

July 03, 2019

Tyler Baker
Tennessee Valley Authority
Chickamauga Power Service Cent
4601 North Access Road, Bld. B
Chattanooga, TN 374153825

RE: Project: 425258 CUMBERLAND FOSSIL PLANT
Pace Project No.: 40189621

Dear Tyler Baker:

Enclosed are the analytical results for sample(s) received by the laboratory on June 18, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Tod Noltemeyer
tod.noltemeyer@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Jennifer Gable, Environmental Standards, Inc.
Roy Quinn, TVA



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 425258 CUMBERLAND FOSSIL PLANT

Pace Project No.: 40189621

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 425258 CUMBERLAND FOSSIL PLANT

Pace Project No.: 40189621

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40189621001	CUF-FH-LB-F-EB01-20190509	Tissue	05/09/19 10:35	06/18/19 09:05
40189621002	CUF-FH-CC-F-EB01-20190522	Tissue	05/22/19 13:10	06/18/19 09:05
40189621003	CUF-FH-CC-F-EB01-20190524	Tissue	05/24/19 08:55	06/18/19 09:05

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SAMPLE ANALYTE COUNT

Project: 425258 CUMBERLAND FOSSIL PLANT

Pace Project No.: 40189621

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40189621001	CUF-FH-LB-F-EB01-20190509	EPA 6020	DS1	20
		EPA 7473	AJT	1
40189621002	CUF-FH-CC-F-EB01-20190522	EPA 6020	DS1	20
		EPA 7473	AJT	1
40189621003	CUF-FH-CC-F-EB01-20190524	EPA 6020	DS1	20
		EPA 7473	AJT	1

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 425258 CUMBERLAND FOSSIL PLANT

Pace Project No.: 40189621

Method: EPA 6020

Description: 6020 MET ICPMS

Client: TENNESSEE VALLEY AUTHORITY

Date: July 03, 2019

General Information:

3 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3050B with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 425258 CUMBERLAND FOSSIL PLANT

Pace Project No.: 40189621

Method: EPA 7473

Description: 7473 Mercury, Tissue

Client: TENNESSEE VALLEY AUTHORITY

Date: July 03, 2019

General Information:

3 samples were analyzed for EPA 7473. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H1: Analysis conducted outside the recognized method holding time.

- CUF-FH-CC-F-EB01-20190522 (Lab ID: 40189621002)
- CUF-FH-CC-F-EB01-20190524 (Lab ID: 40189621003)

H3: Sample was received or analysis requested beyond the recognized method holding time.

- CUF-FH-LB-F-EB01-20190509 (Lab ID: 40189621001)

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 425258 CUMBERLAND FOSSIL PLANT

Pace Project No.: 40189621

Sample: CUF-FH-LB-F-EB01-20190509 **Lab ID:** 40189621001 **Collected:** 05/09/19 10:35 **Received:** 06/18/19 09:05 **Matrix:** Tissue

