

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Nashville

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Nashville, TN 37204

Tel: (615)726-0177

TestAmerica Job ID: 490-157892-1

Client Project/Site: CUF\_BS\_20180822\_1A

Revision: 1

**For:**

Environmental Standards Inc.  
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Authorized for release by:

2/5/2019 9:15:35 PM

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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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## Sample Summary

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-157892-1	CUF-BS-BG02-1.5/3.5-20180822	Solid	08/22/18 11:09	08/22/18 17:45
490-157892-2	CUF-BS-BG02-5.0/7.6-20180822	Solid	08/22/18 11:25	08/22/18 17:45
490-157892-3	CUF-BS-FB02-20180822	Water	08/22/18 11:47	08/22/18 17:45
490-157892-4	CUF-BS-BG02-0/0.5-20180822	Solid	08/22/18 11:56	08/22/18 17:45
490-157892-5	CUF-BS-BG03-1.2/3.2-20180822	Solid	08/22/18 14:57	08/22/18 17:45
490-157892-6	CUF-BS-BG03-5.2/7.2-20180822	Solid	08/22/18 15:26	08/22/18 17:45
490-157892-7	CUF-BS-BG03-0/0.5-20180822	Solid	08/22/18 15:31	08/22/18 17:45

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12

TestAmerica Nashville

# Case Narrative

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

## Job ID: 490-157892-1

### Laboratory: TestAmerica Nashville

#### Narrative

#### Job Narrative 490-157892-1

#### Revised Report

This report was revised to include the ICPMS data from TestAmerica Pittsburgh. This replaces the previous final report

#### Receipt

The samples were received on 8/22/2018 5:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 4.3° C and 5.5° C.

#### HPLC/IC

Method(s) 9056A: The method blank for analytical batch 490-538638 contained Chloride and Sulfate above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction or re-analysis of samples was not performed.

Method(s) 9056, 9056A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 490-538638 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 9056A: The method blank for analytical batch 490-539644 contained Chloride, Fluoride and Sulfate above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

Method(s) 9056A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 490-539364 and analytical batch 490-539644 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

#### Metals

Method(s) 6020A: The method blank for preparation batch 490-538838 and analytical batch 490-539864 contained Zinc, Chromium, Lead and Nickel above the method detection limit (MDL). Associated samples were not re-analyzed because results were less than the reporting limit (RL) OR practical quantitation limit (PQL).

Method(s) 6020A: The method blank for preparation batch 490-538546 and analytical batch 490-540665 contained Barium, Calcium and Chromium above the method detection limit (MDL). Associated samples were not re-analyzed because results were less than the reporting limit (RL) OR practical quantitation limit (PQL).

Method(s) 6020A: The method blank for preparation batch 490-538838 and analytical batch 490-539864 contained Calcium above the method detection limit (MDL). Associated samples were not re-analyzed because results were less than the reporting limit (RL) OR practical quantitation limit (PQL).

Method(s) 6020A: The Initial calibration verification (ICV) associated with batch 490-540949 recovered above the upper control limit for Boron. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: CUF-BS-FB02-20180822 (490-157892-3).

Method(s) 6020A: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 490-538838 and analytical batch 490-540949 recovered outside control limits for the following analytes: Boron. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method(s) 6020A: The method blank for preparation batch 490-538546 and analytical batch 490-539308 contained Calcium and Boron above the method detection limit (MDL). Associated samples were not re-analyzed because results were less than the reporting limit (RL) OR practical quantitation limit (PQL).

Method(s) 6020A: The continuing calibration verification (CCV) associated with batch 490-540665 recovered above the upper control limit

## Case Narrative

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

### Job ID: 490-157892-1 (Continued)

#### Laboratory: TestAmerica Nashville (Continued)

for Selenium. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: CUF-BS-BG03-5.2/7.2-20180822 (490-157892-6).

Method(s) 6020A: The following sample was diluted due to the abundance of non-target analytes: CUF-BS-BG03-5.2/7.2-20180822 (490-157892-6). Elevated reporting limits (RLs) are provided.

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

#### Organic Prep

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

# Definitions/Glossary

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

## 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)

# Client Sample Results

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

**Client Sample ID: CUF-BS-BG02-1.5/3.5-20180822**

**Lab Sample ID: 490-157892-1**

Date Collected: 08/22/18 11:09

Matrix: Solid

Date Received: 08/22/18 17:45

## Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		11.8	8.26	mg/Kg	☀		08/29/18 21:53	1
Fluoride	ND		1.18	0.944	mg/Kg	☀		08/29/18 21:53	1
Sulfate	51.8		11.8	7.08	mg/Kg	☀		08/29/18 21:53	1

## Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0525	J	0.117	0.0350	mg/Kg	☀	08/29/18 10:09	09/04/18 14:09	1

## Method: EPA 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.652		0.244	0.0756	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Arsenic	7.37		0.122	0.0317	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Barium	74.8		1.22	0.0695	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Beryllium	0.616		0.122	0.00915	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Boron	2.13	J	9.76	0.931	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Cadmium	0.0547	J	0.122	0.0207	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Calcium	1570		61.0	10.9	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Chromium	21.6		0.244	0.0805	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Cobalt	11.7		0.0610	0.0101	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Copper	12.0		0.244	0.138	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Lead	18.0		0.122	0.0427	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Lithium	8.55		0.610	0.337	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Molybdenum	1.59		0.610	0.0756	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Nickel	12.9		0.122	0.0744	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Selenium	0.468	J	0.610	0.0732	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Silver	0.0249	J	0.122	0.0171	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Thallium	0.261		0.122	0.0159	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Vanadium	33.8		0.122	0.0744	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1
Zinc	30.2		0.610	0.408	mg/Kg	☀	12/07/18 15:12	12/10/18 18:30	1

## General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.5		0.1	0.1	%			08/23/18 12:06	1
Percent Solids	84.5		0.1	0.1	%			08/23/18 12:06	1

## General Chemistry - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.2		0.1	0.1	SU			08/23/18 14:54	1

# Client Sample Results

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

**Client Sample ID: CUF-BS-BG02-5.0/7.6-20180822**

**Lab Sample ID: 490-157892-2**

**Matrix: Solid**

Date Collected: 08/22/18 11:25

Date Received: 08/22/18 17:45

## Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		12.2	8.51	mg/Kg	⊗		08/29/18 22:04	1
Fluoride	1.39		1.22	0.973	mg/Kg	⊗		08/29/18 22:04	1
Sulfate	7.95 J		12.2	7.30	mg/Kg	⊗		08/29/18 22:04	1

## Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0408 J		0.122	0.0365	mg/Kg	⊗	08/29/18 10:09	09/04/18 14:12	1

## Method: EPA 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.303		0.244	0.0755	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Arsenic	3.67		0.122	0.0317	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Barium	50.0		1.22	0.0694	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Beryllium	0.781		0.122	0.00914	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Boron	7.00 J		9.74	0.929	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Cadmium	0.0672 J		0.122	0.0207	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Calcium	131000		60.9	10.9	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Chromium	16.0		0.244	0.0804	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Cobalt	6.19		0.0609	0.0101	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Copper	11.2		0.244	0.138	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Lead	6.95		0.122	0.0426	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Lithium	11.1		0.609	0.336	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Molybdenum	1.09		0.609	0.0755	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Nickel	18.7		0.122	0.0743	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Selenium	0.344 J		0.609	0.0731	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Silver	0.0353 J		0.122	0.0171	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Thallium	0.195		0.122	0.0158	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Vanadium	16.5		0.122	0.0743	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1
Zinc	29.2		0.609	0.407	mg/Kg	⊗	12/07/18 15:12	12/10/18 18:35	1

## General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	17.1		0.1	0.1	%			08/23/18 12:06	1
Percent Solids	82.9		0.1	0.1	%			08/23/18 12:06	1

## General Chemistry - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	8.3		0.1	0.1	SU			08/23/18 14:54	1

# Client Sample Results

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

**Client Sample ID: CUF-BS-FB02-20180822**

**Lab Sample ID: 490-157892-3**

**Matrix: Water**

Date Collected: 08/22/18 11:47

Date Received: 08/22/18 17:45

**Method: 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.228	J B	1.00	0.200	mg/L			08/24/18 17:14	1
Fluoride	ND		0.100	0.0100	mg/L			08/24/18 17:14	1
Sulfate	0.433	J B	1.00	0.0300	mg/L			08/24/18 17:14	1

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000100	mg/L		08/27/18 12:10	08/31/18 19:43	1

**Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.00200	0.00112	mg/L		12/07/18 13:06	12/08/18 10:52	1
Arsenic	ND		0.00100	0.000323	mg/L		12/07/18 13:06	12/08/18 10:52	1
Barium	ND		0.0100	0.000373	mg/L		12/07/18 13:06	12/08/18 10:52	1
Beryllium	ND		0.00100	0.0000570	mg/L		12/07/18 13:06	12/08/18 10:52	1
Boron	ND		0.0800	0.0303	mg/L		12/07/18 13:06	12/08/18 10:52	1
Cadmium	ND		0.00100	0.000125	mg/L		12/07/18 13:06	12/08/18 10:52	1
<b>Calcium</b>	<b>0.127</b>	<b>J</b>	0.500	0.116	mg/L		12/07/18 13:06	12/08/18 10:52	1
<b>Chromium</b>	<b>0.00139</b>	<b>J</b>	0.00200	0.000631	mg/L		12/07/18 13:06	12/08/18 10:52	1
Cobalt	ND		0.000500	0.0000750	mg/L		12/07/18 13:06	12/08/18 10:52	1
Copper	ND		0.00200	0.00130	mg/L		12/07/18 13:06	12/08/18 10:52	1
Lead	ND		0.00100	0.0000940	mg/L		12/07/18 13:06	12/08/18 10:52	1
Lithium	ND		0.00500	0.00256	mg/L		12/07/18 13:06	12/08/18 10:52	1
Molybdenum	ND		0.00500	0.000474	mg/L		12/07/18 13:06	12/08/18 10:52	1
<b>Nickel</b>	<b>0.000323</b>	<b>J</b>	0.00100	0.000312	mg/L		12/07/18 13:06	12/08/18 10:52	1
Selenium	ND		0.00500	0.000813	mg/L		12/07/18 13:06	12/08/18 10:52	1
Silver	ND		0.00100	0.000121	mg/L		12/07/18 13:06	12/08/18 10:52	1
Thallium	ND		0.00100	0.0000630	mg/L		12/07/18 13:06	12/08/18 10:52	1
Vanadium	ND		0.00100	0.000899	mg/L		12/07/18 13:06	12/08/18 10:52	1
Zinc	ND		0.00500	0.00242	mg/L		12/07/18 13:06	12/08/18 10:52	1

# Client Sample Results

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

**Client Sample ID: CUF-BS-BG02-0/0.5-20180822**

**Lab Sample ID: 490-157892-4**

**Matrix: Solid**

Date Collected: 08/22/18 11:56

Date Received: 08/22/18 17:45

**Method: 9056A - Anions, Ion Chromatography - Soluble**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.0	J	12.0	8.42	mg/Kg	☀		08/29/18 22:16	1
Fluoride	1.19	J	1.20	0.962	mg/Kg	☀		08/29/18 22:16	1
Sulfate	22.1		12.0	7.21	mg/Kg	☀		08/29/18 22:16	1

**Method: 7471B - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.120	0.0361	mg/Kg	☀	08/29/18 10:09	09/04/18 14:14	1

**Method: EPA 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.314		0.236	0.0731	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Arsenic	4.27		0.118	0.0307	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Barium	60.7		1.18	0.0672	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Beryllium	0.663		0.118	0.00884	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Boron	1.50	J	9.43	0.900	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Cadmium	0.108	J	0.118	0.0200	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Calcium	1050		59.0	10.6	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Chromium	14.5		0.236	0.0778	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Cobalt	7.48		0.0590	0.00979	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Copper	5.51		0.236	0.133	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Lead	12.4		0.118	0.0413	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Lithium	3.93		0.590	0.325	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Molybdenum	0.660		0.590	0.0731	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Nickel	6.84		0.118	0.0719	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Selenium	0.588	J	0.590	0.0708	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Silver	0.0285	J	0.118	0.0165	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Thallium	0.142		0.118	0.0153	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Vanadium	19.1		0.118	0.0719	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1
Zinc	20.8		0.590	0.394	mg/Kg	☀	12/07/18 15:12	12/10/18 18:40	1

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	16.9		0.1	0.1	%			08/23/18 12:06	1
Percent Solids	83.1		0.1	0.1	%			08/23/18 12:06	1

**General Chemistry - Soluble**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.5		0.1	0.1	SU			08/23/18 14:54	1

# Client Sample Results

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

**Client Sample ID: CUF-BS-BG03-1.2/3.2-20180822**

**Lab Sample ID: 490-157892-5**

**Matrix: Solid**

Date Collected: 08/22/18 14:57

Date Received: 08/22/18 17:45

## Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		11.4	8.01	mg/Kg	☀		08/29/18 22:28	1
Fluoride	ND		1.14	0.915	mg/Kg	☀		08/29/18 22:28	1
Sulfate	81.5		11.4	6.87	mg/Kg	☀		08/29/18 22:28	1

## Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0469	J	0.115	0.0345	mg/Kg	☀	08/29/18 10:09	09/04/18 14:17	1

## Method: EPA 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.492		0.238	0.0738	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Arsenic	15.0		0.119	0.0310	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Barium	90.2		1.19	0.0679	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Beryllium	0.724		0.119	0.00893	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Boron	2.28	J	9.53	0.908	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Cadmium	0.107	J	0.119	0.0202	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Calcium	674		59.5	10.7	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Chromium	19.0		0.238	0.0786	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Cobalt	15.3		0.0595	0.00988	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Copper	22.1		0.238	0.135	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Lead	24.8		0.119	0.0417	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Lithium	9.26		0.595	0.329	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Molybdenum	2.32		0.595	0.0738	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Nickel	18.3		0.119	0.0726	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Selenium	0.622		0.595	0.0714	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Silver	0.0262	J	0.119	0.0167	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Thallium	0.232		0.119	0.0155	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Vanadium	34.7		0.119	0.0726	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1
Zinc	30.8		0.595	0.398	mg/Kg	☀	12/07/18 15:12	12/10/18 18:45	1

## General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	12.5		0.1	0.1	%			08/23/18 12:06	1
Percent Solids	87.5		0.1	0.1	%			08/23/18 12:06	1

## General Chemistry - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.7		0.1	0.1	SU			08/23/18 14:54	1

# Client Sample Results

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

**Client Sample ID: CUF-BS-BG03-5.2/7.2-20180822**

**Lab Sample ID: 490-157892-6**

**Matrix: Solid**

Date Collected: 08/22/18 15:26

Date Received: 08/22/18 17:45

## Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		12.6	8.84	mg/Kg	☀		08/29/18 22:39	1
Fluoride	2.66		1.26	1.01	mg/Kg	☀		08/29/18 22:39	1
Sulfate	31.5		12.6	7.58	mg/Kg	☀		08/29/18 22:39	1

## Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.123	0.0368	mg/Kg	☀	08/29/18 10:09	09/04/18 14:20	1

## Method: EPA 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.714		0.265	0.0823	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Arsenic	88.7		0.133	0.0345	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Barium	133		1.33	0.0757	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Beryllium	1.27		0.133	0.00995	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Boron	2.38 J		10.6	1.01	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Cadmium	0.285		0.133	0.0226	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Calcium	3980		66.4	11.9	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Chromium	25.1		0.265	0.0876	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Cobalt	14.2		0.0664	0.0110	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Copper	77.2		0.265	0.150	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Lead	41.9		0.133	0.0465	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Lithium	14.3		0.664	0.366	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Molybdenum	4.43		0.664	0.0823	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Nickel	44.8		0.133	0.0810	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Selenium	1.08		0.664	0.0796	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Silver	0.0624 J		0.133	0.0186	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Thallium	0.271		0.133	0.0173	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Vanadium	44.5		0.133	0.0810	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1
Zinc	51.6		0.664	0.443	mg/Kg	☀	12/07/18 15:12	12/10/18 18:50	1

## General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	20.7		0.1	0.1	%			08/23/18 12:06	1
Percent Solids	79.3		0.1	0.1	%			08/23/18 12:06	1

## General Chemistry - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6		0.1	0.1	SU			08/23/18 14:54	1

# Client Sample Results

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

**Client Sample ID: CUF-BS-BG03-0/0.5-20180822**

**Lab Sample ID: 490-157892-7**

**Matrix: Solid**

Date Collected: 08/22/18 15:31

Date Received: 08/22/18 17:45

**Method: 9056A - Anions, Ion Chromatography - Soluble**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.8	J	12.3	8.59	mg/Kg	☀		08/29/18 22:51	1
Fluoride	2.31		1.23	0.982	mg/Kg	☀		08/29/18 22:51	1
Sulfate	17.0		12.3	7.36	mg/Kg	☀		08/29/18 22:51	1

**Method: 7471B - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.123	0.0370	mg/Kg	☀	08/29/18 10:09	09/04/18 14:23	1

**Method: EPA 6020A - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.254	J	0.260	0.0807	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Arsenic	6.34		0.130	0.0339	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Barium	58.0		1.30	0.0742	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Beryllium	0.440		0.130	0.00977	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Boron	2.04	J	10.4	0.994	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Cadmium	0.0891	J	0.130	0.0221	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Calcium	1320		65.1	11.7	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Chromium	12.6		0.260	0.0859	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Cobalt	7.91		0.0651	0.0108	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Copper	12.1		0.260	0.147	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Lead	14.6		0.130	0.0456	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Lithium	5.15		0.651	0.359	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Molybdenum	0.846		0.651	0.0807	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Nickel	8.02		0.130	0.0794	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Selenium	0.647	J	0.651	0.0781	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Silver	0.0275	J	0.130	0.0182	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Thallium	0.131		0.130	0.0169	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Vanadium	22.5		0.130	0.0794	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1
Zinc	27.0		0.651	0.435	mg/Kg	☀	12/07/18 15:12	12/10/18 19:10	1

