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NOV 14 2017

SITE ASSESSMENT, REMEDIATION & REVITALIZATION

November 7, 2017

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
First 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 First 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 March 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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REMEDIATION &
REVITALIZATION

FIRST SEMI-ANNUAL SURFACE WATER ASSESSMENT REPORT (SWAR)

CONGAREE RIVER PROJECT
COLUMBIA, SOUTH CAROLINA

November 2017

Prepared for:

SCANA Services, Inc.
220 Operation Way
Cayce, South Carolina 29033

Prepared by:

Apex Companies, LLC

Apex Companies, LLC · 1600 Commerce Circle · Trafford, PA 15085 · T 412.829.9650 · F 412.349.0350 · apexcos.com

351

TABLE OF CONTENTS

1.0 INTRODUCTION 1

1.1 Brief Project History/Summary 1
1.2 Regulatory Framework 1
1.3 Overview of the SW-SAP 1

2.0 BACKGROUND INFORMATION AND BASELINE SAMPLING EVENT 2

2.1 Surface Water Hydrology 2
2.2 Findings of the Baseline Event April 2017 2

3.0 FIRST SEMI-ANNUAL SURFACE WATER SAMPLING 3

3.1 Sampling Locations 3
3.2 Sampling Procedures 3
3.2.1 Shallow Surface Water Sampling Procedures 3
3.2.2 Deeper Surface Water Sampling Procedures 4
3.3 Decontamination and Materials Management 4
3.3.1 Decontamination 4
3.3.2 Materials Management 4
3.4 Analytical Results 5
3.4.1 Data Evaluation 5
3.4.2 Trip Blank Analytical Results 5
3.4.3 Surface Water Analytical Results 5

4.0 CONCLUSIONS 5

5.0 RECOMMENDATIONS 5

TABLES

1 Surface Water Sampling Locations
2 Surface Water Sampling Parameters and Methods
3 Summary of Sampling Methods and Field Observations
4 Summary of Surface Water Analytical Results

FIGURES

1 Site Location Map
2 Conceptual Site Model
3 Surface Water Sampling Locations

APPENDICES

A Photographic Summary of Surface Water Sampling
B Laboratory Analytical Results
C Data Evaluation Memorandum

1.0 INTRODUCTION

This First 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 St. 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 Huger St site was extended to cover the Congaree River Project area. The Huger St. 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 will be 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 FIRST SEMI-ANNUAL SURFACE WATER SAMPLING

3.1 Sampling Locations

A total of nine surface water samples were collected on September 21, 2017 along the Congaree, Saluda, and Broad Rivers, and tributaries discharging to the Congaree River. The mean gage height recorded at the USGS stream located across from the project area was 3.12 feet on the day of sampling. 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 1.0 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, and SW-09 located within the tributaries and Broad River (Figure 3).

3.2.2 Deeper Surface Water Sampling Procedures

Deeper surface water sampling procedures were utilized at locations where the surface water was approximately 1 to 4 feet deep 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, SW-07, and SW-08 located in the Congaree and Saluda Rivers, as shown on Table 3 and Figure 3. For these deeper surface water samples, a Van Dorn sampling device was used, as described below. 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 Van Dorn sampler was lowered to a distance of approximately one foot above the river or tributary bottom. A weighted "messenger" was sent down the rope supporting the sampler, triggering a mechanism that closed the gaskets sealing the water from the appropriate point in the water column inside the device. The sampler was then raised and the contents transferred 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) and materials were used where appropriate. All non-dedicated and/or non-disposable equipment was decontaminated after each use. Equipment and materials were decontaminated with a tap water and Liquinox® (or Alconox) wash followed by a tap and distilled water rinse.

3.3.2 Materials Management

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

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

Investigation-derived wastes (IDW) were segregated as appropriate. Decontamination fluids were placed in a 55-gallon drum staged at the Huger Street site for subsequent management and disposal. Approximately 0.25 gallons of decontamination fluids was generated during this sampling event. General refuse was bagged and disposed of appropriately at the Calhoun Park Area Site in Charleston, SC.

3.4 Analytical Results

The September 2017 surface water results are discussed in this section along with a comparison of the results to the baseline results of April 2017. The September 2017 surface water analytical data is provided as Appendix B.

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 September 2017 event is provided in Table 4. Similar to the SCDHEC baseline sampling results (April 2017), all samples collected during the September 2017 event yielded no detections for the analyzed constituents.