Results reported on a "wet-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS									
Analytical Method: EPA 6020 Preparation Method: EPA 3050B									
Antimony	<0.016	mg/kg	0.10	0.016	1	06/28/19 10:01	07/02/19 18:30	7440-36-0	
Arsenic	<0.030	mg/kg	0.10	0.030	1	06/28/19 10:01	07/02/19 18:30	7440-38-2	
Barium	<0.031	mg/kg	0.10	0.031	1	06/28/19 10:01	07/02/19 18:30	7440-39-3	
Beryllium	<0.033	mg/kg	0.11	0.033	1	06/28/19 10:01	07/02/19 18:30	7440-41-7	
Boron	<0.70	mg/kg	2.3	0.70	1	06/28/19 10:01	07/02/19 18:30	7440-42-8	
Cadmium	<0.014	mg/kg	0.10	0.014	1	06/28/19 10:01	07/02/19 18:30	7440-43-9	
Calcium	<25.4	mg/kg	84.7	25.4	1	06/28/19 10:01	07/02/19 18:30	7440-70-2	
Chromium	<0.088	mg/kg	0.29	0.088	1	06/28/19 10:01	07/02/19 18:30	7440-47-3	
Cobalt	<0.0082	mg/kg	0.10	0.0082	1	06/28/19 10:01	07/02/19 18:30	7440-48-4	
Copper	<0.28	mg/kg	0.95	0.28	1	06/28/19 10:01	07/02/19 18:30	7440-50-8	
Lead	<0.026	mg/kg	0.087	0.026	1	06/28/19 10:01	07/02/19 18:30	7439-92-1	
Lithium	<0.021	mg/kg	0.10	0.021	1	06/28/19 10:01	07/02/19 18:30	7439-93-2	
Molybdenum	<0.036	mg/kg	0.12	0.036	1	06/28/19 10:01	07/02/19 18:30	7439-98-7	
Nickel	<0.041	mg/kg	0.14	0.041	1	06/28/19 10:01	07/02/19 18:30	7440-02-0	
Selenium	<0.051	mg/kg	0.17	0.051	1	06/28/19 10:01	07/02/19 18:30	7782-49-2	
Silver	<0.011	mg/kg	0.050	0.011	1	06/28/19 10:01	07/02/19 18:30	7440-22-4	
Strontium	<0.16	mg/kg	0.54	0.16	1	06/28/19 10:01	07/02/19 18:30	7440-24-6	
Thallium	<0.013	mg/kg	0.10	0.013	1	06/28/19 10:01	07/02/19 18:30	7440-28-0	
Vanadium	<0.033	mg/kg	0.11	0.033	1	06/28/19 10:01	07/02/19 18:30	7440-62-2	
Zinc	<1.7	mg/kg	5.7	1.7	1	06/28/19 10:01	07/02/19 18:30	7440-66-6	
7473 Mercury, Tissue									
Analytical Method: EPA 7473									
Mercury	<0.0031	mg/kg	0.020	0.0031	1		06/24/19 17:32	7439-97-6	H3

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ANALYTICAL RESULTS

Project: 425258 CUMBERLAND FOSSIL PLANT

Pace Project No.: 40189621

Sample: CUF-FH-CC-F-EB01-20190522 **Lab ID:** 40189621002 **Collected:** 05/22/19 13:10 **Received:** 06/18/19 09:05 **Matrix:** Tissue

Results reported on a "wet-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS									
Analytical Method: EPA 6020 Preparation Method: EPA 3050B									
Antimony	<0.016	mg/kg	0.10	0.016	1	06/28/19 10:01	07/02/19 18:37	7440-36-0	
Arsenic	<0.030	mg/kg	0.10	0.030	1	06/28/19 10:01	07/02/19 18:37	7440-38-2	
Barium	<0.031	mg/kg	0.10	0.031	1	06/28/19 10:01	07/02/19 18:37	7440-39-3	
Beryllium	<0.033	mg/kg	0.11	0.033	1	06/28/19 10:01	07/02/19 18:37	7440-41-7	
Boron	<0.70	mg/kg	2.3	0.70	1	06/28/19 10:01	07/02/19 18:37	7440-42-8	
Cadmium	<0.014	mg/kg	0.10	0.014	1	06/28/19 10:01	07/02/19 18:37	7440-43-9	
Calcium	<25.4	mg/kg	84.7	25.4	1	06/28/19 10:01	07/02/19 18:37	7440-70-2	
Chromium	<0.088	mg/kg	0.29	0.088	1	06/28/19 10:01	07/02/19 18:37	7440-47-3	
Cobalt	<0.0082	mg/kg	0.10	0.0082	1	06/28/19 10:01	07/02/19 18:37	7440-48-4	
Copper	<0.28	mg/kg	0.95	0.28	1	06/28/19 10:01	07/02/19 18:37	7440-50-8	
Lead	<0.026	mg/kg	0.087	0.026	1	06/28/19 10:01	07/02/19 18:37	7439-92-1	
Lithium	<0.021	mg/kg	0.10	0.021	1	06/28/19 10:01	07/02/19 18:37	7439-93-2	
Molybdenum	<0.036	mg/kg	0.12	0.036	1	06/28/19 10:01	07/02/19 18:37	7439-98-7	
Nickel	<0.041	mg/kg	0.14	0.041	1	06/28/19 10:01	07/02/19 18:37	7440-02-0	
Selenium	<0.051	mg/kg	0.17	0.051	1	06/28/19 10:01	07/02/19 18:37	7782-49-2	
Silver	<0.011	mg/kg	0.050	0.011	1	06/28/19 10:01	07/02/19 18:37	7440-22-4	
Strontium	<0.16	mg/kg	0.54	0.16	1	06/28/19 10:01	07/02/19 18:37	7440-24-6	
Thallium	<0.013	mg/kg	0.10	0.013	1	06/28/19 10:01	07/02/19 18:37	7440-28-0	
Vanadium	<0.033	mg/kg	0.11	0.033	1	06/28/19 10:01	07/02/19 18:37	7440-62-2	
Zinc	<1.7	mg/kg	5.7	1.7	1	06/28/19 10:01	07/02/19 18:37	7440-66-6	
7473 Mercury, Tissue									
Analytical Method: EPA 7473									
Mercury	<0.0031	mg/kg	0.020	0.0031	1		06/24/19 18:24	7439-97-6	H1