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	19.2		0.1	0.1	%			08/23/18 12:06	1
Percent Solids	80.8		0.1	0.1	%			08/23/18 12:06	1

**General Chemistry - Soluble**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.9		0.1	0.1	SU			08/23/18 14:54	1

# QC Sample Results

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID:** MB 490-538638/3

**Matrix:** Water

**Analysis Batch:** 538638

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.3147	J	1.00	0.200	mg/L			08/24/18 16:16	1
Fluoride	ND		0.100	0.0100	mg/L			08/24/18 16:16	1
Sulfate	0.4410	J	1.00	0.0300	mg/L			08/24/18 16:16	1

**Lab Sample ID:** LCS 490-538638/4

**Matrix:** Water

**Analysis Batch:** 538638

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

Analyte	Spike		LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
	Added							Limits	
Chloride	10.0		10.13		mg/L		101	80 - 120	
Fluoride	1.00		0.9702		mg/L		97	80 - 120	
Sulfate	10.0		9.763		mg/L		97	80 - 120	

**Lab Sample ID:** LCSD 490-538638/5

**Matrix:** Water

**Analysis Batch:** 538638

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

Analyte	Spike		LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.	RPD	RPD	Limit
	Added							Limits			
Chloride	10.0		10.14		mg/L		101	80 - 120	0	0	20
Fluoride	1.00		0.9792		mg/L		98	80 - 120	1	1	20
Sulfate	10.0		9.791		mg/L		98	80 - 120	0	0	20

**Lab Sample ID:** MB 490-539364/1-A

**Matrix:** Solid

**Analysis Batch:** 539644

**Client Sample ID:** Method Blank  
**Prep Type:** Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		10.1	7.05	mg/Kg			08/29/18 18:36	1
Fluoride	ND		1.01	0.806	mg/Kg			08/29/18 18:36	1
Sulfate	ND		10.1	6.04	mg/Kg			08/29/18 18:36	1

**Lab Sample ID:** LCS 490-539364/2-A

**Matrix:** Solid

**Analysis Batch:** 539644

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Soluble

Analyte	Spike		LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
	Added							Limits	
Chloride	99.7		98.57		mg/Kg		99	80 - 120	
Fluoride	9.97		9.354		mg/Kg		94	80 - 120	
Sulfate	99.8		94.10		mg/Kg		94	80 - 120	

**Lab Sample ID:** LCSD 490-539364/3-A

**Matrix:** Solid

**Analysis Batch:** 539644

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Soluble

Analyte	Spike		LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.	RPD	RPD	Limit
	Added							Limits			
Chloride	99.5		100.7		mg/Kg		101	80 - 120	2	2	20
Fluoride	9.95		9.368		mg/Kg		94	80 - 120	0	0	20
Sulfate	99.6		95.30		mg/Kg		96	80 - 120	1	1	20

TestAmerica Nashville

# QC Sample Results

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID:** MB 490-538911/1-A

**Matrix:** Water

**Analysis Batch:** 540387

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 538911

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000100	mg/L		08/27/18 12:10	08/31/18 18:41	1

**Lab Sample ID:** LCS 490-538911/2-A

**Matrix:** Water

**Analysis Batch:** 540387

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

**Prep Batch:** 538911

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec.	Limits
Mercury	0.00100	0.0009771		mg/L		98	80 - 120

**Lab Sample ID:** LCSD 490-538911/3-A

**Matrix:** Water

**Analysis Batch:** 540387

**Client Sample ID:** Lab Control Sample Dup

**Prep Type:** Total/NA

**Prep Batch:** 538911

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec.	RPD	Limit
Mercury	0.00100	0.0009756		mg/L		98	80 - 120	0 20

## Method: 7471B - Mercury (CVAA)

**Lab Sample ID:** MB 490-539370/1-A

**Matrix:** Solid

**Analysis Batch:** 540549

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 539370

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.101	0.0302	mg/Kg		08/29/18 10:09	09/04/18 13:33	1

**Lab Sample ID:** LCS 490-539370/2-A

**Matrix:** Solid

**Analysis Batch:** 540549

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

**Prep Batch:** 539370

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec.	Limits
Mercury	0.161	0.1464		mg/Kg		91	80 - 120

## Method: EPA 6020A - Metals (ICP/MS)

**Lab Sample ID:** MB 180-264944/1-A

**Matrix:** Solid

**Analysis Batch:** 265229

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 264944

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.200	0.0620	mg/Kg		12/07/18 15:12	12/10/18 17:20	1
Arsenic	ND		0.100	0.0260	mg/Kg		12/07/18 15:12	12/10/18 17:20	1
Barium	ND		1.00	0.0570	mg/Kg		12/07/18 15:12	12/10/18 17:20	1
Beryllium	ND		0.100	0.00750	mg/Kg		12/07/18 15:12	12/10/18 17:20	1
Boron	ND		8.00	0.763	mg/Kg		12/07/18 15:12	12/10/18 17:20	1
Cadmium	ND		0.100	0.0170	mg/Kg		12/07/18 15:12	12/10/18 17:20	1
Calcium	ND		50.0	8.95	mg/Kg		12/07/18 15:12	12/10/18 17:20	1
Chromium	ND		0.200	0.0660	mg/Kg		12/07/18 15:12	12/10/18 17:20	1
Cobalt	ND		0.0500	0.00830	mg/Kg		12/07/18 15:12	12/10/18 17:20	1
Copper	ND		0.200	0.113	mg/Kg		12/07/18 15:12	12/10/18 17:20	1

TestAmerica Nashville

# QC Sample Results

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

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

**Lab Sample ID: MB 180-264944/1-A**

**Matrix: Solid**

**Analysis Batch: 265229**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 264944**

Analyte	MB		RL	MDL	Unit	D	Prepared		Analyzed	Dil Fac
	Result	Qualifier					Prepared	Analyzed		
Lead	ND		0.100	0.0350	mg/Kg		12/07/18 15:12	12/10/18 17:20		1
Lithium	ND		0.500	0.276	mg/Kg		12/07/18 15:12	12/10/18 17:20		1
Molybdenum	ND		0.500	0.0620	mg/Kg		12/07/18 15:12	12/10/18 17:20		1
Nickel	ND		0.100	0.0610	mg/Kg		12/07/18 15:12	12/10/18 17:20		1
Selenium	ND		0.500	0.0600	mg/Kg		12/07/18 15:12	12/10/18 17:20		1
Silver	ND		0.100	0.0140	mg/Kg		12/07/18 15:12	12/10/18 17:20		1
Thallium	ND		0.100	0.0130	mg/Kg		12/07/18 15:12	12/10/18 17:20		1
Vanadium	ND		0.100	0.0610	mg/Kg		12/07/18 15:12	12/10/18 17:20		1
Zinc	ND		0.500	0.334	mg/Kg		12/07/18 15:12	12/10/18 17:20		1

**Lab Sample ID: LCS 180-264944/2-A**

**Matrix: Solid**

**Analysis Batch: 265229**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 264944**

Analyte	Spike Added	LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Antimony	50.0	45.04		mg/Kg		90	80 - 120
Arsenic	4.00	3.545		mg/Kg		89	80 - 120
Barium	200	178.9		mg/Kg		89	80 - 120
Beryllium	5.00	4.868		mg/Kg		97	80 - 120
Boron	100	91.28		mg/Kg		91	80 - 120
Cadmium	5.00	4.562		mg/Kg		91	80 - 120
Calcium	5000	4542		mg/Kg		91	80 - 120
Chromium	20.0	19.42		mg/Kg		97	80 - 120
Cobalt	50.0	49.09		mg/Kg		98	80 - 120
Copper	25.0	24.80		mg/Kg		99	80 - 120
Lead	2.00	1.954		mg/Kg		98	80 - 120
Lithium	5.00	4.538		mg/Kg		91	80 - 120
Molybdenum	100	100.8		mg/Kg		101	80 - 120
Nickel	50.0	45.86		mg/Kg		92	80 - 120
Selenium	1.00	0.8501		mg/Kg		85	80 - 120
Silver	5.00	4.792		mg/Kg		96	80 - 120
Thallium	5.00	4.409		mg/Kg		88	80 - 120
Vanadium	50.0	46.73		mg/Kg		93	80 - 120
Zinc	50.0	42.79		mg/Kg		86	80 - 120

