

June 26, 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: 280-98230-1

TestAmerica Sample Delivery Group: DN0154

Client Project/Site: F17-035

For:

CH2M Hill Plateau Remediation Company

PO BOX 1600, MS H8-41

Richland, Washington 99352

Attn: Mr. Scot Fitzgerald



Authorized for release by:

6/26/2017 2:48:47 PM

Darlene Bandy, Project Manager I

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darlene.bandy@testamericainc.com

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

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

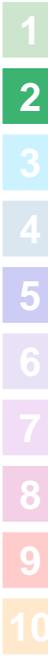


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Job ID: 280-98230-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: CH2M Hill Plateau Remediation Company

Job Number: 280-98230-1

SDG #: DN0154

SAF#(s): F17-035

Date SDG Closed: June 13, 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 6/13/2017 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.7° C and 3.4° C.

Receipt Exceptions

Insufficient sample volume was provided for the laboratory to perform CHPRC sample specific MS/MSD analysis. As instructed by the client on 6/15/2017 (SIR17-750), duplicate LCS (LCSD) is provided.

Two coolers were received from the client on 6/13/2017, and the receipt temperatures for both coolers were recorded; however, the laboratory did not record which temperature belonged to which cooler. As instructed by the client on 6/15/2017 (SIR17-750), both temperatures are listed.

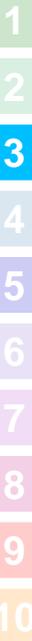
6020A - Total Metals (ICP/MS)

The Chain of Custody requests "6020_METALS_ICPMS: COMMON" analysis for SAF F17-035. This Service List includes Aluminum, and while TestAmerica Denver holds Washington State (WDOE) accreditation for method 6020A, Aluminum is currently listed on the certificate as having interim accreditation. TestAmerica Denver is pursuing full WDOE accreditation for this element. As instructed by the client, the laboratory proceeded with the requested Aluminum analysis by method 6020A.

Due to high constituent concentration, the samples presented in this report required dilutions prior to the analysis of Antimony, Barium, Copper, and Lead. The results have been flagged "D" and the reporting limits have been elevated accordingly.

Lead was detected in method blank MB 280-377762/1-A at a level that was above the method detection limit (MDL) but below the reporting limit (RL). The value should be considered an estimate, and has been flagged "B". Because the concentration in the method blank was not present at a level 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".

Barium and Copper were detected in method blank MB 280-377762/1-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". The MB contained Barium and Copper at levels greater than one-half the reporting limits; however, the associated sample concentrations were >20x the method blank



Job ID: 280-98230-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

concentrations; therefore, corrective action is deemed unnecessary.

Aluminum was detected in method blank MB 280-377762/1-A at a level that was above the reporting limit (RL). The associated sample concentrations were >20x the method blank concentration; therefore, corrective action is deemed unnecessary.

The low level continuing calibration verification (CCVL) associated with analysis batch 280-378128 recovered above the upper control limit for Beryllium. The samples associated with this CCVL were non-detect for the affected element; therefore, corrective action is deemed unnecessary.

The low level continuing calibration verification (CCVL) associated with analysis batch 280-378356 recovered above the upper control limit for Barium. The samples associated with this CCVL were >10x the CCVL concentration for the affected element; therefore, corrective action is deemed unnecessary. The associated CCV met quality control acceptance criteria.

No additional analytical or quality issues were noted.

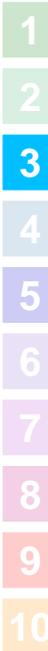
We certify that this data package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained 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

SAMPLE ISSUE RESOLUTION

SIR NUM SIR17-750
REV NUM 0
DATE INITIATED 6/15/2017



SAMPLE EVENT INFORMATION

SAF NUM(S) F17-035
OPERABLE UNIT(S)
PROJECT(S) MSA
SAMPLE EVENT TITLE(S) MSA Characterization Sampling
LABORATORY TestAmerica Denver

SAMPLING INFORMATION

NUMBER OF SAMPLES 2
SAMPLE NUMBERS B3B854, B3B8M0
SAMPLE MATRIX OTHER SOLID
COLLECTION DATE 6/12/2017 - 6/12/2017
SDG NUM DN0154