4.0 CONCLUSIONS

September 2017 surface water analytical results within the Congaree River continue to yield no detections. This marks the second sampling event, approximately five 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 March 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

Notes:

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	September 21, 2017	1	Clear	Shallow
SW-02	September 21, 2017	1	Clear	Shallow
SW-03	September 21, 2017	1	Clear	Shallow
SW-04	September 21, 2017	2.5	Clear	Deep
SW-05	September 21, 2017	5	Clear	Deep
SW-06	September 21, 2017	3	Clear	Deep
SW-07	September 21, 2017	10	Clear	Deep
SW-08	September 21, 2017	2.5	Clear	Deep
SW-09	September 21, 2017	0.4	Clear	Shallow

TABLE 4

SUMMARY OF SURFACE WATER ANALYTICAL RESULTS

Congaree River Project
Columbia, South Carolina

Constituent	Unit	SW-01 9/21/2017	SW-01 (Dup) 9/21/2017	SW-02 9/21/2017	SW-03 9/21/2017	SW-04 9/21/2017	SW-05 9/21/2017	SW-06 9/21/2017	SW-07 9/21/2017	SW-08 9/21/2017	SW-09 9/21/2017	Trip Blank 9/21/2017
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.

FIGURES

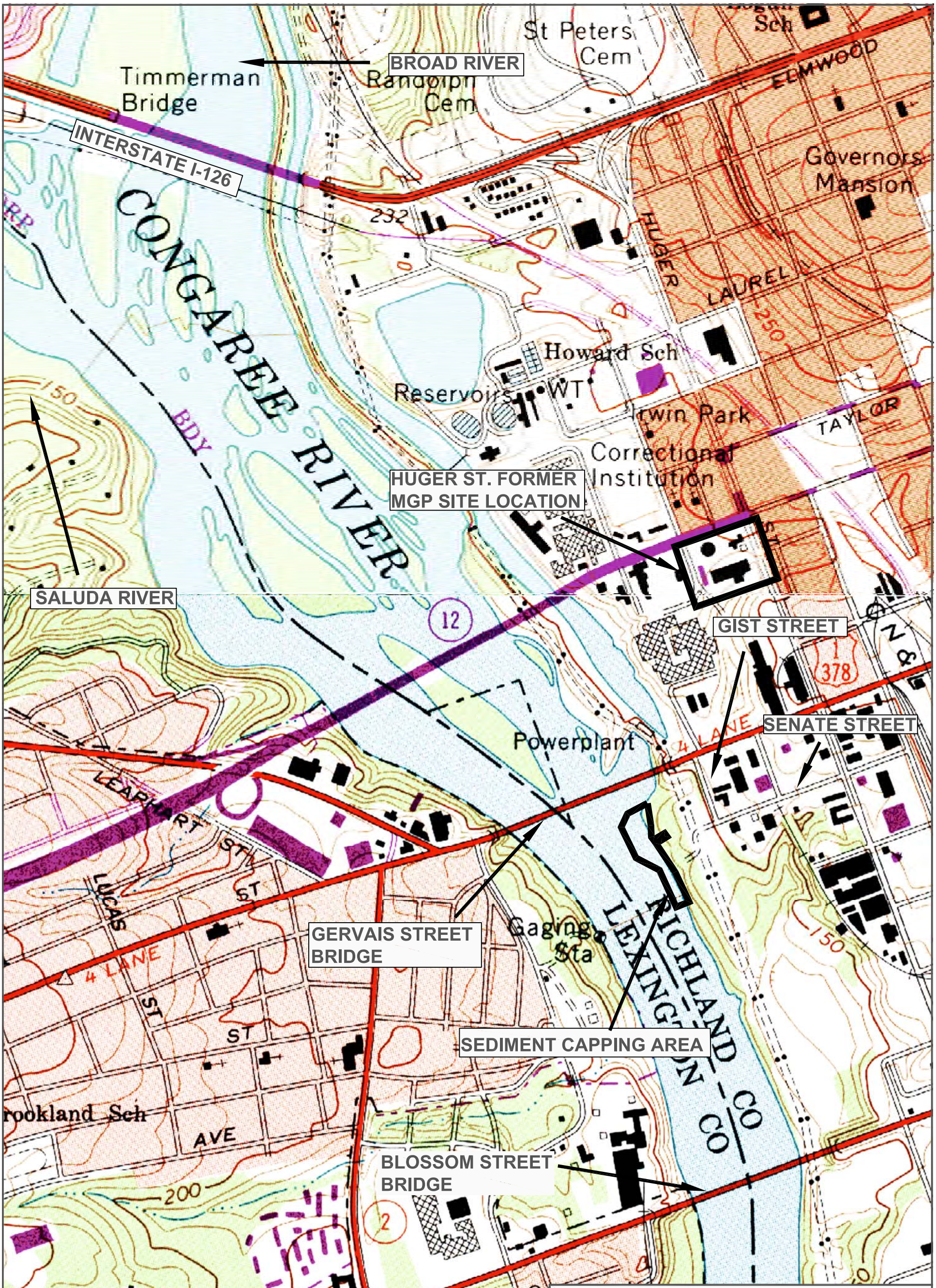


FIGURE 1
SOUTH CAROLINA
ELECTRIC & GAS COMPANY

SITE LOCATION MAP

CONGAREE RIVER SEDIMENTS
COLUMBIA, SOUTH CAROLINA

U.S.G.S. 7 1/2' TOPOGRAPHIC QUADRANGLES OF SOUTHWEST COLUMBIA AND COLUMBIA NORTH

DATE: 06/29/17 FILE NAME: CONG446

APEX COMPANIES, LLC

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

0 150 300 450 600
(Feet Scale)