**Lab Sample ID: 490-157829-D-5-B MS**

**Matrix: Solid**

**Analysis Batch: 265229**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

**Prep Batch: 264944**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	Limits
				Result	Qualifier				
Antimony	0.218	J F1	65.5	46.03	F1	mg/Kg	⊗	70	75 - 125
Arsenic	4.93		5.24	9.346		mg/Kg	⊗	84	75 - 125
Barium	56.4		262	310.9		mg/Kg	⊗	97	75 - 125
Beryllium	0.554		6.55	6.784		mg/Kg	⊗	95	75 - 125
Boron	1.72	J	131	116.8		mg/Kg	⊗	88	75 - 125
Cadmium	0.0825	J	6.55	5.908		mg/Kg	⊗	89	75 - 125
Calcium	846		6550	6484		mg/Kg	⊗	86	75 - 125
Chromium	14.8		26.2	39.05		mg/Kg	⊗	92	75 - 125
Cobalt	7.05		65.5	61.67		mg/Kg	⊗	83	75 - 125

TestAmerica Nashville

# QC Sample Results

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

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

**Lab Sample ID: 490-157829-D-5-B MS**

**Matrix: Solid**

**Analysis Batch: 265229**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

**Prep Batch: 264944**

**%Rec.**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits		
	Result	Qualifier	Added	Result	Qualifier						
Copper	12.2		32.7	37.36		mg/Kg	⊗	77	75 - 125		
Lead	12.7		2.62	17.78	4	mg/Kg	⊗	196	75 - 125		
Lithium	5.22	F1	6.55	17.03	F1	mg/Kg	⊗	180	75 - 125		
Molybdenum	0.740		131	128.9		mg/Kg	⊗	98	75 - 125		
Nickel	8.28		65.5	62.01		mg/Kg	⊗	82	75 - 125		
Selenium	0.549	J F1	1.31	1.524	F1	mg/Kg	⊗	74	75 - 125		
Silver	0.0239	J	6.55	6.183		mg/Kg	⊗	94	75 - 125		
Thallium	0.138		6.55	5.731		mg/Kg	⊗	85	75 - 125		
Vanadium	23.1		65.5	78.11		mg/Kg	⊗	84	75 - 125		
Zinc	30.5		65.5	88.19		mg/Kg	⊗	88	75 - 125		

**Lab Sample ID: 490-157829-D-5-C MSD**

**Matrix: Solid**

**Analysis Batch: 265229**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**

**Prep Batch: 264944**

**%Rec.**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Antimony	0.218	J F1	62.3	42.44	F1	mg/Kg	⊗	68	75 - 125	8	20
Arsenic	4.93		4.98	10.59		mg/Kg	⊗	113	75 - 125	12	20
Barium	56.4		249	297.6		mg/Kg	⊗	97	75 - 125	4	20
Beryllium	0.554		6.23	6.367		mg/Kg	⊗	93	75 - 125	6	20
Boron	1.72	J	125	107.0		mg/Kg	⊗	85	75 - 125	9	20
Cadmium	0.0825	J	6.23	5.599		mg/Kg	⊗	89	75 - 125	5	20
Calcium	846		6230	6285		mg/Kg	⊗	87	75 - 125	3	20
Chromium	14.8		24.9	43.49		mg/Kg	⊗	115	75 - 125	11	20
Cobalt	7.05		62.3	62.71		mg/Kg	⊗	89	75 - 125	2	20
Copper	12.2		31.2	36.60		mg/Kg	⊗	78	75 - 125	2	20
Lead	12.7		2.49	19.75	4	mg/Kg	⊗	285	75 - 125	10	20
Lithium	5.22	F1	6.23	16.60	F1	mg/Kg	⊗	183	75 - 125	3	20
Molybdenum	0.740		125	121.1		mg/Kg	⊗	97	75 - 125	6	20
Nickel	8.28		62.3	61.21		mg/Kg	⊗	85	75 - 125	1	20
Selenium	0.549	J F1	1.25	1.549		mg/Kg	⊗	80	75 - 125	2	20
Silver	0.0239	J	6.23	5.782		mg/Kg	⊗	92	75 - 125	7	20
Thallium	0.138		6.23	5.529		mg/Kg	⊗	87	75 - 125	4	20
Vanadium	23.1		62.3	83.01		mg/Kg	⊗	96	75 - 125	6	20
Zinc	30.5		62.3	91.15		mg/Kg	⊗	97	75 - 125	3	20

**Lab Sample ID: MB 180-264922/1-A**

**Matrix: Water**

**Analysis Batch: 265014**

**Client Sample ID: Method Blank**

**Prep Type: Total Recoverable**

**Prep Batch: 264922**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	ND		0.00200	0.00112	mg/L		12/07/18 13:06	12/08/18 09:48	1
Arsenic	ND		0.00100	0.000323	mg/L		12/07/18 13:06	12/08/18 09:48	1
Barium	ND		0.0100	0.000373	mg/L		12/07/18 13:06	12/08/18 09:48	1
Beryllium	ND		0.00100	0.0000570	mg/L		12/07/18 13:06	12/08/18 09:48	1
Boron	ND		0.0800	0.0303	mg/L		12/07/18 13:06	12/08/18 09:48	1
Cadmium	ND		0.00100	0.000125	mg/L		12/07/18 13:06	12/08/18 09:48	1
Calcium	ND		0.500	0.116	mg/L		12/07/18 13:06	12/08/18 09:48	1
Chromium	ND		0.00200	0.000631	mg/L		12/07/18 13:06	12/08/18 09:48	1

TestAmerica Nashville

# QC Sample Results

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

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

**Lab Sample ID: MB 180-264922/1-A**

**Matrix: Water**

**Analysis Batch: 265014**

**Client Sample ID: Method Blank**

**Prep Type: Total Recoverable**

**Prep Batch: 264922**

**MB MB**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.000500	0.0000750	mg/L		12/07/18 13:06	12/08/18 09:48	1
Copper	ND		0.00200	0.00130	mg/L		12/07/18 13:06	12/08/18 09:48	1
Lead	ND		0.00100	0.0000940	mg/L		12/07/18 13:06	12/08/18 09:48	1
Lithium	ND		0.00500	0.00256	mg/L		12/07/18 13:06	12/08/18 09:48	1
Molybdenum	ND		0.00500	0.000474	mg/L		12/07/18 13:06	12/08/18 09:48	1
Nickel	ND		0.00100	0.000312	mg/L		12/07/18 13:06	12/08/18 09:48	1
Selenium	ND		0.00500	0.000813	mg/L		12/07/18 13:06	12/08/18 09:48	1
Silver	ND		0.00100	0.000121	mg/L		12/07/18 13:06	12/08/18 09:48	1
Thallium	ND		0.00100	0.0000630	mg/L		12/07/18 13:06	12/08/18 09:48	1
Vanadium	ND		0.00100	0.000899	mg/L		12/07/18 13:06	12/08/18 09:48	1
Zinc	ND		0.00500	0.00242	mg/L		12/07/18 13:06	12/08/18 09:48	1

**Lab Sample ID: LCS 180-264922/2-A**

**Matrix: Water**

**Analysis Batch: 265014**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total Recoverable**

**Prep Batch: 264922**

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	RPD
Antimony	0.500	0.5171		mg/L		103	80 - 120	
Arsenic	0.0400	0.03826		mg/L		96	80 - 120	
Barium	2.00	2.079		mg/L		104	80 - 120	
Beryllium	0.0500	0.05001		mg/L		100	80 - 120	
Boron	1.00	0.9654		mg/L		97	80 - 120	
Cadmium	0.0500	0.05171		mg/L		103	80 - 120	
Calcium	50.0	51.82		mg/L		104	80 - 120	
Chromium	0.200	0.2054		mg/L		103	80 - 120	
Cobalt	0.500	0.4567		mg/L		91	80 - 120	
Copper	0.250	0.2400		mg/L		96	80 - 120	
Lead	0.0200	0.01987		mg/L		99	80 - 120	
Lithium	0.0500	0.04765		mg/L		95	80 - 120	
Molybdenum	1.00	1.022		mg/L		102	80 - 120	
Nickel	0.500	0.4666		mg/L		93	80 - 120	
Selenium	0.0100	0.009088		mg/L		91	80 - 120	
Silver	0.0500	0.04978		mg/L		100	80 - 120	
Thallium	0.0500	0.04937		mg/L		99	80 - 120	
Vanadium	0.500	0.4620		mg/L		92	80 - 120	
Zinc	0.500	0.4742		mg/L		95	80 - 120	

**Lab Sample ID: LCSD 180-264922/3-A**

**Matrix: Water**

**Analysis Batch: 265014**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total Recoverable**

**Prep Batch: 264922**

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec.	
		Result	Qualifier				RPD	Limit
Antimony	0.500	0.5143		mg/L		103	80 - 120	1 20
Arsenic	0.0400	0.03919		mg/L		98	80 - 120	2 20
Barium	2.00	2.074		mg/L		104	80 - 120	0 20
Beryllium	0.0500	0.04831		mg/L		97	80 - 120	3 20
Boron	1.00	0.9375		mg/L		94	80 - 120	3 20
Cadmium	0.0500	0.05094		mg/L		102	80 - 120	2 20
Calcium	50.0	52.06		mg/L		104	80 - 120	0 20

