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January 15, 2019

Mr. Greg Cassidy, Brownfields Project Manager
South Carolina Department of Health and Environmental Control
Division of Site Assessment, Remediation, and Revitalization
Bureau of Land and Waste Management
2600 Bull Street
Columbia, South Carolina 29201

RECEIVED

JAN 16 2019

**Subject: Quarterly Progress Report-Fourth Quarter 2018
Former Bramlette Manufactured Gas Plant
400 East Bramlette Road
Greenville, South Carolina
VCC 16-5857-RP**

**SITE ASSESSMENT,
REMEDIATION &
REVITALIZATION**

Dear Mr. Cassidy:

This Quarterly Progress Report has been prepared for the referenced site in accordance with the requirements of the Responsible Party Voluntary Cleanup Contract (VCC 16-5857-RP) between Duke Energy Carolinas (Duke Energy) and the South Carolina Department of Health and Environmental Control (SCDHEC), dated July 29, 2016.

The following sections provide a summary of work performed during the reporting period, work to be performed during the next reporting period, a summary of test or sampling results generated during the reporting period, and environmental problems experienced during the reporting period and their resolution. The work was conducted in accordance with the April 13, 2018 Remedial Investigation Work Plan Addendum (RIWP-A) submitted by Duke Energy and approved by the SCDHEC on April 24, 2018.

A summary of findings based on the results of the work is provided below:

- Volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were not detected at concentrations exceeding the laboratory reporting limits (RLs) in groundwater samples collected from newly installed monitoring wells MW-30S, MW-31S, and MW-31TZ (located along the Swamp Rabbit trail near the east bank of the Reedy River). The RLs were below the applicable comparative standards or screening levels as defined in the RIWP-A.
- VOCs and SVOCs were not detected at concentrations exceeding the RLs in surface water samples (SW-7 through SW-12) collected from the Reedy River. The RLs were below the applicable comparative standards or screening levels as defined in the RIWP-A.
- VOCs were not detected at concentrations exceeding the RLs in sediment samples (SW-7-SED through SW-12-SED) collected from the Reedy River. The RLs were below the applicable comparative standards or screening levels as defined in the RIWP-A.
- Limited detections of SVOCs were reported in sediment samples SW-7-SED and SW-12-SED (and Duplicate Sample SW-DUP 1-SED) at concentrations exceeding the RLs. However, the specific compounds detected do not have a comparative standard or

screening level and will be addressed in the Risk Assessment and Groundwater Remedial Investigation (RI) Report. These compounds are commonly found in environmental media at industrial facilities. Potential source(s) of these compounds will be further evaluated during the ongoing Groundwater RI. Remaining SVOC concentrations were below the RLS, and The RLs were below the applicable comparative standards or screening levels as defined in the RIWP-A.

Work Performed During the Reporting Period

Activities performed during the fourth quarter (October 1 through December 31, 2018) were conducted in accordance with the RIWP-A and included the following:

- From October 9 through 11, 2018, monitoring wells MW-31S and MW-31TZ were installed and developed along the Swamp Rabbit Trail near the east bank of the Reedy River (Attachment A, Figure 1) using a mini-sonic rig.
- On October 24, 2018, four drums of non-hazardous investigation derived waste (IDW) including drill cuttings (two drums) and decontamination fluids and development water (two drums) were removed from the site by VLS Recovery Services (VLS) for proper off-site disposal. The manifest is provided in Attachment B.
- On December 4 and 5, 2018, monitoring well MW-30S was installed and developed along the Swamp Rabbit Trail near the east bank of the Reedy River (Attachment A, Figure 1) using a direct-push rig equipped with hollow-stem augers. The lighter direct-push rig was used in place of the mini-sonic rig to avoid damage to the Swamp Rabbit Trail during mobilization and drilling. The direct-push rig also requires a smaller working footprint allowing safe access to the drilling location in the limited space between the Swamp Rabbit Trail and steep bank of the Reedy River. Proposed monitoring well PMW-30TZ was not installed due to equipment limitations from the change in drilling method.
- On December 11, 2018, two drums of non-hazardous IDW including drill cuttings (one drum) and decontamination fluids and development water (one drum) were removed from the site by VLS for proper off-site disposal. The manifest is provided in Attachment B.
- On December 12, 2018, groundwater samples were collected from monitoring wells MW-30S, MW-31S, and MW-31TZ for analysis of VOCs by U.S. Environmental Protection Agency (EPA) Method 8260 and SVOCs by EPA Method 8270.
- On December 13, 2018, two drums of non-hazardous IDW consisting of decontamination fluids and purge water were removed from the site by VLS for proper off-site disposal.
- On December 12, 2018, slug tests were conducted on monitoring wells MW-30S, MW-31S, and MW-31TZ in accordance with ASTM International D4044.
- On December 14, 2018, Revision No. 2 of the site-specific Health and Safety Plan (HASP), which was updated to include the next phase of work, was submitted to the SCDHEC.
- On December 19, 2018, surface water samples SW-7 through SW-12 were collected from the Reedy River (Attachment A, Figure 2) for analysis of VOCs by EPA Method 8260 and SVOCs by EPA Method 8270.