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 #2

Unnamed Tributary #1

Congaree River

Gervais Street Bridge

LEGEND

– APPROXIMATE SPATIAL EXTENT OF TLM

FIGURE 2
SOUTH CAROLINA
ELECTRIC & GAS COMPANY

CONCEPTUAL SITE MODEL

CONGAREE RIVER SEDIMENTS
COLUMBIA, SOUTH CAROLINA

DATE: 6/28/17 FILE NAME: CONG445

APEX COMPANIES, LLC

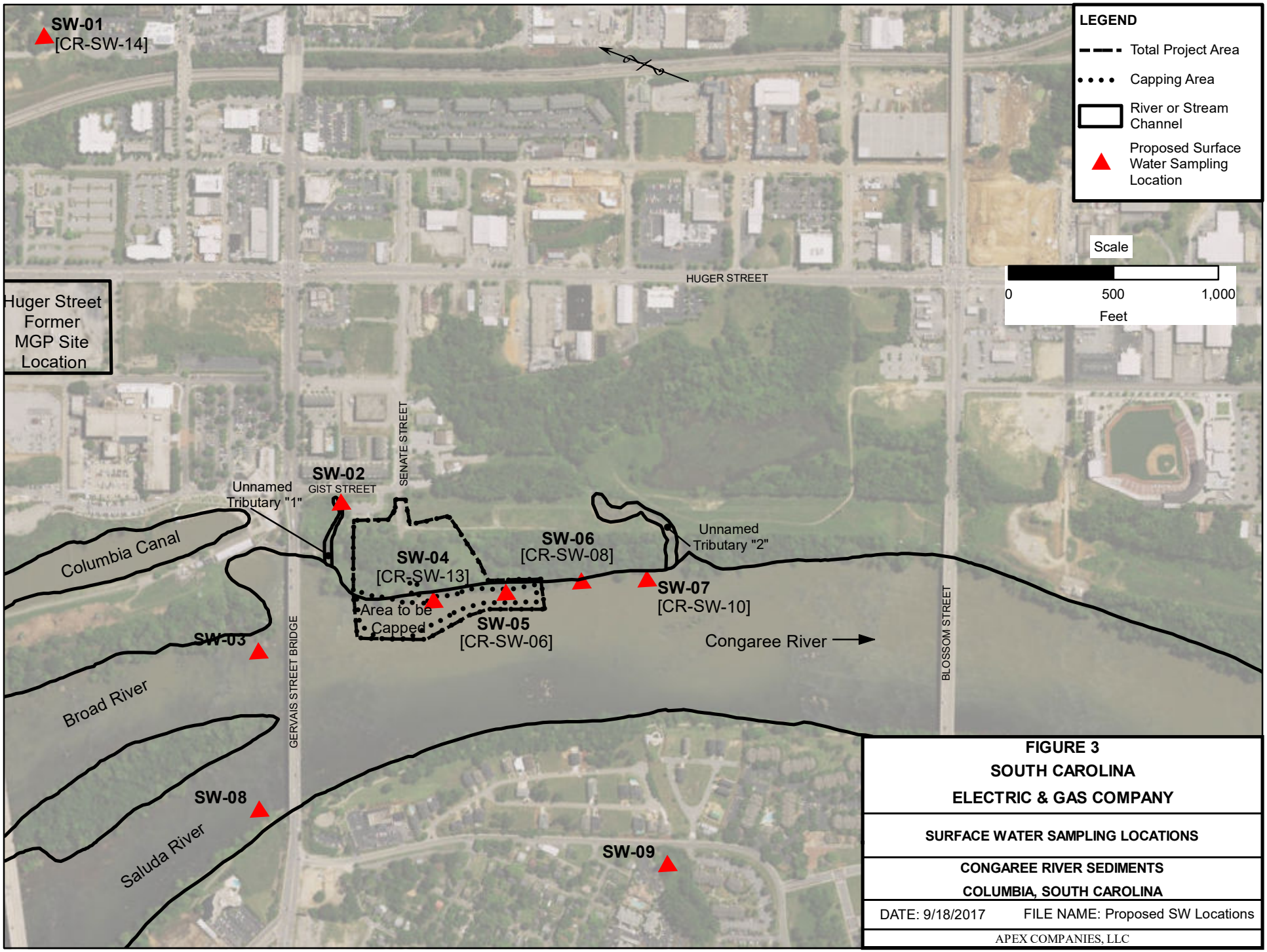


FIGURE 3

SOUTH CAROLINA ELECTRIC & GAS COMPANY

SURFACE WATER SAMPLING LOCATIONS

CONGAREE RIVER SEDIMENTS

COLUMBIA, SOUTH CAROLINA

DATE: 9/18/2017 FILE NAME: Proposed SW Locations

APEX COMPANIES, LLC

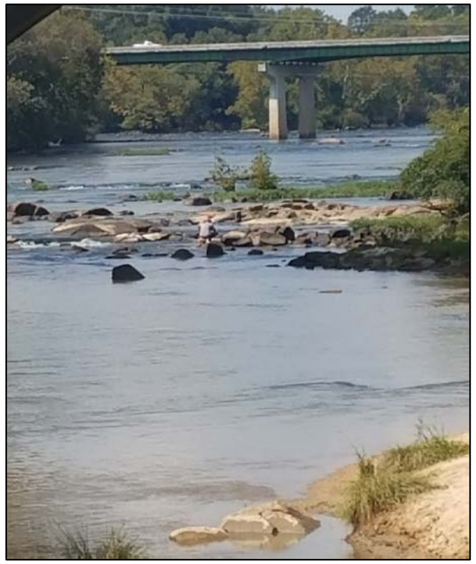
APPENDIX A

PHOTOGRAPHIC SUMMARY OF SURFACE WATER SAMPLING

Memorial Park Outfall - SW-01

Collecting Sample SW-01 at Memorial Park Outfall

Collecting Sample SW-02 at Unnamed Tributary Outfall



Collecting Sample SW-03 from 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

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: 9/26/2017 FILENAME: 0917 SW

APEX COMPANIES, LLC

APPENDIX B

LABORATORY ANALYTICAL RESULTS

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

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

Project Name: Congaree River Surface WT

Project Number: 87500608.10

Lot Number:**SI22008**

Date Completed:09/28/2017

N. Saikaly

09/29/2017 2:32 PM
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.
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Case Narrative
Apex Companies, LLC
Lot Number: SI22008

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.

Sample Summary
Apex Companies, LLC
Lot Number: SI22008

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	SW-01	Aqueous	09/21/2017 1040	09/21/2017
002	SW-02	Aqueous	09/21/2017 1200	09/21/2017
003	SW-03	Aqueous	09/21/2017 1400	09/21/2017
004	SW-04	Aqueous	09/21/2017 1420	09/21/2017
005	SW-05	Aqueous	09/21/2017 1430	09/21/2017
006	SW-06	Aqueous	09/21/2017 1440	09/21/2017
007	SW-07	Aqueous	09/21/2017 1450	09/21/2017
008	SW-08	Aqueous	09/21/2017 1130	09/21/2017
009	SW-09	Aqueous	09/21/2017 1115	09/21/2017
010	FD092117	Aqueous	09/21/2017 1040	09/21/2017
011	TRIP BLANK	Aqueous	09/21/2017	09/21/2017

(11 samples)

Detection Summary

Apex Companies, LLC

Lot Number: SI22008

