

**Data Validation Report
Tennessee Valley Authority
Kingston Fossil Plant
Environmental Investigation Plan
Background Soil Samples
Chain-of-Custody Number: KIF_BS_20190312_1A**

This quality assurance (QA) review is based upon an examination of the data generated from the analyses of the 12 solid samples and one aqueous blank collected on March 12, 2019, at the Tennessee Valley Authority (TVA) Kingston Fossil Plant facility. These samples were collectively analyzed by TestAmerica Laboratories, Inc. (TestAmerica), of Pittsburgh, Pennsylvania, for total metals by SW-846 Method 6020A; for total mercury by SW-846 Methods 7470A/7471B; for anions (specifically, chloride, fluoride, and sulfate) by SW-846 Method 9056A; and for pH by SW-846 Method 9045D.

This review was performed in accordance with the Environmental Investigation Plan, Kingston Fossil Plant (KIF EIP; Revision 4, November 2018). This review was performed with guidance from the National Functional Guidelines for Inorganic Data Review (US EPA, October 2004); the US EPA Region IV Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (November 2001); and the US EPA Region IV Data Validation Standard Operating Procedures. These validation guidance documents specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocols performed for the SW-846 Methods utilized by the laboratory for these samples. Environmental Standards, Inc. (Environmental Standards) used professional judgment to determine the usability of the analytical results and compliance relative to the SW-846 Methods utilized by the laboratory.

Summary

The analytical results and associated laboratory quality control (QC) samples were reviewed to determine the integrity of the reported analytical results and to ensure that the data met the established data quality objectives. This QA review includes all samples in TestAmerica Job Number 180-87627-1.

The samples that have undergone Stage 4 data validation are listed below:

Sample Identification	Laboratory Sample Identification	Job Number	Matrix	Date Sample Collected	Parameters Examined
KIF-BS-BG07-1.5/3.5-20190312	180-87627-1	180-87627-1	Solid	3/12/19	M, Hg, A, pH
KIF-BS-BG07-6.5/8.5-20190312	180-87627-2	180-87627-1	Solid	3/12/19	M, Hg, A, pH
KIF-BS-BG07-11.5/13.5-20190312	180-87627-3	180-87627-1	Solid	3/12/19	M, Hg, A, pH
KIF-BS-BG07-16.5/18.5-20190312	180-87627-4	180-87627-1	Solid	3/12/19	M, Hg, A, pH
KIF-BS-BG07-21.5/23.5-20190312	180-87627-5	180-87627-1	Solid	3/12/19	M, Hg, A, pH
KIF-BS-BG07-26.5/28.5-20190312	180-87627-6	180-87627-1	Solid	3/12/19	M, Hg, A, pH
KIF-BS-BG07-31.5/33.5-20190312	180-87627-7	180-87627-1	Solid	3/12/19	M, Hg, A, pH
KIF-BS-BG07-36.5/38.5-20190312	180-87627-8	180-87627-1	Solid	3/12/19	M, Hg, A, pH
KIF-BS-BG07-41.5/43.5-20190312	180-87627-9	180-87627-1	Solid	3/12/19	M, Hg, A, pH
KIF-BS-BG07-46.5/48.5-20190312	180-87627-10	180-87627-1	Solid	3/12/19	M, Hg, A, pH
KIF-BS-BG07-51.5/53.5-20190312	180-87627-11	180-87627-1	Solid	3/12/19	M, Hg, A, pH
KIF-BS-BG07-0.0/0.5-20190312	180-87627-12	180-87627-1	Solid	3/12/19	M, Hg, A, pH
KIF-BS-FB01-20190312 (Field Blank)	180-87627-13	180-87627-1	Aq	3/12/19	M, Hg, A

Parameters Examined

M - Total Metals by SW-846 Method 6020A.

Hg - Total Mercury by SW-846 Methods 7470A/7471B.

A - Anions (specifically, chloride, fluoride, and sulfate) by SW-846 Method 9056A.

pH - pH by SW-846 Method 9045D.

Aq - Aqueous.

Items Reviewed	
Holding Times	Instrument Tuning and Calibrations
Sample Preservation	Reporting Limit (RL) Standard Recoveries
Chain-of-Custody (COC) Record and Case Narrative	Internal Standard Recoveries
Blank Results	Serial Dilution Analysis
Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results	Post-Digestion Spike Results
Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Results	Sample Preparation
Laboratory Duplicate Results	Analytical Sequence
Quantitation of Positive Results	

Comments and Exceptions

- All analyses performed for the sampling event were in compliance with the requirements set forth in the EIP.

Qualifier Summary

Analyte	Job Number	Samples	Validation Qualifier	Reason for Qualification
total molybdenum	180-87627-1	KIF-BS-BG07-11.5/13.5-20190312, KIF-BS-BG07-16.5/18.5-20190312, KIF-BS-BG07-21.5/23.5-20190312, KIF-BS-BG07-26.5/28.5-20190312, KIF-BS-BG07-31.5/33.5-20190312, and KIF-BS-BG07-41.5/43.5-20190312	U*	BL

Unless otherwise qualified, all positive results reported between the method detection limit (MDL) and quantitation limit (QL) should be considered estimated and have been flagged "J" on the data tables. (Reason Code: RL)

Review performed by: Steven J. Lennon, Senior Quality Assurance Chemist

Review reviewed by: Thomas H. Weinmann, Senior Quality Assurance Chemist

Review approved by: Andrew L. Piasecki, Senior Quality Assurance Chemist

Review approved by: Rock J. Vitale, CEAC, Technical Director of Chemistry/Principal

Date review completed: 4/29/19

SECTION 2

ANALYTICAL RESULTS

INORGANIC DATA QUALIFIERS

- U* This result should be considered "not-detected" because it was detected in a rinsate blank or laboratory blank at a similar level.
- UR Unreliable reporting limit; analyte may or may not be present in sample.
- R Unreliable positive result; analyte may or may not be present in sample.
- J Quantitation is approximate due to limitations identified during data validation.
- UJ This analyte was not detected, but the reporting limit may or may not be higher due to a bias identified during data validation.



REASON CODES AND EXPLANATIONS

Reason Code	Explanation
BE	Equipment blank contamination. The result should be considered "not-detected."
BF	Field blank contamination. The result should be considered "not-detected."
BL	Laboratory blank contamination. The result should be considered "not-detected."
BN	Negative laboratory blank contamination.
C	Initial and/or Continuing Calibration issue, indeterminate bias.
C+	Initial and/or Continuing Calibration issue. The result may be biased high.
C-	Initial and/or Continuing Calibration issue. The result may be biased low.
FD	Field duplicate imprecision.
FG	Total versus Dissolved Imprecision.
H	Holding time exceeded.
I	Internal standard recovery outside of acceptance limits.
L	LCS and LCSD recoveries outside of acceptance limits, indeterminate bias.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased high.
L-	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased low.
LD	Laboratory duplicate imprecision.
LP	LCS/LCSD imprecision.
M	MS and MSD recoveries outside of acceptance limits, indeterminate bias.
M+	MS and/or MSD recoveries outside of acceptance limits. The result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result may be biased low.
MP	MS/MSD imprecision.
P	Post-digestion spike recoveries outside of acceptance limits, indeterminate bias.
P+	Post-digestion spike recovery outside of acceptance limits. The result may be biased high.
P-	Post-digestion spike recovery outside of acceptance limits. The result may be biased low.
Q	Chemical Preservation issue.
R	RL standards outside of acceptance limits, indeterminate bias.
R+	RL standard(s) outside of acceptance limits. The result may be biased high.
R-	RL standard(s) outside of acceptance limits. The result may be biased low.
RL	Reported result between the MDL and the QL.
T	Temperature preservation issue.
SD	Serial Dilution imprecision.
X	Percent solids < 50%.
Y+	Chemical Yield outside of acceptance limits. The result may be biased high.
Y-	Chemical yield outside of acceptance limits. The result may be biased low.
Z	ICP or ICP/MS Interference.
ZZ	Other.

