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May 8, 2018

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**SITE ASSESSMENT,
REMEDICATION &
REVITALIZATION**

Mr. Greg Cassidy
State Voluntary Cleanup Section
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia SC 29201

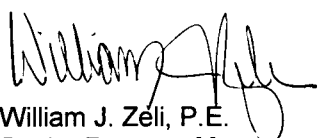
**Re: Congaree River Project
Second Semi-Annual Surface Water Assessment Report
Columbia, South Carolina**

Dear Mr. Cassidy:

On behalf of SCANA Services, Inc. (SCANA), Apex Companies, LLC (Apex) is submitting one hard copy and one CD of the Second Semi-Annual Surface Water Assessment Report for the Congaree River Project located in Columbia, South Carolina. The sampling activities were performed consistent with the Surface Water Sampling and Analysis Plan submitted to SCDHEC on June 30, 2017 and approved on July 21, 2017.

The next semi-annual monitoring event is scheduled for September 2018. Should you have any questions or comments, please feel free to call Paul Biery at (803) 217-5016 or me at (412) 829-9650.

Sincerely,
Apex Companies, LLC


William J. Zeli, P.E.
Senior Program Manager

Enclosure

cc: P. Biery, R. Contrael – SCANA
M. Ferlin – Apex

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SITE ASSESSMENT,
REMEDICATION &
REVITALIZATION

**SECOND SEMI-ANNUAL SURFACE WATER
ASSESSMENT REPORT (SWAR)**

**CONGAREE RIVER PROJECT
COLUMBIA, SOUTH CAROLINA**

May 2018

Prepared for:

South Carolina Electric & Gas Company
220 Operation Way
Cayce, South Carolina 29033

Prepared by:

Apex Companies, LLC

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A	Photographic Summary of Surface Water Sampling
B	Laboratory Analytical Results
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D	Summary of Surface Water Quality

1.0 INTRODUCTION

This Second Semi-Annual Surface Water Assessment Report (SWAR) is being submitted on behalf of South Carolina Electric & Gas Company (SCE&G). The SWAR documents activities completed during implementation of the Surface Water – Sampling and Analysis Plan (SW-SAP) submitted to the South Carolina Department of Health and Environmental Control (SCDHEC) in June 2017 and approved by SCDHEC on July 21, 2017. The sampling is being completed as a component of the ongoing sediment remediation project to address a tar-like material (TLM) located in a portion of the Congaree River in Columbia, South Carolina, as shown on Figure 1.

1.1 Brief Project History/Summary

SCE&G and SCDHEC have been working on the Congaree River Project since the discovery of the TLM in June of 2010. Based on the delineation work previously completed and available in the project administrative record, the extent of TLM has been well defined. The TLM is commingled with sediment primarily within an area of the river just south of the Gervais Street Bridge, adjacent to the eastern shoreline, as shown on Figure 2. The TLM in the river is thought to have been the result of past operations of the former Huger Street Manufactured Gas Plant (MGP) site located at 1409 Huger Street, Columbia, South Carolina (Figure 2). The former MGP site was operated by predecessor companies to SCE&G from approximately 1905 thru the mid 1950's. SCDHEC's Administrative Record contains additional details on the environmental history of the site.

1.2 Regulatory Framework

The SCDHEC and SCE&G have executed a Responsible Party Voluntary Cleanup Contract (VCC) #02-5295-RP for the former MGP site located at 1409 Huger St. Columbia South Carolina. After discovery of the TLM in the river in June of 2010, the existing VCC for the Huger Street site was extended to cover the Congaree River Project area. The Huger Street VCC was executed by the Department on August 19, 2002 and all the activities documented within this SWAR are consistent with the VCC.

1.3 Overview of the SW-SAP

The SW-SAP was submitted to SCDHEC on June 30, 2017 and approved on July 21, 2017. It is, by design, intended to replicate the initial SCDHEC surface water sampling event implemented in April 2017. The initial sampling event completed by SCDHEC is now considered the "baseline" for monitoring surface water conditions in the Project area. Results from the baseline event are compared to the results from this event as well as future semi-annual events. Additional information on the SCDHEC baseline work plan is provided in the SW-SAP (Apex, June 2017). Baseline results (all virtually non-detect) are discussed in more detail in the following section.

2.0 BACKGROUND INFORMATION AND BASELINE SAMPLING EVENT

2.1 Surface Water Hydrology

The Congaree River is formed by the confluence of the Broad and Lower Saluda Rivers approximately 6,000 feet above the project area near the Timmerman/State Route 126 Bridge (Figure 1). The flow of the Lower Saluda River is largely influenced by the Saluda River Hydroelectric Dam, which is constructed on Lake Murray and located approximately 12 miles northwest of the site. The Broad River is located to the north east of the project area, with multiple dams constructed upriver from the Gervais Street Bridge. The flow of the Broad River is less regulated (or controlled) than the Lower Saluda and is more runoff dependent. The Lower Saluda is considered a South Carolina Scenic River from approximately 1 mile below the Lake Murray Dam to the confluence with the Broad River, or the beginning of the Congaree River.

Within the project area, the unnamed tributary that extends from the 72-inch culvert pipe located near the intersection of Gist and Gervais Streets (Figure 2) provides a discharge point for stormwater runoff from the City of Columbia. This stormwater conveyance services a large area northeast of the site and exhibits varying flows that are strongly dependent on recent precipitation amounts. Minimal flow is observed during extended dry periods, which suggests some groundwater infiltration into the stormwater system.

A United States Geologic Survey (USGS) river gage is located directly across the river from the project area. According to the USGS, the drainage area for the Congaree River at this gage location is 7,850 square miles and the gage height is 113.02 feet, based on NGVD '29 (or 112.25 based on NGVD '88). From the available data, the mean daily discharge rate varies from approximately 5,000 cubic feet to 16,000 cubic feet. The USGS gage height is a key component in the overall approach for this sampling program.

2.2 Findings of the Baseline Event April 2017

A total of 14 surface water samples and one duplicate sample were collected during the April 2017 SCDHEC baseline surface water sampling. The samples were analyzed for volatile organic compounds (VOC) and semi-volatile organic compounds (SVOC) via Methods 8260B and 8270D, respectively. Shealy Environmental Services, Inc. (Shealy) located in West Columbia, South Carolina performed the analyses.

The SCDHEC provided the analytical findings to SCANA in a letter dated April 7, 2017. In this letter, the SCDHEC indicated “with the exception of one detection of bis(2-ethylhexyl)phthalate, all other samples yielded no detections. This constituent is a common laboratory contaminant and is suspected to be a false detection”. SCDHEC also indicated that the analytical results for the duplicate sample collected from the same location were non-detect. The surface water sample analytical results were submitted with the SW-SAP (Apex, June 2017).

3.0 SECOND SEMI-ANNUAL SURFACE WATER SAMPLING

3.1 Sampling Locations

A total of nine surface water samples were collected on March 20, 2017 along the Congaree, Saluda, and Broad Rivers, and tributaries discharging to the Congaree River. The gage height recorded at the USGS station located across from the project area averaged 4.45 feet during the sampling event. The sampling locations are described in Table 1 and shown on Figure 3. The locations include:

- **SW-01 through SW-03 and SW-08:** Monitoring surface water quality at upstream locations to establish surface water quality prior to entering the project area;
- **SW-04 and SW-05:** Monitoring surface water quality in the project area;
- **SW-06 and SW-07:** Monitoring surface water quality downstream of the project area; and
- **SW-09:** Monitoring surface water quality at a tributary to the west of the Congaree River to assess other potential contributions.