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page

(0 detections)

Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-001
Description: SW-01
Matrix: Aqueous
Date Sampled: 09/21/2017 1040
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/24/2017 1532	BWS		52280

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		99	70-130
Bromofluorobenzene		92	70-130
Toluene-d8		117	70-130

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

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: SI22008-001
Description: SW-01
Matrix: Aqueous
Date Sampled: 09/21/2017 1040
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	09/27/2017 1400	CMP2	09/26/2017 1606	52471

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		79	38-127
2-Fluorobiphenyl		85	37-129
Terphenyl-d14		94	10-148

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

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-002
Description: SW-02
Matrix: Aqueous
Date Sampled: 09/21/2017 1200
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/24/2017 1554	BWS		52280

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		100	70-130
Bromofluorobenzene		93	70-130
Toluene-d8		118	70-130

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

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-002
Description: SW-02
Matrix: Aqueous
Date Sampled: 09/21/2017 1200
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	09/27/2017 1515	CMP2	09/26/2017 1606	52471

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		80	38-127
2-Fluorobiphenyl		86	37-129
Terphenyl-d14		95	10-148

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

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-003
Description: SW-03
Matrix: Aqueous
Date Sampled: 09/21/2017 1400
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/24/2017 1617	BWS		52280

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		100	70-130
Bromofluorobenzene		99	70-130
Toluene-d8		119	70-130

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

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-003
Description: SW-03
Matrix: Aqueous
Date Sampled: 09/21/2017 1400
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	09/27/2017 1540	CMP2	09/26/2017 1606	52471