TVA TDEC Program

Facility: Kingston Fossil Plant Environmental Investigation

SDG: 180876271

					Lab Sample ID	180-87627-1								
					Sys Sample Code	KIF-BS-BG07-1.5/3.5-20190312								
					Sample Name	KIF-BS-BG07-1.5/3.5-20190312								
					Sample Date	3/12/2019 2:00:00 PM								
					Location	BG-07								
					Sample Type	N								
					Parent Sample									
Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
	Percent Moisture:			%	20.9									
SW-846 6020A	Antimony	7440-36-0	T	MG/KG	0.338			0.0768	0.0768	0.248	Y	Yes	1	DRY
	Arsenic	7440-38-2	T	MG/KG	6.73			0.0322	0.0322	0.124	Y	Yes	1	DRY
	Barium	7440-39-3	T	MG/KG	24.9			0.159	0.159	1.24	Y	Yes	1	DRY
	Beryllium	7440-41-7	T	MG/KG	0.182			0.00929	0.00929	0.124	Y	Yes	1	DRY
	Boron	7440-42-8	T	MG/KG		U		1.67	1.67	9.91	N	Yes	1	DRY
	Cadmium	7440-43-9	T	MG/KG		U		0.0211	0.0211	0.124	N	Yes	1	DRY
	Calcium	7440-70-2	T	MG/KG	124			11.1	11.1	62.0	Y	Yes	1	DRY
	Chromium	7440-47-3	T	MG/KG	18.6			0.103	0.103	0.248	Y	Yes	1	DRY
	Cobalt	7440-48-4	T	MG/KG	1.33			0.0103	0.0103	0.0620	Y	Yes	1	DRY
	Copper	7440-50-8	T	MG/KG	9.90			0.140	0.140	0.248	Y	Yes	1	DRY
	Lead	7439-92-1	T	MG/KG	7.80			0.0434	0.0434	0.124	Y	Yes	1	DRY
	Lithium	7439-93-2	T	MG/KG	9.02			0.342	0.342	0.620	Y	Yes	1	DRY
	Molybdenum	7439-98-7	T	MG/KG	1.22			0.202	0.202	0.620	Y	Yes	1	DRY
	Nickel	7440-02-0	T	MG/KG	5.07			0.0756	0.0756	0.124	Y	Yes	1	DRY
	Selenium	7782-49-2	T	MG/KG	0.358	J	RL	0.151	0.151	0.620	Y	Yes	1	DRY
	Silver	7440-22-4	T	MG/KG		U		0.0335	0.0335	0.124	N	Yes	1	DRY
	Thallium	7440-28-0	T	MG/KG	0.214			0.0310	0.0310	0.124	Y	Yes	1	DRY
	Vanadium	7440-62-2	T	MG/KG	33.6			0.0793	0.0793	0.124	Y	Yes	1	DRY
	Zinc	7440-66-6	T	MG/KG	22.1			0.414	0.414	0.620	Y	Yes	1	DRY
SW-846 7471B	Mercury	7439-97-6	T	MG/KG	0.188			0.0157	0.0157	0.0363	Y	Yes	1	DRY
SW-846 9045D	pH at 25 Degrees C	PH	N	SU	5.3			0.1	0.1	0.1	Y	Yes	1	NA
SW-846 9056A	Chloride	16887-00-6	N	MG/KG		U		4.87	4.87	12.5	N	Yes	1	DRY
	Fluoride	16984-48-8	N	MG/KG		U		0.853	0.853	1.25	N	Yes	1	DRY
	Sulfate	14808-79-8	N	MG/KG	22.6			8.51	8.51	12.5	Y	Yes	1	DRY

TVA TDEC Program

Facility: Kingston Fossil Plant Environmental Investigation

SDG: 180876271

				Lab Sample ID	180-87627-10									
				Sys Sample Code	KIF-BS-BG07-46.5/48.5-20190312									
				Sample Name	KIF-BS-BG07-46.5/48.5-20190312									
				Sample Date	3/12/2019 4:10:00 PM									
				Location	BG-07									
				Sample Type	N									
				Parent Sample										
Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
	Percent Moisture:			%	35.1									
SW-846 6020A	Antimony	7440-36-0	T	MG/KG		U		0.0956	0.0956	0.308	N	Yes	1	DRY
	Arsenic	7440-38-2	T	MG/KG	3.22			0.0401	0.0401	0.154	Y	Yes	1	DRY
	Barium	7440-39-3	T	MG/KG	58.7			0.197	0.197	1.54	Y	Yes	1	DRY
	Beryllium	7440-41-7	T	MG/KG	1.37			0.0116	0.0116	0.154	Y	Yes	1	DRY
	Boron	7440-42-8	T	MG/KG	15.5			2.08	2.08	12.3	Y	Yes	1	DRY
	Cadmium	7440-43-9	T	MG/KG	0.0988	J	RL	0.0262	0.0262	0.154	Y	Yes	1	DRY
	Calcium	7440-70-2	T	MG/KG	544			13.8	13.8	77.1	Y	Yes	1	DRY
	Chromium	7440-47-3	T	MG/KG	14.8			0.128	0.128	0.308	Y	Yes	1	DRY
	Cobalt	7440-48-4	T	MG/KG	10.7			0.0128	0.0128	0.0771	Y	Yes	1	DRY
	Copper	7440-50-8	T	MG/KG	14.0			0.174	0.174	0.308	Y	Yes	1	DRY
	Lead	7439-92-1	T	MG/KG	8.57			0.0540	0.0540	0.154	Y	Yes	1	DRY
	Lithium	7439-93-2	T	MG/KG	9.19			0.426	0.426	0.771	Y	Yes	1	DRY
	Molybdenum	7439-98-7	T	MG/KG		U		0.251	0.251	0.771	N	Yes	1	DRY
	Nickel	7440-02-0	T	MG/KG	21.2			0.0941	0.0941	0.154	Y	Yes	1	DRY
	Selenium	7782-49-2	T	MG/KG	1.49			0.188	0.188	0.771	Y	Yes	1	DRY
	Silver	7440-22-4	T	MG/KG		U		0.0416	0.0416	0.154	N	Yes	1	DRY
	Thallium	7440-28-0	T	MG/KG	0.283			0.0386	0.0386	0.154	Y	Yes	1	DRY
	Vanadium	7440-62-2	T	MG/KG	15.2			0.0987	0.0987	0.154	Y	Yes	1	DRY
	Zinc	7440-66-6	T	MG/KG	67.0			0.515	0.515	0.771	Y	Yes	1	DRY
SW-846 7471B	Mercury	7439-97-6	T	MG/KG		U		0.0181	0.0181	0.0418	N	Yes	1	DRY
SW-846 9045D	pH at 25 Degrees C	PH	N	SU	5.7			0.1	0.1	0.1	Y	Yes	1	NA
SW-846 9056A	Chloride	16887-00-6	N	MG/KG		U		5.97	5.97	15.4	N	Yes	1	DRY
	Fluoride	16984-48-8	N	MG/KG		U		1.05	1.05	1.54	N	Yes	1	DRY
	Sulfate	14808-79-8	N	MG/KG		U		10.4	10.4	15.4	N	Yes	1	DRY

TVA TDEC Program

Facility: Kingston Fossil Plant Environmental Investigation

SDG: 180876271

				Lab Sample ID	180-87627-11									
				Sys Sample Code	KIF-BS-BG07-51.5/53.5-20190312									
				Sample Name	KIF-BS-BG07-51.5/53.5-20190312									
				Sample Date	3/12/2019 4:20:00 PM									
				Location	BG-07									
				Sample Type	N									
				Parent Sample										
Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
	Percent Moisture:			%	33.6									
SW-846 6020A	Antimony	7440-36-0	T	MG/KG		U		0.0953	0.0953	0.307	N	Yes	1	DRY
	Arsenic	7440-38-2	T	MG/KG	4.90			0.0400	0.0400	0.154	Y	Yes	1	DRY
	Barium	7440-39-3	T	MG/KG	66.5			0.197	0.197	1.54	Y	Yes	1	DRY
	Beryllium	7440-41-7	T	MG/KG	1.22			0.0115	0.0115	0.154	Y	Yes	1	DRY
	Boron	7440-42-8	T	MG/KG	12.9			2.08	2.08	12.3	Y	Yes	1	DRY
	Cadmium	7440-43-9	T	MG/KG	0.0853	J	RL	0.0261	0.0261	0.154	Y	Yes	1	DRY
	Calcium	7440-70-2	T	MG/KG	386			13.8	13.8	76.9	Y	Yes	1	DRY
	Chromium	7440-47-3	T	MG/KG	21.0			0.128	0.128	0.307	Y	Yes	1	DRY
	Cobalt	7440-48-4	T	MG/KG	28.6			0.0128	0.0128	0.0769	Y	Yes	1	DRY
	Copper	7440-50-8	T	MG/KG	135			0.174	0.174	0.307	Y	Yes	1	DRY
	Lead	7439-92-1	T	MG/KG	10.9			0.0538	0.0538	0.154	Y	Yes	1	DRY
	Lithium	7439-93-2	T	MG/KG	10.8			0.424	0.424	0.769	Y	Yes	1	DRY
	Molybdenum	7439-98-7	T	MG/KG		U		0.251	0.251	0.769	N	Yes	1	DRY
	Nickel	7440-02-0	T	MG/KG	28.7			0.0938	0.0938	0.154	Y	Yes	1	DRY
	Selenium	7782-49-2	T	MG/KG	1.15			0.188	0.188	0.769	Y	Yes	1	DRY
	Silver	7440-22-4	T	MG/KG		U		0.0415	0.0415	0.154	N	Yes	1	DRY
	Thallium	7440-28-0	T	MG/KG	0.307			0.0384	0.0384	0.154	Y	Yes	1	DRY
	Vanadium	7440-62-2	T	MG/KG	18.0			0.0984	0.0984	0.154	Y	Yes	1	DRY
	Zinc	7440-66-6	T	MG/KG	44.3			0.513	0.513	0.769	Y	Yes	1	DRY
SW-846 7471B	Mercury	7439-97-6	T	MG/KG		U		0.0205	0.0205	0.0473	N	Yes	1	DRY
SW-846 9045D	pH at 25 Degrees C	PH	N	SU	5.8			0.1	0.1	0.1	Y	Yes	1	NA
SW-846 9056A	Chloride	16887-00-6	N	MG/KG		U		5.66	5.66	14.6	N	Yes	1	DRY
	Fluoride	16984-48-8	N	MG/KG		U		0.992	0.992	1.46	N	Yes	1	DRY
	Sulfate	14808-79-8	N	MG/KG		U		9.90	9.90	14.6	N	Yes	1	DRY

