Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

July 03, 2019

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

RE: Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

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

Enclosures

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

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CERTIFICATIONS

Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

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

Pace Analytical Services, LLC
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SAMPLE SUMMARY

Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40189616001	**JSF-FH-CC-F-EB01-20190508**	Tissue	05/08/19 12:45	06/18/19 09:05
40189616002	**JSF-FH-CC-F-EB01-20190517**	Tissue	05/17/19 07:20	06/18/19 09:05
40189616003	**JSF-FH-CC-F-EB01-20190524**	Tissue	05/24/19 09:00	06/18/19 09:05
40189616004	**JSF-FH-CC-F-EB01-20190617**	Tissue	06/17/19 13:30	06/18/19 09:05

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SAMPLE ANALYTE COUNT

Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40189616001	**JSF-FH-CC-F-EB01-20190508**	EPA 6020	DS1	20
		EPA 7473	AJT	1
40189616002	**JSF-FH-CC-F-EB01-20190517**	EPA 6020	DS1	20
		EPA 7473	AJT	1
40189616003	**JSF-FH-CC-F-EB01-20190524**	EPA 6020	DS1	20
		EPA 7473	AJT	1
40189616004	**JSF-FH-CC-F-EB01-20190617**	EPA 6020	DS1	20
		EPA 7473	AJT	1

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PROJECT NARRATIVE

Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: TENNESSEE VALLEY AUTHORITY
Date: July 03, 2019

General Information:
4 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:

Batch Comments:

A matrix spike/matrix spike duplicate was not performed for this batch due to the sample matrix being blanks.
- QC Batch: 326093

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PROJECT NARRATIVE

Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

Method: **EPA 7473**
Description: 7473 Mercury, Tissue
Client: TENNESSEE VALLEY AUTHORITY
Date: July 03, 2019

General Information:
4 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.
- JSF-FH-CC-F-EB01-20190524 (Lab ID: 40189616003)

H3: Sample was received or analysis requested beyond the recognized method holding time.
- JSF-FH-CC-F-EB01-20190508 (Lab ID: 40189616001)
- JSF-FH-CC-F-EB01-20190517 (Lab ID: 40189616002)

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.

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ANALYTICAL RESULTS

Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

Sample: JSF-FH-CC-F-EB01-20190508 **Lab ID: 40189616001** Collected: 05/08/19 12:45 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 10:02	07/02/19 12:56	7440-36-0	
Arsenic	**<0.030**	mg/kg	0.10	0.030	1	06/28/19 10:02	07/02/19 12:56	7440-38-2	
Barium	**<0.031**	mg/kg	0.10	0.031	1	06/28/19 10:02	07/02/19 12:56	7440-39-3	
Beryllium	**<0.033**	mg/kg	0.11	0.033	1	06/28/19 10:02	07/02/19 12:56	7440-41-7	
Boron	**<0.70**	mg/kg	2.3	0.70	1	06/28/19 10:02	07/02/19 12:56	7440-42-8	
Cadmium	**<0.014**	mg/kg	0.10	0.014	1	06/28/19 10:02	07/02/19 12:56	7440-43-9	
Calcium	**<25.4**	mg/kg	84.7	25.4	1	06/28/19 10:02	07/02/19 12:56	7440-70-2	
Chromium	**<0.088**	mg/kg	0.29	0.088	1	06/28/19 10:02	07/02/19 12:56	7440-47-3	
Cobalt	**<0.0082**	mg/kg	0.10	0.0082	1	06/28/19 10:02	07/02/19 12:56	7440-48-4	
Copper	**<0.28**	mg/kg	0.95	0.28	1	06/28/19 10:02	07/02/19 12:56	7440-50-8	
Lead	**<0.026**	mg/kg	0.087	0.026	1	06/28/19 10:02	07/02/19 12:56	7439-92-1	
Lithium	**<0.021**	mg/kg	0.10	0.021	1	06/28/19 10:02	07/02/19 12:56	7439-93-2	
Molybdenum	**<0.036**	mg/kg	0.12	0.036	1	06/28/19 10:02	07/02/19 12:56	7439-98-7	
Nickel	**<0.041**	mg/kg	0.14	0.041	1	06/28/19 10:02	07/02/19 12:56	7440-02-0	
Selenium	**<0.051**	mg/kg	0.17	0.051	1	06/28/19 10:02	07/02/19 12:56	7782-49-2	
Silver	**<0.011**	mg/kg	0.050	0.011	1	06/28/19 10:02	07/02/19 12:56	7440-22-4	
Strontium	**<0.16**	mg/kg	0.54	0.16	1	06/28/19 10:02	07/02/19 12:56	7440-24-6	
Thallium	**<0.013**	mg/kg	0.10	0.013	1	06/28/19 10:02	07/02/19 12:56	7440-28-0	
Vanadium	**<0.033**	mg/kg	0.11	0.033	1	06/28/19 10:02	07/02/19 12:56	7440-62-2	
Zinc	**<1.7**	mg/kg	5.7	1.7	1	06/28/19 10:02	07/02/19 12:56	7440-66-6	
7473 Mercury, Tissue	Analytical Method: EPA 7473								
Mercury	**<0.0031**	mg/kg	0.019	0.0031	1		06/24/19 13:50	7439-97-6	H3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