TestAmerica Nashville

# QC Sample Results

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

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

**Lab Sample ID: LCSD 180-264922/3-A**

**Matrix: Water**

**Analysis Batch: 265014**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total Recoverable**

**Prep Batch: 264922**

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	Limits	RPD	Limit
	Added	Result	Qualifier						
Chromium	0.200	0.2019		mg/L	101	80 - 120	2	20	
Cobalt	0.500	0.4676		mg/L	94	80 - 120	2	20	
Copper	0.250	0.2404		mg/L	96	80 - 120	0	20	
Lead	0.0200	0.02003		mg/L	100	80 - 120	1	20	
Lithium	0.0500	0.04735		mg/L	95	80 - 120	1	20	
Molybdenum	1.00	1.028		mg/L	103	80 - 120	1	20	
Nickel	0.500	0.4750		mg/L	95	80 - 120	2	20	
Selenium	0.0100	0.009722		mg/L	97	80 - 120	7	20	
Silver	0.0500	0.05046		mg/L	101	80 - 120	1	20	
Thallium	0.0500	0.04955		mg/L	99	80 - 120	0	20	
Vanadium	0.500	0.4685		mg/L	94	80 - 120	1	20	
Zinc	0.500	0.4846		mg/L	97	80 - 120	2	20	

## Method: 9045D - pH

**Lab Sample ID: LCS 490-538269/1**

**Matrix: Solid**

**Analysis Batch: 538269**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	Limits	RPD	Limit
	Added	Result	Qualifier						
pH	7.00	7.0		SU	100	98 - 103			

**Lab Sample ID: 490-157892-1 DU**

**Matrix: Solid**

**Analysis Batch: 538269**

**Client Sample ID: CUF-BS-BG02-1.5/3.5-20180822**

**Prep Type: Soluble**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
pH	6.2		6.2		SU		0.2	20

## Method: Moisture - Percent Moisture

**Lab Sample ID: 490-157892-4 DU**

**Matrix: Solid**

**Analysis Batch: 538230**

**Client Sample ID: CUF-BS-BG02-0/0.5-20180822**

**Prep Type: Total/NA**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Percent Moisture	16.9		17.4		%		3	20
Percent Solids	83.1		82.6		%		0.6	20

TestAmerica Nashville

# QC Association Summary

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

## HPLC/IC

### Analysis Batch: 538638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-157892-3	CUF-BS-FB02-20180822	Total/NA	Water	9056A	
MB 490-538638/3	Method Blank	Total/NA	Water	9056A	
LCS 490-538638/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 490-538638/5	Lab Control Sample Dup	Total/NA	Water	9056A	

### Leach Batch: 539364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-157892-1	CUF-BS-BG02-1.5/3.5-20180822	Soluble	Solid	DI Leach	
490-157892-2	CUF-BS-BG02-5.0/7.6-20180822	Soluble	Solid	DI Leach	
490-157892-4	CUF-BS-BG02-0/0.5-20180822	Soluble	Solid	DI Leach	
490-157892-5	CUF-BS-BG03-1.2/3.2-20180822	Soluble	Solid	DI Leach	
490-157892-6	CUF-BS-BG03-5.2/7.2-20180822	Soluble	Solid	DI Leach	
490-157892-7	CUF-BS-BG03-0/0.5-20180822	Soluble	Solid	DI Leach	
MB 490-539364/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 490-539364/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 490-539364/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

### Analysis Batch: 539644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-157892-1	CUF-BS-BG02-1.5/3.5-20180822	Soluble	Solid	9056A	539364
490-157892-2	CUF-BS-BG02-5.0/7.6-20180822	Soluble	Solid	9056A	539364
490-157892-4	CUF-BS-BG02-0/0.5-20180822	Soluble	Solid	9056A	539364
490-157892-5	CUF-BS-BG03-1.2/3.2-20180822	Soluble	Solid	9056A	539364
490-157892-6	CUF-BS-BG03-5.2/7.2-20180822	Soluble	Solid	9056A	539364
490-157892-7	CUF-BS-BG03-0/0.5-20180822	Soluble	Solid	9056A	539364
MB 490-539364/1-A	Method Blank	Soluble	Solid	9056A	539364
LCS 490-539364/2-A	Lab Control Sample	Soluble	Solid	9056A	539364
LCSD 490-539364/3-A	Lab Control Sample Dup	Soluble	Solid	9056A	539364

## Metals

### Prep Batch: 264922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-157892-3	CUF-BS-FB02-20180822	Total Recoverable	Water	3005A	
MB 180-264922/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-264922/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 180-264922/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

### Prep Batch: 264944

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-157892-1	CUF-BS-BG02-1.5/3.5-20180822	Total/NA	Solid	3050B	
490-157892-2	CUF-BS-BG02-5.0/7.6-20180822	Total/NA	Solid	3050B	
490-157892-4	CUF-BS-BG02-0/0.5-20180822	Total/NA	Solid	3050B	
490-157892-5	CUF-BS-BG03-1.2/3.2-20180822	Total/NA	Solid	3050B	
490-157892-6	CUF-BS-BG03-5.2/7.2-20180822	Total/NA	Solid	3050B	
490-157892-7	CUF-BS-BG03-0/0.5-20180822	Total/NA	Solid	3050B	
MB 180-264944/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 180-264944/2-A	Lab Control Sample	Total/NA	Solid	3050B	
490-157829-D-5-B MS	Matrix Spike	Total/NA	Solid	3050B	
490-157829-D-5-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	

# QC Association Summary

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

## Metals (Continued)

### Analysis Batch: 265014

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-157892-3	CUF-BS-FB02-20180822	Total Recoverable	Water	EPA 6020A	264922
MB 180-264922/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	264922
LCS 180-264922/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	264922
LCSD 180-264922/3-A	Lab Control Sample Dup	Total Recoverable	Water	EPA 6020A	264922

### Analysis Batch: 265229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-157892-1	CUF-BS-BG02-1.5/3.5-20180822	Total/NA	Solid	EPA 6020A	264944
490-157892-2	CUF-BS-BG02-5.0/7.6-20180822	Total/NA	Solid	EPA 6020A	264944
490-157892-4	CUF-BS-BG02-0/0.5-20180822	Total/NA	Solid	EPA 6020A	264944
490-157892-5	CUF-BS-BG03-1.2/3.2-20180822	Total/NA	Solid	EPA 6020A	264944
490-157892-6	CUF-BS-BG03-5.2/7.2-20180822	Total/NA	Solid	EPA 6020A	264944
490-157892-7	CUF-BS-BG03-0/0.5-20180822	Total/NA	Solid	EPA 6020A	264944
MB 180-264944/1-A	Method Blank	Total/NA	Solid	EPA 6020A	264944
LCS 180-264944/2-A	Lab Control Sample	Total/NA	Solid	EPA 6020A	264944
490-157829-D-5-B MS	Matrix Spike	Total/NA	Solid	EPA 6020A	264944
490-157829-D-5-C MSD	Matrix Spike Duplicate	Total/NA	Solid	EPA 6020A	264944

### Prep Batch: 538911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-157892-3	CUF-BS-FB02-20180822	Total/NA	Water	7470A	
MB 490-538911/1-A	Method Blank	Total/NA	Water	7470A	
LCS 490-538911/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 490-538911/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

### Prep Batch: 539370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-157892-1	CUF-BS-BG02-1.5/3.5-20180822	Total/NA	Solid	7471B	
490-157892-2	CUF-BS-BG02-5.0/7.6-20180822	Total/NA	Solid	7471B	
490-157892-4	CUF-BS-BG02-0/0.5-20180822	Total/NA	Solid	7471B	
490-157892-5	CUF-BS-BG03-1.2/3.2-20180822	Total/NA	Solid	7471B	
490-157892-6	CUF-BS-BG03-5.2/7.2-20180822	Total/NA	Solid	7471B	
490-157892-7	CUF-BS-BG03-0/0.5-20180822	Total/NA	Solid	7471B	
MB 490-539370/1-A	Method Blank	Total/NA	Solid	7471B	
LCS 490-539370/2-A	Lab Control Sample	Total/NA	Solid	7471B	

### Analysis Batch: 540387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-157892-3	CUF-BS-FB02-20180822	Total/NA	Water	7470A	538911
MB 490-538911/1-A	Method Blank	Total/NA	Water	7470A	538911
LCS 490-538911/2-A	Lab Control Sample	Total/NA	Water	7470A	538911
LCSD 490-538911/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	538911

### Analysis Batch: 540549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-157892-1	CUF-BS-BG02-1.5/3.5-20180822	Total/NA	Solid	7471B	539370
490-157892-2	CUF-BS-BG02-5.0/7.6-20180822	Total/NA	Solid	7471B	539370
490-157892-4	CUF-BS-BG02-0/0.5-20180822	Total/NA	Solid	7471B	539370
490-157892-5	CUF-BS-BG03-1.2/3.2-20180822	Total/NA	Solid	7471B	539370
490-157892-6	CUF-BS-BG03-5.2/7.2-20180822	Total/NA	Solid	7471B	539370
490-157892-7	CUF-BS-BG03-0/0.5-20180822	Total/NA	Solid	7471B	539370