ISSUE BACKGROUND

CLASS General Laboratory Direction
TYPE Other General Laboratory Direction (Specify)

DESCRIPTION Insufficient volume may have been received to perform an MS/MSD for 6020_Metals_ICPMS: COMMON using the standard volume digestion of 1 gram to 100mL. One 2oz jar was submitted for each sample; however, the material is light, and 1 gram is needed for each standard volume digestion. Silver and Antimony are requested analytes, and these analytes require a separate digestion for 6020 for solid matrix samples, so a total of 2 grams will be required per sample. An MS/MSD will require an additional 2 grams of sample per digestion. The laboratory is unable to verify the total weight provided per sample until they weigh the sample to begin the digestion prep.
 In addition, two coolers were received from CHPRC on 6/13/2017, and the receipt temperature of both coolers were recorded; however, our Sample Receiving did not record which temperature belonged to which cooler. These samples were received in the cooler with air bill 7793 7940 3597; however, the temperatures for both coolers are listed, as it is unknown which of the two temperatures belongs to this cooler.

DISPOSITION

DESCRIPTION TADN proposes to either use a reduced volume digestion of 0.5 grams to 50 mL instead of the standard 1 gram to 100mL (this would not raise the reporting limit) and perform the MS/MSD for the Silver and Antimony on one sample and the MS/MSD for the remaining analytes on the other sample OR to perform LCS/LCSDs to show precision in place of the MS/MSDs for 6020_Metals_ICPMS: COMMON.
 TADN proposes to either list the temperatures for both coolers OR to randomly choose one of the two temperatures to assign to this cooler.

JUSTIFICATION

Final Disposition: For Item number one: use routine sample size and perform LCS/LCSD for precision
 For item number two: List the temperautres for both coolers and discuss in narative.

SUBMITTED BY: Darlene Bandy DATE: 06/15/2017
 ACCEPTED BY: Scot Fitzgerald DATE: 06/15/2017

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 280-98230-1

SDG Number: DN0154

Login Number: 98230

List Number: 1

Creator: Pottruff, Reed W

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
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	3.4°C, 0.7°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	False	There may be Insufficient volume received for MS/MSD.
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	

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7793 7940 3597			
Ship date: Mon 6/12/2017	Actual delivery: Tue 6/13/2017 8:59 am		
Richland, WA US	Delivered <i>Signed for by: J.TRUE</i>		
	ARVADA, CO US		
Travel History			
Date/Time	Activity	Location	
- 6/13/2017 - Tuesday			
8:59 am	Delivered	ARVADA, CO	
8:25 am	On FedEx vehicle for delivery	ARVADA, CO	
7:03 am	At local FedEx facility	ARVADA, CO	
4:45 am	At destination sort facility	DENVER, CO	
3:45 am	Departed FedEx location	MEMPHIS, TN	
12:26 am	Arrived at FedEx location	MEMPHIS, TN	
- 6/12/2017 - Monday			
6:13 pm	Shipment information sent to FedEx		
5:00 pm	Left FedEx origin facility	PASCO, WA	
3:16 pm	Picked up	PASCO, WA	
Shipment Facts			
Tracking number	7793 7940 3597	Service	FedEx Priority Overnight
Weight	51 lbs / 23.13 kgs	Signature services	Direct signature required
Delivered To	Shipping/Receiving	Total pieces	1
Total shipment weight	51 lbs / 23.13 kgs	Terms	Third Party
Shipper reference	8030	Packaging	Your Packaging
Special handling section	Deliver Weekday, Additional Handling Surcharge, Direct Signature Required	Standard transit	6/13/2017 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
D	The reported value is from a dilution.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-035

TestAmerica Job ID: 280-98230-1
SDG: DN0154

Method	Method Description	Protocol	Laboratory
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



Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-035

TestAmerica Job ID: 280-98230-1
SDG: DN0154

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-98230-1	B3B8M0	Solid	06/12/17 10:08	06/13/17 09:00
280-98230-2	B3B854	Solid	06/12/17 10:20	06/13/17 09:00