Sample: JSF-FH-CC-F-EB01-20190517 **Lab ID: 40189616002** Collected: 05/17/19 07:20 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	0.099	0.016	1	06/28/19 10:02	07/02/19 13:03	7440-36-0	
Arsenic	**<0.030**	mg/kg	0.10	0.030	1	06/28/19 10:02	07/02/19 13:03	7440-38-2	
Barium	**<0.030**	mg/kg	0.10	0.030	1	06/28/19 10:02	07/02/19 13:03	7440-39-3	
Beryllium	**<0.033**	mg/kg	0.11	0.033	1	06/28/19 10:02	07/02/19 13:03	7440-41-7	
Boron	**<0.69**	mg/kg	2.3	0.69	1	06/28/19 10:02	07/02/19 13:03	7440-42-8	
Cadmium	**<0.014**	mg/kg	0.099	0.014	1	06/28/19 10:02	07/02/19 13:03	7440-43-9	
Calcium	**<25.2**	mg/kg	84.2	25.2	1	06/28/19 10:02	07/02/19 13:03	7440-70-2	
Chromium	**<0.088**	mg/kg	0.29	0.088	1	06/28/19 10:02	07/02/19 13:03	7440-47-3	
Cobalt	**<0.0082**	mg/kg	0.099	0.0082	1	06/28/19 10:02	07/02/19 13:03	7440-48-4	
Copper	**<0.28**	mg/kg	0.94	0.28	1	06/28/19 10:02	07/02/19 13:03	7440-50-8	
Lead	**<0.026**	mg/kg	0.087	0.026	1	06/28/19 10:02	07/02/19 13:03	7439-92-1	
Lithium	**<0.021**	mg/kg	0.099	0.021	1	06/28/19 10:02	07/02/19 13:03	7439-93-2	
Molybdenum	**<0.036**	mg/kg	0.12	0.036	1	06/28/19 10:02	07/02/19 13:03	7439-98-7	
Nickel	**<0.041**	mg/kg	0.14	0.041	1	06/28/19 10:02	07/02/19 13:03	7440-02-0	
Selenium	**<0.050**	mg/kg	0.17	0.050	1	06/28/19 10:02	07/02/19 13:03	7782-49-2	
Silver	**<0.011**	mg/kg	0.050	0.011	1	06/28/19 10:02	07/02/19 13:03	7440-22-4	
Strontium	**<0.16**	mg/kg	0.53	0.16	1	06/28/19 10:02	07/02/19 13:03	7440-24-6	
Thallium	**<0.013**	mg/kg	0.099	0.013	1	06/28/19 10:02	07/02/19 13:03	7440-28-0	
Vanadium	**<0.033**	mg/kg	0.11	0.033	1	06/28/19 10:02	07/02/19 13:03	7440-62-2	
Zinc	**<1.7**	mg/kg	5.7	1.7	1	06/28/19 10:02	07/02/19 13:03	7440-66-6	
7473 Mercury, Tissue	Analytical Method: EPA 7473								
Mercury	**<0.0031**	mg/kg	0.019	0.0031	1		06/24/19 13:59	7439-97-6	H3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