TestAmerica Nashville

# QC Association Summary

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

## Metals (Continued)

### Analysis Batch: 540549 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 490-539370/1-A	Method Blank	Total/NA	Solid	7471B	539370
LCS 490-539370/2-A	Lab Control Sample	Total/NA	Solid	7471B	539370

## General Chemistry

### Analysis Batch: 538230

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-157892-1	CUF-BS-BG02-1.5/3.5-20180822	Total/NA	Solid	Moisture	8
490-157892-2	CUF-BS-BG02-5.0/7.6-20180822	Total/NA	Solid	Moisture	9
490-157892-4	CUF-BS-BG02-0/0.5-20180822	Total/NA	Solid	Moisture	10
490-157892-5	CUF-BS-BG03-1.2/3.2-20180822	Total/NA	Solid	Moisture	11
490-157892-6	CUF-BS-BG03-5.2/7.2-20180822	Total/NA	Solid	Moisture	12
490-157892-7	CUF-BS-BG03-0/0.5-20180822	Total/NA	Solid	Moisture	
490-157892-4 DU	CUF-BS-BG02-0/0.5-20180822	Total/NA	Solid	Moisture	

### Leach Batch: 538267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-157892-1	CUF-BS-BG02-1.5/3.5-20180822	Soluble	Solid	DI Leach	
490-157892-2	CUF-BS-BG02-5.0/7.6-20180822	Soluble	Solid	DI Leach	
490-157892-4	CUF-BS-BG02-0/0.5-20180822	Soluble	Solid	DI Leach	
490-157892-5	CUF-BS-BG03-1.2/3.2-20180822	Soluble	Solid	DI Leach	
490-157892-6	CUF-BS-BG03-5.2/7.2-20180822	Soluble	Solid	DI Leach	
490-157892-7	CUF-BS-BG03-0/0.5-20180822	Soluble	Solid	DI Leach	
490-157892-1 DU	CUF-BS-BG02-1.5/3.5-20180822	Soluble	Solid	DI Leach	

### Analysis Batch: 538269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-157892-1	CUF-BS-BG02-1.5/3.5-20180822	Soluble	Solid	9045D	538267
490-157892-2	CUF-BS-BG02-5.0/7.6-20180822	Soluble	Solid	9045D	538267
490-157892-4	CUF-BS-BG02-0/0.5-20180822	Soluble	Solid	9045D	538267
490-157892-5	CUF-BS-BG03-1.2/3.2-20180822	Soluble	Solid	9045D	538267
490-157892-6	CUF-BS-BG03-5.2/7.2-20180822	Soluble	Solid	9045D	538267
490-157892-7	CUF-BS-BG03-0/0.5-20180822	Soluble	Solid	9045D	538267
LCS 490-538269/1	Lab Control Sample	Total/NA	Solid	9045D	
490-157892-1 DU	CUF-BS-BG02-1.5/3.5-20180822	Soluble	Solid	9045D	538267

# Lab Chronicle

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

**Client Sample ID: CUF-BS-BG02-1.5/3.5-20180822**

**Lab Sample ID: 490-157892-1**

Date Collected: 08/22/18 11:09

Matrix: Solid

Date Received: 08/22/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			3.0096 g	30 mL	539364	08/29/18 09:58	JHS	TAL NSH
Soluble	Analysis	9056A		1			539644	08/29/18 21:53	SW1	TAL NSH
Total/NA	Prep	7471B			0.608 g	100 mL	539370	08/29/18 10:09	CSL	TAL NSH
Total/NA	Analysis	7471B		1			540549	09/04/18 14:09	CSL	TAL NSH
Total/NA	Prep	3050B			0.97 g	100 mL	264944	12/07/18 15:12	NAM	TAL PIT
Total/NA	Analysis	EPA 6020A		1	1.0 mL	1.0 mL	265229	12/10/18 18:30	WTR	TAL PIT
Soluble	Leach	DI Leach			20 g	20 mL	538267	08/23/18 14:49	MXX	TAL NSH
Soluble	Analysis	9045D		1	20 g	20 mL	538269	08/23/18 14:54	MXX	TAL NSH
Total/NA	Analysis	Moisture		1			538230	08/23/18 12:06	BAA	TAL NSH

**Client Sample ID: CUF-BS-BG02-5.0/7.6-20180822**

**Lab Sample ID: 490-157892-2**

Date Collected: 08/22/18 11:25

Matrix: Solid

Date Received: 08/22/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			2.9744 g	30 mL	539364	08/29/18 09:58	JHS	TAL NSH
Soluble	Analysis	9056A		1			539644	08/29/18 22:04	SW1	TAL NSH
Total/NA	Prep	7471B			0.595 g	100 mL	539370	08/29/18 10:09	CSL	TAL NSH
Total/NA	Analysis	7471B		1			540549	09/04/18 14:12	CSL	TAL NSH
Total/NA	Prep	3050B			0.99 g	100 mL	264944	12/07/18 15:12	NAM	TAL PIT
Total/NA	Analysis	EPA 6020A		1	1.0 mL	1.0 mL	265229	12/10/18 18:35	WTR	TAL PIT
Soluble	Leach	DI Leach			20 g	20 mL	538267	08/23/18 14:49	MXX	TAL NSH
Soluble	Analysis	9045D		1	20 g	20 mL	538269	08/23/18 14:54	MXX	TAL NSH
Total/NA	Analysis	Moisture		1			538230	08/23/18 12:06	BAA	TAL NSH

**Client Sample ID: CUF-BS-FB02-20180822**

**Lab Sample ID: 490-157892-3**

Date Collected: 08/22/18 11:47

Matrix: Water

Date Received: 08/22/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1			538638	08/24/18 17:14	P1B	TAL NSH
Total/NA	Prep	7470A			30 mL	30 mL	538911	08/27/18 12:10	CSL	TAL NSH
Total/NA	Analysis	7470A		1			540387	08/31/18 19:43	CSL	TAL NSH
Total Recoverable	Prep	3005A			50 mL	50 mL	264922	12/07/18 13:06	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			265014	12/08/18 10:52	WTR	TAL PIT

**Client Sample ID: CUF-BS-BG02-0/0.5-20180822**

**Lab Sample ID: 490-157892-4**

Date Collected: 08/22/18 11:56

Matrix: Solid

Date Received: 08/22/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			3.0014 g	30 mL	539364	08/29/18 09:58	JHS	TAL NSH
Soluble	Analysis	9056A		1			539644	08/29/18 22:16	SW1	TAL NSH

TestAmerica Nashville

## Lab Chronicle

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471B			0.600 g	100 mL	539370	08/29/18 10:09	CSL	TAL NSH
Total/NA	Analysis	7471B		1			540549	09/04/18 14:14	CSL	TAL NSH
Total/NA	Prep	3050B			1.02 g	100 mL	264944	12/07/18 15:12	NAM	TAL PIT
Total/NA	Analysis	EPA 6020A		1	1.0 mL	1.0 mL	265229	12/10/18 18:40	WTR	TAL PIT
Soluble	Leach	DI Leach			20 g	20 mL	538267	08/23/18 14:49	MXX	TAL NSH
Soluble	Analysis	9045D		1	20 g	20 mL	538269	08/23/18 14:54	MXX	TAL NSH
Total/NA	Analysis	Moisture		1			538230	08/23/18 12:06	BAA	TAL NSH

**Client Sample ID: CUF-BS-BG03-1.2/3.2-20180822**

**Lab Sample ID: 490-157892-5**

Date Collected: 08/22/18 14:57

Matrix: Solid

Date Received: 08/22/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			2.9967 g	30 mL	539364	08/29/18 09:58	JHS	TAL NSH
Soluble	Analysis	9056A		1			539644	08/29/18 22:28	SW1	TAL NSH
Total/NA	Prep	7471B			0.596 g	100 mL	539370	08/29/18 10:09	CSL	TAL NSH
Total/NA	Analysis	7471B		1			540549	09/04/18 14:17	CSL	TAL NSH
Total/NA	Prep	3050B			0.96 g	100 mL	264944	12/07/18 15:12	NAM	TAL PIT
Total/NA	Analysis	EPA 6020A		1	1.0 mL	1.0 mL	265229	12/10/18 18:45	WTR	TAL PIT
Soluble	Leach	DI Leach			20 g	20 mL	538267	08/23/18 14:49	MXX	TAL NSH
Soluble	Analysis	9045D		1	20 g	20 mL	538269	08/23/18 14:54	MXX	TAL NSH
Total/NA	Analysis	Moisture		1			538230	08/23/18 12:06	BAA	TAL NSH