TVA TDEC Program

Facility: Kingston Fossil Plant Environmental Investigation

SDG: 180876271

				Lab Sample ID	180-87627-12									
				Sys Sample Code	KIF-BS-BG07-0.0/0.5-20190312									
				Sample Name	KIF-BS-BG07-0.0/0.5-20190312									
				Sample Date	3/12/2019 4:30:00 PM									
				Location	BG-07									
				Sample Type	N									
				Parent Sample										
Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
	Percent Moisture:			%	16.2									
SW-846 6020A	Antimony	7440-36-0	T	MG/KG	0.353			0.0762	0.0762	0.246	Y	Yes	1	DRY
	Arsenic	7440-38-2	T	MG/KG	6.11			0.0320	0.0320	0.123	Y	Yes	1	DRY
	Barium	7440-39-3	T	MG/KG	48.5			0.157	0.157	1.23	Y	Yes	1	DRY
	Beryllium	7440-41-7	T	MG/KG	0.261			0.00922	0.00922	0.123	Y	Yes	1	DRY
	Boron	7440-42-8	T	MG/KG	1.68	J	RL	1.66	1.66	9.84	Y	Yes	1	DRY
	Cadmium	7440-43-9	T	MG/KG	0.0371	J	RL	0.0209	0.0209	0.123	Y	Yes	1	DRY
	Calcium	7440-70-2	T	MG/KG	345			11.0	11.0	61.5	Y	Yes	1	DRY
	Chromium	7440-47-3	T	MG/KG	16.2			0.102	0.102	0.246	Y	Yes	1	DRY
	Cobalt	7440-48-4	T	MG/KG	4.63			0.0102	0.0102	0.0615	Y	Yes	1	DRY
	Copper	7440-50-8	T	MG/KG	7.61			0.139	0.139	0.246	Y	Yes	1	DRY
	Lead	7439-92-1	T	MG/KG	14.1			0.0430	0.0430	0.123	Y	Yes	1	DRY
	Lithium	7439-93-2	T	MG/KG	8.73			0.339	0.339	0.615	Y	Yes	1	DRY
	Molybdenum	7439-98-7	T	MG/KG	1.01			0.200	0.200	0.615	Y	Yes	1	DRY
	Nickel	7440-02-0	T	MG/KG	5.98			0.0750	0.0750	0.123	Y	Yes	1	DRY
	Selenium	7782-49-2	T	MG/KG	0.576	J	RL	0.150	0.150	0.615	Y	Yes	1	DRY
	Silver	7440-22-4	T	MG/KG		U		0.0332	0.0332	0.123	N	Yes	1	DRY
	Thallium	7440-28-0	T	MG/KG	0.216			0.0307	0.0307	0.123	Y	Yes	1	DRY
	Vanadium	7440-62-2	T	MG/KG	28.6			0.0787	0.0787	0.123	Y	Yes	1	DRY
	Zinc	7440-66-6	T	MG/KG	22.0			0.411	0.411	0.615	Y	Yes	1	DRY
SW-846 7471B	Mercury	7439-97-6	T	MG/KG	0.174			0.0162	0.0162	0.0375	Y	Yes	1	DRY
SW-846 9045D	pH at 25 Degrees C	PH	N	SU	5.4			0.1	0.1	0.1	Y	Yes	1	NA
SW-846 9056A	Chloride	16887-00-6	N	MG/KG		U		4.56	4.56	11.8	N	Yes	1	DRY
	Fluoride	16984-48-8	N	MG/KG		U		0.800	0.800	1.18	N	Yes	1	DRY
	Sulfate	14808-79-8	N	MG/KG	28.4			7.99	7.99	11.8	Y	Yes	1	DRY

TVA TDEC Program

Facility: Kingston Fossil Plant Environmental Investigation

SDG: 180876271

				Lab Sample ID	180-87627-13									
				Sys Sample Code	KIF-BS-FB01-20190312									
				Sample Name	KIF-BS-FB01-20190312									
				Sample Date	3/12/2019 4:35:00 PM									
				Location										
				Sample Type	FB									
				Parent Sample										
Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
SW-846 6020A	Antimony	7440-36-0	T	MG/L		U		0.000378	0.000378	0.00200	N	Yes	1	NA
	Arsenic	7440-38-2	T	MG/L		U		0.000323	0.000323	0.00100	N	Yes	1	NA
	Barium	7440-39-3	T	MG/L		U		0.00149	0.00149	0.0100	N	Yes	1	NA
	Beryllium	7440-41-7	T	MG/L		U		0.000155	0.000155	0.00100	N	Yes	1	NA
	Boron	7440-42-8	T	MG/L		U		0.0303	0.0303	0.0800	N	Yes	1	NA
	Cadmium	7440-43-9	T	MG/L		U		0.000125	0.000125	0.00100	N	Yes	1	NA
	Calcium	7440-70-2	T	MG/L		U		0.116	0.116	0.500	N	Yes	1	NA
	Chromium	7440-47-3	T	MG/L	0.0268			0.00153	0.00153	0.00200	Y	Yes	1	NA
	Cobalt	7440-48-4	T	MG/L		U		0.0000750	0.0000750	0.000500	N	Yes	1	NA
	Copper	7440-50-8	T	MG/L	0.00127	J	RL	0.000627	0.000627	0.00200	Y	Yes	1	NA
	Lead	7439-92-1	T	MG/L		U		0.000128	0.000128	0.00100	N	Yes	1	NA
	Lithium	7439-93-2	T	MG/L		U		0.00314	0.00314	0.00500	N	Yes	1	NA
	Molybdenum	7439-98-7	T	MG/L		U		0.000610	0.000610	0.00500	N	Yes	1	NA
	Nickel	7440-02-0	T	MG/L	0.000444	J	RL	0.000312	0.000312	0.00100	Y	Yes	1	NA
	Selenium	7782-49-2	T	MG/L		U		0.00262	0.00262	0.00500	N	Yes	1	NA
	Silver	7440-22-4	T	MG/L		U		0.000121	0.000121	0.00100	N	Yes	1	NA
	Thallium	7440-28-0	T	MG/L		U		0.000128	0.000128	0.00100	N	Yes	1	NA
	Vanadium	7440-62-2	T	MG/L		U		0.000899	0.000899	0.00100	N	Yes	1	NA
	Zinc	7440-66-6	T	MG/L		U		0.00322	0.00322	0.00500	N	Yes	1	NA
SW-846 7470A	Mercury	7439-97-6	T	MG/L		U		0.000101	0.000101	0.000200	N	Yes	1	NA
SW-846 9056A	Chloride	16887-00-6	N	MG/L		U		0.715	0.715	1.00	N	Yes	1	NA
	Fluoride	16984-48-8	N	MG/L		U		0.0263	0.0263	0.100	N	Yes	1	NA
	Sulfate	14808-79-8	N	MG/L	0.497	J	RL	0.380	0.380	1.00	Y	Yes	1	NA