Sample: JSF-FH-CC-F-EB01-20190524 **Lab ID: 40189616003** Collected: 05/24/19 09:00 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 10:02	07/02/19 13:10	7440-36-0	
Arsenic	**<0.030**	mg/kg	0.10	0.030	1	06/28/19 10:02	07/02/19 13:10	7440-38-2	
Barium	**<0.031**	mg/kg	0.10	0.031	1	06/28/19 10:02	07/02/19 13:10	7440-39-3	
Beryllium	**<0.033**	mg/kg	0.11	0.033	1	06/28/19 10:02	07/02/19 13:10	7440-41-7	
Boron	**<0.70**	mg/kg	2.3	0.70	1	06/28/19 10:02	07/02/19 13:10	7440-42-8	
Cadmium	**<0.014**	mg/kg	0.10	0.014	1	06/28/19 10:02	07/02/19 13:10	7440-43-9	
Calcium	**<25.4**	mg/kg	84.7	25.4	1	06/28/19 10:02	07/02/19 13:10	7440-70-2	
Chromium	**<0.088**	mg/kg	0.29	0.088	1	06/28/19 10:02	07/02/19 13:10	7440-47-3	
Cobalt	**<0.0082**	mg/kg	0.10	0.0082	1	06/28/19 10:02	07/02/19 13:10	7440-48-4	
Copper	**<0.28**	mg/kg	0.95	0.28	1	06/28/19 10:02	07/02/19 13:10	7440-50-8	
Lead	**<0.026**	mg/kg	0.087	0.026	1	06/28/19 10:02	07/02/19 13:10	7439-92-1	
Lithium	**<0.021**	mg/kg	0.10	0.021	1	06/28/19 10:02	07/02/19 13:10	7439-93-2	
Molybdenum	**<0.036**	mg/kg	0.12	0.036	1	06/28/19 10:02	07/02/19 13:10	7439-98-7	
Nickel	**<0.041**	mg/kg	0.14	0.041	1	06/28/19 10:02	07/02/19 13:10	7440-02-0	
Selenium	**<0.051**	mg/kg	0.17	0.051	1	06/28/19 10:02	07/02/19 13:10	7782-49-2	
Silver	**<0.011**	mg/kg	0.050	0.011	1	06/28/19 10:02	07/02/19 13:10	7440-22-4	
Strontium	**<0.16**	mg/kg	0.54	0.16	1	06/28/19 10:02	07/02/19 13:10	7440-24-6	
Thallium	**<0.013**	mg/kg	0.10	0.013	1	06/28/19 10:02	07/02/19 13:10	7440-28-0	
Vanadium	**<0.033**	mg/kg	0.11	0.033	1	06/28/19 10:02	07/02/19 13:10	7440-62-2	
Zinc	**<1.7**	mg/kg	5.7	1.7	1	06/28/19 10:02	07/02/19 13:10	7440-66-6	
7473 Mercury, Tissue	Analytical Method: EPA 7473								
Mercury	**<0.0031**	mg/kg	0.020	0.0031	1		06/24/19 14:10	7439-97-6	H1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