Sampling locations SW-01 and SW-04 through SW-07 are intended to be located near the SCDHEC surface water sampling locations (Table 1 and Figure 3).

The coordinates of the proposed surface water sampling locations shown on Figure 3 were established prior to sampling and entered into a hand-held GPS unit. The hand-held GPS unit was then used to locate the sampling locations in the field.

Table 2 provides the list of parameters analyzed for each surface water sample, as well as, the corresponding analytical methods and project reporting limits. This parameter list represents the same parameters analyzed in sediment samples collected during delineation activities. Consistent with the SCDHEC Work Plan, Shealy Environmental Services, Inc. (Shealy) located in West Columbia, South Carolina performed the analyses.

3.2 Sampling Procedures

In general, and where possible, the interval at about 1.0 foot above the river or tributary bottom was targeted for sampling. To facilitate sampling this interval, the two different sampling procedures described below were utilized based on surface water depth encountered at the time of sampling. For locations within the river, sampling proceeded in an upstream manner. Where possible, samples were collected by sampling personnel wading into the river or tributary (SW-01, SW-02, SW-03, SW-08, and SW-09). Samples that were located within the Congaree River and in deeper water (SW-04, SW-05, SW-06, and SW-07) were collected utilizing a boat. At each sampling location, depth and color/clarity of the water as well as the sampling method (shallow or deeper) were noted. Table 3 lists the sampling locations along with the sampling method utilized and corresponding observations. Appendix A provides a photographic summary of the surface water sampling activities.

3.2.1 Shallow Surface Water Sampling Procedures

Shallow surface water (as defined in this report as less than 1.5 foot in depth) sampling procedures were utilized at locations where collecting the sample by submerging the sample bottle, or transfer container, directly into the water column at the correct depth was feasible. The shallow surface water sample was

collected by orienting the sample bottle or clean transfer container with the bottle opening facing upstream and opening the container to allow water from the correct interval to enter. As shown on Table 3, this sampling procedure was utilized at sample locations SW-01, SW-02, SW-03, SW-08, and SW-09 located within the tributaries and Broad River (Figure 3). Although the water depth was 3 feet, the SW-08 location was sampled this event using shallow sampling procedures. Given site conditions at that location, the shallow water procedures were preferable to the pump and tubing method for deeper water sampling described below.

3.2.2 Deeper Surface Water Sampling Procedures

Deeper surface water sampling procedures were utilized at locations where the surface water was deeper than 3 feet and prohibited submerging the sample bottle, or transfer container, directly into the water column to collect the sample. This sampling procedure was utilized at sample locations SW-04, SW-05, SW-06, and SW-07 located in the Congaree and Saluda Rivers, as shown on Table 3 and Figure 3. For these deeper surface water samples, polyethylene tubing and a peristaltic pump were used, as described below. This method was utilized because the horizontal sampler planned for use (similar to the September 2017 event) was not functioning properly. Similar to SCDHEC's Surface Water Sampling Plan, surface water samples in the project area were collected about 15 to 20 feet from the shoreline.

At these locations the water column height was measured, and the tubing was weighted and lowered to a distance of approximately one foot above the river or tributary bottom. The tubing was connected to the peristaltic pump and water was pumped directly into the appropriate sample containers.

Care was taken when collecting the sample to minimize sediment disturbance and if disturbed, sufficient time was permitted to allow the sediment to clear.

3.3 Decontamination and Materials Management

3.3.1 Decontamination

Dedicated equipment (i.e., transfer bottles, tubing) and materials were used where appropriate. No non-dedicated and/or non-disposable equipment was used for this sampling event.

3.3.2 Materials Management

Waste materials generated through the completion of the surface water sampling activities were minimal, but included:

- Spent personal protective equipment (PPE); and
- Miscellaneous field supplies (paper towels, etc.) generated from the sampling.

The waste materials were bagged and disposed of appropriately at the Calhoun Park Area Site in Charleston, SC.

3.4 Analytical Results

The March 2018 surface water results are discussed in this section along with a comparison of the results to the baseline results of April 2017 and the first semi-annual results of September 2017. The March

2018 surface water analytical data is provided as Appendix B. A summary of surface water results from the past three events is included in Appendix D.

3.4.1 Data Evaluation

Following receipt of the data package from Shealy, the data were evaluated in accordance with the U.S. EPA National Functional Guidelines for Superfund Organic Methods Data Review (EPA, January 2017). The analytical data were reviewed with respect to sample preservation, holding times, field duplicate, trip blanks (volatiles only) and other laboratory control samples. The data were determined to be acceptable without qualification and a memorandum discussing the data evaluation is provided in Appendix C.

3.4.2 Trip Blank Analytical Results

A trip blank was included with the samples and analyzed for volatiles only. The results indicate that constituents were not detected. A summary of the results is included in Table 4.

3.4.3 Surface Water Analytical Results

A summary of the analytical results for the surface water samples analyzed during the March 2018 event is provided in Table 4. Similar to the SCDHEC baseline (April 2017) and the first semi-annual event (September 2017) sampling results, all samples collected during the March 2018 event yielded no detections for the analyzed constituents.

4.0 CONCLUSIONS

March 2018 surface water analytical results for samples collected within the Congaree River and tributaries continue to yield no detections. This marks the third sampling event, approximately five to six months apart, where all surface water samples were essentially non-detect.

5.0 RECOMMENDATIONS

The semi-annual surface water monitoring will continue as described in the SW-SAP. The next monitoring event is scheduled for September 2018.

TABLES

TABLE 1

SURFACE WATER SAMPLING LOCATIONS

**Congaree River Project
Columbia, South Carolina**

SCE&G Sampling Location	SCDHEC Sampling Location (Baseline)	Description
SW-01	CR-SW-14	Location upstream of Tributary "1", located in Memorial Park and coinciding with the SCDHEC sample location
SW-02	--	Unnamed Tributary "1" outfall
SW-03	--	Just upstream of the confluence of the Broad River and Congaree River
SW-04	CR-SW-13	Just south of the Alluvial Fan and coinciding with SCDHEC sample location
SW-05	CR-SW-06	Approximately 200 feet downstream of SW-04 and coinciding with the SCDHEC sample location
SW-06	CR-SW-08	Approximately 200 feet downstream of SW-05 and coinciding with the SCDHEC sample location
SW-07	CR-SW-10	Approximately 200 feet downstream of SW-06 and coinciding with the SCDHEC sample location
SW-08	--	Just upstream of the confluence of the Saluda River and Congaree River
SW-09	--	Tributary located west of the Congaree River

TABLE 2

SURFACE WATER SAMPLING PARAMETERS AND METHODS

Congaree River Project
Columbia, South Carolina

Constituent	Analytical Method	Reporting Limit (µg/L)
<u>Volatile Organic Compounds</u>		
Benzene	8260B	5
Ethylbenzene	8260B	5
Toluene	8260B	5
Xylenes, Total	8260B	5
<u>PAH Constituents</u>		
Acenaphthene	8270D	10
Acenaphthylene	8270D	10
Anthracene	8270D	10
Benzo(a)anthracene	8270D	10
Benzo(a)pyrene	8270D	10
Benzo(b)fluoranthene	8270D	10
Benzo(g,h,i)perylene	8270D	10
Benzo(k)fluoranthene	8270D	10
Chrysene	8270D	10
Dibenzo(a,h)anthracene	8270D	10
Fluoranthene	8270D	10
Fluorene	8270D	10
Indeno(1,2,3-cd)pyrene	8270D	10
Naphthalene	8270D	10
Phenanthrene	8270D	10
Pyrene	8270D	10

Note:

1. Quality assurance/quality control (QA/QC) samples included one trip blank per sample delivery group (VOCs only) and one blind field duplicate.