TVA TDEC Program

Facility: Kingston Fossil Plant Environmental Investigation

SDG: 180876271

				Lab Sample ID	180-87627-2									
				Sys Sample Code	KIF-BS-BG07-6.5/8.5-20190312									
				Sample Name	KIF-BS-BG07-6.5/8.5-20190312									
				Sample Date	3/12/2019 2:12:00 PM									
				Location	BG-07									
				Sample Type	N									
				Parent Sample										
Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
	Percent Moisture:			%	18.8									
SW-846 6020A	Antimony	7440-36-0	T	MG/KG	0.345			0.0796	0.0796	0.257	Y	Yes	1	DRY
	Arsenic	7440-38-2	T	MG/KG	7.31			0.0334	0.0334	0.128	Y	Yes	1	DRY
	Barium	7440-39-3	T	MG/KG	19.8			0.164	0.164	1.28	Y	Yes	1	DRY
	Beryllium	7440-41-7	T	MG/KG	0.196			0.00962	0.00962	0.128	Y	Yes	1	DRY
	Boron	7440-42-8	T	MG/KG		U		1.73	1.73	10.3	N	Yes	1	DRY
	Cadmium	7440-43-9	T	MG/KG		U		0.0218	0.0218	0.128	N	Yes	1	DRY
	Calcium	7440-70-2	T	MG/KG	87.1			11.5	11.5	64.2	Y	Yes	1	DRY
	Chromium	7440-47-3	T	MG/KG	28.1			0.107	0.107	0.257	Y	Yes	1	DRY
	Cobalt	7440-48-4	T	MG/KG	1.81			0.0107	0.0107	0.0642	Y	Yes	1	DRY
	Copper	7440-50-8	T	MG/KG	11.2			0.145	0.145	0.257	Y	Yes	1	DRY
	Lead	7439-92-1	T	MG/KG	9.14			0.0449	0.0449	0.128	Y	Yes	1	DRY
	Lithium	7439-93-2	T	MG/KG	7.48			0.354	0.354	0.642	Y	Yes	1	DRY
	Molybdenum	7439-98-7	T	MG/KG	1.13			0.209	0.209	0.642	Y	Yes	1	DRY
	Nickel	7440-02-0	T	MG/KG	3.74			0.0783	0.0783	0.128	Y	Yes	1	DRY
	Selenium	7782-49-2	T	MG/KG	0.567	J	RL	0.157	0.157	0.642	Y	Yes	1	DRY
	Silver	7440-22-4	T	MG/KG		U		0.0346	0.0346	0.128	N	Yes	1	DRY
	Thallium	7440-28-0	T	MG/KG	0.197			0.0321	0.0321	0.128	Y	Yes	1	DRY
	Vanadium	7440-62-2	T	MG/KG	31.4			0.0821	0.0821	0.128	Y	Yes	1	DRY
	Zinc	7440-66-6	T	MG/KG	16.3			0.429	0.429	0.642	Y	Yes	1	DRY
SW-846 7471B	Mercury	7439-97-6	T	MG/KG	0.105			0.0176	0.0176	0.0407	Y	Yes	1	DRY
SW-846 9045D	pH at 25 Degrees C	PH	N	SU	5.4			0.1	0.1	0.1	Y	Yes	1	NA
SW-846 9056A	Chloride	16887-00-6	N	MG/KG		U		4.76	4.76	12.3	N	Yes	1	DRY
	Fluoride	16984-48-8	N	MG/KG		U		0.834	0.834	1.23	N	Yes	1	DRY
	Sulfate	14808-79-8	N	MG/KG		U		8.33	8.33	12.3	N	Yes	1	DRY

TVA TDEC Program

Facility: Kingston Fossil Plant Environmental Investigation

SDG: 180876271

				Lab Sample ID	180-87627-3									
				Sys Sample Code	KIF-BS-BG07-11.5/13.5-20190312									
				Sample Name	KIF-BS-BG07-11.5/13.5-20190312									
				Sample Date	3/12/2019 2:28:00 PM									
				Location	BG-07									
				Sample Type	N									
				Parent Sample										
Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
	Percent Moisture:			%	20.8									
SW-846 6020A	Antimony	7440-36-0	T	MG/KG	0.219	J	RL	0.0799	0.0799	0.258	Y	Yes	1	DRY
	Arsenic	7440-38-2	T	MG/KG	4.95			0.0335	0.0335	0.129	Y	Yes	1	DRY
	Barium	7440-39-3	T	MG/KG	18.1			0.165	0.165	1.29	Y	Yes	1	DRY
	Beryllium	7440-41-7	T	MG/KG	0.167			0.00966	0.00966	0.129	Y	Yes	1	DRY
	Boron	7440-42-8	T	MG/KG		U		1.74	1.74	10.3	N	Yes	1	DRY
	Cadmium	7440-43-9	T	MG/KG		U		0.0219	0.0219	0.129	N	Yes	1	DRY
	Calcium	7440-70-2	T	MG/KG	37.6	J	RL	11.5	11.5	64.4	Y	Yes	1	DRY
	Chromium	7440-47-3	T	MG/KG	11.4			0.107	0.107	0.258	Y	Yes	1	DRY
	Cobalt	7440-48-4	T	MG/KG	13.4			0.0107	0.0107	0.0644	Y	Yes	1	DRY
	Copper	7440-50-8	T	MG/KG	7.21			0.146	0.146	0.258	Y	Yes	1	DRY
	Lead	7439-92-1	T	MG/KG	19.4			0.0451	0.0451	0.129	Y	Yes	1	DRY
	Lithium	7439-93-2	T	MG/KG	4.23			0.356	0.356	0.644	Y	Yes	1	DRY
	Molybdenum	7439-98-7	T	MG/KG		U*	BL	0.559	0.559	0.644	N	Yes	1	DRY
	Nickel	7440-02-0	T	MG/KG	2.80			0.0786	0.0786	0.129	Y	Yes	1	DRY
	Selenium	7782-49-2	T	MG/KG	0.316	J	RL	0.157	0.157	0.644	Y	Yes	1	DRY
	Silver	7440-22-4	T	MG/KG		U		0.0348	0.0348	0.129	N	Yes	1	DRY
	Thallium	7440-28-0	T	MG/KG	0.166			0.0322	0.0322	0.129	Y	Yes	1	DRY
	Vanadium	7440-62-2	T	MG/KG	14.4			0.0825	0.0825	0.129	Y	Yes	1	DRY
	Zinc	7440-66-6	T	MG/KG	11.9			0.430	0.430	0.644	Y	Yes	1	DRY
SW-846 7471B	Mercury	7439-97-6	T	MG/KG	0.0483			0.0146	0.0146	0.0338	Y	Yes	1	DRY
SW-846 9045D	pH at 25 Degrees C	PH	N	SU	5.2			0.1	0.1	0.1	Y	Yes	1	NA
SW-846 9056A	Chloride	16887-00-6	N	MG/KG		U		4.89	4.89	12.6	N	Yes	1	DRY
	Fluoride	16984-48-8	N	MG/KG		U		0.857	0.857	1.26	N	Yes	1	DRY
	Sulfate	14808-79-8	N	MG/KG		U		8.56	8.56	12.6	N	Yes	1	DRY

