280-105901-2 MSD	B3FY13	Total/NA	Water	3010A	

Prep Batch: 403509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-105901-2	B3FY13	Total/NA	Water	3020A	
280-105901-4	B3FVV5	Total/NA	Water	3020A	
280-105901-5	B3FWY5	Total/NA	Water	3020A	
280-105901-8	B3FVL4	Total/NA	Water	3020A	
280-105901-10	B3FWD3	Total/NA	Water	3020A	
MB 280-403509/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-403509/2-A	Lab Control Sample	Total/NA	Water	3020A	
LCSD 280-403509/3-A	Lab Control Sample Dup	Total/NA	Water	3020A	
280-105901-2 MS	B3FY13	Total/NA	Water	3020A	
280-105901-2 MSD	B3FY13	Total/NA	Water	3020A	

Analysis Batch: 403672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-105901-1	B3FWJ1	Dissolved	Water	6010D	403487
280-105901-2	B3FY13	Total/NA	Water	6010D	403507
280-105901-3	B3FVV6	Dissolved	Water	6010D	403487
280-105901-4	B3FVV5	Total/NA	Water	6010D	403507
MB 280-403487/1-A	Method Blank	Total Recoverable	Water	6010D	403487

Metals (Continued)

Analysis Batch: 403672 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-403507/1-A	Method Blank	Total/NA	Water	6010D	403507
LCS 280-403487/2-A	Lab Control Sample	Total Recoverable	Water	6010D	403487
LCS 280-403507/2-A	Lab Control Sample	Total/NA	Water	6010D	403507
LCSD 280-403487/3-A	Lab Control Sample Dup	Total Recoverable	Water	6010D	403487
LCSD 280-403507/3-A	Lab Control Sample Dup	Total/NA	Water	6010D	403507
280-105901-1 MS	B3FWJ1	Dissolved	Water	6010D	403487
280-105901-1 MSD	B3FWJ1	Dissolved	Water	6010D	403487
280-105901-2 MS	B3FY13	Total/NA	Water	6010D	403507
280-105901-2 MSD	B3FY13	Total/NA	Water	6010D	403507

Analysis Batch: 403675

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-105901-1	B3FWJ1	Dissolved	Water	6020B	403491
280-105901-2	B3FY13	Total/NA	Water	6020B	403509
280-105901-3	B3FVV6	Dissolved	Water	6020B	403491
280-105901-4	B3FVV5	Total/NA	Water	6020B	403509
280-105901-5	B3FWY5	Total/NA	Water	6020B	403509
280-105901-6	B3FWY8	Dissolved	Water	6020B	403491
280-105901-7	B3FVL7	Dissolved	Water	6020B	403491
280-105901-8	B3FVL4	Total/NA	Water	6020B	403509
280-105901-9	B3FWD7	Dissolved	Water	6020B	403491
280-105901-10	B3FWD3	Total/NA	Water	6020B	403509
MB 280-403491/1-A	Method Blank	Total Recoverable	Water	6020B	403491
MB 280-403509/1-A	Method Blank	Total/NA	Water	6020B	403509
LCS 280-403491/2-A	Lab Control Sample	Total Recoverable	Water	6020B	403491
LCS 280-403509/2-A	Lab Control Sample	Total/NA	Water	6020B	403509
LCSD 280-403491/3-A	Lab Control Sample Dup	Total Recoverable	Water	6020B	403491
LCSD 280-403509/3-A	Lab Control Sample Dup	Total/NA	Water	6020B	403509
280-105901-1 MS	B3FWJ1	Dissolved	Water	6020B	403491
280-105901-1 MSD	B3FWJ1	Dissolved	Water	6020B	403491
280-105901-2 MS	B3FY13	Total/NA	Water	6020B	403509
280-105901-2 MSD	B3FY13	Total/NA	Water	6020B	403509

Analysis Batch: 403813

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-105901-3	B3FVV6	Dissolved	Water	6010D	403487
280-105901-4	B3FVV5	Total/NA	Water	6010D	403507
MB 280-403487/1-A	Method Blank	Total Recoverable	Water	6010D	403487
MB 280-403507/1-A	Method Blank	Total/NA	Water	6010D	403507
LCS 280-403487/2-A	Lab Control Sample	Total Recoverable	Water	6010D	403487
LCS 280-403507/2-A	Lab Control Sample	Total/NA	Water	6010D	403507
LCSD 280-403487/3-A	Lab Control Sample Dup	Total Recoverable	Water	6010D	403487
LCSD 280-403507/3-A	Lab Control Sample Dup	Total/NA	Water	6010D	403507
280-105901-1 MS	B3FWJ1	Dissolved	Water	6010D	403487
280-105901-1 MSD	B3FWJ1	Dissolved	Water	6010D	403487
280-105901-2 MS	B3FY13	Total/NA	Water	6010D	403507
280-105901-2 MSD	B3FY13	Total/NA	Water	6010D	403507