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ANALYTICAL RESULTS

Project: 425258 CUMBERLAND FOSSIL PLANT

Pace Project No.: 40189621

Sample: CUF-FH-CC-F-EB01-20190524 **Lab ID:** 40189621003 **Collected:** 05/24/19 08:55 **Received:** 06/18/19 09:05 **Matrix:** Tissue

Results reported on a "wet-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS									
Analytical Method: EPA 6020 Preparation Method: EPA 3050B									
Antimony	<0.016	mg/kg	0.10	0.016	1	06/28/19 10:01	07/02/19 18:45	7440-36-0	
Arsenic	<0.030	mg/kg	0.10	0.030	1	06/28/19 10:01	07/02/19 18:45	7440-38-2	
Barium	<0.031	mg/kg	0.10	0.031	1	06/28/19 10:01	07/02/19 18:45	7440-39-3	
Beryllium	<0.033	mg/kg	0.11	0.033	1	06/28/19 10:01	07/02/19 18:45	7440-41-7	
Boron	<0.70	mg/kg	2.3	0.70	1	06/28/19 10:01	07/02/19 18:45	7440-42-8	
Cadmium	<0.014	mg/kg	0.10	0.014	1	06/28/19 10:01	07/02/19 18:45	7440-43-9	
Calcium	<25.4	mg/kg	84.7	25.4	1	06/28/19 10:01	07/02/19 18:45	7440-70-2	
Chromium	<0.088	mg/kg	0.29	0.088	1	06/28/19 10:01	07/02/19 18:45	7440-47-3	
Cobalt	<0.0082	mg/kg	0.10	0.0082	1	06/28/19 10:01	07/02/19 18:45	7440-48-4	
Copper	<0.28	mg/kg	0.95	0.28	1	06/28/19 10:01	07/02/19 18:45	7440-50-8	
Lead	<0.026	mg/kg	0.087	0.026	1	06/28/19 10:01	07/02/19 18:45	7439-92-1	
Lithium	<0.021	mg/kg	0.10	0.021	1	06/28/19 10:01	07/02/19 18:45	7439-93-2	
Molybdenum	<0.036	mg/kg	0.12	0.036	1	06/28/19 10:01	07/02/19 18:45	7439-98-7	
Nickel	<0.041	mg/kg	0.14	0.041	1	06/28/19 10:01	07/02/19 18:45	7440-02-0	
Selenium	<0.051	mg/kg	0.17	0.051	1	06/28/19 10:01	07/02/19 18:45	7782-49-2	
Silver	<0.011	mg/kg	0.050	0.011	1	06/28/19 10:01	07/02/19 18:45	7440-22-4	
Strontium	<0.16	mg/kg	0.54	0.16	1	06/28/19 10:01	07/02/19 18:45	7440-24-6	
Thallium	<0.013	mg/kg	0.10	0.013	1	06/28/19 10:01	07/02/19 18:45	7440-28-0	
Vanadium	<0.033	mg/kg	0.11	0.033	1	06/28/19 10:01	07/02/19 18:45	7440-62-2	
Zinc	<1.7	mg/kg	5.7	1.7	1	06/28/19 10:01	07/02/19 18:45	7440-66-6	
7473 Mercury, Tissue									
Analytical Method: EPA 7473									
Mercury	<0.0031	mg/kg	0.020	0.0031	1		06/24/19 18:36	7439-97-6	H1