Sample: JSF-FH-CC-F-EB01-20190617 **Lab ID: 40189616004** Collected: 06/17/19 13:30 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 10:02	07/02/19 13:18	7440-36-0	
Arsenic	**<0.030**	mg/kg	0.10	0.030	1	06/28/19 10:02	07/02/19 13:18	7440-38-2	
Barium	**<0.031**	mg/kg	0.10	0.031	1	06/28/19 10:02	07/02/19 13:18	7440-39-3	
Beryllium	**<0.033**	mg/kg	0.11	0.033	1	06/28/19 10:02	07/02/19 13:18	7440-41-7	
Boron	**<0.70**	mg/kg	2.3	0.70	1	06/28/19 10:02	07/02/19 13:18	7440-42-8	
Cadmium	**<0.014**	mg/kg	0.10	0.014	1	06/28/19 10:02	07/02/19 13:18	7440-43-9	
Calcium	**29.2J**	mg/kg	84.7	25.4	1	06/28/19 10:02	07/02/19 13:18	7440-70-2	
Chromium	**<0.088**	mg/kg	0.29	0.088	1	06/28/19 10:02	07/02/19 13:18	7440-47-3	
Cobalt	**<0.0082**	mg/kg	0.10	0.0082	1	06/28/19 10:02	07/02/19 13:18	7440-48-4	
Copper	**<0.28**	mg/kg	0.95	0.28	1	06/28/19 10:02	07/02/19 13:18	7440-50-8	
Lead	**<0.026**	mg/kg	0.087	0.026	1	06/28/19 10:02	07/02/19 13:18	7439-92-1	
Lithium	**<0.021**	mg/kg	0.10	0.021	1	06/28/19 10:02	07/02/19 13:18	7439-93-2	
Molybdenum	**<0.036**	mg/kg	0.12	0.036	1	06/28/19 10:02	07/02/19 13:18	7439-98-7	
Nickel	**0.044J**	mg/kg	0.14	0.041	1	06/28/19 10:02	07/02/19 13:18	7440-02-0	
Selenium	**<0.051**	mg/kg	0.17	0.051	1	06/28/19 10:02	07/02/19 13:18	7782-49-2	
Silver	**<0.011**	mg/kg	0.050	0.011	1	06/28/19 10:02	07/02/19 13:18	7440-22-4	
Strontium	**<0.16**	mg/kg	0.54	0.16	1	06/28/19 10:02	07/02/19 13:18	7440-24-6	
Thallium	**<0.013**	mg/kg	0.10	0.013	1	06/28/19 10:02	07/02/19 13:18	7440-28-0	
Vanadium	**<0.033**	mg/kg	0.11	0.033	1	06/28/19 10:02	07/02/19 13:18	7440-62-2	
Zinc	**<1.7**	mg/kg	5.7	1.7	1	06/28/19 10:02	07/02/19 13:18	7440-66-6	
7473 Mercury, Tissue	Analytical Method: EPA 7473								
Mercury	**<0.0031**	mg/kg	0.020	0.0031	1		06/24/19 14:22	7439-97-6	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

QC Batch: 325348 Analysis Method: EPA 7473
QC Batch Method: EPA 7473 Analysis Description: 7473 Mercury
Associated Lab Samples: 40189616001, 40189616002, 40189616003, 40189616004

METHOD BLANK: 1889472 Matrix: Tissue
Associated Lab Samples: 40189616001, 40189616002, 40189616003, 40189616004

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	

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.

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QUALITY CONTROL DATA

Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

QC Batch: 325783 Analysis Method: EPA 6020
QC Batch Method: EPA 3050B Analysis Description: 6020 MET TISSUE
Associated Lab Samples: 40189616001, 40189616002, 40189616003, 40189616004

METHOD BLANK: 1891424 Matrix: Tissue
Associated Lab Samples: 40189616001, 40189616002, 40189616003, 40189616004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/kg	<0.016	0.10	0.016	07/02/19 12:49	
Arsenic	mg/kg	<0.030	0.10	0.030	07/02/19 12:49	
Barium	mg/kg	<0.031	0.10	0.031	07/02/19 12:49	
Beryllium	mg/kg	<0.033	0.11	0.033	07/02/19 12:49	
Boron	mg/kg	<0.70	2.3	0.70	07/02/19 12:49	
Cadmium	mg/kg	<0.014	0.10	0.014	07/02/19 12:49	
Calcium	mg/kg	<25.4	84.7	25.4	07/02/19 12:49	
Chromium	mg/kg	<0.088	0.29	0.088	07/02/19 12:49	
Cobalt	mg/kg	<0.0082	0.10	0.0082	07/02/19 12:49	
Copper	mg/kg	<0.28	0.95	0.28	07/02/19 12:49	
Lead	mg/kg	<0.026	0.087	0.026	07/02/19 12:49	
Lithium	mg/kg	<0.021	0.10	0.021	07/02/19 12:49	
Molybdenum	mg/kg	<0.036	0.12	0.036	07/02/19 12:49	
Nickel	mg/kg	<0.041	0.14	0.041	07/02/19 12:49	
Selenium	mg/kg	<0.051	0.17	0.051	07/02/19 12:49	
Silver	mg/kg	<0.011	0.050	0.011	07/02/19 12:49	
Strontium	mg/kg	<0.16	0.54	0.16	07/02/19 12:49	
Thallium	mg/kg	<0.013	0.10	0.013	07/02/19 12:49	
Vanadium	mg/kg	<0.033	0.11	0.033	07/02/19 12:49	
Zinc	mg/kg	<1.7	5.7	1.7	07/02/19 12:49	