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		73	38-127
2-Fluorobiphenyl		79	37-129
Terphenyl-d14		87	10-148

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

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-004
Description: SW-04
Matrix: Aqueous
Date Sampled: 09/21/2017 1420
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/24/2017 1639	BWS		52280

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		97	70-130
Bromofluorobenzene		89	70-130
Toluene-d8		116	70-130

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

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-004
Description: SW-04
Matrix: Aqueous
Date Sampled: 09/21/2017 1420
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	09/27/2017 1605	CMP2	09/26/2017 1606	52471

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		76	38-127
2-Fluorobiphenyl		82	37-129
Terphenyl-d14		89	10-148

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

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-005
Description: SW-05
Matrix: Aqueous
Date Sampled: 09/21/2017 1430
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/24/2017 1700	BWS		52280

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		96	70-130
Bromofluorobenzene		95	70-130
Toluene-d8		116	70-130

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

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-005
Description: SW-05
Matrix: Aqueous
Date Sampled: 09/21/2017 1430
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	09/27/2017 1630	CMP2	09/26/2017 1606	52471

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		74	38-127
2-Fluorobiphenyl		81	37-129
Terphenyl-d14		83	10-148

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

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-006
Description: SW-06
Matrix: Aqueous
Date Sampled: 09/21/2017 1440
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/24/2017 1722	BWS		52280

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		98	70-130
Bromofluorobenzene		91	70-130
Toluene-d8		114	70-130

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

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-006
Description: SW-06
Matrix: Aqueous
Date Sampled: 09/21/2017 1440
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	09/27/2017 1655	CMP2	09/26/2017 1606	52471

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		79	38-127
2-Fluorobiphenyl		84	37-129
Terphenyl-d14		73	10-148

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

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-007
Description: SW-07
Matrix: Aqueous
Date Sampled: 09/21/2017 1450
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/24/2017 1744	BWS		52280

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		96	70-130
Bromofluorobenzene		95	70-130
Toluene-d8		117	70-130

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

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-007
Description: SW-07
Matrix: Aqueous
Date Sampled: 09/21/2017 1450
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	09/27/2017 1720	CMP2	09/26/2017 1606	52471

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		75	38-127
2-Fluorobiphenyl		79	37-129
Terphenyl-d14		94	10-148

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

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-008
Description: SW-08
Matrix: Aqueous
Date Sampled: 09/21/2017 1130
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/24/2017 1321	BWS		52286

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		98	70-130
Bromofluorobenzene		101	70-130
Toluene-d8		112	70-130

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

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-008
Description: SW-08
Matrix: Aqueous
Date Sampled: 09/21/2017 1130
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	09/27/2017 1745	CMP2	09/26/2017 1606	52471

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		81	38-127
2-Fluorobiphenyl		83	37-129
Terphenyl-d14		99	10-148

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

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-009
Description: SW-09
Matrix: Aqueous
Date Sampled: 09/21/2017 1115
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/24/2017 1347	BWS		52286

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		99	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		112	70-130

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

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-009
Description: SW-09
Matrix: Aqueous
Date Sampled: 09/21/2017 1115
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	09/27/2017 1810	CMP2	09/26/2017 1606	52471

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		83	38-127
2-Fluorobiphenyl		87	37-129
Terphenyl-d14		96	10-148

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

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-010
Description: FD092117
Matrix: Aqueous
Date Sampled: 09/21/2017 1040
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/24/2017 1411	BWS		52286

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		99	70-130
Bromofluorobenzene		100	70-130
Toluene-d8		110	70-130

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

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Semivolatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-010
Description: FD092117
Matrix: Aqueous
Date Sampled: 09/21/2017 1040
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	09/27/2017 1835	CMP2	09/26/2017 1606	52471

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		80	38-127
2-Fluorobiphenyl		84	37-129
Terphenyl-d14		99	10-148

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

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Volatile Organic Compounds by GC/MS

Client: Apex Companies, LLC
Laboratory ID: SI22008-011
Description: TRIP BLANK
Matrix: Aqueous
Date Sampled: 09/21/2017
Date Received: 09/21/2017

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	09/24/2017 1257	BWS		52286

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		96	70-130
Bromofluorobenzene		98	70-130
Toluene-d8		107	70-130

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

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QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: SQ52280-001
Batch: 52280
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
Benzene	ND		1	5.0	ug/L	09/24/2017 1031
Ethylbenzene	ND		1	5.0	ug/L	09/24/2017 1031
Toluene	ND		1	5.0	ug/L	09/24/2017 1031
Xylenes (total)	ND		1	5.0	ug/L	09/24/2017 1031

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		102	70-130
Bromofluorobenzene		96	70-130
Toluene-d8		113	70-130

