Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

January 09, 2023

Kim Kesler-Arnold
Stantec Consulting Services Inc.
27280 Haggerty Road
Suite C-11
Farmington, MI 48331

RE: Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

Dear Kim Kesler-Arnold:

Enclosed are the analytical results for sample(s) received by the laboratory on January 06, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

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

Sincerely,

Martha Hansen
martha.hansen@pacelabs.com
(612)607-6451
Project Manager

Enclosures

cc: Environmental Standards, Inc., Environmental Standards, Inc.
Cassidy Sutherland, Stantec
Michael Winkler, Stantec
Brigid Zvirbulis, Stantec

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project:	Cumberland Fossil Plant (CUF)
Pace Project No.:	10638993

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414
A2LA Certification #: 2926.01*
1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009*
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014*
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605*
Georgia Certification #: 959
GMP+ Certification #: GMP050884
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: AI-03086*
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064*
Maryland Certification #: 322
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137*
Minnesota Dept of Ag Approval: via MN 027-053-137
Minnesota Petrofund Registration #: 1240*
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081*
New Jersey Certification #: MN002
New York Certification #: 11647*
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification (A2LA) #: R-036
North Dakota Certification (MN) #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification (1700) #: CL101
Ohio VAP Certification (1800) #: CL110*
Oklahoma Certification #: 9507*
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001*
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192*
Utah Certification #: MN00064*
Vermont Certification #: VT-027053137
Virginia Certification #: 460163*
Washington Certification #: C486*
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01
USDA Permit #: P330-19-00208
*Please Note: Applicable air certifications are denoted with an asterisk (*).

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10638993001	**CUF-WS-CUFPV-002-20230104**	Water	01/04/23 13:20	01/06/23 08:50
10638993002	**CUF-WS-DUP01-20230104**	Water	01/04/23 00:00	01/06/23 08:50
10638993003	**CUF-WS-FB01-20230104**	Water	01/04/23 14:40	01/06/23 08:50
10638993004	**CUF-WS-TUB01-20230104**	Water	01/04/23 18:20	01/06/23 08:50

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10638993001	**CUF-WS-CUFPV-002-20230104**	EPA 200.8	NN2	1	PASI-M
		EPA 200.8	NN2	1	PASI-M
		EPA 300.0	AR3	2	PASI-M
10638993002	**CUF-WS-DUP01-20230104**	EPA 200.8	NN2	1	PASI-M
		EPA 200.8	NN2	1	PASI-M
		EPA 300.0	AR3	2	PASI-M
10638993003	**CUF-WS-FB01-20230104**	EPA 200.8	NN2	1	PASI-M
		EPA 200.8	NN2	1	PASI-M
		EPA 300.0	AR3	2	PASI-M
10638993004	**CUF-WS-TUB01-20230104**	EPA 200.8	NN2	1	PASI-M
		EPA 200.8	NN2	1	PASI-M
		EPA 300.0	AR3	2	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

Method: **EPA 200.8**
Description: 200.8 MET ICPMS
Client: TVA_Stantec
Date: January 09, 2023

Revised COC appended to the data package. WJB 1/12/23

General Information:
4 samples were analyzed for EPA 200.8 by Pace Analytical Services Minneapolis. 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 200.8 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:

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

Method: **EPA 200.8**
Description: 200.8 MET ICPMS, Lab Filtered
Client: TVA_Stantec
Date: January 09, 2023

Revised COC appended to the data package. WJB 1/12/23

General Information:
4 samples were analyzed for EPA 200.8 by Pace Analytical Services Minneapolis. 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 200.8 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:

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

Method: **EPA 300.0**
Description: 300.0 IC Anions
Client: TVA_Stantec
Date: January 09, 2023

Revised COC appended to the data package. WJB 1/12/23

General Information:
4 samples were analyzed for EPA 300.0 by Pace Analytical Services Minneapolis. 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.

