June 30, 2017

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: 280-98155-1
TestAmerica Sample Delivery Group: DN0151
Client Project/Site: S17-006 / W17-006

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:
6/29/2017 9:21:10 PM

Darlene Bandy, Project Manager I
(303)736-0100
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LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

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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: 280-98155-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: CH2M Hill Plateau Remediation Company

Job Number: 280-98155-1

SDG #: DN0151
SAF#(s): S17-006 / W17-006

Date SDG Closed: June 9, 2017
Data Deliverable: 30 Day / Summary

With 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. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted. Calculations are performed before rounding to avoid round-off errors in calculated results.

LCS/LCSD = Laboratory Control Sample/Laboratory Control Sample Duplicate
MS/MSD = Matrix Spike/Matrix Spike Duplicate

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 6/9/2017 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 18.2º C.

DISSOLVED METALS (ICP)
Samples B39P27 (280-98155-10) and B39P04 (280-98155-11) were analyzed for Dissolved Metals in accordance with EPA SW-846 Method 6010C. The samples were prepared on 06/14/2017 and analyzed on 06/15/2017 and 06/16/2017.

No analytical or quality issues were noted.

TOTAL METALS (ICP)
Samples B39P24 (280-98155-9) and B39XT2 (280-98155-12) were analyzed for Total Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 06/22/2017 and analyzed on 06/23/2017 and 06/24/2017.

Calcium, Manganese, Potassium and Sodium were detected in method blank MB 280-377213/1-A at levels that were above the method detection limit (MDL) but below the reporting limit (RL). The values should be considered estimates, and have been flagged “B”. Because the concentrations in the method blank were not present at levels greater than half the RL, corrective action is deemed unnecessary. If the associated samples 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 “C”.

No additional analytical or quality issues were noted

DISSOLVED METALS (ICPMS)
Samples B39PT3 (280-98155-2), B39PX2 (280-98155-4), B39R19 (280-98155-6) and B39R13 (280-98155-8) were analyzed for dissolved metals (ICPMS) in accordance with EPA SW-846 Methods 6020A. The samples were prepared on 06/22/2017 and analyzed on 06/23/2017.

No analytical or quality issues were noted.

Job ID: 280-98155-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

TOTAL METALS (ICPMS)

Samples B39PT0 (280-98155-1), B39PW8 (280-98155-3), B39R16 (280-98155-5) and B39R09 (280-98155-7) were analyzed for total metals (ICPMS) in accordance with SW846 6020A. The samples were prepared on 06/14/2017 and analyzed on 06/15/2017.

No analytical or quality issues were noted.

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: 280-98155-1
SDG Number: DN0151

Login Number: 98155
List Number: 1
Creator: Parrott, Gregg S

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	18.2°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.	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	

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S17-006-207 Page 1 of 1

Collector	Dan Woehle CHPRC DN0151	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S17-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, JUNE 2017	Logbook No.	HNF-N-506 92/89	Ice Chest No.	GWS-320
Shipped To (Lab)	TestAmerica Denver	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7793 3795 1460
Protocol	SURV	Priority:	30 Days PRIORITY	Offsite Property No.	8018 8018

POSSIBLE SAMPLE HAZARDS/REMARKS

** ** 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 **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39PT0	N	W	JUN 08 2017	0943	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2
B39PT3	Y	W	JUN 08 2017	0943	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2

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June 30, 2017

280-98155 Chain of Custody

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Dan Woehle CHPRC			JUN 08 2017 1045	Lesly Wall /CHPRC			JUN 08 2017 1045
Relinquished By	Lesly Wall /CHPRC		JUN 08 2017 1400	Received By	FEDEX		Date/Time
Relinquished By	Fed Ex		Date/Time	Received By	Gregg Parrott		6/9/17 0900
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

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

PRINTED ON 4/26/2017 FSR ID = FSR44547 18.2°, 1R#7, -0.0, 6/9/17 GP A-6004-842 (REV 2)

6/9/2017

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S17-006-009 Page 1 of 1

Collector	Dan Woehle CHPRC DN0151	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S17-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, JUNE 2017	Logbook No.	HNF-N-506 92/89	Ice Chest No.	GWS-320
Shipped To (Lab).	TestAmerica Denver	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	2793,3795 4460
Protocol	SURV	Priority:	30 Days PRIORITY	Offsite Property No.	8018

POSSIBLE SAMPLE HAZARDS/REMARKS

** ** 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 **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39PW8	N	W	JUN 0 8 2017	1037	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2
B39PX2	Y	W	JUN 0 8 2017	1037	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Dan Woehle CHPRS			JUN 0 8 2017 1045	Lesly Wall /CHPRC			JUN 0 8 2017 1045
Lesly Wall /CHPRC			JUN 0 8 2017 1400	FEDEX			
Fed Ex				Gregg Pruett			6/9/17 0900

Matrix *

S	= Soil	DS	= Drum Solids
SE	= Sediment	DL	= Drum Liquids
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 4/26/2017 FSR ID = FSR44674 A-6004-842 (REV 2)

June 30, 2017

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S17-006-213 Page 1 of 1

Collector	Larry Rosane /CHPRC DN0151	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S17-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, JUNE 2017	Logbook No.	HNF-N-506 93/49	Ice Chest No.	GWS-320
Shipped To (Lab)	TestAmerica Denver	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7793379 1460
Protocol	SURV	Priority:	30 Days PRIORITY	Offsite Property No.	8018

