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July 30, 2021

Mr. Greg Cassidy
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

RECEIVED
JUL 30 2021
SITE ASSESSMENT, REMEDIATION, & REVITALIZATION

Subject: Remedial Investigation Report Addendum
Former Bramlette Manufactured Gas Plant
400 East Bramlette Road, Greenville SC
VCC 16-5857-RP

Dear Mr. Cassidy:

Please find enclosed two hard copies and one electronic copy on compact disk of the referenced report. The report is being submitted in accordance with Section 3.B of the referenced voluntary clean-up contract.

If you have any questions, please contact me at (980) 373-2663 or at Richard.powell2@duke-energy.com.

Richard E. Powell, P.G.

Richard E. Powell

Lead Environmental Specialist

cc: Kevin Boland, CSXT
Daniel Schmitt, Esq., CSXT
Ty Houck, Greenville County
William W. Brown, Legacy School Properties, LLC

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# REMEDIAL INVESTIGATION REPORT ADDENDUM

## REPORT – FIGURES – TABLES
## APPENDIX A - B

RECEIVED
JUL 30 2021
SITE ASSESSMENT,
REMEDIATION, &
REVITALIZATION

**FORMER BRAMLETTE MGP SITE**

**JULY 30, 2021**

**PREPARED FOR**

DUKE ENERGY®

**DUKE ENERGY CAROLINAS, LLC**

**PREPARED BY:**

**SYNTERRA CORPORATION**
**148 RIVER STREET, SUITE 220**
**GREENVILLE, SC 29601**

synTerra

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Science & Engineering Consultants

Science & Engineering Consultants
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# REMEDIAL INVESTIGATION REPORT ADDENDUM

## FORMER BRAMLETTE MGP SITE

**JULY 30, 2021**

**PREPARED FOR**

**DUKE ENERGY CAROLINAS, LLC**

SOUTH CAROLINA
SynTerra Corporation
No. C00623
CERTIFICATE OF AUTHORIZATION

Leonard W. Drago
Sr. Scientist

Kathy W. Webb, P.G.
Sr. Peer Reviewer

7/30/21

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Sr. Project Manager

TODD DAVID PLATING
REGISTERED
NO. 2620
SOUTH CAROLINA
PROFESSIONAL GEOLOGIST

# EXECUTIVE SUMMARY

## ES.1 Introduction

SynTerra prepared this Remedial Investigation Report Addendum (RIR-A) on behalf of Duke Energy Carolinas, LLC (Duke Energy) pertaining to the Former Bramlette Manufactured Gas Plant (MGP) (Site). The purpose of this RIR-A is to provide a summary of investigation information collected since the June 2020 submittal of the Remedial Investigation Report (RIR). These investigations were completed in accordance with the Remedial Investigation Work Plan Addendum (RIWP-A) - Historical Stormwater Conveyance Ditches (SynTerra, 2020) and the Aquifer Performance Test Work Plan (SynTerra, 2020).

The nature and extent of impacts, resulting from the former operation of the MGP, have been determined. Therefore, Duke Energy has complied with Section 3 of the Voluntary Cleanup Contract (VCC) 16-5857-RP, executed on July, 29, 2016.

## ES.2 Background

The Site is located in Greenville, Greenville County, South Carolina and is comprised of five parcels and a portion of the Legacy Charter Elementary School property that total approximately 35 acres in area. Most of the Site is zoned for industrial use, except for Legacy Charter Elementary School and one parcel that consists of a jurisdictional wetland. The Site is bounded by the CSX Transportation (CSXT) railroad corridor to the north, west, and south, and by West Washington Street and the City of Greenville Sanitation Department to the east. The eastern boundary of the Site includes a portion of the Legacy Charter Elementary School parking lot. The Reedy River and Swamp Rabbit Trail define the western Site boundary. The MGP was located on the northern portion of the Site (Parcel 1). Duke Energy owned and operated the MGP until 1951.

A removal action performed in the early 2000's on Parcel 1 was highly effective in removing residual MGP impacts. Risk assessment results indicate there is no evidence of an unacceptable risk to a construction worker exposed to soil on Parcels 1 and 2.

An unpermitted, construction and demolition (C&D) debris landfill (Vaughn Landfill) occupies approximately 7 acres on Parcel 3. C&D debris were encountered in the Vaughn Landfill from land surface to a maximum depth of approximately 10 feet below land surface (bls). An estimated 84,000 cubic yards (approximately 150,000 tons) of C&D debris is contained in the Vaughn Landfill. The Vaughn Landfill and the materials within it complicated access to the underlying soil, sediment, and groundwater on Parcel 3, which in turn complicated the RI process. The status of the Vaughn landfill (whether the C&D debris will remain in-place or be excavated and transported off-site

for disposal) must be determined before an evaluation of remedial alternatives (i.e., feasibility study) can begin. The status of the landfill will affect the selection of remedial alternatives for screening and will have a major impact related to criteria including implementability, effectiveness, costs, and project schedule.

## ES.3 Remedial Investigation Activities

Remedial investigation activities performed from April 2020 through May 2021 included:

- Collection and laboratory analysis of soil, groundwater, surface water, and sediment samples for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs)
- Collection and laboratory analysis of groundwater samples for metals related to monitored natural attenuation analysis
- Construction of one monitoring well and associated activities to conduct an aquifer performance test (APT)
- Construction of a monitoring well nest (consisting of a shallow and deeper transition zone monitoring well) between the Site and Mountainview Baptist Church
- Non-aqueous phase liquid (NAPL) and tar-like material (TLM) assessment borings

## ES.4 Remedial Investigation Results

**Impacted groundwater is not discharging into the Reedy River**. As part of recent RI activities, five monitoring well nests (each nest consisting of monitoring wells constructed in the shallow and deeper transition zone) were installed along the Swamp Rabbit Trail, immediately up-gradient of the Reedy River. Groundwater samples collected from these monitoring wells do not contain MGP related compounds at concentrations exceeding groundwater maximum contaminant levels (MCLs). Groundwater quality monitoring is on-going.

**Impacted groundwater is present beneath Parcels 1, 2, and 3.** Impacted groundwater is present beneath Parcel 1. However, the extent of impacted groundwater on Parcel 1 is limited both laterally and vertically in extent. Groundwater impacts beneath Parcels 2 and 3 are greater in magnitude and in lateral and vertical extent with respect to Parcel 1. Groundwater impacts on Parcel 3 extend into fractured bedrock underlying the site. Municipal water is provided to businesses and residences in the area and groundwater

is not being used as a source of drinking water. Remedial alternatives to address impacted groundwater will be evaluated as part of a future feasibility study.

**Impacted sediment is not being discharged into the Reedy River**. As part of RI activities, sediment samples were collected from the Reedy River beginning at the outfall at Willard Street to approximately 4,700 feet downstream. Relatively low concentrations of polycyclic aromatic hydrocarbons (PAHs) were detected in the samples (generally 1 ppm or less). A forensics evaluation of the samples indicate that the PAHs are not related to historic MGP operations but are consistent with background concentrations (due to industrial use and urbanization). PAHs not associated with historic MGP operations were also detected along the ditch system which flow parallel to Willard Street from West Washington Street.

**Impacted sediment is present in the wetlands west of Legacy Charter Elementary School, at the Vaughn landfill, and in the historic ditch system.** As part of RI activities, sediment samples were collected in the wetlands west of Legacy Charter Elementary School, on Parcel 3 (on and adjacent to the Vaughn landfill), and in the ditch system located between the Vaughn landfill and Willard Street. Impacted sediment exceeding regulatory screening criteria were detected within the wetlands west of Legacy Charter Elementary school, at and immediately adjacent to the Vaughn landfill, and extending the length of Ditch 4. Sediment control best management practices (BMPs) will be constructed later this year to mitigate the potential for impacted sediment transport within the ditch system. Remedial alternatives to address the impacted sediment will be evaluated as part of the future feasibility study.

**Surface water quality in the Reedy River is not being impacted**. Surface water samples collected from the Reedy River do not contain MGP related compounds at concentrations greater than analytical laboratory reporting limits and/or surface water quality standards. Other sources of impacts (i.e., dry cleaning solvent) were detected in surface water samples collected approximately 3,400 feet downstream of the Bramlette site. Surface water quality monitoring is on-going.

## ES.5 Fate and Transport

The current distribution and ranges of benzene and naphthalene concentrations in groundwater greater than MCLs are stable and consistent with the historical distribution of concentrations. Available trend analysis results indicate that concentrations are decreasing or stable throughout the Site. Based on seepage velocities, stable to decreasing trends of constituent concentrations in groundwater, and natural attenuation parameters measured, natural attenuation of constituents in groundwater has occurred and is ongoing.

Bedrock fracture characteristics limit the mobility of NAPL. Recent baildown and recovery tests indicate that NAPL is likely no longer mobile under natural conditions.

## ES.6 Human Health and Ecological Risk Assessment

The human health screening assessment identified constituents in on-Site groundwater, soil (surficial and subsurface), surface water, and sediment (surficial and subsurface) greater than human health screening values. The baseline human health risk assessment (HHRA) identified risk to a construction worker who might be exposed to groundwater through dermal exposure (dermal cancer risk) and inhalation of vapor (inhalation cancer and non-cancer risks). There is no evidence of unacceptable risks to a construction worker exposed to soil remaining in the previously excavated area within Parcels 1 and 2.

Constituents in surficial sediment greater than ecological screening values were identified. These sediments typically overlie accumulated MGP residuals and are expected to be mitigated by remedial activities. As such, additional assessment of ecological risk is not proposed at this time. On-site and offsite surface water has historically not been affected and will continue to be monitored.

## ES.7 Updated Conceptual Site Model

The MGP ceased operations more than 50 years ago. Since then, MGP facilities, impacted soil, and tar have been removed from the Site.

Many of the stormwater conveyance ditches used to drain surface water runoff during the time of MGP operations remain in place. Recent investigation confirmed that TLM, characteristic of coal carbonization tar, migrated within these surface water ditches. Groundwater moves through the Site from the northeast to the southwest. Coarse alluvial sand deposits are relatively uniform and persistent across the Site and overlie saprolite. A transition zone between saprolite and fractured bedrock varies in thickness and generally thins to the southeast. Bedrock-fracture characteristics limit the depth of circulation of groundwater flow and reduce the likelihood of impacted groundwater discharge to the Reedy River.

TLM is generally limited in extent to the ditches within Parcel 3, Parcel 4, and Parcel 5. NAPL at the Site is denser than water resulting in the potential for vertical migration. This is evident with observed oil-like material (OLM) within the coarse sand atop saprolite and the distribution of dissolved constituents within groundwater.

MGP related impacts are not present in the Reedy River and are limited to areas near the Vaughn Landfill. Impacted sediments are present in on-Site surface water ditches. PAHs unrelated to MGP operations are also present. Sediment samples collected from the Reedy River do not indicate on-going discharge of MGP-impacted sediment.

Risks were identified through an inhalation or dermal exposure to groundwater for a potential construction worker. There is no evidence of unacceptable risks to a construction worker exposed to soil remaining in the previously excavated area within Parcels 1 and 2.

Several maximum constituent concentrations detected in on-Site surface water and sediment samples were greater than ecological screening values however, remedial measures would mitigate the sediment and surface water exceedances related to the stormwater-conveyance ditches.

## ES.8 Summary and Recommendations

The nature and extent of MGP related impacts has been determined sufficiently to begin the evaluation of remedial alternatives. The status of the Vaughn landfill must be determined prior to the initiation of the evaluation of remedial alternatives (feasibility study). The status of the landfill has a major effect on the screening, selection, and scoring of remedial alternatives. The status of the landfill will also have a major impact on project schedule and costs.

Duke Energy plans to continue conducting semiannual Site-wide groundwater and surface water monitoring events until a Record of Decision has been obtained. The results of those events and other applicable Site activities would be summarized and provided in Semiannual Monitoring Reports and Quarterly Progress Reports.

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# LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| APT | aquifer performance test |
| bls | below land surface |
| BMPs | Best Management Practices |
| btoc | below top of casing |
| C&D | construction and demolition |
| CFR | Code of Federal Regulations |
| COCs | constituents of concern |
| COPCs | constituents of potential concern |
| CSM | Conceptual Site Model |
| CSXT | CSX Transportation |
| CWG | carbureted water gas |
| DA | Department of the Army |
| DNAPL | dense non-aqueous phase liquid |
| DO | dissolved oxygen |
| Duke Energy | Duke Energy Carolinas, LLC |
| GEL | GEL Solutions, LLC |
| GPR | Ground Penetrating Radar |
| HHRA | human health risk assessment |
| HPF | heat pulse flowmeter |
| HQ | hazard quotients |
| HSA | hollow-stem auger |
| IDW | investigation derived waste |
| MCL | maximum contaminant level |
| MGP | manufactured gas plant |
| NAPL | non-aqueous phase liquid |
| NAVD 88 | North America Vertical Datum 1988 |
| NTUs | Nephelometric turbidity units |
| NWP | Nationwide Permit |
| OLM | oil-like material |
| ORP | oxidation reduction potential |
| Pace | Pace Analytical Services, LLC |
| PAH | polycyclic aromatic hydrocarbon |
| PCN | Pre-Construction Notification |
| PISTs | Pneumatic interference slug tests |
| QA/QC | Quality Assurance / Quality Control |
| QAPP | Quality Assurance Project Plan |

## LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

| | |
|---|---|
| R4 | Region 4 |
| RBSL | Risk Based Screening Level |
| RFEM | Radio Frequency Electromagnetic |
| RI | remedial investigation |
| RIR | Remedial Investigation Report |
| RIR-A | Remedial Investigation Report Addendum |
| RIWP-A | Remedial Investigation Work Plan Addendum |
| RSL | Regional Screening Level |
| RSVs | Regional screening values |
| SDHEC | South Carolina Department of Health and Environmental Control |
| Site | former Bramlette manufactured gas plant |
| SLERA | screening level ecological risk assessment |
| SP | spontaneous potential |
| SPR | single point resistance |
| Step test | step-drawdown pumping test |
| SVOCs | semivolatile organic compounds |
| TCLP | toxicity characteristic leaching procedure |
| TLM | tar-like material |
| TOC | total organic carbon |
| USACE | U.S. Army Corps of Engineers |
| USEPA | U.S. Environmental Protection Agency |
| VCC | voluntary cleanup contract |
| VLS | VLS Recovery Services, LLC |
| VOCs | volatile organic compounds |
| WOTUS | waters of the United States |

# 1.0 INTRODUCTION

SynTerra prepared this Remedial Investigation Report Addendum (RIR-A) pertaining to the former Bramlette manufactured gas plant (MGP) (Site) on behalf of Duke Energy Carolinas, LLC (Duke Energy). The RIR-A was prepared in accordance with the requirements of the Voluntary Cleanup Contract (VCC 16-5857-RP) between the South Carolina Department of Health and Environmental Control (SCDHEC) and Duke Energy, executed on July, 29, 2016. Based on the results of the remedial investigation (RI), including those reported in this RIR-A, the nature and extent of MGP-related constituents has been determined, thereby fulfilling the requirements of Paragraph 3 (Response Actions) of the VCC.

The Remedial Investigation Report (RIR) was submitted to the SCDHEC on June 26, 2020. SCDHEC approved the RIR on September 1, 2020.

## 1.1 Purpose

The purpose of this RIR-A is to provide supplemental information related to the nature and extent of MGP-related constituents in fractured bedrock and stormwater conveyance ditches.

The objectives of this RIR-A are to:

- Define the nature and extent of MGP-related constituents in soil, groundwater, sediment, and surface water resulting from past operations of the MGP
- Confirm and/or update the Conceptual Site Model (CSM)
- Update the human health risk assessment
- Perform baseline ecological risk assessments
- Generate data suitable for an evaluation of remedial alternatives

## 1.2 Report Format and Organization

The following is an overview of the content in this report:

- **Section 2** describes Site location and physical setting, recounts historical MGP operations, and presents a chronology of previous investigations, including a summary of associated reporting.
- **Section 3** chronicles work activities that were completed in 2020 and 2021 to meet the objectives of VCC 16-5857-RP.

- **Section 4** provides laboratory analytical results pertaining to soil/sediment, surface water, the aquifer performance test (APT), and groundwater. The nature and extent of impacted sediment, surface water, and groundwater resulting from past operations of the MGP are also detailed within **Section 4**. Results are summarized by media.
- **Section 5** provides a discussion of the fate and transport of constituents of concern (COCs) in the saturated and unsaturated zones. **Section 5** details the mechanisms as well as the differences between the constituents.
- **Section 6** presents the results of a human health risk assessment (HHRA) and a screening level ecological risk assessment (SLERA).
- **Section 7** presents an updated CSM.
- **Section 8** presents a summary of the findings of remedial investigation activities, the HHRA, and the SLERA, as well as recommendations.

# 2.0 BACKGROUND

The following subsections include new and updated information and summaries of information provided in the June 2020 RIR (SynTerra, 2020).

## 2.1 Site Description

The former Bramlette MGP is located at 400 East Bramlette Road in Greenville, South Carolina. The Site as defined by the VCC is comprised of five parcels (Parcels 1 through 5) and a portion of the Legacy Charter Elementary School property that total approximately 35 acres in area (**Figure 2-1**). The boundary of the Site includes the western edge of the Legacy Charter Elementary School parking lot based on the results of remedial investigation activities, which are summarized in later sections of this report. The Site is bounded by the CSX Transportation (CSXT) railroad corridor to the north, west, and south, and by West Washington Street and the City of Greenville Sanitation Department to the east. In addition to the railroad corridor, the Reedy River and Swamp Rabbit Trail also define the western boundary of the Site (**Figure 2-2**).

Site parcels and a portion of the Legacy Charter Elementary School property are briefly summarized in the following table.

| Tax Map Serial Number | Parcel ID (Zoning Classification) | Land Use |
|---|---|---|
| 0140000300300 | Parcel 1 (Industrial - I-1) | Vacant lot and location of former MGP operations |
| 0140000300200 | Parcel 2 (Industrial - I-1) | Active rail operations, location of a former asphalt manufacturing plant, and debris pile |
| 0138000100100 | Parcel 3 (Industrial - I-1) | Active rail operations and location of CSX field office, unpermitted Vaughn Landfill, and numerous sewer lines and access manways |
| 0054000300100 | Parcel 4 (Residential - R-6) | Jurisdictional wetland and therefore, not suitable for development; vacant lot |
| 0054000600100 | Parcel 5 (Service District/Light Industrial - S-1) | Jurisdictional wetland; vacant lot |
| Portion of 0138000100300 | Legacy Charter Elementary School Property (Residential - R-6) | Elementary school; wetland area approximately 100 to 150 feet west (downgradient) of the school buildings |

Topography at the Site is relatively flat and low-lying and includes floodways and wetlands (**Figure 2-2**). Parcels 2, 3, 4, 5, and the Legacy Charter Elementary School property are located within the 100-year flood plain of the Reedy River.

Surface water features within and adjacent to the Site include drainage ditches, wetlands, and the Reedy River to the west. Historical aerial imagery indicates man-made drainage ditches were constructed on Parcels 1 through 5 prior to MGP operations (**Figure 2-3**). These drainage pathways are an important aspect of the CSM with respect to fate and transport and ultimately distribution of MGP-related residuals.

## 2.2 Hydrogeologic Framework

The groundwater system, consistent with the regolith-fractured rock system, is characterized as an unconfined, interconnected aquifer system indicative of the Piedmont Physiographic Province. A conceptual model of groundwater flow in the Piedmont assumes a regolith and bedrock drainage basin with a perennial stream system (Harned and Daniel, 1992). Groundwater is recharged by drainage and rainfall infiltration in the upland areas, followed by discharge to the perennial stream system. Flow in the regolith is like that of porous media, while flow in bedrock is primarily within secondary porosity features (fractures). The associated flow zone, extent, and hydraulic conductivity of stratigraphic units are summarized in the following table.

| Stratigraphic Unit | | Flow zone | Extent |
|---|---|---|---|
| Fill | | Shallow Zone | Laterally extensive in Parcel 2 and Parcel 3 – Vaughn Landfill. Fill present from land surface to approximately 8 feet below land surface (bls). |
| Regolith | Alluvium | Shallow Zone | Laterally extensive. Lean clay over coarse to fine sand. Alluvium present from approximately 8 feet bls to 19 feet bls. |
| | Saprolite | Shallow Zone | Laterally extensive. Saprolite generally present at 19 feet bls to 20–40 feet bls. |
| | Partially Weathered Rock | Transition Zone | Transition zone present 25 feet bls to 50 feet bls. Diminishing thickness of transition zone to a lack of transition zone in the southern portion of the Site. |
| Fractured Bedrock | | Bedrock Zone | Laterally extensive. Top of bedrock encountered from 30 feet bls to 50 feet bls. |

## 2.3 Site History, Ownership, and Operations

Prior to 1917, the MGP on Parcel 1 was undeveloped. In 1917, Southern Public Utilities built the MGP on East Bramlette Road. Duke Power Co. assumed ownership and operation of the MGP in 1939 but sold the property and operations to Piedmont Natural

Gas in 1951. Property transactions from 1963 to 1967 transferred ownership of Parcels 1 through 5 to Seaboard Coast Line Railroad Company, also known as CSX Transportation, Inc. CSX Transportation, Inc. has owned the main five parcels that comprise the Site since 1967.

Gas was manufactured at the Bramlette MGP from 1917 to 1952. A detailed review of the historical operations of the MGP and general MGP processes can be found in the June 2020 RIR and in the *Forensic Analysis of NAPL Collected from the Former Bramlette Road MPG Site* (SynTerra, 2020; Corporate Environmental Solutions, 2020). A network of ditches was present during the time of MGP operations (**Figure 2-2**). The primary ditch related to the MGP begins on Parcel 1 near the plant footprint. The ditch transects Parcel 1 to the south and Parcel 2 to the west where wastewater effluent was likely discharged into the ditch. The primary ditch flows under East Bramlette Road to the southeast and through Parcels 3, 4, and 5 until it ultimately joins the Reedy River near Willard Street.

## Legacy Charter Elementary School

A brief history of the ownership and development of the Legacy Charter Elementary School property (Tax Map No. 0138000100300) follows:

- The property was owned by Mrs. Nettie Maddox until March 1964, when she transferred ownership of the property to the School District of Greenville County.
- The western portion of property remained undeveloped until approximately 1964. Hattie Duckett Elementary was constructed in 1964/1965 and began operation for the 1965-1966 school year. The main school building and several outbuildings were located on the central portion of the property with an additional outbuilding and small parking area to the west. The wetlands area along the western property line appeared to be undisturbed.
- In August 1974, the former Hattie Duckett Elementary was renovated and the Fine Arts Center of Greenville was established. The Fine Arts Center occupied the property until it was moved to a new location in 2006.
- The School District of Greenville County transferred ownership of the property to Campbell Young Leaders in December 2010.
- The main building was renovated and extended to the west, and a free-standing library was built just south of the main building, beginning in April 2011. The western outbuilding and parking lot were demolished and a portion of the wetlands along the western property line was filled to facilitate expansion of the

main building and extension of the driveway/parking area. No major changes have occurred to the property since 2011.

- Legacy Charter Elementary School opened in 2011.
- In March 2016, Campbell Young Leaders transferred ownership of the property to the current owner, Legacy School Properties LLC (a wholly-owned subsidiary of Campbell Young Leaders).

## Vaughn Landfill

An unpermitted, construction and demolition (C&D) debris landfill (Vaughn Landfill) occupies approximately 7 acres on Parcel 3 (**Figure 2-2**). Beginning in 1988, Vaughn Construction placed C&D debris (including concrete, brick, wood, plastic, roofing materials, insulation, and glass) into the unpermitted landfill. During the RI, C&D debris were encountered in the Vaughn Landfill from land surface to a maximum depth of approximately 10 feet bls. Based on the configuration, and the measured and estimated depths, an estimated 84,000 cubic yards (approximately 150,000 tons) of C&D debris is contained in the Vaughn Landfill. In some areas, the Vaughn Landfill and the materials within it limit access to the underlying soil, sediment, and groundwater on Parcel 3, which in turn complicated the RI process. The status of the Vaughn landfill (whether the C&D debris will remain in-place or be excavated and transported off-site for disposal) must be determined before an evaluation of remedial alternatives (i.e., feasibility study) can begin.

In correspondence dated February 26, 2001, regarding the Vaughn Landfill, SCDHEC noted that removal of the landfill debris was not recommended and that the only required action was continued groundwater monitoring near the landfill. This determination was based on SCDHEC's evaluation of Site risk conditions and recognition of the following facts and conclusions:

- The MGP-related Non-aqueous Phase Liquid (NAPL) is viscous and relatively non-mobile
- The areal extent of constituents in groundwater were stable
- Biological assessments of the area demonstrated that the MGP-related constituents were not significantly affecting flora and fauna
- No surface water or downstream/downgradient impacts related to the MGP were observed
- No drinking water wells existed within 0.5 miles of the Site

In a February 2001 letter to the United States Army Corps of Engineers, SCDHEC recommended CSXT perform off-Site mitigation rather than on-Site mitigation to compensate for wetland impacts attributed to the unpermitted landfill. CSXT was responsible for and completed the recommended mitigation.

Detailed historical information regarding the Vaughn Landfill was presented in the June 2020 RIR (SynTerra, 2020).

## Source Removal

From April to June 2000, Duke Energy conducted preliminary cleanup and preparation activities consisting of surface and backfilled trash, debris, and vegetation removal. During this phase of the work, 5,073 tons of debris was removed for disposal at a permitted landfill.

From July 2001 to December 2002, Duke Energy excavated soil and debris to depths ranging from 3 to 12 feet below grade over an area of approximately 3.8 acres. In total, approximately 61,088 tons of soil and debris was excavated and screened on-Site. Approximately 27,144 tons of screen rejects and other debris were transported to a permitted landfill for off-Site disposal. The remaining approximately 33,944 tons of screened soil was transported to an off-Site thermal treatment facility. Upon arrival at the facility, the material was weighed, screened, and stockpiled for thermal treatment. After thermal treatment, the soil was sampled to verify successful treatment to acceptable standards before being returned to the Site for use as backfill. Approximately 33,926 tons of thermally-treated material was returned to the Bramlette MGP site for use as backfill. Approximately 607 tons of rejects from the screening at the thermal treatment facility were transported to a permitted landfill for disposal.

The remedial effort also removed approximately 350 cubic yards of tar mixed with bricks and other debris from a surface tar well and approximately 2,500 gallons of free liquid tar from a previously-unknown underground tank.

The removal action reduced human health risk to acceptable levels according to land use (industrial and/or commercial) (SynTerra, 2020).

## Timeline

Key historical events related to the Bramlette MGP are summarized below.

| Year | Event |
|---|---|
| 1917 | Southern Public Utilities constructs a manufactured gas plant on East Bramlette Road. |
| 1917 | The MGP begins to manufacture gas through the coal carbonization (coal gas) process. |
| 1939 | Duke Energy assumes ownership and operations of the MGP. |
| 1945 | Carbureted water gas (CWG) plant begins operations. |
| 1951 | Duke Energy sells ownership and operations to Piedmont Natural Gas. |
| 1952 | Bramlette MGP operations cease. |
| 1958 | Bramlette MGP demolition is mostly complete. |
| 1963-1967 | CSXT assumes ownership of the five parcels associated with the Site. |
| 1988 | An unpermitted landfill (Vaughn Landfill) is constructed on CSXT property (Parcel 3). |
| 1995/1996 | The Site Investigation Phase II Vaughn Landfill/Duke Power Sites report identifies substances consistent with the operations of an MGP in soil and groundwater beneath the Vaughn Landfill. |
| 2001 | In correspondence dated February 26, 2001, regarding the Vaughn Landfill, SCDHEC noted that removal of the landfill debris was not recommended and that the only required action was continued groundwater monitoring near the landfill. |
| 2001/2002 | Source area removal action is completed (described in more detail below). |
| 2016 | Duke Energy and SCDHEC enter into a Responsible Party Voluntary Cleanup Contract. |
| 2016 -2021 | A Remedial Investigation of the Former Bramlette MGP is conducted. |

## 2.4 Previous Investigations/Reports

Previous investigations and reports dating back to 1995 were detailed in Section 3 of the June 2020 RIR. A table of documents submitted since the June 2020 RIR, along with a summary of each, is provided below.

| Date | Author | Report | Summary |
|---|---|---|---|
| June 2020 | SynTerra | RI Report | Determined the nature and extent of potential effects on the environment as a result of the former Bramlette MGP |
| July 2020<br>October 2020<br>January 2021<br>April 2021 | SynTerra | Quarterly Progress Reports | Quarterly Progress Report required by VCC |

| Date | Author | Report | Summary |
|---|---|---|---|
| August 2020 | SynTerra | RI Work Plan Addendum | Proposed activities to define nature and extent of former stormwater conveyance ditches and potential effects |
| November 2020 | SynTerra | Aquifer Performance Test Work Plan | Proposed activities to inform the CSM with respect to interconnectedness of bedrock fractures below the Site and to the overlying transition zone, saprolite, and alluvium |
| February 2021 | SynTerra | Semiannual Monitoring Report | Summarized semiannual groundwater and surface water monitoring activities conducted to gather additional data to support the remedial investigation. |
| March 2021 | Geosyntec | Interim Sediment Best Management Practices (BMPs) Memorandum | Proposed activities regarding interim surface water BMPs to reduce potential discharge from wetland area and reduce transport of sediment |

# 3.0 REMEDIAL INVESTIGATION FIELD ACTIVITIES

Remedial investigation activities performed from April 2020 through May 2021 were completed in accordance with the Remedial Investigation Work Plan Addendum (RIWP-A) - Historical Stormwater Conveyance Ditches (SynTerra, 2020) and the Aquifer Performance Test Work Plan (SynTerra, 2020). Field methods were completed in accordance with the Quality Assurance Project Plan (QAPP) (SynTerra, 2018). Sampling Logs are provided in **Appendix A**. Pace Analytical Services, LLC, (Pace), an SCDHEC-certified laboratory, analyzed soil, sediment, groundwater, and surface water samples.

## 3.1 Permits

### Well Permits

Monitoring well installation and soil borings were conducted subsequent to SCDHEC's approval of the June 2020 RIR. Prior to conducting the work, monitoring well applications (SCDHEC Form 3736) were submitted and approved. The following monitoring well permits were issued pursuant to South Carolina Well Standards R.61-71:

- SCDHEC Monitoring Well Approval MW-12613, dated November 17, 2020, for installation of up to 20 monitoring wells as described in the well permit request received November 4, 2020. Work to be conducted in accordance with the November 2, 2020 Aquifer Performance Test Work Plan.
- SCDHEC Monitoring Well Approval MW-12560, dated October 7, 2020, for installation of up to 65 soil borings in historical ditches as described in the well permit request received October 7, 2020. Work to be conducted in accordance with the August 27, 2020 RIWP-A - Former Stormwater Conveyance Ditches.
- SCDHEC Monitoring Well Approval MW-12085, dated August 6, 2019, for installation of up to 50 permanent monitoring wells at the Site as described in the well permit request received July 23, 2019. Additional monitoring wells were installed under this permit to further delineate the horizontal extent and vertical extent of NAPL and impacted groundwater.

The monitoring well applications and approval letters are provided in **Appendix B**.

### Nationwide Permit

On November 3, 2020, a Pre-Construction Notification [(PCN) No. SAC-2020-01267] indicated that placement of fill material in waters of the United States (WOTUS) was proposed as part of sediment sampling activities along the former stormwater conveyance ditch system on Parcels 3 through 5. The PCN requested verification that the work is authorized by the Department of the Army (DA) Nationwide Permit (NWP). In accordance with the Condition No. 47 (NWP 38) of the 2017 NWP Regional General Conditions for South Carolina, the PCN contained the following:

- Documentation that the specific activities are necessary to achieve the containment, stabilization, or removal of hazardous or toxic waste materials as performed, ordered, or sponsored by a government agency with established legal or regulatory authority
- A narrative description indicating the size and location of the areas to be restored, details of the work involved, and a description of the anticipated results from the restoration
- A plan for the monitoring, operation, or maintenance of the restored area

A Joint Federal and State Application Form was submitted on November 24, 2020, and the PCN was deemed complete on December 17, 2020. Based on information provided in the PCN, including supplemental drawings dated January 15, 2021, and a delineation of wetlands, the U.S. Army Corps of Engineers (USACE) determined that "the proposed activity will result in minimal individual and cumulative adverse environmental effects and is not contrary to the public interest." The USACE also determined that the activity met the terms and conditions of NWP 38 Cleanup of Hazardous and Toxic Waste. In a letter dated January 27, 2021, the USACE verified that the work is authorized under NWP 38 subject to NWP General Conditions, Charleston District Regional Conditions, and special conditions. The January 27, 2021 verification letter and attachments, which contain the referenced conditions, are provided in **Appendix B**. The verification is valid until March 18, 2022. Once construction activities have been completed, a compliance certification letter will be submitted to the USACE.

## 3.2 Utility Clearance

Prior to ground-disturbing activities, subsurface-utility locating, marking, and verification were conducted by a third-party company. After the area of investigation was established, Ground Penetrating Radar (GPR) and Radio Frequency Electromagnetic (RFEM) equipment was used to clear areas of potential underground utilities. Identified buried utilities were marked on the ground surface using marking paint and/or flags.

## 3.3 Sediment, Soil, and Surface Water

SynTerra conducted sediment, soil, and surface water investigation activities after the submittal of the June 2020 RIR. These investigations activities are detailed in the following subsections.

### Sediment and Soil Sampling

Samples collected from depositional environments or locations where standing water was routinely observed were considered sediment rather than soil. Locations of the samples collected during this reporting period are shown on **Figure 3-1** and **Figure 3-2**. SCDHEC 1903 forms are included in **Appendix B**, and boring logs are included in **Appendix C**.

| Event Date | Description |
|---|---|
| April 2020 | One sediment sample (SW-17) was collected to characterize potential urban-derived impacts upgradient of Parcel 5. |
| September 2020 | Two sediment samples (REF1 and SW-12) were collected to characterize potential urban-derived impacts upgradient and downgradient of the Site. |
| October 2020 | Ten (10) shallow sediment samples were collected in Ditch 4 and eight shallow sediment samples were collected in Ditch 5 to evaluate polycyclic aromatic hydrocarbon (PAH) concentrations and determine potential source areas. |
| October 2020 | Twelve (12) sediment samples (RR-0 through RR-11) were collected downgradient of the Site to determine presence and extent of PAHs in the Reedy River, and to characterize potential risk of PAHs. |
| November 2020 | Twenty-four (24) soil borings were advanced in Ditch 1.<br>Nineteen (19) soil borings were advanced in Ditch 2.<br>Soil samples were collected to define the horizontal and vertical extent of impacted soil within historical site ditches. |
| March 2021 | Twenty-five (25) soil borings were advanced at Parcel 2 to define the vertical and horizontal extent of impacted soils near the existing SA-SB-46 boring location. Twenty-four (24) soil samples were submitted for analysis. |
| March 2021 | Thirty-three (33) sediment borings were advanced in Ditch 4. Sediment samples were collected to define the horizontal and vertical extent of impacted soil within historical site ditches.<br>Three sediment borings were advanced east of the Vaughn Landfill. Sediment samples were collected to characterize southeast of the Vaughn Landfill. |
| April 2021 | Four sediment samples (SW-18 through SW-21) were collected to characterize potential urban-derived impacts upgradient of Parcel 3. |

### Surface Water Sampling

Surface water samples were collected to evaluate the presence of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) in surface water including the ditches, wetlands, Reedy River, and surface water that enters the Site from upgradient properties. Surface water sampling locations are shown on **Figure 3-1** and **Figure 3-2**. Samples collected since submittal of the June 2020 RIR are summarized below.

| Event Date | Description |
|---|---|
| October 2020 | Twelve (12) samples (SW-1 through SW-12) were collected for the Site-wide semiannual monitoring event. |
| October 2020 | Twelve (12) samples (RR-0 through RR-11) were collected to determine the presence of PAHs in the Reedy River. |
| March 2021 | Seventeen (17) samples (SW-1 through SW-17) were collected for the Site-wide semiannual monitoring event. |
| April 2021 | Four samples (SW-18 through SW-21) were collected upgradient of the Site to evaluate potential off-Site contributors of VOCs and SVOCs. |

## 3.4 Groundwater

Groundwater monitoring completed since submittal of the June 2020 RIR is detailed in the following subsections.

### Monitoring Well Network

Groundwater quality is monitored by a network of 70 groundwater monitoring wells (**Figure 2-2**):

- Shallow – 27 groundwater wells
- Transition zone – 20 groundwater wells
- Fractured bedrock – 23 groundwater wells

Well construction details are summarized in **Table 3-1**.

Geologic Exploration, Inc. of Statesville, NC, a South Carolina-licensed drilling contractor (license number 3550), drilled and constructed 14 monitoring wells since the submittal of the June 2020 RIR. SCDHEC 1903 forms are included in Appendix B, and boring logs are included in Appendix C. These monitoring wells were constructed to delineate the nature and extent of MGP-related constituents in groundwater and monitor groundwater at the Mountainview Baptist Church property located upgradient of Parcel 4 (**Figure 2-2**). Monitoring wells were installed using rotary sonic, hollow stem auger, and/or air rotary drilling methods. Geologic Exploration, Inc. abandoned one

monitoring well (MW-2) in June 2020. The abandonment record for MW-2 is included in **Appendix B**.

## Groundwater Measurements

Static water levels were measured within a 24-hour period on March 9, 2021. Depth to groundwater measurements were collected from monitoring wells across the Site prior to purging and sampling, and from staff gauges and river gauges. Water levels were measured following methods presented in Section 3.2.2 of the *QAPP* (SynTerra, 2018) and Section 8.1 of the *Field Sampling Guidelines* (SynTerra, 2017).

Slug tests were conducted at 15 monitoring wells during the reporting period. Slug tests were conducted following methods presented in Section 3.2.7 of the *QAPP* (SynTerra, 2018) and Section 11.1 of the *Field Sampling Guidelines* (SynTerra, 2017).

## Groundwater Sampling

Groundwater monitoring events completed since submittal of the June 2020 RIR are summarized below.

| Event Date | Description |
|---|---|
| April 2020 | Groundwater samples were collected from MW-40BR and MW-48S/TZ. |
| July 2020 | Groundwater samples were collected from 11 monitoring wells: MW-35BR, MW-38S/BR, MW-43S/TZ/BR, MW-44TZ/BR, MW-45BR, MW-46BR, and MW-47BR. |
| August 2020 | Groundwater samples were collected from five temporary monitoring wells: LC-SB-3, LC-SB-5, LC-SB-9, LC-SB-10, and LC-SB-12. |
| September 2020 | Groundwater samples were collected from 64 monitoring wells during a Site-wide semiannual monitoring event. |
| February/March 2021 | Groundwater samples were collected from MW-49BR during the aquifer performance test. |
| March 2021 | Groundwater samples were collected from 67 monitoring wells during a Site-wide semiannual monitoring event. |
| March 2021 | After the semiannual event, MW-50S/TZ nest was installed and groundwater samples were collected. |

## 3.5 Aquifer Performance Test

APT activities were conducted from November 2020 through May 2021. The APT was conducted to supplement characterization of the fractured bedrock system and better inform the CSM. The primary activities completed during the APT included:

- Hydrograph evaluation
- Pneumatic interference slug tests
- Extraction well installation
- Discrete interval packer testing
- Step-drawdown pump test
- 72-hour constant rate pumping test
- NAPL recovery test

APT field activities are described in detail in the APT Report in **Appendix D**.

### Hydrograph Evaluation

Data logging pressure transducers were installed at monitoring well clusters and surface water stilling wells located on Parcel 1, Parcel 2, and the Vaughn Landfill on Parcel 3 (**Figure 3-3**). Data were collected from November 5, 2020, to November 24, 2020, to create hydrographs in order to better understand groundwater behavior under normal (ambient, non-pumping conditions) conditions. Hydrograph data included:

- Groundwater elevations from select wells (MW-36 well cluster, MW-34 well cluster, MW-39 well cluster, MW-3 well cluster, MW-20, and MW-2BR)
- Surface water elevations from three locations (Reedy River gauging station RI-RR2, wetland gauging station RI-SG1, and wetland gauging station RI-SG2)
- Barometric pressure
- Precipitation data

Barometric pressure was collected with a barometric pressure transducer placed within the air space of well MW-3BRL. Precipitation data were obtained from a nearby weather station accessed through Weather Underground. Hydrograph data were plotted for all wells and specific monitoring locations, and the long-term groundwater trends were evaluated. The hydrograph evaluation is described in detail in Section 3 of the APT Report (**Appendix D)**.

## Pneumatic Interference Slug Tests

Pneumatic interference slug tests (PISTs) were conducted to evaluate the interconnectivity of the fracture system and to inform placement of pressure transducers during the 72-hour pumping test. The PISTs were conducted by pressurizing and depressurizing a test well and monitoring pressure/hydraulic head responses in the test well and surrounding observation wells. PISTs were conducted in the southern and northern portion of the Vaughn Landfill. A detailed description of the PISTs is given in Section 4 of APT Report and procedures for conducting the PISTs can be found in Attachment C of the report (**Appendix D**).

## MW-49BR Well Installation

A new monitoring well, designated MW-49BR, was installed to perform the 72-hour pump test. The new well was installed to accommodate the downhole equipment needed for the pumping test and was completed as an open borehole well to support good connectivity between the well and surrounding formation. The open borehole construction also allows for depth discrete data to be collected. Drilling activities are described in detail in Section 5 of the APT Report (**Appendix D**).

## Drilling Methods

Drilling methods used to install MW-49BR followed procedures outlined in the Aquifer Performance Test Work Plan for the Former Bramlette MGP Site (SynTerra, 2020). Monitoring well MW-49BR was drilled using hollow-stem auger (HSA) and air-rotary drilling techniques. Permanent subsurface casing was installed as drilling progressed to prevent the migration of sediment and COCs from shallow to deeper units.

All downhole equipment was decontaminated before and after use during drilling. Containment was built around the boring to prevent effects on the environment.

Investigation derived waste (IDW) collected during drilling included soil and rock cuttings and discharge water. IDW was stored on-site in 55-gallon drums and totes and disposed of off-site by VLS Recovery Services (VLS), a Mauldin, SC-based company.

## Well Construction and Development

Well construction and development are described in Section 5.1 and Section 5.2 of APT Report (**Appendix D**). MW-49BR was constructed as a dual-cased open borehole bedrock well. A dual casing design was used to prevent the preferential migration of sediments or groundwater from the shallow zone, transition zone, and upper bedrock into the fractured bedrock system below.

The 200-foot boring was backfilled with bentonite pellets to approximately 116 feet bls to prevent migration of NAPL to the deeper bedrock in the boring. Sand was placed on top of the bentonite to a depth of approximately 114.5 feet bls. The well construction record for MW-49BR can be found in Attachment E of **Appendix D**.

No additional well development was necessary following completion of the well and approximately 1 hour of air lifting using the air-rotary drill string.

## Borehole Geophysics

GEL Solutions, LLC (GEL) conducted geophysical logging in the open borehole portion of MW-49BR. The geophysical logs consisted of acoustic and optical televiewer, 3-arm caliper, fluid conductivity, fluid temperature, single point resistance (SPR), spontaneous potential (SP), and heat pulse flowmeter (HPF). The geophysical report provided by GEL can be found in Attachment G in **Appendix D**.

## Discrete Interval Packer Tests

Packer tests were conducted to evaluate the vertical distribution of hydraulic conductivity and constituent concentrations in MW-49BR and the bedrock system. The packer tests are described in detail in Section 6 of **Appendix D**.

## Step-Drawdown Pumping Test

A step-drawdown pumping test (step test) was conducted on February 25, 2021, prior to collecting baseline groundwater elevation data for the 72-hour pumping test. The step test was conducted to determine an appropriate sustainable flowrate for the 72-hour constant rate pumping test. IDW generated during the test was contained in 20,000-gallon frac-tanks and disposed of off-Site by VLS. The step-drawdown pumping test is described in Section 7 of **Appendix D**.

## 72-Hour Constant Rate Pumping Test

The 72-hour pumping test and associated activities were conducted from February 25, 2021 to March 8, 2021. These activities included baseline water level measurements, equipment set-up and site preparation, the pumping test, and water level recovery after the pumping test. The pumping test was conducted at 12 gallons per minute and lasted for 72 hours from March 1, 2021 to March 4, 2021. Approximately 52,000 gallons of water was pumped out of MW-49BR during the test. IDW was stored on-site in two 20,000-gallon frac-tanks and disposed of off-site by VLS. Recovery after the pumping test was monitored until March 8, 2021.

Activities associated with the 72-hour pumping test as well as observation well locations, test methods, data post processing, and other pertinent information are described in Section 8 of **Appendix D**.

### NAPL Recovery Test

A NAPL recovery test was performed in MW-49BR from May 12, 2021 to May 18, 2021. The test was conducted to evaluate the suitability of MW-49BR for a NAPL recovery well. The test consisted of removing NAPL from the well and gauging the recovery of NAPL over time. The NAPL recovery test is described in Section 9 of **Appendix D**.