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.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

Sample: CUF-WS-CUFPV-002-20230104 **Lab ID: 10638993001** Collected: 01/04/23 13:20 Received: 01/06/23 08:50 Matrix: Water

Comments: • Well ID : Rye Spring

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis								
Boron	**20.3**	ug/L	10.0	4.5	1	01/06/23 11:34	01/06/23 19:19	7440-42-8	
200.8 MET ICPMS, Lab Filtered	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis								
Boron, Dissolved	**18.7**	ug/L	10.0	4.5	1	01/06/23 11:34	01/06/23 18:03	7440-42-8	
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Minneapolis								
Chloride	**6.5**	mg/L	1.2	0.39	1		01/07/23 00:50	16887-00-6	
Sulfate	**55.3**	mg/L	1.2	0.43	1		01/07/23 00:50	14808-79-8	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

Sample: CUF-WS-DUP01-20230104 **Lab ID: 10638993002** Collected: 01/04/23 00:00 Received: 01/06/23 08:50 Matrix: Water
Comments: • Well ID : Rye Spring

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis								
Boron	**18.3**	ug/L	10.0	4.5	1	01/06/23 11:34	01/06/23 18:33	7440-42-8	
200.8 MET ICPMS, Lab Filtered	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis								
Boron, Dissolved	**16.8**	ug/L	10.0	4.5	1	01/06/23 11:34	01/06/23 18:48	7440-42-8	
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Minneapolis								
Chloride	**6.6**	mg/L	1.2	0.39	1		01/07/23 02:03	16887-00-6	
Sulfate	**55.4**	mg/L	1.2	0.43	1		01/07/23 02:03	14808-79-8	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

Sample: CUF-WS-FB01-20230104 **Lab ID: 10638993003** Collected: 01/04/23 14:40 Received: 01/06/23 08:50 Matrix: Water
Comments: • Well ID : Rye Spring

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis								
Boron	ND	ug/L	10.0	4.5	1	01/06/23 11:34	01/06/23 18:39	7440-42-8	
200.8 MET ICPMS, Lab Filtered	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis								
Boron, Dissolved	ND	ug/L	10.0	4.5	1	01/06/23 11:34	01/06/23 18:54	7440-42-8	
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Minneapolis								
Chloride	ND	mg/L	1.2	0.39	1		01/07/23 02:17	16887-00-6	
Sulfate	ND	mg/L	1.2	0.43	1		01/07/23 02:17	14808-79-8	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

Sample: CUF-WS-TUB01-20230104 **Lab ID: 10638993004** Collected: 01/04/23 18:20 Received: 01/06/23 08:50 Matrix: Water
Comments: • Well ID : Rye Spring

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis								
Boron	ND	ug/L	10.0	4.5	1	01/06/23 11:34	01/06/23 18:42	7440-42-8	
200.8 MET ICPMS, Lab Filtered	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Pace Analytical Services - Minneapolis								
Boron, Dissolved	ND	ug/L	10.0	4.5	1	01/06/23 11:34	01/06/23 18:58	7440-42-8	
300.0 IC Anions	Analytical Method: EPA 300.0 Pace Analytical Services - Minneapolis								
Chloride	ND	mg/L	1.2	0.39	1		01/07/23 02:32	16887-00-6	
Sulfate	ND	mg/L	1.2	0.43	1		01/07/23 02:32	14808-79-8	

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

QC Batch: 861649
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10638993001, 10638993002, 10638993003, 10638993004

METHOD BLANK: 4551433 Matrix: Water
Associated Lab Samples: 10638993001, 10638993002, 10638993003, 10638993004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	ND	10.0	4.5	01/06/23 19:13	

LABORATORY CONTROL SAMPLE: 4551434

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	100	101	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4551435 4551436

Parameter	Units	10638993001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	20.3	100	100	119	118	98	98	70-130	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

QC Batch: 861667
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET Dissolved
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10638993001, 10638993002, 10638993003, 10638993004

METHOD BLANK: 4551549 Matrix: Water
Associated Lab Samples: 10638993001, 10638993002, 10638993003, 10638993004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron, Dissolved	ug/L	ND	10.0	4.5	01/06/23 17:57	

LABORATORY CONTROL SAMPLE: 4551550

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron, Dissolved	ug/L	100	104	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4551551 4551552

Parameter	Units	10638993001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron, Dissolved	ug/L	18.7	100	100	117	117	98	99	70-130	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

QC Batch: 861716
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10638993001, 10638993002, 10638993003, 10638993004

METHOD BLANK: 4551955 Matrix: Water
Associated Lab Samples: 10638993001, 10638993002, 10638993003, 10638993004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.2	0.39	01/07/23 03:15	
Sulfate	mg/L	ND	1.2	0.43	01/07/23 03:15	

LABORATORY CONTROL SAMPLE: 4551956

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	50.6	101	90-110	
Sulfate	mg/L	50	51.8	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 4551957 4551958