**Client Sample ID: CUF-BS-BG03-5.2/7.2-20180822**

**Lab Sample ID: 490-157892-6**

Date Collected: 08/22/18 15:26

Matrix: Solid

Date Received: 08/22/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			2.9949 g	30 mL	539364	08/29/18 09:58	JHS	TAL NSH
Soluble	Analysis	9056A		1			539644	08/29/18 22:39	SW1	TAL NSH
Total/NA	Prep	7471B			0.617 g	100 mL	539370	08/29/18 10:09	CSL	TAL NSH
Total/NA	Analysis	7471B		1			540549	09/04/18 14:20	CSL	TAL NSH
Total/NA	Prep	3050B			0.95 g	100 mL	264944	12/07/18 15:12	NAM	TAL PIT
Total/NA	Analysis	EPA 6020A		1	1.0 mL	1.0 mL	265229	12/10/18 18:50	WTR	TAL PIT
Soluble	Leach	DI Leach			20 g	20 mL	538267	08/23/18 14:49	MXX	TAL NSH
Soluble	Analysis	9045D		1	20 g	20 mL	538269	08/23/18 14:54	MXX	TAL NSH
Total/NA	Analysis	Moisture		1			538230	08/23/18 12:06	BAA	TAL NSH

**Client Sample ID: CUF-BS-BG03-0/0.5-20180822**

**Lab Sample ID: 490-157892-7**

Date Collected: 08/22/18 15:31

Matrix: Solid

Date Received: 08/22/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			3.0239 g	30 mL	539364	08/29/18 09:58	JHS	TAL NSH
Soluble	Analysis	9056A		1			539644	08/29/18 22:51	SW1	TAL NSH
Total/NA	Prep	7471B			0.601 g	100 mL	539370	08/29/18 10:09	CSL	TAL NSH
Total/NA	Analysis	7471B		1			540549	09/04/18 14:23	CSL	TAL NSH

TestAmerica Nashville

# Lab Chronicle

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

**Client Sample ID: CUF-BS-BG03-0/0.5-20180822**

**Lab Sample ID: 490-157892-7**

Date Collected: 08/22/18 15:31

Matrix: Solid

Date Received: 08/22/18 17:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.95 g	100 mL	264944	12/07/18 15:12	NAM	TAL PIT
Total/NA	Analysis	EPA 6020A		1	1.0 mL	1.0 mL	265229	12/10/18 19:10	WTR	TAL PIT
Soluble	Leach	DI Leach			20 g	20 mL	538267	08/23/18 14:49	MXX	TAL NSH
Soluble	Analysis	9045D		1	20 g	20 mL	538269	08/23/18 14:54	MXX	TAL NSH
Total/NA	Analysis	Moisture		1			538230	08/23/18 12:06	BAA	TAL NSH

## Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

## Method Summary

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	TAL NSH
7470A	Mercury (CVAA)	SW846	TAL NSH
7471B	Mercury (CVAA)	SW846	TAL NSH
9045D	pH	SW846	TAL NSH
Moisture	Percent Moisture	EPA	TAL NSH
7470A	Preparation, Mercury	SW846	TAL NSH
7471B	Preparation, Mercury	SW846	TAL NSH
DI Leach	Deionized Water Leaching Procedure	ASTM	TAL NSH

### Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

### Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

# Accreditation/Certification Summary

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

## Laboratory: TestAmerica Nashville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

<b>Authority</b>	<b>Program</b>	<b>EPA Region</b>	<b>Identification Number</b>	<b>Expiration Date</b>
A2LA	ISO/IEC 17025		0453.07	12-31-19
Alaska (UST)	State Program	10	UST-087	06-30-19
Arizona	State Program	9	AZ0473	05-05-19
Arkansas DEQ	State Program	6	88-0737	04-25-19
California	State Program	9	2938	06-30-19 *
Connecticut	State Program	1	PH-0220	12-31-19
Florida	NELAP	4	E87358	06-30-19
Georgia	State Program	4	NA: NELAP & A2LA	12-31-19
Illinois	NELAP	5	200010	12-09-18 *
Iowa	State Program	7	131	04-01-20
Kansas	NELAP	7	E-10229	10-31-19
Kentucky (UST)	State Program	4	19	06-30-19
Kentucky (WW)	State Program	4	90038	12-31-19
Louisiana	NELAP	6	30613	06-30-19
Maine	State Program	1	TN00032	11-03-19
Maryland	State Program	3	316	03-31-19
Massachusetts	State Program	1	M-TN032	06-30-19
Minnesota	NELAP	5	047-999-345	12-31-19
Mississippi	State Program	4	N/A	06-30-19
Montana (UST)	State Program	8	NA	02-24-20
Nevada	State Program	9	TN00032	07-31-19
New Hampshire	NELAP	1	2963	10-09-19
New Jersey	NELAP	2	TN965	06-30-19
New York	NELAP	2	11342	03-31-19
North Carolina (WW/SW)	State Program	4	387	12-31-19
North Dakota	State Program	8	R-146	06-30-19
Ohio VAP	State Program	5	CL0033	07-06-19
Oklahoma	State Program	6	9412	08-31-19
Oregon	NELAP	10	TN200001	04-26-19
Pennsylvania	NELAP	3	68-00585	07-31-19
Rhode Island	State Program	1	LAO00268	12-30-19
South Carolina	State Program	4	84009 (001)	02-28-19
Tennessee	State Program	4	2008	02-23-20
Texas	NELAP	6	T104704077	08-31-19
USDA	Federal		P330-13-00306	12-01-19
Utah	NELAP	8	TN00032	07-31-19
Virginia	NELAP	3	460152	06-14-19
Washington	State Program	10	C789	07-19-19
West Virginia DEP	State Program	3	219	02-28-19
Wisconsin	State Program	5	998020430	08-31-19
Wyoming (UST)	A2LA	8	453.07	12-31-19

## Laboratory: TestAmerica Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

<b>Authority</b>	<b>Program</b>	<b>EPA Region</b>	<b>Identification Number</b>	<b>Expiration Date</b>
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Nashville

## Accreditation/Certification Summary

Client: Environmental Standards Inc.  
Project/Site: CUF\_BS\_20180822\_1A

TestAmerica Job ID: 490-157892-1

### Laboratory: TestAmerica Pittsburgh (Continued)

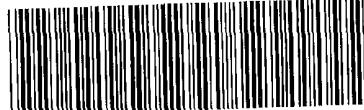
All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-19 *
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-19
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19
Texas	NELAP	6	T104704528-15-2	03-31-19
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Nashville

**COOLER RECEIPT FORM**



490-157892 Chain of Custody

Cooler Received/Opened On 08-22-2018 @ 1745

Time Samples Removed From Cooler \_\_\_\_\_ Time Samples Placed In Storage \_\_\_\_\_ (2 Hour Window)

1. Tracking # NIA (last 4 digits, FedEx) Courier: Lab

IR Gun ID 17960358 pH Strip Lot \_\_\_\_\_ Chlorine Strip Lot \_\_\_\_\_

2. Temperature of rep. sample or temp blank when opened: 55 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES...NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: \_\_\_\_\_

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) EPA

7. Were custody seals on containers: YES NO 8-22-18 EPA and Intact

Were these signed and dated correctly?

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA



Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # NIA

I certify that I unloaded the cooler and answered questions 7-14 (initial) EPA

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used

YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) EPA

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) EPA

I certify that I attached a label with the unique LIMS number to each container (initial) EPA

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...# \_\_\_\_\_

## COOLER RECEIPT FORM

Cooler Received/Opened On 08-22-2018 @ 1745

Time Samples Removed From Cooler \_\_\_\_\_ Time Samples Placed In Storage \_\_\_\_\_ (2 Hour Window)

1. Tracking # NIA (last 4 digits, FedEx) Courier: Lab
  - IR Gun ID 17960358 pH Strip Lot \_\_\_\_\_ Chlorine Strip Lot \_\_\_\_\_
  2. Temperature of rep. sample or temp blank when opened: 43 Degrees Celsius
  3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA
  4. Were custody seals on outside of cooler? YES...NO...NA  
If yes, how many and where: \_\_\_\_\_
  5. Were the seals intact, signed, and dated correctly? YES...NO...NA
  6. Were custody papers inside cooler? YES...NO...NA  
*EKA*
- I certify that I opened the cooler and answered questions 1-6 (initial) *EKA*
7. Were custody seals on containers: YES  *EKA* 8-22-18 EKA and Intact YES...NO...NA *EKA* 8-22-18 EKA
  - Were these signed and dated correctly? YES...NO...NA *EKA* 8-22-18 EKA
  8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None
  9. Cooling process: Ice Ice-pack Ice (direct contact) Dry Ice Other None
  10. Did all containers arrive in good condition (unbroken)? YES...NO...NA
  11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA
  12. Did all container labels and tags agree with custody papers? YES...NO...NA
  - 13a. Were VOA vials received? YES...NO...NA
  - b. Was there any observable headspace present in any VOA vial? YES...NO...NA



Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # 109  
*EKA*
- I certify that I unloaded the cooler and answered questions 7-14 (initial) *EKA*
- 15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA
  - b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA
  16. Was residual chlorine present? YES...NO...NA  
*EKA*
- I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) *EKA*
17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA
  18. Did you sign the custody papers in the appropriate place? YES...NO...NA
  19. Were correct containers used for the analysis requested? YES...NO...NA
  20. Was sufficient amount of sample sent in each container? YES...NO...NA
- I certify that I entered this project into LIMS and answered questions 17-20 (initial) *EKA*
- I certify that I attached a label with the unique LIMS number to each container (initial) *EKA*
21. Were there Non-Conformance issues at login? YES  NO Was a NCM generated? YES...NO...# \_\_\_\_\_



Tennessee Valley Authority

**TVA Environmental Investigations**

**Chain-of-Custody / Analytical Request Document**

Chain-of-Custody is a **LEGAL DOCUMENT**. All relevant fields must be completed and accurate.