LABORATORY CONTROL SAMPLE & LCSD: 1891427 1891428

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Antimony	mg/kg	5	5.5	5.5	110	111	80-120	1	20	
Arsenic	mg/kg	5	5.4	5.4	108	109	80-120	0	20	
Barium	mg/kg	5	5.1	5.1	101	102	80-120	1	20	
Beryllium	mg/kg	5	5.0	5.2	101	103	80-120	3	20	
Boron	mg/kg	10	10.1	10.3	101	103	80-120	2	20	
Cadmium	mg/kg	5	5.3	5.3	106	107	80-120	1	20	
Calcium	mg/kg	250	266	266	106	106	80-120	0	20	
Chromium	mg/kg	5	5.1	5.2	102	104	80-120	2	20	
Cobalt	mg/kg	5	5.2	5.2	103	104	80-120	1	20	
Copper	mg/kg	5	5.3	5.4	105	108	80-120	2	20	
Lead	mg/kg	5	5.0	5.0	99	101	80-120	2	20	
Lithium	mg/kg	5	5.1	5.2	101	104	80-120	3	20	
Molybdenum	mg/kg	5	5.0	5.0	100	101	80-120	0	20	
Nickel	mg/kg	5	5.2	5.2	103	104	80-120	1	20	
Selenium	mg/kg	5	5.7	5.8	115	115	80-120	0	20	
Silver	mg/kg	2.5	2.6	2.6	105	105	80-120	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.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

LABORATORY CONTROL SAMPLE & LCSD: 1891427 1891428

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Strontium	mg/kg	5	5.1	5.2	102	103	80-120	1	20	
Thallium	mg/kg	5	4.8	4.9	96	97	80-120	1	20	
Vanadium	mg/kg	5	5.3	5.4	106	107	80-120	2	20	
Zinc	mg/kg	20	22.0	22.1	110	110	80-120	0	20	

LABORATORY CONTROL SAMPLE: 1891426

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	59.5	72.3	121	80-126	
Cadmium	mg/kg	42.3	41.2	97	80-120	
Chromium	mg/kg	2	1.1	56	13-93	
Cobalt	mg/kg	1.1	1.1	104	80-120	
Copper	mg/kg	497	493	99	77-120	
Lead	mg/kg	0.22	0.21	92	79-120	
Molybdenum	mg/kg	3.4	3.1	90	80-120	
Nickel	mg/kg	5.3	4.7	90	76-120	
Selenium	mg/kg	10.9	12.6	116	80-130	
Strontium	mg/kg	36.5	30.6	84	79-120	
Vanadium	mg/kg	9.1	9.8	107	80-120	
Zinc	mg/kg	136	144	106	80-120	

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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
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QUALIFIERS

Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

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.

BATCH QUALIFIERS

Batch: 326093

[1] A matrix spike/matrix spike duplicate was not performed for this batch due to the sample matrix being blanks.

ANALYTE QUALIFIERS

H1 Analysis conducted outside the recognized method holding time.