Parameter	Units	10638993001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	6.5	50	50	57.2	57.6	101	102	80-120	1	20	
Sulfate	mg/L	55.3	50	50	102	102	94	94	80-120	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

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.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

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

TNI - The NELAC Institute.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Cumberland Fossil Plant (CUF)
Pace Project No.: 10638993

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10638993001	**CUF-WS-CUFPV-002-20230104**	EPA 200.8	861649	EPA 200.8	861714
10638993002	**CUF-WS-DUP01-20230104**	EPA 200.8	861649	EPA 200.8	861714
10638993003	**CUF-WS-FB01-20230104**	EPA 200.8	861649	EPA 200.8	861714
10638993004	**CUF-WS-TUB01-20230104**	EPA 200.8	861649	EPA 200.8	861714
10638993001	**CUF-WS-CUFPV-002-20230104**	EPA 200.8	861667	EPA 200.8	861715
10638993002	**CUF-WS-DUP01-20230104**	EPA 200.8	861667	EPA 200.8	861715
10638993003	**CUF-WS-FB01-20230104**	EPA 200.8	861667	EPA 200.8	861715
10638993004	**CUF-WS-TUB01-20230104**	EPA 200.8	861667	EPA 200.8	861715
10638993001	**CUF-WS-CUFPV-002-20230104**	EPA 300.0	861716		
10638993002	**CUF-WS-DUP01-20230104**	EPA 300.0	861716		
10638993003	**CUF-WS-FB01-20230104**	EPA 300.0	861716		
10638993004	**CUF-WS-TUB01-20230104**	EPA 300.0	861716		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Chain-of-Custody/Analytical Request Document
Legal Document - All relevant fields must be complete and accurate

v01

TVA

Program(s): CCR ☐ RI ☐ WIM ☐ State Compliance ☑ Consent Decree ☐ Interim GW ☐

Cooler No: of 2 **Page No:** 1 of 1
COC No: COC_CUF_20230104_1A
Task Code: CUF_WUS_20230104
Edit Task? ✓

Lab Information:		Project Information:		Sampler Information:	
Lab Name:	Pace Minneapolis	Site Name:	Cumberland Fossil Plant (CUF)	Sampling Company:	STANTEC
Lab Address:	1700 Elm Street SE - Ste 200 Minneapolis, MN 55414	Site Address:	815 Cumberland City Rd Cumberland City, TN 37050	Sampling Company Address:	601 Grassmere Park Road Nashville, TN 37211
Lab PM:	Martha Hansen Martha.Hansen@pacelabs.com 612-607-6451	Site PM:	Dominic Norman dcnorman0@tva.gov 775-762-8807	Sampler Name:	TV, AW
				Team Number:	1
Lab PO:				Turn-Around Time:	5 Business Days

Send EDD/Hard Copy to: tva_deliverables@envstd.com

Analysis

ITEM #	SAMPLE ID	SAMPLE LOCATION	MATRIX CODE	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	COMMENTS LAB SAMPLE ID	Filter? Y/N	Preservative: None	Preservative: HNO3	Preservative: HNO3	CUF_CCR/STATE_ANIONS_ALK	CUF_CCR/STATE_METALS	CUF_CCR/STATE_METALS_DISS	
1	CUF-WS-CUFPV-002-20230104	Rye Spring	SW	N	01/04/2023	1320	18	Hold bottles noted on sample labels, M	N				X	X	X	001
2	CUF-WS-DUP01-20230104	Rye Spring	SW	FD	01/04/2023	NA	6	Hold bottles noted on sample labels	N				x	x	x	002
3	CUF-WS-FB01-20230104	Rye Spring	WQ	FB	01/04/2023	1440	4	Hold bottles noted on sample labels	N				x	x	x	003
4	CUF-WS-TUB01-20230104	Rye Spring	WQ	TB	01/04/2023	1820	4	Hold bottles noted on sample labels	N				x	x	x	004
5																
6																
7																
8																
9																
10																
11																
12																
13																

FU 1/5/23

FU 1/5/23

WO#: 10638993
10638993

Additional Comments/Special Instructions:
Additional volume collected should be used for MS/MSDs. Dissolved metals samples should be lab filtered.