POSSIBLE SAMPLE HAZARDS/REMARKS

** ** 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 **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39R16	N	W	JUN 0 8 2017	1049	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2
B39R19	Y	W	↓	↓	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Larry Rosane /CHPRC	Larry Rosane		JUN 0 8 2017 1210	Janelle Zunker CHPRC			JUN 0 8 2017 1210
Janelle Zunker CHPRC			JUN 0 8 2017 1400	FEDEX			
FedEx				Gregg Parrott			6/9/17 0900

Matrix *

S	= Soil	DS	= Drum Solids
SE	= Sediment	DL	= Drum Liquids
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 4/26/2017 FSR ID = FSR44681 A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # S17-006-012
	GP 619	Page 1 of 1

Collector	Larry Rosane /CHPRC ~~DN0150~~ DN0151	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S17-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, JUNE 2017	Logbook No.	HNF-N-506 93/49	Ice Chest No.	GW5-320
Shipped To (Lab)	TestAmerica Denver	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7793 3795 1460
Protocol	SURV	Priority:	30 Days PRIORITY	Offsite Property No.	8018

POSSIBLE SAMPLE HAZARDS/REMARKS

** ** 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 **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39R09	N	W	JUN 0 8 2017	1104	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2
B39R13	↓	W	↓	↓	1x500-mL G/P	6020_METALS_ICPMS: Chromium (1)	6 Months	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Larry Rosane /CHPRC	Larry Rosane		JUN 0 8 2017 1210	Janelle Zunker CHPRC			JUN 0 8 2017 1210
Janelle Zunker CHPRC			JUN 0 8 2017 1410	FEDEX			
Fed Ex				Gregg Parrott			6/9/17 0900

Matrix *

S	= Soil	DS	= Drum Solids		
SE	= Sediment	DL	= Drum Liquids		
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 4/26/2017 FSR ID = FSR44195 A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **W17-006-019**

Collector	Juan Aguilar /CHPRC DN0151	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	W17-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	RCRA, JUNE 2017	Logbook No.	HNF-N-506 88 / 75	Ice Chest No.	6105-3320
Shipped To (Lab)	TestAmerica Denver	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7793 3795 1460
Protocol	RCRA	Priority:	30 Days **PRIORITY**	Offsite Property No.	8018

POSSIBLE SAMPLE HAZARDS/REMARKS

** ** 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 **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39P24	N	W	6-8-17	1003	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B39P27	Y	W	6-8-17	1003	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC			JUN 0 8 2017 1150	Lesly Wall /CHPRC			JUN 0 8 2017 1150
Lesly Wall /CHPRC			JUN 0 8 2017 1400	FEDEX			
Fed Ex				Gregg Parrott			6/9/17 0900

Matrix *

S	= Soil	DS	= Drum Solids
SE	= Sediment	DL	= Drum Liquids
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 5/8/2017 FSR ID = FSR44257 A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **W17-006-192**

Collector	Juan Aguilar /CHPRC DN0151	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	W17-006	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	RCRA, JUNE 2017	Logbook No.	HNF-N-506 88/75	Ice Chest No.	GWS-320
Shipped To (Lab)	TestAmerica Denver	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7793 3795 1460
Protocol	RCRA	Priority:	30 Days **PRIORITY**	Offsite Property No.	8018

POSSIBLE SAMPLE HAZARDS/REMARKS

** ** 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 **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B39P04	Y	W	6-8-17	0859	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2
B39XT2	N	W	6-8-17	0859	1x500-mL G/P	6010_METALS_ICP: COMMON	6 Months	HNO3 to pH <2

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Juan Aguilar /CHPRC			JUN 0 8 2017 1150	Lesly Wall /CHPRC	Lesly Wall		JUN 0 8 2017 1150
Lesly Wall /CHPRC	Lesly Wall		JUN 0 8 2017 1400			FEDEX	
Fed Ex					Gregg Parrott		6/9/17 0900

Matrix *

S	= Soil	DS	= Drum Solids
SE	= Sediment	DL	= Drum Liquids
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 5/8/2017 FSR ID = FSR45029 A-6004-842 (REV 2)

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FedEx ® Tracking

779337951460

Ship date:		Actual delivery:
Thu 6/08/2017		**Fri 6/09/2017 8:52 am**
Richland, WA US	**Delivered** *Signed for by: J.TRUE*	ARVADA, CO US

Travel History

Date/Time	Activity	Location
- 6/09/2017 - Friday		
8:52 am	Delivered	ARVADA, CO
8:42 am	On FedEx vehicle for delivery	ARVADA, CO
7:30 am	At local FedEx facility	ARVADA, CO
4:53 am	At destination sort facility	DENVER, CO
3:42 am	Departed FedEx location	MEMPHIS, TN
12:25 am	Arrived at FedEx location	MEMPHIS, TN
- 6/08/2017 - Thursday		
4:50 pm	Left FedEx origin facility	PASCO, WA
4:06 pm	Shipment information sent to FedEx	
3:19 pm	Picked up	PASCO, WA

Shipment Facts

Tracking number	779337951460	**Service**	FedEx Priority Overnight
Weight	53 lbs / 24.04 kgs	**Signature services**	Direct signature required
Delivered To	Receptionist/Front Desk	**Total pieces**	1
Total shipment weight	53 lbs / 24.04 kgs	**Terms**	Third Party
Shipper reference	8018	**Packaging**	Your Packaging
Special handling section	Deliver Weekday, Additional Handling Surcharge, Direct Signature Required	**Standard transit**	6/09/2017 by 10:30 am

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Qualifiers

Metals

Qualifier	Qualifier Description
U	Analyzed for but not detected.
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.