TVA TDEC Program

Facility: Kingston Fossil Plant Environmental Investigation

SDG: 180876271

				Lab Sample ID	180-87627-4									
				Sys Sample Code	KIF-BS-BG07-16.5/18.5-20190312									
				Sample Name	KIF-BS-BG07-16.5/18.5-20190312									
				Sample Date	3/12/2019 2:35:00 PM									
				Location	BG-07									
				Sample Type	N									
				Parent Sample										
Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
	Percent Moisture:			%	15.9									
SW-846 6020A	Antimony	7440-36-0	T	MG/KG	0.102	J	RL	0.0730	0.0730	0.236	Y	Yes	1	DRY
	Arsenic	7440-38-2	T	MG/KG	2.32			0.0306	0.0306	0.118	Y	Yes	1	DRY
	Barium	7440-39-3	T	MG/KG	10.0			0.151	0.151	1.18	Y	Yes	1	DRY
	Beryllium	7440-41-7	T	MG/KG	0.105	J	RL	0.00883	0.00883	0.118	Y	Yes	1	DRY
	Boron	7440-42-8	T	MG/KG		U		1.59	1.59	9.42	N	Yes	1	DRY
	Cadmium	7440-43-9	T	MG/KG		U		0.0200	0.0200	0.118	N	Yes	1	DRY
	Calcium	7440-70-2	T	MG/KG	36.0	J	RL	10.5	10.5	58.9	Y	Yes	1	DRY
	Chromium	7440-47-3	T	MG/KG	5.17			0.0977	0.0977	0.236	Y	Yes	1	DRY
	Cobalt	7440-48-4	T	MG/KG	1.24			0.00977	0.00977	0.0589	Y	Yes	1	DRY
	Copper	7440-50-8	T	MG/KG	4.10			0.133	0.133	0.236	Y	Yes	1	DRY
	Lead	7439-92-1	T	MG/KG	3.81			0.0412	0.0412	0.118	Y	Yes	1	DRY
	Lithium	7439-93-2	T	MG/KG	2.88			0.325	0.325	0.589	Y	Yes	1	DRY
	Molybdenum	7439-98-7	T	MG/KG		U*	BL	0.392	0.392	0.589	N	Yes	1	DRY
	Nickel	7440-02-0	T	MG/KG	2.25			0.0718	0.0718	0.118	Y	Yes	1	DRY
	Selenium	7782-49-2	T	MG/KG	0.220	J	RL	0.144	0.144	0.589	Y	Yes	1	DRY
	Silver	7440-22-4	T	MG/KG		U		0.0318	0.0318	0.118	N	Yes	1	DRY
	Thallium	7440-28-0	T	MG/KG	0.0542	J	RL	0.0294	0.0294	0.118	Y	Yes	1	DRY
	Vanadium	7440-62-2	T	MG/KG	8.86			0.0754	0.0754	0.118	Y	Yes	1	DRY
	Zinc	7440-66-6	T	MG/KG	8.06			0.393	0.393	0.589	Y	Yes	1	DRY
SW-846 7471B	Mercury	7439-97-6	T	MG/KG	0.0369	J	RL	0.0170	0.0170	0.0393	Y	Yes	1	DRY
SW-846 9045D	pH at 25 Degrees C	PH	N	SU	5.2			0.1	0.1	0.1	Y	Yes	1	NA
SW-846 9056A	Chloride	16887-00-6	N	MG/KG		U		4.53	4.53	11.7	N	Yes	1	DRY
	Fluoride	16984-48-8	N	MG/KG		U		0.795	0.795	1.17	N	Yes	1	DRY
	Sulfate	14808-79-8	N	MG/KG		U		7.93	7.93	11.7	N	Yes	1	DRY

TVA TDEC Program

Facility: Kingston Fossil Plant Environmental Investigation

SDG: 180876271

				Lab Sample ID	180-87627-5									
				Sys Sample Code	KIF-BS-BG07-21.5/23.5-20190312									
				Sample Name	KIF-BS-BG07-21.5/23.5-20190312									
				Sample Date	3/12/2019 2:45:00 PM									
				Location	BG-07									
				Sample Type	N									
				Parent Sample										
Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
	Percent Moisture:			%	40.1									
SW-846 6020A	Antimony	7440-36-0	T	MG/KG	0.215	J	RL	0.0995	0.0995	0.321	Y	Yes	1	DRY
	Arsenic	7440-38-2	T	MG/KG	11.7			0.0417	0.0417	0.161	Y	Yes	1	DRY
	Barium	7440-39-3	T	MG/KG	70.5			0.205	0.205	1.61	Y	Yes	1	DRY
	Beryllium	7440-41-7	T	MG/KG	2.51			0.0120	0.0120	0.161	Y	Yes	1	DRY
	Boron	7440-42-8	T	MG/KG	12.9			2.17	2.17	12.8	Y	Yes	1	DRY
	Cadmium	7440-43-9	T	MG/KG	0.273			0.0273	0.0273	0.161	Y	Yes	1	DRY
	Calcium	7440-70-2	T	MG/KG	49.5	J	RL	14.4	14.4	80.3	Y	Yes	1	DRY
	Chromium	7440-47-3	T	MG/KG	19.7			0.133	0.133	0.321	Y	Yes	1	DRY
	Cobalt	7440-48-4	T	MG/KG	50.2			0.0133	0.0133	0.0803	Y	Yes	1	DRY
	Copper	7440-50-8	T	MG/KG	60.4			0.181	0.181	0.321	Y	Yes	1	DRY
	Lead	7439-92-1	T	MG/KG	46.4			0.0562	0.0562	0.161	Y	Yes	1	DRY
	Lithium	7439-93-2	T	MG/KG	5.03			0.443	0.443	0.803	Y	Yes	1	DRY
	Molybdenum	7439-98-7	T	MG/KG		U*	BL	0.583	0.583	0.803	N	Yes	1	DRY
	Nickel	7440-02-0	T	MG/KG	47.4			0.0979	0.0979	0.161	Y	Yes	1	DRY
	Selenium	7782-49-2	T	MG/KG	1.33			0.196	0.196	0.803	Y	Yes	1	DRY
	Silver	7440-22-4	T	MG/KG		U		0.0433	0.0433	0.161	N	Yes	1	DRY
	Thallium	7440-28-0	T	MG/KG	0.258			0.0401	0.0401	0.161	Y	Yes	1	DRY
	Vanadium	7440-62-2	T	MG/KG	22.7			0.103	0.103	0.161	Y	Yes	1	DRY
	Zinc	7440-66-6	T	MG/KG	170			0.536	0.536	0.803	Y	Yes	1	DRY
SW-846 7471B	Mercury	7439-97-6	T	MG/KG		U		0.0275	0.0275	0.0636	N	Yes	1	DRY
SW-846 9045D	pH at 25 Degrees C	PH	N	SU	4.7			0.1	0.1	0.1	Y	Yes	1	NA
SW-846 9056A	Chloride	16887-00-6	N	MG/KG	16.5			6.36	6.36	16.4	Y	Yes	1	DRY
	Fluoride	16984-48-8	N	MG/KG		U		1.11	1.11	1.64	N	Yes	1	DRY
	Sulfate	14808-79-8	N	MG/KG		U		11.1	11.1	16.4	N	Yes	1	DRY

TVA TDEC Program

Facility: Kingston Fossil Plant Environmental Investigation

SDG: 180876271

				Lab Sample ID	180-87627-6									
				Sys Sample Code	KIF-BS-BG07-26.5/28.5-20190312									
				Sample Name	KIF-BS-BG07-26.5/28.5-20190312									
				Sample Date	3/12/2019 2:55:00 PM									
				Location	BG-07									
				Sample Type	N									
				Parent Sample										
Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
	Percent Moisture:			%	41.6									
SW-846 6020A	Antimony	7440-36-0	T	MG/KG	0.116	J	RL	0.111	0.111	0.357	Y	Yes	1	DRY
	Arsenic	7440-38-2	T	MG/KG	8.30			0.0464	0.0464	0.178	Y	Yes	1	DRY
	Barium	7440-39-3	T	MG/KG	89.7			0.228	0.228	1.78	Y	Yes	1	DRY
	Beryllium	7440-41-7	T	MG/KG	1.61			0.0134	0.0134	0.178	Y	Yes	1	DRY
	Boron	7440-42-8	T	MG/KG	11.9	J	RL	2.41	2.41	14.3	Y	Yes	1	DRY
	Cadmium	7440-43-9	T	MG/KG	0.276			0.0303	0.0303	0.178	Y	Yes	1	DRY
	Calcium	7440-70-2	T	MG/KG	67.8	J	RL	16.0	16.0	89.1	Y	Yes	1	DRY
	Chromium	7440-47-3	T	MG/KG	20.4			0.148	0.148	0.357	Y	Yes	1	DRY
	Cobalt	7440-48-4	T	MG/KG	23.1			0.0148	0.0148	0.0891	Y	Yes	1	DRY
	Copper	7440-50-8	T	MG/KG	29.5			0.201	0.201	0.357	Y	Yes	1	DRY
	Lead	7439-92-1	T	MG/KG	18.0			0.0624	0.0624	0.178	Y	Yes	1	DRY
	Lithium	7439-93-2	T	MG/KG	6.87			0.492	0.492	0.891	Y	Yes	1	DRY
	Molybdenum	7439-98-7	T	MG/KG		U*	BL	0.292	0.292	0.891	N	Yes	1	DRY
	Nickel	7440-02-0	T	MG/KG	47.8			0.109	0.109	0.178	Y	Yes	1	DRY
	Selenium	7782-49-2	T	MG/KG	1.73			0.217	0.217	0.891	Y	Yes	1	DRY
	Silver	7440-22-4	T	MG/KG		U		0.0481	0.0481	0.178	N	Yes	1	DRY
	Thallium	7440-28-0	T	MG/KG	0.285			0.0446	0.0446	0.178	Y	Yes	1	DRY
	Vanadium	7440-62-2	T	MG/KG	23.5			0.114	0.114	0.178	Y	Yes	1	DRY
	Zinc	7440-66-6	T	MG/KG	55.4			0.595	0.595	0.891	Y	Yes	1	DRY
SW-846 7471B	Mercury	7439-97-6	T	MG/KG		U		0.0216	0.0216	0.0498	N	Yes	1	DRY
SW-846 9045D	pH at 25 Degrees C	PH	N	SU	4.9			0.1	0.1	0.1	Y	Yes	1	NA
SW-846 9056A	Chloride	16887-00-6	N	MG/KG	7.69	J	RL	6.58	6.58	17.0	Y	Yes	1	DRY
	Fluoride	16984-48-8	N	MG/KG		U		1.15	1.15	1.70	N	Yes	1	DRY
	Sulfate	14808-79-8	N	MG/KG		U		11.5	11.5	17.0	N	Yes	1	DRY