## 3.6 Waste Management

IDW generated during the investigation meets the requirements of 40 Code of Federal Regulations (CFR) 261.24(a) – Manufactured Gas Plant Wastes toxicity characteristic leaching procedure (TCLP) Exemption. IDW generated during the collection of soil cores, construction of monitoring wells, APT activities, and sampling of environmental media was contained for off-Site disposal as described below:

- Solids were temporarily contained in labeled 55-gallon drums and transported to VLS Mauldin, SC, for disposal at a permitted landfill.
- Solids containing NAPL were segregated, placed in labeled 55-gallon drums, and transported to Waste Management, Richland County Landfill in Elgin, SC, for disposal at a permitted landfill.
- Liquids – including decontamination fluids, drilling fluids, development water, and purge water – were contained in labeled 55-gallon drums or 275-gallon totes and transported to VLS for solidification and disposal at a permitted landfill.
- Liquids – generated during pumping tests were contained in 275-gallon totes or two 20,000 gallon frac-tanks and transported to VLS. Liquids contained in totes were solidified and disposed at a permitted landfill. Liquids contained in frac-tanks were treated and discharged to a sanitary sewer in accordance with VLS's permit.

Waste manifests regarding IDW generated are included in **Appendix E**.

## 3.7 Surveying

LDSI, Inc. and Arrow North (land surveyors licensed in the State of South Carolina) conducted the following work during the reporting period:

- Surveying of the location, land surface elevation, and top-of-casing elevation for the newly installed monitoring wells. The information was tied vertically relative to the North America Vertical Datum 1988 (NAVD 88). The monitoring well survey data are summarized in **Table 3-1**. The location and land surface elevation of select soil borings and sediment sample locations also were surveyed.
- Surveying and marking of station locations along the centerline and transects of historical Ditches 1 through 5 based on the 1959 and 1964 aerial photographs (**Figure 2-2**).
- Surveying of the approximate perimeter of the wetlands.
- Surveying of the topography, ditch transects, and ditch culverts on Parcel 3 and Parcel 5 in preparation for interim sediment BMP design.

Additionally, Arrow North conducted a physical survey of the site that included utilities, property boundaries, improvements, and topography.

## 3.8 QA/QC

Field quality assurance/quality control (QA/QC) measures, including trip blanks, equipment blanks, temperature blanks, blind field duplicate samples, and matrix spike/matrix duplicate samples, were conducted in accordance with Section 3.5.1 and Table 4 of the QAPP (SynTerra, 2018). Laboratory QA/QC was conducted in accordance with Section 3.5.2 and Table 5 of the QAPP (SynTerra, 2018).

SynTerra performed data review, verification, and validation in accordance with Section 6.0 of the QAPP (SynTerra, 2018) to identify deviations from the analytical methods, poor QC results, and other potential problems that may compromise the potential uses of the data. These methods and processes meet data quality objectives according to guidance under the 2017 U.S. Environmental Protection Agency (USEPA) National Functional Guidelines for Inorganic Superfund Methods Data Review. Where appropriate, qualifiers are used to clarify either laboratory or data validation findings.

# 4.0 REMEDIAL INVESTIGATION RESULTS

Remedial investigation activities were performed from April 2020 through May 2021. Laboratory analytical reports for soil, sediment, surface water, and groundwater samples are provided in **Appendix F**.

## 4.1 Standards and Criteria

### Field Measurements

SynTerra collected field measurements in accordance with Section 7.0 of the *Field Sampling Guidelines* (SynTerra, 2017), Section 3.2 of the *QAPP* (SynTerra, 2018), and Section 4.9.1 of the July 2019 *Remedial Investigation Work Plan Addendum* (SynTerra, 2019). SynTerra calibrated field meters in accordance with Section 3.0 of the *Field Sampling Guidelines* (SynTerra, 2017).

### Analytical

SynTerra compared the data collected during RI activities to regulatory criteria presented in Section 4.11 of the July 2019 *Remedial Investigation Work Plan Addendum* (SynTerra, 2019). Applicable criteria and screening levels, presented in **Table 4-1** through **Table 4-4**, are listed below:

- Groundwater
    - SCDHEC R. 61-58 State Primary Drinking Water Standards, effective October 2014, Appendix B maximum contaminant level (MCL) based on the USEPA National Recommended Water Quality Criteria, dated 2006
    - SCDHEC regulation document R.61-68, Water Classifications & Standards, effective June 27, 2014, groundwater classification as GB, Human Health MCLs provided in the Appendix of R.61-68
    - SCDHEC Risk Based Screening Level (RBSL)
    - SCDHEC Quality Assurance Program Plan UST Management Division, effective February 2016, Appendix D
    - USEPA Regional Screening Level (RSL) Residential Tap Water Table (May 2021). https://semspub.epa.gov/work/HQ/400770.pdf

- Surface water
    - SCDHEC regulation document R.61-68, Water Classifications & Standards, effective June 27, 2014, surface water classification as FW, Human Health MCLs provided in R.61-68 E.14.b(1).
    - USEPA RSLs (May 2021). RSL Tap Water HI=0.1. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables
- Sediment
    - Industrial and Residential Soil RSLs, USEPA RSL Summary Table (May 2021). https://semspub.epa.gov/work/HQ/400750.pdf
    - USEPA Region 4 (R4) Ecological Risk Assessment Supplemental Guidance Interim Draft (August 2015), refinement screening values (RSVs) for freshwater sediment, Table 2b and Table 2c.
- Soil
    - Industrial and Residential Soil RSLs, USEPA RSL Summary Table (May 2021). https://semspub.epa.gov/work/HQ/400750.pdf

## 4.2 Sediment and Soil

### Sediment

Sediment samples were collected in the wetlands west of Legacy Charter Elementary School, on Parcel 3 (on and adjacent to the Vaughn landfill), and in the ditch system located between the Vaughn landfill and Willard Street. Impacted sediment with SVOC concentrations greater than regulatory screening criteria were detected within the wetlands west of Legacy Charter Elementary school, at and immediately adjacent to the Vaughn landfill, and extending the length of Ditch 4.

Sediment samples were collected from the Reedy River beginning at the outfall at Willard Street to approximately 4,700 feet downstream. Relatively low concentrations of PAHs were detected in the samples (generally 1 ppm or less).

Sediment control BMPs are planned to be constructed later this year to mitigate the potential for impacted sediment transport within the ditch system.

Sediment analytical results are summarized in **Table 4-3**. Sediment sample locations are shown on **Figure 3-1**. Maximum constituent concentrations greater than comparative criteria are summarized below.

| Constituent | USEPA R4 Sediment RSV (mg/kg) | USEPA RSLs | | Maximum Detection (mg/kg) | Location of Reporting Period Maximum Detection | Parcel |
|---|---|---|---|---|---|---|
| | | Industrial Soil (mg/kg) | Residential Soil (mg/kg) | | | |
| Acenaphthylene | 4.52 | NE | NE | 7.65 E | DA4-SB-4 (0-0.6) | 5 |
| Anthracene | 5.94 | 230000 | 18000 | 23.5 | DA4-SB-4 (0-0.6) | 5 |
| Benzo(a)anthracene | 8.41 | 21 | 1.1 | 47.8 | DA4-SB-4 (0-0.6) | 5 |
| Benzo(a)pyrene | 9.65 | 2.1 | 0.11 | 44.1 | DA4-SB-13A (0-0.6) | 3 |
| Benzo(b)fluoranthene | 9.79 | 21 | 1.1 | 39.8 | DA4-SB-4 (0-0.6) | 5 |
| Benzo(g,h,i)perylene | 10.9 | NE | NE | 18.9 | DA4-SB-4 (0-0.6) | 5 |
| Benzo(k)fluoranthene | 9.81 | 210 | 11 | 17.7 | DA4-SB-4 (0-0.6) | 5 |
| Chrysene | 8.44 | 2100 | 110 | 40.2 | DA4-SB-4 (0-0.6) | 5 |
| Dibenz(a,h)anthracene | 11.2 | 2.1 | 0.11 | 1.8 | DA4-SB-7 (0-0.6) | 5 |
| Fluoranthene | 7.07 | 30000 | 2400 | 85.6 | DA4-SB-4 (0-0.6) | 5 |
| Fluorene | 5.38 | 30000 | 2400 | 8.11 E | DA4-SB-4 (0-0.6) | 5 |
| Indeno(1,2,3-cd)pyrene | 11.2 | 21 | 1.1 | 16.9 | DA4-SB-4 (0-0.6) | 5 |
| Naphthalene | 3.85 | 17 | 3.8 | 58.6 | DA4-SB-7 (0-0.6) | 5 |
| Phenanthrene | 5.96 | NE | NE | 53.9 | DA4-SB-4 (0-0.6) | 5 |
| 1,2,4-Trimethylbenzene | 0.361 | 1800 | 300 | 1.65 | DA4-SB-7 (0-0.6) | 5 |
| 1,3,5-Trimethylbenzene | 0.354 | 1500 | 270 | 0.893 | DA4-SB-7 (0-0.6) | 5 |
| p-Isopropyltoluene | 0.242 | NE | NE | 0.265 | DA4-SB-7 (0-0.6) | 5 |

**Notes:**
USEPA R4 Sediment RSV - United States Environmental Protection Agency Region 4 (R4) Sediment regional screening value
USEPA RSLs - United States Environmental Protection Agency Regional Screening Level Industrial and Residential limits
mg/kg - milligrams per kilogram
E - Analyte concentration exceeded the calibration range. The reported result is estimated
NE - Not Established

Sediment analytical results indicate the following:

- VOC and SVOC concentrations detected in samples collected from the Reedy River are less than comparative criteria with one exception (SW-12) at the Ditch 4 outfall.
- VOC and SVOC concentrations greater than comparative criteria are typically within shallow sediments (less than one foot bls) near the centerline of Ditch 4, on Parcel 3, Parcel 4 and Parcel 5.

- VOC and SVOC concentrations in samples collected from Ditch 5 were less than comparative criteria (**Figure 4-1**).

## Soil

Soil samples were collected along the centerline of historical Ditch 1 and Ditch 2 and at 25 locations surrounding the existing SA-SB-46 boring (**Figure 3-1**). Analytical results are summarized in **Table 4-4**. Soil sample locations are shown on **Figure 3-1**. Maximum constituent concentrations greater than a comparative criteria are summarized below.

| Constituent | USEPA RSLs | | Maximum Detection (mg/kg) | Location of Reporting Period Maximum Detection | Parcel |
|---|---|---|---|---|---|
| | Industrial Soil (mg/kg) | Residential Soil (mg/kg) | | | |
| Benzo(a)anthracene | 21 | 1.1 | 43 | DA1-SB-9 (2-3) | 2 |
| Benzo(a)pyrene | 2.1 | 0.11 | 34.3 | DA1-SB-9 (2-3) | 2 |
| Benzo(b)fluoranthene | 21 | 1.1 | 39.6 | DA1-SB-9 (2-3) | 2 |
| Benzo(k)fluoranthene | 210 | 11 | 14.5 | DA1-SB-9 (2-3) | 2 |
| Dibenz(a,h)anthracene | 2.1 | 0.11 | 4.83 | DA1-SB-9 (2-3) | 2 |
| Indeno(1,2,3-cd)pyrene | 21 | 11 | 15.4 | DA1-SB-9 (2-3) | 2 |

**Notes:**
USEPA RSLs - United States Environmental Protection Agency Regional Screening Level Industrial and Residential limits
µg/kg - micrograms per kilogram

Soil analytical results indicate the following:

- VOC and SVOC concentrations greater than comparative criteria are typically near the centerline of Ditch 1, located on Parcels 1 and 2, with the exception of three samples within 40 feet of boring SA-SB-46, located on Parcel 2.
- With a few exceptions near the SA-SB-46 sample location on Parcel 2, most VOC and SVOC concentrations were detected at depths greater than two feet bls, limiting potential for human exposure.
- Maximum constituent concentrations detected greater than comparative criteria were limited to one soil boring on Parcel 2 (DA1-SB-9, **Figure 3-1**).

## 4.3 Sediment Forensics

Samples were collected from Legacy Charter Elementary School property, Ditch 1 (Parcel 2), the southern portion of Ditch 4 and Ditch 5 (Parcel 5), and from the Reedy River beginning at the outfall of Ditch 4 and continuing approximately 4,700 downstream to evaluate the potential source of PAH compounds present in the samples. Findings from the sampling and forensics analysis are detailed in the *Forensic Analysis of NAPL, Sediments, and Soil Samples Collected from the Former Bramlette Road MGP Site and Surrounding Areas* report prepared by Corporate Environmental Solutions, LLC (December, 2020) and summarized below:

### Ditch 1

Forensic analysis identified PAHs consistent with weathered coal carbonization tar and urban PAHs in the historical centerline of Ditch 1 on Parcel 2.

### Ditch 4

Total PAH concentrations of six samples analyzed from the southern end of Ditch 4 ranged from 7 mg/kg to 152 mg/kg. The PAH concentrations observed in Ditch 4 were the highest of all of the samples analyzed. PAHs in Ditch 4 are indicative of both weathered coal carbonization tar and urban PAHs.

- Two samples [DA4-SB-1 (0-8) and DA4-SB-3 (0-8)] contain PAHs from urban runoff. No MGP impacts were observed in these two samples.
- Three samples [DA4-SB-2 (0-8), DA4-SB-4 (0-8), and DA4-SB-5 (0-8)] showed possible weathered coal carbonization tar PAHs or impacts. Other sources (runoff) may have also been present in these samples.
- Sample DA4-SB-3 (8-16) contained a mixture of petrogenic and pyrogenic sources. Coal carbonization tar PAHs or impacts may have also been present in this sample.

### Ditch 5

No MGP impacts were observed in Ditch 5 sediment samples. Total PAH concentrations of four samples analyzed from Ditch 5 ranged from 7 mg/kg to 8 mg/kg.

- Analytical results indicate a high dibenzofuran/fluorene ratio (>5). Fluorene was greatly reduced in these samples compared to naphthalene. This is not consistent with general PAH weathering. The Ditch 5 PAHs are therefore classified as a mixture of petroleum and high molecular weight combustion sources.

### Reedy River

No MGP impacts were observed in Reedy River sediment samples. Total PAH concentrations in eleven of the twelve Reedy River samples analyzed were less than 5 mg/kg with six of the twelve samples less than 1 mg/kg.

- PAHs in Ditch 5 and the Reedy River can be attributed to urban runoff and petroleum sources not related to the MGP.
- Reference location sample RR-0 (0-8) was found to be consistent with natural runoff.

## 4.4 Surface Water

Surface water samples collected from the Reedy River continue to result in VOC and SVOC concentrations that are less than analytical laboratory reporting limits. Samples that result in detectable concentrations of VOCs and SVOCs were collected from areas on-Site near the Vaughn Landfill (ex. SW-5). VOCs and SVOCs in samples collected downstream of the Vaughn Landfill continued to be less than screening criteria. These include samples collected along the centerline of Ditch 4 and near-bank samples collected in the Reedy River up to approximately 4,700 feet downstream (**Figure 3-2**).

One constituent [benzo(a)pyrene] in surface water was detected at one location (SW-5) at a concentration greater than the MCL (**Figure 3-1**). Historically, benzo(a)pyrene concentrations in samples from SW-5 have been less than reporting limits. Surface water analytical results are summarized in **Table 4-1**.

## 4.5 Groundwater

### Direction of Groundwater Flow

Groundwater at the Site generally flows from the northeast to the southwest (from Parcel 1 toward the Reedy River). Potentiometric surface maps for the shallow zone (**Figure 4-2**), transition zone (**Figure 4-3**), and the bedrock zone (**Figure 4-4**) depict the relative gradient and direction of groundwater flow, as measured during March 2021. Depths to groundwater within the shallow, transition zone, and bedrock monitoring wells were measured from less than 1 foot below top of casing (btoc) to approximately 16 feet btoc. Depth to groundwater measurements and corresponding potentiometric-surface elevations are summarized in **Table 4-5**.

## Slug Tests

Slug test results were analyzed with AQTESOLV™ software using the Bouwer-Rice, Hvorslev, and/or Springer-Gelhar methods (as appropriate). PIST values were included in this evaluation. The geometric means of the hydraulic conductivity values for the three flow zones were:

- Shallow zone: 5.4 feet /day
- Transition zone: 1.53 feet/day
- Bedrock zone: 0.35 feet/day

Slug test results and hydraulic conductivity values are summarized in **Table 4-6**.

## Gradients

Vertical gradients were generally neutral and ranged from -0.03 (upward direction) to 0.04 (downward direction). While transducers were historically used to monitor gradients, the transducers were re-purposed and re-deployed to collect data relevant to the APT. Vertical gradients (unitless number) for well pairs are summarized in **Table 4-7**.

Horizontal hydraulic gradients were calculated for each flow zone within Parcel 1, Parcel 2, and Parcel 3, based on March 2021 groundwater elevation data (**Table 4-8**). The geometric mean of the horizontal hydraulic gradients were as follows:

- Shallow zone: 0.03 feet/foot
- Transition zone: 0.01 feet/foot
- Bedrock zone: 0.02 feet/foot

## Seepage Velocity

Seepage velocity and constituent velocity calculation inputs and results are summarized in **Table 4-8**. As stated in the June 2020 RIR, constituent transport velocities will typically be less than groundwater seepage velocities due to retardation of constituents during transport. Based on Site-specific estimates of groundwater flow velocity, the geometric means of seepage velocity are:

- Shallow zone: 0.44 feet/day
- Transition zone: 0.07 feet/day
- Bedrock zone: 0.61 feet/day

To migrate 1,100 feet, the approximate distance from Parcel 1 to the Reedy River, groundwater within the shallow zone would take up to approximately 7 years and groundwater within the transition zone would take up to approximately 43 years. Migration times within fractured bedrock are difficult to calculate because the flow direction and distance are dependent upon the interconnectedness and orientation of fractures as well as aperture width and "dead-end" pore throats. Fracture orientation and connectivity local to the Site are understood, however the tortuosity of the flow path over longer distances is the limiting factor for transport vectors and times.

Constituent velocities were estimated using the seepage velocity and a retardation factor. The retardation factor was calculated using equation 1 below.

$$Retardation\ Factor = 1 + \frac{K_d \times \rho_d}{n_e} \qquad \textbf{Equation 1}$$

Where $K_d$ is the partition coefficient calculated as the organic carbon-water partitioning coefficient (Koc) times the fraction of organic carbon in the aquifer material, $\rho_d$ is the bulk density of the aquifer material, and $n_e$ is the effective porosity.

The geometric means for estimated constituent velocities are:

- Benzene in shallow zone: 0.21 feet/day
- Naphthalene in shallow zone: 0.02 feet/day
- Benzene in transition zone: 0.03 feet/day
- Naphthalene in transition zone: 0.003 feet/day
- Benzene in bedrock zone: 0.61 feet/day
- Naphthalene in bedrock zone: 0.61 feet/day

Based on the constituent velocities, benzene would take approximately five years to travel 1,100 feet in the bedrock, approximately 100 years to travel 1,100 feet in the transition zone, and approximately 15 years to travel 1,100 feet in the shallow zone. Naphthalene would take approximately five years to travel 1,100 feet in the bedrock, approximately 1,000 years to travel 1,100 feet in the transition zone, and approximately 170 years to travel 1,100 feet in the shallow zone.

The constituent velocity in bedrock was assumed to equal the groundwater seepage velocity because no estimates for the fraction of organic carbon in bedrock were available and a retardation factor could not be calculated. It is assumed that the fraction of organic carbon in bedrock is considerably lower than that measured in the shallow

zone. This is considered a conservative estimate of the constituent velocity in the bedrock and is reasonable because igneous and metamorphic rocks, similar to those at the Site, generally have greatly reduced organic carbon content and demonstrate limited retardation as a function of constituent sorption (ITRC, 2017).

## Analytical Results

Groundwater analytical results are summarized in **Table 4-2**. Groundwater analytical results indicate the following:

- Constituent concentrations continue to be equal to or less than laboratory reporting limits in samples from monitoring wells installed along the Reedy River.
- Constituent concentrations were less than MCLs in samples from monitoring wells located on Legacy Charter Elementary School property except for naphthalene and benzo(a)pyrene in two temporary monitoring wells [elevated turbidity between 160 and 163 nephelometric turbidity units (NTUs) were noted].
- Impacted groundwater within the transition zone and fractured bedrock is limited in extent to Parcel 2 and Parcel 3.
- Benzo(a)pyrene detections at concentrations greater than the MCL were limited to samples from four monitoring wells: two temporary monitoring wells on Legacy Charter Elementary School property, MW-2BR, and MW-21. Benzo(a)pyrene was not detected in subsequent samples collected from MW-2BR and MW-21.
- Toluene detections at concentrations greater than the MCL were limited to samples from MW-47BR.
- NAPL was observed in the following monitoring wells: MW-1, MW-3BR, MW-21, and MW-49BR.

The table below summarizes constituents in groundwater with a maximum concentration greater than an MCL.

| Constituent | SCDHEC MCL (µg/L) | Historical Maximum Detection (µg/L) | Location of Historical Maximum Detection | Reporting Period Maximum Detection (µg/L) | Location of Reporting Period Maximum Detection | Parcel |
|---|---|---|---|---|---|---|
| Benzene | 5 | 1,920 | MW-29TZ | 1,600 | MW-29TZ | 2 |
| Benzo(a)pyrene | 0.2 | 16.3 3g | MW-21 | 16.3 3g | MW-21 | 3 |
| Naphthalene | 25† | 4,260 | MW-29TZ | 4,260 | MW-29TZ | 2 |
| Toluene | 1,000 | 1,770 | MW-47BR | 1,770 | MW-47BR | 3 |

**Notes:**
SCDHEC MCL - SCDHEC R. 61-58 State Primary Drinking Water Standards, effective October 2014, Appendix B maximum contaminant level (MCL)
µg/L - micrograms per liter
† - RBSL referenced in Table 1 Appendix D of the SCDHEC Quality Assurance Program Plan Underground Storage Tank Management Division
3g - Result may be high due to laboratory contamination

The distribution of benzene and naphthalene generally represent the largest area of dissolved phase constituents in groundwater and have been selected to represent the overall extent of impacted groundwater. **Figure 4-5** through **Figure 4-10** depict concentrations of benzene and naphthalene within each flow zone.

Additional discussion on the nature and extent of the primary COCs in groundwater is included in **Section 4.8.3**.

## 4.6 Aquifer Performance Test

A comprehensive APT was completed from November 2020 through May 2021 resulting in an increased understanding of the hydrogeologic CSM and fractured bedrock. Hydrograph analysis, drilling observations, PISTs, step-testing, and a 72-hour pumping test collectively informed the results and conclusions from this effort. A detailed report of methods, findings, and conclusions is provided in **Appendix D**. Key findings from activities carried out during the APT are:

- Multiple lines of evidence including hydrograph analysis, PISTs, and a 72-hour pumping test indicate the fractured bedrock has an interconnected fracture network that extends north to south approximately 1,000 feet from at least MW-34BR to MW-39BR/BRL and east to west approximately 500 feet from at least MW-41BR to MW-2BR and to a depth of at least approximately 175 feet.
- Vertical connectivity between the shallow zone and transition zone and the underlying fractured bedrock is variable.

- Hydraulic conductivity within fractured bedrock decreases with depth, consistent with previous investigations and the CSM.
- The radius of influence induced by the 72-hour APT generally aligned with primary and secondary fracture set orientations, as measured by borehole geophysical logging (**Figure 4-11**).
- The most common fracture orientation strikes northwest and dips northeast away from the Reedy River. The second most common fracture orientation at the Site strikes northeast and dips northwest towards the Reedy River (**Figure 4-12**).
- Changes in potentiometric-surface elevations west of the Reedy River were not observed as a result of pumping during the APT; additionally, hydrograph analysis indicates the Reedy River is a hydraulic boundary.
- NAPL baildown testing indicated limited recovery of NAPL; accumulated NAPL within the well "sump" prior to the baildown test was likely attributable to induced stresses (*i.e.*, pumping and drilling activities).

Aquifer parameters were calculated and summarized below.

| Parameter | Minimum Estimated Value | Maximum Estimated Value | Geometric Mean Value |
|---|---|---|---|
| K (ft/day) | 0.63 | 8.42 | 1.66 |
| Ss ($ft^{-1}$) | 1.09E-06 | 3.22E-04 | 1.14E-05 |
| K' (ft/day) | 8.34E-05 | 1.80E-02 | 3.76E-04 |
| Ss' ($ft^{-1}$) | 2.51E-04 | 3.32E-02 | 6.64E-04 |
| n | 1.50 | 2.87 | 2.15 |
| Sf[1] | 0 | 0.30 | 0.09 |
| Sw[1] | -0.05 | 0 | -0.01 |

**Notes:**
ft/day - feet per day
$ft^{-1}$ - per foot
K - hydraulic conductivity of the fracture system
Ss - specific storage of the fracture system
K' - hydraulic conductivity of the rock matrix
Ss' - specific storage of the rock matrix
n - dimension of the fracture flow system
Sf - fracture skin factor
Sw - wellbore skin factor
[1] Average value shown instead of the geometric mean because the geometric mean cannot be calculated with zeros or negative numbers

Relatively higher hydraulic conductivity (K) of the bedrock fractures compared to the hydraulic conductivity of the rock matrix (K') indicate that groundwater flow and constituent transport would be dominated by the more conductive fracture system. Groundwater and constituent transport velocities in the fractures would be several orders of magnitude larger than those within the rock matrix based on these estimates of hydraulic conductivity. Specific Storage (Ss) estimates suggest that groundwater storage in the fractures is limited with generally larger storage potential within the rock matrix and overlying transition zone and saprolite. Estimates of the dimension of the fracture-flow (n) indicates that flow within the fracture system is generally planar with an average flow dimension of 2.15. Planar flow is indicative of relatively uniform fracture orientations, which is consistent with measured fracture characteristics across the Site.

## 4.7 Nature and Extent

Work completed since submittal of the June 2020 RIR has refined the understanding of MGP-related impacts near stormwater conveyance ditches and fractured bedrock. The nature and extent of these impacts by environmental media are described below.

### Sediment and Soil

MGP-related impacts in sediment and soil occur as both sorptive phase VOCs and SVOCs and as NAPL that occupies available pore space within the solid phase matrix. NAPL consists of both oil-like material (characteristic of CWG tar) and tar-like material (characteristic of coal carbonization tar).

Sorptive phase VOCs and SVOCs have been detected in samples from all five parcels and the Legacy Charter Elementary School property. It is notable that not all VOCs and SVOCs (including PAHs) detected at the Site are the result of MGP operations. Chemical fingerprinting analysis identified PAHs associated with both urban background and those resulting from MGP operations (Corporate Environmental Solutions, 2020). In general, sorptive phase constituents are located near former MGP operational areas and stormwater conveyance ditches (**Figure 4-1**). As a result of the Parcel 1 removal action, concentrations of VOCs and SVOCs within soils and sediments within Parcel 1 and Parcel 2 do not pose an unacceptable risk under an industrial or commercial land use scenario – appropriate for the site given the intended land use (**Appendix G**).

Oil-like material (OLM) has been typically observed as small lenses, seams, or stringers within shallow clay deposits and within alluvial coarse sand deposits that overlie saprolite. Observations of OLM have been limited in extent to Parcels 1, 2, and 3.

Observations of tar-like material (TLM) have been limited in extent to the stormwater-conveyance ditches. TLM is capped by shallow sediments and decreases in thickness with distance from the Vaughn Landfill (**Figure 4-13** and **Figure 4-14**). The greatest accumulation of TLM is near the southern end of the Vaughn Landfill within a low-lying depositional area of a wetland.

## Surface Water

VOCs and SVOCs associated with former operations of the MGP have not been detected in surface water samples collected from the Reedy River. VOCs and SVOCs were present in on-Site surface water as dissolved phase constituents. Visible sheens on the surface waters have been observed east of the Parcel 3 area and along the western side of the former Vaughn Landfill area within the stormwater drainage. Detections of VOCs and SVOCs greater than the reporting limit are limited to areas near the Vaughn Landfill (SW-3, SW-4, and SW-5) and correlate to areas where sheens have been observed (**Figure 3-1**).

## Groundwater

VOCs and SVOCs were present as dissolved phase constituents and as dense non-aqueous phase liquid (DNAPL) observed in groundwater monitoring wells (specifically monitoring wells MW-1, MW-3BR, MW-21, and MW-49BR, which are all located on Parcel 3). During the drilling of MW-49BR, NAPL was observed in three fracture intervals (43 feet bls, 110 feet bls, 119-120 feet bls). 53 inches of NAPL was gauged at the bottom of the borehole after the installation of MW-49BR. Recent groundwater monitoring confirmed the extent of groundwater impacts to the following areas:

- Parcel 1 – limited to shallow zone
- Parcel 2, Parcel 3, and Legacy Charter Elementary School – shallow, transition, and fractured bedrock
- Parcel 4 and Parcel 5 – no observation of groundwater impacts

Benzene and naphthalene represent the overall greatest extent of impacted groundwater and are depicted on **Figure 4-5** through **Figure 4-10**. The vertical extent of benzene and naphthalene detected in groundwater at concentrations greater than the MCLs are illustrated in cross-section view on **Figure 4-15** through **Figure 4-18**.

# 5.0 FATE AND TRANSPORT

Constituent fate and transport mechanisms are influenced by physical site characteristics and the physical and chemical properties of MGP related compounds. Site characteristics that predominantly influence constituent transport include:

- Current and historical stormwater conveyance ditches
- Low-lying wetland environment with relatively neutral vertical gradients
- Unpermitted construction and demolition debris placed within and on top of a wetland environment
- Extensive alluvial deposits consisting of poorly graded coarse sand that overlies saprolite
- Variably connected shallow flow system with transition zone and fracture bedrock flow systems
- Extensive fractured bedrock matrix with primary fracture sets that strike north-northwest (dipping to the northeast) and east-northeast (dipping northwest) and interconnecting fracture sets that crosscut the primary fractures

Constituent properties that influence mobility and persistence in the environment include– molecular weight, solubility, density, vapor pressure, vapor density, boiling point, Henry's law constant, organic carbon partition coefficient, octanol-water partition coefficient, and octanol-air partition coefficient. A summary of constituent properties for VOCs and SVOCs with concentrations in groundwater greater than their respective MCLs is in **Table 5-1**.

## VOCs

Benzene and toluene, which are soluble in water, tend not to be persistent in the environment because of their volatility. In the atmosphere, both VOCs are susceptible to radical degradation, and in soils and groundwater they are susceptible to both aerobic and anaerobic degradation via microbial mediated processes. Benzene and toluene tend not to bond strongly to organic matter and are moderately mobile in the subsurface. Benzene and toluene tend not to bioaccumulate (USEPA, 2009 and Government of Canada, 1992).

### SVOCs

Naphthalene is moderately volatile and degrades rapidly in the atmosphere. It is moderately soluble in water. Its lower molecular weight compared to other PAHs means it is less persistent than other PAHs. Biodegradation of naphthalene may occur rapidly in the soil and sediment and in aerobic aqueous environments. Degradation under anaerobic conditions is less favorable. It has a moderate tendency to adsorb to organic matter so it may move slowly in organic rich soils.

The remaining SVOCs, which include benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, and chrysene, are moderately to highly persistent in the environment. They have very low vapor pressures, solubility in water, and high organic carbon partition coefficient ($K_{oc}$) values. This means they do not partition into the vapor phase or dissolve readily, but they do adsorb strongly to sediments and soils making them very slow to move in the subsurface. They also tend to be persistent because few bacterial or fungal species are known to degrade them. They have high octanol-water partition coefficient ($K_{ow}$) values indicating a potential to bioaccumulate (ECHA, 2017).

## 5.1 Fate and Transport Mechanisms

Potential transport mechanisms identified include:

- Erosion and overland flow of surficial sediments, soil, or coal tar present within stormwater conveyance ditches
- Downward and lateral migration of NAPL from the conveyance ditches into the vadose zone and shallow flow system through conductive materials (*i.e.*, sands and gravels)
- Downward migration of NAPL from the shallow flow system into the underlying fractured bedrock in areas where the shallow flow zone and underlying transition zone and fractured bedrock are hydraulically connected
- Migration of NAPL within fractured bedrock along interconnected fracture networks driven primarily by gravitational forces with migration controlled by fracture orientations
- Arrested migration and accumulation of DNAPL in traps within bedrock (*i.e.,* dead end fractures, healed fractures, restrictive fracture apertures, depressions in fracture planes, *etc.*)
- Dissolution of constituents in NAPL to surface water and groundwater
- Dissolved constituent transport in groundwater
- Groundwater discharge to surface water

## 5.2 Natural Attenuation Mechanisms

Constituents may be naturally attenuated by several processes that include:

- **Dilution** involves the reduction of groundwater concentrations by mixing of impacted groundwater with non-impacted groundwater, infiltration from rainfall, and/or surface waters.
- **Dispersion** involves longitudinal and transverse dispersion and occurs as constituents enter a groundwater system and disperse by advective forces which can result in a decrease of constituent concentrations.
- **Volatilization** involves the phase change of constituents from solution or liquids to a gaseous phase where typically they are transferred to air filled poor spaces and/or the atmosphere.
- **Precipitation** occurs when dissolved constituents form solid substances from solution and are removed from solution.
- **Sorption** involves both adsorption and absorption. Adsorption is the physical adherence or bonding of a constituent to a solid phase particle whereas absorption is the incorporation of a constituent into another phase such as a liquid being absorbed by a solid or a gas being absorbed by a liquid.
- **Degradation** is the process by which a constituent is broken down into smaller molecules by biotic (biodegradation) or abiotic (hydrolysis, photolysis, or oxidation) means.

Each of these six mechanisms can result in the reduction of constituent concentrations in the environment and are dependent upon the geologic setting, flow characteristics of a system, geochemical conditions, and microbial populations.

Lines of evidence to evaluate natural attenuation included:

- Mann-Kendall trend analysis of benzene and naphthalene concentrations
- Evaluation of geochemical parameters indicative of natural attenuation processes
- Bacterial/functional gene evaluation by ERM and reported in the ERM Quarterly Progress Report – Fourth Quarter 2017 (ERM, 2018)

## Mann-Kendall Trend Analysis

Mann-Kendall trend analyses were conducted to determine whether benzene and naphthalene concentrations in groundwater exhibited a statistically significant increasing trend, decreasing trend, or no trend. Based on the Mann-Kendall analysis, there were no significantly increasing trends for benzene or naphthalene.

SynTerra evaluated historical groundwater data from all monitoring wells to determine which data sets meet the minimum criteria for the completion of Mann-Kendall analysis. **Table 5-2** details the data set suitability compared to minimum criteria. Limitations of the data set were primarily a result of the lack of detections of constituents in the samples. In addition, less than four samples have been collected from 50 monitoring wells constructed between 2018 and 2021. While the useable data set has increased since the June 2020 RIR and the February 2021 Semiannual Monitoring Report, additional data sets are needed to provide a more comprehensive and meaningful trend analysis. The number of useable data sets will be increased in late 2021 after the September 2021 semiannual monitoring event.

Based on the minimum data requirements, Mann-Kendall trend analyses were limited to data sets from five monitoring wells (MW-1, MW-2BR, MW-3, MW-3BR, and MW-21) on Parcel 3, which are representative of conditions downgradient of the source area (**Figure 2-2**).

## Natural Attenuation Parameters

SynTerra measured natural attenuation parameters from groundwater samples collected in March 2021. Those parameters included field parameters and analytes that were tested by an off-Site laboratory and are summarized in **Table 5-3**.

Biodegradation of a dissolved petroleum hydrocarbon plume will generally occur by the following processes in sequential order or concurrently: aerobic respiration, denitrification, iron (III or ferric) reduction, sulfate reduction, and methanogenesis. However, site-specific variables can cause this sequence to be interrupted or, in some cases, a process can be skipped entirely. In general, the electron acceptors will be used in the following order:

$$O_2 \rightarrow NO_3^- \rightarrow Mn^{+4} \rightarrow Fe^{+3} \rightarrow SO_4^{2-} \rightarrow C$$

As the electron donors are utilized, the following products may be produced:

- Carbon dioxide
- Nitrogen
- Manganese ($Mn^{2+}$)
- Ferrous iron ($Fe^{2+}$)
- Hydrogen sulfide
- Methane

The presence or absence of these compounds can indicate the reducing nature of the groundwater. A reduction in concentrations or change in charge for the electron acceptors are an indication of a reducing environment. General observations from field measurements and analytical results are summarized in the table below.

| **Indicator Field Parameters** | |
|---|---|
| **Parameter** | **Observation** |
| pH | Generally neutral pH of groundwater across the site favors biodegradation; grout influence elevated pH in a few wells. |
| Temperature | No pattern of temperature increases indicating biological activity was observed. |
| Specific Conductance | Elevated specific conductance correlated to elevated pH indicating grout influence. |
| DO | Dissolved oxygen (DO) is generally less than 1 milligram per liter (mg/L); Site groundwater is generally considered anoxic or anaerobic. |
| ORP | Oxidation reduction potential (ORP) values indicate generally reducing conditions, and decreased ORP values from upgradient groundwater to impacted groundwater indicate potential biological activity. |
| Turbidity | Turbidity is low, indicating little suspended sediments in the samples. |
| **Laboratory Analytical Results for Indicator Parameters** | |
| **Parameter** | **Observation** |
| TOC | Elevated total organic carbon (TOC) is present in the absence of benzene and naphthalene (MW-39BRL), indicating an alternate source of carbon. Generally, higher levels of TOC are observed in the bedrock zone than in the shallow or transition zone. |
| Iron | Concentrations of iron are generally greatest in the shallow and transition zone wells and tend to be least in the deeper bedrock wells. Concentrations of dissolved iron generally increase between upgradient samples and samples collected within the benzene and naphthalene plumes in shallow and transition zone, indicating the potential for Fe(III) reduction in those zones. A clear pattern for the distribution of dissolved iron in samples from bedrock wells was not observed. |

| Laboratory Analytical Results for Indicator Parameters (Continued) | |
|---|---|
| **Parameter** | **Parameter** |
| Manganese | Greater concentrations of manganese were generally observed in the shallow and transition zone wells, with the majority of manganese detected as dissolved manganese. This may be an indication that manganese oxides, formed under aerobic conditions, have been reduced due to biological activity in the shallow zone becoming soluble. The manganese concentrations increase between upgradient samples and samples collected from within and downgradient of the benzene and naphthalene plumes in the transition zone, indicating Mn(IV) reduction as a potential electron accepting process in this zone. |
| Sulfate | Decreases in sulfate concentrations between upgradient samples and samples from within the benzene and naphthalene plumes in the shallow, transition, and deep bedrock zones were observed, indicating the potential for sulfate reduction as an electron accepting process. |
| Sulfides | Sulfides were detected in samples from deep bedrock wells, indicating potential reduction of sulfate. |

## Biological Assay for Potential Biological Degradation

In July 2017, samples from nine wells were evaluated for the presence of functional genes which, if present, could be an indication of potential biodegradation of hydrocarbons including benzene and naphthalene. This information was reported in the ERM Quarterly Progress Report -Fourth Quarter 2017 (ERM, 2018). Bio traps were placed in select wells and retrieved and analyzed for known functional genes involved in the degradation of hydrocarbons.

The potential for aerobic degradation of benzene was widespread, while naphthalene was not as favorable. Anaerobic degradation of benzene was less favored. Anaerobic degradation of naphthalene was limited because the functional genes involved in the initial step of anaerobic biodegradation were less than detection limits for all samples.

## Conclusions for Evaluation of Natural Attenuation

- Mann-Kendall trend analysis results indicate benzene and naphthalene concentrations in groundwater are stable or decreasing.
- Groundwater observations indicate generally anaerobic conditions.
- The enrichment of iron and depletion of oxygen, along the groundwater flow path, are possible lines of evidence of biological activity, which may play a role in reducing constituent concentrations.

- Mn(IV) and sulfate reduction are potential electron accepting processes that could occur. However, based on the concentrations present and the patterns of those compounds, Mn(IV) and sulfate reduction are not considered to be primary biodegradation pathways at this time.
- The bioassay study indicated the potential for aerobic degradation of both benzene and to a lesser extent naphthalene. Anaerobic degradation of benzene was less favored, while that of naphthalene was limited.

## 5.3 Fate and Transport of MGP-related Compounds

### NAPL

NAPL at the Site is primarily a separate phase hydrocarbon liquid that is denser than water, DNAPL. DNAPL will migrate primarily vertically when released to the environment through the unsaturated zone due to gravity. Materials with higher hydraulic conductivities (*i.e.,* sands and gravels) act as preferential pathways for the DNAPL. If DNAPL encounters lower hydraulic conductivity units (*i.e.,* clays and silts) vertical migration can be hindered. If sufficient accumulation of DNAPL occurs above the less permeable units, lateral migration can occur. As long as the force driving DNAPL migration (*i.e.,* gravitational pressure, DNAPL driving head) exceeds losses during migration (*i.e.,* frictional losses, capillary forces), the mass of DNAPL will continue to migrate through the unsaturated zone until the water table is encountered.

DNAPL will migrate below the water table after a sufficient volume accumulates at the water table and after the gravitational pressure becomes greater than the entry pressure of the underlying capillary fringe. DNAPL will continue to migrate downward below the water table as long as there is sufficient DNAPL volume and gravitational force (DNAPL head) to overcome resistances to flow (*i.e.,* frictional losses, capillary forces, pore/fracture entry pressures). With a sufficient driving force, DNAPL will continue to migrate downward in the saturated zone until an impermeable or less permeable barrier or unit is encountered, upon which it may pool and/or migrate laterally until the driving force or DNAPL source is exhausted or until another impermeable barrier is encountered.

Migration below the water table will occur along preferential pathways. The primary preferential pathways in the shallow zone and well-weathered portions of the transition zone are coarse-grained sediments (*i.e.,* sands and gravels). The preferential pathways in less-weathered portions of transition zone and bedrock are fractures and fractured zones. No appreciable migration of DNAPL is expected to occur within fine-grained sediments or the solid rock matrix.

Impermeable (or less permeable) barriers at the Site that would inhibit DNAPL migration in the shallow zone and well-weathered portions of the transition zone are lenses, or units of low hydraulic conductivity materials, such as clays or silts. Barriers to DNAPL migration in fractured bedrock include dead end fractures, healed fractures, and depressions in the fracture plane. Furthermore, restricted fracture apertures can be a barrier to migration if the DNAPL head is not sufficient to drive flow through a given fracture aperture. The figure below shows approximate minimal fracture aperture required for DNAPL to migrate through a system under a given head of DNAPL.

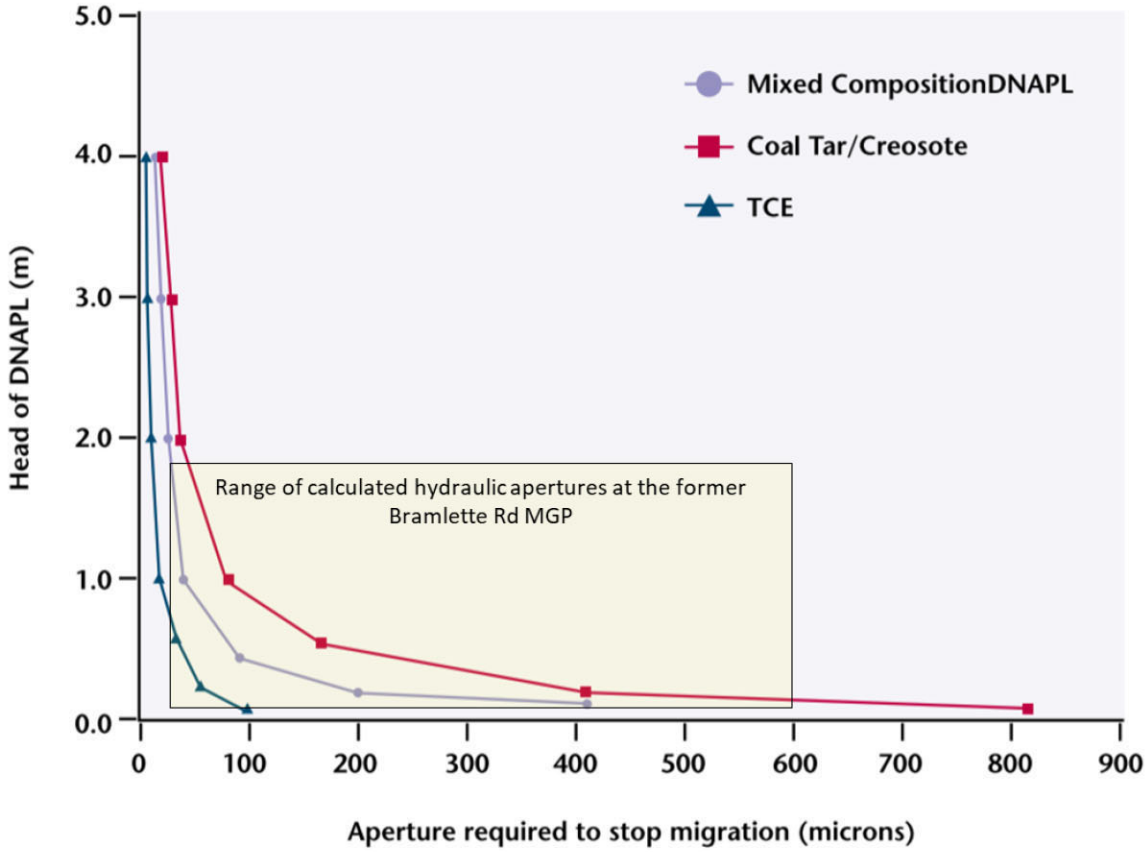


**Figure 5-1**. Minimum fracture apertures required to arrest DNAPL migration under a head of DNAPL for several common DNAPLs (Kueper et al, 2003).