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: S17-006 / W17-006

TestAmerica Job ID: 280-98155-1
SDG: DN0151

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
6020A	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: S17-006 / W17-006

TestAmerica Job ID: 280-98155-1
SDG: DN0151

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-98155-1	B39PT0	Water	06/08/17 09:43	06/09/17 09:00
280-98155-2	B39PT3	Water	06/08/17 09:43	06/09/17 09:00
280-98155-3	B39PW8	Water	06/08/17 10:37	06/09/17 09:00
280-98155-4	B39PX2	Water	06/08/17 10:37	06/09/17 09:00
280-98155-5	B39R16	Water	06/08/17 10:49	06/09/17 09:00
280-98155-6	B39R19	Water	06/08/17 10:49	06/09/17 09:00
280-98155-7	B39R09	Water	06/08/17 11:04	06/09/17 09:00
280-98155-8	B39R13	Water	06/08/17 11:04	06/09/17 09:00
280-98155-9	B39P24	Water	06/08/17 10:03	06/09/17 09:00
280-98155-10	B39P27	Water	06/08/17 10:03	06/09/17 09:00
280-98155-11	B39P04	Water	06/08/17 08:59	06/09/17 09:00
280-98155-12	B39XT2	Water	06/08/17 08:59	06/09/17 09:00

Client: CH2M Hill Plateau Remediation Company
Project/Site: S17-006 / W17-006

TestAmerica Job ID: 280-98155-1
SDG: DN0151

Method: 6010C - Metals (ICP)

Client Sample ID: B39P24 — **Lab Sample ID: 280-98155-9**
Date Collected: 06/08/17 10:03 — **Matrix: Water**
Date Received: 06/09/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	5.2	U	20.0	5.2	ug/L		06/22/17 14:20	06/23/17 02:47	1
Arsenic	**4.5**	**B**	15.0	4.4	ug/L		06/22/17 14:20	06/24/17 01:41	1
Barium	**35.1**		10.0	0.82	ug/L		06/22/17 14:20	06/23/17 02:47	1
Cadmium	0.45	U	5.0	0.45	ug/L		06/22/17 14:20	06/23/17 02:47	1
Calcium	**22400**		200	34.5	ug/L		06/22/17 14:20	06/23/17 02:47	1
Chromium	**49.7**		10.0	0.66	ug/L		06/22/17 14:20	06/23/17 02:47	1
Cobalt	1.2	U	10.0	1.2	ug/L		06/22/17 14:20	06/23/17 02:47	1
Copper	4.2	U	15.0	4.2	ug/L		06/22/17 14:20	06/23/17 02:47	1
Iron	**27.4**	**B**	100	22.0	ug/L		06/22/17 14:20	06/23/17 02:47	1
Magnesium	**8790**		200	10.7	ug/L		06/22/17 14:20	06/23/17 02:47	1
Manganese	**1.5**	**B C**	10.0	0.26	ug/L		06/22/17 14:20	06/23/17 02:47	1
Nickel	2.6	U	40.0	2.6	ug/L		06/22/17 14:20	06/23/17 02:47	1
Potassium	**3640**	**C**	3000	237	ug/L		06/22/17 14:20	06/23/17 02:47	1
Silver	0.93	U	10.0	0.93	ug/L		06/22/17 14:20	06/23/17 02:47	1
Sodium	**20600**		1000	117	ug/L		06/22/17 14:20	06/23/17 02:47	1
Vanadium	**28.4**		10.0	1.1	ug/L		06/22/17 14:20	06/23/17 02:47	1
Zinc	4.5	U	20.0	4.5	ug/L		06/22/17 14:20	06/23/17 02:47	1

Client Sample ID: B39XT2 — **Lab Sample ID: 280-98155-12**
Date Collected: 06/08/17 08:59 — **Matrix: Water**
Date Received: 06/09/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	5.2	U	20.0	5.2	ug/L		06/22/17 14:20	06/23/17 02:10	1
Arsenic	4.4	U	15.0	4.4	ug/L		06/22/17 14:20	06/24/17 02:08	1
Barium	**16.2**		10.0	0.82	ug/L		06/22/17 14:20	06/23/17 02:10	1
Cadmium	0.45	U	5.0	0.45	ug/L		06/22/17 14:20	06/23/17 02:10	1
Calcium	**20500**		200	34.5	ug/L		06/22/17 14:20	06/23/17 02:10	1
Chromium	**5.3**	**B**	10.0	0.66	ug/L		06/22/17 14:20	06/23/17 02:10	1
Cobalt	1.2	U	10.0	1.2	ug/L		06/22/17 14:20	06/23/17 02:10	1
Copper	4.2	U	15.0	4.2	ug/L		06/22/17 14:20	06/23/17 02:10	1
Iron	**67.9**	**B**	100	22.0	ug/L		06/22/17 14:20	06/23/17 02:10	1
Magnesium	**7330**		200	10.7	ug/L		06/22/17 14:20	06/23/17 02:10	1
Manganese	**3.9**	**B C**	10.0	0.26	ug/L		06/22/17 14:20	06/23/17 02:10	1
Nickel	**3.5**	**B**	40.0	2.6	ug/L		06/22/17 14:20	06/23/17 02:10	1
Potassium	**3130**	**C**	3000	237	ug/L		06/22/17 14:20	06/23/17 02:10	1
Silver	0.93	U	10.0	0.93	ug/L		06/22/17 14:20	06/23/17 02:10	1
Sodium	**16000**		1000	117	ug/L		06/22/17 14:20	06/23/17 02:10	1
Vanadium	**28.5**		10.0	1.1	ug/L		06/22/17 14:20	06/23/17 02:10	1
Zinc	4.5	U	20.0	4.5	ug/L		06/22/17 14:20	06/23/17 02:10	1