- On December 19, 2018, sediment samples SW-7-SED through SW-12-SED were collected from the Reedy River (Attachment A, Figure 2) at the same locations as surface water samples SW-7 through SW-12 for analysis of VOCs by EPA Method 8260 and SVOCs by EPA Method 8270.
- On December 21, 2018, the location and elevation of monitor wells MW-30S, MW-31S, and MW-31TZ were surveyed relative to the North American Vertical Datum (NAVD 1988).
- On December 21, 2018, water level transducers/data loggers were installed in monitoring wells MW-13R (shallow), MW-26 (bedrock), MW-27 (saprolite), MW-31S, and MW-31TZ (Attachment A, Figure 1) to monitor changes in water levels over time.
- On January 7, 2019, water level data was downloaded from transducers/data loggers. Although this activity occurred outside the fourth quarter 2018 reporting period, the download included data from within the reporting period and has been included in this report for completeness.

Work to be Performed During the Next Reporting Period (First Quarter 2019)

The following activities are tentatively scheduled to be conducted in accordance with Section 4 of the RIWP-A during the first quarter (January 1 through March 31, 2019). The proposed schedule is subject to change based on weather conditions, access to the Vaughn Landfill, availability of subcontractors, materials, and/or equipment, and other unforeseen delays. Field work notifications will be provided in accordance with the VCC and access agreements prior to initiating each phase of the work.

- Vegetation clearing to support monitor well installation and abandonment, non-aqueous phase liquid (NAPL) assessment, and groundwater, surface water, and sheen sampling – February 2019
- Ground penetrating radar (GPR) and electromagnetic (EM) survey to identify potential subsurface utilities at the drilling locations – February 2019
- Install and develop monitoring wells PMW-29S (shallow) and PMW-29TZ (transition zone) on the north side of Bramlette Road in Parcel 2 (Attachment A, Figure 1) and monitoring well PMW-32B (bedrock) in the Vaughn Landfill on Parcel 3 adjacent to existing monitoring wells MW-3 and MW-20 (Attachment A, Figure 1) –February 2019
- Abandon monitoring wells MW-3D, MW-6A, MW-19, MW-23, and MW-24 in accordance with South Carolina Well Standards R. 61-71(Attachment A, Figure 1) - February 2019
- Install three staff gages within the surface water adjacent to the Vaughn Landfill on Parcel 3 (Attachment A, Figure 1) - February 2019
- Conduct NAPL assessment (Attachment A, Figure 10) February and March 2019
- Survey location and elevation of monitoring wells, staff gages, and soil borings upon completion of the drilling program – March 2019
- Slug testing of newly installed monitor wells, comprehensive (site-wide) groundwater monitoring event, surface water and sediment sampling within the Vaughn Landfill, and sheen inspection and sampling - March 2019
- IDW disposal – Weekly pickup during drilling program and at completion of sampling program

- Download and monitor water level transducers/data loggers and Reedy River stage from a United States Geological Survey (USGS) stream gaging station located downstream of the site - Monthly

Summary of Test or Sampling Results Generated During Reporting Period

A summary of the test and sampling results for work performed during the fourth quarter (October 1 through December 31, 2018) is provided below:

- Construction details for monitoring wells MW-30S, MW-31S, and MW-31TZ are listed in Table 1 (Attachment C). The well permit, geologist logs, and Water Well Records (Form 1903) are provided in Attachment D.
- Slug test data for monitoring wells MW-30S, MW-31S, and MW-31TZ were analyzed using AQTESOLV™, and the results are provided in Attachment E. Geometric Mean hydraulic conductivity values of the shallow zone range from to approximately 7 ft/day (0.0025 cm/sec) at monitoring well MW-31S to 16 ft/day (0.0056 cm/sec) at monitoring well MW-30S. The Geometric Mean hydraulic conductivity values of transition zone monitoring well MW-31TZ is approximately 0.5 ft/day (0.00018 cm/sec).
- VOCs and SVOCs were not detected at concentrations exceeding the RLs in groundwater samples collected from monitoring wells MW-30S, MW-31S, and MW-31TZ. The RLs were below the applicable comparative standards or screening levels as defined in the RIWP-A. The analytical laboratory report is provided in Attachment F. The data have been reviewed for quality and completeness and approved for release by Pace Analytical. Full data validation in accordance with Section 6 of the September 2018 Quality Assurance Project Plan (QAPP) will be conducted prior to submittal of the Groundwater RI Report.
- VOCs and SVOCs were not detected at concentrations exceeding the RLs in surface water samples SW-7 through SW-12. The RLs were below applicable comparative standards or screening levels as defined in the RIWP-A. The analytical laboratory report is provided in Attachment F. The data have been reviewed for quality and completeness and approved for release by Pace Analytical. Full data validation in accordance with Section 6 of the QAPP will be conducted prior to submittal of the Groundwater RI Report.
- A summary of the analyses results for sediment samples SW-7-SED through SW-12-SED is listed in Table 2 (Attachment C). VOCs and SVOCs were not detected at concentrations exceeding the applicable standards or screening levels as defined in the RIWP-A. The analytical laboratory report is provided in Attachment F. The data have been reviewed for quality and completeness and approved for release by Pace Analytical. Full data validation in accordance with Section 6 of the QAPP will be conducted prior to submittal of the Groundwater RI Report.
- Time series hydrographs from December 21, 2018 through January 7, 2019 for the data downloaded from the data loggers in monitoring wells MW-13R (shallow), MW-26 (bedrock), MW-27 (saprolite), which are located on the former MGP site on Parcel 1 (Attachment A, Figure 1), and a USGS stream gaging station located downstream of the site are provided in Attachment G. Time series hydrographs from December 21, 2018 through January 7, 2019 for the data downloaded from the data loggers in monitoring wells MW-31S, and MW-31TZ, which are located along the Swamp Rabbit Trail near the east bank of the Reedy River (Attachment A, Figure 1), and a USGS stream gaging

station located downstream of the site also are provided in Attachment G. The river stage fluctuated approximately four feet during the period of record. Water levels in the monitoring wells located on the former MGP site fluctuated approximately 0.5 feet during the same time period and appear to respond to fluctuations in river stage within one to two days. Water levels in the monitoring wells located along the Swamp Rabbit Trail near the east bank of the Reedy River fluctuated approximately three to 3.5 feet during the period of record and appear to respond to fluctuations in river stage in less than one day.

Environmental Problems Identified During Reporting Period and Their Resolution

- While beyond the reporting period of this document, Duke Energy, SynTerra, and CSXT Security personnel conducted a site visit on January 11, 2019. Based on observed conditions, CSXT will remove trespassers and clean up the area prior to initiating the vegetation clearing and work described in the RIWP-A. Therefore, the projected start date for the field program has been postponed until early- to mid-February 2019. Field work notifications will be provided in accordance with the VCC and access agreements prior to initiating each phase of the work.

If you have any questions regarding this submittal, please contact me at 980.373.2663 or by email at Richard.Powell2@duke-energy.com.

Sincerely,

Richard E. Powell

Richard E. Powell, P.G.
Senior Environmental Specialist

cc: Kevin Boland, CSXT
Daniel Schmitt, Esq., CSXT
Ty Houck, Greenville County
Todd Plating, SynTerra

Enclosures:

Attachment A - Figures

Figure 1 – Proposed Work Plan Activities

Figure 2 – Proposed Sediment/Surface Water Samples

Attachment B - IDW Manifests

Attachment C - Tables

Table 1 - Construction Details for Newly Installed Monitoring Wells

Table 2 - Summary of Analytical Results for Sediment Samples

Attachment D - Monitoring Well Records

Attachment E - Slug Test Data Analysis

Attachment F - Analytical Laboratory Reports

Attachment G - Hydrographs

ATTACHMENT A

Figures

SOURCE: FIGURE 10 FROM APRIL 13, 2018 REMEDIAL INVESTIGATION WORK PLAN ADDENDUM (RIWA)



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1/14/2019 C:\Users\MMASTB-1\AppData\Local\Temp\A_Figure 10 and 11

FIGURE 1
PROPOSED WORK PLAN ACTIVITIES
FORMER DUKE ENERGY MGP SITE
EAST BRAMLETTE ROAD
GREENVILLE, SOUTH CAROLINA