**Required Ship to Lab:**

Required Project Information:		Required Sampler Information								
Lab Name:	TestAmerica Nashville	Site ID #:	CUMBERLAND FOSSIL PLANT							
Lab Address:	2930 Foster Creighton Dr Nashville, TN 37204	Project #:	177586209							
City:	Cumberland City	Site Address:	815 Cumberland City Road TN 37763							
Site PM Name:	Roy Quinn	City/State:	Chattanooga, TN							
Phone/Fax:	423-751-3753	Sampling Team Number:	1							
Site PM Email:	royquinn@tva.gov	Send EDD/Hard Copy to:	tva@tvaenviro.com							
Lab PM:	Gail Lade	Analysis Turnaround Time								
Phone/Fax:	615-301-5741/615-726-3404	CALENDAR DAYS								
Lab Email:	Gail.Lade@testamericainc.com	WORKING DAYS								
TAT if different from Below										
<input type="checkbox"/> 24 Hours <input checked="" type="checkbox"/> 3 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 10 Business Days (Standard)										
ITEMS #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION		SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	Comments/ Lab Sample I.D.			
		Start Depth	End Depth					MATRIX CODE	SAMPLE TYPE	
Sample Depth	Depth Select Unit	Start Depth	End Depth	G=GRAB C=COMP						
Sample Depth	Depth Select Unit	Start Depth	End Depth	G=GRAB C=COMP						
1	CUF-BS-BG02-1.5/3.5-20180822	BG-02	1.5	3.5	S G	N	8/22/2018	11:09	2	Loc: 490
2	CUF-BS-BG02-5.0/7.5-20180822	BG-02	5.0	7.6	S G	N	8/22/2018	11:25	2	15789?
3	CUF-BS-FG02-20180822	BG-02	NA	NA	W G	FB	8/22/2018	11:47	2	
4	CUF-BS-BG02-010.5-20180822	BG-02	0	0.5	S G	N	8/22/2018	11:56	2	
5	CUF-BS-BG03-1/2.3.2-20180822	BG-03	1.2	3.2	S G	N	8/22/2018	14:57	2	
6	CUF-BS-BG03-5.2/7.2-20180822	BG-03	5.2	7.2	S G	N	8/22/2018	15:26	2	
7	CUF-BS-BG03-0/0.5-20180822	BG-03	0	0.5	S G	N	8/22/2018	15:31	2	
8										
9										
10										
11										
12										
13										
		RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Sample Receipt Conditions	
Additional Comments/Special Instructions:		Boister		8/22/2018	17:30	Mr. M. Taw	8/22/2018	17:45	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
MS/MSDs.									<input type="checkbox"/> Yes	<input type="checkbox"/> No
CUF_BACKGROUNDSOIL: Perform MS/MSD on sample identified above									<input type="checkbox"/> Yes	<input type="checkbox"/> No
CUF_BACKGROUNDSOIL_BLANKS: Anions – unpreserved; Metals – preserved w/ HNO3 to pH<2									<input type="checkbox"/> Yes	<input type="checkbox"/> No
SHIPPING METHOD:									<input type="checkbox"/> Yes	<input type="checkbox"/> No
SAMPLER NAME AND SIGNATURE									<input type="checkbox"/> Yes	<input type="checkbox"/> No
TTFP Blank?									<input type="checkbox"/> Yes	<input type="checkbox"/> No
Sample on Ice?									<input type="checkbox"/> Yes	<input type="checkbox"/> No
TTFP Blank?									<input type="checkbox"/> Yes	<input type="checkbox"/> No

43°C

1 2 3 4 5 6 7 8 9 10 11 12



Tennessee Valley Authority

**TVA Environmental Investigations**

Chain-of-Custody / Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

**CUF\_BACKGROUNDSOIL:** Perform MS/MSD on sample identified above

**CUF\_BACKGROUNDSoil\_BLANKS:** Anions – unpreserved; Metals – preserved w/ HNO<sub>3</sub> to pH <2

THE COMMERCIAL INSTITUTIONS

collected should be used for  
MS/MSDs.

**CUF\_BACKGROUNDSOIL:** Perform MS/MSD on sample identified above

CUF\_BACKGROUNDSOIL\_BLANKS: Anions – unpreserved; Metals – preserved w/ HNO<sub>3</sub> to pH <2

Page 1 of 1





**TestAmerica Nashville**  
2960 Foster Creighton Drive  
Nashville, TN 37204

### **Chain of Custody Record**

2960 Foster Creighton Drive  
Nashville, TN 37204  
Phone (615) 726-0177 Fax (615) 726-3404

Client Information (Sub Contract Lab)		Sampler:	Lab PM				
Client Contact:		Phone:	Lage, Gall				
Shipping/Receiving Company:		E-Mail:	gall./lge@testamericalainc.com				
TestAmerica Laboratories, Inc.		State of Origin:	Tennessee				
Address:		Accreditation Required (See note)					
301 Alpha Drive,	RIDC Park,	Due Date Requested: 12/1/2018					
City: Pittsburgh		TAT Requested (days):					
State, Zip: PA, 15238							
Phone: 412-963-7058(Tel) 412-963-2468(Fax)							
Email:							
Project Name: CUF_BS_20180822_1A		PO #:					
Site:		WO #:					
Project #: 49014071		Phone #:					
SSOW#:							
Analysis Requested							
Total Number of Containers							
Preservation Codes:							
A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anchor H - Ascorbic Acid I - Ice J - Di Water K - EDTA L - EDA Other:							
Special Instructions/Note:							
6020A/3050B (MOD) Custom Metals							
Perform MSD/MSD (Yes or No)							
Field Filtered Sample (Yes or No)							
Matrix (Water, Oil/solvent, Or tissue, A=Av)							
Sample Date							
Sample Time							
Sample Type (C=Comp, G=grab)							
Preservation Code:							
Preservation							
CUF-BS-BG02-1.5/3.5-20180822 (490-157892-1)				8/22/18	11:09	Solid	X
CUF-BS-BG02-5.0/7.6-20180822 (490-157892-2)				8/22/18	11:25	Solid	X
CUF-BS-BG02-0/0.5-20180822 (490-157892-4)				8/22/18	11:56	Solid	X
CUF-BS-BG03-1.2/3.2-20180822 (490-157892-5)				8/22/18	14:57	Solid	X
CUF-BS-BG03-5.2/7.2-20180822 (490-157892-6)				8/22/18	15:26	Solid	X
CUF-BS-BG03-0/0.5-20180822 (490-157892-7)				8/22/18	15:31	Solid	X
Sample Identification - Client ID (Lab ID)							
CUF-BS-BG02-1.5/3.5-20180822 (490-157892-1)							
CUF-BS-BG02-5.0/7.6-20180822 (490-157892-2)							
CUF-BS-BG02-0/0.5-20180822 (490-157892-4)							
CUF-BS-BG03-1.2/3.2-20180822 (490-157892-5)							
CUF-BS-BG03-5.2/7.2-20180822 (490-157892-6)							
CUF-BS-BG03-0/0.5-20180822 (490-157892-7)							
Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analysis & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.							
Possible Hazard Identification							
Unconfirmed							
Deliverable Requested: I, II, III, IV. Other (specify)							
Empty Kit Relinquished by:							
Relinquished by: <i>Mildred Poor</i>							
Relinquished by:							
Relinquished by:							
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No							
Custody Seal No.:							
Cooler Temperature(s) °C and Other Remarks:							
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months							
Special Instructions/QC Requirements:							
Method of Shipment:							
Date/Time:	Date/Time:	Date/Time:	Date/Time:				
<i>12-6-18/1630</i>	Company	<i>12-7-1/16 10:00</i>	Company				
Date/Time:	Received by:	Date/Time:	Received by:				
Date/Time:	Received by:	Date/Time:	Received by:				
Comments:							

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analytic & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation at the State of Origin listed above for analytes/studies/limits being analyzed, the samples must be shipped back to the TestAmerica Laboratory or other institutions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

### Possible Hazard Identification

### Unconfirmed

**Deliverable Requested:** I., II., III., IV. Other (specify)

Empty Kit Relinquished by:

Re-published by  
*Alma de Leon*

Reinquished by:

Reinforced by:

Custody Seal No.:

Virt. 09.202016