TABLE 3

SUMMARY OF SAMPLING METHODS AND FIELD OBSERVATIONS

**Congaree River Project
Columbia, South Carolina**

SCE&G Sampling Location	Date Sampled	Water Depth (feet)	Color/Clarity	Sampling Method (Shallow/Deep)
SW-01	March 20, 2018	1.5	Clear	Shallow
SW-02	March 20, 2018	1.5	Clear	Shallow
SW-03	March 20, 2018	1	Clear	Shallow
SW-04	March 20, 2018	3.25	Clear	Deep
SW-05	March 20, 2018	6	Clear	Deep
SW-06	March 20, 2018	4	Clear	Deep
SW-07	March 20, 2018	11	Clear	Deep
SW-08	March 20, 2018	3	Clear	Shallow
SW-09	March 20, 2018	0.25	Cloudy	Shallow

TABLE 4

SUMMARY OF SURFACE WATER ANALYTICAL RESULTS

Congaree River Project
Columbia, South Carolina

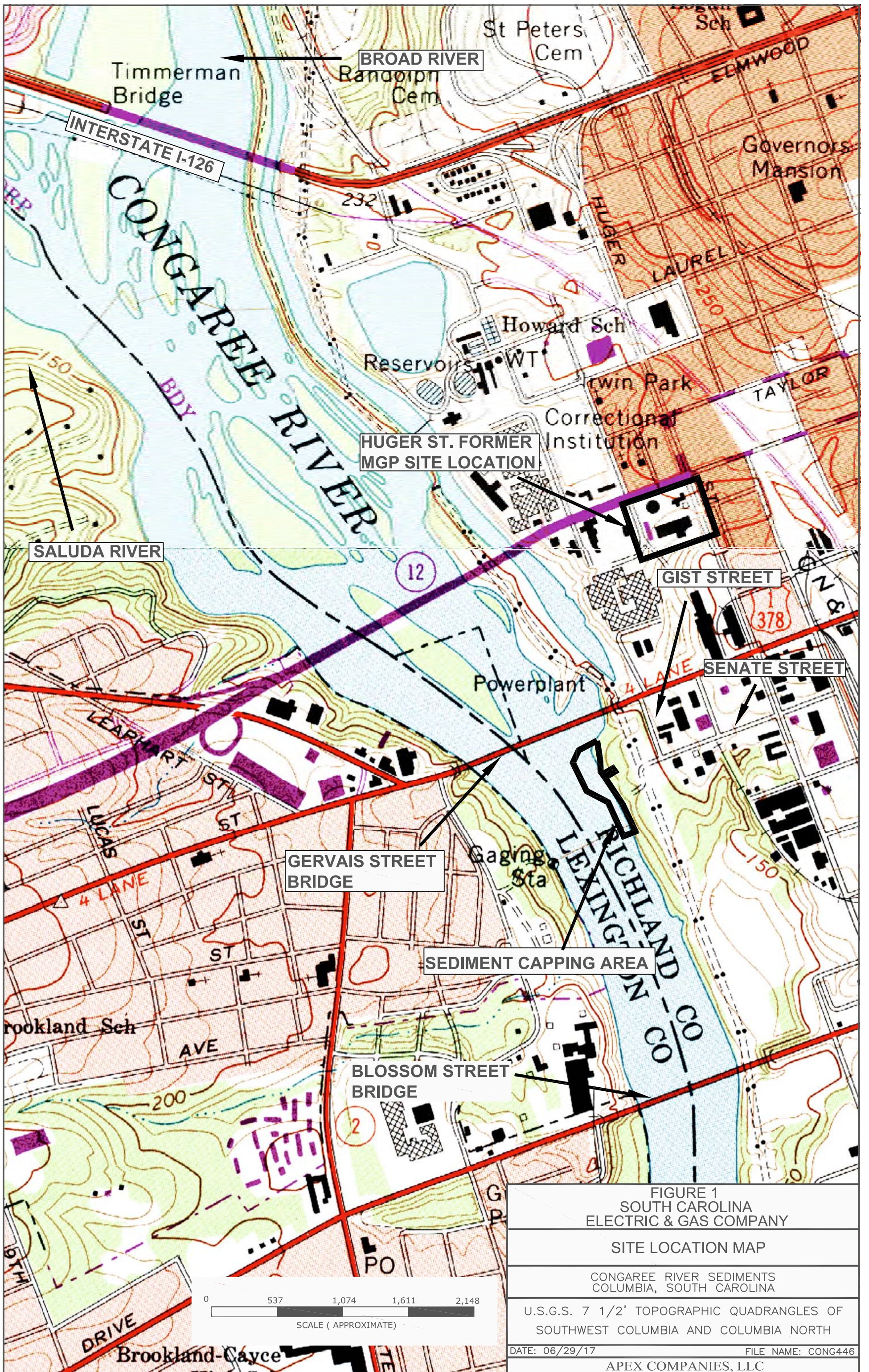
Constituent	Unit	SW-01	SW-02	SW-02 (Dup)	SW-03	SW-04	SW-05	SW-06	SW-07	SW-08	SW-09	Trip Blank
		3/20/2018	3/20/2018	3/20/2018	3/20/2018	3/20/2018	3/20/2018	3/20/2018	3/20/2018	3/20/2018	3/20/2018	3/20/2018
<i>Volatile Organic Compounds</i>												
Benzene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes, Total	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
<i>PAH Constituents</i>												
Acenaphthene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Acenaphthylene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Anthracene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Benzo(a)anthracene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Benzo(a)pyrene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Benzo(b)fluoranthene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Benzo(g,h,i)perylene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Benzo(k)fluoranthene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Chrysene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Dibenzo(a,h)anthracene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Fluoranthene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Fluorene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Indeno(1,2,3-cd)pyrene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Naphthalene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Phenanthrene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Pyrene	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA

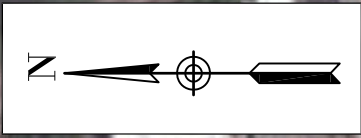
Notes:

(1) NA - not analyzed

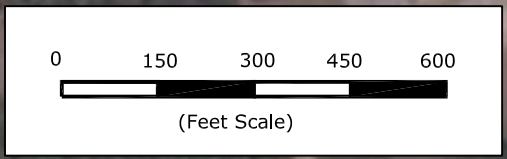
(2) U - represents the constituent was not detected above the limit of quantitation.

