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May 8, 2018

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,
REMEDIATION &
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:

361

Apex Companies, LLC

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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)
Volatile Organic Compounds		
Benzene	8260B	5
Ethylbenzene	8260B	5
Toluene	8260B	5
Xylenes, Total	8260B	5
PAH Constituents		
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

Checked by : JD
Date Checked: 4/19/2018

TABLE 4

SUMMARY OF SURFACE WATER ANALYTICAL RESULTS

Congaree River Project
Columbia, South Carolina

Constituent	Unit	SW-01 3/20/2018	SW-02 3/20/2018	SW-02 (Dup) 3/20/2018	SW-03 3/20/2018	SW-04 3/20/2018	SW-05 3/20/2018	SW-06 3/20/2018	SW-07 3/20/2018	SW-08 3/20/2018	SW-09 3/20/2018	Trip Blank 3/20/2018
Volatile Organic Compounds												
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
PAH Constituents												
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 consituent was not detected above the limit of quantitation.

Checked by : KJ
Date Checked: 4/19/2018

FIGURES