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QUALITY CONTROL DATA

Project: 425258 CUMBERLAND FOSSIL PLANT

Pace Project No.: 40189621

QC Batch:	325348	Analysis Method:	EPA 7473
QC Batch Method:	EPA 7473	Analysis Description:	7473 Mercury
Associated Lab Samples: 40189621001, 40189621002, 40189621003			

METHOD BLANK: 1889472 Matrix: Tissue

Associated Lab Samples: 40189621001, 40189621002, 40189621003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/kg	<0.0032	0.020	0.0032	06/24/19 12:49	

LABORATORY CONTROL SAMPLE & LCSD: 1889473

1889474

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Mercury	mg/kg	0.25	0.29	0.29	114	113	80-120	1	20	

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QUALITY CONTROL DATA

Project: 425258 CUMBERLAND FOSSIL PLANT

Pace Project No.: 40189621

QC Batch: 325786 Analysis Method: EPA 6020
QC Batch Method: EPA 3050B Analysis Description: 6020 MET TISSUE
Associated Lab Samples: 40189621001, 40189621002, 40189621003

METHOD BLANK: 1891435 Matrix: Tissue

Associated Lab Samples: 40189621001, 40189621002, 40189621003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/kg	<0.016	0.10	0.016	07/02/19 17:54	
Arsenic	mg/kg	<0.030	0.10	0.030	07/02/19 17:54	
Barium	mg/kg	<0.031	0.10	0.031	07/02/19 17:54	
Beryllium	mg/kg	<0.033	0.11	0.033	07/02/19 17:54	
Boron	mg/kg	<0.70	2.3	0.70	07/02/19 17:54	
Cadmium	mg/kg	<0.014	0.10	0.014	07/02/19 17:54	
Calcium	mg/kg	<25.4	84.7	25.4	07/02/19 17:54	
Chromium	mg/kg	<0.088	0.29	0.088	07/02/19 17:54	
Cobalt	mg/kg	<0.0082	0.10	0.0082	07/02/19 17:54	
Copper	mg/kg	<0.28	0.95	0.28	07/02/19 17:54	
Lead	mg/kg	<0.026	0.087	0.026	07/02/19 17:54	
Lithium	mg/kg	<0.021	0.10	0.021	07/02/19 17:54	
Molybdenum	mg/kg	<0.036	0.12	0.036	07/02/19 17:54	
Nickel	mg/kg	<0.041	0.14	0.041	07/02/19 17:54	
Selenium	mg/kg	<0.051	0.17	0.051	07/02/19 17:54	
Silver	mg/kg	<0.011	0.050	0.011	07/02/19 17:54	
Strontium	mg/kg	<0.16	0.54	0.16	07/02/19 17:54	
Thallium	mg/kg	<0.013	0.10	0.013	07/02/19 17:54	
Vanadium	mg/kg	<0.033	0.11	0.033	07/02/19 17:54	
Zinc	mg/kg	<1.7	5.7	1.7	07/02/19 17:54	

LABORATORY CONTROL SAMPLE & LCSD: 1891438

1891439

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Antimony	mg/kg	5	5.7	5.8	114	116	80-120	1	20	
Arsenic	mg/kg	5	5.4	5.5	109	110	80-120	1	20	
Barium	mg/kg	5	5.1	5.2	102	104	80-120	1	20	
Beryllium	mg/kg	5	5.1	5.3	103	106	80-120	3	20	
Boron	mg/kg	10	10.3	10.6	103	106	80-120	3	20	
Cadmium	mg/kg	5	5.4	5.5	108	109	80-120	2	20	
Calcium	mg/kg	250	272	275	109	110	80-120	1	20	
Chromium	mg/kg	5	5.2	5.3	104	105	80-120	1	20	
Cobalt	mg/kg	5	5.1	5.2	102	104	80-120	2	20	
Copper	mg/kg	5	5.2	5.2	105	104	80-120	0	20	
Lead	mg/kg	5	5.1	5.2	101	103	80-120	2	20	
Lithium	mg/kg	5	4.9	5.1	99	102	80-120	3	20	
Molybdenum	mg/kg	5	5.0	5.1	100	102	80-120	2	20	
Nickel	mg/kg	5	5.1	5.2	102	104	80-120	2	20	
Selenium	mg/kg	5	5.7	5.8	115	115	80-120	1	20	
Silver	mg/kg	2.5	2.7	2.7	108	110	80-120	2	20	