Competition between groundwater and DNAPL for hydraulically connected pore throats can also limit the migration of DNAPL in porous media as well as fractured bedrock.

As the DNAPL migrates through the unsaturated and saturated zones, it leaves behind disconnected bubbles or pockets of DNAPL trapped by capillary forces in pores or small-scale heterogeneities or as thin coatings on rock matrix surfaces.

Density tests conducted on a TLM DNAPL sample from MW-6A, located on Parcel 3, indicate that DNAPL near the conveyance ditches has a specific gravity of approximately 1.18 and viscosity of 42,500 centistokes at 70 degrees Fahrenheit. No direct density testing was conducted on OLM DNAPL at the Site. However, the OLM observed at the Site is consistent with carbureted water gas tars, which have typical specific gravity ranges of 1.01 to 1.10 and viscosities that range from 20 to 100 centistokes (Kueper et al, 2003).

The transport of TLM and OLM at the Site will differ based on the density and viscosity of the two materials. The transport of TLM, which has a viscosity several orders of magnitude greater than OLM, would be more limited. Data collected during the recent ditch assessment confirm this assumption. The observed TLM is limited to a relatively small volume of material within and immediately adjacent to the stormwater conveyance ditches (**Figure 4-13**). OLM on the other hand, is observed at further distances from the conveyance ditches and deeper below the water table and within fractured bedrock. DNAPL impacts appear visually as darkly discolored soils, thick tar-like material near the conveyance ditches, and dark brown colored liquid with the consistency of burnt "motor oil" at depth in the fractured bedrock.

DNAPL appears to be immobile based on the following:

- NAPL encountered above bedrock in the shallow flow system is limited to coarse-grained materials above less permeable units (*i.e.,* clays) and only in limited areas (not encountered throughout the site).
- NAPL recovery tests show little to no recovery in MW-49BR under natural conditions (non-stressed conditions such as pumping or drilling).
- A considerable amount of time has passed since the release(s) (*i.e.,* many decades).
- Since the source is no longer active and has not been for many decades, it is unlikely that there is the necessary head needed to drive any further migration of DNAPL through the fracture apertures encountered at the Site.
- Mann-Kendall trend analyses indicate that concentrations for dissolved constituents associated with NAPL are either stable or decreasing.

Groundwater contact with DNAPL results in partitioning of COCs from the DNAPL phase to the dissolved phase. COCs in the dissolved phase are transported with groundwater downgradient from the DNAPL mass. The DNAPL will be a continued source of VOCs and SVOCs/PAHs because the dissolution process is slow and limited by mass transfer rates. Dissolution of COCs from DNAPL in areas with stagnant groundwater or very low hydraulic gradients will be limited by the DNAPL diffusion rate (diffusion-limited dissolution) because the DNAPL is not in contact with moving water. Dissolution of COCs will occur at higher rates in areas with moving groundwater. Zones of residual or pooled DNAPL may persist in the subsurface and contribute dissolved-phase groundwater impacts to the aquifer for decades to centuries based on the structure and mass of DNAPL that was released to the environment (Pankow and Cherry, 1996). Due to those characteristics and the low-solubility of the COCs, a small mass of DNAPL can result in long-term groundwater impacts. The slow partitioning rate of COCs from DNAPL in combination with low groundwater MCLs for those individual COCs can result in COC concentrations greater than MCLs for significant timeframes.

## VOCs

VOCs detected in groundwater at concentrations greater than MCLs include benzene and toluene. Benzene and toluene are very volatile and not persistent in the environment. Both VOCs are susceptible to degradation by bacteria in the subsurface and radical degradation in the atmosphere.

Some indicators of aerobic or anaerobic degradation of benzene and toluene were identified from the indicator parameters (field and laboratory). Additionally, the bioassay indicated there was the potential for aerobic degradation of benzene at the Site. Based on the bioassay, anaerobic degradation is less favored.

Presently, groundwater monitoring analytical results from five wells within Parcel 3 and within the area of impacted groundwater are sufficient to support Mann-Kendall trend analysis (**Figure 5-2**). Trend tests indicated stable (no significant trend identified) or statistically significant decreasing trends and are summarized below.

| Monitoring Well ID | Constituent | Mann-Kendall Trend Analysis Result |
|---|---|---|
| MW-1 | Benzene | statistically significant decreasing trend |
| MW-2BR | Benzene | stable, no significant trend |
| MW-3 | Benzene | stable, no significant trend |
| MW-3BR | Benzene | statistically significant decreasing trend |
| MW-21 | Benzene | stable, no significant trend |

Mann-Kendall trend analysis outputs are presented in **Table 5-2**.

## SVOCs/PAHs

SVOCs detected in groundwater at concentrations greater than MCLs include methylene chloride, naphthalene, benzo(a)anthracene, benzo(b)fluoranthene, and chrysene. Naphthalene is moderate to very volatile and degrades rapidly in the atmosphere. Biodegradation of naphthalene also occurs rapidly in the soil and sediment and in aerobic aqueous environments. The low molecular weight of naphthalene results in lower environmental persistence relative to other PAHs. Chrysene, benzo(a)anthracene, and benzo(b)fluoranthene are moderate to highly persistent in the environment, adsorbing strongly to sediments and soils with few bacterial or fungal species capable of significant biodegradation.

Some indicators of aerobic or anaerobic degradation of naphthalene were identified from the indicator parameters (field and laboratory). Results of the bioassay study indicate some potential for aerobic degradation of naphthalene, while anaerobic degradation of naphthalene is limited.

Presently, groundwater monitoring analytical results from five wells within Parcel 3 and within the area of impacted groundwater are sufficient to support Mann-Kendall trend analysis (**Figure 5-3**). Trend tests indicated stable (no significant trend identified) or statistically significant decreasing trends and are summarized below.

| Monitoring Well ID | Constituent | Mann-Kendall Trend Analysis Result |
|---|---|---|
| MW-1 | Naphthalene | stable, no significant trend |
| MW-2BR | Naphthalene | stable, no significant trend |
| MW-3 | Naphthalene | stable, no significant trend |
| MW-3BR | Naphthalene | stable, no significant trend |
| MW-21 | Naphthalene | statistically significant decreasing trend |

Mann-Kendall trend analysis outputs are presented in **Table 5-2**.

# 6.0 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

Human health and ecological risk assessments were conducted in accordance with USEPA guidance as outlined in Section 1 of the *Human Health and Ecological Risk Assessment*, provided as Appendix L in the June 2020 RIR (SynTerra, 2020). Results and conclusions of the assessments are supported by data from groundwater, surface water, sediment, and soil samples. A detailed report of methods, findings, and conclusions is provided in **Appendix G**. Conclusions of the risk assessments are summarized in the following subsections.

## 6.1 Human Health Risk Assessment

Current and future exposure scenarios were evaluated to assess potential human health risks. A focused approach was also taken to evaluate additional data collected to assess potential human health risk from exposure to Site media.

Constituents of potential concern (COPCs) were identified in on-Site groundwater, soil (surficial and subsurface), surface water, and sediment (surficial and subsurface), consistent with the results presented in the June 2020 RIR, as a part of the screening assessment.

### Groundwater

- Risk assessment results for groundwater are consistent with the results presented in the June 2020 RIR.
- Risks associated with incidental ingestion exposure of groundwater were not identified.
- Non-carcinogenic risks associated with dermal exposure to groundwater were not identified. Dermal cancer risks ($1.43 \times 10^{-6}$), inhalation cancer risks ($6.58 \times 10^{-5}$), and non-cancer risks [hazard quotient (HQ) = 42.5] associated with exposure to groundwater were identified.
- Cumulative risks to a construction worker associated with incidental ingestion, dermal contact, and inhalation of vapors from groundwater are indicated by a cancer risk value of $6.72 \times 10^{-5}$ and a non-cancer hazard index of 42.6.

### Soil

- Findings in the human health screening assessment indicated excavation of soil in a small area in Parcel 2 would reduce risk to below residential thresholds.
- Excavation of shallow soils in the vicinity of SA-SB-36 would reduce the cumulative cancer risk for residential exposure to surface soils from $8.7 \times 10^{-6}$ to $2.8 \times 10^{-8}$ which is less than cancer risk thresholds.

## 6.2 Screening Level Ecological Risk Assessment

The SLERA included a comparison of constituent concentrations to published ecological screening levels. Initial COPCs identified were evaluated further as a part of the COPC refinement process. The following conclusions were made:

- COPCs were identified in on-Site surface water, soil (surficial and subsurface), and surficial sediment. No COPCs were identified in on-Site subsurface sediment.
- With the exception of one constituent, no COPCs were identified for surface water.
- Screening level exceedances in sediment are limited to surficial sediment located in the Parcel 4 and 5 ditches and can be addressed by focused removal actions.
- Constituent concentrations in soils exceeding ecological screening levels are limited to sub-surface soils, where exposure to most wildlife is unlikely to occur.

Planned implementation of sediment BMPs and targeted remediation of stormwater-conveyance ditches and impacted soils would mitigate exceedances and achieve remediation goals. No additional assessment is warranted for purposes of completing the RI task for the Site once remedial measures are implemented and remedial goals have been achieved.

# 7.0 UPDATED CONCEPTUAL SITE MODEL

## Source and Potentially Impacted Media

Surface soil, subsurface soil, groundwater, surface water, and sediment were evaluated to determine the nature and extent of impacts from former operations of the Bramlette MGP on Parcel 1 [detailed in Section 2.2 and in the June 2020 RIR (SynTerra, 2020)]. The coal carbonization and CWG processes used to manufacture gas at the Site produced unweathered tar and lightly weathered tar. Source control measures implemented include the cessation of the MGP operations greater than 50 years ago, as well as the removal of more than 61,000 tons of impacted soil and debris and approximately 350 cubic yards of tar mixed with bricks and other debris from a surface tar well and approximately 2,500 gallons of free liquid tar from a previously unknown underground tank.

## Migration Pathways

Historical and present-day drainage ditches between the source area (Parcel 1) and the downgradient parcels are visible in historical imagery taken during MGP operations (**Figure 2-3** and **Appendix H**). Observed TLM consistent with the location of these ditches indicates a likely migration pathway for overland flow from MGP operations.

NAPL at the Site has a propensity to sink below the water table because it is denser than water. The NAPL will migrate vertically through the unsaturated zone until it encounters the water table. Once NAPL has accumulated enough mass for gravitational pressure to overcome the entry pressure of the underlying capillary fringe, migration vertically through the water column will continue until an impermeable or less permeable matrix is encountered. This is evident with observed OLM within the coarse sand atop saprolite and the distribution of dissolved constituents within groundwater. Coarse sand deposits provide a relatively porous matrix for the accumulation of residual NAPL, while the less permeable saprolite inhibits additional downward migration.

Bedrock at the Site is variably connected with the shallow zone and transition zone. The primary fracture sets strike north-northwest (dipping to the northeast) and east-northeast (dipping northwest). Overall, the bedrock hydraulic conductivity shows a decreasing trend with increasing depth below the top of rock down to approximately 60 feet below the top of rock, which is consistent with the literature (Gale, 1982; Neretnieks, 1985). The calculated fracture apertures in bedrock decrease with depth below the top of bedrock, which is also consistent with the literature (Snow, 1968). With increasing depth, the weight of the overlying rock increases. This increases the effective

stress and causes the fracture walls to deform and flatten, reducing fracture apertures with increasing depth.

Groundwater discharge to surface water is also a potential migration pathway. However, samples from downgradient monitoring wells located along the Swamp Rabbit Trail and adjacent to the Reedy River have not contained concentrations of VOCs or SVOCs associated with former operations of the MGP greater than MCLs. Surface water samples collected from the Reedy River have not contained VOCs or SVOCs associated with former operations of the MGP at concentrations exceeding analytical reporting limits.

## Nature and Extent

The extent of VOCs and SVOCs associated with former operations of the MGP are within shallow groundwater on Parcel 1, Parcel 3, and Legacy Charter Elementary School property, and in transition zone/bedrock zone groundwater on Parcel 2 and Parcel 3. NAPL has been observed in monitoring wells located on Parcel 3, which is considered a source of VOCs and SVOCs. Of the monitoring well data sets assessed for Mann-Kendall analysis, there were no significant increasing trends for benzene or naphthalene.

VOCs and SVOCs associated with former operations of the MGP have not been detected in surface water samples from the Reedy River. Detections of VOCs and SVOCs are limited to on-Site areas where sheens have been previously observed (SW-3, SW-4, and SW-5) (**Figure 3-1**).

VOCs and SVOCs associated with former operations of the MGP have been detected in sediment and soil samples from all five parcels and the Legacy Charter Elementary School property, but are generally located near former MGP operational areas and stormwater-conveyance ditches. Visual observations typically delineated the extent of NAPL and/or TLM to areas near historical ditches on Parcel 1 through Parcel 5. NAPL has not been observed in Reedy River sediments.

## Risk Exposure

The baseline HHRA identified risk to a construction worker who might be exposed to impacted media through dermal exposure (dermal cancer risk) and inhalation of vapor (inhalation cancer and non-cancer risks). It is assumed that construction workers would use appropriate personal protective equipment — such as gloves, boots, and safety glasses — to limit exposure to environmental media, thereby limiting risks from chemical exposure. There is no evidence of unacceptable risks to a construction worker exposed to soils remaining in the previously excavated area within Parcels 1 and 2.

Several maximum constituent concentrations detected in surface water, soil, and sediment samples were greater than ecological screening values and were retained as COPCs. Remedial measures would likely mitigate the sediment and surface water exceedances related to the stormwater-conveyance ditches.

# 8.0 SUMMARY AND RECOMMENDATIONS

## 8.1 Summary

According to Section 3 of VCC 16-5857-RP, the source, nature, and extent of impacts resulting from the former operation of the MGP have been determined such that remedial alternatives can be evaluated.

The status of the Vaughn landfill (whether the C&D debris will remain in-place or be excavated and transported off-site for disposal) must be determined before an evaluation of remedial alternatives (i.e., feasibility study) can begin. The status of the landfill will affect the selection of remedial alternatives for screening and will have a major impact related to criteria including implementability, effectiveness, costs, and project schedule.

Additional findings of the RI activities are summarized below:

### Groundwater

Groundwater samples collected from monitoring-well nests between the area of impacted groundwater and the Reedy River did not contain MGP related constituents greater than MCLs. Most dissolved-phase constituent mass was detected in the transition zone and fractured-bedrock zone, while the overall extent of groundwater impacts was limited to:

- Parcel 1 and Legacy Elementary Property – shallow zone
- Parcel 2 and Parcel 3– shallow, transition, and fractured bedrock
- Parcel 4 and Parcel 5 – no observed groundwater impacts

Constituent transport is estimated to take decades to hundreds of years to migrate the distance from Parcel 1 to the Reedy River, approximately 1,100 feet. Constituents were not detected in groundwater samples collected from monitoring wells near the Reedy River and Mann-Kendall analyses indicate stable or decreasing concentrations within the most impacted areas of groundwater. These findings suggest an attenuating or stable plume. Additionally, long duration travel times in the shallow zone and transition zone provide time for constituents to naturally attenuate prior to the groundwater discharging to the Reedy River.

The areal extent of impacted groundwater correlated with primary fracture trends and the zone of influence observed during the aquifer performance test. Fracture orientation and generally neutral vertical gradients measured across the Site reduce the potential

for the migration of impacted groundwater from the deeper fractured bedrock zone to the Reedy River.

Bedrock fracture characteristics and results of baildown and recovery tests suggest NAPL is likely no longer mobile under natural conditions.

## Soil and Sediment

A removal action performed in the early 2000's on Parcel 1 was highly effective in removing residual MGP impacts. Risk assessment results indicate no evidence of an unacceptable risk to a construction worker exposed to soil on Parcels 1 and 2, consistent with the industrial land use zoning of these parcels.

Isolated detection of benzo(a)pyrene within Parcel 2 (near SA-SB-46) were previously identified as a driver for potential risk under a residential exposure scenario. Additional soil sampling results indicate the removal of approximately 140 cubic yards of soil in this area could reduce risk of exposure to Parcel 1 and Parcel 2 soil to less than residential risk thresholds.

The bulk of constituent mass in shallow soil and sediment is in the form of OLM and TLM observed in limited areas.

- OLM has been typically observed as small lenses or stringers within shallow clay deposits and within alluvial coarse sand deposits that overlie saprolite. Observations of OLM have been limited in extent to Parcels 1, 2, and 3.
- Observations of TLM has been limited in extent to the stormwater-conveyance ditches. The greatest accumulation of TLM is near the southern end of the Vaughn Landfill within a low lying depositional area of a wetland. TLM is capped by shallow sediments and generally decreases in thickness with distance from the Vaughn Landfill.

Based on sediment forensics no MGP impacts were observed in Ditch 5 or Reedy River sediment samples. PAHs representative of urbanization and other non-point sources are present in Reedy River and on-Site stormwater ditch sediments.

Impacted sediment greater than regulatory screening criteria were detected within the wetlands west of Legacy Elementary school, at and immediately adjacent to the Vaughn landfill, and extending the length of Ditch 4. Sediment control BMPs will be constructed later this year to mitigate the potential for impacted sediment transport within the ditch system. Remedial alternatives to address the impacted sediment will be evaluated as part of the future feasibility study.

### Surface Water

MGP-related constituent concentrations greater than analytical reporting limits are not detected in the Reedy River. VOCs and SVOCs in surface water were limited to areas near the Vaughn Landfill, and continued to be less than screening criteria downstream of the Vaughn Landfill.

Hydraulic monitoring data and surface water analytical results indicate impacted groundwater is not likely discharging to wetland areas or stormwater conveyance ditches.

### Human Health and Ecological Risk Assessment

The baseline human health risk assessment identified risk to a construction worker exposed to affected media through dermal exposure (dermal cancer risk) and inhalation of vapor (inhalation cancer and non-cancer risks).

The screening level ecological risk assessment identified constituents in surface water, sediment, and soil at concentrations greater than ecological screening values. Currently planned interim BMPs and likely future corrective action would mitigate potential ecological risk.

## 8.2 Recommendations

The nature and extent of MGP related impacts has been determined sufficiently to begin evaluation of remedial alternatives. The status of the Vaughn Landfill must be determined prior to completing a feasibility study of remedial alternatives.

Duke Energy plans to conduct semiannual Site-wide groundwater and surface water monitoring until a Record of Decision has been obtained. The results of these events, as well as other applicable site activities will be summarized and provided in Semiannual Monitoring Reports and Quarterly Progress Reports.

# 9.0 REFERENCES

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# FIGURES

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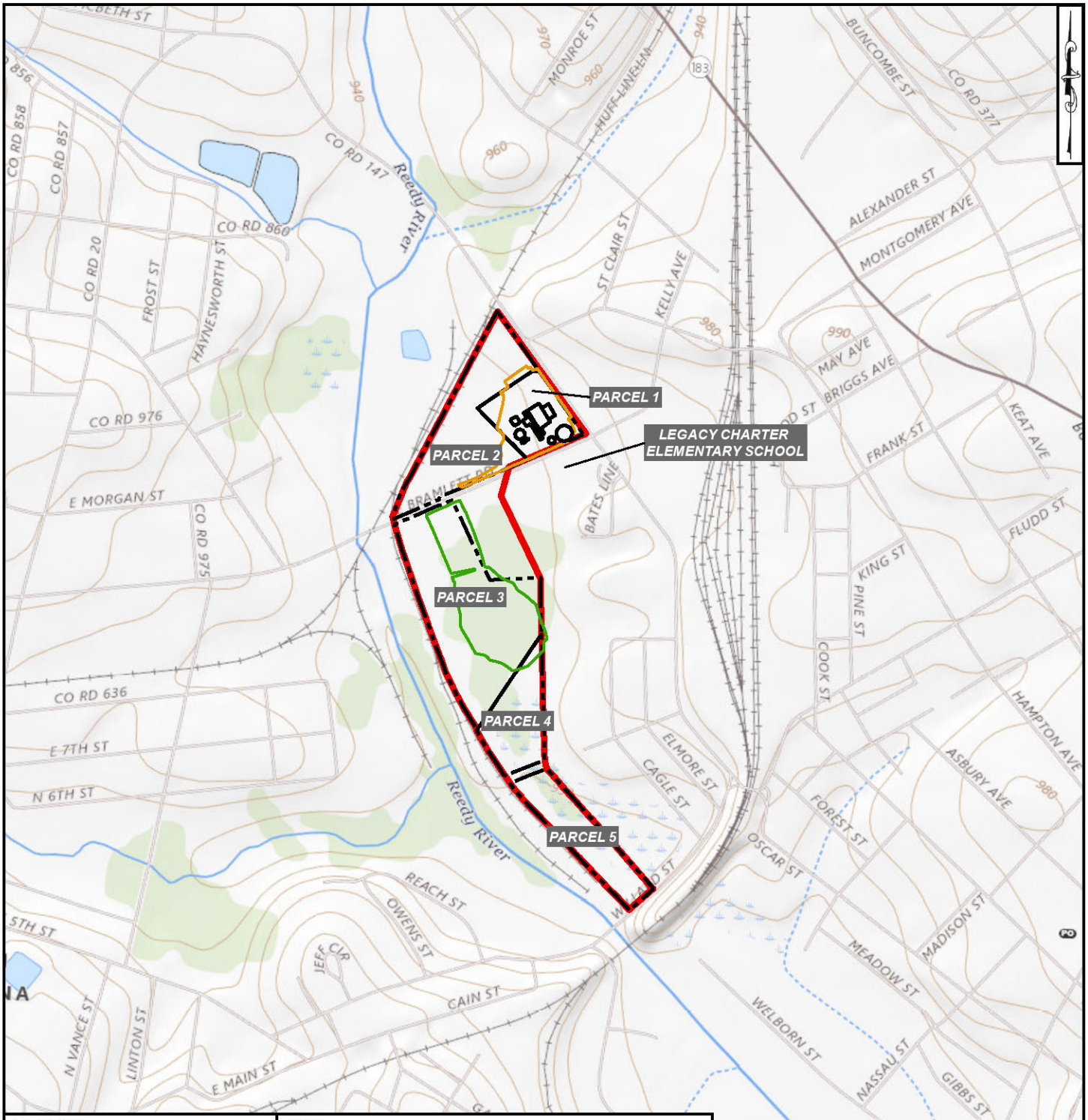
Science & Engineering Consultants




**LEGEND**

- FORMER MANUFACTURED GAS PLANT FOOTPRINT
- EXCAVATION AREA (2001-2002)
- VAUGHN LANDFILL
- PARCEL BOUNDARIES
- SITE BOUNDARY

**NOTES:**

1. EXCAVATION AREA AND VAUGHN LANDFILL BOUNDARY ARE FROM ERM WORK PLAN ADDENDUM, APRIL 13, 2018. THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
2. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
3. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83 INTERNATIONAL FEET).
4. 2020 USGS TOPOGRAPHIC MAP OBTAINED FROM THE USGS NATIONAL MAP VIEWER.

DUKE ENERGY CAROLINAS

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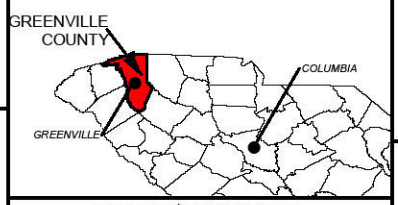


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**FIGURE 2-1**
**USGS TOPOGRAPHIC MAP**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**

| | |
|---|---|
| DRAWN BY: A. ROBINSON | DATE: 11/18/2020 |
| REVISED BY: R. KIEKHAEFER | DATE: 06/23/2021 |
| CHECKED BY: L. DRAGO | DATE: 06/23/2021 |
| APPROVED BY: T. KING | DATE: 06/23/2021 |
| PROJECT MANAGER: T. PLATING | |

GRAPHIC SCALE
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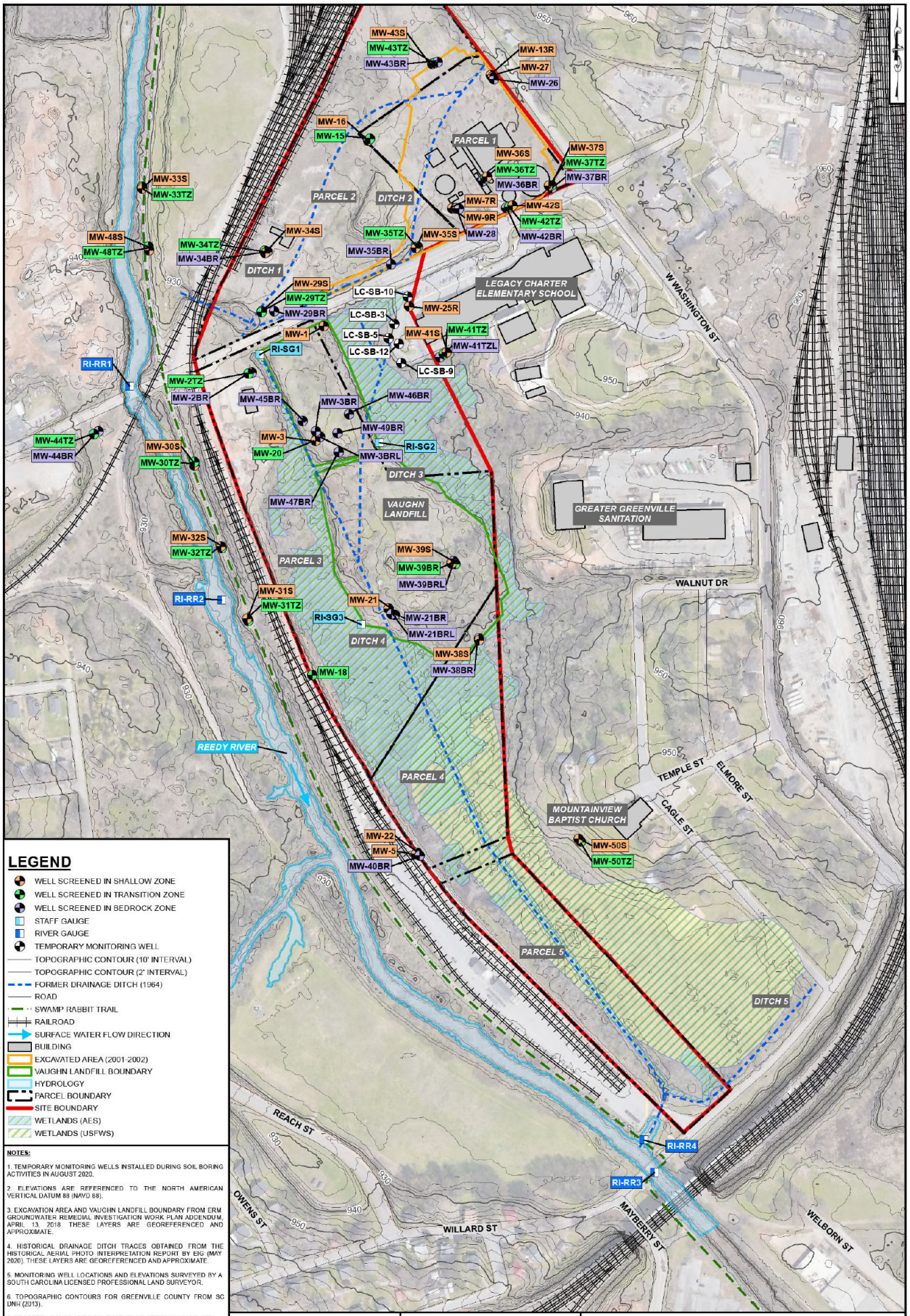
(IN FEET)




## LEGEND

- WELL SCREENED IN SHALLOW ZONE
- WELL SCREENED IN TRANSITION ZONE
- WELL SCREENED IN BEDROCK ZONE
- STAFF GAUGE
- RIVER GAUGE
- TEMPORARY MONITORING WELL
- TOPOGRAPHIC CONTOUR (10' INTERVAL)
- TOPOGRAPHIC CONTOUR (2' INTERVAL)
- FORMER DRAINAGE DITCH (1964)
- ROAD
- SWAMP RABBIT TRAIL
- RAILROAD
- SURFACE WATER FLOW DIRECTION
- BUILDING
- EXCAVATED AREA (2001-2002)
- VAUGHN LANDFILL BOUNDARY
- HYDROLOGY
- PARCEL BOUNDARY
- SITE BOUNDARY
- WETLANDS (AES)
- WETLANDS (USFWS)

**NOTES:**

1. TEMPORARY MONITORING WELLS INSTALLED DURING SOIL BORING ACTIVITIES IN AUGUST 2020.
2. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
3. EXCAVATION AREA AND VAUGHN LANDFILL BOUNDARY FROM ERM GROUNDWATER REMEDIAL INVESTIGATION WORK PLAN ADDENDUM, APRIL 13, 2018. THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
4. HISTORICAL DRAINAGE DITCH TRACES OBTAINED FROM THE HISTORICAL AERIAL PHOTO INTERPRETATION REPORT BY EIG (MAY 2020). THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
5. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY A SOUTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR.
6. TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC DNR (2013).
7. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
8. WETLANDS (USFWS) BY US FISH AND WILDLIFE NATIONAL WETLAND INVENTORY. WETLANDS (AES) DELINEATED BY APPLIED ENGINEERING AND SCIENCE, INC. IN 1999.
9. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
10. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. AERIAL WAS COLLECTED ON MARCH 12, 2018.
11. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3500 (NAD83 INTERNATIONAL FEET).

DUKE ENERGY CAROLINAS

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GRAPHIC SCALE
125 0 125 250
(IN FEET)

| | |
|---|---|
| DRAWN BY: J. KIRTZ | DATE: 05/07/2021 |
| REVISED BY: R. KIEKHAEFER | DATE: 07/23/2021 |
| CHECKED BY: L. DRAGO | DATE: 07/23/2021 |
| APPROVED BY: T. KING | DATE: 07/23/2021 |
| PROJECT MANAGER: T. PLATING | |

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**FIGURE 2-2**
**SITE LAYOUT MAP**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**

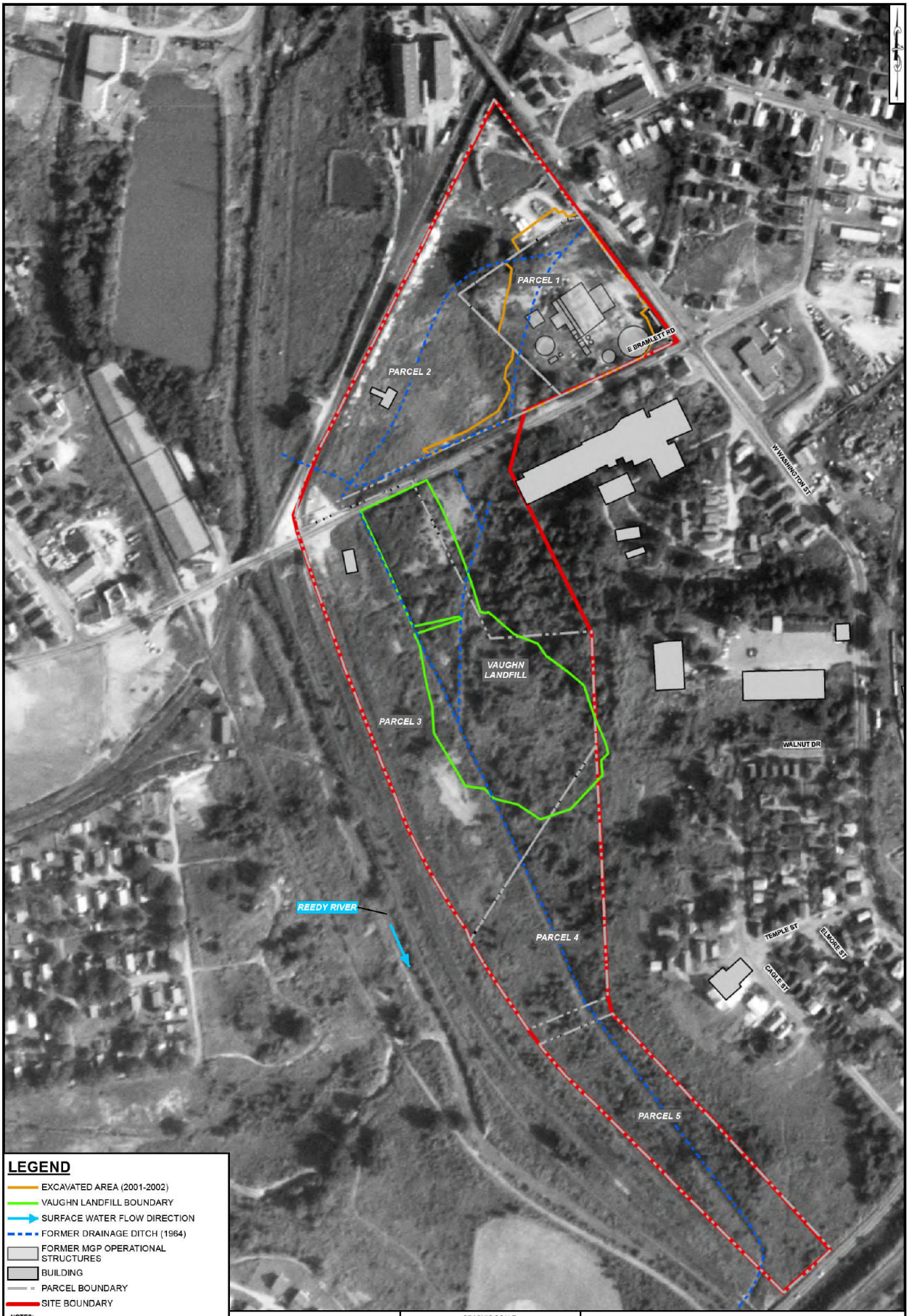
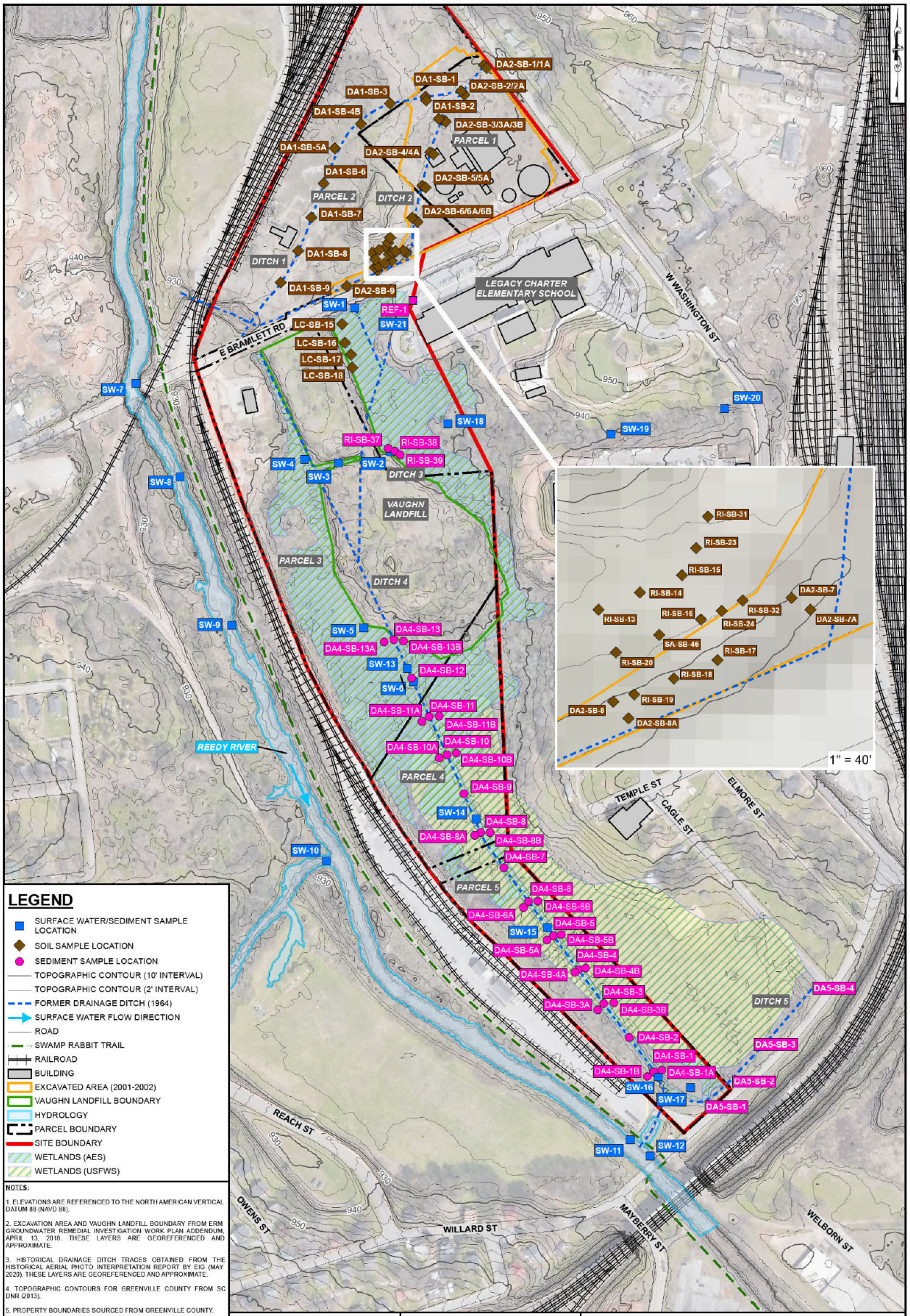



**FIGURE 2-3**
**1964 HISTORICAL AERIAL LAYOUT**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**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DA1-SB-1
DA2-SB-2/2A
DA1-SB-3
DA1-SB-2
DA1-SB-4B
DA2-SB-3/3A/3B
PARCEL 1
DA1-SB-5A
DA2-SB-4/4A
DA1-SB-6
DA2-SB-5/5A
PARCEL 2
DITCH 2
DA1-SB-7
DA2-SB-6/6A/6B
DITCH 1
DA1-SB-8
LEGACY CHARTER ELEMENTARY SCHOOL
W WASHINGTON ST
DA1-SB-9
DA2-SB-9
SW-1
REF-1
SW-21
E BRAMLETT RD
LC-SB-15
LC-SB-16
LC-SB-17
LC-SB-18
SW-7
SW-18
SW-20
SW-19
RI-SB-37
RI-SB-38
RI-SB-39
SW-4
SW-2
SW-3
DITCH 3
SW-8
VAUGHN LANDFILL
PARCEL 3
DITCH 4
SW-9
SW-5
DA4-SB-13
DA4-SB-13A
DA4-SB-13B
SW-13
DA4-SB-12
SW-6
DA4-SB-11A
DA4-SB-11
DA4-SB-11B
REEDY RIVER
DA4-SB-10A
DA4-SB-10
DA4-SB-10B
PARCEL 4
DA4-SB-9
SW-14
DA4-SB-8
DA4-SB-8A
DA4-SB-8B
SW-10
DA4-SB-7
PARCEL 5
DA4-SB-6
DA4-SB-6B
DA4-SB-6A
DA4-SB-5
SW-15
DA4-SB-5B
DA4-SB-5A
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DA4-SB-4A
DA4-SB-4B
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DA4-SB-3A
DA4-SB-3B
DA5-SB-4
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DA5-SB-3
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DA4-SB-1B
DA4-SB-1A
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SW-17
DA5-SB-1
SW-11
SW-12
REACH ST
OWENS ST
WILLARD ST
MAYBERRY ST
WELBORN ST
TEMPLE ST
CAGLE ST
ELMORE ST
RI-SB-31
RI-SB-23
RI-SB-15
RI-SB-14
DA2-SB-7
RI-SB-13
RI-SB-16
RI-SB-32
RI-SB-24
DA2-SB-7A
SA-SB-46
RI-SB-17
RI-SB-20
RI-SB-18
RI-SB-19
DA2-SB-8
DA2-SB-8A
1" = 40'
LEGEND
SURFACE WATER/SEDIMENT SAMPLE LOCATION
SOIL SAMPLE LOCATION
SEDIMENT SAMPLE LOCATION
TOPOGRAPHIC CONTOUR (10' INTERVAL)
TOPOGRAPHIC CONTOUR (2' INTERVAL)
FORMER DRAINAGE DITCH (1964)
SURFACE WATER FLOW DIRECTION
ROAD
SWAMP RABBIT TRAIL
RAILROAD
BUILDING
EXCAVATED AREA (2001-2002)
VAUGHN LANDFILL BOUNDARY
HYDROLOGY
PARCEL BOUNDARY
SITE BOUNDARY
WETLANDS (AES)
WETLANDS (USFWS)
NOTES:
1. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
2. EXCAVATION AREA AND VAUGHN LANDFILL BOUNDARY FROM ERM GROUNDWATER REMEDIAL INVESTIGATION WORK PLAN ADDENDUM, APRIL 13, 2018. THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
3. HISTORICAL DRAINAGE DITCH TRACES OBTAINED FROM THE HISTORICAL AERIAL PHOTO INTERPRETATION REPORT BY EIG (MAY 2020). THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
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7. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
8. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. INSET AERIAL OBTAINED OCTOBER 20, 2020. AERIAL WAS COLLECTED ON MARCH 12, 2018.
9. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83 INTERNATIONAL FEET).
DUKE ENERGY CAROLINAS
synTerra
GRAPHIC SCALE
125 0 125 250
(IN FEET)
DRAWN BY: J. KIRTZ DATE: 05/07/2021
REVISED BY: R. KIEKHAEFER DATE: 07/22/2021
CHECKED BY: L. DRAGO DATE: 07/22/2021
APPROVED BY: T. KING DATE: 07/22/2021
PROJECT MANAGER: T. PLATING
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FIGURE 3-1
SURFACE WATER, SOIL, AND SEDIMENT SAMPLE LOCATIONS
REMEDIAL INVESTIGATION REPORT ADDENDUM
FORMER BRAMLETTE MGP SITE
EAST BRAMLETTE ROAD
GREENVILLE, SOUTH CAROLINA