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

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 426800 JOHN SEVIER FOSSIL PLAN
Pace Project No.: 40189616

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40189616001	**JSF-FH-CC-F-EB01-20190508**	EPA 3050B	325783	EPA 6020	326093
40189616002	**JSF-FH-CC-F-EB01-20190517**	EPA 3050B	325783	EPA 6020	326093
40189616003	**JSF-FH-CC-F-EB01-20190524**	EPA 3050B	325783	EPA 6020	326093
40189616004	**JSF-FH-CC-F-EB01-20190617**	EPA 3050B	325783	EPA 6020	326093
40189616001	**JSF-FH-CC-F-EB01-20190508**	EPA 7473	325348		
40189616002	**JSF-FH-CC-F-EB01-20190517**	EPA 7473	325348		
40189616003	**JSF-FH-CC-F-EB01-20190524**	EPA 7473	325348		
40189616004	**JSF-FH-CC-F-EB01-20190617**	EPA 7473	325348		

TVA Environmental Investigations

401896 16

Tennessee Valley Authority

COOLER No.:	1	of	1
COC No:	JSF_FH_20190508_1A		
1 of 1 Pages			
Task Desc:	JSF_FH		

Chain-of-Custody / Analytical Request Document

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

Required Ship to Lab:	
Lab Name:	Pace Analytical Green Bay
Lab Address:	1231 Bellevue Street
	Suite 9
	Green Bay, WI 54302
Lab Manager Contact Information	
Lab PM:	Tod Noltemeyer
Phone/Fax:	920-469-2436
Lab Email:	tod.noltemeyer@pacelabs.com

Required Project Information:			
Site ID #:	JOHN SEVIER FOSSIL PLANT		
Project #:	426800		
Site Address:	611 Old Highway 70 S		
City:	Rogersville	State, Zip:	TN, 37857
Site PM Name:	Roy Quinn		
Phone/Fax:	423-751-3753		
Site PM Email:	jrquinn@tva.gov		

Required Sampler Information			
Sampler: Tyler Baker			
Sampling Company: TVA			
Address: TVA Chickamauga Power Service Center, 4601 N. Access Road			
City/State: Chattanooga, TN		Phone:	423-876-6733
Sampling Team Number:	1		
Send EDD/Hard Copy to:	tva-ei@envstd.com		

Analysis Turnaround Time

☐ CALENDAR DAYS ☑ WORKING DAYS

TAT if different from Below _____

- ☐ 24 Hours
- ☐ 3 Business Days
- ☐ 5 Business Days
- ☑ 10 Business Days (Standard)

ITEMS #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	Sample Depth: Start Depth	Sample 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: JSF_FISH_BLANKS	Preserve: see comments	Filtered: N
1	JSF-FH-CC-F-EB01-20190508	NA	NA	NA	AQ	G	EB	5/8/2019	12:45	1	001	☐	X		
2	JSF-FH-CC-F-EB01-20190517	NA	NA	NA	AQ	G	EB	5/17/2019	07:20	1	002	☐	X		
3	JSF-FH-CC-F-EB01-20190524	NA	NA	NA	AQ	G	EB	5/24/2019	09:00	1	003	☐	X		
4	JSF-FH-CC-F-EB01-20190617	NA	NA	NA	AQ	G	EB	6/17/2019	13:30	1	004	☐	X		
5												☐			
6												☐			
7												☐			
8												☐			
9												☐			
10												☐			
11												☐			
12												☐			
13												☐			

Tyler Baker 6-17-19

Tyler Baker 6-17-19

Tyler Baker 6-17-19

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Tyler Baker / TVA	6-17-19	1505	Duncan Kelly / Pace	6/18/19	0905

Sample Receipt Conditions

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

SHIPPING METHOD:	SAMPLER NAME AND SIGNATURE
Fedex	Tyler Baker Tyler Baker

Form TVA 30067A

Client Name: TVA

Sample Preservation Receipt Form

Project # 40189616

Pace Analytical Services, LLC
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

All containers needing preservation have been checked and noted below: ☑Yes ☐No ☐N/A

Lab Lot# of pH paper: 10053581 Lab Std #ID of preservation (if pH adjusted):

Initial when completed: SEW Date/ Time:

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	SP5T	ZPLC	GN							
001													1																	X		2.5 / 5 / 10
002													1																	X		2.5 / 5 / 10
003													1																	X		2.5 / 5 / 10
004													1																	X		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 ☑N/A ***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		
AG5U	100 mL amber glass unpres	BP3B	250 mL plastic NaOH	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres	BP3S	250 mL plastic H2SO4			GN:	

Pace Analytical™ 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)

Project #: WO#: 40189616

Client Name: TVA

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

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

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

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