Method: 6010C - Metals (ICP) - Dissolved

Client Sample ID: B39P27 — **Lab Sample ID: 280-98155-10**
Date Collected: 06/08/17 10:03 — **Matrix: Water**
Date Received: 06/09/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	5.2	U	20.0	5.2	ug/L		06/14/17 12:30	06/15/17 12:45	1
Arsenic	**4.8**	**B**	15.0	4.4	ug/L		06/14/17 12:30	06/15/17 12:45	1
Barium	**33.9**		10.0	0.82	ug/L		06/14/17 12:30	06/15/17 12:45	1
Cadmium	0.45	U	5.0	0.45	ug/L		06/14/17 12:30	06/15/17 12:45	1

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

Client Sample ID: B39P27 — **Lab Sample ID: 280-98155-10**
Date Collected: 06/08/17 10:03 — **Matrix: Water**
Date Received: 06/09/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	21900		200	34.5	ug/L		06/14/17 12:30	06/15/17 12:45	1
Chromium	51.4		10.0	0.66	ug/L		06/14/17 12:30	06/15/17 12:45	1
Cobalt	1.2	U	10.0	1.2	ug/L		06/14/17 12:30	06/15/17 12:45	1
Copper	4.2	U	15.0	4.2	ug/L		06/14/17 12:30	06/15/17 12:45	1
Iron	22.0	U	100	22.0	ug/L		06/14/17 12:30	06/15/17 12:45	1
Magnesium	8770		200	10.7	ug/L		06/14/17 12:30	06/15/17 12:45	1
Manganese	0.49	B	10.0	0.26	ug/L		06/14/17 12:30	06/15/17 12:45	1
Nickel	2.6	U	40.0	2.6	ug/L		06/14/17 12:30	06/15/17 12:45	1
Potassium	2590	B	3000	237	ug/L		06/14/17 12:30	06/16/17 14:36	1
Silver	0.93	U	10.0	0.93	ug/L		06/14/17 12:30	06/15/17 12:45	1
Sodium	20500		1000	117	ug/L		06/14/17 12:30	06/15/17 12:45	1
Vanadium	28.7		10.0	1.1	ug/L		06/14/17 12:30	06/15/17 12:45	1
Zinc	4.5	U	20.0	4.5	ug/L		06/14/17 12:30	06/15/17 12:45	1

Client Sample ID: B39P04 — **Lab Sample ID: 280-98155-11**
Date Collected: 06/08/17 08:59 — **Matrix: Water**
Date Received: 06/09/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	5.2	U	20.0	5.2	ug/L		06/14/17 12:30	06/15/17 12:20	1
Arsenic	4.4	U	15.0	4.4	ug/L		06/14/17 12:30	06/15/17 12:20	1
Barium	16.1		10.0	0.82	ug/L		06/14/17 12:30	06/15/17 12:20	1
Cadmium	0.45	U	5.0	0.45	ug/L		06/14/17 12:30	06/15/17 12:20	1
Calcium	20400		200	34.5	ug/L		06/14/17 12:30	06/15/17 12:20	1
Chromium	3.0	B	10.0	0.66	ug/L		06/14/17 12:30	06/15/17 12:20	1
Cobalt	1.2	U	10.0	1.2	ug/L		06/14/17 12:30	06/15/17 12:20	1
Copper	4.2	U	15.0	4.2	ug/L		06/14/17 12:30	06/15/17 12:20	1
Iron	26.0	B	100	22.0	ug/L		06/14/17 12:30	06/15/17 12:20	1
Magnesium	7470		200	10.7	ug/L		06/14/17 12:30	06/15/17 12:20	1
Manganese	4.3	B	10.0	0.26	ug/L		06/14/17 12:30	06/15/17 12:20	1
Nickel	2.9	B	40.0	2.6	ug/L		06/14/17 12:30	06/15/17 12:20	1
Potassium	2300	B	3000	237	ug/L		06/14/17 12:30	06/16/17 15:04	1
Silver	0.93	U	10.0	0.93	ug/L		06/14/17 12:30	06/15/17 12:20	1
Sodium	16400		1000	117	ug/L		06/14/17 12:30	06/15/17 12:20	1
Vanadium	29.6		10.0	1.1	ug/L		06/14/17 12:30	06/15/17 12:20	1
Zinc	4.5	U	20.0	4.5	ug/L		06/14/17 12:30	06/15/17 12:20	1

Method: 6020A - Metals (ICP/MS)

Client Sample ID: B39PT0 — **Lab Sample ID: 280-98155-1**
Date Collected: 06/08/17 09:43 — **Matrix: Water**
Date Received: 06/09/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	2.7		2.0	0.50	ug/L		06/14/17 12:30	06/15/17 14:05	1

Client Sample ID: B39PW8 — **Lab Sample ID: 280-98155-3**
Date Collected: 06/08/17 10:37 — **Matrix: Water**
Date Received: 06/09/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	1.7	B	2.0	0.50	ug/L		06/14/17 12:30	06/15/17 14:16	1