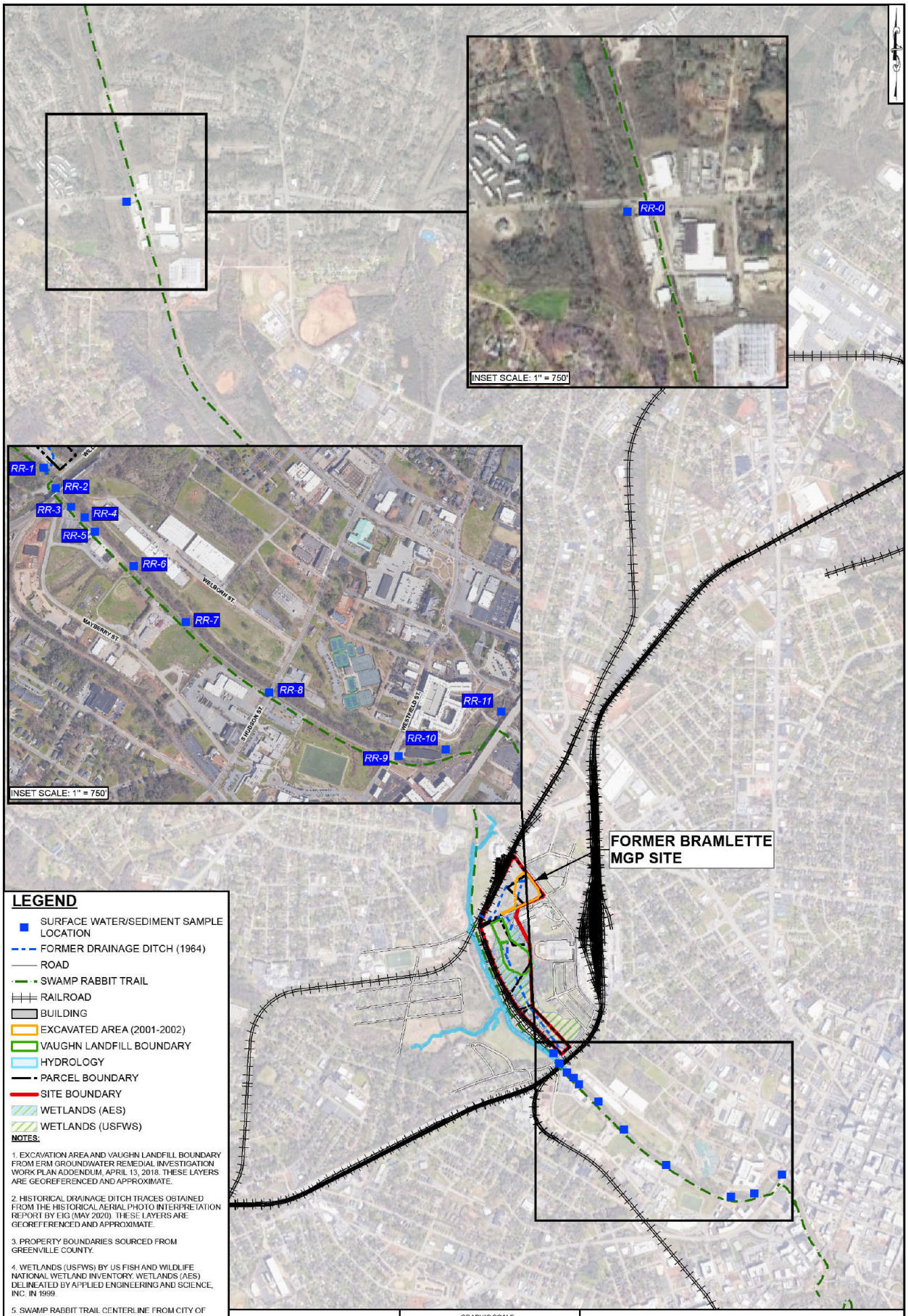
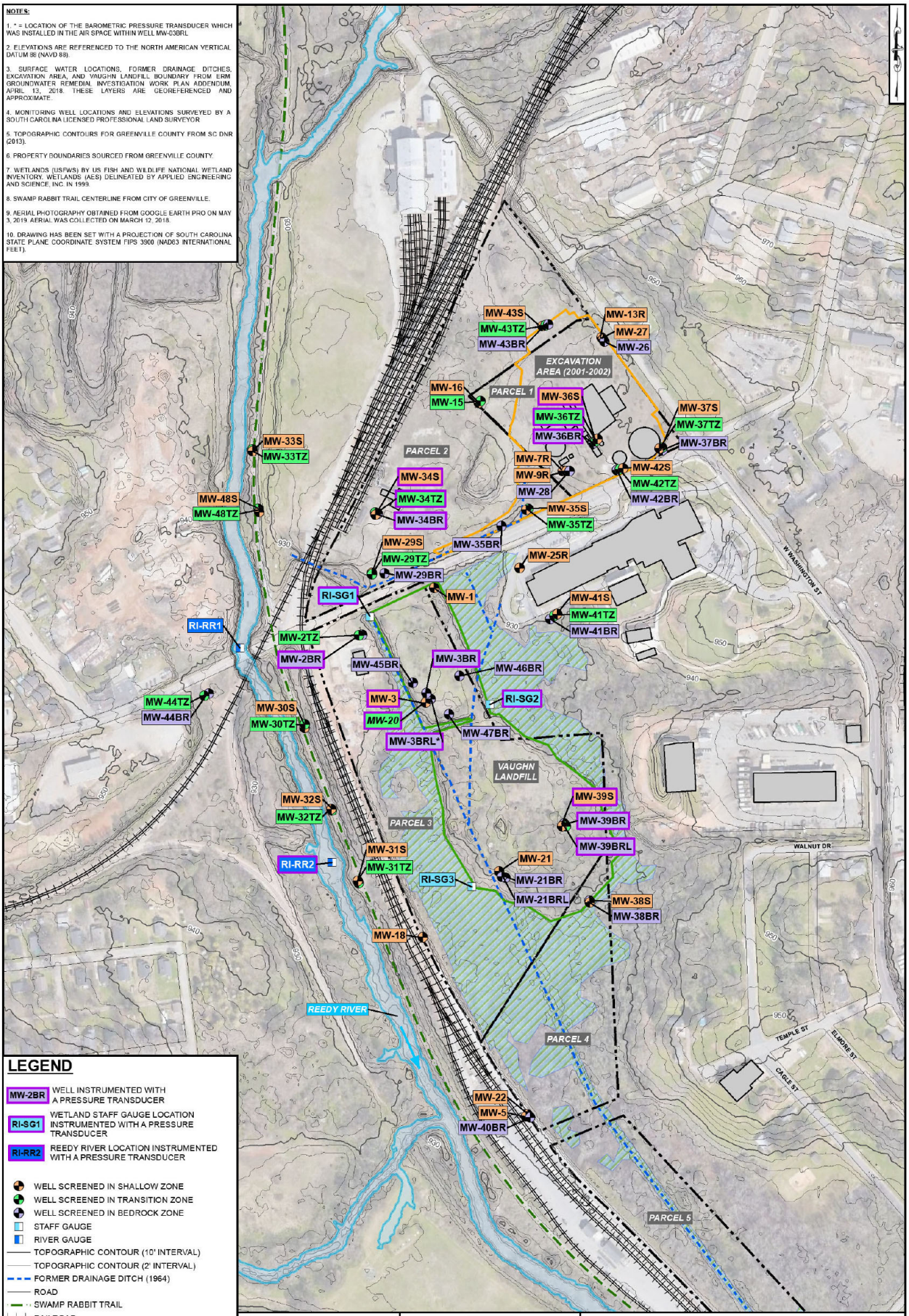



**FIGURE 3-2**
**OFF-SITE REEDY RIVER SAMPLE LOCATIONS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**


NOTES:
1. * = LOCATION OF THE BAROMETRIC PRESSURE TRANSDUCER WHICH WAS INSTALLED IN THE AIR SPACE WITHIN WELL MW-03BRL.
2. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
3. SURFACE WATER LOCATIONS, FORMER DRAINAGE DITCHES, EXCAVATION AREA, AND VAUGHN LANDFILL BOUNDARY FROM ERM GROUNDWATER REMEDIAL INVESTIGATION WORK PLAN ADDENDUM, APRIL 13, 2018. THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
4. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY A SOUTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR
5. TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC DNR (2013).
6. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
7. WETLANDS (USFWS) BY US FISH AND WILDLIFE NATIONAL WETLAND INVENTORY. WETLANDS (AES) DELINEATED BY APPLIED ENGINEERING AND SCIENCE, INC IN 1999.
8. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
9. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. AERIAL WAS COLLECTED ON MARCH 12, 2018.
10. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83 INTERNATIONAL FEET).
MW-43S
MW-43TZ
MW-43BR
MW-13R
MW-27
MW-26
EXCAVATION AREA (2001-2002)
MW-16
MW-15
PARCEL 1
MW-36S
MW-36TZ
MW-36BR
MW-37S
MW-37TZ
MW-37BR
MW-33S
MW-33TZ
PARCEL 2
MW-7R
MW-9R
MW-28
MW-42S
MW-42TZ
MW-42BR
MW-34S
MW-34TZ
MW-34BR
MW-48S
MW-48TZ
MW-35S
MW-35TZ
MW-29S
MW-29TZ
MW-29BR
MW-35BR
MW-25R
W WASHINGTON ST
RI-SG1
MW-1
MW-41S
MW-41TZ
MW-41BR
RI-RR1
MW-2TZ
MW-2BR
MW-45BR
MW-3BR
MW-46BR
MW-44TZ
MW-44BR
MW-30S
MW-30TZ
MW-3
MW-20
MW-3BRL*
RI-SG2
MW-47BR
VAUGHN LANDFILL
MW-32S
MW-32TZ
PARCEL 3
MW-39S
MW-39BR
MW-39BRL
WALNUT DR
MW-31S
MW-31TZ
RI-RR2
MW-21
MW-21BR
MW-21BRL
RI-SG3
MW-38S
MW-38BR
MW-18
REEDY RIVER
PARCEL 4
TEMPLE ST
ELMORE ST
EAGLE ST
MW-22
MW-5
MW-40BR
PARCEL 5
LEGEND
MW-2BR WELL INSTRUMENTED WITH A PRESSURE TRANSDUCER
RI-SG1 WETLAND STAFF GAUGE LOCATION INSTRUMENTED WITH A PRESSURE TRANSDUCER
RI-RR2 REEDY RIVER LOCATION INSTRUMENTED WITH A PRESSURE TRANSDUCER
WELL SCREENED IN SHALLOW ZONE
WELL SCREENED IN TRANSITION ZONE
WELL SCREENED IN BEDROCK ZONE
STAFF GAUGE
RIVER GAUGE
TOPOGRAPHIC CONTOUR (10' INTERVAL)
TOPOGRAPHIC CONTOUR (2' INTERVAL)
FORMER DRAINAGE DITCH (1964)
ROAD
SWAMP RABBIT TRAIL
RAILROAD
BUILDING
EXCAVATED AREA (2001-2002)
VAUGHN LANDFILL BOUNDARY
HYDROLOGY
PARCEL BOUNDARY
WETLANDS (AES)
WETLANDS (USFWS)
DUKE ENERGY. CAROLINAS
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GRAPHIC SCALE
125 0 125 250
(IN FEET)
DRAWN BY: J. EBENHACK DATE: 05/21/2019
REVISED BY: J. EBENHACK DATE: 06/16/2021
CHECKED BY: E. HICKS DATE: 06/16/2021
APPROVED BY: T. PLATING DATE: 06/16/2021
PROJECT MANAGER: T. PLATING
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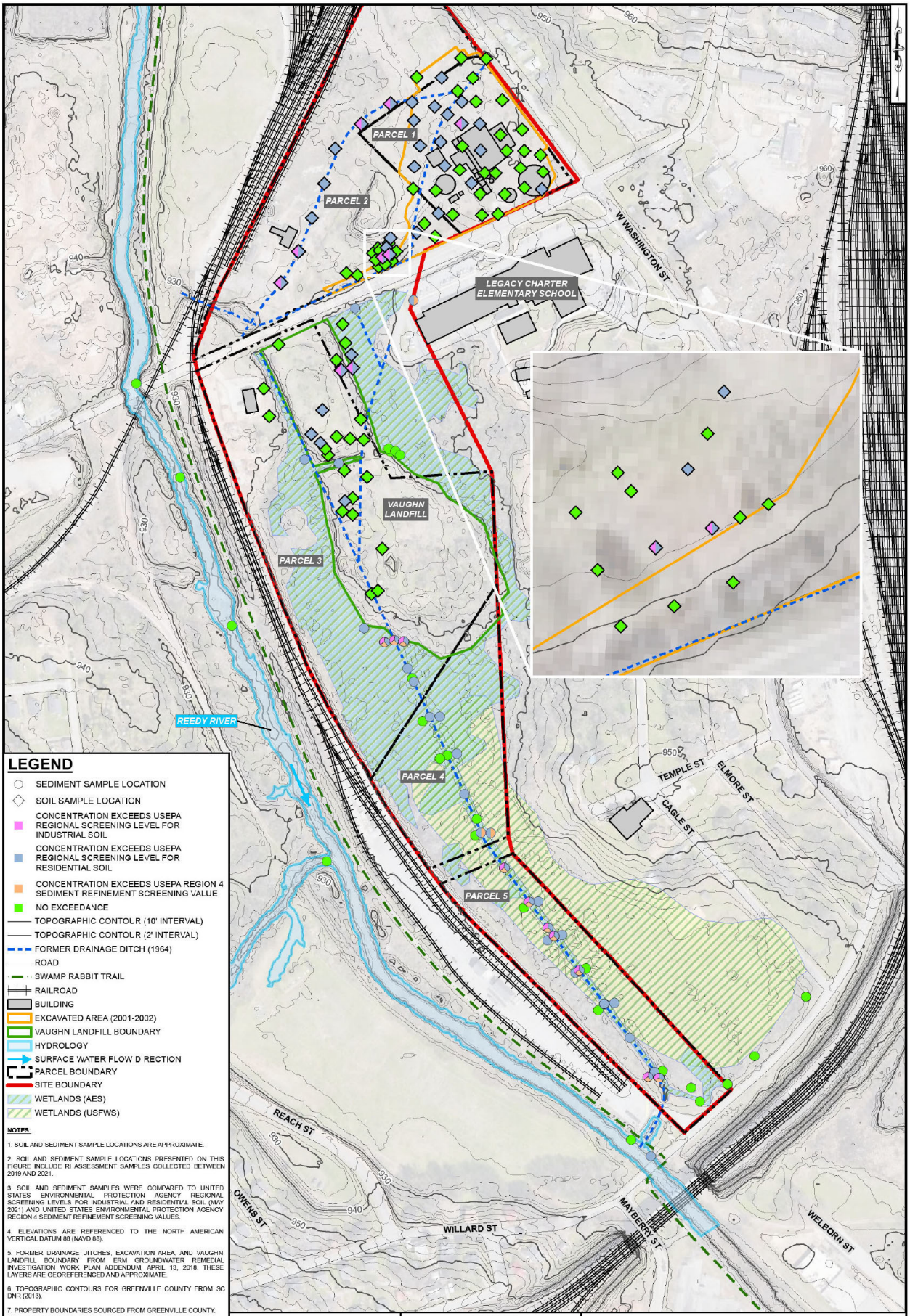
FIGURE 3-3
HYDROGRAPH EVALUATION PRESSURE TRANSDUCER LOCATIONS
REMEDIAL INVESTIGATION REPORT ADDENDUM
FORMER BRAMLETTE MGP SITE
EAST BRAMLETTE ROAD
GREENVILLE, SOUTH CAROLINA


PARCEL 1
PARCEL 2
PARCEL 3
PARCEL 4
PARCEL 5
LEGACY CHARTER ELEMENTARY SCHOOL
VAUGHN LANDFILL
REEDY RIVER
W WASHINGTON ST
TEMPLE ST
ELMORE ST
CAGLE ST
REACH ST
OWENS ST
WILLARD ST
MAYBERRY ST
WELBORN ST
950
960
940
930
920
LEGEND
SEDIMENT SAMPLE LOCATION
SOIL SAMPLE LOCATION
CONCENTRATION EXCEEDS USEPA REGIONAL SCREENING LEVEL FOR INDUSTRIAL SOIL
CONCENTRATION EXCEEDS USEPA REGIONAL SCREENING LEVEL FOR RESIDENTIAL SOIL
CONCENTRATION EXCEEDS USEPA REGION 4 SEDIMENT REFINEMENT SCREENING VALUE
NO EXCEEDANCE
TOPOGRAPHIC CONTOUR (10' INTERVAL)
TOPOGRAPHIC CONTOUR (2' INTERVAL)
FORMER DRAINAGE DITCH (1964)
ROAD
SWAMP RABBIT TRAIL
RAILROAD
BUILDING
EXCAVATED AREA (2001-2002)
VAUGHN LANDFILL BOUNDARY
HYDROLOGY
SURFACE WATER FLOW DIRECTION
PARCEL BOUNDARY
SITE BOUNDARY
WETLANDS (AES)
WETLANDS (USFWS)
NOTES:
1. SOIL AND SEDIMENT SAMPLE LOCATIONS ARE APPROXIMATE.
2. SOIL AND SEDIMENT SAMPLE LOCATIONS PRESENTED ON THIS FIGURE INCLUDE RI ASSESSMENT SAMPLES COLLECTED BETWEEN 2019 AND 2021.
3. SOIL AND SEDIMENT SAMPLES WERE COMPARED TO UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGIONAL SCREENING LEVELS FOR INDUSTRIAL AND RESIDENTIAL SOIL (MAY 2021) AND UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 4 SEDIMENT REFINEMENT SCREENING VALUES.
4. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
5. FORMER DRAINAGE DITCHES, EXCAVATION AREA, AND VAUGHN LANDFILL BOUNDARY FROM ERM GROUNDWATER REMEDIAL INVESTIGATION WORK PLAN ADDENDUM, APRIL 13, 2018. THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
6. TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC DNR (2013).
7. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
8. WETLANDS (USFWS) BY US FISH AND WILDLIFE NATIONAL WETLAND INVENTORY. WETLANDS (AES) DELINEATED BY APPLIED ENGINEERING AND SCIENCE, INC. IN 1999.
9. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
10. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. INSET AERIAL OBTAINED OCTOBER 20, 2020. AERIAL WAS COLLECTED ON MARCH 12, 2018.
11. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83 INTERNATIONAL FEET).
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125 0 125 250
(IN FEET)
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CHECKED BY: L. DRAGO DATE: 06/25/2021
APPROVED BY: M. FLINCHUM DATE: 06/25/2021
PROJECT MANAGER: T. PLATING
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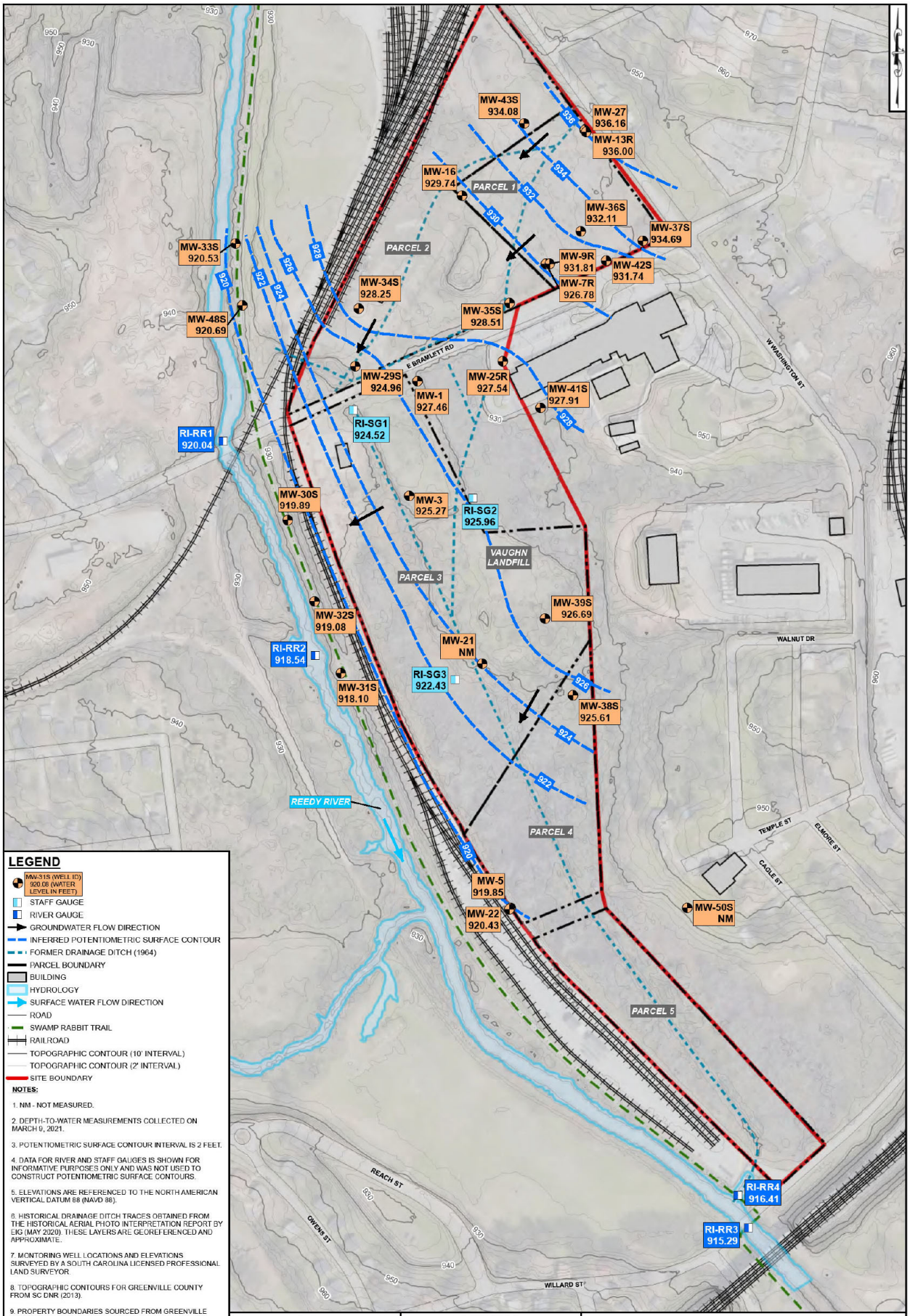
FIGURE 4-1
SOIL AND SEDIMENT RESULTS SUMMARY
REMEDIAL INVESTIGATION REPORT ADDENDUM
FORMER BRAMLETTE MGP SITE
EAST BRAMLETTE ROAD
GREENVILLE, SOUTH CAROLINA




## LEGEND

- MW-31S (WELL ID) 920.08 (WATER LEVEL IN FEET)
- STAFF GAUGE
- RIVER GAUGE
- GROUNDWATER FLOW DIRECTION
- INFERRED POTENTIOMETRIC SURFACE CONTOUR
- FORMER DRAINAGE DITCH (1964)
- PARCEL BOUNDARY
- BUILDING
- HYDROLOGY
- SURFACE WATER FLOW DIRECTION
- ROAD
- SWAMP RABBIT TRAIL
- RAILROAD
- TOPOGRAPHIC CONTOUR (10' INTERVAL)
- TOPOGRAPHIC CONTOUR (2' INTERVAL)
- SITE BOUNDARY

**NOTES:**

1. NM - NOT MEASURED.
2. DEPTH-TO-WATER MEASUREMENTS COLLECTED ON MARCH 9, 2021.
3. POTENTIOMETRIC SURFACE CONTOUR INTERVAL IS 2 FEET.
4. DATA FOR RIVER AND STAFF GAUGES IS SHOWN FOR INFORMATIVE PURPOSES ONLY AND WAS NOT USED TO CONSTRUCT POTENTIOMETRIC SURFACE CONTOURS.
5. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
6. HISTORICAL DRAINAGE DITCH TRACES OBTAINED FROM THE HISTORICAL AERIAL PHOTO INTERPRETATION REPORT BY EIG (MAY 2020). THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
7. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY A SOUTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR.
8. TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC DNR (2013).
9. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
10. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
11. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. AERIAL WAS COLLECTED ON MARCH 12, 2018.
12. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83 INTERNATIONAL FEET).

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GRAPHIC SCALE
125 0 125 250
(IN FEET)

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|---|---|
| DRAWN BY: J. KIRTZ | DATE: 05/07/2021 |
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| CHECKED BY: L. DRAGO | DATE: 07/27/2021 |
| APPROVED BY: T. KING | DATE: 07/27/2021 |
| PROJECT MANAGER: T. PLATING | |

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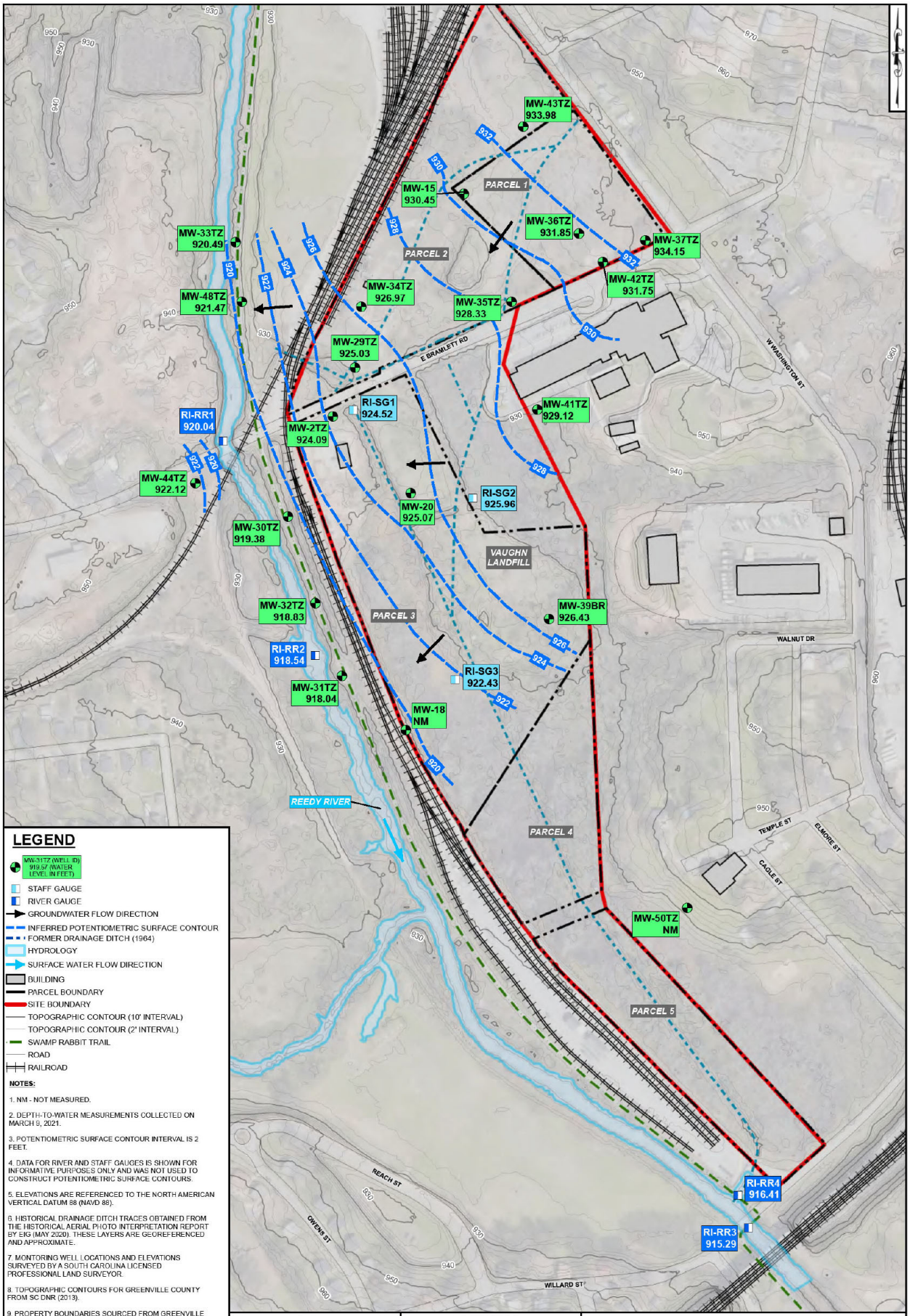
**FIGURE 4-2**
**POTENTIOMETRIC SURFACE MAP - SHALLOW ZONE**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**




## LEGEND

MW-31TZ (WELL ID) 919.97 (WATER LEVEL IN FEET)

- STAFF GAUGE
- RIVER GAUGE
- GROUNDWATER FLOW DIRECTION
- INFERRED POTENTIOMETRIC SURFACE CONTOUR
- FORMER DRAINAGE DITCH (1964)
- HYDROLOGY
- SURFACE WATER FLOW DIRECTION
- BUILDING
- PARCEL BOUNDARY
- SITE BOUNDARY
- TOPOGRAPHIC CONTOUR (10' INTERVAL)
- TOPOGRAPHIC CONTOUR (2' INTERVAL)
- SWAMP RABBIT TRAIL
- ROAD
- RAILROAD

**NOTES:**

1. NM - NOT MEASURED.
2. DEPTH-TO-WATER MEASUREMENTS COLLECTED ON MARCH 9, 2021.
3. POTENTIOMETRIC SURFACE CONTOUR INTERVAL IS 2 FEET.
4. DATA FOR RIVER AND STAFF GAUGES IS SHOWN FOR INFORMATIVE PURPOSES ONLY AND WAS NOT USED TO CONSTRUCT POTENTIOMETRIC SURFACE CONTOURS.
5. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
6. HISTORICAL DRAINAGE DITCH TRACES OBTAINED FROM THE HISTORICAL AERIAL PHOTO INTERPRETATION REPORT BY EIG (MAY 2020). THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
7. MONTORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY A SOUTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR.
8. TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC DNR (2013).
9. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
10. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
11. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. AERIAL WAS COLLECTED ON MARCH 12, 2018.
12. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83 INTERNATIONAL FEET).

DUKE ENERGY CAROLINAS

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GRAPHIC SCALE
125 0 125 250
(IN FEET)

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| DRAWN BY: J. KIRTZ | DATE: 05/07/2021 |
| REVISED BY: R. KIEKHAEFER | DATE: 07/27/2021 |
| CHECKED BY: L. DRAGO | DATE: 07/27/2021 |
| APPROVED BY: T. KING | DATE: 07/27/2021 |
| PROJECT MANAGER: T. PLATING | |

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**FIGURE 4-3**
**POTENTIOMETRIC SURFACE MAP - TRANSITION ZONE**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**

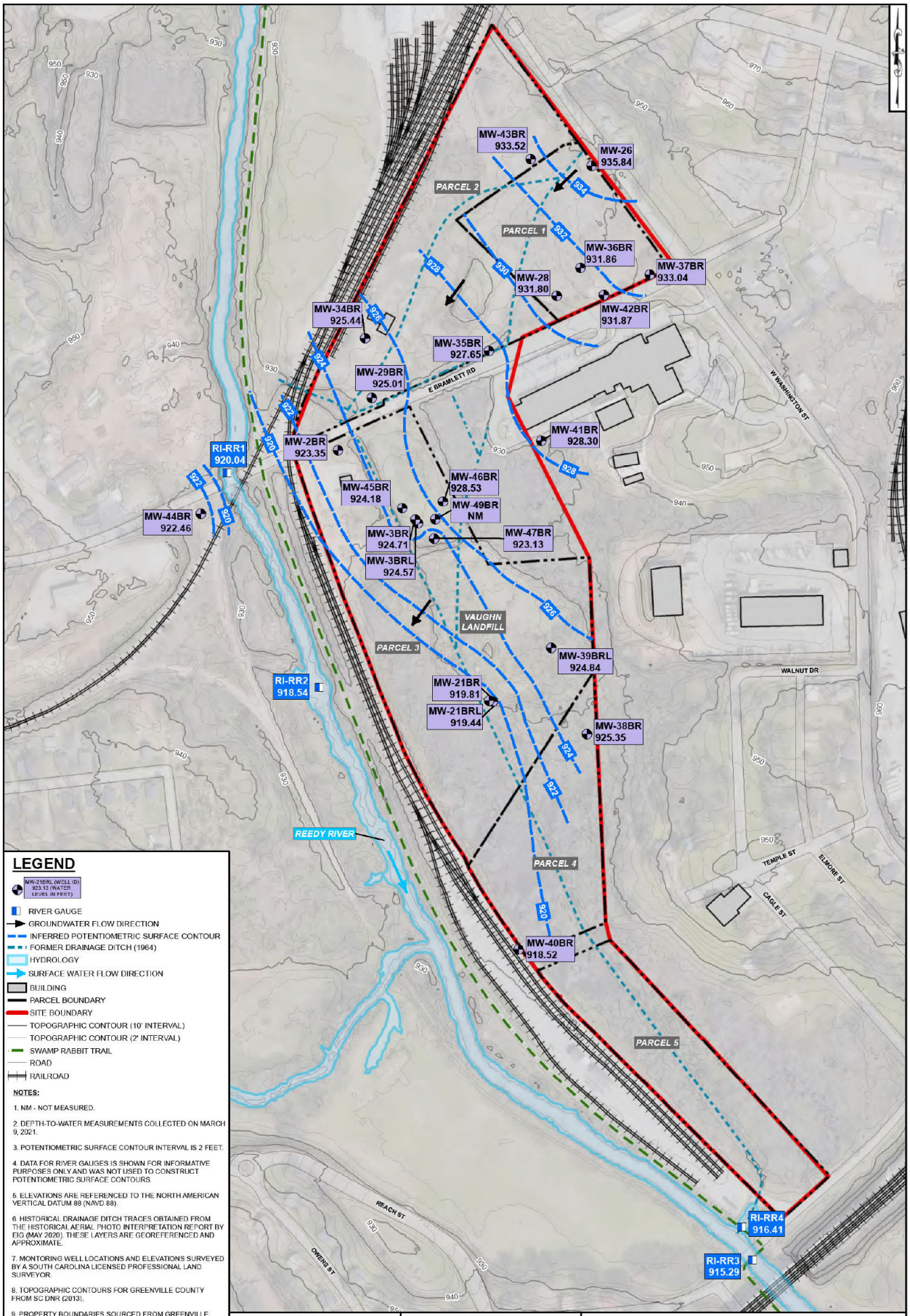
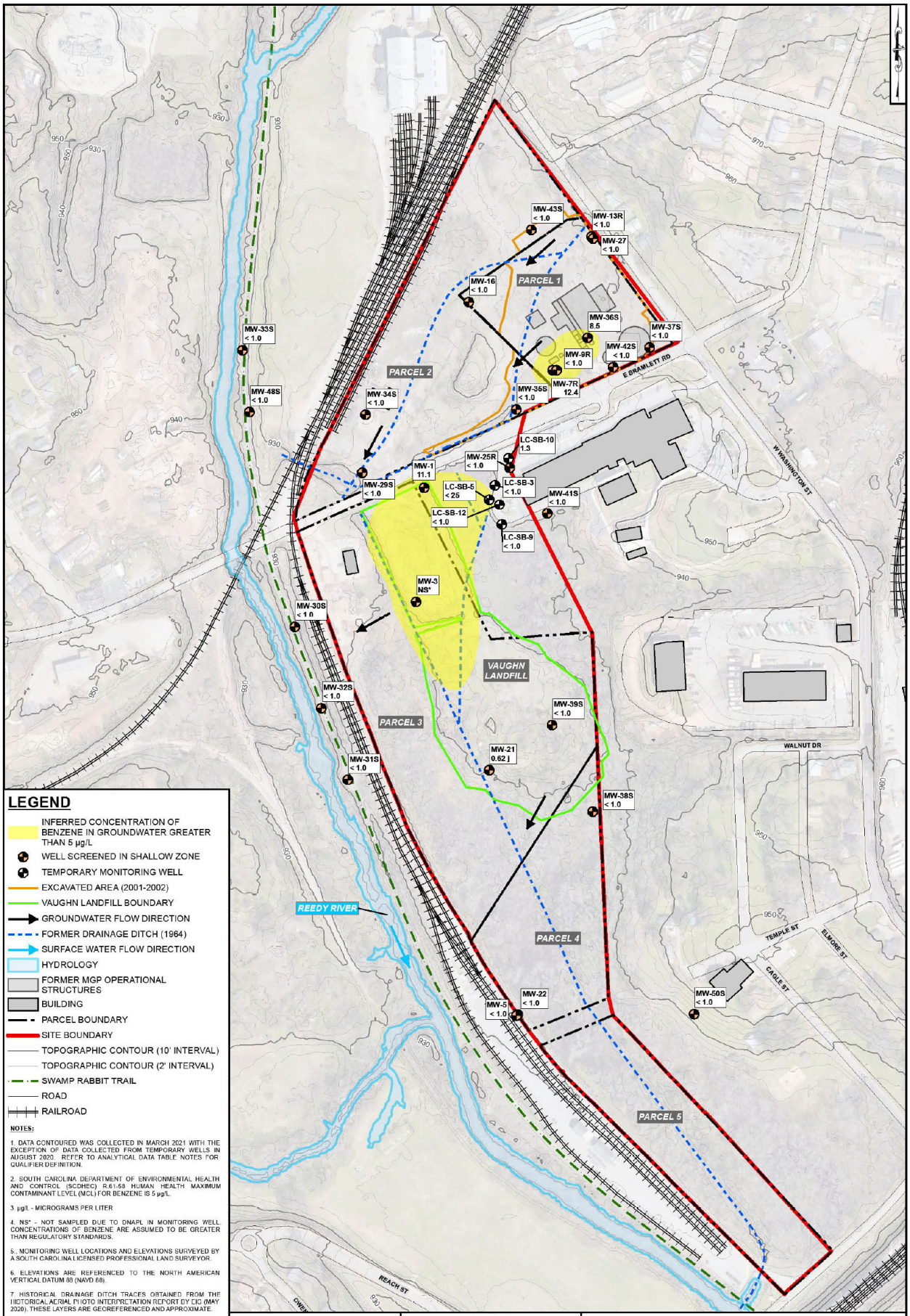



**FIGURE 4-4**
**POTENTIOMETRIC SURFACE MAP - BEDROCK ZONE**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**




## LEGEND

- INFERRED CONCENTRATION OF BENZENE IN GROUNDWATER GREATER THAN 5 µg/L
- WELL SCREENED IN SHALLOW ZONE
- TEMPORARY MONITORING WELL
- EXCAVATED AREA (2001-2002)
- VAUGHN LANDFILL BOUNDARY
- GROUNDWATER FLOW DIRECTION
- FORMER DRAINAGE DITCH (1964)
- SURFACE WATER FLOW DIRECTION
- HYDROLOGY
- FORMER MGP OPERATIONAL STRUCTURES
- BUILDING
- PARCEL BOUNDARY
- SITE BOUNDARY
- TOPOGRAPHIC CONTOUR (10' INTERVAL)
- TOPOGRAPHIC CONTOUR (2' INTERVAL)
- SWAMP RABBIT TRAIL
- ROAD
- RAILROAD

**NOTES:**

1. DATA CONTOURED WAS COLLECTED IN MARCH 2021 WITH THE EXCEPTION OF DATA COLLECTED FROM TEMPORARY WELLS IN AUGUST 2020. REFER TO ANALYTICAL DATA TABLE NOTES FOR QUALIFIER DEFINITION.
2. SOUTH CAROLINA DEPARTMENT OF ENVIRONMENTAL HEALTH AND CONTROL (SCDHEC) R.61-58 HUMAN HEALTH MAXIMUM CONTAMINANT LEVEL (MCL) FOR BENZENE IS 5 µg/L.
3. µg/L - MICROGRAMS PER LITER
4. NS* - NOT SAMPLED DUE TO DNAPL IN MONITORING WELL. CONCENTRATIONS OF BENZENE ARE ASSUMED TO BE GREATER THAN REGULATORY STANDARDS.
5. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY A SOUTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR.
6. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
7. HISTORICAL DRAINAGE DITCH TRACES OBTAINED FROM THE HISTORICAL AERIAL PHOTO INTERPRETATION REPORT BY EIC (MAY 2020). THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
8. TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC DNR (2013).
9. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
10. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
11. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. AERIAL WAS COLLECTED ON MARCH 12, 2018.
12. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83 INTERNATIONAL FEET).

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125 0 125 250
(IN FEET)

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| APPROVED BY: L. DRAGO | DATE: 07/29/2021 |
| PROJECT MANAGER: T. PLATING | |

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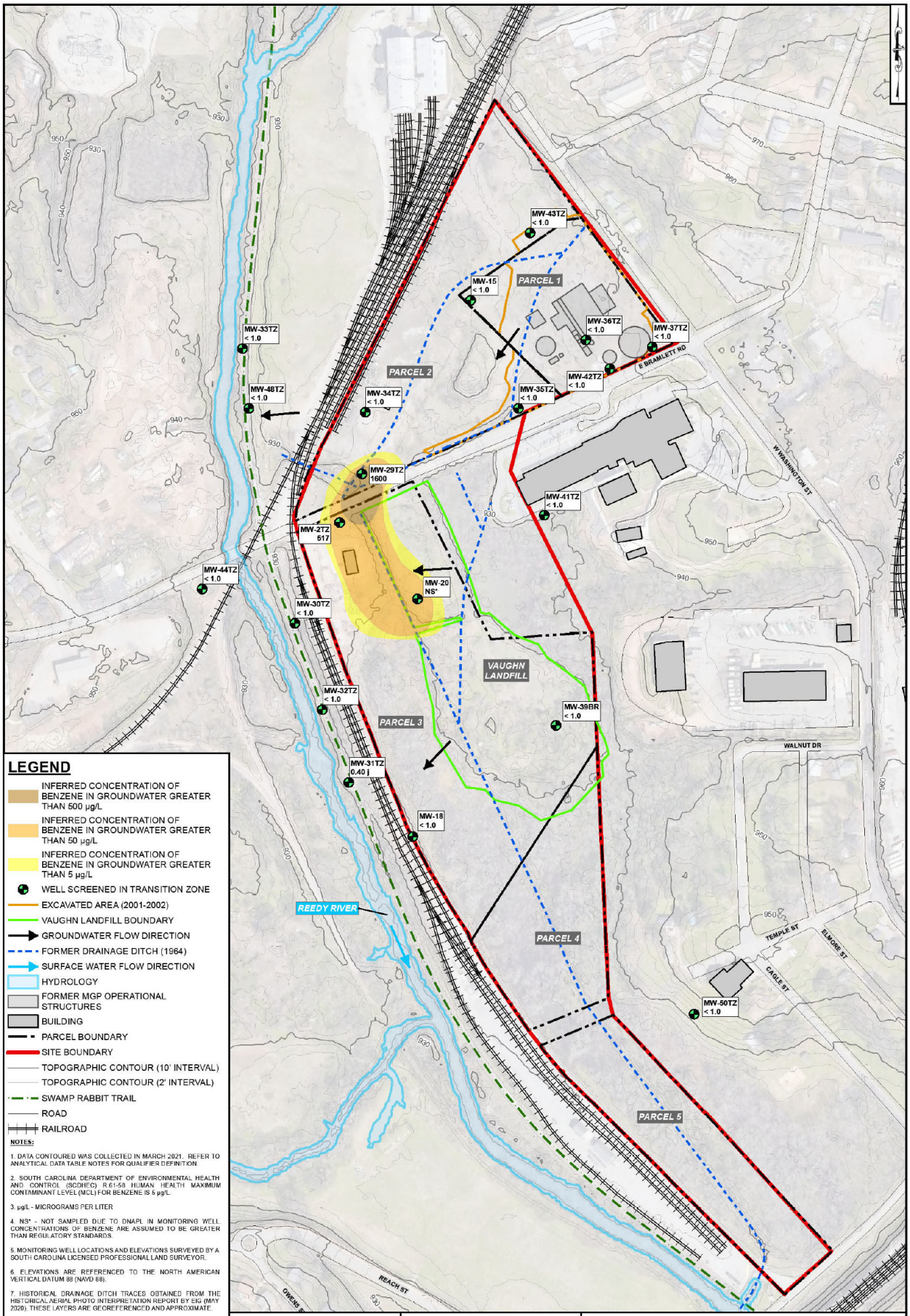
**FIGURE 4-5**
**ISOCONCENTRATION MAP**
**BENZENE IN SHALLOW FLOW ZONE**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**




## LEGEND

- INFERRED CONCENTRATION OF BENZENE IN GROUNDWATER GREATER THAN 500 µg/L
- INFERRED CONCENTRATION OF BENZENE IN GROUNDWATER GREATER THAN 50 µg/L
- INFERRED CONCENTRATION OF BENZENE IN GROUNDWATER GREATER THAN 5 µg/L
- WELL SCREENED IN TRANSITION ZONE
- EXCAVATED AREA (2001-2002)
- VAUGHN LANDFILL BOUNDARY
- GROUNDWATER FLOW DIRECTION
- FORMER DRAINAGE DITCH (1964)
- SURFACE WATER FLOW DIRECTION
- HYDROLOGY
- FORMER MGP OPERATIONAL STRUCTURES
- BUILDING
- PARCEL BOUNDARY
- SITE BOUNDARY
- TOPOGRAPHIC CONTOUR (10' INTERVAL)
- TOPOGRAPHIC CONTOUR (2' INTERVAL)
- SWAMP RABBIT TRAIL
- ROAD
- RAILROAD

**NOTES:**

1. DATA CONTOURED WAS COLLECTED IN MARCH 2021. REFER TO ANALYTICAL DATA TABLE NOTES FOR QUALIFIER DEFINITION.
2. SOUTH CAROLINA DEPARTMENT OF ENVIRONMENTAL HEALTH AND CONTROL (SCDHEC) R.61-58 HUMAN HEALTH MAXIMUM CONTAMINANT LEVEL (MCL) FOR BENZENE IS 5 µg/L.
3. µg/L - MICROGRAMS PER LITER
4. NS* - NOT SAMPLED DUE TO DNAPL IN MONITORING WELL. CONCENTRATIONS OF BENZENE ARE ASSUMED TO BE GREATER THAN REGULATORY STANDARDS.
5. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY A SOUTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR.
6. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
7. HISTORICAL DRAINAGE DITCH TRACES OBTAINED FROM THE HISTORICAL AERIAL PHOTO INTERPRETATION REPORT BY EIG (MAY 2020). THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
8. TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC DNR (2013).
9. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
10. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
11. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. AERIAL WAS COLLECTED ON MARCH 12, 2018.
12. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83 INTERNATIONAL FEET).