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
ND = Not detected at or above the LOQ

N = Recovery is out of criteria
+ = RPD is out of criteria

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: SQ52280-002
Batch: 52280
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	57		1	113	70-130	09/24/2017 0931
Ethylbenzene	50	57		1	115	70-130	09/24/2017 0931
Toluene	50	56		1	112	70-130	09/24/2017 0931
Xylenes (total)	100	120		1	116	70-130	09/24/2017 0931

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		97	70-130
Toluene-d8		105	70-130

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
ND = Not detected at or above the LOQ

N = Recovery is out of criteria
+ = RPD is out of criteria

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: SQ52286-001
Batch: 52286
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
Benzene	ND		1	5.0	ug/L	09/24/2017 1217
Ethylbenzene	ND		1	5.0	ug/L	09/24/2017 1217
Toluene	ND		1	5.0	ug/L	09/24/2017 1217
Xylenes (total)	ND		1	5.0	ug/L	09/24/2017 1217

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		99	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		112	70-130

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
ND = Not detected at or above the LOQ

N = Recovery is out of criteria
+ = RPD is out of criteria

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: SQ52286-002
Batch: 52286
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	53		1	106	70-130	09/24/2017 1026
Ethylbenzene	50	53		1	106	70-130	09/24/2017 1026
Toluene	50	54		1	109	70-130	09/24/2017 1026
Xylenes (total)	100	100		1	101	70-130	09/24/2017 1026

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		93	70-130
Bromofluorobenzene		102	70-130
Toluene-d8		106	70-130

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
ND = Not detected at or above the LOQ

N = Recovery is out of criteria
+ = RPD is out of criteria

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: SQ52471-001
Batch: 52471
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 09/26/2017 1606

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
Acenaphthene	ND		1	10	ug/L	09/27/2017 1221
Acenaphthylene	ND		1	10	ug/L	09/27/2017 1221
Anthracene	ND		1	10	ug/L	09/27/2017 1221
Benzo(a)anthracene	ND		1	10	ug/L	09/27/2017 1221
Benzo(a)pyrene	ND		1	10	ug/L	09/27/2017 1221
Benzo(b)fluoranthene	ND		1	10	ug/L	09/27/2017 1221
Benzo(g,h,i)perylene	ND		1	10	ug/L	09/27/2017 1221
Benzo(k)fluoranthene	ND		1	10	ug/L	09/27/2017 1221
Chrysene	ND		1	10	ug/L	09/27/2017 1221
Dibenzo(a,h)anthracene	ND		1	10	ug/L	09/27/2017 1221
Fluoranthene	ND		1	10	ug/L	09/27/2017 1221
Fluorene	ND		1	10	ug/L	09/27/2017 1221
Indeno(1,2,3-c,d)pyrene	ND		1	10	ug/L	09/27/2017 1221
Naphthalene	ND		1	10	ug/L	09/27/2017 1221
Phenanthrene	ND		1	10	ug/L	09/27/2017 1221
Pyrene	ND		1	10	ug/L	09/27/2017 1221

Surrogate	Q	% Rec	Acceptance Limit
Nitrobenzene-d5		80	38-127
2-Fluorobiphenyl		84	37-129
Terphenyl-d14		99	10-148

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
ND = Not detected at or above the LOQ

N = Recovery is out of criteria
+ = RPD is out of criteria

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: SQ52471-002
Batch: 52471
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 09/26/2017 1606

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	40	36		1	89	30-130	09/27/2017 1246
Acenaphthylene	40	36		1	90	30-130	09/27/2017 1246
Anthracene	40	37		1	93	30-130	09/27/2017 1246
Benzo(a)anthracene	40	34		1	85	30-130	09/27/2017 1246
Benzo(a)pyrene	40	29		1	71	30-130	09/27/2017 1246
Benzo(b)fluoranthene	40	33		1	82	30-130	09/27/2017 1246
Benzo(g,h,i)perylene	40	34		1	85	30-130	09/27/2017 1246
Benzo(k)fluoranthene	40	32		1	80	30-130	09/27/2017 1246
Chrysene	40	34		1	85	30-130	09/27/2017 1246
Dibenzo(a,h)anthracene	40	33		1	82	30-130	09/27/2017 1246
Fluoranthene	40	38		1	94	30-130	09/27/2017 1246
Fluorene	40	36		1	91	30-130	09/27/2017 1246
Indeno(1,2,3-c,d)pyrene	40	36		1	90	30-130	09/27/2017 1246
Naphthalene	40	36		1	89	30-130	09/27/2017 1246
Phenanthrene	40	36		1	90	30-130	09/27/2017 1246
Pyrene	40	37		1	91	30-130	09/27/2017 1246