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

June 26, 2017 Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-035

TestAmerica Job ID: 280-98230-1
SDG: DN0154

Method: 6020A - Metals (ICP/MS)

Client Sample ID: B3B8M0
Date Collected: 06/12/17 10:08
Date Received: 06/13/17 09:00

Lab Sample ID: 280-98230-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	161000		3880	104	ug/Kg		06/19/17 13:05	06/20/17 18:28	1
Antimony	867000	D	712	104	ug/Kg		06/19/17 14:55	06/22/17 02:13	5
Arsenic	824		466	39.3	ug/Kg		06/19/17 13:05	06/20/17 18:28	1
Silver	214		71.2	14.5	ug/Kg		06/19/17 14:55	06/20/17 23:27	1
Barium	780000	D	7760	2740	ug/Kg		06/19/17 13:05	06/22/17 09:09	50
Beryllium	17.5	U	77.6	17.5	ug/Kg		06/19/17 13:05	06/20/17 18:28	1
Cadmium	159		77.6	7.3	ug/Kg		06/19/17 13:05	06/23/17 09:11	1
Chromium	33200		155	59.0	ug/Kg		06/19/17 13:05	06/20/17 18:28	1
Cobalt	299		77.6	5.1	ug/Kg		06/19/17 13:05	06/20/17 18:28	1
Copper	7890000	D	9700	2760	ug/Kg		06/19/17 13:05	06/22/17 09:09	50
Lead	826000	D	5820	707	ug/Kg		06/19/17 13:05	06/22/17 09:09	50
Molybdenum	4970		155	13.7	ug/Kg		06/19/17 13:05	06/20/17 18:28	1
Selenium	298	B	388	103	ug/Kg		06/19/17 13:05	06/20/17 18:28	1

Client Sample ID: B3B854
Date Collected: 06/12/17 10:20
Date Received: 06/13/17 09:00

Lab Sample ID: 280-98230-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	420000		3930	105	ug/Kg		06/19/17 13:05	06/20/17 18:32	1
Antimony	182000	D	840	123	ug/Kg		06/19/17 14:55	06/22/17 02:24	5
Arsenic	228	B	471	39.7	ug/Kg		06/19/17 13:05	06/20/17 18:32	1
Silver	143		84.0	17.0	ug/Kg		06/19/17 14:55	06/20/17 23:38	1
Barium	721000	D	7860	2770	ug/Kg		06/19/17 13:05	06/22/17 09:13	50
Beryllium	17.7	U	78.6	17.7	ug/Kg		06/19/17 13:05	06/20/17 18:32	1
Cadmium	151		78.6	7.4	ug/Kg		06/19/17 13:05	06/23/17 09:37	1
Chromium	6600		157	59.7	ug/Kg		06/19/17 13:05	06/20/17 18:32	1
Cobalt	83.7		78.6	5.2	ug/Kg		06/19/17 13:05	06/20/17 18:32	1
Copper	7450000	D	9820	2790	ug/Kg		06/19/17 13:05	06/22/17 09:13	50
Lead	791000	D	5890	715	ug/Kg		06/19/17 13:05	06/22/17 09:13	50
Molybdenum	103000		157	13.8	ug/Kg		06/19/17 13:05	06/20/17 18:32	1
Selenium	146	B	393	104	ug/Kg		06/19/17 13:05	06/20/17 18:32	1

TestAmerica Denver

June 26, 2017 QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-035

TestAmerica Job ID: 280-98230-1
SDG: DN0154

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 280-377703/1-A
Matrix: Solid
Analysis Batch: 378179

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 377703

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	20.3	U	100	20.3	ug/Kg		06/19/17 14:55	06/20/17 23:16	1

Lab Sample ID: MB 280-377703/1-A
Matrix: Solid
Analysis Batch: 378339

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 377703

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	29.2	U	200	29.2	ug/Kg		06/19/17 14:55	06/22/17 02:02	1

Lab Sample ID: LCS 280-377703/2-A
Matrix: Solid
Analysis Batch: 378179

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 377703

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Silver	20000	18230		ug/Kg		91	80 - 120