DUKE ENERGY CAROLINAS

synterra

GRAPHIC SCALE
125 0 125 250
(IN FEET)

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| DRAWN BY: R. KIEKHAEFER | DATE: 04/23/2021 |
| REVISED BY: C. WYATT | DATE: 07/29/2021 |
| CHECKED BY: T. KING | DATE: 07/29/2021 |
| APPROVED BY: L. DRAGO | DATE: 07/29/2021 |
| PROJECT MANAGER: T. PLATING | |

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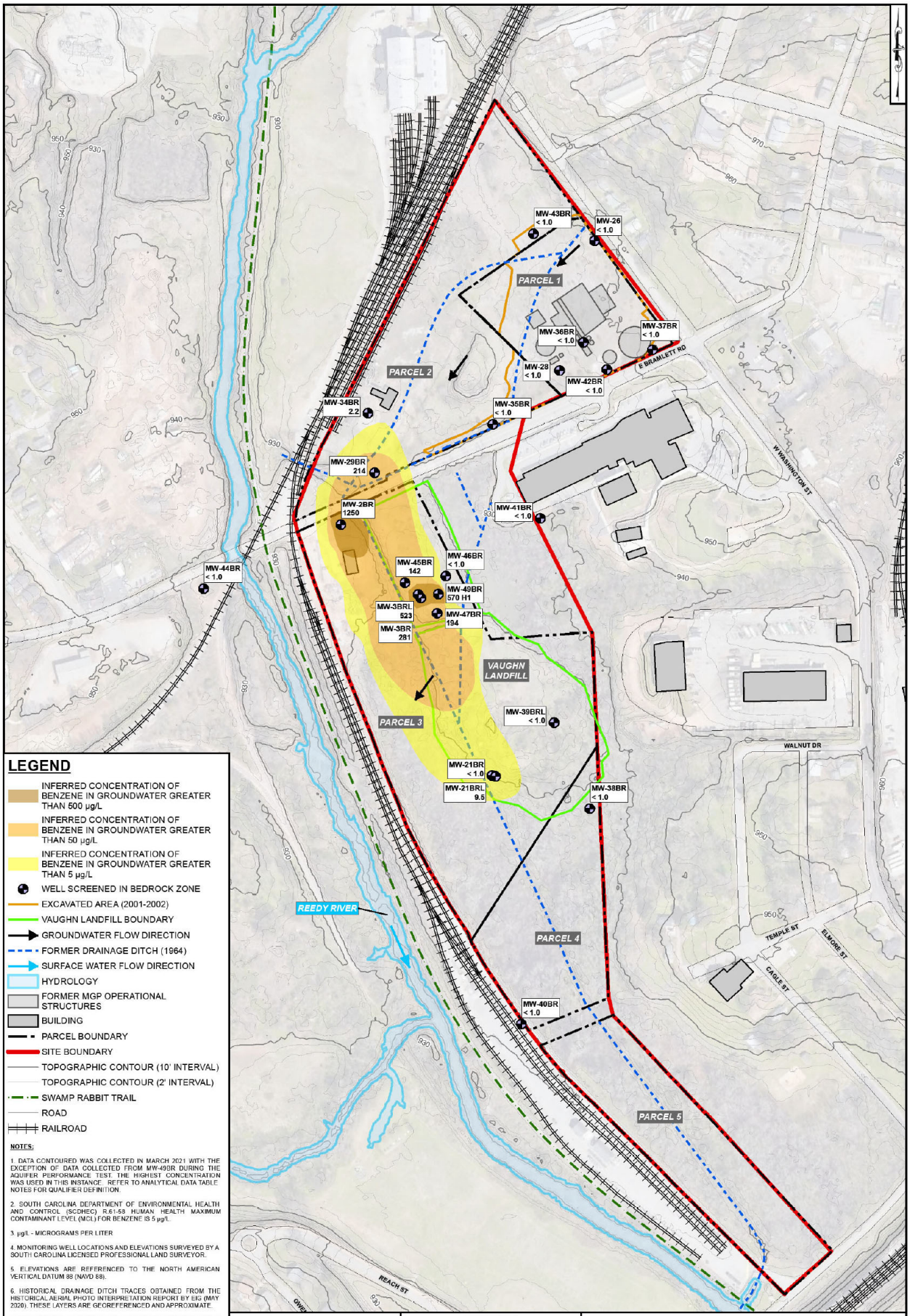
**FIGURE 4-6**
**ISOCONCENTRATION MAP**
**BENZENE IN TRANSITION FLOW ZONE**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**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< 1.0
MW-26
< 1.0
PARCEL 1
MW-37BR
< 1.0
MW-36BR
< 1.0
E BRAMLETT RD
PARCEL 2
MW-28
< 1.0
MW-42BR
< 1.0
MW-34BR
2.2
MW-35BR
< 1.0
MW-29BR
214
W WASHINGTON ST
MW-2BR
1250
MW-41BR
< 1.0
MW-44BR
< 1.0
MW-45BR
142
MW-46BR
< 1.0
MW-49BR
570 H1
MW-3BRL
523
MW-47BR
194
MW-3BR
281
VAUGHN
LANDFILL
MW-39BRL
< 1.0
PARCEL 3
WALNUT DR
MW-21BR
< 1.0
MW-21BRL
9.5
MW-38BR
< 1.0
REEDY RIVER
PARCEL 4
TEMPLE ST
ELMORE ST
EAGLE ST
MW-40BR
< 1.0
PARCEL 5
REACH ST
LEGEND
INFERRED CONCENTRATION OF BENZENE IN GROUNDWATER GREATER THAN 500 µg/L
INFERRED CONCENTRATION OF BENZENE IN GROUNDWATER GREATER THAN 50 µg/L
INFERRED CONCENTRATION OF BENZENE IN GROUNDWATER GREATER THAN 5 µg/L
WELL SCREENED IN BEDROCK ZONE
EXCAVATED AREA (2001-2002)
VAUGHN LANDFILL BOUNDARY
GROUNDWATER FLOW DIRECTION
FORMER DRAINAGE DITCH (1964)
SURFACE WATER FLOW DIRECTION
HYDROLOGY
FORMER MGP OPERATIONAL STRUCTURES
BUILDING
PARCEL BOUNDARY
SITE BOUNDARY
TOPOGRAPHIC CONTOUR (10' INTERVAL)
TOPOGRAPHIC CONTOUR (2' INTERVAL)
SWAMP RABBIT TRAIL
ROAD
RAILROAD
NOTES:
1. DATA CONTOURED WAS COLLECTED IN MARCH 2021 WITH THE EXCEPTION OF DATA COLLECTED FROM MW-49BR DURING THE AQUIFER PERFORMANCE TEST. THE HIGHEST CONCENTRATION WAS USED IN THIS INSTANCE. REFER TO ANALYTICAL DATA TABLE NOTES FOR QUALIFIER DEFINITION.
2. SOUTH CAROLINA DEPARTMENT OF ENVIRONMENTAL HEALTH AND CONTROL (SCDHEC) R.61-58 HUMAN HEALTH MAXIMUM CONTAMINANT LEVEL (MCL) FOR BENZENE IS 5 µg/L.
3. µg/L - MICROGRAMS PER LITER
4. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY A SOUTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR.
5. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
6. HISTORICAL DRAINAGE DITCH TRACES OBTAINED FROM THE HISTORICAL AERIAL PHOTO INTERPRETATION REPORT BY EIG (MAY 2020). THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
7. TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC DNR (2013).
8. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
9. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
10. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. AERIAL WAS COLLECTED ON MARCH 12, 2018.
11. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83 INTERNATIONAL FEET).
DUKE ENERGY CAROLINAS
synTerra
GRAPHIC SCALE
125 0 125 250
(IN FEET)
DRAWN BY: R. KIEKHAEFER DATE: 04/23/2021
REVISED BY: C. WYATT DATE: 07/29/2021
CHECKED BY: T. KING DATE: 07/29/2021
APPROVED BY: L. DRAGO DATE: 07/29/2021
PROJECT MANAGER: T. PLATING
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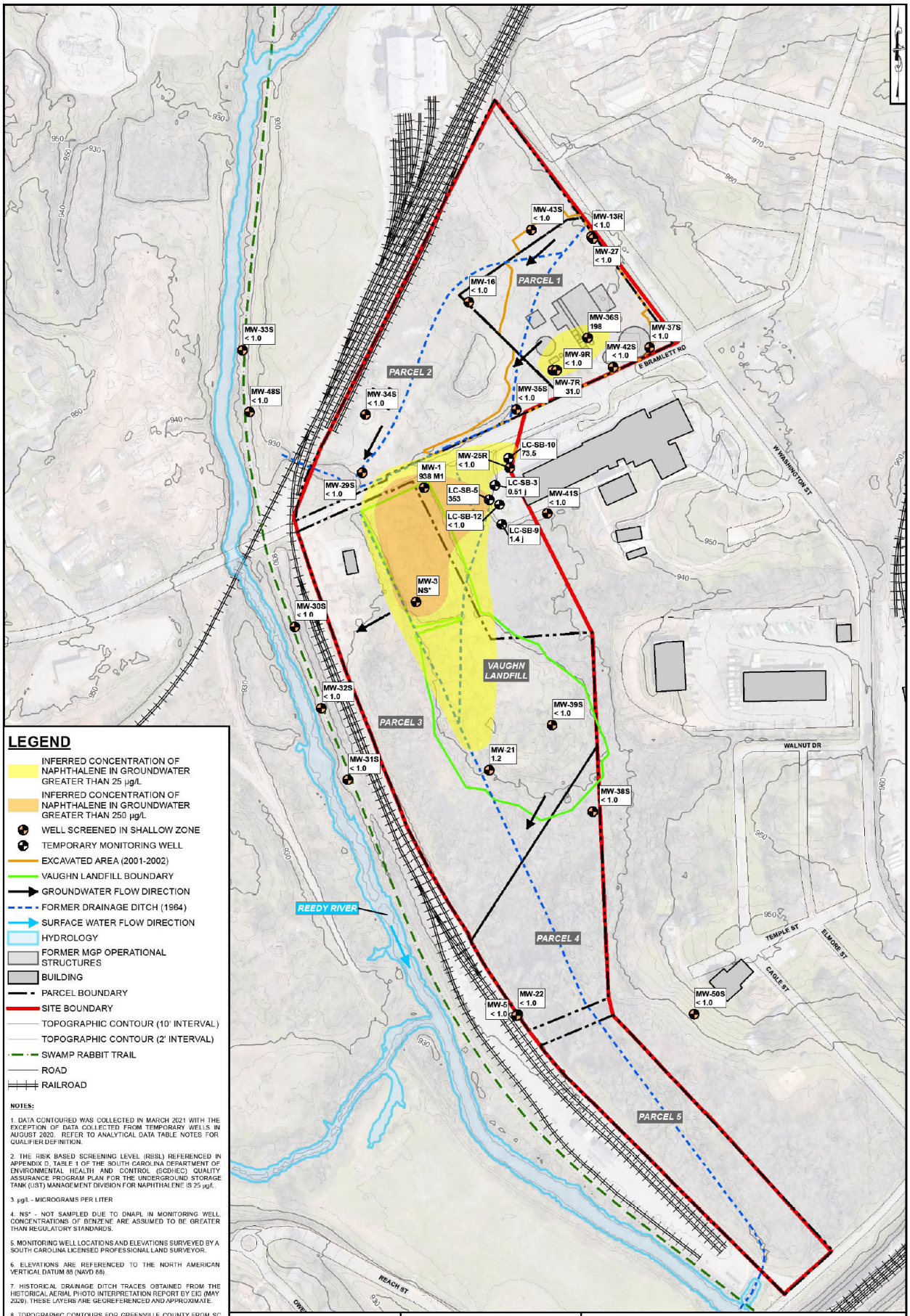
FIGURE 4-7
ISOCONCENTRATION MAP
BENZENE IN BEDROCK FLOW ZONE
REMEDIAL INVESTIGATION REPORT ADDENDUM
FORMER BRAMLETTE MGP SITE
EAST BRAMLETTE ROAD
GREENVILLE, SOUTH CAROLINA




## LEGEND

- INFERRED CONCENTRATION OF NAPHTHALENE IN GROUNDWATER GREATER THAN 25 µg/L
- INFERRED CONCENTRATION OF NAPHTHALENE IN GROUNDWATER GREATER THAN 250 µg/L
- WELL SCREENED IN SHALLOW ZONE
- TEMPORARY MONITORING WELL
- EXCAVATED AREA (2001-2002)
- VAUGHN LANDFILL BOUNDARY
- GROUNDWATER FLOW DIRECTION
- FORMER DRAINAGE DITCH (1964)
- SURFACE WATER FLOW DIRECTION
- HYDROLOGY
- FORMER MGP OPERATIONAL STRUCTURES
- BUILDING
- PARCEL BOUNDARY
- SITE BOUNDARY
- TOPOGRAPHIC CONTOUR (10' INTERVAL)
- TOPOGRAPHIC CONTOUR (2' INTERVAL)
- SWAMP RABBIT TRAIL
- ROAD
- RAILROAD

**NOTES:**

1. DATA CONTOURED WAS COLLECTED IN MARCH 2021 WITH THE EXCEPTION OF DATA COLLECTED FROM TEMPORARY WELLS IN AUGUST 2020. REFER TO ANALYTICAL DATA TABLE NOTES FOR QUALIFIER DEFINITION.
2. THE RISK BASED SCREENING LEVEL (RBSL) REFERENCED IN APPENDIX D, TABLE 1 OF THE SOUTH CAROLINA DEPARTMENT OF ENVIRONMENTAL HEALTH AND CONTROL (SCDHEC) QUALITY ASSURANCE PROGRAM PLAN FOR THE UNDERGROUND STORAGE TANK (UST) MANAGEMENT DIVISION FOR NAPHTHALENE IS 25 µg/L.
3. µg/L - MICROGRAMS PER LITER
4. NS* - NOT SAMPLED DUE TO DNAPL IN MONITORING WELL. CONCENTRATIONS OF BENZENE ARE ASSUMED TO BE GREATER THAN REGULATORY STANDARDS.
5. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY A SOUTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR.
6. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
7. HISTORICAL DRAINAGE DITCH TRACES OBTAINED FROM THE HISTORICAL AERIAL PHOTO INTERPRETATION REPORT BY CEC (MAY 2020). THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
8. TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC DNR (2013).
9. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
10. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
11. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. AERIAL WAS COLLECTED ON MARCH 12, 2018.
12. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83 INTERNATIONAL FEET).

DUKE ENERGY CAROLINAS

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GRAPHIC SCALE
125 0 125 250
(IN FEET)

| | |
|---|---|
| DRAWN BY: R. KIEKHAEFER | DATE: 04/23/2021 |
| REVISED BY: C. WYATT | DATE: 07/29/2021 |
| CHECKED BY: T. KING | DATE: 07/29/2021 |
| APPROVED BY: L. DRAGO | DATE: 07/29/2021 |
| PROJECT MANAGER: T. PLATING | |

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**FIGURE 4-8**
**ISOCONCENTRATION MAP**
**NAPHTHALENE IN SHALLOW FLOW ZONE**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**

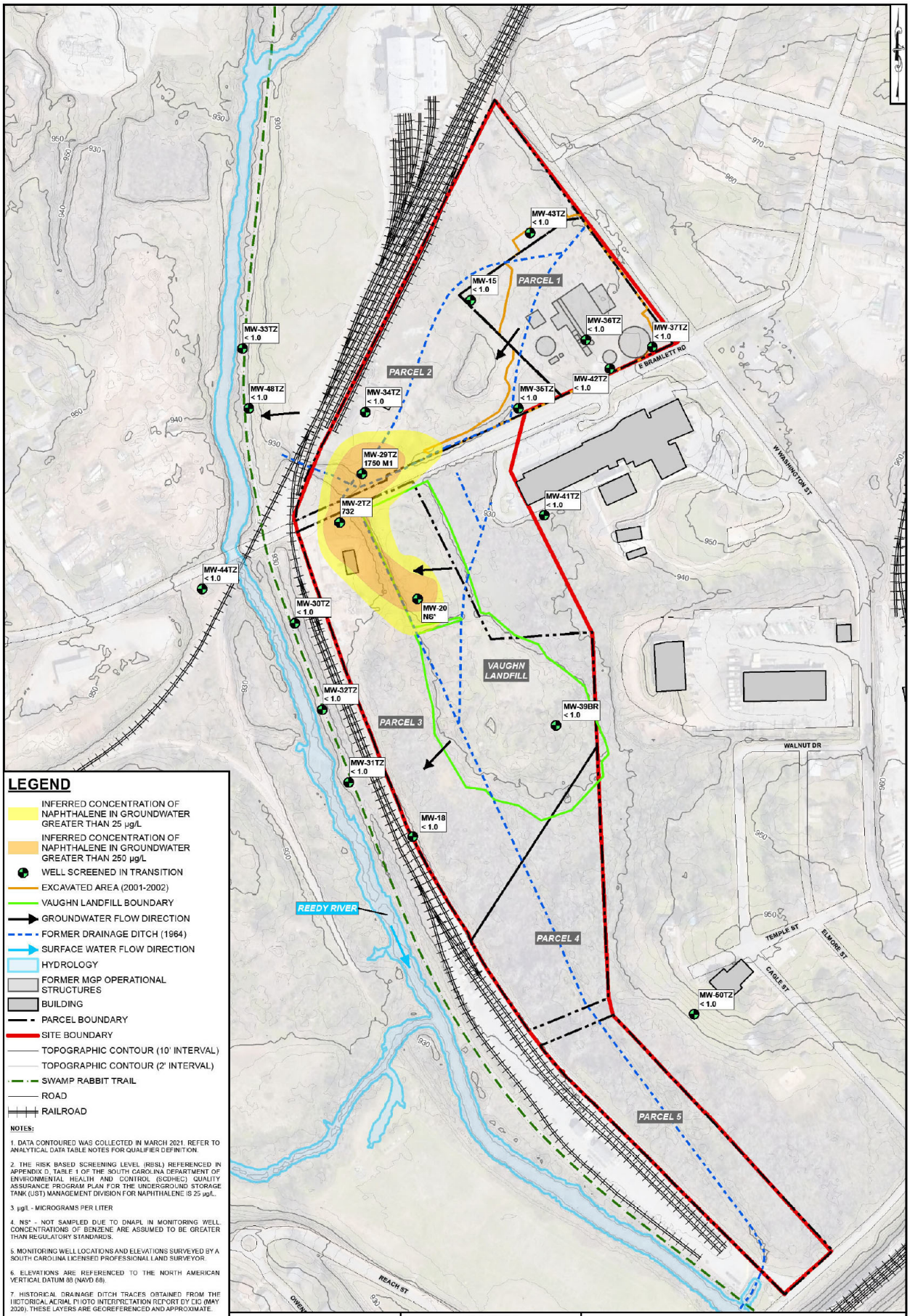
MW-43TZ
< 1.0
MW-15
< 1.0
PARCEL 1
MW-36TZ
< 1.0
MW-37TZ
< 1.0
E BRAMLETT RD
MW-33TZ
< 1.0
PARCEL 2
MW-48TZ
< 1.0
MW-34TZ
< 1.0
MW-42TZ
< 1.0
MW-35TZ
< 1.0
MW-29TZ
1750 M1
MW-2TZ
732
MW-41TZ
< 1.0
W WASHINGTON ST
MW-44TZ
< 1.0
MW-30TZ
< 1.0
MW-20
NS*
VAUGHN
LANDFILL
MW-32TZ
< 1.0
MW-39BR
< 1.0
PARCEL 3
WALNUT DR
MW-31TZ
< 1.0
MW-18
< 1.0
REEDY RIVER
PARCEL 4
TEMPLE ST
ELMORE ST
CAGLE ST
MW-50TZ
< 1.0
PARCEL 5
REACH ST
OWEN
LEGEND
INFERRED CONCENTRATION OF NAPHTHALENE IN GROUNDWATER GREATER THAN 25 µg/L
INFERRED CONCENTRATION OF NAPHTHALENE IN GROUNDWATER GREATER THAN 250 µg/L
WELL SCREENED IN TRANSITION
EXCAVATED AREA (2001-2002)
VAUGHN LANDFILL BOUNDARY
GROUNDWATER FLOW DIRECTION
FORMER DRAINAGE DITCH (1964)
SURFACE WATER FLOW DIRECTION
HYDROLOGY
FORMER MGP OPERATIONAL STRUCTURES
BUILDING
PARCEL BOUNDARY
SITE BOUNDARY
TOPOGRAPHIC CONTOUR (10' INTERVAL)
TOPOGRAPHIC CONTOUR (2' INTERVAL)
SWAMP RABBIT TRAIL
ROAD
RAILROAD
NOTES:
1. DATA CONTOURED WAS COLLECTED IN MARCH 2021. REFER TO ANALYTICAL DATA TABLE NOTES FOR QUALIFIER DEFINITION.
2. THE RISK BASED SCREENING LEVEL (RBSL) REFERENCED IN APPENDIX D, TABLE 1 OF THE SOUTH CAROLINA DEPARTMENT OF ENVIRONMENTAL HEALTH AND CONTROL (SCDHEC) QUALITY ASSURANCE PROGRAM PLAN FOR THE UNDERGROUND STORAGE TANK (UST) MANAGEMENT DIVISION FOR NAPHTHALENE IS 25 µg/L.
3. µg/L - MICROGRAMS PER LITER
4. NS* - NOT SAMPLED DUE TO DNAPL IN MONITORING WELL. CONCENTRATIONS OF BENZENE ARE ASSUMED TO BE GREATER THAN REGULATORY STANDARDS.
5. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY A SOUTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR.
6. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
7. HISTORICAL DRAINAGE DITCH TRACES OBTAINED FROM THE HISTORICAL AERIAL PHOTO INTERPRETATION REPORT BY EIC (MAY 2020). THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
8. TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC DNR (2013).
9. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
10. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
11. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. AERIAL WAS COLLECTED ON MARCH 12, 2018.
12. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83 INTERNATIONAL FEET).
DUKE ENERGY CAROLINAS
synTerra
GRAPHIC SCALE
125 0 125 250
(IN FEET)
DRAWN BY: R. KIEKHAEFER DATE: 04/23/2021
REVISED BY: C. WYATT DATE: 07/29/2021
CHECKED BY: T. KING DATE: 07/29/2021
APPROVED BY: L. DRAGO DATE: 07/29/2021
PROJECT MANAGER: T. PLATING
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FIGURE 4-9
ISOCONCENTRATION MAP
NAPHTHALENE IN TRANSITION FLOW ZONE
REMEDIAL INVESTIGATION REPORT ADDENDUM
FORMER BRAMLETTE MGP SITE
EAST BRAMLETTE ROAD
GREENVILLE, SOUTH CAROLINA

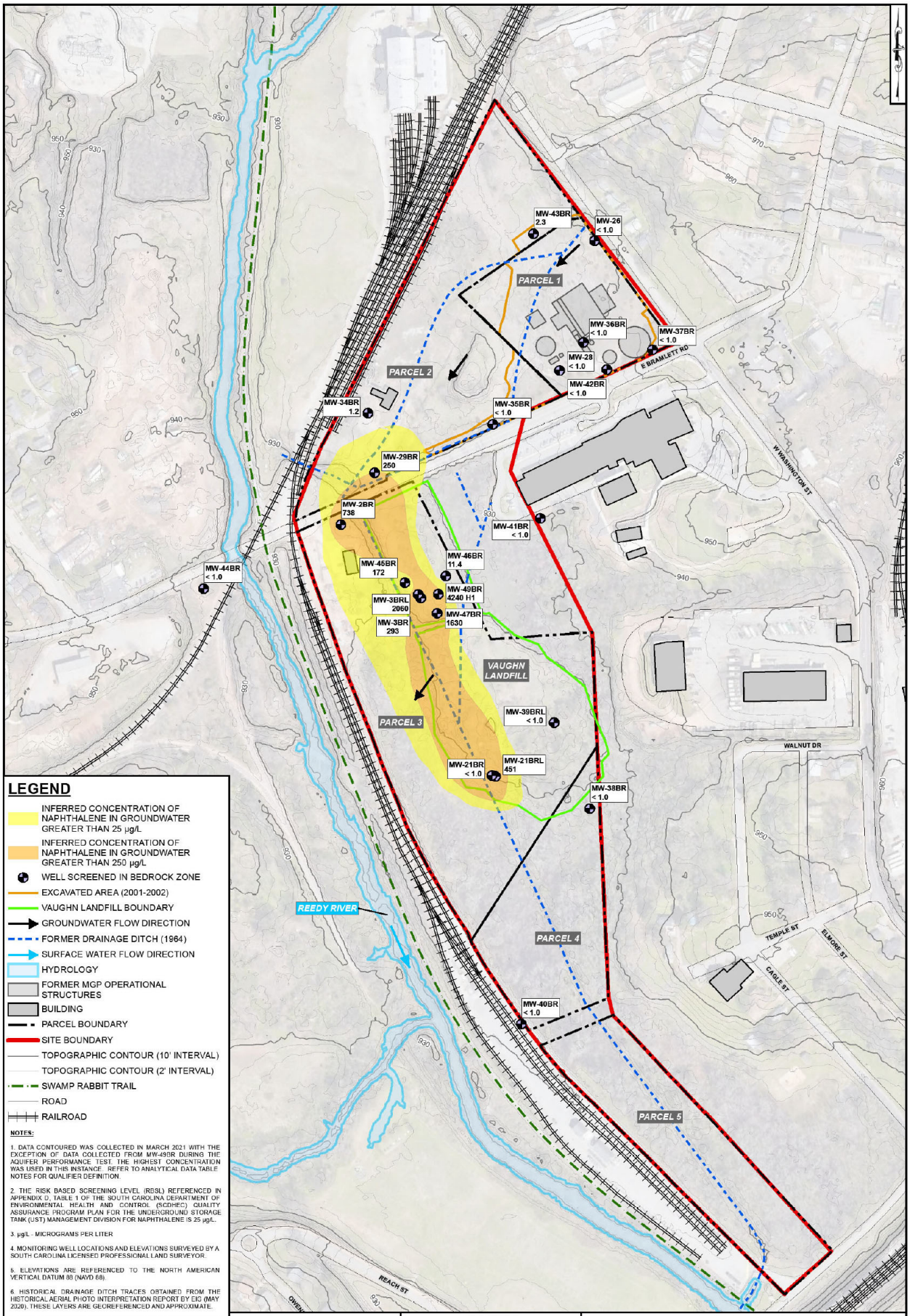
MW-43BR 2.3
MW-26 < 1.0
PARCEL 1
MW-36BR < 1.0
MW-37BR < 1.0
MW-28 < 1.0
E BRAMLETT RD
PARCEL 2
MW-42BR < 1.0
MW-34BR 1.2
MW-35BR < 1.0
MW-29BR 250
W WASHINGTON ST
MW-2BR 738
MW-41BR < 1.0
MW-44BR < 1.0
MW-45BR 172
MW-46BR 11.4
MW-49BR 4240 H1
MW-3BRL 2060
MW-47BR 1630
MW-3BR 293
VAUGHN LANDFILL
MW-39BRL < 1.0
PARCEL 3
WALNUT DR
MW-21BR < 1.0
MW-21BRL 451
MW-38BR < 1.0
REEDY RIVER
PARCEL 4
TEMPLE ST
ELMORE ST
EAGLE ST
MW-40BR < 1.0
PARCEL 5
REACH ST
OWEN
LEGEND
INFERRED CONCENTRATION OF NAPHTHALENE IN GROUNDWATER GREATER THAN 25 µg/L
INFERRED CONCENTRATION OF NAPHTHALENE IN GROUNDWATER GREATER THAN 250 µg/L
WELL SCREENED IN BEDROCK ZONE
EXCAVATED AREA (2001-2002)
VAUGHN LANDFILL BOUNDARY
GROUNDWATER FLOW DIRECTION
FORMER DRAINAGE DITCH (1964)
SURFACE WATER FLOW DIRECTION
HYDROLOGY
FORMER MGP OPERATIONAL STRUCTURES
BUILDING
PARCEL BOUNDARY
SITE BOUNDARY
TOPOGRAPHIC CONTOUR (10' INTERVAL)
TOPOGRAPHIC CONTOUR (2' INTERVAL)
SWAMP RABBIT TRAIL
ROAD
RAILROAD
NOTES:
1. DATA CONTOURED WAS COLLECTED IN MARCH 2021 WITH THE EXCEPTION OF DATA COLLECTED FROM MW-49BR DURING THE AQUIFER PERFORMANCE TEST. THE HIGHEST CONCENTRATION WAS USED IN THIS INSTANCE. REFER TO ANALYTICAL DATA TABLE NOTES FOR QUALIFIER DEFINITION.
2. THE RISK BASED SCREENING LEVEL (RBSL) REFERENCED IN APPENDIX D, TABLE 1 OF THE SOUTH CAROLINA DEPARTMENT OF ENVIRONMENTAL HEALTH AND CONTROL (SCDHEC) QUALITY ASSURANCE PROGRAM PLAN FOR THE UNDERGROUND STORAGE TANK (UST) MANAGEMENT DIVISION FOR NAPHTHALENE IS 25 µg/L.
3. µg/L - MICROGRAMS PER LITER
4. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY A SOUTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR.
5. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
6. HISTORICAL DRAINAGE DITCH TRACES OBTAINED FROM THE HISTORICAL AERIAL PHOTO INTERPRETATION REPORT BY EIG (MAY 2020). THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
7. TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC DNR (2013).
8. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
9. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
10. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. AERIAL WAS COLLECTED ON MARCH 12, 2018.
11. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83 INTERNATIONAL FEET).
DUKE ENERGY CAROLINAS
synTerra
GRAPHIC SCALE
125 0 125 250
(IN FEET)
DRAWN BY: R. KIEKHAEFER DATE: 04/23/2021
REVISED BY: C. WYATT DATE: 07/29/2021
CHECKED BY: T. KING DATE: 07/29/2021
APPROVED BY: L. DRAGO DATE: 07/29/2021
PROJECT MANAGER: T. PLATING
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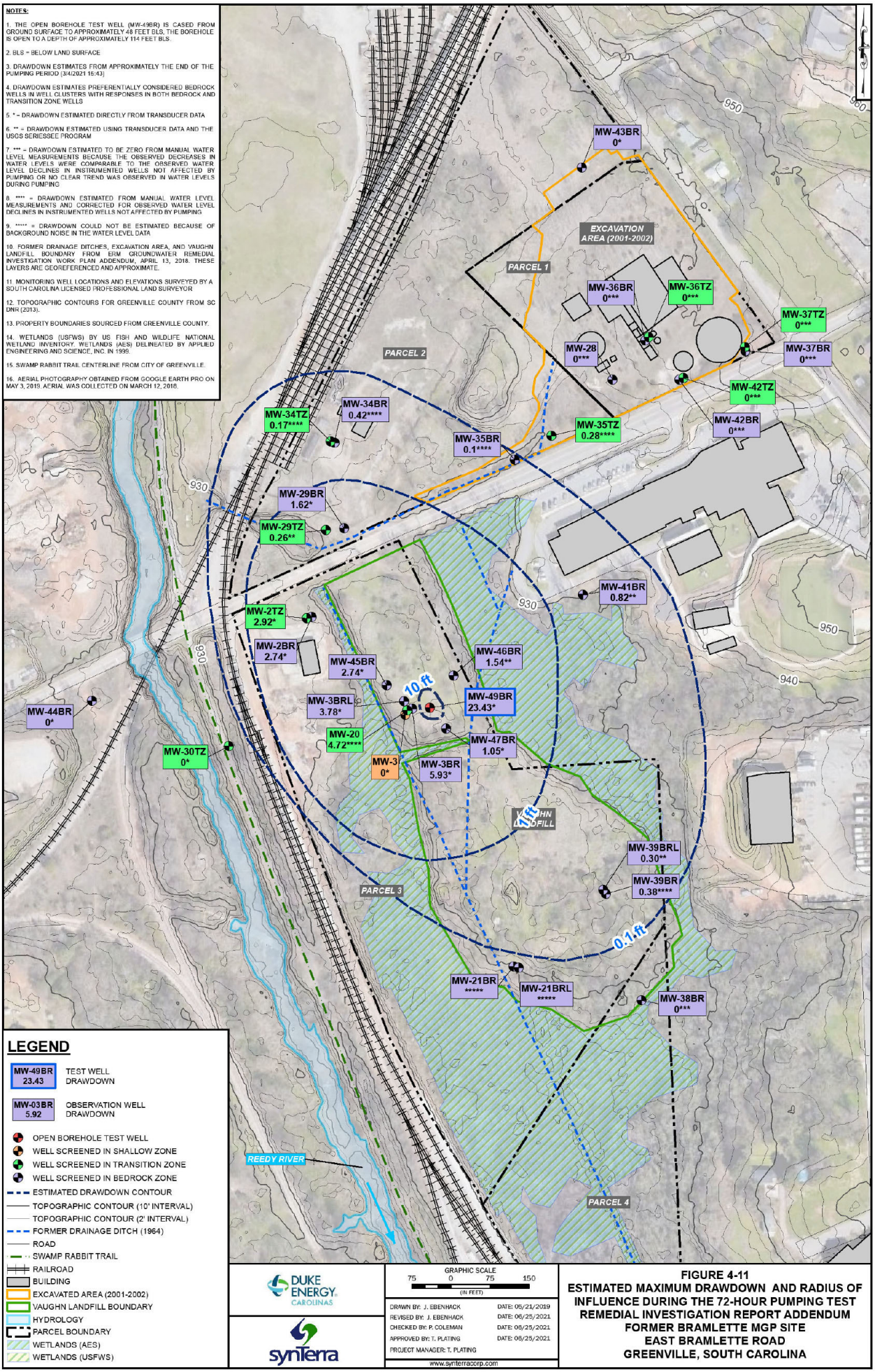
FIGURE 4-10
ISOCONCENTRATION MAP
NAPHTALENE IN BEDROCK FLOW ZONE
REMEDIAL INVESTIGATION REPORT ADDENDUM
FORMER BRAMLETTE MGP SITE
EAST BRAMLETTE ROAD
GREENVILLE, SOUTH CAROLINA


NOTES:
1. THE OPEN BOREHOLE TEST WELL (MW-49BR) IS CASED FROM GROUND SURFACE TO APPROXIMATELY 48 FEET BLS. THE BOREHOLE IS OPEN TO A DEPTH OF APPROXIMATELY 114 FEET BLS.
2. BLS = BELOW LAND SURFACE
3. DRAWDOWN ESTIMATES FROM APPROXIMATELY THE END OF THE PUMPING PERIOD (3/4/2021 16:43)
4. DRAWDOWN ESTIMATES PREFERENTIALLY CONSIDERED BEDROCK WELLS IN WELL CLUSTERS WITH RESPONSES IN BOTH BEDROCK AND TRANSITION ZONE WELLS
5. * = DRAWDOWN ESTIMATED DIRECTLY FROM TRANSDUCER DATA
6. ** = DRAWDOWN ESTIMATED USING TRANSDUCER DATA AND THE USGS SERIESSEE PROGRAM
7. *** = DRAWDOWN ESTIMATED TO BE ZERO FROM MANUAL WATER LEVEL MEASUREMENTS BECAUSE THE OBSERVED DECREASES IN WATER LEVELS WERE COMPARABLE TO THE OBSERVED WATER LEVEL DECLINES IN INSTRUMENTED WELLS NOT AFFECTED BY PUMPING OR NO CLEAR TREND WAS OBSERVED IN WATER LEVELS DURING PUMPING
8. **** = DRAWDOWN ESTIMATED FROM MANUAL WATER LEVEL MEASUREMENTS AND CORRECTED FOR OBSERVED WATER LEVEL DECLINES IN INSTRUMENTED WELLS NOT AFFECTED BY PUMPING
9. ***** = DRAWDOWN COULD NOT BE ESTIMATED BECAUSE OF BACKGROUND NOISE IN THE WATER LEVEL DATA
10. FORMER DRAINAGE DITCHES, EXCAVATION AREA, AND VAUGHN LANDFILL BOUNDARY FROM ERM GROUNDWATER REMEDIAL INVESTIGATION WORK PLAN ADDENDUM, APRIL 13, 2018. THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
11. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY A SOUTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR
12. TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC DNR (2013).
13. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
14. WETLANDS (USFWS) BY US FISH AND WILDLIFE NATIONAL WETLAND INVENTORY. WETLANDS (AES) DELINEATED BY APPLIED ENGINEERING AND SCIENCE, INC. IN 1999.
15. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
16. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. AERIAL WAS COLLECTED ON MARCH 12, 2018.
MW-43BR 0*
EXCAVATION AREA (2001-2002)
PARCEL 1
MW-36BR 0***
MW-36TZ 0***
MW-37TZ 0***
MW-37BR 0***
MW-28 0***
PARCEL 2
MW-42TZ 0***
MW-42BR 0***
MW-34TZ 0.17****
MW-34BR 0.42****
MW-35TZ 0.28****
MW-35BR 0.1****
MW-29BR 1.62*
MW-29TZ 0.26**
MW-41BR 0.82**
MW-2TZ 2.92*
MW-2BR 2.74*
MW-45BR 2.74*
MW-46BR 1.54**
10 ft
MW-3BRL 3.78*
MW-49BR 23.43*
MW-44BR 0*
MW-20 4.72****
MW-47BR 1.05*
MW-30TZ 0*
MW-3 0*
MW-3BR 5.93*
VAUGHN LANDFILL
MW-39BRL 0.30**
MW-39BR 0.38****
PARCEL 3
0.1 ft
MW-21BR *****
MW-21BRL *****
MW-38BR 0***
REEDY RIVER
PARCEL 4
930
940
950
960
LEGEND
MW-49BR 23.43 TEST WELL DRAWDOWN
MW-03BR 5.92 OBSERVATION WELL DRAWDOWN
OPEN BOREHOLE TEST WELL
WELL SCREENED IN SHALLOW ZONE
WELL SCREENED IN TRANSITION ZONE
WELL SCREENED IN BEDROCK ZONE
ESTIMATED DRAWDOWN CONTOUR
TOPOGRAPHIC CONTOUR (10' INTERVAL)
TOPOGRAPHIC CONTOUR (2' INTERVAL)
FORMER DRAINAGE DITCH (1964)
ROAD
SWAMP RABBIT TRAIL
RAILROAD
BUILDING
EXCAVATED AREA (2001-2002)
VAUGHN LANDFILL BOUNDARY
HYDROLOGY
PARCEL BOUNDARY
WETLANDS (AES)
WETLANDS (USFWS)
DUKE ENERGY CAROLINAS
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GRAPHIC SCALE
75 0 75 150
(IN FEET)
DRAWN BY: J. EBENHACK DATE: 05/21/2019
REVISED BY: J. EBENHACK DATE: 06/25/2021
CHECKED BY: P. COLEMAN DATE: 06/25/2021
APPROVED BY: T. PLATING DATE: 06/25/2021
PROJECT MANAGER: T. PLATING
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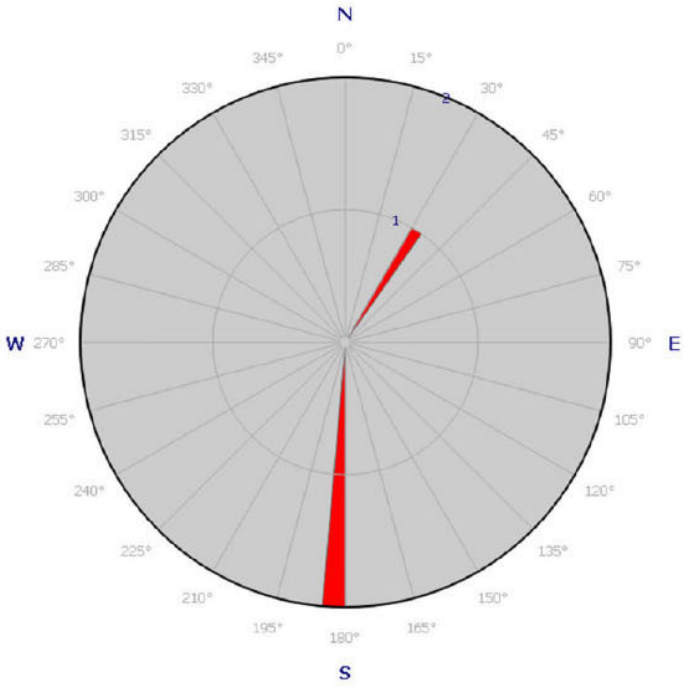
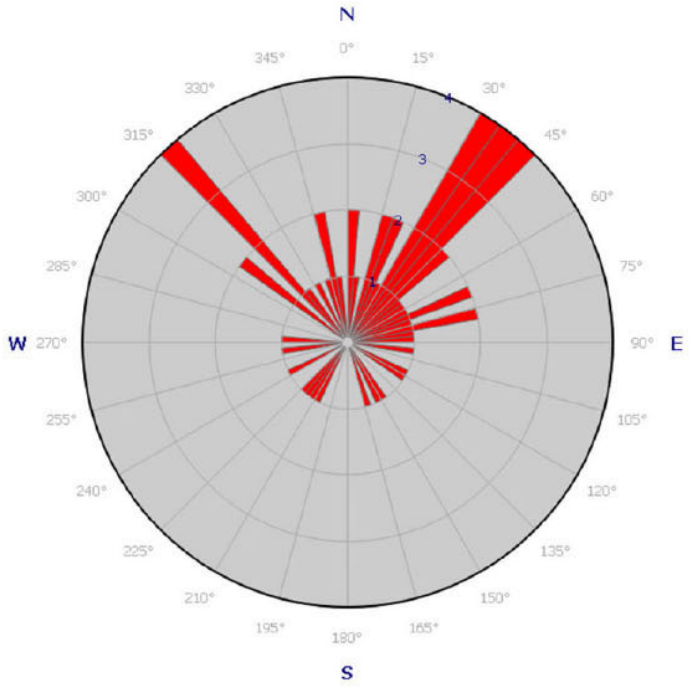
FIGURE 4-11
ESTIMATED MAXIMUM DRAWDOWN AND RADIUS OF INFLUENCE DURING THE 72-HOUR PUMPING TEST
REMEDIAL INVESTIGATION REPORT ADDENDUM
FORMER BRAMLETTE MGP SITE
EAST BRAMLETTE ROAD
GREENVILLE, SOUTH CAROLINA

## MW-49BR Fracture Orientations




## Site Wide Fracture Orientations




Notes:
1. Plots show dip direction and number of fractures with that orientation
2. Only major and minor water producing fractures identified from borehole geophysics are plotted
3. Site wide fracture orientations include data from wells MW-2BR, MW-21BR, MW-29BR, MW-34BR, MW-35BR, MW-36BR, MW-37BR, MW-39BR, and MW-42BR

DUKE ENERGY CAROLINAS

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DRAWN BY: J. EBENHACK DATE: 04/27/2021
REVISED BY: J. EBENHACK DATE: 04/27/2021
CHECKED BY: W. PRATER DATE: 06/15/2021
APPROVED BY: T. PLATING DATE: 06/15/2021
PROJECT MANAGER: T. PLATING

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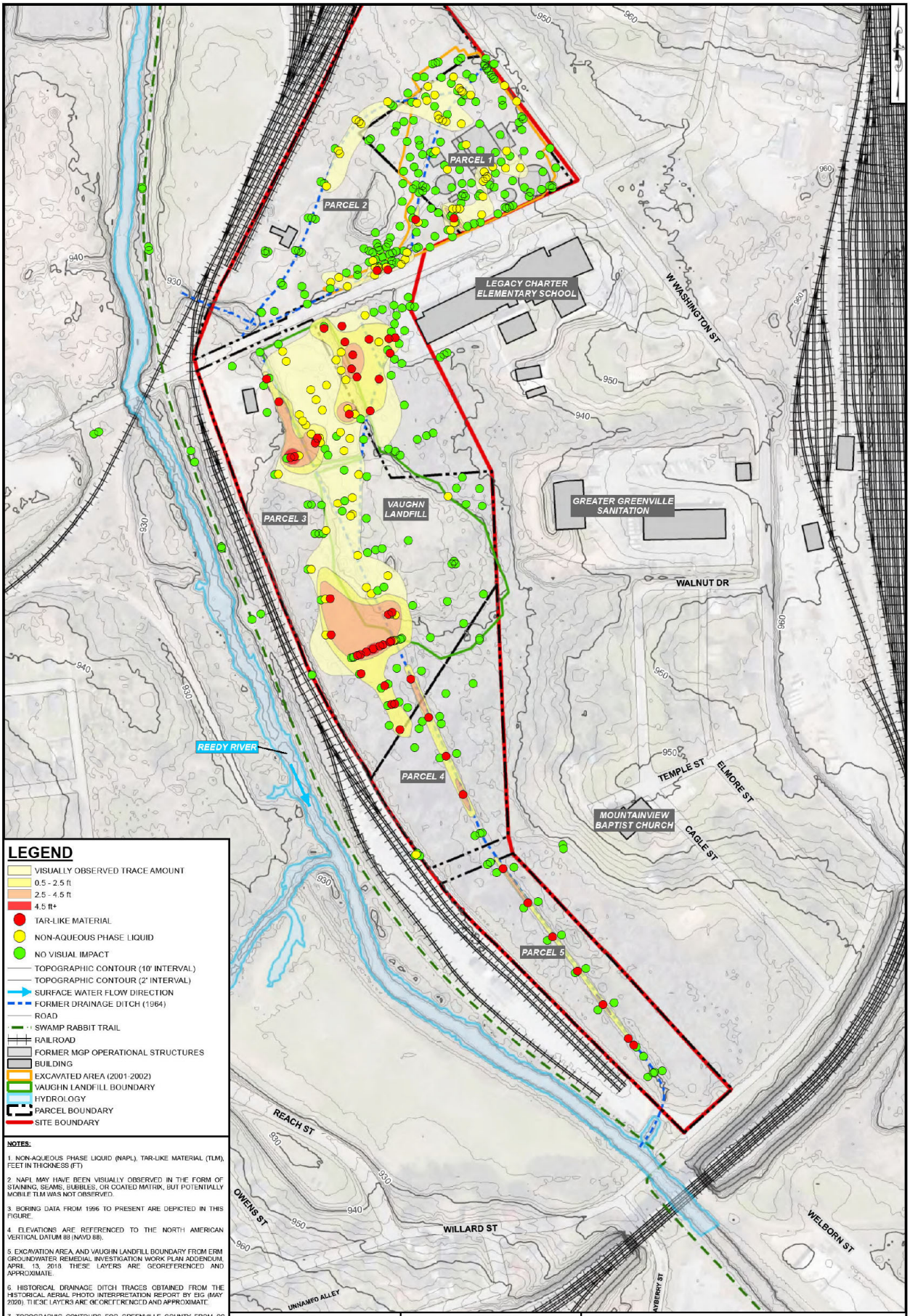
**FIGURE 4-12**
**MW-49BR FRACTURE ORIENTATIONS COMPARED TO SITE WIDE FRACTURE ORIENTATIONS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**




**NOTES:**

1. NON-AQUEOUS PHASE LIQUID (NAPL), TAR-LIKE MATERIAL (TLM), FEET IN THICKNESS (FT)
2. NAPL MAY HAVE BEEN VISUALLY OBSERVED IN THE FORM OF STAINING, SEAMS, BUBBLES, OR COATED MATRIX, BUT POTENTIALLY MOBILE TLM WAS NOT OBSERVED.
3. BORING DATA FROM 1996 TO PRESENT ARE DEPICTED IN THIS FIGURE.
4. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
5. EXCAVATION AREA AND VAUGHN LANDFILL BOUNDARY FROM ERM GROUNDWATER REMEDIAL INVESTIGATION WORK PLAN ADDENDUM, APRIL 13, 2018. THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
6. HISTORICAL DRAINAGE DITCH TRACES OBTAINED FROM THE HISTORICAL AERIAL PHOTO INTERPRETATION REPORT BY EIS (MAY 2020). THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
7. TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC DNR (2013).
8. PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
9. SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
10. AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. INSET AERIAL OBTAINED OCTOBER 20, 2020. AERIAL WAS COLLECTED ON MARCH 12, 2018.
11. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83 INTERNATIONAL FEET).