Surrogate	Q	% Rec	Acceptance Limit
Nitrobenzene-d5		87	38-127
2-Fluorobiphenyl		86	37-129
Terphenyl-d14		81	10-148

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
ND = Not detected at or above the LOQ

N = Recovery is out of criteria
+ = RPD is out of criteria

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: SI22008-001MS
Batch: 52471
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 09/26/2017 1606

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	ND	80	64		1	80	30-130	09/27/2017 1425
Acenaphthylene	ND	80	68		1	85	30-130	09/27/2017 1425
Anthracene	ND	80	78		1	97	30-130	09/27/2017 1425
Benzo(a)anthracene	ND	80	71		1	89	30-130	09/27/2017 1425
Benzo(a)pyrene	ND	80	74		1	93	30-130	09/27/2017 1425
Benzo(b)fluoranthene	ND	80	73		1	91	30-130	09/27/2017 1425
Benzo(g,h,i)perylene	ND	80	76		1	95	30-130	09/27/2017 1425
Benzo(k)fluoranthene	ND	80	70		1	87	30-130	09/27/2017 1425
Chrysene	ND	80	74		1	93	30-130	09/27/2017 1425
Dibenzo(a,h)anthracene	ND	80	73		1	91	30-130	09/27/2017 1425
Fluoranthene	ND	80	78		1	97	30-130	09/27/2017 1425
Fluorene	ND	80	67		1	84	30-130	09/27/2017 1425
Indeno(1,2,3-c,d)pyrene	ND	80	87		1	109	30-130	09/27/2017 1425
Naphthalene	ND	80	65		1	81	30-130	09/27/2017 1425
Phenanthrene	ND	80	75		1	93	30-130	09/27/2017 1425
Pyrene	ND	80	71		1	89	30-130	09/27/2017 1425

Surrogate	Q	% Rec	Acceptance Limit
Nitrobenzene-d5		75	38-127
2-Fluorobiphenyl		83	37-129
Terphenyl-d14		89	10-148

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
ND = Not detected at or above the LOQ

N = Recovery is out of criteria
+ = RPD is out of criteria

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

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Semivolatile Organic Compounds by GC/MS - MSD

Sample ID: SI22008-001MD
Batch: 52471
Analytical Method: 8270D

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 09/26/2017 1606

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	68		1	86	7.0	30-130	40	09/27/2017 1450
Acenaphthylene	ND	80	75		1	94	9.1	30-130	40	09/27/2017 1450
Anthracene	ND	80	80		1	100	2.6	30-130	40	09/27/2017 1450
Benzo(a)anthracene	ND	80	72		1	90	0.41	30-130	40	09/27/2017 1450
Benzo(a)pyrene	ND	80	74		1	92	0.86	30-130	40	09/27/2017 1450
Benzo(b)fluoranthene	ND	80	71		1	88	2.9	30-130	40	09/27/2017 1450
Benzo(g,h,i)perylene	ND	80	73		1	91	4.6	30-130	40	09/27/2017 1450
Benzo(k)fluoranthene	ND	80	69		1	86	0.66	30-130	40	09/27/2017 1450
Chrysene	ND	80	73		1	91	1.9	30-130	40	09/27/2017 1450
Dibenzo(a,h)anthracene	ND	80	70		1	87	4.8	30-130	40	09/27/2017 1450
Fluoranthene	ND	80	79		1	99	1.8	30-130	40	09/27/2017 1450
Fluorene	ND	80	72		1	90	6.1	30-130	40	09/27/2017 1450
Indeno(1,2,3-c,d)pyrene	ND	80	84		1	105	4.0	30-130	40	09/27/2017 1450
Naphthalene	ND	80	70		1	87	7.7	30-130	40	09/27/2017 1450
Phenanthrene	ND	80	77		1	96	2.7	30-130	40	09/27/2017 1450
Pyrene	ND	80	73		1	91	2.7	30-130	40	09/27/2017 1450

Surrogate	Q	% Rec	Acceptance Limit
Nitrobenzene-d5		80	38-127
2-Fluorobiphenyl		87	37-129
Terphenyl-d14		85	10-148

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
ND = Not detected at or above the LOQ

N = Recovery is out of criteria
+ = RPD is out of criteria

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

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Chain of Custody

and

Miscellaneous Documents

Shealy Environmental Services, Inc.
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SHEALY ENVIRONMENTAL SERVICES, INC.

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 75693

Client: APEX Companies, LLC
Report to Contact: K. Jones/intrmain
Telephone No. / E-mail: [illegible] 412-829-9650
Quote No.
Address: 1600 Commerce Circle
Sampler's Signature: Kayla Jones
Analysis (Attach list if more space is needed)
Page ____ of ____
City: Trafford | State: PA | Zip Code: 15085
Printed Name: Kayla Jones
Project Name: Congaree River - Surface WT
SI22008
Project No: 815006081.0
P.O. No.