Lab Sample ID: LCS 280-377703/2-A
Matrix: Solid
Analysis Batch: 378339

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 377703

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	20000	19340		ug/Kg		97	80 - 120

Lab Sample ID: LCSD 280-377703/3-A
Matrix: Solid
Analysis Batch: 378179

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 377703

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Silver	20000	18910		ug/Kg		95	80 - 120	4	35

Lab Sample ID: LCSD 280-377703/3-A
Matrix: Solid
Analysis Batch: 378339

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 377703

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	20000	19290		ug/Kg		96	80 - 120	0	35

Lab Sample ID: MB 280-377762/1-A
Matrix: Solid
Analysis Batch: 378128

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 377762

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	6123		5000	134	ug/Kg		06/19/17 13:05	06/20/17 18:17	1
Arsenic	50.6	U	600	50.6	ug/Kg		06/19/17 13:05	06/20/17 18:17	1
Beryllium	22.5	U	100	22.5	ug/Kg		06/19/17 13:05	06/20/17 18:17	1
Chromium	76.0	U	200	76.0	ug/Kg		06/19/17 13:05	06/20/17 18:17	1
Cobalt	6.6	U	100	6.6	ug/Kg		06/19/17 13:05	06/20/17 18:17	1
Molybdenum	17.6	U	200	17.6	ug/Kg		06/19/17 13:05	06/20/17 18:17	1
Selenium	133	U	500	133	ug/Kg		06/19/17 13:05	06/20/17 18:17	1

TestAmerica Denver

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-035

TestAmerica Job ID: 280-98230-1
SDG: DN0154

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

Lab Sample ID: MB 280-377762/1-A
Matrix: Solid
Analysis Batch: 378356

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 377762

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	177.1	B	200	70.5	ug/Kg		06/19/17 13:05	06/22/17 08:57	1
Copper	129.3	B	250	71.1	ug/Kg		06/19/17 13:05	06/22/17 08:57	1
Lead	36.00	B	150	18.2	ug/Kg		06/19/17 13:05	06/22/17 08:57	1

Lab Sample ID: MB 280-377762/1-A
Matrix: Solid
Analysis Batch: 378521

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 377762

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	9.4	U	100	9.4	ug/Kg		06/19/17 13:05	06/23/17 09:00	1

Lab Sample ID: LCS 280-377762/2-A
Matrix: Solid
Analysis Batch: 378128

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 377762

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Aluminum	200000	186700		ug/Kg		93	80 - 120
Arsenic	20000	17850		ug/Kg		89	80 - 120
Beryllium	20000	20810		ug/Kg		104	80 - 120
Chromium	20000	19100		ug/Kg		96	80 - 120
Cobalt	20000	19060		ug/Kg		95	80 - 120
Molybdenum	20000	19060		ug/Kg		95	80 - 120
Selenium	20000	18300		ug/Kg		91	80 - 120

Lab Sample ID: LCS 280-377762/2-A
Matrix: Solid
Analysis Batch: 378356

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 377762

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Barium	20000	18710		ug/Kg		94	80 - 120
Copper	20000	18180		ug/Kg		91	80 - 120
Lead	20000	18800		ug/Kg		94	80 - 120

Lab Sample ID: LCS 280-377762/2-A
Matrix: Solid
Analysis Batch: 378521

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 377762

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cadmium	20000	18990		ug/Kg		95	80 - 120

Lab Sample ID: LCSD 280-377762/3-A
Matrix: Solid
Analysis Batch: 378128

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 377762

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Aluminum	200000	193000		ug/Kg		96	80 - 120	3	35
Arsenic	20000	18530		ug/Kg		93	80 - 120	4	35
Beryllium	20000	20730		ug/Kg		104	80 - 120	0	35
Chromium	20000	19400		ug/Kg		97	80 - 120	2	35

TestAmerica Denver

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-035

TestAmerica Job ID: 280-98230-1
SDG: DN0154

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

Lab Sample ID: LCSD 280-377762/3-A
Matrix: Solid
Analysis Batch: 378128

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 377762

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Cobalt	20000	19720		ug/Kg		99	80 - 120	3	35
Molybdenum	20000	20130		ug/Kg		101	80 - 120	5	35
Selenium	20000	18440		ug/Kg		92	80 - 120	1	35