Manually Edit Sample IDs? ✓

RELINQUISHED BY	AFFILIATION	DATE	TIME	ACCEPTED BY	AFFILIATION	DATE	TIME
VanEgtern, Trenton Digitally signed by VanEgtern, Trenton Date: 2023.01.05 11:09:36 -06'00'	Stantec	01/05/2023	12:00	Evan Quiton	Pace	1-6-23	8:50

SHIPPING METHOD: (Select Appropriate)	SAMPLER NAME	SIGNATURE
FedEx	Trenton VanEgtern	VanEgtern, Trenton Digitally signed by VanEgtern, Trenton Date: 2023.01.05 11:09:54 -06'00'

Sample Receipt Conditions			
☐Yes ☐No	☑Yes ☐No	☑Yes ☐No	☑Yes ☐No
☐Yes ☐No	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No
Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?

Chain-of-Custody/Analytical Request Document
Legal Document - All relevant fields must be complete and accurate

v01

TVA

Program(s): CCR ☐ RI ☐ WIM ☐ State Compliance ☑ Consent Decree ☐ Interim GW ☐

Cooler No: of 2 **Page No:** 1 of 1
COC No: COC_CUF_20230104_1A
Task Code: CUF_WUS_20230104
Edit Task? ✓

Lab Information:		Project Information:		Sampler Information:	
Lab Name:	Pace Minneapolis	Site Name:	Cumberland Fossil Plant (CUF)	Sampling Company:	STANTEC
Lab Address:	1700 Elm Street SE - Ste 200 Minneapolis, MN 55414	Site Address:	815 Cumberland City Rd Cumberland City, TN 37050	Sampling Company Address:	601 Grassmere Park Road Nashville, TN 37211
Lab PM:	Martha Hansen Martha.Hansen@pacelabs.com 612-607-6451	Site PM:	Dominic Norman dcnorman0@tva.gov 775-762-8807	Sampler Name:	TV, AW
				Team Number:	1
Lab PO:				Turn-Around Time:	5 Business Days

Send EDD/Hard Copy to: tva_deliverables@envstd.com

ITEM #	SAMPLE ID	SAMPLE LOCATION	MATRIX CODE	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	COMMENTS LAB SAMPLE ID	Filter? Y/N	N	N	N
									Preservative	None	HNO3	HNO3
									Analysis	CUF_CCR/STATE_ANIONS_ALK	CUF_CCR/STATE_METALS	CUF_CCR/STATE_METALS_DISS
1	CUF-WS-CUFPV-002-20230104	Rye Spring	SW	N	01/04/2023	1320	18	Hold bottles noted on sample labels, MS/MSD		X	X	X
2	CUF-WS-DUP01-20230104	Rye Spring	SW	FD	01/04/2023	NA	6	Hold bottles noted on sample labels		x	x	x
3	CUF-WS-FB01-20230104	Rye Spring	WQ	FB	01/04/2023	1440	4	Hold bottles noted on sample labels		x	x	x
4	CUF-WS-TUB01-20230104	Rye Spring	WQ	TB	01/04/2023	1820	4	Hold bottles noted on sample labels		x	x	x
5												
6												
7												
8												
9												
10												
11												
12												
13												

TV 1/5/23

1/5/23

Additional Comments/Special Instructions:
Additional volume collected should be used for MS/MSDs. Dissolved metals samples should be lab filtered.

Manually Edit Sample IDs? ✓

RELINQUISHED BY	AFFILIATION	DATE	TIME	ACCEPTED BY	AFFILIATION	DATE	TIME
VanEgtern, Trenton (Digitally signed by VanEgtern, Trenton Date: 2023.01.05 11:09:36 -06'00')	Stantec	01/05/2023	12:00	[signature]	Pace	1-6-23	8:30

SHIPPING METHOD: (Select Appropriate)	SAMPLER NAME	SIGNATURE
FedEx	Trenton VanEgtern	VanEgtern, Trenton (Digitally signed by VanEgtern, Trenton Date: 2023.01.05 11:09:54 -06'00')

Sample Receipt Conditions

Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?
2.1	☑Yes ☐No	☑Yes ☐No	☐Yes ☑No
	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No

DC#_Title: ENV-FRM-MIN4-0149 v05_Sample Condition Upon Receipt (SCUR) - ESI
Effective Date:

Sample Condition Upon Receipt - ESI Tech Specs

Client Name: TVA

Project #: WO#: 10638993
PM: MKH Due Date: 01/20/23
CLIENT: Stantec-MI

Courier: ☑ FedEx ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial

Tracking Number: 5405 1815 3639 ☑ See Exceptions ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other **Temp Blank?** ☐ Yes ☑ No