DUKE ENERGY CAROLINAS

synTerra

GRAPHIC SCALE
125 0 125 250
(IN FEET)

| | |
|---|---|
| DRAWN BY: J. KIRTZ | DATE: 05/13/2021 |
| REVISED BY: C. WYATT | DATE: 07/07/2021 |
| CHECKED BY: T. KING | DATE: 07/07/2021 |
| APPROVED BY: T. PLATING | DATE: 07/07/2021 |
| PROJECT MANAGER: T. PLATING | |

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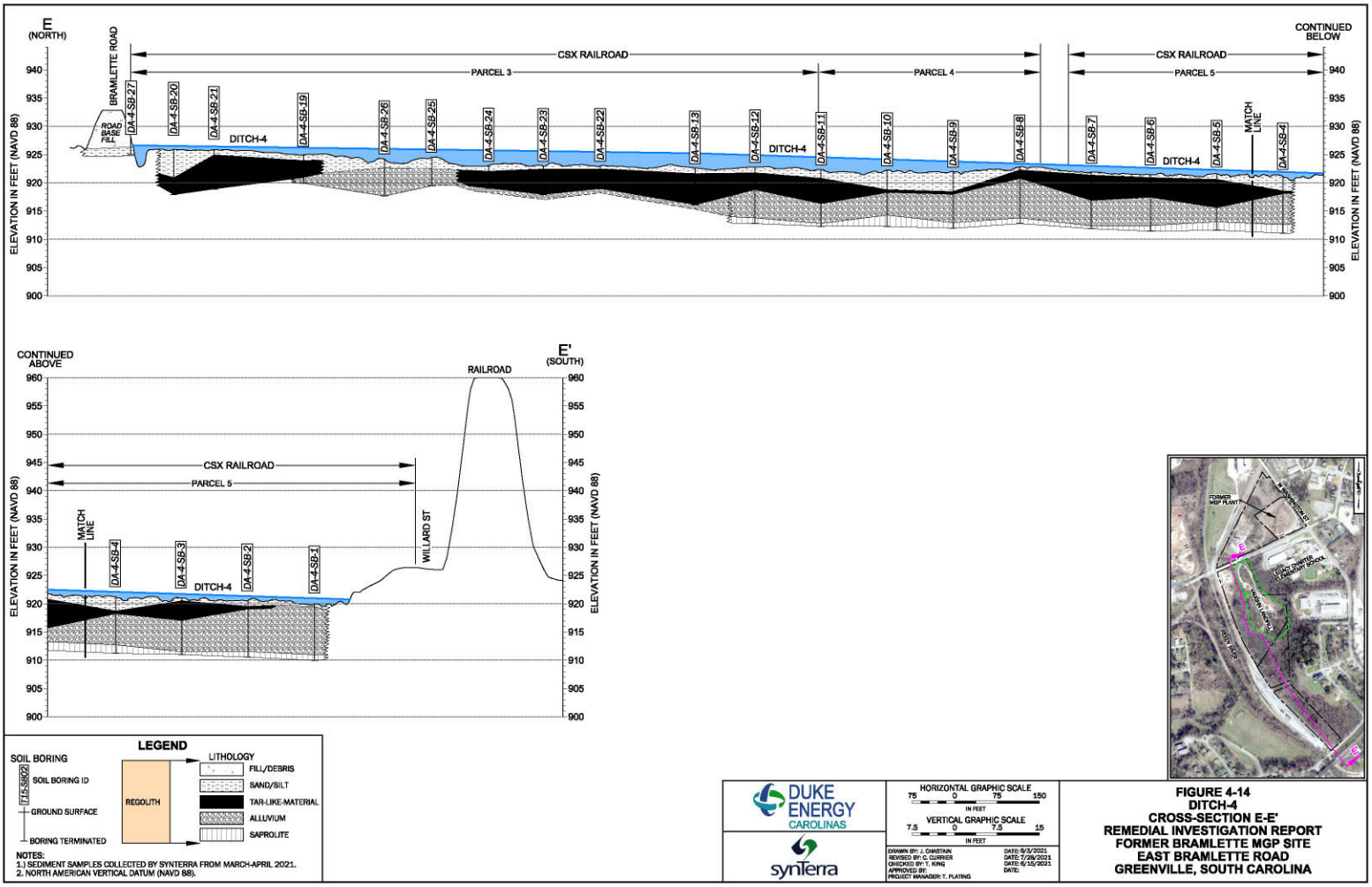
**FIGURE 4-13**
**PRESENCE, ABSENCE, AND THICKNESS OF NAPL & TLM**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**







**LEGEND**

SOIL BORING
SOIL BORING ID (TTL-SB02)
GROUND SURFACE
BORING TERMINATED
REGOLITH
LITHOLOGY
FILL/DEBRIS
SAND/SILT
TAR-LIKE-MATERIAL
ALLUVIUM
SAPROLITE

NOTES:
1.) SEDIMENT SAMPLES COLLECTED BY SYNTERRA FROM MARCH-APRIL 2021.
2. NORTH AMERICAN VERTICAL DATUM (NAVD 88).

DUKE ENERGY CAROLINAS

synTerra

HORIZONTAL GRAPHIC SCALE
75 0 75 150
IN FEET

VERTICAL GRAPHIC SCALE
7.5 0 7.5 15
IN FEET

DRAWN BY: J. CHASTAIN — DATE: 5/3/2021
REVISED BY: C. CURRIER — DATE: 7/28/2021
CHECKED BY: T. KING — DATE: 6/15/2021
APPROVED BY: — DATE:
PROJECT MANAGER: T. PLATING

**FIGURE 4-14**
**DITCH-4**
**CROSS-SECTION E-E'**
**REMEDIAL INVESTIGATION REPORT**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**

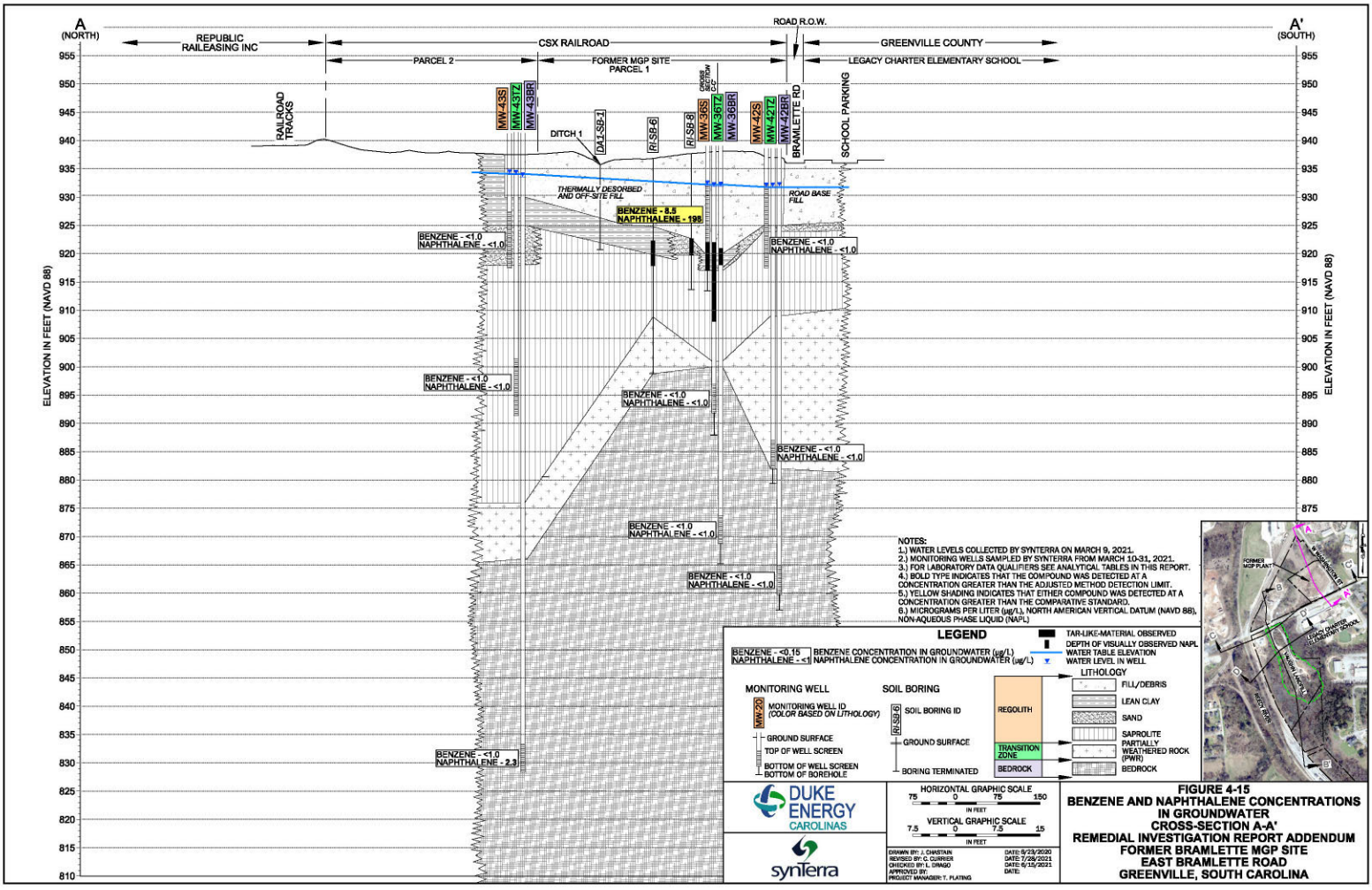



**FIGURE 4-15**
**BENZENE AND NAPHTHALENE CONCENTRATIONS IN GROUNDWATER**
**CROSS-SECTION A-A'**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**

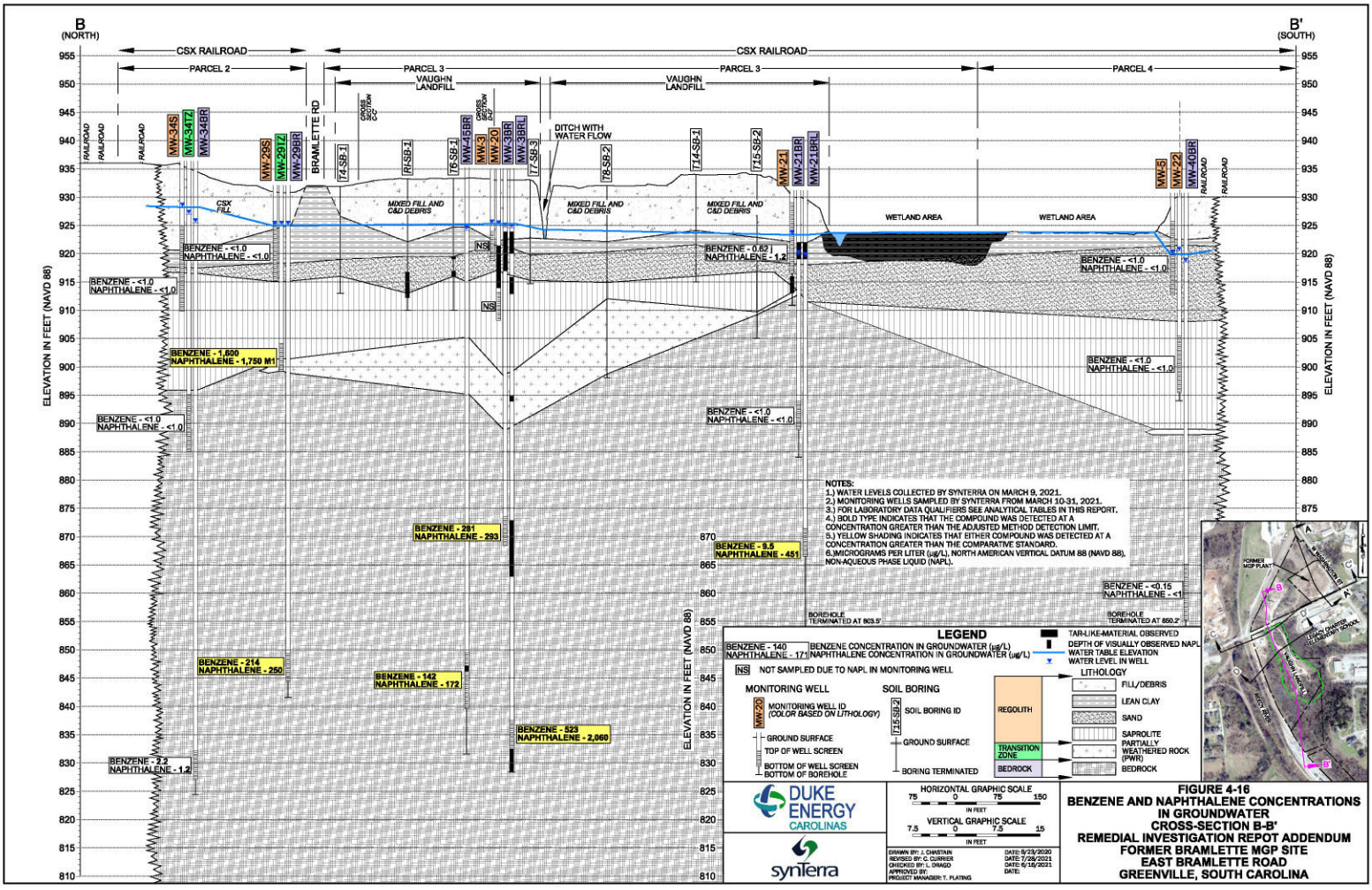



**FIGURE 4-16**
**BENZENE AND NAPHTHALENE CONCENTRATIONS IN GROUNDWATER CROSS-SECTION B-B'**
**REMEDIAL INVESTIGATION REPOT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**

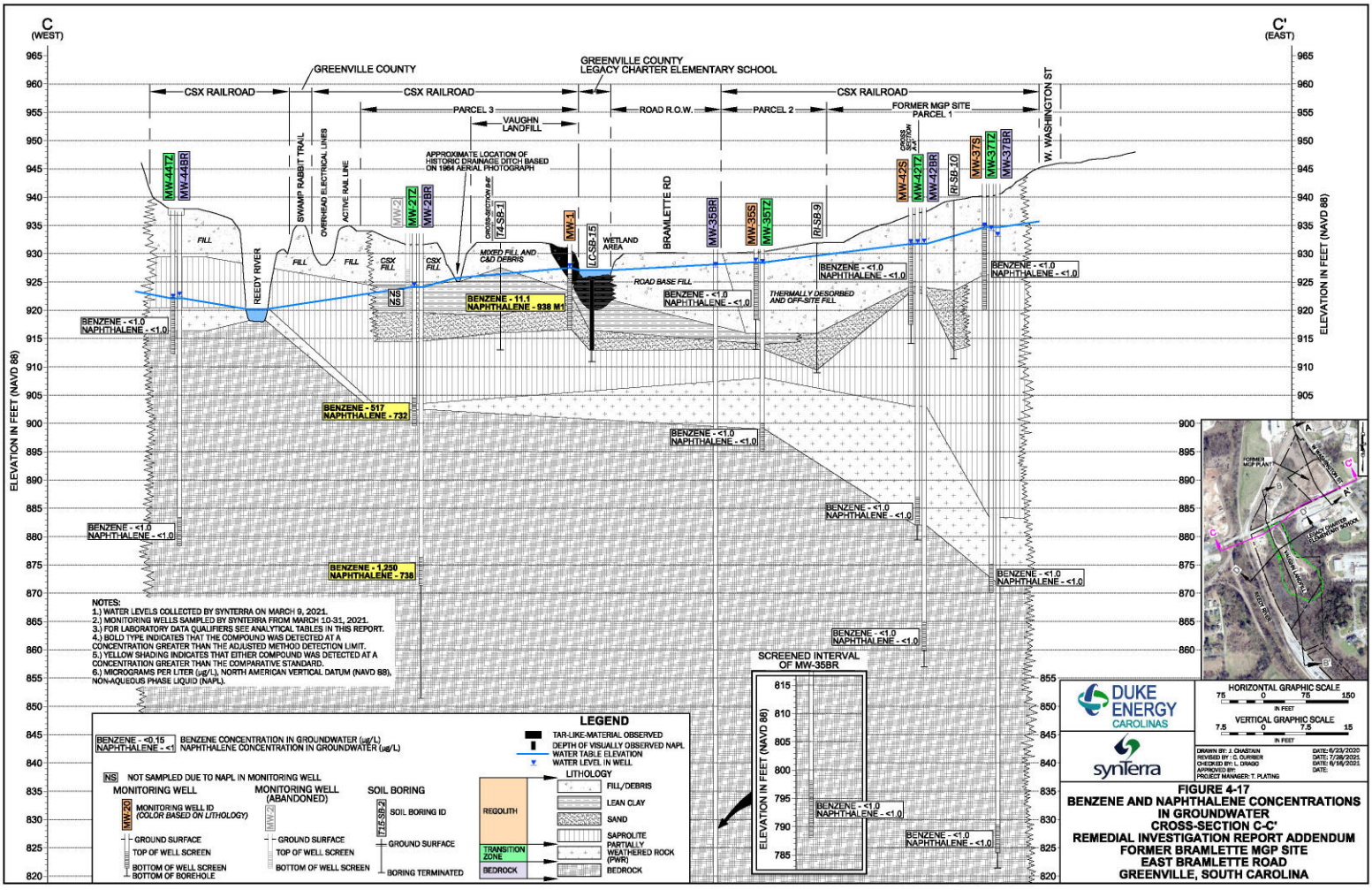
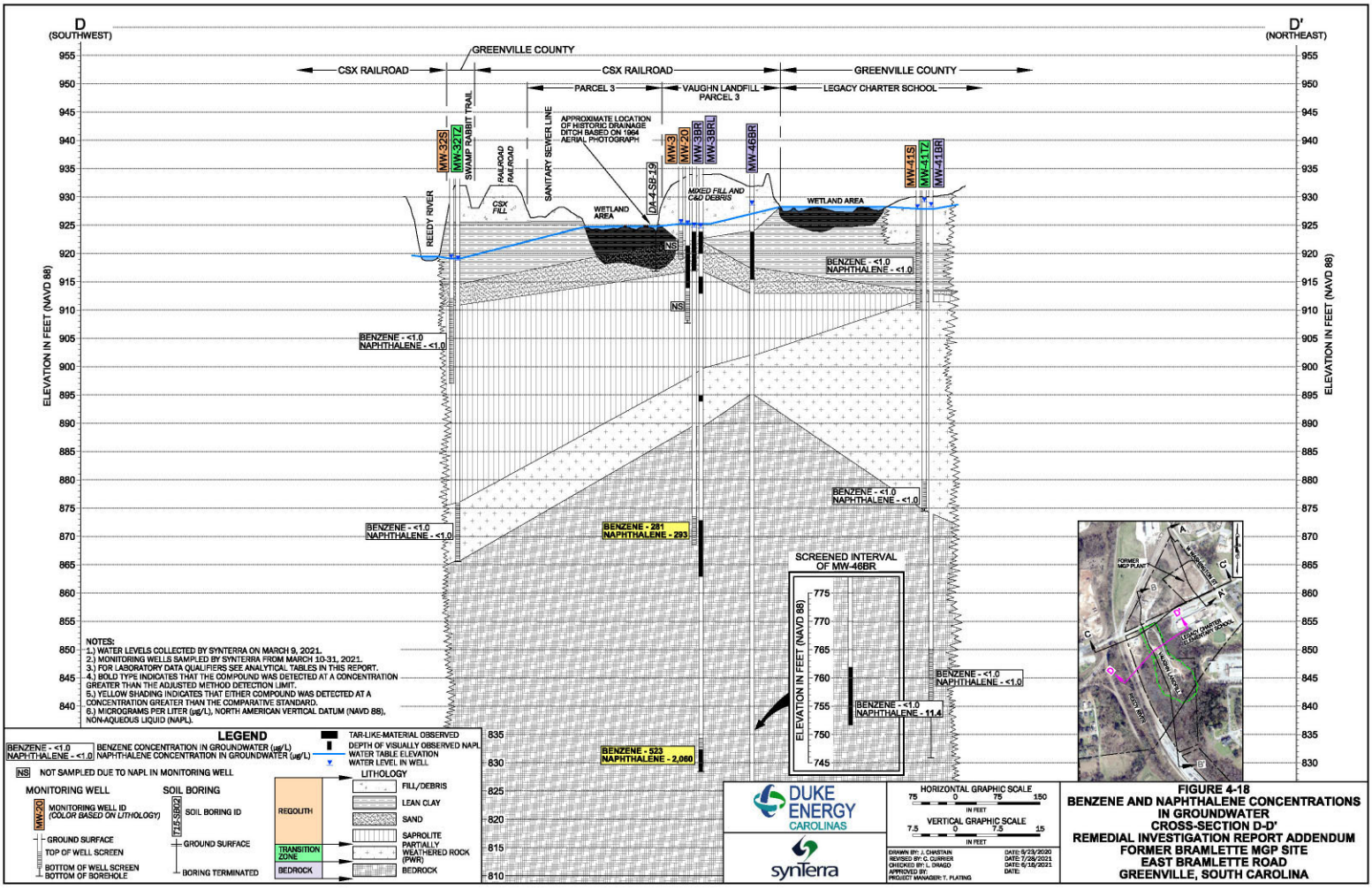



**FIGURE 4-17**
**BENZENE AND NAPHTHALENE CONCENTRATIONS IN GROUNDWATER**
**CROSS-SECTION C-C'**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**




NOTES:
1.) WATER LEVELS COLLECTED BY SYNTERRA ON MARCH 9, 2021.
2.) MONITORING WELLS SAMPLED BY SYNTERRA FROM MARCH 10-31, 2021.
3.) FOR LABORATORY DATA QUALIFIERS SEE ANALYTICAL TABLES IN THIS REPORT.
4.) BOLD TYPE INDICATES THAT THE COMPOUND WAS DETECTED AT A CONCENTRATION GREATER THAN THE ADJUSTED METHOD DETECTION LIMIT.
5.) YELLOW SHADING INDICATES THAT EITHER COMPOUND WAS DETECTED AT A CONCENTRATION GREATER THAN THE COMPARATIVE STANDARD.
6.) MICROGRAMS PER LITER (µg/L), NORTH AMERICAN VERTICAL DATUM (NAVD 88), NON-AQUEOUS LIQUID (NAPL).

**LEGEND**

BENZENE - <1.0 / NAPHTHALENE - <1.0 — BENZENE CONCENTRATION IN GROUNDWATER (µg/L) / NAPHTHALENE CONCENTRATION IN GROUNDWATER (µg/L)

NS — NOT SAMPLED DUE TO NAPL IN MONITORING WELL

MONITORING WELL
- MW-20 — MONITORING WELL ID (COLOR BASED ON LITHOLOGY)
- GROUND SURFACE
- TOP OF WELL SCREEN
- BOTTOM OF WELL SCREEN / BOTTOM OF BOREHOLE

SOIL BORING
- TTS-SB02 — SOIL BORING ID
- GROUND SURFACE
- BORING TERMINATED

TAR-LIKE-MATERIAL OBSERVED
DEPTH OF VISUALLY OBSERVED NAPL
WATER TABLE ELEVATION
WATER LEVEL IN WELL

LITHOLOGY
- REGOLITH: FILL/DEBRIS, LEAN CLAY, SAND, SAPROLITE
- TRANSITION ZONE: PARTIALLY WEATHERED ROCK (PWR)
- BEDROCK: BEDROCK

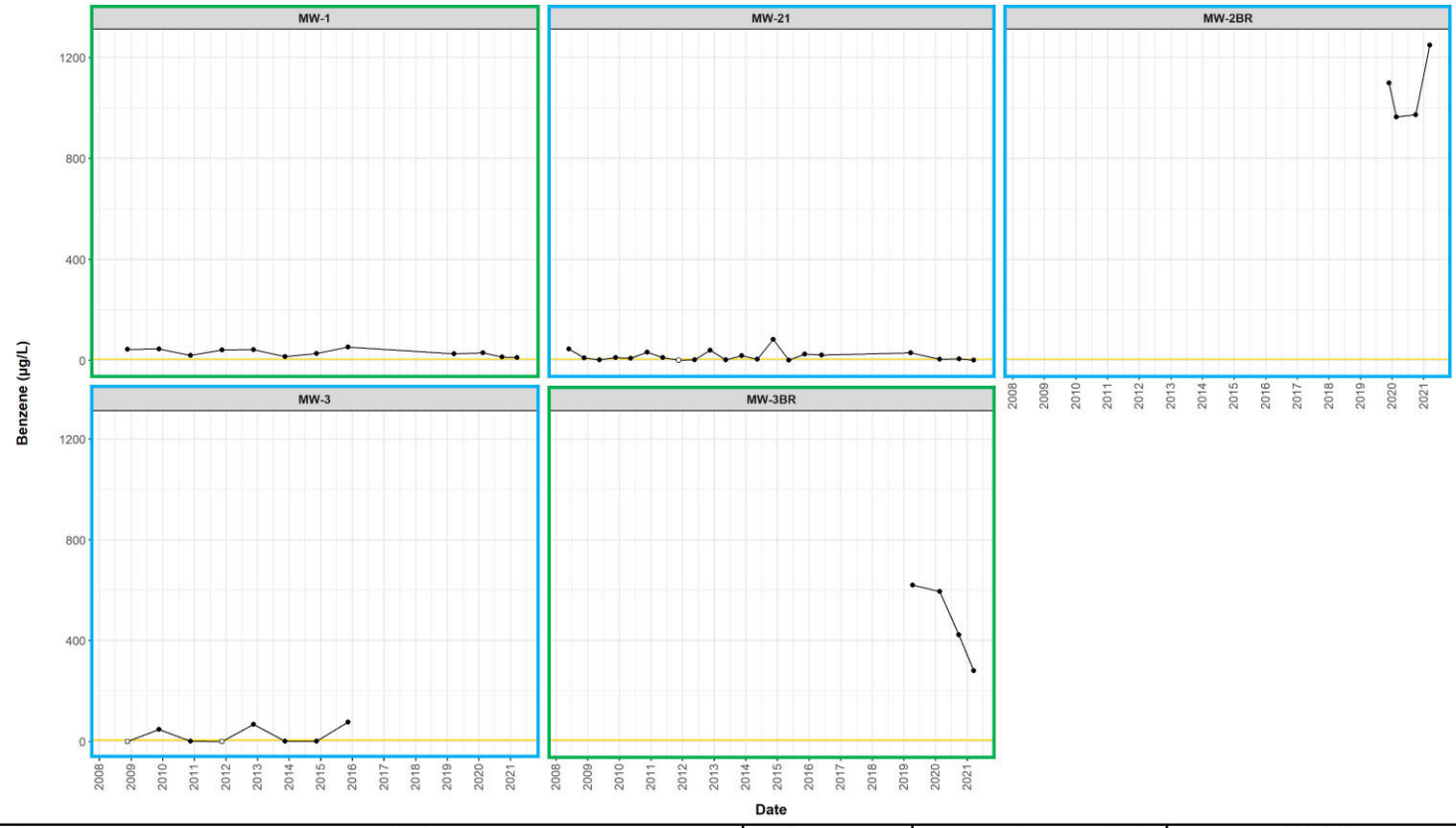
DUKE ENERGY CAROLINAS
synTerra

HORIZONTAL GRAPHIC SCALE
75 0 75 150
IN FEET

VERTICAL GRAPHIC SCALE
7.5 0 7.5 15
IN FEET

DRAWN BY: J. CHASTAIN — DATE: 5/23/2020
REVISED BY: C. CURRIER — DATE: 7/28/2021
CHECKED BY: L. DRAGO — DATE: 8/18/2021
APPROVED BY: PROJECT MANAGER: T. PLATING — DATE:

**FIGURE 4-18**
**BENZENE AND NAPHTHALENE CONCENTRATIONS IN GROUNDWATER**
**CROSS-SECTION D-D'**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**




**LEGEND**

Non-detect
Detect

- Stable, no trends
- Statistically Significant Decreasing Trend
- Statistically Significant Increasing Trend

No Color - Cannot Analyze for Trends
µg/L – micrograms per liter

**NOTES**

Trends are denoted by the box color, if there is no color the data could not be analyzed for trends.

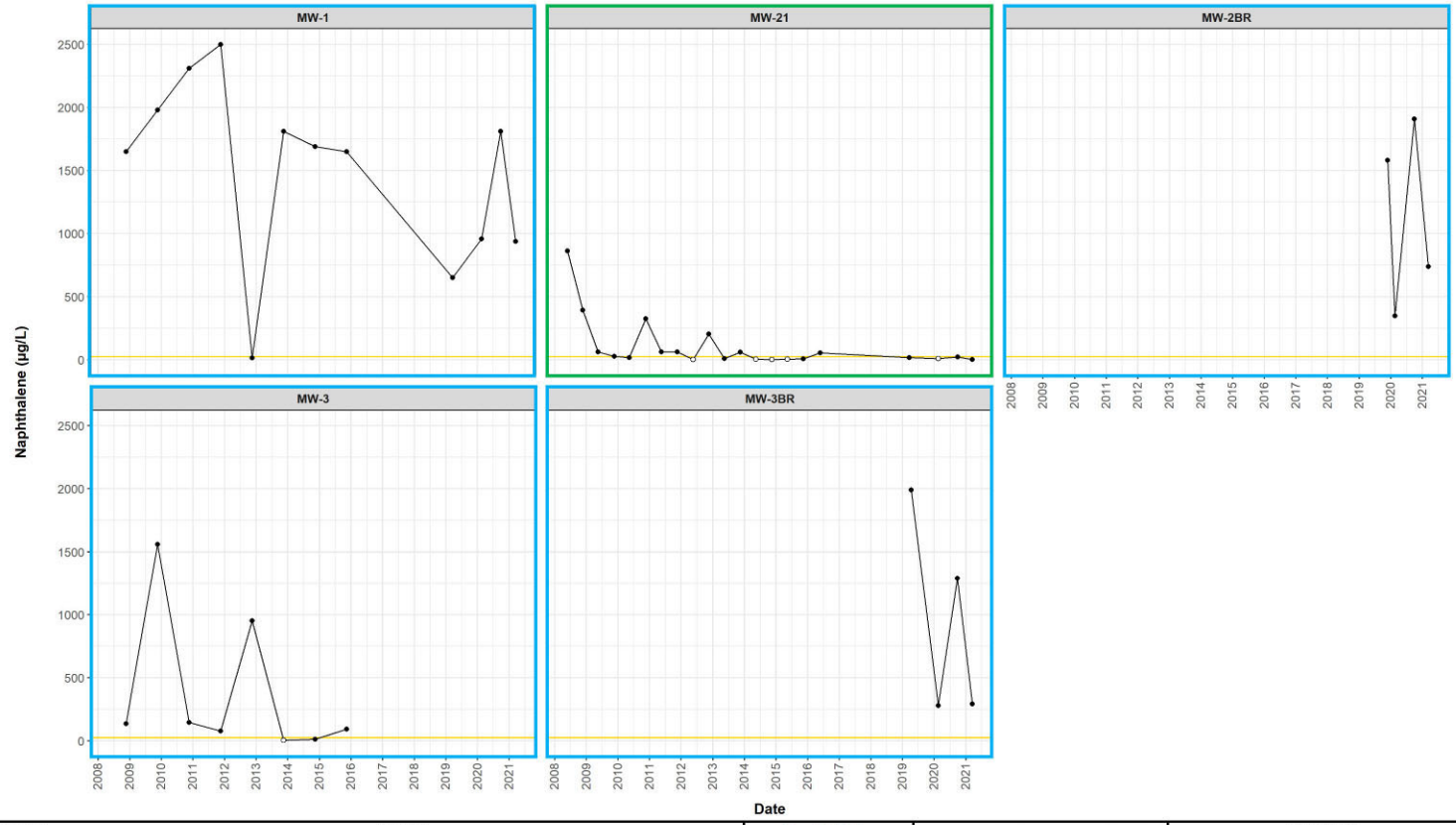
DUKE ENERGY CAROLINAS

synTerra

| | |
|---|---|
| DRAWN BY: P. COLEMAN | DATE: 06/21//2021 |
| REVISED BY: - | DATE: - |
| CHECKED BY: L. DRAGO | DATE: 06/21/2021 |
| APPROVED BY: T. PLATING | DATE: 06/23/2021 |
| PROJECT MANAGER: T. PLATING | |

www.synterracorp.com

**FIGURE 5-2**
**TIME VERSUS CONCENTRATION PLOT**
**BENZENE**
**REMEDIAL INVESTIGATION REPORT**
**ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**




**LEGEND**

Non-detect
Detect

- Stable, no trends
- Statistically Significant Decreasing Trend
- Statistically Significant Increasing Trend

No Color - Cannot Analyze for Trends
µg/L – micrograms per liter

**NOTES**

Trends are denoted by the box color, if there is no color the data could not be analyzed for trends.

DUKE ENERGY CAROLINAS

synTerra

| | |
|---|---|
| DRAWN BY: P. COLEMAN | DATE: 06/21//2021 |
| REVISED BY: - | DATE: - |
| CHECKED BY: L. DRAGO | DATE: 06/21/2021 |
| APPROVED BY: T. PLATING | DATE: 06/23/2021 |
| PROJECT MANAGER: T. PLATING | |

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**FIGURE 5-3**
**TIME VERSUS CONCENTRATION PLOT**
**NAPHTHALENE**
**REMEDIAL INVESTIGATION REPORT**
**ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**EAST BRAMLETTE ROAD**
**GREENVILLE, SOUTH CAROLINA**

# TABLES

synTerra

Science & Engineering Consultants

**TABLE 3-1**
**SUMMARY OF MONITORING WELL CONSTRUCTION DETAILS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| Well | Installed By/For | | Install Date | Northing | Easting | Ground Elevation (ft-NAVD 88) | TOC Elevation (ft-NAVD 88) | Total Depth of Boring | | Screen Length | Screen Interval | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Top | Bottom | Top | Bottom |
| | Consultant | Client/Owner | | | | | | ft-bls | ft-NAVD 88 | ft | ft-bls | | ft-NAVD 88 | |
| **CSXT PARCEL 1 - FORMER MGP SITE** | | | | | | | | | | | | | | |
| MW-7 | AES | CSXT | 3/1/1996 | --- | --- | 933.44 | 935.74 | 15 | 918.44 | 10 | 5 | 15 | 928.44 | 918.44 |
| MW-7R | Anchor QEA | Duke Energy | 6/1/2017 | 1104849.061 | 1574503.135 | 932.93 | 936.01 | 15 | 917.93 | 10 | 5 | 15 | 927.93 | 917.93 |
| MW-8 | Duke Engineering | Duke Power | 3/1/1999 | --- | --- | 933.54 | 935.99 | 16 | 918.04 | 13 | 1.7 | 14.7 | 931.84 | 918.84 |
| MW-9 | Duke Engineering | Duke Power | 3/1/1999 | --- | --- | 933.54 | 936.03 | 30 | 903.14 | 5 | 25.2 | 30.2 | 908.34 | 903.34 |
| MW-9R | Anchor QEA | Duke Energy | 6/1/2017 | 1104848.766 | 1574514.012 | 933.62 | 936.47 | 30 | 903.72 | 5 | 21 | 26 | 912.62 | 907.62 |
| MW-10 | Duke Engineering | Duke Power | 2/1/1999 | --- | --- | 941.47 | 943.39 | 20 | 921.97 | 15 | 3 | 18 | 938.47 | 923.47 |
| MW-11 | Duke Engineering | Duke Power | 2/1/1999 | --- | --- | 939.49 | 941.81 | 26 | 913.79 | 10 | 14 | 24 | 925.49 | 915.49 |
| MW-12 | Duke Engineering | Duke Power | 2/1/1999 | --- | --- | 939.19 | 941.89 | 12 | 927.19 | 10 | 1.5 | 11.5 | 937.69 | 927.69 |
| MW-13 | Duke Engineering | Duke Power | 3/1/1999 | --- | --- | 938.08 | 940.48 | 23 | 914.98 | 10 | 11.5 | 21.5 | 926.58 | 916.58 |
| MW-13R | Anchor QEA | Duke Energy | 6/1/2017 | 1105219.021 | 1574610.864 | 937.93 | 940.94 | 23 | 914.48 | 10 | 10 | 20 | 927.93 | 917.93 |
| MW-14 | Duke Engineering | Duke Power | 3/1/1999 | --- | --- | 937.64 | 940.18 | 13 | 924.64 | 10 | 2 | 12 | 935.64 | 925.64 |
| MW-15 | Duke Engineering | Duke Power | 3/1/1999 | 1105042.194 | 1574275.573 | 936.39 | 939.09 | 58 | 877.99 | 5 | 50 | 55 | 886.39 | 881.39 |
| MW-16 | Duke Engineering | Duke Power | 3/1/1999 | 1105037.868 | 1574270.95 | 936.73 | 938.61 | 16 | 920.73 | 10 | 5 | 15 | 931.73 | 921.73 |
| MW-17 | Duke Engineering | Duke Power | 3/1/1999 | --- | --- | 933.29 | 935.22 | 16 | 917.29 | 13.9 | 1.6 | 15.5 | 931.69 | 917.79 |
| MW-26 | Anchor QEA | Duke Energy | 6/1/2017 | 1105207.707 | 1574618.806 | 937.90 | 940.91 | 58 | 879.50 | 10 | 45 | 55 | 892.90 | 882.90 |
| MW-27 | Anchor QEA | Duke Energy | 6/1/2017 | 1105213.38 | 1574614.926 | 937.83 | 940.93 | 39 | 899.23 | 10 | 25 | 35 | 912.83 | 902.83 |
| MW-28 | Anchor QEA | Duke Energy | 6/1/2017 | 1104848.427 | 1574522.331 | 933.88 | 936.69 | 45 | 889.28 | 10 | 35 | 45 | 898.88 | 888.88 |
| MW-3BR | SynTerra | Duke Energy | 4/1/2019 | 1104216.352 | 1574138.038 | 932.99 | 935.87 | 67 | 865.98 | 5 | 59.5 | 64.5 | 873.49 | 868.49 |
| MW-36S | SynTerra | Duke Energy | 2/3/2020 | 1104935.479 | 1574597.267 | 937.18 | 940.49 | 24 | 913.36 | 15 | 5 | 20 | 932.18 | 917.18 |
| MW-36TZ | SynTerra | Duke Energy | 2/3/2020 | 1104929.74 | 1574591.683 | 936.89 | 940.07 | 49 | 887.89 | 5 | 40 | 45 | 896.89 | 891.89 |
| MW-36BR | SynTerra | Duke Energy | 2/5/2020 | 1104923.156 | 1574585.34 | 936.72 | 940.04 | 71 | 865.23 | 5 | 63 | 68 | 873.72 | 868.72 |
| MW-37S | SynTerra | Duke Energy | 1/23/2020 | 1104909.383 | 1574769.02 | 940.16 | 943.05 | 20 | 920.16 | 15 | 5 | 20 | 935.16 | 920.16 |
| MW-37TZ | SynTerra | Duke Energy | 1/23/2020 | 1104910.709 | 1574776.157 | 940.15 | 943.27 | 70 | 870.15 | 5 | 65 | 70 | 875.15 | 870.15 |
| MW-37BR | SynTerra | Duke Energy | 1/23/2020 | 1104903.652 | 1574777.329 | 940.09 | 943.12 | 119 | 821.41 | 5 | 111 | 116 | 829.09 | 824.09 |
| MW-42S | SynTerra | Duke Energy | 1/29/2020 | 1104854.691 | 1574667.584 | 937.47 | 940.42 | 23 | 914.07 | 15 | 5 | 20 | 932.47 | 917.47 |
| MW-42TZ | SynTerra | Duke Energy | 1/29/2020 | 1104850.991 | 1574658.683 | 937.04 | 940.18 | 58 | 879.38 | 5 | 50 | 55 | 887.04 | 882.04 |
| MW-42BR | SynTerra | Duke Energy | 1/29/2020 | 1104848.136 | 1574650.469 | 936.84 | 939.52 | 80 | 857.01 | 5 | 72 | 77 | 864.84 | 859.84 |
| **CSXT PARCEL 2 - NORTH OF EAST BRAMLETT ROAD** | | | | | | | | | | | | | | |
| MW-29S | SynTerra | Duke Energy | 2/1/2019 | 1104564.845 | 1573975.681 | 930.25 | 932.86 | 15 | 915.25 | 10 | 5 | 15 | 925.25 | 915.25 |
| MW-29TZ | SynTerra | Duke Energy | 2/1/2019 | 1104558.837 | 1573972.226 | 930.18 | 932.92 | 31 | 899.18 | 5 | 26 | 31 | 904.18 | 899.18 |
| MW-29BR | SynTerra | Duke Energy | 1/20/2020 | 1104562.165 | 1574007.247 | 930.36 | 933.32 | 89 | 841.57 | 5 | 81 | 86 | 849.36 | 844.36 |
| MW-34S | SynTerra | Duke Energy | 12/6/2019 | 1104723.096 | 1573982.19 | 934.82 | 937.53 | 25 | 909.82 | 15 | 10 | 25 | 924.82 | 909.82 |
| MW-34TZ | SynTerra | Duke Energy | 12/6/2019 | 1104729.972 | 1573981.01 | 935.14 | 937.91 | 54 | 881.14 | 10 | 40 | 50 | 895.14 | 885.14 |
| MW-34BR | SynTerra | Duke Energy | 12/6/2019 | 1104727.199 | 1573988.835 | 935.11 | 937.92 | 111 | 824.36 | 5 | 103 | 108 | 832.11 | 827.11 |