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QUALITY CONTROL DATA

Project: 425258 CUMBERLAND FOSSIL PLANT

Pace Project No.: 40189621

LABORATORY CONTROL SAMPLE & LCSD: 1891438			1891439								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers	
Strontium	mg/kg	5	5.2	5.3	105	107	80-120	2	20		
Thallium	mg/kg	5	5.0	5.1	100	101	80-120	2	20		
Vanadium	mg/kg	5	5.2	5.3	105	107	80-120	1	20		
Zinc	mg/kg	20	22.3	22.3	112	112	80-120	0	20		

LABORATORY CONTROL SAMPLE: 1891437

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	59.5	72.8	122	80-126	
Cadmium	mg/kg	42.3	41.7	99	80-120	
Chromium	mg/kg	2	0.95	49	13-93	
Cobalt	mg/kg	1.1	1.0	97	80-120	
Copper	mg/kg	497	455	92	77-120	
Lead	mg/kg	0.22	0.21	95	79-120	
Molybdenum	mg/kg	3.4	3.1	89	80-120	
Nickel	mg/kg	5.3	4.4	84	76-120	
Selenium	mg/kg	10.9	12.7	117	80-130	
Strontium	mg/kg	36.5	31.4	86	79-120	
Vanadium	mg/kg	9.1	9.0	99	80-120	
Zinc	mg/kg	136	140	103	80-120	

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QUALIFIERS

Project: 425258 CUMBERLAND FOSSIL PLANT

Pace Project No.: 40189621

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

H1 Analysis conducted outside the recognized method holding time.

H3 Sample was received or analysis requested beyond the recognized method holding time.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 425258 CUMBERLAND FOSSIL PLANT

Pace Project No.: 40189621

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40189621001	CUF-FH-LB-F-EB01-20190509	EPA 3050B	325786	EPA 6020	326094
40189621002	CUF-FH-CC-F-EB01-20190522	EPA 3050B	325786	EPA 6020	326094
40189621003	CUF-FH-CC-F-EB01-20190524	EPA 3050B	325786	EPA 6020	326094
40189621001	CUF-FH-LB-F-EB01-20190509	EPA 7473	325348		
40189621002	CUF-FH-CC-F-EB01-20190522	EPA 7473	325348		
40189621003	CUF-FH-CC-F-EB01-20190524	EPA 7473	325348		

REPORT OF LABORATORY ANALYSIS

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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

COOLER No.:	1	of	1
COC No.:	CUF_FH 20190509_1A		
1 of 1 Pages			
Trail Desc:	CUF_FH		

Required Ship to Lab:		Required Project Information:		Required Sampler Information																	
Lab Name:	Pace Analytical Green Bay	Site ID #:	CUMBERLAND FOSSIL PLANT	Sampler:	Tyler Baker																
Lab Address:	1231 Bellevue Street	Project #:	425258	Sampling Company:	TVA																
	Suite 9	Site Address:	815 Cumberland City Road	Address:	TVA Chattanooga Power Service Center, 4601 N. Access Road																
	Green Bay, WI 54302	City:	Cumberland City, TN 37763	City/State:	Chattanooga, TN																
Lab Manager Contact Information		Site PM Name:	Roy Quinn	Phone:	423-876-6733																
Lab PM:	Tod Noltemeyer	Phone/Fax:	423-751-3753	Sampling Team Number:	1																
Phone/Fax:	920-469-2436	Site PM Email:	iquinn@tva.gov	Send ED0148 Copy to:	tye-b@tvasd.com																
Lab Email:	tod.noltemeyer@paceanalabs.com	Analysis Turnaround Time																			
				<input type="checkbox"/> 24 Hours	<input type="checkbox"/> CHECKING DAYS																
				<input type="checkbox"/> 3 Business Days	TAT if different from Below																
				<input type="checkbox"/> 5 Business Days																	
				<input checked="" type="checkbox"/> 10 Business Days (Standard)																	
ITEMS #		SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	Start Depth	End Depth	MATRIX CODE G= GRAB C=COMP	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	Comments/ Lab Sample I.D.	MS/MSD	Analysis	Preserve	Filtered						
1	CUF-FH-LB-F-EB01-20190509	NA	NA	NA	NA	AQ G	EB	5/9/2019	10:35	1	001		X								
2	CUF-FH-CC-F-EB01-20190522	NA	NA	NA	NA	AQ G	EB	5/22/2019	13:10	1	002		X								
3	CUF-FH-CC-F-EB01-20190524	NA	NA	NA	NA	AQ G	EB	5/24/2019	8:55	1	003		X								
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
Additional Comments/Special Instructions:													Analysis			Preserve	Filtered				
RELINQUISHED BY / AFFILIATION													DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Sample Receipt Conditions			
TVA													6-17-19	1505	TVA	6-17-19	1505	Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?
SHIPPING METHOD:													SAMPLER NAME AND SIGNATURE								
Fedex													Tyler Baker								