TVA TDEC Program

Facility: Kingston Fossil Plant Environmental Investigation

SDG: 180876271

				Lab Sample ID	180-87627-7									
				Sys Sample Code	KIF-BS-BG07-31.5/33.5-20190312									
				Sample Name	KIF-BS-BG07-31.5/33.5-20190312									
				Sample Date	3/12/2019 3:05:00 PM									
				Location	BG-07									
				Sample Type	N									
				Parent Sample										
Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
	Percent Moisture:			%	37.0									
SW-846 6020A	Antimony	7440-36-0	T	MG/KG	0.539			0.101	0.101	0.327	Y	Yes	1	DRY
	Arsenic	7440-38-2	T	MG/KG	9.32			0.0426	0.0426	0.164	Y	Yes	1	DRY
	Barium	7440-39-3	T	MG/KG	32.8			0.209	0.209	1.64	Y	Yes	1	DRY
	Beryllium	7440-41-7	T	MG/KG	1.94			0.0123	0.0123	0.164	Y	Yes	1	DRY
	Boron	7440-42-8	T	MG/KG	9.34	J	RL	2.21	2.21	13.1	Y	Yes	1	DRY
	Cadmium	7440-43-9	T	MG/KG	0.582			0.0278	0.0278	0.164	Y	Yes	1	DRY
	Calcium	7440-70-2	T	MG/KG	101			14.6	14.6	81.8	Y	Yes	1	DRY
	Chromium	7440-47-3	T	MG/KG	16.7			0.136	0.136	0.327	Y	Yes	1	DRY
	Cobalt	7440-48-4	T	MG/KG	23.7			0.0136	0.0136	0.0818	Y	Yes	1	DRY
	Copper	7440-50-8	T	MG/KG	18.2			0.185	0.185	0.327	Y	Yes	1	DRY
	Lead	7439-92-1	T	MG/KG	17.0			0.0573	0.0573	0.164	Y	Yes	1	DRY
	Lithium	7439-93-2	T	MG/KG	5.35			0.452	0.452	0.818	Y	Yes	1	DRY
	Molybdenum	7439-98-7	T	MG/KG		U*	BL	0.318	0.318	0.818	N	Yes	1	DRY
	Nickel	7440-02-0	T	MG/KG	42.4			0.0998	0.0998	0.164	Y	Yes	1	DRY
	Selenium	7782-49-2	T	MG/KG	2.17			0.200	0.200	0.818	Y	Yes	1	DRY
	Silver	7440-22-4	T	MG/KG		U		0.0442	0.0442	0.164	N	Yes	1	DRY
	Thallium	7440-28-0	T	MG/KG	0.182			0.0409	0.0409	0.164	Y	Yes	1	DRY
	Vanadium	7440-62-2	T	MG/KG	16.3			0.105	0.105	0.164	Y	Yes	1	DRY
	Zinc	7440-66-6	T	MG/KG	100			0.547	0.547	0.818	Y	Yes	1	DRY
SW-846 7471B	Mercury	7439-97-6	T	MG/KG		U		0.0243	0.0243	0.0561	N	Yes	1	DRY
SW-846 9045D	pH at 25 Degrees C	PH	N	SU	5.3			0.1	0.1	0.1	Y	Yes	1	NA
SW-846 9056A	Chloride	16887-00-6	N	MG/KG		U		6.02	6.02	15.5	N	Yes	1	DRY
	Fluoride	16984-48-8	N	MG/KG		U		1.05	1.05	1.55	N	Yes	1	DRY
	Sulfate	14808-79-8	N	MG/KG		U		10.5	10.5	15.5	N	Yes	1	DRY

Lab Sample ID	180-87627-8									
Sys Sample Code	KIF-BS-BG07-36.5/38.5-20190312									
Sample Name	KIF-BS-BG07-36.5/38.5-20190312									
Sample Date	3/12/2019 3:20:00 PM									
Location	BG-07									
Sample Type	N									
Parent Sample										
Result Unit	Final Result	Final Qual	Reason code	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
%	40.8									
MG/KG	0.799			0.0997	0.0997	0.322	Y	Yes	1	DRY
MG/KG	30.6			0.0418	0.0418	0.161	Y	Yes	1	DRY
MG/KG	45.9			0.206	0.206	1.61	Y	Yes	1	DRY
MG/KG	3.47			0.0121	0.0121	0.161	Y	Yes	1	DRY
MG/KG	11.8	J	RL	2.17	2.17	12.9	Y	Yes	1	DRY
MG/KG	0.645			0.0273	0.0273	0.161	Y	Yes	1	DRY
MG/KG	263			14.4	14.4	80.4	Y	Yes	1	DRY
MG/KG	25.7			0.134	0.134	0.322	Y	Yes	1	DRY
MG/KG	25.1			0.0134	0.0134	0.0804	Y	Yes	1	DRY
MG/KG	63.8			0.182	0.182	0.322	Y	Yes	1	DRY
MG/KG	492			0.0563	0.0563	0.161	Y	Yes	1	DRY
MG/KG	3.65			0.444	0.444	0.804	Y	Yes	1	DRY
MG/KG	2.66			0.262	0.262	0.804	Y	Yes	1	DRY
MG/KG	45.5			0.0981	0.0981	0.161	Y	Yes	1	DRY
MG/KG	2.15			0.196	0.196	0.804	Y	Yes	1	DRY
MG/KG		U		0.0434	0.0434	0.161	N	Yes	1	DRY
MG/KG	0.189			0.0402	0.0402	0.161	Y	Yes	1	DRY
MG/KG	30.6			0.103	0.103	0.161	Y	Yes	1	DRY
MG/KG	1120			0.537	0.537	0.804	Y	Yes	1	DRY
MG/KG	0.0272	J	RL	0.0201	0.0201	0.0465	Y	Yes	1	DRY
SU	5.8			0.1	0.1	0.1	Y	Yes	1	NA
MG/KG		U		6.47	6.47	16.7	N	Yes	1	DRY
MG/KG		U		1.13	1.13	1.67	N	Yes	1	DRY
MG/KG		U		11.3	11.3	16.7	N	Yes	1	DRY