**TABLE 3-1**
**SUMMARY OF MONITORING WELL CONSTRUCTION DETAILS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| Well | Installed By/For | | Install Date | Northing | Easting | Ground Elevation (ft-NAVD 88) | TOC Elevation (ft-NAVD 88) | Total Depth of Boring | | Screen Length | Screen Interval | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Top | Bottom | Top | Bottom |
| | Consultant | Client/Owner | | | | | | ft-bls | ft-NAVD 88 | ft | ft-bls | | ft-NAVD 88 | |
| **CSXT PARCEL 2 - NORTH OF EAST BRAMLETT ROAD (CONTINUED)** | | | | | | | | | | | | | | |
| MW-35S | SynTerra | Duke Energy | 1/30/2020 | 1104737.809 | 1574399.488 | 930.06 | 933.26 | 17 | 913.06 | 10 | 5 | 15 | 925.06 | 915.06 |
| MW-35TZ | SynTerra | Duke Energy | 1/30/2020 | 1104740.693 | 1574405.309 | 930.12 | 933.51 | 35 | 895.12 | 5 | 30 | 35 | 900.12 | 895.12 |
| MW-35BR | SynTerra | Duke Energy | 6/20/2020 | 1104694.8 | 1574334.51 | 928.05 | 931.40 | 153 | 774.77 | 10 | 140 | 150 | 788.05 | 778.05 |
| MW-43S | SynTerra | Duke Energy | 5/20/2020 | 1105249.95 | 1574448.11 | 938.17 | 941.26 | 24 | 914.33 | 15 | 5 | 20 | 933.17 | 918.17 |
| MW-43TZ | SynTerra | Duke Energy | 5/20/2020 | 1105252.21 | 1574456.33 | 938.09 | 941.45 | 75 | 863.57 | 10 | 61 | 71 | 877.09 | 867.09 |
| MW-43BR | SynTerra | Duke Energy | 6/20/2020 | 1105254.56 | 1574463.42 | 938.06 | 941.30 | 113 | 825.14 | 5 | 110 | 115 | 828.06 | 823.06 |
| **CSXT PARCEL 3 - VAUGHN LANDFILL/WETLANDS** | | | | | | | | | | | | | | |
| MW-1 | AES | CSXT | 3/1/1996 | 1104523.176 | 1574147.694 | 931.47 | 934.31 | 15 | 916.47 | 10 | 5 | 15 | 926.47 | 916.47 |
| MW-2 | AES | CSXT | 3/1/1996 | 1104411.968 | 1573894.503 | 932.17 | 934.82 | 15 | 917.17 | 10 | 5 | 15 | 927.17 | 917.17 |
| MW-2TZ | SynTerra | Duke Energy | 11/25/2019 | 1104390.074 | 1573935.916 | 931.61 | 934.90 | 32 | 899.61 | 5 | 27 | 32 | 904.61 | 899.61 |
| MW-2BR | SynTerra | Duke Energy | 11/22/2019 | 1104392.204 | 1573945.340 | 931.37 | 934.42 | 80 | 851.37 | 5 | 55 | 60 | 876.37 | 871.37 |
| MW-3 | AES | CSXT | 3/1/1996 | 1104205.179 | 1574124.530 | 932.90 | 935.53 | 14 | 918.90 | 5 | 9 | 14 | 923.90 | 918.90 |
| MW-3D | AES | CSXT | 3/1/1996 | 1104199.629 | 1574122.517 | 932.81 | 935.41 | 20 | 912.81 | 5 | 15 | 20 | 917.81 | 912.81 |
| MW-3BR | SynTerra | Duke Energy | 4/1/2019 | 1104216.352 | 1574138.038 | 932.99 | 935.87 | 65 | 868.49 | 5 | 59.5 | 64.5 | 873.49 | 868.49 |
| MW-3BRL | SynTerra | Duke Energy | 1/9/2020 | 1104230.397 | 1574122.560 | 933.44 | 936.49 | 105 | 828.44 | 5 | 99 | 104 | 834.44 | 829.44 |
| MW-4 | AES | CSXT | 3/1/1996 | --- | --- | 932.54 | 935.06 | 7 | 925.54 | 5 | 2 | 7 | 930.54 | 925.54 |
| MW-6 | AES | CSXT | 3/1/1996 | --- | --- | 930.67 | 933.24 | 12 | 918.67 | 10 | 2 | 12 | 928.67 | 918.67 |
| MW-6A | Duke Engineering | Duke Energy | 11/1/2005 | 1103722.942 | 1574325.996 | 928.50 | 931.62 | 15 | 913.50 | 10 | 5 | 15 | 923.50 | 913.50 |
| MW-18 | Duke Engineering | Duke Power | 3/1/1999 | 1103555.790 | 1574116.247 | 931.08 | 933.34 | 25 | 906.08 | 15 | 9.5 | 24.5 | 921.58 | 906.58 |
| MW-19 | Duke Engineering | Duke Power | 3/1/1999 | 1104516.773 | 1574147.074 | 931.65 | 934.20 | 19 | 912.65 | 10 | 9 | 19 | 922.65 | 912.65 |
| MW-20 | Duke Engineering | Duke Power | 4/1/1999 | 1104213.556 | 1574128.665 | 933.23 | 935.71 | 26 | 907.73 | 5 | 20 | 25 | 913.23 | 908.23 |
| MW-21 | Duke Engineering | Duke Power | 3/1/1999 | 1103738.846 | 1574327.052 | 930.68 | 934.53 | 18 | 912.68 | 13 | 5 | 18 | 925.68 | 912.68 |
| MW-21BR | SynTerra | Duke Energy | 2/10/2020 | 1103722.170 | 1574332.248 | 928.00 | 930.89 | 44 | 884.00 | 5 | 37 | 42 | 891.00 | 886.00 |
| MW-21BRL | SynTerra | Duke Energy | 1/22/2020 | 1103719.720 | 1574342.351 | 928.48 | 931.51 | 125 | 803.48 | 5 | 60 | 65 | 868.48 | 863.48 |
| MW-39S | SynTerra | Duke Energy | 11/22/2019 | 1103862.135 | 1574498.529 | 935.55 | 938.60 | 29 | 906.55 | 15 | 9 | 24 | 926.55 | 911.55 |
| MW-39BR | SynTerra | Duke Energy | 12/6/2019 | 1103861.343 | 1574509.394 | 935.25 | 937.92 | 53 | 882.39 | 5 | 45 | 50 | 890.25 | 885.25 |
| MW-39BRL | SynTerra | Duke Energy | 1/21/2020 | 1103868.772 | 1574504.365 | 935.17 | 937.91 | 80 | 855.17 | 5 | 75 | 80 | 860.17 | 855.17 |
| MW-45BR | SynTerra | Duke Energy | 6/20/2020 | 1104261.04 | 1574088.93 | 932.83 | 936.14 | 94 | 839.19 | 10 | 80 | 90 | 852.83 | 842.83 |
| MW-46BR | SynTerra | Duke Energy | 6/20/2020 | 1104279.97 | 1574217.44 | 931.14 | 934.01 | 183 | 748.41 | 10 | 170 | 180 | 761.14 | 751.14 |
| MW-47BR | SynTerra | Duke Energy | 6/20/2020 | 1104178.22 | 1574202.76 | 932.73 | 935.96 | 123 | 809.38 | 10 | 110 | 120 | 822.73 | 812.73 |
| MW-49BR | SynTerra | Duke Energy | 2/12/2021 | 1104230.26 | 1574193.06 | --- | 934.71 | 114 | --- | OB | OB | OB | OB | OB |
| **CSXT PARCEL 4 - REEDY RIVER FLOODPLAIN/WETLANDS** | | | | | | | | | | | | | | |
| MW-5 | AES | CSXT | 3/1/1996 | 1103060.693 | 1574402.095 | 929.58 | 929.73 | 14 | 915.58 | 10 | 4 | 14 | 925.58 | 915.58 |
| MW-22 | AES | CSXT | 4/1/1999 | 1103063.776 | 1574406.424 | 930.47 | 930.30 | 37 | 893.97 | 10 | 25 | 35 | 905.47 | 895.47 |
| MW-38S | SynTerra | CSXT | 6/20/2020 | 1103652.26 | 1574578.32 | 926.48 | 929.90 | 23 | 903.46 | 15 | 5 | 20 | 921.48 | 906.48 |

**TABLE 3-1**
**SUMMARY OF MONITORING WELL CONSTRUCTION DETAILS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| Well | Installed By/For | | Install Date | Northing | Easting | Ground Elevation (ft-NAVD 88) | TOC Elevation (ft-NAVD 88) | Total Depth of Boring | | Screen Length | Screen Interval | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Top | Bottom | Top | Bottom |
| | Consultant | Client/Owner | | | | | | ft-bls | ft-NAVD 88 | ft | ft-bls | | ft-NAVD 88 | |
| **CSXT PARCEL 4 - REEDY RIVER FLOODPLAIN/WETLANDS (CONTINUED)** | | | | | | | | | | | | | | |
| MW-38BR | SynTerra | CSXT | 6/20/2020 | 1103657.07 | 1574577.86 | 926.50 | 929.72 | 30 | 896.59 | 5 | 42 | 47 | 884.50 | 879.50 |
| MW-40BR | SynTerra | CSXT | 2/23/2020 | 1103053.240 | 1574410.054 | 930.17 | 929.85 | 80 | 850.17 | 10 | 65 | 75 | 865.17 | 855.17 |
| **CSXT PARCEL 5 - REEDY RIVER FLOODPLAIN/WETLANDS** | | | | | | | | | | | | | | |
| MW-23 | Duke Engineering | Duke Power | 5/1/1999 | 1103037.2 | 1574608.164 | 922.25 | 924.63 | 43 | 879.25 | 10 | 32.5 | 42.5 | 889.75 | 879.75 |
| MW-24 | Duke Engineering | Duke Power | 5/1/1999 | 1103032.223 | 1574601.039 | 922.21 | 926.13 | 11 | 911.21 | 10 | 0.4 | 10.4 | 921.81 | 911.81 |
| MW-50S | SynTerra | Duke Energy | 3/23/2021 | 1103085.98 | 1574808.76 | 926.99 | --- | 15 | --- | 10 | 5 | 15 | 921.99 | 911.99 |
| MW-50TZ | SynTerra | Duke Energy | 3/30/2021 | 1103075.73 | 1574811.04 | 925.81 | --- | 34 | --- | 5 | 29 | 34 | 896.81 | 891.81 |
| **GREENVILLE COUNTY - LEGACY CHARTER ELEMENTARY** | | | | | | | | | | | | | | |
| MW-25 | Duke Engineering | Duke Power | 5/1/1999 | --- | --- | 928.53 | 928.53 | 17 | 911.83 | 15 | 1 | 16 | 927.53 | 912.53 |
| MW-25R | S&ME | Duke Energy | 7/1/2011 | 1104577.939 | 1574384.196 | 930.79 | 930.75 | 17 | 914.19 | 15 | 1.6 | 16.6 | 929.19 | 914.19 |
| MW-41S | SynTerra | Duke Energy | 10/20/2019 | 1104448.222 | 1574485.435 | 930.13 | 929.93 | 20 | 910.13 | 15 | 5 | 20 | 925.13 | 910.13 |
| MW-41TZ | SynTerra | Duke Energy | 11/6/2019 | 1104443.242 | 1574476.744 | 929.94 | 929.52 | 55 | 874.94 | 10 | 45 | 55 | 884.94 | 874.94 |
| MW-41BR | SynTerra | Duke Energy | 10/20/2019 | 1104435.246 | 1574465.954 | 929.92 | 929.80 | 99 | 830.92 | 10 | 80 | 90 | 849.92 | 839.92 |
| **GREENVILLE COUNTY - SWAMP RABBIT TRAIL** | | | | | | | | | | | | | | |
| MW-30S | SynTerra | Duke Energy | 12/5/2018 | 1104136.705 | 1573788.946 | 932.60 | 932.80 | 20 | 912.70 | 15 | 5 | 20 | 927.60 | 912.60 |
| MW-30TZ | SynTerra | Duke Energy | 12/19/2019 | 1104144.363 | 1573785.995 | 932.57 | 932.54 | 40 | 892.57 | 5 | 35 | 40 | 897.57 | 892.57 |
| MW-31S | SynTerra | Duke Energy | 10/1/2018 | 1103712.681 | 1573935.913 | 932.51 | 932.11 | 20 | 912.51 | 15 | 5 | 20 | 927.51 | 912.51 |
| MW-31TZ | SynTerra | Duke Energy | 10/1/2018 | 1103705.803 | 1573938.694 | 932.37 | 932.07 | 39 | 893.37 | 10 | 28 | 38 | 904.37 | 894.37 |
| MW-32S | SynTerra | Duke Energy | 12/19/2019 | 1103909.294 | 1573859.880 | 931.98 | 931.73 | 35 | 896.98 | 15 | 20 | 35 | 911.98 | 896.98 |
| MW-32TZ | SynTerra | Duke Energy | 12/19/2019 | 1103904.939 | 1573861.601 | 931.74 | 931.92 | 66 | 865.74 | 10 | 56 | 66 | 875.74 | 865.74 |
| MW-33S | SynTerra | Duke Energy | 12/19/2019 | 1104902.020 | 1573641.427 | 932.12 | 932.06 | 20 | 912.12 | 15 | 5 | 20 | 927.12 | 912.12 |
| MW-33TZ | SynTerra | Duke Energy | 12/19/2019 | 1104906.515 | 1573641.307 | 931.81 | 931.24 | 40 | 891.81 | 5 | 35 | 40 | 896.81 | 891.81 |
| MW-48S | SynTerra | Duke Energy | 2/22/2020 | 1104730.873 | 1573659.968 | 932.80 | 932.56 | 31 | 902.00 | 15 | 15 | 30 | 917.80 | 902.80 |
| MW-48TZ | SynTerra | Duke Energy | 2/23/2020 | 1104740.919 | 1573658.275 | 932.72 | 932.66 | 55 | 877.72 | 10 | 45 | 55 | 887.72 | 877.72 |
| **CSXT - WEST OF REEDY RIVER** | | | | | | | | | | | | | | |
| MW-44TZ | SynTerra | Duke Energy | 6/20/2020 | 1104224.86 | 1573511.01 | 938.06 | 937.59 | 25 | 913.10 | 5 | 20 | 25 | 918.06 | 913.06 |
| MW-44BR | SynTerra | Duke Energy | 6/20/2020 | 1104231.12 | 1573523.48 | 937.74 | 937.38 | 59 | 878.50 | 10 | 50 | 60 | 887.74 | 877.74 |

Prepared by: LWD Checked by: TCK

**Notes:**
MW-7 - Abandoned monitoring wells
--- - Data is not available or not applicable
ft - feet
bls - below land surface
NAVD 88 - North American Vertical Datum of 1988
OB - open borehole
A full survey of monitoring wells MW-49BR, MW-50S and MW-50TZ to be completed and reported at a later date

**TABLE 4-1**
**SUMMARY OF SURFACE WATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8260B (VOC) | 8270D (PAH) | | | 8270D (SVOC) | | |
|---|---|---|---|---|---|---|---|---|
| | **Analytical Parameter** | **Tetrachloroethene** | **Naphthalene** | **Benzo(a)pyrene** | **Pyrene** | **3&4-Methylphenol (m&p Cresol)** | **Benzo(a)pyrene** | **cis-1,2-Dichloroethene** |
| | **Reporting Units** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** |
| | **SCDHEC R.61-68 Human Health MCLs** | **NE** | **25†** | **0.2** | **NE** | **NE** | **0.2** | **NE** |
| **Location ID** | **Sample Collection Date** | **Analytical Results** | | | | | | |
| RR-0 | 10/20/2020 | < 1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 1 |
| RR-1 | 10/20/2020 | < 1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 1 |
| RR-2 | 10/20/2020 | < 1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 1 |
| RR-3 | 10/20/2020 | < 1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 1 |
| RR-4 | 10/20/2020 | < 1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 1 |
| RR-5 | 10/20/2020 | < 1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 1 |
| RR-6 | 10/19/2020 | < 1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 1 |
| RR-7 | 10/19/2020 | < 1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 1 |
| RR-8 | 10/19/2020 | < 1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 1 |
| RR-9 | 10/19/2020 | < 1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 1 |
| RR-10 | 10/19/2020 | **2.4** | < 10 | < 10 | < 10 | < 10 | < 10 | **0.46 j** |
| RR-11 | 10/19/2020 | **2.1** | < 10 | < 10 | < 10 | < 10 | < 10 | **0.47 j** |
| SW-1 | 10/5/2020 | < 1 | < 10 | < 0.1 | < 10 | < 10 | < 0.1 | < 1 |
| SW-1 | 3/23/2021 | < 1.0 | **0.87 j^** | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |
| SW-2 | 10/5/2020 | < 1 | < 10 | **0.017 j** | < 10 | < 10 | **0.017 j** | < 1 |
| SW-2 | 3/23/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |
| SW-3 | 10/5/2020 | < 1 | < 10 | **0.14** | < 10 | < 10 | **0.14** | < 1 |
| SW-3 | 3/23/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |
| SW-4 | 10/5/2020 | < 1 | < 10 | **0.068 j** | < 10 | **2.4 j** | **0.068 j** | < 1 |
| SW-4 | 3/23/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |
| SW-5 | 10/5/2020 | < 1 | < 10 | **0.012 j** | < 10 | < 10 | **0.012 j** | < 1 |
| SW-5 | 3/23/2021 | < 1.0 | < 1.0 ^ | **0.58** | **2.2 j** | < 10.0 | **0.58** | < 1.0 |
| SW-6 | 10/5/2020 | < 1 | < 10 | < 0.1 | < 10 | < 10 | < 0.1 | < 1 |
| SW-6 | 3/23/2021 | < 1.0 | **1.1^** | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |
| SW-7 | 10/5/2020 | < 1 | < 10 | < 0.1 | < 10 | < 10 | < 0.1 | < 1 |
| SW-7 | 3/23/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |
| SW-8 | 10/5/2020 | < 1 | < 10 | < 0.1 | < 10 | < 10 | < 0.1 | < 1 |
| SW-8 | 3/23/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |
| SW-9 | 10/5/2020 | < 1 | < 10 | < 0.1 | < 10 | < 10 | < 0.1 | < 1 |
| SW-9 | 3/23/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |
| SW-10 | 10/5/2020 | < 1 | < 10 | < 0.1 | < 10 | < 10 | < 0.1 | < 1 |
| SW-10 | 3/23/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |
| SW-11 | 10/5/2020 | < 1 | < 10 | < 0.1 | < 10 | < 10 | < 0.1 | < 1 |
| SW-11 | 3/23/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |

**TABLE 4-1**
**SUMMARY OF SURFACE WATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8260B (VOC) | 8270D (PAH) | | | 8270D (SVOC) | | |
|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **Tetrachloroethene** | **Naphthalene** | **Benzo(a)pyrene** | **Pyrene** | **3&4-Methylphenol (m&p Cresol)** | **Benzo(a)pyrene** | **cis-1,2-Dichloroethene** |
| **Reporting Units** | | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** |
| **SCDHEC R.61-68 Human Health MCLs** | | **NE** | **25†** | **0.2** | **NE** | **NE** | **0.2** | **NE** |
| **Location ID** | **Sample Collection Date** | **Analytical Results** | | | | | | |
| SW-12 | 10/5/2020 | < 1 | < 10 | < 0.1 | < 10 | < 10 | < 0.1 | < 1 |
| SW-12 | 3/23/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 | < 10.0 R1 | < 0.10 | < 1.0 |
| SW-13 | 3/23/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |
| SW-14 | 3/23/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |
| SW-15 | 3/23/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |
| SW-16 | 3/23/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |
| SW-17 | 3/23/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 | < 10.0 | < 0.10 | < 1.0 |
| SW-18 | 4/5/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 L1 | < 10.0 | < 0.10 | < 1.0 |
| SW-19 | 4/5/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 L1 | < 10.0 | < 0.10 | < 1.0 |
| SW-20 | 4/5/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 L1 | < 10.0 | < 0.10 | < 1.0 |
| SW-21 | 4/5/2021 | < 1.0 | < 1.0 ^ | < 0.10 | < 10.0 L1 | < 10.0 | < 0.10 | < 1.0 |

Prepared by: PPB Checked by: RSB / JPC

**Notes:**

This table summarizes only constituents detected at concentrations greater than the method detection limit.

- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the SCDHEC R.61-68 Human Health MCLs.

**Bold** type indicates that the compound was detected at a concentration greater than the adjusted method detection limit.

† - Risk Based Screening Level (RBSL) referenced in Appendix D, Table 1 of the South Carolina Department of Environmental Health and Control (SCDHEC) Quality Assurance Program Plan for the Underground Storage Tank (UST) Management Division.

< - Concentration not detected at or above the adjusted reporting limit.

* - In instances where the reporting limit is greater than the comparative regulatory criteria, the non-detected value is reported as less than the maximum detection limit.

^ - Sample was analyzed by EPA Method 8260D

Deg C - degrees Celsius

ft - feet

j - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

L1 - Analyte recovery in the laboratory control sample was above quality control limits. Results may be biased high.

MCLs - Maximum Contaminant Levels

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolts

µmhos/cm - micromhos per centimeter

NE - No screening level established at this time. A site-specific risk-based screening level may be established as part of the risk assessment process outlined in Section 5.0 of the RIWP-A.

NTUs -Nephelometric Turbidity Units

PAH - polycyclic aromatic hydrocarbon

R1 - Relative Percent Difference value was outside control limits.

S.U. - standard units

SCDHEC R.61-68 - South Carolina Department of Health and Environmental Control Regulation 61-68.

SVOCs - Semi-volatile organic compounds

VOC - Volatile organic compounds

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8260B (VOA and MTBE) | | | | | | | 8260B (Other VOC) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analytical Parameter | Benzene | Ethylbenzene | Toluene | Xylene | | | Methyl tert-butyl ether (MTBE) | 2-Butanone (MEK) | Acetone | Chlorobenzene |
| | | | | | m&p-Xylenes | o-Xylene | Total Xylene | | | | |
| | Reporting Units | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| | Regulatory Standard | 5 | 700 | 1000 | NE | NE | 10000 | 40 | NE | NE | 100 |
| Sample ID | Sample Collection Date | Analytical Results | | | | | | | | | |
| LC-SB-3 | 8/28/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| LC-SB-5 | 8/22/2020 | < 25 | 31.3 | < 25 | 27.1 j | 11.6 j | < 25 | < 25 | < 125 | < 625 | < 25 |
| LC-SB-9 | 8/22/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| LC-SB-10 | 8/29/2020 | 1.3 | 1.2 | 0.48 j | 1.2 j | 0.67 j | < 1 | < 1 | < 5 | < 25 | 0.56 j |
| LC-SB-12 | 8/29/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-1 | 9/24/2020 | 13.6 | 35.5 | 4.8 j | 27.3 | 22.8 | 50 | < 10 | < 50 IK | < 250 | < 10 |
| MW-1 | 3/15/2021 | 11.1 | 23.5 | 6.4 j | 14.2 j | 11.9 | 26.1 | < 10.0 | < 50.0 | < 250 | < 10.0 |
| MW-2BR | 9/29/2020 | 973 | 130 | 59.6 | 43.1 | 40.4 | 83.5 | < 10 | < 50 | < 250 | < 10 |
| MW-2BR | 3/10/2021 | 1250 | 104 | 44.6 | 15.9 j | 28.1 | 44 | < 10.0 | < 50.0 | < 250 | < 10.0 |
| MW-2TZ | 9/29/2020 | 684 | 132 | < 20 | 28.5 j | 7.2 j | < 20 | < 20 | < 100 | < 500 | < 20 |
| MW-2TZ | 3/10/2021 | 517 | 47.4 | < 5.0 | 8.4 j | 2.0 j | 10.4 | < 5.0 | < 25.0 | < 125 | < 5.0 |
| MW-3BR | 9/24/2020 | 423 | 72.7 | 179 | 69 | 41.7 | 111 | < 10 | < 50 | < 250 | < 10 |
| MW-3BR | 3/16/2021 | 281 | 35.8 | 93.1 | 37.6 | 23 | 60.6 | < 2.5 | < 12.5 | < 62.5 | < 2.5 |
| MW-3BRL | 9/24/2020 | 533 | 108 | 112 | 85.8 | 52.2 | 138 | < 12.5 | < 62.5 | < 312 | < 12.5 |
| MW-3BRL | 3/16/2021 | 523 | 104 | 68.2 | 66.3 | 40.8 | 107 | < 12.5 | < 62.5 | < 312 | < 12.5 |
| MW-5 | 9/24/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-5 | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-13R | 9/22/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | 0.35 j | < 5 | < 25 | < 1 |
| MW-13R | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-7R | 9/22/2020 | 7.7 | 0.45 j | < 1 | 1.6 j | 0.39 j | < 1 | 1.2 | < 5 | < 25 | < 1 |
| MW-7R | 3/11/2021 | 12.4 | < 1.0 | < 1.0 | 1.1 j | < 1.0 | 1.1 | 0.86 j | < 5.0 | < 25.0 | < 1.0 |
| MW-9R | 9/22/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | 1.7 | < 5 | < 25 | < 1 |
| MW-9R | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | 1.4 | < 5.0 | < 25.0 | < 1.0 |
| MW-15 | 9/23/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-15 | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-16 | 9/23/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-16 | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-18 | 3/16/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-21 | 9/28/2020 | 6.4 | 1.1 | 3.3 | 1.7 j | 1.7 | 1.7 | < 1 | < 5 | < 25 | < 1 |
| MW-21 | 3/17/2021 | 0.62 j | 0.40 j | < 1.0 | < 2.0 | 0.41 j | 0.41 j | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-21BR | 9/28/2020 | 1.5 | 6 | 1.1 | 1.3 j | 2.3 | 2.3 | < 1 | < 5 | < 25 | < 1 |
| MW-21BR | 3/17/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-21BRL | 9/28/2020 | 4 | 5.5 | 36.3 | 18.5 | 9.1 | 27.6 | < 1 | < 5 | < 25 | < 1 |
| MW-21BRL | 3/17/2021 | 9.5 | 14.3 | 86.1 | 40.4 | 17.5 | 57.9 | < 5.0 | < 25.0 | < 125 | < 5.0 |
| MW-22 | 9/24/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-22 | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-25R | 9/28/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-25R | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-26 | 9/22/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | 0.28 j | < 5 | < 25 | < 1 |
| MW-26 | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-27 | 9/22/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-27 | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | 0.63 j | < 5.0 | < 25.0 | < 1.0 |
| MW-28 | 9/22/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | 1.4 | < 5 | < 25 | < 1 |
| MW-28 | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | 1.1 | < 5.0 | < 25.0 | < 1.0 |
| MW-29BR | 9/23/2020 | 140 | 6.2 | 82.5 | 12.7 | 7.1 | 19.8 | < 2 | < 10 | < 50 | < 2 |
| MW-29BR | 3/15/2021 | 214 | 10.7 | 135 | 25.6 | 13.5 | 39.1 | < 2.0 | < 10.0 | < 50.0 | < 2.0 |
| MW-29S | 9/23/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-29S | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-29TZ | 9/23/2020 | 1480 | 243 | 21 j | 105 | 69.9 | 175 | < 40 | < 200 | < 1000 | < 40 |
| MW-29TZ | 3/15/2021 | 1600 | 209 | 23.5 j | 62.1 | 54.4 | 116 | < 25.0 | < 125 | < 625 | < 25.0 |
| MW-30S | 9/29/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-30S | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8260B (Other VOC) (Continued) | | | | | | 8270D (PAH) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analytical Parameter | cis-1,2-Dichloroethene | Diisopropyl ether (DIPE) | Methylene chloride | Styrene | Trichloroethene | Vinyl Acetate | Naphthalene | 2-Chloronaphthalene | 1-Methylnaphthalene | 2-Methylnaphthalene | Acenaphthene | Acenaphthylene |
| | Reporting Units | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| | Regulatory Standard | NE | NE | 5 | 100 | 5 | NE | 25† | NE | NE | NE | NE | NE |
| Sample ID | Sample Collection Date | Analytical Results | | | | | | | | | | | |
| LC-SB-3 | 8/28/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | **0.51 j*** | < 10 | < 10 | < 10 | < 10 | < 10 |
| LC-SB-5 | 8/22/2020 | < 25 | < 25 | < 125 | < 25 | < 25 | < 50 | **353** | < 10 | **326** | **550** | **164** | **7.1 j** |
| LC-SB-9 | 8/22/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | **1.4 j** | < 10 | **2.3 j** | **4.5 j** | **1.6 j** | **0.24 j** |
| LC-SB-10 | 8/29/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | **73.5 *** | < 10 | **15.7** | **21.2** | **15** | **4.1 j** |
| LC-SB-12 | 8/29/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-1 | 9/24/2020 | < 10 | < 10 | < 50 | < 10 | < 10 | < 20 | **1810 *** | < 10 | **549** | **555** | **220** | < 10 |
| MW-1 | 3/15/2021 | < 10.0 | < 10.0 IK | < 50.0 | < 10.0 | < 10.0 | **117 IK** | **938 M1^** | < 10.0 | **357** | **350** | **139** | < 10.0 |
| MW-2BR | 9/29/2020 | < 10 | < 10 | < 50 | < 10 | < 10 | < 20 | **1910 *** | < 10 | **39.6** | **47.3** | **19.6** | **2.3 j** |
| MW-2BR | 3/10/2021 | < 10.0 | < 10.0 IK | < 50.0 | < 10.0 | < 10.0 | < 20.0 | **738 ^** | **2.0 j** | **101 R1** | **8.4 j** | **48.4** | **4.6 j** |
| MW-2TZ | 9/29/2020 | < 20 | < 20 | < 100 | < 20 | < 20 | < 40 | **2090 *** | < 10 | **237** | **202** | **145** | < 10 |
| MW-2TZ | 3/10/2021 | < 5.0 | < 5.0 | < 25.0 | < 5.0 | < 5.0 | < 10.0 | **732 ^** | < 10.0 | **78.1** | **48.4** | **36.1** | < 10.0 |
| MW-3BR | 9/24/2020 | < 10 | < 10 | < 50 | **38** | < 10 | < 20 | **1290 *** | < 10 | **80.9** | **126** | **8.3 j** | **48.4** |
| MW-3BR | 3/16/2021 | < 2.5 | < 2.5 IK | < 12.5 | **11.3** | < 2.5 | < 5.0 IK | **293 ^** | < 10.0 | **26.7** | **26** | **6.4 j** | **16.2** |
| MW-3BRL | 9/24/2020 | < 12.5 | < 12.5 | < 62.5 | **36.5** | < 12.5 | < 25 | **2390 *** | < 10 | **181** | **283** | **38.2** | **103** |
| MW-3BRL | 3/16/2021 | < 12.5 | < 12.5 | < 62.5 | **17.6** | < 12.5 | < 25.0 | **2060 ^** | < 10.0 | **237** | **358** | **56.8** | **122** |
| MW-5 | 9/24/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-5 | 3/15/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-13R | 9/22/2020 | **0.49 j** | < 1 | < 5 | < 1 | **1.1** | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-13R | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-7R | 9/22/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | **7.9 *** | < 10 | **3.5 j** | < 10 | < 10 | < 10 |
| MW-7R | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | **31.0 ^** | < 10.0 | **3.4 j** | < 10.0 | < 10.0 | < 10.0 |
| MW-9R | 9/22/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-9R | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-15 | 9/23/2020 | **0.78 j** | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-15 | 3/11/2021 | **0.55 j** | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-16 | 9/23/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-16 | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-18 | 3/16/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-21 | 9/28/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | **21 *** | < 10 | < 10 | < 10 | **2.2 j** | < 10 |
| MW-21 | 3/17/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | **1.2 ^** | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-21BR | 9/28/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 L1 | **53.3 *** | < 10 | **3 j** | < 10 | **7.1 j** | < 10 |
| MW-21BR | 3/17/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-21BRL | 9/28/2020 | < 1 | < 1 | < 5 | **22.5** | < 1 | < 2 | **172 *** | < 10 | **16.5** | **29.5** | < 10 | **10.1** |
| MW-21BRL | 3/17/2021 | < 5.0 | < 5.0 | < 25.0 | **47.3** | < 5.0 | < 10.0 | **451 ^** | < 10.0 | **18.2** | **32.3** | < 10.0 | **12.4** |
| MW-22 | 9/24/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-22 | 3/15/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-25R | 9/28/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-25R | 3/15/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-26 | 9/22/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-26 | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-27 | 9/22/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-27 | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-28 | 9/22/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-28 | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-29BR | 9/23/2020 | < 2 | < 2 | < 10 | **16.8** | < 2 | < 4 L1 | **171 *** | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-29BR | 3/15/2021 | < 2.0 | < 2.0 IK | < 10.0 | **30.1** | < 2.0 | < 4.0 IK | **250 ^** | < 10.0 | **22.6** | **32.6** | < 10.0 | **13** |
| MW-29S | 9/23/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-29S | 3/15/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-29TZ | 9/23/2020 | < 40 | < 40 | < 200 | < 40 | < 40 | < 80 L1 | **4260 *** | < 10 | **273** | **445** | **147** | < 10 |
| MW-29TZ | 3/15/2021 | < 25.0 | < 25.0 IK | < 125 | < 25.0 | < 25.0 | < 50.0 IK | **1750 M1^** | < 10.0 | **167** | **277** | **80.5** | < 10.0 |
| MW-30S | 9/29/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 L1 | **0.83 j C8*** | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-30S | 3/10/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 M1 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (PAH) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Parameter | | Anthracene | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene |
| Reporting Units | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| Regulatory Standard | | NE | 10 | 0.2 | 10 | NE | 10 | 10 | 10 | NE | NE | NE | NE | NE |
| Sample ID | Sample Collection Date | Analytical Results | | | | | | | | | | | | |
| LC-SB-3 | 8/28/2020 | < 10 | < 10 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| LC-SB-5 | 8/22/2020 | **3.8** | **4.5 j** | **3.1 j** | **2.1 j** | < 4 | < 10 | **2.7 j** | < 3 | **2.6 j** | **25.2** | < 10 | **141** | **4.3** |
| LC-SB-9 | 8/22/2020 | < 10 | < 10 | **0.039 j** | **0.032 j** | **0.016 j** | < 0.2 | **0.037 j** | < 0.15 | < 10 | < 10 | **0.013 j** | **3.5 j** | < 10 |
| LC-SB-10 | 8/29/2020 | **5.8 j** | < 10 | **1.3 L1** | < 10 | < 10 | < 10 | < 10 | < 10 | **6.8 j** | **15** | < 10 | **25.9** | **5.4 j** |
| LC-SB-12 | 8/29/2020 | < 10 | < 10 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-1 | 9/24/2020 | **12.3** | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | **3.3 j** | **71.6** | < 10 | **75.8** | **5.2 j** |
| MW-1 | 3/15/2021 | **5.8 j** | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | **40.5** | < 10.0 | **38.2** | **2.7 j** |
| MW-2BR | 9/29/2020 | < 10 | < 10 | **5.3 j, B** | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | **2.4 j** | < 10 | < 10 | < 10 |
| MW-2BR | 3/10/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | **7.5 j** | < 10.0 | **4.3 j** | < 10.0 |
| MW-2TZ | 9/29/2020 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | **22.3** | < 10 | **11.3** | < 10 |
| MW-2TZ | 3/10/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | **5.4 j** | < 10.0 | **2.9 j** | < 10.0 |
| MW-3BR | 9/24/2020 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | **8.3 j** | < 10 | **6.2 j** | < 10 |
| MW-3BR | 3/16/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | **3.4 j** | < 10.0 | < 10.0 | < 10.0 |
| MW-3BRL | 9/24/2020 | < 10 | < 10 | < 2 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | **21.5** | < 10 | **16** | < 10 |
| MW-3BRL | 3/16/2021 | **3.6 j** | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | **28.8** | < 10.0 | **22.3** | < 10.0 |
| MW-5 | 9/24/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-5 | 3/15/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-13R | 9/22/2020 | < 10 | < 10 v1 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-13R | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-7R | 9/22/2020 | < 10 | < 10 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-7R | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-9R | 9/22/2020 | < 10 | < 10 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-9R | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-15 | 9/23/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 L1 | < 10 | < 10 |
| MW-15 | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-16 | 9/23/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 L1 | < 10 | < 10 |
| MW-16 | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-18 | 3/16/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-21 | 9/28/2020 | < 10 | < 10 | **16.3 3g** | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-21 | 3/17/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | **4.0 j** | < 10.0 | < 10.0 | **2.2 j** | **3.6 j** |
| MW-21BR | 9/28/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | **3.1 j** | < 10 | **2.5 j** | < 10 |
| MW-21BR | 3/17/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-21BRL | 9/28/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-21BRL | 3/17/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-22 | 9/24/2020 | < 10 | < 10 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-22 | 3/15/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-25R | 9/28/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-25R | 3/15/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-26 | 9/22/2020 | < 10 | < 10 v1 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-26 | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-27 | 9/22/2020 | < 10 | < 10 | < 0.1 M1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-27 | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-28 | 9/22/2020 | < 10 | < 10 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-28 | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-29BR | 9/23/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 L1 | < 10 | < 10 |
| MW-29BR | 3/15/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | **2.2 j** | < 10.0 | < 10.0 | < 10.0 |
| MW-29S | 9/23/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 L1 | < 10 | < 10 |
| MW-29S | 3/15/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-29TZ | 9/23/2020 | **2.4 j** | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | **25.4** | < 10 L1 | **15.5** | < 10 |
| MW-29TZ | 3/15/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | **15.9** | < 10.0 | **11.3** | < 10.0 |
| MW-30S | 9/29/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-30S | 3/10/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (Other SVOC) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analytical Parameter | 1,2-Dichlorobenzene | 1,3-Dichlorobenzene | 1,4-Dichlorobenzene | 2,4-Dimethylphenol | 2-Methylphenol(o-Cresol) | 3&4-Methylphenol(m&p Cresol) | Aniline | Benzoic acid | Benzyl alcohol | Dibenzofuran | Phenol |
| | Reporting Units | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| | Regulatory Standard | 600 | NE | 75 | NE | NE | NE | NE | NE | NE | NE | NE |
| Sample ID | Sample Collection Date | Analytical Results | | | | | | | | | | |
| LC-SB-3 | 8/28/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| LC-SB-5 | 8/22/2020 | < 25 | < 25 | < 25 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | **19.8** | < 10 |
| LC-SB-9 | 8/22/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| LC-SB-10 | 8/29/2020 | < 1 | < 1 | **0.36 j** | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | **13.7** | < 10 |
| LC-SB-12 | 8/29/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-1 | 9/24/2020 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | **26.3** | < 10 |
| MW-1 | 3/15/2021 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | **15.1** | < 10.0 |
| MW-2BR | 9/29/2020 | < 10 | < 10 | < 10 | **18.1** | **3.5 j** | < 10 | < 10 | < 50 | < 20 | < 10 | **1.6 j** |
| MW-2BR | 3/10/2021 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 R1 | < 50.0 | < 20.0 | **2.2 j** | **2.2 j** |
| MW-2TZ | 9/29/2020 | < 20 | < 20 | < 20 | < 10 | < 10 | < 10 | **66.1** | < 50 | < 20 | **5.7 j** | **4.7 j** |
| MW-2TZ | 3/10/2021 | < 5.0 | < 5.0 | < 5.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | **8.0 j** |
| MW-3BR | 9/24/2020 | < 10 | < 10 | < 10 | **24.2** | < 10 | < 10 | < 10 | < 50 | < 20 | **2.5 j** | < 10 |
| MW-3BR | 3/16/2021 | < 2.5 | < 2.5 | < 2.5 | **39.4** | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | **1.5 j** |
| MW-3BRL | 9/24/2020 | < 12.5 | < 12.5 | < 12.5 | **25.8** | < 10 | **3.7 j** | < 10 | < 50 | < 20 | **6.9 j** | < 10 |
| MW-3BRL | 3/16/2021 | < 12.5 | < 12.5 | < 12.5 | **35.7** | < 10.0 | **4.7 j** | < 10.0 | < 50.0 | < 20.0 | **9.1 j** | < 10.0 |
| MW-5 | 9/24/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-5 | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-13R | 9/22/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 v2 | < 50 | < 20 | < 10 | < 10 |
| MW-13R | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | **12.1 j** | < 20.0 | < 10.0 | < 10.0 |
| MW-7R | 9/22/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-7R | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-9R | 9/22/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-9R | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-15 | 9/23/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-15 | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-16 | 9/23/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-16 | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-18 | 3/16/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-21 | 9/28/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-21 | 3/17/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-21BR | 9/28/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | **2.9 j** | < 10 |
| MW-21BR | 3/17/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-21BRL | 9/28/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-21BRL | 3/17/2021 | < 5.0 | < 5.0 | < 5.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-22 | 9/24/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-22 | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-25R | 9/28/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-25R | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-26 | 9/22/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 v2 | < 50 | < 20 | < 10 | < 10 |
| MW-26 | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-27 | 9/22/2020 | < 1 | < 1 | < 1 | < 10 R1 | < 10 R1 | < 10 R1 | < 10 R1 | < 50 | < 20 | < 10 | < 10 |
| MW-27 | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-28 | 9/22/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-28 | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-29BR | 9/23/2020 | < 2 | < 2 | < 2 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-29BR | 3/15/2021 | < 2.0 | < 2.0 | < 2.0 | **5.7 j** | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-29S | 9/23/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-29S | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-29TZ | 9/23/2020 | < 40 | < 40 | < 40 | **191 j** | < 10 | **22.6** | **1.7 j** | < 50 | < 20 | **8.8 j** | **5.6 j** |
| MW-29TZ | 3/15/2021 | < 25.0 | < 25.0 | < 25.0 | **202** | **4.9 j** | **24.3** | < 10.0 | < 50.0 | < 20.0 | **5.3 j** | **18.9** |
| MW-30S | 9/29/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-30S | 3/10/2021 | < 1.0 M1 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8260B (VOA and MTBE) | | | | | | | 8260B (Other VOC) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Parameter | | Benzene | Ethylbenzene | Toluene | Xylene | | | Methyl tert-butyl ether (MTBE) | 2-Butanone (MEK) | Acetone | Chlorobenzene |
| | | | | | m&p-Xylenes | o-Xylene | Total Xylene | | | | |
| Reporting Units | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| Regulatory Standard | | 5 | 700 | 1000 | NE | NE | 10000 | 40 | NE | NE | 100 |
| Sample ID | Sample Collection Date | Analytical Results | | | | | | | | | |
| MW-30TZ | 9/29/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-30TZ | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-31S | 9/29/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-31S | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-31TZ | 9/29/2020 | **0.77 j** | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-31TZ | 3/10/2021 | **0.40 j** | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-32S | 9/29/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-32S | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-32TZ | 9/29/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-32TZ | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-33S | 9/29/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-33S | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-33TZ | 9/29/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-33TZ | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-34BR | 9/23/2020 | **2.5** | < 1 | **1.6** | < 2 | < 1 | < 1 | < 1 | < 5 IK | < 25 | < 1 |
| MW-34BR | 3/15/2021 | **2.2** | < 1.0 | **0.99 j** | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-34S | 9/23/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-34S | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-34TZ | 9/23/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 IK | < 25 | < 1 |
| MW-34TZ | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-35BR | 7/15/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-35BR | 9/22/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-35BR | 3/12/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-35S | 9/22/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-35S | 3/12/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-35TZ | 9/22/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-35TZ | 3/12/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-36BR | 9/22/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | **0.29 j** | < 5 | < 25 | < 1 |
| MW-36BR | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-36S | 9/22/2020 | **6.7** | **39.3** | **12.7** | **18.3** | **26.3** | **44.6** | < 2 | < 10 | < 50 | < 2 |
| MW-36S | 3/11/2021 | **8.5** | **40.5** | **11.4** | **12.2** | **23.3** | **35.5** | < 2.0 | < 10.0 | < 50.0 | < 2.0 |
| MW-36TZ | 9/22/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | **2** | < 5 | < 25 | < 1 |
| MW-36TZ | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 ,C8 | **0.79 j,C8** | < 1.0 | **0.79 j** | **1.3** | < 5.0 | < 25.0 | < 1.0 |
| MW-37BR | 9/21/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-37BR | 3/12/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-37S | 9/21/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | **1.6** | < 5 | < 25 | < 1 |
| MW-37S | 3/12/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | **0.59 j** | < 5.0 | < 25.0 | < 1.0 |
| MW-37TZ | 9/21/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | **2.3** | < 5 | < 25 | < 1 |
| MW-37TZ | 3/12/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | **2.2** | < 5.0 | < 25.0 | < 1.0 |
| MW-38BR | 7/14/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-38BR | 9/28/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-38BR | 3/16/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-38S | 7/14/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-38S | 9/28/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-38S | 3/16/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-39BR | 9/28/2020 | < 1 | < 1 M1 | < 1 | < 2 M1 | < 1 M1 | < 1 MS | < 1 | < 5 | < 25 | < 1 M1 |
| MW-39BR | 3/17/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-39BRL | 9/28/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-39BRL | 3/17/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-39S | 9/28/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-39S | 3/17/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8260B (Other VOC) (Continued) | | | | | | 8270D (PAH) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analytical Parameter | cis-1,2-Dichloroethene | Diisopropyl ether (DIPE) | Methylene chloride | Styrene | Trichloroethene | Vinyl Acetate | Naphthalene | 2-Chloronaphthalene | 1-Methylnaphthalene | 2-Methylnaphthalene | Acenaphthene | Acenaphthylene |
| | Reporting Units | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| | Regulatory Standard | NE | NE | 5 | 100 | 5 | NE | 25† | NE | NE | NE | NE | NE |
| Sample ID | Sample Collection Date | Analytical Results | | | | | | | | | | | |
| MW-30TZ | 9/29/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | **0.51 j*** | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-30TZ | 3/10/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-31S | 9/29/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 L1 | < 1 * | < 10 | < 10 | < 10 | **4.4 j** | < 10 |
| MW-31S | 3/10/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | **2.5 j** | < 10.0 |
| MW-31TZ | 9/29/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 L1 | **1*** | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-31TZ | 3/10/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-32S | 9/29/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-32S | 3/10/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-32TZ | 9/29/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-32TZ | 3/10/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-33S | 9/29/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-33S | 3/10/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-33TZ | 9/29/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-33TZ | 3/10/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-34BR | 9/23/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | **1.6 *** | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-34BR | 3/15/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | **1.2 ^** | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-34S | 9/23/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-34S | 3/15/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-34TZ | 9/23/2020 | **3.6** | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-34TZ | 3/15/2021 | **3.1** | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-35BR | 7/15/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | **0.15 S1** | < 10 | **0.025 j** | **0.04 j** | < 0.5 | < 0.5 |
| MW-35BR | 9/22/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-35BR | 3/12/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-35S | 9/22/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | **1.2 *** | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-35S | 3/12/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-35TZ | 9/22/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-35TZ | 3/12/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-36BR | 9/22/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-36BR | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-36S | 9/22/2020 | < 2 | < 2 | < 10 | **1.1 j** | < 2 | < 4 | **290 *** | < 10 | **23.8** | **4.7 j** | **13.3** | **4.5 j** |
| MW-36S | 3/11/2021 | < 2.0 | < 2.0 | < 10.0 | **1.0 j** | < 2.0 | < 4.0 | **198 ^** | < 10.0 | **5.8 j** | < 10.0 | **4.7 j** | < 10.0 |
| MW-36TZ | 9/22/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-36TZ | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-37BR | 9/21/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-37BR | 3/12/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-37S | 9/21/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-37S | 3/12/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-37TZ | 9/21/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-37TZ | 3/12/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-38BR | 7/14/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | **0.079 S1** | < 10 | **0.049 j** | < 0.8 | < 0.5 | < 0.5 |
| MW-38BR | 9/28/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-38BR | 3/16/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-38S | 7/14/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | **0.027 S1** | < 10 | **0.013 j** | **0.025 j** | < 0.5 | < 0.5 |
| MW-38S | 9/28/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-38S | 3/16/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-39BR | 9/28/2020 | < 1 | < 1 | < 5 | < 1 M1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-39BR | 3/17/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-39BRL | 9/28/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-39BRL | 3/17/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-39S | 9/28/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-39S | 3/17/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 R1 | < 10.0 R1 | < 10.0 R1 | < 10.0 R1 | < 10.0 R1 |