Client: CH2M Hill Plateau Remediation Company
Project/Site: S17-006 / W17-006

TestAmerica Job ID: 280-98155-1
SDG: DN0151

Method: 6020A - Metals (ICP/MS)

Client Sample ID: B39R16 — **Lab Sample ID: 280-98155-5**
Date Collected: 06/08/17 10:49 — **Matrix: Water**
Date Received: 06/09/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	2.9		2.0	0.50	ug/L		06/14/17 12:30	06/15/17 14:20	1

Client Sample ID: B39R09 — **Lab Sample ID: 280-98155-7**
Date Collected: 06/08/17 11:04 — **Matrix: Water**
Date Received: 06/09/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	4.1		2.0	0.50	ug/L		06/14/17 12:30	06/15/17 14:24	1

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

Client Sample ID: B39PT3 — **Lab Sample ID: 280-98155-2**
Date Collected: 06/08/17 09:43 — **Matrix: Water**
Date Received: 06/09/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	2.4		2.0	0.50	ug/L		06/22/17 14:20	06/23/17 03:11	1

Client Sample ID: B39PX2 — **Lab Sample ID: 280-98155-4**
Date Collected: 06/08/17 10:37 — **Matrix: Water**
Date Received: 06/09/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	1.4	B	2.0	0.50	ug/L		06/22/17 14:20	06/23/17 03:34	1

Client Sample ID: B39R19 — **Lab Sample ID: 280-98155-6**
Date Collected: 06/08/17 10:49 — **Matrix: Water**
Date Received: 06/09/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	2.9		2.0	0.50	ug/L		06/22/17 14:20	06/23/17 03:37	1

Client Sample ID: B39R13 — **Lab Sample ID: 280-98155-8**
Date Collected: 06/08/17 11:04 — **Matrix: Water**
Date Received: 06/09/17 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	4.2		2.0	0.50	ug/L		06/22/17 14:20	06/23/17 03:41	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-377213/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 378511 — **Prep Batch: 377213**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	5.2	U	20.0	5.2	ug/L		06/22/17 14:20	06/23/17 01:19	1
Barium	0.82	U	10.0	0.82	ug/L		06/22/17 14:20	06/23/17 01:19	1
Cadmium	0.45	U	5.0	0.45	ug/L		06/22/17 14:20	06/23/17 01:19	1
Calcium	41.97	B	200	34.5	ug/L		06/22/17 14:20	06/23/17 01:19	1
Chromium	0.66	U	10.0	0.66	ug/L		06/22/17 14:20	06/23/17 01:19	1
Cobalt	1.2	U	10.0	1.2	ug/L		06/22/17 14:20	06/23/17 01:19	1
Copper	4.2	U	15.0	4.2	ug/L		06/22/17 14:20	06/23/17 01:19	1
Iron	22.0	U	100	22.0	ug/L		06/22/17 14:20	06/23/17 01:19	1
Magnesium	10.7	U	200	10.7	ug/L		06/22/17 14:20	06/23/17 01:19	1
Manganese	0.477	B	10.0	0.26	ug/L		06/22/17 14:20	06/23/17 01:19	1
Nickel	2.6	U	40.0	2.6	ug/L		06/22/17 14:20	06/23/17 01:19	1
Potassium	512.9	B	3000	237	ug/L		06/22/17 14:20	06/23/17 01:19	1
Silver	0.93	U	10.0	0.93	ug/L		06/22/17 14:20	06/23/17 01:19	1
Sodium	331.2	B	1000	117	ug/L		06/22/17 14:20	06/23/17 01:19	1
Vanadium	1.1	U	10.0	1.1	ug/L		06/22/17 14:20	06/23/17 01:19	1
Zinc	4.5	U	20.0	4.5	ug/L		06/22/17 14:20	06/23/17 01:19	1

Lab Sample ID: MB 280-377213/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 378671 — **Prep Batch: 377213**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.4	U	15.0	4.4	ug/L		06/22/17 14:20	06/24/17 01:26	1

Lab Sample ID: LCS 280-377213/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 378511 — **Prep Batch: 377213**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	500	498.9		ug/L		100	80 - 120
Barium	2000	2007		ug/L		100	80 - 120
Cadmium	100	98.04		ug/L		98	80 - 120
Calcium	50000	49320		ug/L		99	80 - 120
Chromium	200	198.2		ug/L		99	80 - 120
Cobalt	500	486.2		ug/L		97	80 - 120
Copper	250	239.6		ug/L		96	80 - 120
Iron	1000	1006		ug/L		101	80 - 120
Magnesium	50000	49360		ug/L		99	80 - 120
Manganese	500	497.3		ug/L		99	80 - 120
Nickel	500	473.2		ug/L		95	80 - 120
Potassium	50000	52010		ug/L		104	80 - 120
Silver	50.0	51.20		ug/L		102	80 - 120
Sodium	50000	53680		ug/L		107	80 - 120
Vanadium	500	497.5		ug/L		100	80 - 120
Zinc	500	492.9		ug/L		99	80 - 120

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

Lab Sample ID: LCS 280-377213/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 378671 — **Prep Batch: 377213**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1000	1009		ug/L		101	80 - 120