TVA TDEC Program

Facility: Kingston Fossil Plant Environmental Investigation

SDG: 180876271

				Lab Sample ID	180-87627-9									
				Sys Sample Code	KIF-BS-BG07-41.5/43.5-20190312									
				Sample Name	KIF-BS-BG07-41.5/43.5-20190312									
				Sample Date	3/12/2019 4:00:00 PM									
				Location	BG-07									
				Sample Type	N									
				Parent Sample										
Analytic Method	Chemical Name	CAS Rn	Fraction	Result Unit	Final Result	Final Qual	Reason code	Final MDL	Final RL	Final QL	Final Detect	Final Report	DF	Basis
	Percent Moisture:			%	33.1									
SW-846 6020A	Antimony	7440-36-0	T	MG/KG		U		0.0936	0.0936	0.302	N	Yes	1	DRY
	Arsenic	7440-38-2	T	MG/KG	7.78			0.0392	0.0392	0.151	Y	Yes	1	DRY
	Barium	7440-39-3	T	MG/KG	118			0.193	0.193	1.51	Y	Yes	1	DRY
	Beryllium	7440-41-7	T	MG/KG	1.36			0.0113	0.0113	0.151	Y	Yes	1	DRY
	Boron	7440-42-8	T	MG/KG	12.6			2.04	2.04	12.1	Y	Yes	1	DRY
	Cadmium	7440-43-9	T	MG/KG	0.630			0.0257	0.0257	0.151	Y	Yes	1	DRY
	Calcium	7440-70-2	T	MG/KG	348			13.5	13.5	75.5	Y	Yes	1	DRY
	Chromium	7440-47-3	T	MG/KG	19.8			0.125	0.125	0.302	Y	Yes	1	DRY
	Cobalt	7440-48-4	T	MG/KG	43.2			0.0125	0.0125	0.0755	Y	Yes	1	DRY
	Copper	7440-50-8	T	MG/KG	16.4			0.171	0.171	0.302	Y	Yes	1	DRY
	Lead	7439-92-1	T	MG/KG	23.1			0.0528	0.0528	0.151	Y	Yes	1	DRY
	Lithium	7439-93-2	T	MG/KG	8.19			0.417	0.417	0.755	Y	Yes	1	DRY
	Molybdenum	7439-98-7	T	MG/KG		U*	BL	0.319	0.319	0.755	N	Yes	1	DRY
	Nickel	7440-02-0	T	MG/KG	38.7			0.0921	0.0921	0.151	Y	Yes	1	DRY
	Selenium	7782-49-2	T	MG/KG	1.44			0.184	0.184	0.755	Y	Yes	1	DRY
	Silver	7440-22-4	T	MG/KG		U		0.0407	0.0407	0.151	N	Yes	1	DRY
	Thallium	7440-28-0	T	MG/KG	0.532			0.0377	0.0377	0.151	Y	Yes	1	DRY
	Vanadium	7440-62-2	T	MG/KG	21.6			0.0966	0.0966	0.151	Y	Yes	1	DRY
	Zinc	7440-66-6	T	MG/KG	80.4			0.504	0.504	0.755	Y	Yes	1	DRY
SW-846 7471B	Mercury	7439-97-6	T	MG/KG		U		0.0194	0.0194	0.0448	N	Yes	1	DRY
SW-846 9045D	pH at 25 Degrees C	PH	N	SU	5.8			0.1	0.1	0.1	Y	Yes	1	NA
SW-846 9056A	Chloride	16887-00-6	N	MG/KG		U		5.79	5.79	14.9	N	Yes	1	DRY
	Fluoride	16984-48-8	N	MG/KG		U		1.01	1.01	1.49	N	Yes	1	DRY
	Sulfate	14808-79-8	N	MG/KG		U		10.1	10.1	14.9	N	Yes	1	DRY

SECTION 3

SUPPORTING DOCUMENTATION FOR QUALIFIERS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: TVA KIF BS DV
 Sample Collection Dates: 3/12/19
 Job Number: 20188371.A000
 Project Manager: Amanda Cover
 Laboratory: TA Pittsburgh

Reviewed by: Steven J. Lennon
 Approved by: THW
 Completion Date: 4/1/2019

Applicable Sample No's ()

Refer to Table 1 in the Quality Assurance Review

		<u>SDG No.</u>	<u>Lab Control No.</u>
Deliverable:	CLP-like(Full) ()	180-87627-1	
	Level IV (Full) (✓)		
	Limited ()		
	Other:		

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail				Problems Identified				Support Documentation Attachments					
	Check (✓) if Yes or Footnote Letter for Comments Below				Check (✓) if Yes or Footnote Letter for Comments Below				Check (✓) if Yes or Footnote Letter for Comments Below					
	6020A	7470A/7471B	Cl, F, SO ₄ 9056A	PH 9045D		6020A	7470A/7471B	Cl, F, SO ₄ 9056A	PH 9045D		6020A	7470A/7471B	Cl, F, SO ₄ 9056A	PH 9045D
Holding Times	✓	✓	✓	✓										
Blank Analysis Results	✓	✓	✓	✓			✓					✓		
Matrix Spike (Predigestion) Results	✓	✓												
Duplicate Analysis: () Field () Lab	✓	✓	✓	✓										
Quantitation of Results	✓	✓	✓	✓										
Detection Limit/Sensitivity	✓	✓	✓	✓										
Initial Calibrations	✓	✓	✓	✓										
Continuing Calibrations	✓	✓	✓	✓										
Laboratory Control Standard (LCS)	✓	✓	✓	✓										
ICP Linear Range Analysis	✓													
ICP Interference Checks	✓													
ICP Serial Dilutions	✓													
ICP/ICPMS Post-Digestion Spike	✓													
ICPMS Internal Standards	✓													
GFAA Post Digestion Spikes														
GFAA Duplicate Injections														
ICP Multiple Exposures														
GFAA Standard Additions														
CRDL Standards	✓	✓												
Condition on Receipt	✓	✓	✓											
Percent Solids	✓	✓	✓											
Others:														

Comments: _____



BLANK ANALYSIS RESULTS FOR INORGANIC PARAMETERS

Aq = Aqueous; S = Solid

Notes:

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Pittsburgh

Job No.: 180-87627-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 180-273601/6 03/20/2019 19:20		CCB1 180-273601/11 03/20/2019 19:42		CCB2 180-273601/23 03/20/2019 20:34		CCB3 180-273601/35 03/20/2019 21:30	
		Found	C	Found	C	Found	C	Found	C
Antimony	2.00	ND		ND		ND		ND	
Arsenic	1.00	ND		ND		ND		ND	
Barium	10.0	ND		ND		ND		ND	
Beryllium	1.00	ND		ND		ND		ND	
Boron	80.0	ND		ND		ND		ND	
Cadmium	1.00	ND		ND		ND		ND	
Calcium	500	ND		ND		ND		ND	
Chromium	2.00	ND		ND		ND		ND	
Cobalt	0.500	ND		ND		ND		ND	
Copper	2.00	ND		ND		ND		ND	
Lead	1.00	ND		ND		ND		ND	
Lithium	5.00	ND		ND		ND		ND	
Molybdenum	5.00	ND		0.8780	J	ND		ND	
Nickel	1.00	ND		ND		ND		ND	
Selenium	5.00	ND		ND		ND		ND	
Silver	1.00	ND		ND		ND		ND	
Thallium	1.00	ND		ND		ND		ND	
Vanadium	1.00	ND		ND		ND		ND	
Zinc	5.00	ND		ND		ND		ND	

Assoc. w/ soil
samples

No Neg. Conc.
w/ ab. rd. > 2 x MDL

$$\times 5 = 4.390 \text{ g/L}$$

U*(BL)

-3
-4
-5
-6
-7
-9

See raw
data

Italicized analytes were not requested for this sequence.

SECTION 4

CASE NARRATIVE AND CHAIN-OF-CUSTODY RECORD

**Job Narrative
180-87627-1**

Receipt

The samples were received on 3/13/2019 9:30 AM; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.3°C and 4.5°C.

GC Semi VOA

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

Metals

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

General Chemistry

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

Sample Summary

Client: Environmental Standards Inc.
Project/Site: KIF_BS_20190312_1A

TestAmerica Job ID: 180-87627-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-87627-1	KIF-BS-BG07-1.5/3.5-20190312	Solid	03/12/19 14:00	03/13/19 09:30
180-87627-2	KIF-BS-BG07-6.5/8.5-20190312	Solid	03/12/19 14:12	03/13/19 09:30
180-87627-3	KIF-BS-BG07-11.5/13.5-20190312	Solid	03/12/19 14:28	03/13/19 09:30
180-87627-4	KIF-BS-BG07-16.5/18.5-20190312	Solid	03/12/19 14:35	03/13/19 09:30
180-87627-5	KIF-BS-BG07-21.5/23.5-20190312	Solid	03/12/19 14:45	03/13/19 09:30
180-87627-6	KIF-BS-BG07-26.5/28.5-20190312	Solid	03/12/19 14:55	03/13/19 09:30
180-87627-7	KIF-BS-BG07-31.5/33.5-20190312	Solid	03/12/19 15:05	03/13/19 09:30
180-87627-8	KIF-BS-BG07-36.5/38.5-20190312	Solid	03/12/19 15:20	03/13/19 09:30
180-87627-9	KIF-BS-BG07-41.5/43.5-20190312	Solid	03/12/19 16:00	03/13/19 09:30
180-87627-10	KIF-BS-BG07-46.5/48.5-20190312	Solid	03/12/19 16:10	03/13/19 09:30
180-87627-11	KIF-BS-BG07-51.5/53.5-20190312	Solid	03/12/19 16:20	03/13/19 09:30
180-87627-12	KIF-BS-BG07-0.0/0.5-20190312	Solid	03/12/19 16:30	03/13/19 09:30
180-87627-13	KIF-BS-FB01-20190312 / Field Blank	Water	03/12/19 16:35	03/13/19 09:30