FIGURES





Note:
1) Aerial photograph from September 12, 2010.



HUGER STREET FORMER MGP SITE
(TLM SOURCE AREA) PARCEL "A"
APPROXIMATE LOCATION OF FORMER
DRAINAGE DITCH
(TLM MIGRATION PATHWAY)

PARCEL "B"

WILLIAMS STREET

PARCEL "C"

Senate Street

Gist Street

Culvert Outfall

Unnamed Tributary #1

Unnamed Tributary #2

Congaree River

Gervais Street Bridge

LEGEND	
	APPROXIMATE AREAL EXTENT OF TLM OCCURRENCES IN PROJECT AREA
	BOULDER FIELD
	SANDBAR

FIGURE 2	
SOUTH CAROLINA ELECTRIC & GAS COMPANY	
CONCEPTUAL SITE MODEL	
CONGAREE RIVER SEDIMENTS COLUMBIA, SOUTH CAROLINA	
DATE: 5/1/18	FILE NAME: CONG498
APEX COMPANIES, LLC	

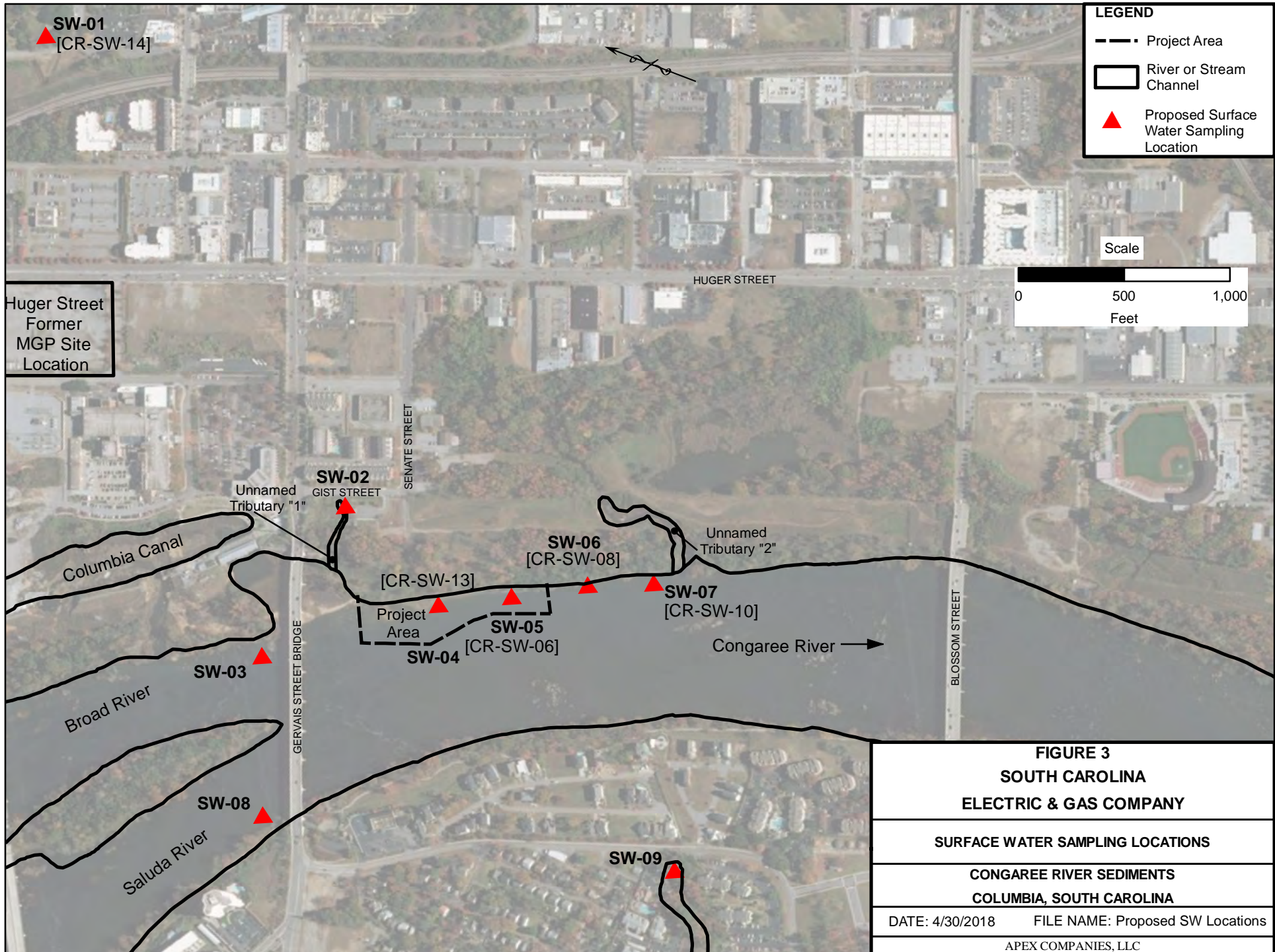


FIGURE 3
SOUTH CAROLINA
ELECTRIC & GAS COMPANY

SURFACE WATER SAMPLING LOCATIONS

CONGAREE RIVER SEDIMENTS
COLUMBIA, SOUTH CAROLINA

DATE: 4/30/2018 FILE NAME: Proposed SW Locations

APEX COMPANIES, LLC

APPENDIX A

PHOTOGRAPHIC SUMMARY OF SURFACE WATER SAMPLING



Memorial Park Outfall - SW-01



Collecting Sample SW-02 at Unnamed Tributary Outfall



Collecting Sample SW-03 in the Broad River



Collecting Samples in Congaree River - Typical of SW-04, SW-05, SW-06 and SW-07



Collecting Sample SW-08 from Saluda River



Outfall at SW-09 - West Side of Congaree River



Collecting Sample SW-09 - West Side of Congaree River

FIGURE A-1	
SOUTH CAROLINA ELECTRIC & GAS COMPANY	
PHOTOGRAPHIC SUMMARY OF SURFACE WATER SAMPLING	
CONGAREE RIVER SEDIMENTS COLUMBIA, SOUTH CAROLINA	
DATE: 4/30/2018	FILENAME: 0318 SW
APEX COMPANIES, LLC	

APPENDIX B

LABORATORY ANALYTICAL RESULTS

Report of Analysis

Apex Companies, LLC
1600 Commerce Circle
Trafford, PA 15085
Attention: Kayla Jones

Project Name: Congaree River Surface Water

Project Number: 87500608.11

Lot Number: **TC20023**

Date Completed: 03/27/2018

N. Saikaly

03/31/2018 7:09 AM

Approved and released by:
Project Manager: Nisreen Saikaly



The electronic signature above is the equivalent of a handwritten signature.
This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

SHEALY ENVIRONMENTAL SERVICES, INC.