Thermometer: ☑ T1 (0461) ☐ T2 (1336) ☐ T3 (0459) ☐ T4 (0254) ☐ T5 (0178) ☐ T6 (0235) ☐ T7 (0042) ☐ T8 (0775) ☐ 01339252/1710 **Type of Ice:** ☑ Wet ☐ Blue ☐ Dry ☐ None ☐ Melted

Temp should be above freezing to 6 °C **Cooler temp Read w/Temp Blank:** _____ °C
Correction Factor: True **Cooler Temp Corrected w/temp blank:** _____ °C
Average Corrected Temp (no temp blank only): _____ °C
☑ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

USDA Regulated Soil: (☑ N/A, water sample/other: _____) **Date/Initials of Person Examining Contents:** EC 1-6-23

Did samples originate in a quarantine zone within the United States: AL, AR, AZ CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

Location (Check one): ☐ Duluth ☑ Minneapolis ☐ Virginia		**COMMENTS**
Chain of Custody Present and Filled Out?	☑ Yes ☐ No	1.
Chain of Custody Relinquished?	☑ Yes ☐ No	2.
Sampler Name and/or Signature on COC?	☑ Yes ☐ No ☐ N/A	3.
Samples Arrived within Hold Time?	☑ Yes ☐ No	4.
Short Hold Time Analysis (<72 hr)?	☐ Yes ☑ No	5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E.coli ☐ BOD/cBOD ☐ Hex Chrom ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other _____
Rush Turn Around Time Requested?	☑ Yes ☐ No	6. 5 days
Sufficient Sample Volume?	☑ Yes ☐ No	7.
Triple Volume Provided for MS/MSD (if more than 10 samples)?	☐ Yes ☐ No ☑ N/A	
Correct Containers Used?	☑ Yes ☐ No	8.
-Pace Containers Used?	☑ Yes ☐ No	
Containers Intact?	☑ Yes ☐ No	9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes ☐ No ☑ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☑ Water ☐ Soil ☐ Oil ☐ Other	☑ Yes ☐ No	11. **If no, write ID/Date/Time of container below:** ☐ See Exceptions ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	☑ Yes ☐ No ☐ N/A	12. Sample # 001-004
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☑ Yes ☐ No ☐ N/A	☐ NaOH ☑ HNO3 ☐ H2SO4 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxins/PFAS (*If adding preservative to a container, it must be added to associated field and equipment blanks--verify with PM first.)	☐ Yes ☐ No ☑ N/A	Positive for Residual Chlorine? ☐ Yes ☐ No ☐ See Exceptions ENV-FRM-MIN4-0142
		pH Paper Lot # Residual Chlorine: 0-6 Roll 208422; 0-6 Strip; 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	☐ Yes ☐ No ☑ N/A	13. ☐ See Exceptions ENV-FRM-MIN4-0142
Headspace in VOA Vials (greater than 6mm)?	☐ Yes ☐ No ☑ N/A	
3 Trip Blanks Present?	☐ Yes ☐ No ☑ N/A	14.
Trip Blank Custody Seals Present?	☐ Yes ☐ No ☑ N/A	Pace Trip Blank Lot # (if purchased): _____

Temp Log: Temp must be maintained at <6°C during login, record temp every 20 mins		
Opened Time: 9:30	Temp: 2.1/3.1 °C	Corrected Temp: 2.1/3.1 °C
Time:	put in cooler	
Time:	Temp:	Corrected Temp:

CLIENT NOTIFICATION/RESOLUTION **Field Date Required?** ☐ Yes ☐ No
Person Contacted: _____ Date/Time: _____
Comments/Resolution: No analytes listed on COC. Samples logged per MAG list on file.

Project Manager Review: _____ **Date:** 1/6/23

NOTE: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: EC / ED **Line:** 2

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-MIN4-0142 v02_Sample Condition Upon Receipt (SCUR) Exception Form
	Effective Date: 09/22/2022

Workorder #: _____

No Temp Blank		
Read Temp	Corrected Temp	Average temp
2.1	2.1	2.1
1.6	1.6	
1.9	1.9	
2.9	2.9	

PM Notified of Out of Temp Cooler? ☐ Yes ☐ No

If yes, indicate who was contacted, date and time.
If no, indicate reason why.