TestAmerica Pittsburgh

TVA Environmental Investigations



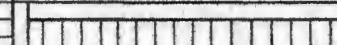
Tennessee Valley Authority

Chain-of-Custody / Analytical Request Document

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

COOLER No.:	1	of	2
COC No.:	KIF_BS 20190312_1A		
1 of 1 Pages			
Task Desc:	KIF_BS		

Required Ship-to Lab:		Required Project Information:		Required Sample Information:	
Lab Name:	TestAmerica Pittsburgh	Site ID #:	Kingsland Paper Plant	Analyst:	Dennis Mihalek/Jim Andrew/Annie Wilson
Lab Address:	301 Alpha Drive Pittsburgh, PA 15238	Project #: 17500043	Sampling Company:	Blantec	
		Site Address:	2735 Rose Bluff Highway	Address:	601 Greenway Park Road, Suite 22
		City:	Hempstead	City/State:	Nashville, TN
		State, Zip:	PA, 15238	Phone:	(815) 822-1164
Lab Manager Contact Information:		Site PM Name:		Roy Dunn	
Lab PM:	Gail Laga	Phone/Fax:	423-751-3753	Sampling Team Number:	1
Phone/Fax:	815-301-5741/815-728-3404	Site PM Email:	laga@testamerica.com	Email EDGAR/EnviroFax:	laga_gail@envirofax.com
Lab Email:	Gail.Laga@testamerica.com				



180-87627 Chain of Custody

Index #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	Sample Depth		MATRIX CODE	G# GRAB COUNT	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	CONTAMINANT	Comments/ Lab Sample I.D.	NUMBER
			Start Depth	End Depth								
1	KIF-BS-BG07-1.5/3.5-20190312	BG-07	1.5	3.5	S	G	N	3/12/2019	1400	2		X X
2	KIF-BS-BG07-6.5/8.5-20190312	BG-07	6.5	8.5	S	G	N	3/12/2019	1412	2		X X
3	KIF-BS-BG07-11.5/13.5-20190312	BG-07	11.5	13.5	S	G	N	3/12/2019	1428	2		X X
4	KIF-BS-BG07-15.5/18.5-20190312	BG-07	16.5	18.5	S	G	N	3/12/2019	1435	2		X X
5	KIF-BS-BG07-21.5/23.5-20190312	BG-07	21.5	23.5	S	G	N	3/12/2019	1445	2		X X
6	KIF-BS-BG07-26.5/28.5-20190312	BG-07	26.5	28.5	S	G	N	3/12/2019	1455	2		X X
7	KIF-BS-BG07-31.5/33.5-20190312	BG-07	31.5	33.5	S	G	N	3/12/2019	1505	2		X X
8	KIF-BS-BG07-38.5/40.5-20190312	BG-07	38.5	40.5	S	G	N	3/12/2019	1520	2		X X
9	KIF-BS-BG07-41.5/43.5-20190312	BG-07	41.5	43.5	S	G	N	3/12/2019	1600	2		X X
10	KIF-BS-BG07-46.5/48.5-20190312	BG-07	46.5	48.5	S	G	N	3/12/2019	1610	2		X X
11	KIF-BS-BG07-51.5/53.5-20190312	BG-07	51.5	53.5	S	G	N	3/12/2019	1620	2		X X
12	KIF-BS-BG07-0.0/0.5-20190312	BG-07	0	0.5	S	G	N	3/12/2019	1630	2		X X
13	KIF-BS-PB01-20190312	BG-07	NA	NA	AQ	G	FB	3/12/2019	1636	2		X

Additional Comments/Special Instructions:

Additional volume collected should be used for MS/MSDs.

BACKGROUND SOIL: Perform MS/MSD on sample identified above

BACKGROUND SOIL_BLANKS: Anions -- unpreserved; Metals -- preserved w/ HNO3 to pH<2.

RECEIVED BY ANALYST	DATE	TIME	RECEIVED BY ATTENDANT	DATE	TIME	Sample Receipt Conditions
Annie Wilson/Mihalek <i>[Signature]</i>	3/12/2019	1230	<i>[Signature]</i>	3/12/2019	9:30	On Time
						At Room Temp
						Sample on Ice?
						Sample intact?
						Specimen Ident?
						Spec. Blank?

THROWN AWAY	SAMPLE NAME AND SIGNATURE
Cooler	Dennis Mihalek <i>[Signature]</i>
3/12/2019	Jim Andrew <i>[Signature]</i>
	Annie Wilson <i>[Signature]</i>

TVA Environmental Investigations



Tennessee Valley Authority

Chain-of-Custody / Analytical Request Document

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

Required Ship to Info:		Required Project Information:		Required Sampler Information	
Lab Name: TestAmerica Pittsburgh	Site ID #: 17604043	Kingston Fossil Plant	Sampler: Dennis MR/Marci Andrade/Vivian Wheeler		
Lab Address: 301 Alpha Drive Pittsburgh, PA 15238	Project #: 2735 Roane State Highway	Sampling Company: SRH Inc.	Address: 801 Creechman Park Road, Suite 22		
	City: Hartman	City/State: TN 37783	City/State: Nashville, TN	Phone:	(615) 645-1144
Lab Manager Contact Information					
Lab P.M.: Gas Lab	Site P.M. Name: Ray Clinton	Sampling Team Number: 1			
Phone/Fax: 615-301-5741/615-725-3404	Phone/Fax: 423-751-3759	Send EDDI/Hot Copy List:	bcl Clinton@srhinc.com		
Email: Gas.Lab@srhinc.com	Site P.M. Email: RAYCLINTON@srhinc.com	Analysis Turnaround Time			
		1 BUSINESS DAY	1 BUSINESS DAY		

COOLER No.:	2	of	2
COC No.:	KIF_BS 20190312_1A		
1 of 1 Pages			
Task Details	KIF_BS		

ID	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	Sample Depth		MATRIX CODE	G= GRAB C=COMP	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	Comments/Lab Sample I.D.
			Depth Unit	Elapsed Time							
1	KIF-BB-BG07-1.5/3.5-20190312	BG-07	1.5	3.5	S	G	N	3/12/2019	1400	2	
2	KIF-BB-BG07-6.5/6.5-20190312	BG-07	6.5	8.5	S	G	N	3/12/2019	1412	2	
3	KIF-BB-BG07-11.5/13.5-20190312	BG-07	11.5	13.5	S	G	N	3/12/2019	1428	2	
4	KIF-BB-BG07-18.5/18.5-20190312	BG-07	18.5	18.5	S	G	N	3/12/2019	1435	2	
5	KIF-BB-BG07-21.2/23.5-20190312	BG-07	21.5	23.5	S	G	N	3/12/2019	1445	2	
6	KIF-BB-BG07-26.5/28.5-20190312	BG-07	26.5	28.5	S	G	N	3/12/2019	1455	2	
7	KIF-BB-BG07-31.5/33.5-20190312	BG-07	31.5	33.5	S	G	N	3/12/2019	1505	2	
8	KIF-BB-BG07-36.5/38.5-20190312	BG-07	36.5	38.5	S	G	N	3/12/2019	1520	2	
9	KIF-BB-BG07-41.5/43.5-20190312	BG-07	41.5	43.5	S	G	N	3/12/2019	1600	2	
10	KIF-BB-BG07-46.5/48.5-20190312	BG-07	46.5	48.5	S	G	N	3/12/2019	1610	2	
11	KIF-BB-BG07-51.5/53.5-20190312	BG-07	51.5	53.5	S	G	N	3/12/2019	1620	2	
12	KIF-BB-BG07-0.0/0.5-20190312	BG-07	0	0.5	S	G	N	3/12/2019	1630	2	
13	KIF-BB-FM01-20190312	BG-07	NA	NA	AO	G	FR	3/12/2019	1635	2	

Advanced Constraints/Special Instructions:

Additional volume collected should be used for MS/MSDs.

BACKGROUND SOIL: Perform MS/MSD on sample identified above.

BACKGROUND SOIL_BLANKS: Anions - unmeasured; Metals - measured w/ HNO₃ to

BACKGROUND SOIL_BLANKS: Anions - unpreserved; Metals - preserved w/ HNO₃ to pH <2

BACKGROUND SOIL_BLANKS: Anions - unpreserved; Metals - preserved w/ HNO₃ to pH <2

Login Sample Receipt Checklist

Client: Environmental Standards Inc.

Job Number: 180-87627-1

Login Number: 87627 /

List Source: TestAmerica Pittsburgh /

List Number: 1

Creator: Say, Thomas C

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	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	✓
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	