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative Apex Companies, LLC Lot Number: TC20023

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary Apex Companies, LLC Lot Number: TC20023

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	SW-01	Aqueous	03/20/2018 1340	03/20/2018
002	SW-02	Aqueous	03/20/2018 1100	03/20/2018
003	SW-03	Aqueous	03/20/2018 1130	03/20/2018
004	SW-04	Aqueous	03/20/2018 0840	03/20/2018
005	SW-05	Aqueous	03/20/2018 0900	03/20/2018
006	SW-06	Aqueous	03/20/2018 0920	03/20/2018
007	SW-07	Aqueous	03/20/2018 0940	03/20/2018
008	SW-08	Aqueous	03/20/2018 1145	03/20/2018
009	SW-09	Aqueous	03/20/2018 1200	03/20/2018
010	FD032018	Aqueous	03/20/2018 1100	03/20/2018
011	Trip Blank	Aqueous	03/20/2018	03/20/2018

(11 samples)

SHEALY ENVIRONMENTAL SERVICES, INC.

Detection Summary
Apex Companies, LLC
Lot Number: TC20023

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
--------	-----------	--------	-----------	--------	--------	---	-------	------

(0 detections)

Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-001
Description: SW-01	Matrix: Aqueous
Date Sampled: 03/20/2018 1340	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/21/2018 1519	JJG		67523

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	8260B	ND		5.0	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	70-130
Bromofluorobenzene		95	70-130
Toluene-d8		93	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

Shealy Environmental Services, Inc.
 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-001
Description: SW-01	Matrix: Aqueous
Date Sampled: 03/20/2018 1340	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	03/26/2018 1636	CMP2	03/21/2018 1720	67511

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Acenaphthene	83-32-9	8270D	ND		10	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		10	ug/L	1
Anthracene	120-12-7	8270D	ND		10	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		10	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		10	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		10	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		10	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		10	ug/L	1
Chrysene	218-01-9	8270D	ND		10	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		10	ug/L	1
Fluoranthene	206-44-0	8270D	ND		10	ug/L	1
Fluorene	86-73-7	8270D	ND		10	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		10	ug/L	1
Naphthalene	91-20-3	8270D	ND		10	ug/L	1
Phenanthrene	85-01-8	8270D	ND		10	ug/L	1
Pyrene	129-00-0	8270D	ND		10	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Nitrobenzene-d5		87	38-127
2-Fluorobiphenyl		84	37-129
Terphenyl-d14		113	10-148

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-002
Description: SW-02	Matrix: Aqueous
Date Sampled: 03/20/2018 1100	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/21/2018 1541	JJG		67523

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	8260B	ND		5.0	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	70-130
Bromofluorobenzene		93	70-130
Toluene-d8		95	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-002
Description: SW-02	Matrix: Aqueous
Date Sampled: 03/20/2018 1100	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	03/26/2018 1749	CMP2	03/21/2018 1720	67511

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Acenaphthene	83-32-9	8270D	ND		10	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		10	ug/L	1
Anthracene	120-12-7	8270D	ND		10	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		10	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		10	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		10	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		10	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		10	ug/L	1
Chrysene	218-01-9	8270D	ND		10	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		10	ug/L	1
Fluoranthene	206-44-0	8270D	ND		10	ug/L	1
Fluorene	86-73-7	8270D	ND		10	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		10	ug/L	1
Naphthalene	91-20-3	8270D	ND		10	ug/L	1
Phenanthrene	85-01-8	8270D	ND		10	ug/L	1
Pyrene	129-00-0	8270D	ND		10	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Nitrobenzene-d5		84	38-127
2-Fluorobiphenyl		85	37-129
Terphenyl-d14		110	10-148

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-003
Description: SW-03	Matrix: Aqueous
Date Sampled: 03/20/2018 1130	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/21/2018 1603	JJG		67523

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	8260B	ND		5.0	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	70-130
Bromofluorobenzene		96	70-130
Toluene-d8		95	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-003
Description: SW-03	Matrix: Aqueous
Date Sampled: 03/20/2018 1130	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	03/26/2018 1814	CMP2	03/21/2018 1720	67511

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Acenaphthene	83-32-9	8270D	ND		10	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		10	ug/L	1
Anthracene	120-12-7	8270D	ND		10	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		10	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		10	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		10	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		10	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		10	ug/L	1
Chrysene	218-01-9	8270D	ND		10	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		10	ug/L	1
Fluoranthene	206-44-0	8270D	ND		10	ug/L	1
Fluorene	86-73-7	8270D	ND		10	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		10	ug/L	1
Naphthalene	91-20-3	8270D	ND		10	ug/L	1
Phenanthrene	85-01-8	8270D	ND		10	ug/L	1
Pyrene	129-00-0	8270D	ND		10	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Nitrobenzene-d5		103	38-127
2-Fluorobiphenyl		99	37-129
Terphenyl-d14		105	10-148

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-004
Description: SW-04	Matrix: Aqueous
Date Sampled: 03/20/2018 0840	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/21/2018 1625	JJG		67523

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	8260B	ND		5.0	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	70-130
Bromofluorobenzene		95	70-130
Toluene-d8		95	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-004
Description: SW-04	Matrix: Aqueous
Date Sampled: 03/20/2018 0840	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	03/26/2018 1839	CMP2	03/21/2018 1720	67511

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Acenaphthene	83-32-9	8270D	ND		10	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		10	ug/L	1
Anthracene	120-12-7	8270D	ND		10	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		10	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		10	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		10	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		10	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		10	ug/L	1
Chrysene	218-01-9	8270D	ND		10	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		10	ug/L	1
Fluoranthene	206-44-0	8270D	ND		10	ug/L	1
Fluorene	86-73-7	8270D	ND		10	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		10	ug/L	1
Naphthalene	91-20-3	8270D	ND		10	ug/L	1
Phenanthrene	85-01-8	8270D	ND		10	ug/L	1
Pyrene	129-00-0	8270D	ND		10	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Nitrobenzene-d5		85	38-127
2-Fluorobiphenyl		83	37-129
Terphenyl-d14		106	10-148

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-005
Description: SW-05	Matrix: Aqueous
Date Sampled: 03/20/2018 0900	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/21/2018 1647	JJG		67523

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	8260B	ND		5.0	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	70-130
Bromofluorobenzene		91	70-130
Toluene-d8		94	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-005
Description: SW-05	Matrix: Aqueous
Date Sampled: 03/20/2018 0900	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	03/26/2018 1903	CMP2	03/21/2018 1720	67511

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Acenaphthene	83-32-9	8270D	ND		10	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		10	ug/L	1
Anthracene	120-12-7	8270D	ND		10	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		10	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		10	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		10	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		10	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		10	ug/L	1
Chrysene	218-01-9	8270D	ND		10	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		10	ug/L	1
Fluoranthene	206-44-0	8270D	ND		10	ug/L	1
Fluorene	86-73-7	8270D	ND		10	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		10	ug/L	1
Naphthalene	91-20-3	8270D	ND		10	ug/L	1
Phenanthrene	85-01-8	8270D	ND		10	ug/L	1
Pyrene	129-00-0	8270D	ND		10	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Nitrobenzene-d5		98	38-127
2-Fluorobiphenyl		94	37-129
Terphenyl-d14		109	10-148

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-006
Description: SW-06	Matrix: Aqueous
Date Sampled: 03/20/2018 0920	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/21/2018 1709	JJG		67523