Client Name:

TVH

Sample Preservation Receipt Form

Project #

40180621

All containers needing preservation have been checked and noted below:

Lab Lot# of pH paper:

10453581

Lab Std #ID of preservation (if pH adjusted):

Initial when completed: SKU Date/Time:


Pace Analytical Services, LLC
1241 Bellevue Street, Suite 900
Green Bay, WI 54302

Pace Lab #	Glass						Plastic						Vials					Jars			General			VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
	AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3B	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	WGFU	WPFU							
001																														2.5 / 5 / 10
002																														2.5 / 5 / 10
003																														2.5 / 5 / 10
004																														2.5 / 5 / 10
005																														2.5 / 5 / 10
006																														2.5 / 5 / 10
007																														2.5 / 5 / 10
008																														2.5 / 5 / 10
009																														2.5 / 5 / 10
010																														2.5 / 5 / 10
011																														2.5 / 5 / 10
012																														2.5 / 5 / 10
013																														2.5 / 5 / 10
014																														2.5 / 5 / 10
015																														2.5 / 5 / 10
016																														2.5 / 5 / 10
017																														2.5 / 5 / 10
018																														2.5 / 5 / 10
019																														2.5 / 5 / 10
020																														2.5 / 5 / 10

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other:

Headspace in VOA Vials (<6mm): Yes No NA *If yes look in headspace column

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	DG9A	40 mL amber ascorbic	JGFU	4 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP2N	500 mL plastic HNO3	DG9T	40 mL amber Na Thio	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH, Znact	VG9U	40 mL clear vial unpres	WPFU	4 oz plastic jar unpres
AG4U	120 mL amber glass unpres	BP3U	250 mL plastic unpres	VG9H	40 mL clear vial HCL	SP5T 120 mL plastic Na Thiosulfate ZPLC ziploc bag GN:	
AG5U	100 mL amber glass unpres	BP3B	250 mL plastic NaOH	VG9M	40 mL clear vial MeOH		
AG2S	500 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9D	40 mL clear vial DI		
BG3U	250 mL clear glass unpres	BP3S	250 mL plastic H2SO4				

 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 25Apr2018
	Document No.: F-GB-C-031-Rev.07	Issuing Authority: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Client Name: TVA Project #: WO# : 40189621

Courier: ☐ CS Logistics ☒ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco
☐ Client ☐ Pace Other: _____

Tracking #: 787940113068

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no
 Custody Seal on Samples Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no
 Packing Material: ☒ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____

Thermometer Used SR - 9 Type of Ice: ☒ Wet ☐ Blue Dry None ☒ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 1.5 / Corr: 2

Temp Blank Present: ☐ yes ☒ no Biological Tissue is Frozen: ☐ yes ☐ no

Temp should be above freezing to 6°C.
 Biota Samples may be received at ≤ 0°C.

Person examining contents:
 Date: 6-18-19
 Initials: SLW

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time: _____
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: _____ If checked, see attached form for additional comments ☐

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AL for TN

Date: 6/18/19