Lab Sample ID: 280-98155-9 MS — **Client Sample ID: B39P24**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 378511 — **Prep Batch: 377213**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	5.2	U	500	519.2		ug/L		104	75 - 125
Barium	35.1		2000	2057		ug/L		101	75 - 125
Cadmium	0.45	U	100	100.7		ug/L		101	75 - 125
Calcium	22400		50000	73320		ug/L		102	75 - 125
Chromium	49.7		200	255.3		ug/L		103	75 - 125
Cobalt	1.2	U	500	496.5		ug/L		99	75 - 125
Copper	4.2	U	250	246.6		ug/L		99	75 - 125
Iron	27.4	B	1000	1050		ug/L		102	75 - 125
Magnesium	8790		50000	60130		ug/L		103	75 - 125
Manganese	1.5	B C	500	508.3		ug/L		101	75 - 125
Nickel	2.6	U	500	484.3		ug/L		97	75 - 125
Potassium	3640	C	50000	56770		ug/L		106	75 - 125
Silver	0.93	U	50.0	52.86		ug/L		106	75 - 125
Sodium	20600		50000	77760		ug/L		114	75 - 125
Vanadium	28.4		500	540.1		ug/L		102	75 - 125
Zinc	4.5	U	500	503.5		ug/L		101	75 - 125

Lab Sample ID: 280-98155-9 MS — **Client Sample ID: B39P24**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 378671 — **Prep Batch: 377213**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.5	B	1000	1020		ug/L		102	75 - 125

Lab Sample ID: 280-98155-9 MSD — **Client Sample ID: B39P24**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 378511 — **Prep Batch: 377213**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	5.2	U	500	519.5		ug/L		104	75 - 125	0	20
Barium	35.1		2000	2114		ug/L		104	75 - 125	3	20
Cadmium	0.45	U	100	100.4		ug/L		100	75 - 125	0	20
Calcium	22400		50000	72690		ug/L		101	75 - 125	1	20
Chromium	49.7		200	254.8		ug/L		103	75 - 125	0	20
Cobalt	1.2	U	500	496.4		ug/L		99	75 - 125	0	20
Copper	4.2	U	250	247.1		ug/L		99	75 - 125	0	20
Iron	27.4	B	1000	1053		ug/L		103	75 - 125	0	20
Magnesium	8790		50000	59730		ug/L		102	75 - 125	1	20
Manganese	1.5	B C	500	506.7		ug/L		101	75 - 125	0	20
Nickel	2.6	U	500	483.9		ug/L		97	75 - 125	0	20
Potassium	3640	C	50000	57240		ug/L		107	75 - 125	1	20
Silver	0.93	U	50.0	53.03		ug/L		106	75 - 125	0	20

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

Lab Sample ID: 280-98155-9 MSD — **Client Sample ID: B39P24**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 378511 — **Prep Batch: 377213**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sodium	20600		50000	77630		ug/L		114	75 - 125	0	20
Vanadium	28.4		500	538.8		ug/L		102	75 - 125	0	20
Zinc	4.5	U	500	500.4		ug/L		100	75 - 125	1	20

Lab Sample ID: 280-98155-9 MSD — **Client Sample ID: B39P24**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 378671 — **Prep Batch: 377213**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.5	B	1000	1006		ug/L		100	75 - 125	1	20

Lab Sample ID: MB 280-377198/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 377565 — **Prep Batch: 377198**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	5.2	U	20.0	5.2	ug/L		06/14/17 12:30	06/15/17 11:53	1
Arsenic	4.4	U	15.0	4.4	ug/L		06/14/17 12:30	06/15/17 11:53	1
Barium	0.82	U	10.0	0.82	ug/L		06/14/17 12:30	06/15/17 11:53	1
Cadmium	0.45	U	5.0	0.45	ug/L		06/14/17 12:30	06/15/17 11:53	1
Calcium	34.5	U	200	34.5	ug/L		06/14/17 12:30	06/15/17 11:53	1
Chromium	0.66	U	10.0	0.66	ug/L		06/14/17 12:30	06/15/17 11:53	1
Cobalt	1.2	U	10.0	1.2	ug/L		06/14/17 12:30	06/15/17 11:53	1
Copper	4.2	U	15.0	4.2	ug/L		06/14/17 12:30	06/15/17 11:53	1
Iron	22.0	U	100	22.0	ug/L		06/14/17 12:30	06/15/17 11:53	1
Magnesium	10.7	U	200	10.7	ug/L		06/14/17 12:30	06/15/17 11:53	1
Manganese	0.26	U	10.0	0.26	ug/L		06/14/17 12:30	06/15/17 11:53	1
Nickel	2.6	U	40.0	2.6	ug/L		06/14/17 12:30	06/15/17 11:53	1
Silver	0.93	U	10.0	0.93	ug/L		06/14/17 12:30	06/15/17 11:53	1
Sodium	117	U	1000	117	ug/L		06/14/17 12:30	06/15/17 11:53	1
Vanadium	1.1	U	10.0	1.1	ug/L		06/14/17 12:30	06/15/17 11:53	1
Zinc	4.5	U	20.0	4.5	ug/L		06/14/17 12:30	06/15/17 11:53	1

Lab Sample ID: MB 280-377198/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 377755 — **Prep Batch: 377198**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	237	U	3000	237	ug/L		06/14/17 12:30	06/16/17 14:15	1

Lab Sample ID: LCS 280-377198/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 377565 — **Prep Batch: 377198**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	500	555.9		ug/L		111	80 - 120
Arsenic	1000	1070		ug/L		107	80 - 120
Barium	2000	2097		ug/L		105	80 - 120
Cadmium	100	103.9		ug/L		104	80 - 120