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	8260B	ND		5.0	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	70-130
Bromofluorobenzene		94	70-130
Toluene-d8		95	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-006
Description: SW-06	Matrix: Aqueous
Date Sampled: 03/20/2018 0920	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	03/26/2018 1928	CMP2	03/21/2018 1720	67511

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Acenaphthene	83-32-9	8270D	ND		10	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		10	ug/L	1
Anthracene	120-12-7	8270D	ND		10	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		10	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		10	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		10	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		10	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		10	ug/L	1
Chrysene	218-01-9	8270D	ND		10	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		10	ug/L	1
Fluoranthene	206-44-0	8270D	ND		10	ug/L	1
Fluorene	86-73-7	8270D	ND		10	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		10	ug/L	1
Naphthalene	91-20-3	8270D	ND		10	ug/L	1
Phenanthrene	85-01-8	8270D	ND		10	ug/L	1
Pyrene	129-00-0	8270D	ND		10	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Nitrobenzene-d5		93	38-127
2-Fluorobiphenyl		88	37-129
Terphenyl-d14		106	10-148

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-007
Description: SW-07	Matrix: Aqueous
Date Sampled: 03/20/2018 0940	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/21/2018 1731	JJG		67523

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	8260B	ND		5.0	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	70-130
Bromofluorobenzene		93	70-130
Toluene-d8		95	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-007
Description: SW-07	Matrix: Aqueous
Date Sampled: 03/20/2018 0940	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	03/26/2018 1953	CMP2	03/21/2018 1720	67511

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Acenaphthene	83-32-9	8270D	ND		10	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		10	ug/L	1
Anthracene	120-12-7	8270D	ND		10	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		10	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		10	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		10	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		10	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		10	ug/L	1
Chrysene	218-01-9	8270D	ND		10	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		10	ug/L	1
Fluoranthene	206-44-0	8270D	ND		10	ug/L	1
Fluorene	86-73-7	8270D	ND		10	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		10	ug/L	1
Naphthalene	91-20-3	8270D	ND		10	ug/L	1
Phenanthrene	85-01-8	8270D	ND		10	ug/L	1
Pyrene	129-00-0	8270D	ND		10	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Nitrobenzene-d5		97	38-127
2-Fluorobiphenyl		94	37-129
Terphenyl-d14		109	10-148

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-008
Description: SW-08	Matrix: Aqueous
Date Sampled: 03/20/2018 1145	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/22/2018 1459	JJG		67641

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	8260B	ND		5.0	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		88	70-130
Bromofluorobenzene		91	70-130
Toluene-d8		92	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-008
Description: SW-08	Matrix: Aqueous
Date Sampled: 03/20/2018 1145	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	03/26/2018 2018	CMP2	03/21/2018 1720	67511

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Acenaphthene	83-32-9	8270D	ND		10	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		10	ug/L	1
Anthracene	120-12-7	8270D	ND		10	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		10	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		10	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		10	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		10	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		10	ug/L	1
Chrysene	218-01-9	8270D	ND		10	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		10	ug/L	1
Fluoranthene	206-44-0	8270D	ND		10	ug/L	1
Fluorene	86-73-7	8270D	ND		10	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		10	ug/L	1
Naphthalene	91-20-3	8270D	ND		10	ug/L	1
Phenanthrene	85-01-8	8270D	ND		10	ug/L	1
Pyrene	129-00-0	8270D	ND		10	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Nitrobenzene-d5		91	38-127
2-Fluorobiphenyl		89	37-129
Terphenyl-d14		107	10-148

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-009
Description: SW-09	Matrix: Aqueous
Date Sampled: 03/20/2018 1200	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/22/2018 1523	JJG		67641

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	8260B	ND		5.0	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		88	70-130
Bromofluorobenzene		92	70-130
Toluene-d8		94	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-009
Description: SW-09	Matrix: Aqueous
Date Sampled: 03/20/2018 1200	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	03/26/2018 2042	CMP2	03/21/2018 1720	67511

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Acenaphthene	83-32-9	8270D	ND		10	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		10	ug/L	1
Anthracene	120-12-7	8270D	ND		10	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		10	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		10	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		10	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		10	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		10	ug/L	1
Chrysene	218-01-9	8270D	ND		10	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		10	ug/L	1
Fluoranthene	206-44-0	8270D	ND		10	ug/L	1
Fluorene	86-73-7	8270D	ND		10	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		10	ug/L	1
Naphthalene	91-20-3	8270D	ND		10	ug/L	1
Phenanthrene	85-01-8	8270D	ND		10	ug/L	1
Pyrene	129-00-0	8270D	ND		10	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Nitrobenzene-d5		107	38-127
2-Fluorobiphenyl		101	37-129
Terphenyl-d14		86	10-148

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-010
Description: FD032018	Matrix: Aqueous
Date Sampled: 03/20/2018 1100	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/22/2018 1548	JJG		67641

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	8260B	ND		5.0	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		87	70-130
Bromofluorobenzene		90	70-130
Toluene-d8		91	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-010
Description: FD032018	Matrix: Aqueous
Date Sampled: 03/20/2018 1100	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	03/27/2018 1131	CMP2	03/21/2018 1720	67511

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Acenaphthene	83-32-9	8270D	ND		10	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		10	ug/L	1
Anthracene	120-12-7	8270D	ND		10	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		10	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		10	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		10	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		10	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		10	ug/L	1
Chrysene	218-01-9	8270D	ND		10	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		10	ug/L	1
Fluoranthene	206-44-0	8270D	ND		10	ug/L	1
Fluorene	86-73-7	8270D	ND		10	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		10	ug/L	1
Naphthalene	91-20-3	8270D	ND		10	ug/L	1
Phenanthrene	85-01-8	8270D	ND		10	ug/L	1
Pyrene	129-00-0	8270D	ND		10	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Nitrobenzene-d5		82	38-127
2-Fluorobiphenyl		91	37-129
Terphenyl-d14		119	10-148

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC	Laboratory ID: TC20023-011
Description: Trip Blank	Matrix: Aqueous
Date Sampled: 03/20/2018	
Date Received: 03/20/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/22/2018 1613	JJG		67641

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	8260B	ND		5.0	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		87	70-130
Bromofluorobenzene		93	70-130
Toluene-d8		95	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40%
 H = Out of holding time W = Reported on wet weight basis

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QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: TQ67523-001

Matrix: Aqueous

Batch: 67523

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
Benzene	ND		1	5.0	ug/L	03/21/2018 1037
Ethylbenzene	ND		1	5.0	ug/L	03/21/2018 1037
Toluene	ND		1	5.0	ug/L	03/21/2018 1037
Xylenes (total)	ND		1	5.0	ug/L	03/21/2018 1037
Surrogate	Q	% Rec	Acceptance Limit			
1,2-Dichloroethane-d4		90	70-130			
Bromofluorobenzene		98	70-130			
Toluene-d8		96	70-130			

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: TQ67523-002

Matrix: Aqueous

Batch: 67523

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	42		1	83	70-130	03/21/2018 0906
Ethylbenzene	50	43		1	86	70-130	03/21/2018 0906
Toluene	50	43		1	87	70-130	03/21/2018 0906
Xylenes (total)	100	85		1	85	70-130	03/21/2018 0906
Surrogate	Q	% Rec			Acceptance Limit		
1,2-Dichloroethane-d4		90			70-130		
Bromofluorobenzene		99			70-130		
Toluene-d8		95			70-130		