Sample ID / Description (Containers for each sample may be combined on one line.)	Date	Time	Grab/Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	S2O3 Wt	VOC 8260B	SVOC 8270D	Remarks / Cooler I.D.
SW-01	9/21/17	1040	X	X			2			3			X	X	Trip Blank
SW-02		1200	X	X			2			3			X	X	for VOCs
SW-03		1400	X	X			2			3			X	X	only indicated
SW-04		1420	X	X			2			3			X	X	
SW-05		1430	X	X			2			3			X	X	
SW-06		1440	X	X			2			3			X	X	
SW-07		1450	X	X			2			2			X	X	1 vial broken
SW-08		1130	X	X			2			3			X	X	
SW-09		1115	X	X			2			3			X	X	
FD092117		1040	X	X			2			3			X	X	

Turn Around Time Required (Prior lab approval required for expedited TAT.): X Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client X Disposal by Lab

Possible Hazard Identification: X Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Date	Time
1. Relinquished by: Kayla Jones	9/21/17	1716
2. Relinquished by	Date	Time
3. Relinquished by	Date	Time
4. Relinquished by	Date	Time

	Date	Time
1. Received by	Date	Time
2. Received by	Date	Time
3. Received by	Date	Time
4. Laboratory received by: S Elliott	Date: 9/21/17	Time: 1716

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle): (Yes) No Ice Pack Receipt Temp: 2.1 °C

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: F-AD-133 Effective Date: 08-01-2014

Shealy Environmental Services, Inc
Document Number: ME0018C-09

Page 1 of 1
Effective Date: 07/28/2017
Expiry Date: 07/28/2022

Sample Receipt Checklist (SRC)

Client: APEX Cooler Inspected by/date: ECC 4/22/17 Lot #: SI 22208

Means of receipt: ☐ SESI ☑ Client ☐ UPS ☐ FedEx ☐ Other

Yes ☐	No ☐		1. Were custody seals present on the cooler?
Yes ☐	No ☐	NA ☐	2. If custody seals were present, were they intact and unbroken?

pH strip ID: Cl strip ID:

Cooler ID/Original temperature upon receipt/Derived (corrected) temperature upon receipt:

2.1 °C / / °C / / °C / / °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: G IR Gun Correction Factor: 0 °C

Method of coolant: ☐ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None

Yes ☐	No ☐	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).
Yes ☐	No ☐	NA ☐	4. Is the commercial courier's packing slip attached to this form?
Yes ☐	No ☐		5. Were proper custody procedures (relinquished/received) followed?
Yes ☐	No ☐		6. Were sample IDs listed on the COC?
Yes ☐	No ☐		7. Were sample IDs listed on all sample containers?
Yes ☐	No ☐		8. Was collection date & time listed on the COC?
Yes ☐	No ☐		9. Was collection date & time listed on all sample containers?
Yes ☐	No ☐		10. Did all container label information (ID, date, time) agree with the COC?
Yes ☐	No ☐		11. Were tests to be performed listed on the COC?
Yes ☐	No ☐		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
Yes ☐	No ☐		13. Was adequate sample volume available?
Yes ☐	No ☐ ECC 4/22/17		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☐		15. Were any samples containers missing/excess (circle one) samples Not listed on COC? TIB
Yes ☐	No ☐	NA ☐	16. Were bubbles present >"pea-size" (¼" or 6mm in diameter) in any VOA vials?
Yes ☐	No ☐	NA ☐	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
Yes ☐	No ☐	NA ☐	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
Yes ☐	No ☐	NA ☐	19. Were all applicable NH3/TKN/cyanide/phenol/BNA (< 0.5mg/L) samples free of residual chlorine?
Yes ☐	No ☐	NA ☐	20. Were collection temperatures documented on the COC for NC samples?
Yes ☐	No ☐	NA ☐	21. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
Yes ☐	No ☐		22. 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_2SO_4, HNO_3, HCl, NaOH) using SR # _____.

Sample(s) _____ were received with bubbles >6 mm in diameter.

Samples(s) _____ were received with TRC > 0.5 mg/L (If #21 is No) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: _____.

SC Drinking Water Project Sample(s) pH verified to be < 2 by _____ Date: _____

Sample(s) _____ were Not received at a pH of < 2 and were adjusted accordingly using SR#

Sample labels applied by: ECC Date: 4/22/17

Comments: _____

APPENDIX C

DATA EVALUATION MEMORANDUM

Apex Companies, LLC

Memo

To: Bill Zeli

From: James Dunmyre

Date: October 2, 2017

Re: Evaluation of Analytical Data for Surface Water Samples Collected in September 2017
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 September 18, 2017.

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) – SI22008. 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 (FD092117 duplicate of SW-01) 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.