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

Lab Sample ID: LCS 280-377198/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 377565 — **Prep Batch: 377198**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	50000	51180		ug/L		102	80 - 120
Chromium	200	210.3		ug/L		105	80 - 120
Cobalt	500	506.5		ug/L		101	80 - 120
Copper	250	256.5		ug/L		103	80 - 120
Iron	1000	1036		ug/L		104	80 - 120
Magnesium	50000	51730		ug/L		103	80 - 120
Manganese	500	522.9		ug/L		105	80 - 120
Nickel	500	501.8		ug/L		100	80 - 120
Silver	50.0	53.44		ug/L		107	80 - 120
Sodium	50000	52520		ug/L		105	80 - 120
Vanadium	500	523.2		ug/L		105	80 - 120
Zinc	500	513.4		ug/L		103	80 - 120

Lab Sample ID: LCS 280-377198/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 377755 — **Prep Batch: 377198**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Potassium	50000	50750		ug/L		102	80 - 120

Lab Sample ID: 280-98155-10 MS — **Client Sample ID: B39P27**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 377565 — **Prep Batch: 377198**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	5.2	U	500	556.9		ug/L		111	75 - 125
Arsenic	4.8	B	1000	1076		ug/L		107	75 - 125
Barium	33.9		2000	2116		ug/L		104	75 - 125
Cadmium	0.45	U	100	103.3		ug/L		103	75 - 125
Calcium	21900		50000	74290		ug/L		105	75 - 125
Chromium	51.4		200	264.9		ug/L		107	75 - 125
Cobalt	1.2	U	500	503.8		ug/L		101	75 - 125
Copper	4.2	U	250	256.1		ug/L		102	75 - 125
Iron	22.0	U	1000	1030		ug/L		103	75 - 125
Magnesium	8770		50000	61010		ug/L		104	75 - 125
Manganese	0.49	B	500	516.5		ug/L		103	75 - 125
Nickel	2.6	U	500	500.5		ug/L		100	75 - 125
Silver	0.93	U	50.0	53.67		ug/L		107	75 - 125
Sodium	20500		50000	74180		ug/L		107	75 - 125
Vanadium	28.7		500	550.1		ug/L		104	75 - 125
Zinc	4.5	U	500	509.4		ug/L		102	75 - 125

Lab Sample ID: 280-98155-10 MS — **Client Sample ID: B39P27**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 377755 — **Prep Batch: 377198**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Potassium	2590	B	50000	55770		ug/L		106	75 - 125

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

Lab Sample ID: 280-98155-10 MSD — **Client Sample ID: B39P27**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 377565 — **Prep Batch: 377198**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	5.2	U	500	545.2		ug/L		109	75 - 125	2	20
Arsenic	4.8	B	1000	1059		ug/L		105	75 - 125	2	20
Barium	33.9		2000	2075		ug/L		102	75 - 125	2	20
Cadmium	0.45	U	100	101.7		ug/L		102	75 - 125	2	20
Calcium	21900		50000	72590		ug/L		101	75 - 125	2	20
Chromium	51.4		200	260.2		ug/L		104	75 - 125	2	20
Cobalt	1.2	U	500	495.2		ug/L		99	75 - 125	2	20
Copper	4.2	U	250	252.1		ug/L		101	75 - 125	2	20
Iron	22.0	U	1000	1010		ug/L		101	75 - 125	2	20
Magnesium	8770		50000	59920		ug/L		102	75 - 125	2	20
Manganese	0.49	B	500	507.9		ug/L		101	75 - 125	2	20
Nickel	2.6	U	500	491.0		ug/L		98	75 - 125	2	20
Silver	0.93	U	50.0	52.33		ug/L		105	75 - 125	3	20
Sodium	20500		50000	72620		ug/L		104	75 - 125	2	20
Vanadium	28.7		500	541.2		ug/L		102	75 - 125	2	20
Zinc	4.5	U	500	506.4		ug/L		101	75 - 125	1	20

Lab Sample ID: 280-98155-10 MSD — **Client Sample ID: B39P27**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 377755 — **Prep Batch: 377198**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Potassium	2590	B	50000	54710		ug/L		104	75 - 125	2	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 280-377214/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 377572 — **Prep Batch: 377214**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.50	U	2.0	0.50	ug/L		06/14/17 12:30	06/15/17 12:33	1

Lab Sample ID: LCS 280-377214/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 377572 — **Prep Batch: 377214**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	40.0	40.92		ug/L		102	80 - 120

Lab Sample ID: 280-98155-1 MS — **Client Sample ID: B39PT0**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 377572 — **Prep Batch: 377214**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	2.7		40.0	42.61		ug/L		100	75 - 125

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

Lab Sample ID: 280-98155-1 MSD — **Client Sample ID: B39PT0**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 377572 — **Prep Batch: 377214**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	2.7		40.0	43.01		ug/L		101	75 - 125	1	20

Lab Sample ID: MB 280-377199/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 378514 — **Prep Batch: 377199**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.50	U	2.0	0.50	ug/L		06/22/17 14:20	06/23/17 02:04	1

Lab Sample ID: LCS 280-377199/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 378514 — **Prep Batch: 377199**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	40.0	40.85		ug/L		102	80 - 120

Lab Sample ID: 280-98155-2 MS — **Client Sample ID: B39PT3**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 378514 — **Prep Batch: 377199**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	2.4		40.0	41.82		ug/L		99	75 - 125

Lab Sample ID: 280-98155-2 MSD — **Client Sample ID: B39PT3**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 378514 — **Prep Batch: 377199**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	2.4		40.0	42.36		ug/L		100	75 - 125	1	20