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: TQ67641-001

Matrix: Aqueous

Batch: 67641

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
Benzene	ND		1	5.0	ug/L	03/22/2018 1046
Ethylbenzene	ND		1	5.0	ug/L	03/22/2018 1046
Toluene	ND		1	5.0	ug/L	03/22/2018 1046
Xylenes (total)	ND		1	5.0	ug/L	03/22/2018 1046
Surrogate	Q	% Rec	Acceptance Limit			
1,2-Dichloroethane-d4		88	70-130			
Bromofluorobenzene		93	70-130			
Toluene-d8		93	70-130			

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: TQ67641-002

Matrix: Aqueous

Batch: 67641

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	48		1	96	70-130	03/22/2018 0956
Ethylbenzene	50	50		1	101	70-130	03/22/2018 0956
Toluene	50	49		1	98	70-130	03/22/2018 0956
Xylenes (total)	100	98		1	98	70-130	03/22/2018 0956
Surrogate	Q	% Rec			Acceptance Limit		
1,2-Dichloroethane-d4		82			70-130		
Bromofluorobenzene		89			70-130		
Toluene-d8		86			70-130		

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Semivolatile Organic Compounds by GC/MS - MB

Sample ID: TQ67511-001

Matrix: Aqueous

Batch: 67511

Prep Method: 3520C

Analytical Method: 8270D

Prep Date: 03/21/2018 1720

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
Acenaphthene	ND		1	10	ug/L	03/26/2018 1027
Acenaphthylene	ND		1	10	ug/L	03/26/2018 1027
Anthracene	ND		1	10	ug/L	03/26/2018 1027
Benzo(a)anthracene	ND		1	10	ug/L	03/26/2018 1027
Benzo(a)pyrene	ND		1	10	ug/L	03/26/2018 1027
Benzo(b)fluoranthene	ND		1	10	ug/L	03/26/2018 1027
Benzo(g,h,i)perylene	ND		1	10	ug/L	03/26/2018 1027
Benzo(k)fluoranthene	ND		1	10	ug/L	03/26/2018 1027
Chrysene	ND		1	10	ug/L	03/26/2018 1027
Dibenzo(a,h)anthracene	ND		1	10	ug/L	03/26/2018 1027
Fluoranthene	ND		1	10	ug/L	03/26/2018 1027
Fluorene	ND		1	10	ug/L	03/26/2018 1027
Indeno(1,2,3-c,d)pyrene	ND		1	10	ug/L	03/26/2018 1027
Naphthalene	ND		1	10	ug/L	03/26/2018 1027
Phenanthrene	ND		1	10	ug/L	03/26/2018 1027
Pyrene	ND		1	10	ug/L	03/26/2018 1027
Surrogate	Q	% Rec	Acceptance Limit			
Nitrobenzene-d5		81	38-127			
2-Fluorobiphenyl		85	37-129			
Terphenyl-d14		108	10-148			

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: TQ67511-002

Matrix: Aqueous

Batch: 67511

Prep Method: 3520C

Analytical Method: 8270D

Prep Date: 03/21/2018 1720

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	40	31		1	77	30-122	03/26/2018 1051
Acenaphthylene	40	34		1	85	30-130	03/26/2018 1051
Anthracene	40	39		1	98	30-123	03/26/2018 1051
Benzo(a)anthracene	40	41		1	103	40-125	03/26/2018 1051
Benzo(a)pyrene	40	45		1	112	40-128	03/26/2018 1051
Benzo(b)fluoranthene	40	41		1	103	30-130	03/26/2018 1051
Benzo(g,h,i)perylene	40	44		1	109	30-130	03/26/2018 1051
Benzo(k)fluoranthene	40	40		1	101	30-130	03/26/2018 1051
Chrysene	40	41		1	103	30-130	03/26/2018 1051
Dibenzo(a,h)anthracene	40	44		1	110	30-130	03/26/2018 1051
Fluoranthene	40	42		1	104	40-128	03/26/2018 1051
Fluorene	40	34		1	85	30-124	03/26/2018 1051
Indeno(1,2,3-c,d)pyrene	40	44		1	110	30-130	03/26/2018 1051
Naphthalene	40	32		1	79	30-130	03/26/2018 1051
Phenanthrene	40	37		1	92	40-123	03/26/2018 1051
Pyrene	40	43		1	106	40-126	03/26/2018 1051
Surrogate	Q	% Rec	Acceptance Limit				
Nitrobenzene-d5		80	38-127				
2-Fluorobiphenyl		82	37-129				
Terphenyl-d14		109	10-148				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Semivolatile Organic Compounds by GC/MS - MS

Sample ID: TC20023-001MS

Matrix: Aqueous

Batch: 67511

Prep Method: 3520C

Analytical Method: 8270D

Prep Date: 03/21/2018 1720

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	ND	80	56		1	71	30-122	03/26/2018 1700
Acenaphthylene	ND	80	62		1	77	30-130	03/26/2018 1700
Anthracene	ND	80	75		1	94	30-123	03/26/2018 1700
Benzo(a)anthracene	ND	80	84		1	105	40-125	03/26/2018 1700
Benzo(a)pyrene	ND	80	86		1	108	40-128	03/26/2018 1700
Benzo(b)fluoranthene	ND	80	82		1	102	30-130	03/26/2018 1700
Benzo(g,h,i)perylene	ND	80	86		1	108	30-130	03/26/2018 1700
Benzo(k)fluoranthene	ND	80	79		1	98	30-130	03/26/2018 1700
Chrysene	ND	80	81		1	101	30-130	03/26/2018 1700
Dibenzo(a,h)anthracene	ND	80	85		1	106	30-130	03/26/2018 1700
Fluoranthene	ND	80	82		1	102	40-128	03/26/2018 1700
Fluorene	ND	80	64		1	81	30-124	03/26/2018 1700
Indeno(1,2,3-c,d)pyrene	ND	80	86		1	108	30-130	03/26/2018 1700
Naphthalene	ND	80	60		1	75	30-130	03/26/2018 1700
Phenanthrene	ND	80	70		1	88	40-123	03/26/2018 1700
Pyrene	ND	80	85		1	106	40-126	03/26/2018 1700
Surrogate	Q	% Rec	Acceptance Limit					
Nitrobenzene-d5		74	38-127					
2-Fluorobiphenyl		72	37-129					
Terphenyl-d14		106	10-148					

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Shealy Environmental Services, Inc.