Lab Sample ID: LCSD 280-377762/3-A
Matrix: Solid
Analysis Batch: 378356

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 377762

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Barium	20000	19320		ug/Kg		97	80 - 120	3	35
Copper	20000	18950		ug/Kg		95	80 - 120	4	35
Lead	20000	19380		ug/Kg		97	80 - 120	3	35

Lab Sample ID: LCSD 280-377762/3-A
Matrix: Solid
Analysis Batch: 378521

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 377762

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Cadmium	20000	19450		ug/Kg		97	80 - 120	2	35

June 26, 2017
QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-035

TestAmerica Job ID: 280-98230-1
SDG: DN0154

Metals

Prep Batch: 377703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98230-1	B3B8M0	Total/NA	Solid	3050B-Sb	
280-98230-2	B3B854	Total/NA	Solid	3050B-Sb	
MB 280-377703/1-A	Method Blank	Total/NA	Solid	3050B-Sb	
LCS 280-377703/2-A	Lab Control Sample	Total/NA	Solid	3050B-Sb	
LCSD 280-377703/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B-Sb	

Prep Batch: 377762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98230-1	B3B8M0	Total/NA	Solid	3050B	
280-98230-2	B3B854	Total/NA	Solid	3050B	
MB 280-377762/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 280-377762/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 280-377762/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	

Analysis Batch: 378128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98230-1	B3B8M0	Total/NA	Solid	6020A	377762
280-98230-2	B3B854	Total/NA	Solid	6020A	377762
MB 280-377762/1-A	Method Blank	Total/NA	Solid	6020A	377762
LCS 280-377762/2-A	Lab Control Sample	Total/NA	Solid	6020A	377762
LCSD 280-377762/3-A	Lab Control Sample Dup	Total/NA	Solid	6020A	377762

Analysis Batch: 378179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98230-1	B3B8M0	Total/NA	Solid	6020A	377703
280-98230-2	B3B854	Total/NA	Solid	6020A	377703
MB 280-377703/1-A	Method Blank	Total/NA	Solid	6020A	377703
LCS 280-377703/2-A	Lab Control Sample	Total/NA	Solid	6020A	377703
LCSD 280-377703/3-A	Lab Control Sample Dup	Total/NA	Solid	6020A	377703

Analysis Batch: 378339

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98230-1	B3B8M0	Total/NA	Solid	6020A	377703
280-98230-2	B3B854	Total/NA	Solid	6020A	377703
MB 280-377703/1-A	Method Blank	Total/NA	Solid	6020A	377703
LCS 280-377703/2-A	Lab Control Sample	Total/NA	Solid	6020A	377703
LCSD 280-377703/3-A	Lab Control Sample Dup	Total/NA	Solid	6020A	377703

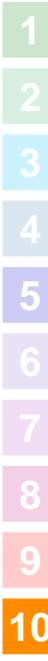
Analysis Batch: 378356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98230-1	B3B8M0	Total/NA	Solid	6020A	377762
280-98230-2	B3B854	Total/NA	Solid	6020A	377762
MB 280-377762/1-A	Method Blank	Total/NA	Solid	6020A	377762
LCS 280-377762/2-A	Lab Control Sample	Total/NA	Solid	6020A	377762
LCSD 280-377762/3-A	Lab Control Sample Dup	Total/NA	Solid	6020A	377762

Analysis Batch: 378521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-98230-1	B3B8M0	Total/NA	Solid	6020A	377762
280-98230-2	B3B854	Total/NA	Solid	6020A	377762
MB 280-377762/1-A	Method Blank	Total/NA	Solid	6020A	377762

TestAmerica Denver



June 26, 2017
QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F17-035

TestAmerica Job ID: 280-98230-1
SDG: DN0154

Metals (Continued)

Analysis Batch: 378521 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-377762/2-A	Lab Control Sample	Total/NA	Solid	6020A	377762
LCSD 280-377762/3-A	Lab Control Sample Dup	Total/NA	Solid	6020A	377762

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