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: S17-006 / W17-006

TestAmerica Job ID: 280-98155-1
SDG: DN0151

Metals

Prep Batch: 377198

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98155-10	B39P27	Dissolved	Water	3005A	
280-98155-11	B39P04	Dissolved	Water	3005A	
MB 280-377198/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-377198/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-98155-10 MS	B39P27	Dissolved	Water	3005A	
280-98155-10 MSD	B39P27	Dissolved	Water	3005A	

Prep Batch: 377199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98155-2	B39PT3	Dissolved	Water	3005A	
280-98155-4	B39PX2	Dissolved	Water	3005A	
280-98155-6	B39R19	Dissolved	Water	3005A	
280-98155-8	B39R13	Dissolved	Water	3005A	
MB 280-377199/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 280-377199/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
280-98155-2 MS	B39PT3	Dissolved	Water	3005A	
280-98155-2 MSD	B39PT3	Dissolved	Water	3005A	

Prep Batch: 377213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98155-9	B39P24	Total/NA	Water	3010A	
280-98155-12	B39XT2	Total/NA	Water	3010A	
MB 280-377213/1-A	Method Blank	Total/NA	Water	3010A	
LCS 280-377213/2-A	Lab Control Sample	Total/NA	Water	3010A	
280-98155-9 MS	B39P24	Total/NA	Water	3010A	
280-98155-9 MSD	B39P24	Total/NA	Water	3010A	

Prep Batch: 377214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98155-1	B39PT0	Total/NA	Water	3020A	
280-98155-3	B39PW8	Total/NA	Water	3020A	
280-98155-5	B39R16	Total/NA	Water	3020A	
280-98155-7	B39R09	Total/NA	Water	3020A	
MB 280-377214/1-A	Method Blank	Total/NA	Water	3020A	
LCS 280-377214/2-A	Lab Control Sample	Total/NA	Water	3020A	
280-98155-1 MS	B39PT0	Total/NA	Water	3020A	
280-98155-1 MSD	B39PT0	Total/NA	Water	3020A	

Analysis Batch: 377565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98155-10	B39P27	Dissolved	Water	6010C	377198
280-98155-11	B39P04	Dissolved	Water	6010C	377198
MB 280-377198/1-A	Method Blank	Total Recoverable	Water	6010C	377198
LCS 280-377198/2-A	Lab Control Sample	Total Recoverable	Water	6010C	377198
280-98155-10 MS	B39P27	Dissolved	Water	6010C	377198
280-98155-10 MSD	B39P27	Dissolved	Water	6010C	377198

Analysis Batch: 377572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98155-1	B39PT0	Total/NA	Water	6020A	377214
280-98155-3	B39PW8	Total/NA	Water	6020A	377214

Metals (Continued)

Analysis Batch: 377572 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98155-5	B39R16	Total/NA	Water	6020A	377214
280-98155-7	B39R09	Total/NA	Water	6020A	377214
MB 280-377214/1-A	Method Blank	Total/NA	Water	6020A	377214
LCS 280-377214/2-A	Lab Control Sample	Total/NA	Water	6020A	377214
280-98155-1 MS	B39PT0	Total/NA	Water	6020A	377214
280-98155-1 MSD	B39PT0	Total/NA	Water	6020A	377214

Analysis Batch: 377755

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98155-10	B39P27	Dissolved	Water	6010C	377198
280-98155-11	B39P04	Dissolved	Water	6010C	377198
MB 280-377198/1-A	Method Blank	Total Recoverable	Water	6010C	377198
LCS 280-377198/2-A	Lab Control Sample	Total Recoverable	Water	6010C	377198
280-98155-10 MS	B39P27	Dissolved	Water	6010C	377198
280-98155-10 MSD	B39P27	Dissolved	Water	6010C	377198

Analysis Batch: 378511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98155-9	B39P24	Total/NA	Water	6010C	377213
280-98155-12	B39XT2	Total/NA	Water	6010C	377213
MB 280-377213/1-A	Method Blank	Total/NA	Water	6010C	377213
LCS 280-377213/2-A	Lab Control Sample	Total/NA	Water	6010C	377213
280-98155-9 MS	B39P24	Total/NA	Water	6010C	377213
280-98155-9 MSD	B39P24	Total/NA	Water	6010C	377213

Analysis Batch: 378514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98155-2	B39PT3	Dissolved	Water	6020A	377199
280-98155-4	B39PX2	Dissolved	Water	6020A	377199
280-98155-6	B39R19	Dissolved	Water	6020A	377199
280-98155-8	B39R13	Dissolved	Water	6020A	377199
MB 280-377199/1-A	Method Blank	Total Recoverable	Water	6020A	377199
LCS 280-377199/2-A	Lab Control Sample	Total Recoverable	Water	6020A	377199
280-98155-2 MS	B39PT3	Dissolved	Water	6020A	377199
280-98155-2 MSD	B39PT3	Dissolved	Water	6020A	377199

Analysis Batch: 378671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98155-9	B39P24	Total/NA	Water	6010C	377213
280-98155-12	B39XT2	Total/NA	Water	6010C	377213
MB 280-377213/1-A	Method Blank	Total/NA	Water	6010C	377213
LCS 280-377213/2-A	Lab Control Sample	Total/NA	Water	6010C	377213
280-98155-9 MS	B39P24	Total/NA	Water	6010C	377213
280-98155-9 MSD	B39P24	Total/NA	Water	6010C	377213