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Semivolatile Organic Compounds by GC/MS - MSD

Sample ID: TC20023-001MD

Matrix: Aqueous

Batch: 67511

Prep Method: 3520C

Analytical Method: 8270D

Prep Date: 03/21/2018 1720

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acenaphthene	ND	80	63	1		79	11	30-122	40	03/26/2018 1725
Acenaphthylene	ND	80	70	1		87	12	30-130	40	03/26/2018 1725
Anthracene	ND	80	77	1		96	2.3	30-123	40	03/26/2018 1725
Benzo(a)anthracene	ND	80	83	1		104	0.79	40-125	40	03/26/2018 1725
Benzo(a)pyrene	ND	80	88	1		110	2.0	40-128	40	03/26/2018 1725
Benzo(b)fluoranthene	ND	80	83	1		104	1.7	30-130	40	03/26/2018 1725
Benzo(g,h,i)perylene	ND	80	87	1		109	1.3	30-130	40	03/26/2018 1725
Benzo(k)fluoranthene	ND	80	79	1		99	1.2	30-130	40	03/26/2018 1725
Chrysene	ND	80	81	1		101	0.31	30-130	40	03/26/2018 1725
Dibenzo(a,h)anthracene	ND	80	87	1		109	3.1	30-130	40	03/26/2018 1725
Fluoranthene	ND	80	83	1		104	1.9	40-128	40	03/26/2018 1725
Fluorene	ND	80	71	1		89	9.9	30-124	40	03/26/2018 1725
Indeno(1,2,3-c,d)pyrene	ND	80	88	1		110	2.6	30-130	40	03/26/2018 1725
Naphthalene	ND	80	67	1		84	12	30-130	40	03/26/2018 1725
Phenanthrene	ND	80	75	1		94	6.6	40-123	40	03/26/2018 1725
Pyrene	ND	80	86	1		108	1.4	40-126	40	03/26/2018 1725
Surrogate	Q	% Rec	Acceptance Limit							
Nitrobenzene-d5		84	38-127							
2-Fluorobiphenyl		82	37-129							
Terphenyl-d14		107	10-148							

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Shealy Environmental Services, Inc.

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Chain of Custody
and
Miscellaneous Documents



Chain of Custody Record

SHEALY ENVIRONMENTAL SERVICES, INC.
 106 Vantage Point Drive • West Columbia, SC 29172
 Telephone No. 803-791-9700 Fax No. 803-791-9111
 www.shealylab.com

Number 32545

Client Apex Companies, LLC		Refer to Contract James Marmion		Telephone No. / E-mail 412-488-8299 / james.marmion@apex.com	Quote No. 200603
Address 1000 Commerce Circle		Sampler's Signature <i>[Signature]</i>		Analysis (Attach list if more space is needed)	
City Trafford	State PA	Zip Code 15089	Printed Name Kayla Jones		
Project Name Conowee River Surface Water	P.C. No. 875001008.11		No. of Containers by Preservation Type		
Project No. 875001008.11	Sample ID / Description SW-01	Date 3/20/18	Time 1340	Volume 3	Remarks / Cooler I.D. TC20023
(Containers for each sample may be combined on one line.)					
	SW-02	3/26/18	1100	3	
	SW-03	3/26/18	1130	3	
	SW-04	3/26/18	0840	3	
	SW-05	3/26/18	0900	3	
	SW-06	3/26/18	0920	3	
	SW-07	3/26/18	0940	3	
	SW-08	3/26/18	1145	3	
	SW-09	3/26/18	1200	3	
	FD032018	3/26/18	1100	3	
Turn Around Time Required (Prior lab approval required for expedited TAT.) <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush (Specify) <input type="checkbox"/> Samples Disposed <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Retained by Lab					
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown					
QC Requirements (Specify):					
Retrieved by Kayla Jones	Date 3/20/18	Time 1407	Date 3/20/18		
Retrieved by	Date	Time	Date		
Retrieved by	Date	Time	Date		
Retrieved by	Date	Time	Date		
Note: All samples are retained for four weeks from receipt unless other arrangements are made.					
LAB USE ONLY Received on ice (Circle) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Use Packet <input type="checkbox"/> Retain Temp. 4.0 °C TSV					

Trips Blank also included

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
Document Number: ME001BC-12

Page 1 of 1
Effective Date: 02/09/2018

Sample Receipt Checklist (SRC)

Client: Apex Cooler Inspected by/date: SBE 1/3/2018 Lot #: TC20023

Means of receipt: <input type="checkbox"/> SESI <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other:	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: _____ Chlorine Strip ID: _____	
Cooler ID/ Original temperature upon receipt / Derived (Corrected) temperature upon receipt: <u>140140°C</u> / _____ / _____ °C	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: <u>6</u> IR Gun Correction Factor: <u>0</u> °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH ₃ /TKN/cyanide/phenol/625 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Was the quote number used taken from the container label?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) using SR # _____.	
Time of preservation _____.	
Sample(s) _____ were received with bubbles >6 mm in diameter.	
Sample(s) _____ were received with TRC > 0.5 mg/L (If #19 is <i>no</i>) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: _____.	
SR barcode labels applied by: <u>SBE</u> Date: <u>3/20/18</u>	

Comments:

APPENDIX C

DATA EVALUATION MEMORANDUM

Memo

To: Bill Zeli
From: James Dunmyre
Date: April 26, 2018
Re: Evaluation of Analytical Data for Surface Water Samples Collected in March 2018
Congaree River, Columbia South Carolina

Sample Identification

SW-01	SW-05	SW-09
SW-02	SW-06	
SW-03	SW-07	
SW-04	SW-08	

Overview

Nine surface water samples were collected during the week of March 19, 2018.

The samples collected during the September surface water sampling event were submitted to Shealy Environmental Services, Inc. (Shealy) located in West Columbia, South Carolina for the analyses of polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270D and BTEX via EPA Method 8260B. The analytical results were reported in one sample delivery group (SDG) – TC20023. The attached table summarizes the SDG, the samples and analytical parameters. A Level II data package was provided for the SDG.

Two quality assurance/quality control (QA/QC) samples were also collected. The QA/QC samples collected included one blind field duplicate (FD032018 duplicate of SW-02) and one trip blank.

Summary

Quality control (QC) measures associated with the analytical data were reviewed following the U.S. EPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017) to determine the accuracy and precision of the data reported. These QC measures included surrogate recoveries, laboratory and field blank results, field duplicate results, MS/MSD results, and laboratory control sample (LCS) results.

Recommendations for Data Usability

The reviewed QC results did not indicate that any significant problems existed with data precision and accuracy, as reported. All BTEX and PAH data should be considered usable for intended data uses.

APPENDIX D

SUMMARY OF SURFACE WATER QUALITY

TABLE D-1

SUMMARY OF SURFACE WATER QUALITY

Congaree River Project
Columbia, South Carolina

Date Sampled	Entity	Parameters	Sample Locations								
			CR-SW-14	--	--	CR-SW-13	CR-SW-06	CR-SW-08	CR-SW-10	--	--
3/21/2017	DHEC	BTEX PAH	ND ND	--	--	ND ND	ND ND	ND ND	ND ND	--	--
9/21/2017	SCE&G	BTEX PAH	SW-01 ND ND	SW-02 ND ND	SW-03 ND ND	SW-04 ND ND	SW-05 ND ND	SW-06 ND ND	SW-07 ND ND	SW-08 ND ND	SW-09 ND ND
3/20/2018	SCE&G	BTEX PAH	SW-01 ND ND	SW-02 ND ND	SW-03 ND ND	SW-04 ND ND	SW-05 ND ND	SW-06 ND ND	SW-07 ND ND	SW-08 ND ND	SW-09 ND ND

Notes:

1. ND - constituents were not detected above the reporting limit.