_____

Multiple Cooler Project? ☐ Yes ☐ No

If anything is OVER 6.0° C, you MUST document containers in this section HERE

Tracking Number	Temperature
5405 1815 3639	2.1
5405 1825 1832	3.1

Out of Temp Sample ID	Container Type	# of Containers

pH Adjustment Log for Preserved Samples										
Sample ID	Type Of Preserve	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance After Addition?		Initials
								☐ Yes	☐ No	
								☐ Yes	☐ No	
								☐ Yes	☐ No	
								☐ Yes	☐ No	
								☐ Yes	☐ No	
								☐ Yes	☐ No	
								☐ Yes	☐ No	
								☐ Yes	☐ No	

Comments:

_____

_____

_____

Qualtrax ID: 52763

Chain-of-Custody/Analytical Request Document
Legal Document - All relevant fields must be complete and accurate

v01

Rev1 BJ 1/12/23

TVA

Program(s): CCR ☐ RI ☐ WIM ☐ State Compliance ☑ Consent Decree ☐ Interim GW ☐

Cooler No: of 2 Page No: 1 of 1

COC No: COC_CUF_20230104_1A

Task Code: CUF_WUS_20230104

Edit Task? ✓

Lab Information:		Project Information:		Sampler Information:	
Lab Name:	Pace Minneapolis	Site Name:	Cumberland Fossil Plant (CUF)	Sampling Company:	STANTEC
Lab Address:	1700 Elm Street SE - Ste 200 Minneapolis, MN 55414	Site Address:	815 Cumberland City Rd Cumberland City, TN 37050	Sampling Company Address:	601 Grassmere Park Road Nashville, TN 37211
Lab PM:	Martha Hansen Martha.Hansen@pacelabs.com 612-607-6451	Site PM:	Dominic Norman dcnorman0@tva.gov 775-762-8807	Sampler Name:	TV, AW
				Team Number:	1
Lab PO:				Turn-Around Time:	5 Business Days

Send EDD/Hard Copy to: tva_deliverables@envstd.com

CUFPV-002
CUFPV-002
CUFPV-002
BJ 1/12/23

Filter? Y/N	N	N	N
Preservative	None	HNO3	HNO3
Analysis	CUF_CCR/STATE_ANIONS_ALK	CUF_CCR/STATE_METALS	CUF_CCR/STATE_METALS_DISS

ITEM #	SAMPLE ID	SAMPLE LOCATION	MATRIX CODE	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	COMMENTS LAB SAMPLE ID	CUF_CCR/STATE_ANIONS_ALK	CUF_CCR/STATE_METALS	CUF_CCR/STATE_METALS_DISS
1	CUF-WS-CUFPV-002-20230104	~~Rye Spring~~	SW	N	01/04/2023	1320	18	Hold bottles noted on sample labels, MS/	X	X	X
2	CUF-WS-DUP01-20230104	~~Rye Spring~~	SW	FD	01/04/2023	NA	6	Hold bottles noted on sample labels	X	X	X
3	CUF-WS-FB01-20230104	~~Rye Spring~~	WQ	FB	01/04/2023	1440	4	Hold bottles noted on sample labels	X	X	X
4	CUF-WS-TUB01-20230104	~~Rye Spring~~	WQ	TB	01/04/2023	1820	4	Hold bottles noted on sample labels	X	X	X
5		Off-site									
6		BJ 1/12/23									
7											
8				TV 1/5/23							
9											
10											
11											
12											
13											

TV 1/5/23

Additional Comments/Special Instructions:
Additional volume collected should be used for MS/MSDs. Dissolved metals samples should be lab filtered.

Manually Edit Sample IDs? ✓

RELINQUISHED BY	AFFILIATION	DATE	TIME	ACCEPTED BY	AFFILIATION	DATE	TIME
VanEgtern, Trenton Digitally signed by VanEgtern, Trenton Date: 2023.01.05 11:09:36 -06'00'	Stantec	01/05/2023	12:00	[illegible]	Pace	1-6-23	8:30

SHIPPING METHOD: (Select Appropriate)	SAMPLER NAME	SIGNATURE
FedEx	Trenton VanEgtern	VanEgtern, Trenton Digitally signed by VanEgtern, Trenton Date: 2023.01.05 11:09:54 -06'00'

Sample Receipt Conditions

Temperature in °C	Sample on Ice?	Sample Intact?	Trip Blank?
2.4 / 3.1	☑Yes ☐No	☑Yes ☐No	☑Yes ☐No
	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No