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (PAH) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Parameter | | Anthracene | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene |
| Reporting Units | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| Regulatory Standard | | NE | 10 | 0.2 | 10 | NE | 10 | 10 | 10 | NE | NE | NE | NE | NE |
| Sample ID | Sample Collection Date | Analytical Results | | | | | | | | | | | | |
| MW-30TZ | 9/29/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-30TZ | 3/10/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-31S | 9/29/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-31S | 3/10/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-31TZ | 9/29/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-31TZ | 3/10/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-32S | 9/29/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-32S | 3/10/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-32TZ | 9/29/2020 | < 10 | < 10 | < 0.1 | **2.6 j** | < 10 | **2.8 j** | **2.9 j** | **3.1 j** | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-32TZ | 3/10/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-33S | 9/29/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-33S | 3/10/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-33TZ | 9/29/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-33TZ | 3/10/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-34BR | 9/23/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 L1 | < 10 | < 10 |
| MW-34BR | 3/15/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-34S | 9/23/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 L1 | < 10 | < 10 |
| MW-34S | 3/15/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-34TZ | 9/23/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 L1 | < 10 | < 10 |
| MW-34TZ | 3/15/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-35BR | 7/15/2020 | < 0.05 | < 0.05 | < 0.1 | < 0.05 | < 0.2 | < 0.2 | < 0.1 | < 0.15 | < 0.3 | < 0.31 | < 0.05 | < 0.2 | < 0.1 |
| MW-35BR | 9/22/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-35BR | 3/12/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-35S | 9/22/2020 | < 10 | < 10 v1 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-35S | 3/12/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-35TZ | 9/22/2020 | < 10 | < 10 v1 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-35TZ | 3/12/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-36BR | 9/22/2020 | < 10 | < 10 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-36BR | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-36S | 9/22/2020 | < 10 | < 10 v1 | **0.065 j, L1** | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | **7.4 j** | < 10 | **7.3 j** | < 10 |
| MW-36S | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-36TZ | 9/22/2020 | < 10 | < 10 v1 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-36TZ | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-37BR | 9/21/2020 | < 10 | < 10 v1 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-37BR | 3/12/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-37S | 9/21/2020 | < 10 | < 10 v1 | < 0.1 L1 M0 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-37S | 3/12/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-37TZ | 9/21/2020 | < 10 | < 10 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-37TZ | 3/12/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-38BR | 7/14/2020 | < 0.05 | < 0.05 | < 0.1 | < 0.05 | < 0.2 K | < 0.2 K | < 0.1 | < 0.15 K | < 0.3 | < 0.31 | < 0.05 K | < 0.2 | < 0.1 |
| MW-38BR | 9/28/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-38BR | 3/16/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-38S | 7/14/2020 | < 0.05 | < 0.05 | < 0.1 | < 0.05 | < 0.2 | < 0.2 | < 0.1 | < 0.15 | < 0.3 | < 0.31 | < 0.05 | < 0.2 | < 0.1 |
| MW-38S | 9/28/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-38S | 3/16/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-39BR | 9/28/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-39BR | 3/17/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-39BRL | 9/28/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-39BRL | 3/17/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-39S | 9/28/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-39S | 3/17/2021 | < 10.0 R1 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 R1 | < 10.0 | < 10.0 | < 10.0 |

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (Other SVOC) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analytical Parameter | 1,2-Dichlorobenzene | 1,3-Dichlorobenzene | 1,4-Dichlorobenzene | 2,4-Dimethylphenol | 2-Methylphenol(o-Cresol) | 3&4-Methylphenol(m&p Cresol) | Aniline | Benzoic acid | Benzyl alcohol | Dibenzofuran | Phenol |
| | Reporting Units | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| | Regulatory Standard | 600 | NE | 75 | NE | NE | NE | NE | NE | NE | NE | NE |
| Sample ID | Sample Collection Date | Analytical Results | | | | | | | | | | |
| MW-30TZ | 9/29/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-30TZ | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-31S | 9/29/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-31S | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-31TZ | 9/29/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-31TZ | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-32S | 9/29/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-32S | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-32TZ | 9/29/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-32TZ | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-33S | 9/29/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-33S | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-33TZ | 9/29/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-33TZ | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-34BR | 9/23/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | **1.4 j** |
| MW-34BR | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | **5.7 j** | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-34S | 9/23/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-34S | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 R1 | < 50.0 M1 | < 20.0 | < 10.0 | < 10.0 |
| MW-34TZ | 9/23/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-34TZ | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-35BR | 7/15/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 v1 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-35BR | 9/22/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-35BR | 3/12/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-35S | 9/22/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 v2 | < 50 | < 20 | < 10 | < 10 |
| MW-35S | 3/12/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-35TZ | 9/22/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 v2 | < 50 | < 20 | < 10 | < 10 |
| MW-35TZ | 3/12/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-36BR | 9/22/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-36BR | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-36S | 9/22/2020 | < 2 | < 2 | < 2 | < 10 | < 10 | < 10 | < 10 v2 | < 50 | < 20 | **9.6 j** | < 10 |
| MW-36S | 3/11/2021 | < 2.0 | < 2.0 | < 2.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | **2.4 j** | < 10.0 |
| MW-36TZ | 9/22/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 v2 | < 50 | < 20 | < 10 | < 10 |
| MW-36TZ | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-37BR | 9/21/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 v2 | < 50 | < 20 | < 10 | < 10 |
| MW-37BR | 3/12/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-37S | 9/21/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 v2 | < 50 | < 20 | < 10 | < 10 |
| MW-37S | 3/12/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-37TZ | 9/21/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 R1 | < 20 | < 10 | < 10 |
| MW-37TZ | 3/12/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-38BR | 7/14/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 v1 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-38BR | 9/28/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-38BR | 3/16/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-38S | 7/14/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 v1 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-38S | 9/28/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-38S | 3/16/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-39BR | 9/28/2020 | < 1 M1 | **0.75 j, M1** | < 1 M1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-39BR | 3/17/2021 | **0.38** j | **0.56** j | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-39BRL | 9/28/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-39BRL | 3/17/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-39S | 9/28/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-39S | 3/17/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 R1 | < 10.0 R1 | < 10.0 | < 10.0 R1 | < 50.0 M1 | < 20.0 R1 | < 10.0 R1 | < 10.0 |

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8260B (VOA and MTBE) | | | | | | | 8260B (Other VOC) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Parameter | | Benzene | Ethylbenzene | Toluene | Xylene | | | Methyl tert-butyl ether (MTBE) | 2-Butanone (MEK) | Acetone | Chlorobenzene |
| | | | | | m&p-Xylenes | o-Xylene | Total Xylene | | | | |
| Reporting Units | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| Regulatory Standard | | 5 | 700 | 1000 | NE | NE | 10000 | 40 | NE | NE | 100 |
| Sample ID | Sample Collection Date | Analytical Results | | | | | | | | | |
| MW-40BR | 9/24/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-40BR | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-41BR | 3/15/2021 | < 1.0 | < 1.0 | **0.95 j** | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-41S | 9/24/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-41S | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-41TZ | 9/24/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 IK | < 25 | < 1 |
| MW-41TZ | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-41TZL | 9/28/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-42BR | 9/21/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-42BR | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-42S | 9/21/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | **2.2** | < 5 | < 25 | < 1 |
| MW-42S | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | **1.8** | < 5.0 | < 25.0 | < 1.0 |
| MW-42TZ | 9/21/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | **0.38 j** | < 5 | < 25 | < 1 |
| MW-42TZ | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-43BR | 7/14/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | **0.29 j** | < 5 | < 25 | < 1 |
| MW-43BR | 9/23/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-43BR | 3/11/2021 | < 1.0 | **0.38 j** | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-43S | 7/14/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | **28.8** | < 5 | < 25 | < 1 |
| MW-43S | 9/23/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | **17.4** | < 5 IK | < 25 | < 1 |
| MW-43S | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | **5** | < 5.0 | < 25.0 | < 1.0 |
| MW-43TZ | 7/14/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | **0.36 j** | < 5 | < 25 | < 1 |
| MW-43TZ | 9/23/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-43TZ | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-44BR | 7/14/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-44BR | 9/28/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-44BR | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-44TZ | 7/14/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-44TZ | 9/28/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-44TZ | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-45BR | 7/15/2020 | **158** | **27.5** | **60.1** | **26.7** | **15.9** | **42.6** | < 5 | < 25 | < 125 | < 5 |
| MW-45BR | 9/24/2020 | **155** | **19.4** | **47.2** | **17.1** | **11.6** | **28.7** | < 2 | < 10 | **329** | < 2 |
| MW-45BR | 3/16/2021 | **142** | **16.6** | **40.7** | **13.7** | **9.6** | **23.3** | < 1.0 | < 5.0 | **260** | < 1.0 |
| MW-46BR | 7/14/2020 | **5.1** | **2.6** | **9.6** | **5.1** | **2.9** | **8** | < 1 | < 5 | < 25 | < 1 |
| MW-46BR | 9/24/2020 | **2** | **1.5** | **4.7** | **3.1** | **1.5** | **4.6** | < 1 | < 5 IK | < 25 | < 1 |
| MW-46BR | 3/16/2021 | < 1.0 | < 1.0 | **0.82 j** | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-47BR | 7/15/2020 | **226** | **261** | **1390** | **940** | **477** | **1420** | < 10 | < 50 | < 250 | < 10 |
| MW-47BR | 9/24/2020 | **203** | **178** | **1200** | **575** | **335** | **911** | < 10 | < 50 IK | **223 j** | < 10 |
| MW-47BR | 3/16/2021 | **194** | **263** | **1770** | **881** | **499** | **1380** | < 10.0 | < 50.0 | **253** | < 10.0 |
| MW-48S | 9/29/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-48S | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |
| MW-48TZ | 9/29/2020 | < 1 | < 1 | < 1 | < 2 | < 1 | < 1 | < 1 | < 5 | < 25 | < 1 |
| MW-48TZ | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 | < 25.0 | < 1.0 |

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8260B (Other VOC) (Continued) | | | | | | 8270D (PAH) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analytical Parameter | cis-1,2-Dichloroethene | Diisopropyl ether (DIPE) | Methylene chloride | Styrene | Trichloroethene | Vinyl Acetate | Naphthalene | 2-Chloronaphthalene | 1-Methylnaphthalene | 2-Methylnaphthalene | Acenaphthene | Acenaphthylene |
| | Reporting Units | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| | Regulatory Standard | NE | NE | 5 | 100 | 5 | NE | 25† | NE | NE | NE | NE | NE |
| Sample ID | Sample Collection Date | Analytical Results | | | | | | | | | | | |
| MW-40BR | 9/24/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-40BR | 3/15/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-41BR | 3/15/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-41S | 9/24/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | **27.5** | **40.6** | < 10 | **15.6** |
| MW-41S | 3/15/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-41TZ | 9/24/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-41TZ | 3/15/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-41TZL | 9/28/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-42BR | 9/21/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-42BR | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-42S | 9/21/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-42S | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-42TZ | 9/21/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-42TZ | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-43BR | 7/14/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | **0.076 S1** | < 10 | < 0.8 | < 0.8 | < 0.5 | < 0.5 |
| MW-43BR | 9/23/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-43BR | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | **2.3 ^** | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-43S | 7/14/2020 | < 1 | **0.61 j** | < 5 | < 1 | < 1 | < 2 | < 1.5 | < 10 | < 0.8 | < 0.8 | < 0.5 | < 0.5 |
| MW-43S | 9/23/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-43S | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-43TZ | 7/14/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1.5 | < 10 | < 0.8 | < 0.8 | < 0.5 | < 0.5 |
| MW-43TZ | 9/23/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-43TZ | 3/11/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-44BR | 7/14/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | **0.22 S1** | < 10 | **0.044 j** | **0.057 j** | < 1 | < 1 |
| MW-44BR | 9/28/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | **0.75 j*** | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-44BR | 3/10/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-44TZ | 7/14/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 10 | < 10 | < 0.8 | < 10 | < 0.5 | < 0.5 |
| MW-44TZ | 9/28/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-44TZ | 3/10/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-45BR | 7/15/2020 | < 5 | < 5 | < 25 | **14.5** | < 5 | < 10 | **514** | < 10 | **54.3** | **74.4** | **19.5** | **17.9** |
| MW-45BR | 9/24/2020 | < 2 | < 2 | < 10 | **9.5** | < 2 | < 4 | **309 *** | < 10 | **47.6** | **64.8** | **14.8** | **10.7** |
| MW-45BR | 3/16/2021 | < 1.0 | < 1.0 IK | < 5.0 | **6.9** | < 1.0 | < 2.0 IK | **172 ^** | < 10.0 | **6.8 j** | **8.3 j** | **2.3 j** | < 10.0 |
| MW-46BR | 7/14/2020 | < 1 | < 1 | < 5 | **4.3** | < 1 | < 2 | **194** | < 10 | **77.3** | **131** | **6.5** | **37.5** |
| MW-46BR | 9/24/2020 | < 1 | < 1 | < 5 | **2.3** | < 1 | < 2 | **86.8 *** | < 10 | **36.6** | **61.9** | **3.1 j** | **16.9** |
| MW-46BR | 3/16/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | **11.4 ^** | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-47BR | 7/15/2020 | < 10 | **3.1 j** | < 50 | **88.4** | < 10 | < 20 | **1160** | < 10 | **160** | **269** | **10.3** | **105** |
| MW-47BR | 9/24/2020 | < 10 | **3.8 j** | < 50 | **57.1** | < 10 | < 20 | **1100 *** | < 10 | **72.5** | **112** | **3.6 j** | **50.8** |
| MW-47BR | 3/16/2021 | < 10.0 | < 10.0 IK | < 50.0 | **73.6** | < 10.0 | < 20.0 IK | **1630 ^** | < 10.0 | **63.9** | **97.9** | **3.1 j** | **40.8** |
| MW-48S | 9/29/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-48S | 3/10/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-48TZ | 9/29/2020 | < 1 | < 1 | < 5 | < 1 | < 1 | < 2 | < 1 * | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-48TZ | 3/10/2021 | < 1.0 | < 1.0 | < 5.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (PAH) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Parameter | | Anthracene | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-cd)pyrene | Phenanthrene | Pyrene |
| Reporting Units | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| Regulatory Standard | | NE | 10 | 0.2 | 10 | NE | 10 | 10 | 10 | NE | NE | NE | NE | NE |
| Sample ID | Sample Collection Date | Analytical Results | | | | | | | | | | | | |
| MW-40BR | 9/24/2020 | < 10 | < 10 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-40BR | 3/15/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-41BR | 3/15/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-41S | 9/24/2020 | < 10 | < 10 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | **2.5 j** | < 10 | < 10 | < 10 |
| MW-41S | 3/15/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-41TZ | 9/24/2020 | < 10 | < 10 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-41TZ | 3/15/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-41TZL | 9/28/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-42BR | 9/21/2020 | < 10 | < 10 v1 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-42BR | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-42S | 9/21/2020 | < 10 | < 10 v1 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-42S | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-42TZ | 9/21/2020 | < 10 | < 10 v1 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-42TZ | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-43BR | 7/14/2020 | < 0.05 | < 0.05 | < 0.1 | < 0.05 | < 0.2 | < 0.2 | < 0.1 | < 0.15 | < 0.3 | < 0.31 | < 0.05 | < 0.2 | < 0.1 |
| MW-43BR | 9/23/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 L1 | < 10 | < 10 |
| MW-43BR | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-43S | 7/14/2020 | < 0.05 | < 0.05 | < 0.1 | < 0.05 | < 0.2 | < 0.2 | < 0.1 | < 0.15 | < 0.3 | < 0.31 | < 0.05 | < 0.2 | < 0.1 |
| MW-43S | 9/23/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 L1 | < 10 | < 10 |
| MW-43S | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-43TZ | 7/14/2020 | < 0.05 | < 0.05 | < 0.1 | < 0.05 | < 0.2 | < 0.2 | < 0.1 | < 0.15 | < 0.3 | < 0.31 | < 0.05 | < 0.2 | < 0.1 |
| MW-43TZ | 9/23/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 L1 | < 10 | < 10 |
| MW-43TZ | 3/11/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-44BR | 7/14/2020 | < 0.1 | < 0.1 | < 0.2 | < 0.1 | < 0.4 K | < 0.4 K | < 0.2 | < 0.3 K | < 0.6 | < 0.62 | < 0.1 K | < 0.4 | < 0.2 |
| MW-44BR | 9/28/2020 | < 10 | < 10 | < 0.2 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-44BR | 3/10/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-44TZ | 7/14/2020 | < 10 | < 0.05 | < 10 | < 10 | < 0.2 | < 0.2 | < 10 | < 10 | < 10 | < 0.31 | < 0.05 | < 0.2 | < 10 |
| MW-44TZ | 9/28/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-44TZ | 3/10/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-45BR | 7/15/2020 | **0.32** | < 0.05 | < 0.1 | < 0.05 | < 0.2 | < 0.2 | < 0.1 | < 0.15 | **0.14 j** | **3.9** | < 0.05 | **2.1** | **0.14** |
| MW-45BR | 9/24/2020 | < 10 | < 10 | < 1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | **2.7 j** | < 10 | < 10 | < 10 |
| MW-45BR | 3/16/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-46BR | 7/14/2020 | **4.6** | **0.05** | < 0.1 | < 0.05 | < 0.2 | < 0.2 | **0.037 j** | < 0.15 | **1.8** | **20.4** | < 0.05 | **30.9** | **2.7** |
| MW-46BR | 9/24/2020 | < 10 | < 10 | < 0.1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | **9.1 j** | < 10 | **18.7** | **2.6 j** |
| MW-46BR | 3/16/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-47BR | 7/15/2020 | **5** | **0.15** | < 0.1 | **0.023 j** | < 0.2 | < 0.2 | **0.1** | < 0.15 | **1.9** | **24.5** | < 0.05 | **24.5** | **2.8** |
| MW-47BR | 9/24/2020 | < 10 | < 10 | < 1 L1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | **8.3 j** | < 10 | **8.4 j** | < 10 |
| MW-47BR | 3/16/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | **6.7 j** | < 10.0 | **6.7 j** | < 10.0 |
| MW-48S | 9/29/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-48S | 3/10/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-48TZ | 9/29/2020 | < 10 | < 10 | < 0.1 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| MW-48TZ | 3/10/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (Other SVOC) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analytical Parameter | 1,2-Dichlorobenzene | 1,3-Dichlorobenzene | 1,4-Dichlorobenzene | 2,4-Dimethylphenol | 2-Methylphenol(o-Cresol) | 3&4-Methylphenol(m&p Cresol) | Aniline | Benzoic acid | Benzyl alcohol | Dibenzofuran | Phenol |
| | Reporting Units | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| | Regulatory Standard | 600 | NE | 75 | NE | NE | NE | NE | NE | NE | NE | NE |
| Sample ID | Sample Collection Date | Analytical Results | | | | | | | | | | |
| MW-40BR | 9/24/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-40BR | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-41BR | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-41S | 9/24/2020 | < 1 | < 1 | < 1 | **5.9 j** | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-41S | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-41TZ | 9/24/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-41TZ | 3/15/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-41TZL | 9/28/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-42BR | 9/21/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 v2 | < 50 | < 20 | < 10 | < 10 |
| MW-42BR | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-42S | 9/21/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 v2 | < 50 | < 20 | < 10 | < 10 |
| MW-42S | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-42TZ | 9/21/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 v2 | < 50 | < 20 | < 10 | < 10 |
| MW-42TZ | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-43BR | 7/14/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-43BR | 9/23/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-43BR | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-43S | 7/14/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-43S | 9/23/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-43S | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-43TZ | 7/14/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-43TZ | 9/23/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-43TZ | 3/11/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-44BR | 7/14/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-44BR | 9/28/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-44BR | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-44TZ | 7/14/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-44TZ | 9/28/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-44TZ | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-45BR | 7/15/2020 | < 5 | < 5 | < 5 | **29** | **3.7 j** | < 10 | < 10 | < 50 | < 20 | < 10 | **3.2 j** |
| MW-45BR | 9/24/2020 | < 2 | < 2 | < 2 | **47.5** | **4.2 j** | **4.2 j** | < 10 | < 50 | < 20 | < 10 | **1.8 j** |
| MW-45BR | 3/16/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | **2.8 j** |
| MW-46BR | 7/14/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-46BR | 9/24/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-46BR | 3/16/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-47BR | 7/15/2020 | < 10 | < 10 | < 10 | **13.5** | < 10 | **3.3 j** | < 10 | < 50 | < 20 | **1.8 j** | < 10 |
| MW-47BR | 9/24/2020 | < 10 | < 10 | < 10 | **21.5** | **2.3 j** | **7.5 j** | < 10 | < 50 | **5.5 j** | **2.3 j** | **2.1 j** |
| MW-47BR | 3/16/2021 | < 10.0 | < 10.0 | < 10.0 | **15.2** | < 10.0 | **7.1 j** | < 10.0 | < 50.0 | **5.3 j** | < 10.0 | **3.0 j** |
| MW-48S | 9/29/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-48S | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-48TZ | 9/29/2020 | < 1 | < 1 | < 1 | < 10 | < 10 | < 10 | < 10 | < 50 | < 20 | < 10 | < 10 |
| MW-48TZ | 3/10/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8260B (VOA and MTBE) | | | | | | | 8260B (Other VOC) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Parameter | | Benzene | Ethylbenzene | Toluene | Xylene | | | Methyl tert-butyl ether (MTBE) | 2-Butanone (MEK) | Acetone | Chlorobenzene |
| | | | | | m&p-Xylenes | o-Xylene | Total Xylene | | | | |
| Reporting Units | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| Regulatory Standard | | 5 | 700 | 1000 | NE | NE | 10000 | 40 | NE | NE | 100 |
| Sample ID | Sample Collection Date | Analytical Results | | | | | | | | | |
| MW-49BR | 3/1/2021 | **121 H1,R0** | **95.3 H1,R0** | **37.9 H1,R0** | **45.3 H1,R0** | **30.1 H1,R0** | **75.4** | < 20.0 H1,R0 | < 100 H1,R0,v1 | < 500 H1,R0,v1 | < 20.0 H1,R0 |
| MW-49BR | 3/2/2021 | **281 H1,R0** | **134 H1,R0** | **36.7 H1,R0** | **64.2 H1,R0** | **43.0 H1,R0** | **107** | < 25.0 H1,R0 | < 125 H1,R0 | < 625 H1,R0 | < 25.0 H1,R0 |
| MW-49BR | 3/3/2021 | **518 H1,R0** | **200 H1,R0** | **74.8 H1,R0** | **104 H1,R0** | **67.4 H1,R0** | **172** | < 25.0 H1,R0 | < 125 H1,R0,v1 | < 625 H1,R0,v1 | < 25.0 H1,R0 |
| MW-49BR | 2/24/2021 | **49.4 H1,R0** | **46.6 H1,R0** | **23.6 H1,R0** | **22.0 H1,R0** | **15.4 H1,R0** | **37.4** | < 10.0 H1,R0 | < 50.0 H1,R0,v1 | < 250 H1,R0,v1 | < 10.0 H1,R0 |
| MW-49BR | 2/24/2021 | **140 H1,R0** | **20.1 H1,R0** | **135 H1,R0** | **29.9 j,H1,R0** | **21.8 H1,R0** | **51.8** | < 20.0 H1,R0 | **170 H1,R0,v1** | < 500 H1,R0,v1 | < 20.0 H1,R0 |
| MW-49BR | 3/4/2021 | **570 H1,R0** | **208 H1,R0** | **87.3 H1,R0** | **105 H1,R0** | **70.5 H1,R0** | **176** | < 25.0 H1,R0 | < 125 H1,R0,v1 | < 625 H1,R0,v1 | < 25.0 H1,R0 |
| MW-50S | 3/31/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 IK | < 25.0 | < 1.0 |
| MW-50TZ | 3/31/2021 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 5.0 IK | < 25.0 | < 1.0 |

**Notes:**

This table summarizes only constituents detected at concentrations greater than the method detection limit.

- Yellow shading indicates that the compound was detected above a potentially applicable regulatory standard listed in Section 4.11 of the RIWP-A

**Bold** type indicates that the compound was detected at a concentration greater than the adjusted method detection limit.

† - Risk Based Screening Level (RBSL) referenced in Appendix D, Table 1 of the South Carolina Department of Environmental Health and Control (SCDHEC) Quality Assurance Program Plan for the Underground Storage Tank (UST) Management Division.

< - Concentration not detected at or greater than the adjusted reporting limit.

^ - Sample was analyzed by EPA Method 8260d.

* - Sample was analyzed by EPA Method 8260.

Deg C - degrees Celcius

ft - feet

µg/L - micrograms per liter

µmhos/cm - micromhos per centimeter

mg/L - milligrams per liter

mV - millivolts

NA - not analyzed

NE - No screening level established at this time. A site-specific risk-based screening level may be established as part of the risk assessment process outlined in Section 5.0 of the RIWP-A.

NM - not measured

NTUs -Nephelometric Turbidity Units

PAH - Polycyclic aromatic hydrocarbon

SCDHEC R. 61-58 - South Carolina Department of Health and Environmental Control Regulation 61-58.

S.U. - standard units

SVOC - Semi-volatile organic compounds

VOA - Volatile organic aromatics

VOC - Volatile organic compounds

3g - Due to matrix interference, achieiving a constant weight is not possible.

B - Target analyte detected in method blank at or greater than the reporting limit. Target analyte concentration in sample is less than 10X the concentration in the method blank. Analyte concentration in sample could be due to blank contamination.

C8 - Result may be biased high due to carryover from previously analyzed sample.

H1 - Analysis conducted outside the EPA method holding time.

H2 - Extraction or preparation was conducted outside of the recognized method holding time.

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

IK - The recalculated concentration of the calibration standard(s) did not meet method acceptance criteria; this result shouldbe considered an estimated value.

j - Estimated concentration above the adjusted method detection limit and less than the adjusted reporting limit.

L1 - Analyte recovery in the laboratory control sample was above quality control limits. Results may be biased high.

L2 - Analyte recovery in the laboratory control sample was below quality control limits. Results for this analyte in associated samples may be biased low.

M0 - Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 - Matrix spike recovery was high: the associated Laboratory Control Spike (LCS) was acceptable.

M5 - Analyte recovery in the matrix spike was outside quality control limits for one or more of the constituent analytes used in thecalculated result.

R0 - The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

R1 - Relative Percent Difference value was outside control limits.

S1 - Data review findings indicate result may be biased, however, data is usable.

v1 - The continuing calibration verification was above the method acceptance limit. Any detection for the analyte in theassociated samples may have a high bias.

v2 - The continuing calibration verification was below the method acceptance limit. The analyte was not detected in theassociated samples and the sensitivity of the instrument was verified with a reporting limit check standard.

v3 - The continuing calibration verification was below the method acceptance limit. Any detection for the analyte in theassociated samples may have low bias.

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8260B (Other VOC) (Continued) | | | | | | 8270D (PAH) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **cis-1,2-Dichloroethene** | **Diisopropyl ether (DIPE)** | **Methylene chloride** | **Styrene** | **Trichloroethene** | **Vinyl Acetate** | **Naphthalene** | **2-Chloronaphthalene** | **1-Methylnaphthalene** | **2-Methylnaphthalene** | **Acenaphthene** | **Acenaphthylene** |
| **Reporting Units** | | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** |
| **Regulatory Standard** | | **NE** | **NE** | **5** | **100** | **5** | **NE** | **25†** | **NE** | **NE** | **NE** | **NE** | **NE** |
| **Sample ID** | **Sample Collection Date** | **Analytical Results** | | | | | | | | | | | |
| MW-49BR | 3/1/2021 | < 20.0 H1,R0 | < 20.0 H1,R0 | **54.3 j,H1,R0** | < 20.0 H1,R0 | < 20.0 H1,R0 | < 40.0 H1,R0,L1 | **2590 H1,R0^** | < 10.0 H2,R0 | **409 H2,R0** | **672 H2,R0** | **150 H2,R0** | **66.0 H2,R0** |
| MW-49BR | 3/2/2021 | < 25.0 H1,R0 | < 25.0 H1,R0 | < 125 H1,R0 | < 25.0 H1,R0 | < 25.0 H1,R0 | < 50.0 H1,R0 | **2470 H1,R0^** | < 10.0 H2,R0 | **565 H2,R0** | **962 H2,R0** | **223 H2,R0** | **71.3 H2,R0** |
| MW-49BR | 3/3/2021 | < 25.0 H1,R0 | < 25.0 H1,R0 | < 125 H1,R0 | < 25.0 H1,R0 | < 25.0 H1,R0 | < 50.0 H1,R0,L1 | **4050 H1,R0^** | < 10.0 H2,R0 | **446 H2,R0** | **771 H2,R0** | **176 H2,R0** | **63.3 H2,R0** |
| MW-49BR | 2/24/2021 | < 10.0 H1,R0 | < 10.0 H1,R0 | < 50.0 H1,R0 | **6.1 j,H1,R0** | < 10.0 H1,R0 | < 20.0 H1,R0,L1 | **1600 H1,R0,M1^** | < 10.0 H2,R0 | **304 H2,R0** | **502 H2,R0** | **95.7 H2,R0** | **115 H2,R0** |
| MW-49BR | 2/24/2021 | < 20.0 H1,R0 | < 20.0 H1,R0 | < 100 H1,R0 | **37.0 H1,R0** | < 20.0 H1,R0 | < 40.0 H1,R0,L1 | **1920 H1,R0^** | < 50.0 H2,R0 | **440 H2,R0** | **724 H2,R0** | **47.4 j,H2,R0** | **357 H2,R0** |
| MW-49BR | 3/4/2021 | < 25.0 H1,R0 | < 25.0 H1,R0 | **49.7 j,H1,R0** | **8.9 j,H1,R0** | < 25.0 H1,R0 | < 50.0 H1,R0,L1 | **4240 H1,R0^** | < 10.0 H2,R0 | **459 M1,H2,R0** | **791 M1,H2,R0** | **173 M1,H2,R0** | **70.1 H2,R0** |
| MW-505 | 3/31/2021 | < 1.0 | < 1.0 | < 5.0 v2 | < 1.0 | < 1.0 | < 2.0 IK | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-50TZ | 3/31/2021 | < 1.0 | < 1.0 | < 5.0 v2 | < 1.0 | < 1.0 | < 2.0 IK | < 1.0 ^ | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |

**Notes:**

This table summarizes only constituents detected at concentrations greater than the method detection limit.

- Yellow shading indicates that the compound was detected above a potentially applicable regulatory standard listed in Section 4.11 of the RIWP-A

**Bold** type indicates that the compound was detected at a concentration greater than the adjusted method detection limit.

† - Risk Based Screening Level (RBSL) referenced in Appendix D, Table 1 of the South Carolina Department of Environmental Health and Control (SCDHEC) Quality Assurance Program Plan for the Underground Storage Tank (UST) Management Division.

< - Concentration not detected at or greater than the adjusted reporting limit.

^ - Sample was analyzed by EPA Method 8260d.

* - Sample was analyzed by EPA Method 8260.

Deg C - degrees Celsius

ft - feet

µg/L - micrograms per liter

µmhos/cm - micromhos per centimeter

mg/L - milligrams per liter

mV - millivolts

NA - not analyzed

NE - No screening level established at this time. A site-specific risk-based screening level may be established as part of the risk assessment process outlined in Section 5.0 of the RIWP-A.

NM - not measured

NTUs -Nephelometric Turbidity Units

PAH - Polycyclic aromatic hydrocarbon

SCDHEC R. 61-58 - South Carolina Department of Health and Environmental Control Regulation 61-58.

S.U. - standard units

SVOC - Semi-volatile organic compounds

VOA - Volatile organic aromatics

VOC - Volatile organic compounds

3g - Due to matrix interference, achieving a constant weight is not possible.

B - Target analyte detected in method blank at or greater than the reporting limit. Target analyte concentration in sample is less than 10X the concentration in the method blank. Analyte concentration in sample could be due to blank contamination.

C8 - Result may be biased high due to carryover from previously analyzed sample.

H1 - Analysis conducted outside the EPA method holding time.

H2 - Extraction or preparation was conducted outside of the recognized method holding time.

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

IK - The recalculated concentration of the calibration standard(s) did not meet method acceptance criteria; this result shouldbe considered an estimated value.

j - Estimated concentration above the adjusted method detection limit and less than the adjusted reporting limit.

L1 - Analyte recovery in the laboratory control sample was above quality control limits. Results may be biased high.

L2 - Analyte recovery in the laboratory control sample was below quality control limits. Results for this analyte in associated samples may be biased low.

M0 - Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 - Matrix spike recovery was high: the associated Laboratory Control Spike (LCS) was acceptable.

M5 - Analyte recovery in the matrix spike was outside quality control limits for one or more of the constituent analytes used in thecalculated result.

R0 - The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

R1 - Relative Percent Difference value was outside control limits.

S1 - Data review findings indicate result may be biased, however, data is usable.

v1 - The continuing calibration verification was above the method acceptance limit. Any detection for the analyte in theassociated samples may have a high bias.

v2 - The continuing calibration verification was below the method acceptance limit. The analyte was not detected in theassociated samples and the sensitivity of the instrument was verified with a reporting limit check standard.

v3 - The continuing calibration verification was below the method acceptance limit. Any detection for the analyte in theassociated samples may have low bias.

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (PAH) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **Anthracene** | **Benzo(a)anthracene** | **Benzo(a)pyrene** | **Benzo(b)fluoranthene** | **Benzo(g,h,i)perylene** | **Benzo(k)fluoranthene** | **Chrysene** | **Dibenz(a,h)anthracene** | **Fluoranthene** | **Fluorene** | **Indeno(1,2,3-cd)pyrene** | **Phenanthrene** | **Pyrene** |
| **Reporting Units** | | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** |
| **Regulatory Standard** | | **NE** | **10** | **0.2** | **10** | **NE** | **10** | **10** | **10** | **NE** | **NE** | **NE** | **NE** | **NE** |
| **Sample ID** | **Sample Collection Date** | **Analytical Results** | | | | | | | | | | | | |
| MW-49BR | 3/1/2021 | **9.6 j,H2,R0** | < 10.0 H2,R0 | NA | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | **3.1 j,H2,R0** | **61.4 H2,R0** | < 10.0 H2,R0 | **65.1 H2,R0** | **5.2 j,H2,R0** |
| MW-49BR | 3/2/2021 | **12.8 H2,R0** | < 10.0 H2,R0 | NA | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | **4.4 j,H2,R0** | **81.6 H2,R0** | < 10.0 H2,R0 | **86.6 H2,R0** | **6.9 j,H2,R0** |
| MW-49BR | 3/3/2021 | **10.2 H2,R0** | < 10.0 H2,R0 | NA | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | **3.2 j,H2,R0** | **64.8 H2,R0** | < 10.0 H2,R0 | **67.4 H2,R0** | **5.2 j,H2,R0** |
| MW-49BR | 2/24/2021 | **10.7 H2,R0** | < 10.0 H2,R0 | NA | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | **4.2 j,H2,R0** | **61.7 H2,R0** | < 10.0 H2,R0 | **74.4 H2,R0** | **7.4 j,H2,R0** |
| MW-49BR | 2/24/2021 | **69.2 H2,R0** | **29.9 j,H2,R0** | NA | **15.0 j,H2,R0** | < 50.0 H2,R0 | < 50.0 H2,R0 | **19.6 j,H2,R0** | < 50.0 H2,R0 | **78.1 H2,R0** | **142 H2,R0** | < 50.0 H2,R0 | **353 H2,R0** | **136 H2,R0** |
| MW-49BR | 3/4/2021 | **11.7 H2,R0** | < 10.0 H2,R0 | NA | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | **3.6 j,H2,R0** | **71.0 H2,R0** | < 10.0 H2,R0 | **74.6 H2,R0** | **5.9 j,H2,R0** |
| MW-50S | 3/31/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 |
| MW-50TZ | 3/31/2021 | < 10.0 | < 10.0 | < 0.10 | < 10.0 L1 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 L1 | < 10.0 | < 10.0 |

**Notes:**

This table summarizes only constituents detected at concentrations greater than the method detection limit.

- Yellow shading indicates that the compound was detected above a potentially applicable regulatory standard listed in Section 4.11 of the RIWP-A

**Bold** type indicates that the compound was detected at a concentration greater than the adjusted method detection limit.

† - Risk Based Screening Level (RBSL) referenced in Appendix D, Table 1 of the South Carolina Department of Environmental Health and Control (SCDHEC) Quality Assurance Program Plan for the Underground Storage Tank (UST) Management Division.

< - Concentration not detected at or greater than the adjusted reporting limit.

^ - Sample was analyzed by EPA Method 8260d.

* - Sample was analyzed by EPA Method 8260.

Deg C - degrees Celsius

ft - feet

µg/L - micrograms per liter

µmhos/cm - micromhos per centimeter

mg/L - milligrams per liter

mV - millivolts

NA - not analyzed

NE - No screening level established at this time. A site-specific risk-based screening level may be established as part of the risk assessment process outlined in Section 5.0 of the RIWP-A.

NM - not measured

NTUs -Nephelometric Turbidity Units

PAH - Polycyclic aromatic hydrocarbon

SCDHEC R. 61-58 - South Carolina Department of Health and Environmental Control Regulation 61-58.

S.U. - standard units

SVOC - Semi-volatile organic compounds

VOA - Volatile organic aromatics

VOC - Volatile organic compounds

3g - Due to matrix interference, achieving a constant weight is not possible.

B - Target analyte detected in method blank at or greater than the reporting limit. Target analyte concentration in sample is less than 10X the concentration in the method blank. Analyte concentration in sample could be due to blank contamination.

C8 - Result may be biased high due to carryover from previously analyzed sample.

H1 - Analysis conducted outside the EPA method holding time.

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

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L2 - Analyte recovery in the laboratory control sample was below quality control limits. Results for this analyte in associated samples may be biased low.

M0 - Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

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M5 - Analyte recovery in the matrix spike was outside quality control limits for one or more of the constituent analytes used in thecalculated result.

R0 - The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

R1 - Relative Percent Difference value was outside control limits.

S1 - Data review findings indicate result may be biased, however, data is usable.

v1 - The continuing calibration verification was above the method acceptance limit. Any detection for the analyte in theassociated samples may have a high bias.

v2 - The continuing calibration verification was below the method acceptance limit. The analyte was not detected in theassociated samples and the sensitivity of the instrument was verified with a reporting limit check standard.

v3 - The continuing calibration verification was below the method acceptance limit. Any detection for the analyte in theassociated samples may have low bias.

**TABLE 4-2**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (Other SVOC) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **1,2-Dichlorobenzene** | **1,3-Dichlorobenzene** | **1,4-Dichlorobenzene** | **2,4-Dimethylphenol** | **2-Methylphenol(o-Cresol)** | **3&4-Methylphenol(m&p Cresol)** | **Aniline** | **Benzoic acid** | **Benzyl alcohol** | **Dibenzofuran** | **Phenol** |
| **Reporting Units** | | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** |
| **Regulatory Standard** | | **600** | **NE** | **75** | **NE** | **NE** | **NE** | **NE** | **NE** | **NE** | **NE** | **NE** |
| **Sample ID** | **Sample Collection Date** | **Analytical Results** | | | | | | | | | | |
| MW-49BR | 3/1/2021 | < 20.0 H1,R0 | < 20.0 H1,R0 | < 20.0 H1,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 50.0 H2,R0 | < 20.0 H2,R0 | **16.3 H2,R0** | < 10.0 H2,R0 |
| MW-49BR | 3/2/2021 | < 25.0 H1,R0 | < 25.0 H1,R0 | < 25.0 H1,R0 | **27.4 H2,R0** | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 50.0 H2,R0 | < 20.0 H2,R0 | **21.8 H2,R0** | **2.2 j,H2,R0** |
| MW-49BR | 3/3/2021 | < 25.0 H1,R0 | < 25.0 H1,R0 | < 25.0 H1,R0 | **37.0 H2,R0** | < 10.0 H2,R0 | **3.1 j,H2,R0** | < 10.0 H2,R0 | < 50.0 H2,R0 | **7.3 j,H2,R0** | **17.7 H2,R0** | **2.9 j,H2,R0** |
| MW-49BR | 2/24/2021 | < 10.0 H1,R0 | < 10.0 H1,R0 | < 10.0 H1,R0 | **4.9 j,H2,R0** | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 50.0 H2,R0 | < 20.0 H2,R0 | **15.9 H2,R0** | < 10.0 H2,R0 |
| MW-49BR | 2/24/2021 | < 20.0 H1,R0 | < 20.0 H1,R0 | < 20.0 H1,R0 | **54.2 H2,R0** | < 50.0 H2,R0 | < 50.0 H2,R0 | < 50.0 v2,H2,R0 | < 250 H2,R0 | < 100 H2,R0 | **33.3 j,H2,R0** | < 50.0 H2,R0 |
| MW-49BR | 3/4/2021 | < 25.0 H1,R0 | < 25.0 H1,R0 | < 25.0 H1,R0 | **49.3 H2,R0** | < 10.0 H2,R0 | < 10.0 H2,R0 | < 10.0 H2,R0 | < 50.0 M1,H2,R0 | < 20.0 H2,R0 | **19.3 H2,R0** | **3.4 j,H2,R0** |
| MW-50S | 3/31/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |
| MW-50TZ | 3/31/2021 | < 1.0 | < 1.0 | < 1.0 | < 10.0 | < 10.0 | < 10.0 | < 10.0 | < 50.0 | < 20.0 | < 10.0 | < 10.0 |

Prepared by: RSB Checked by: PPB/JPC

**Notes:**

This table summarizes only constituents detected at concentrations greater than the method detection limit.

- Yellow shading indicates that the compound was detected above a potentially applicable regulatory standard listed in Section 4.11 of the RIWP-A

**Bold** type indicates that the compound was detected at a concentration greater than the adjusted method detection limit.

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< - Concentration not detected at or greater than the adjusted reporting limit.

^ - Sample was analyzed by EPA Method 8260d.

* - Sample was analyzed by EPA Method 8260.

Deg C - degrees Celsius

ft - feet

µg/L - micrograms per liter

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mg/L - milligrams per liter

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NA - not analyzed

NE - No screening level established at this time. A site-specific risk-based screening level may be established as part of the risk assessment process outlined in Section 5.0 of the RIWP-A.

NM - not measured

NTUs -Nephelometric Turbidity Units

PAH - Polycyclic aromatic hydrocarbon

SCDHEC R. 61-58 - South Carolina Department of Health and Environmental Control Regulation 61-58.

S.U. - standard units

SVOC - Semi-volatile organic compounds

VOA - Volatile organic aromatics

VOC - Volatile organic compounds

3g - Due to matrix interference, achieving a constant weight is not possible.

B - Target analyte detected in method blank at or greater than the reporting limit. Target analyte concentration in sample is less than 10X the concentration in the method blank. Analyte concentration in sample could be due to blank contamination.

C8 - Result may be biased high due to carryover from previously analyzed sample.

H1 - Analysis conducted outside the EPA method holding time.

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IK - The recalculated concentration of the calibration standard(s) did not meet method acceptance criteria; this result shouldbe considered an estimated value.

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L1 - Analyte recovery in the laboratory control sample was above quality control limits. Results may be biased high.

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R0 - The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

R1 - Relative Percent Difference value was outside control limits.

S1 - Data review findings indicate result may be biased, however, data is usable.

v1 - The continuing calibration verification was above the method acceptance limit. Any detection for the analyte in theassociated samples may have a high bias.

v2 - The continuing calibration verification was below the method acceptance limit. The analyte was not detected in theassociated samples and the sensitivity of the instrument was verified with a reporting limit check standard.

v3 - The continuing calibration verification was below the method acceptance limit. Any detection for the analyte in theassociated samples may have low bias.

**TABLE 4-3**
**SUMMARY OF SEDIMENT ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| Analytical Parameter | | ASTM D2974-87 | | 8260B (VOA) | | | | | | 8260B (Other VOCs) | | | | | 8270D (PAH) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percent Moisture | Percent Total Solids | Benzene | Ethylbenzene | Toluene | Xylenes | | | 1,3-Dichlorobenzene | 1,4-Dichlorobenzene | Acetone | Chlorobenzene | Styrene | Naphthalene | 1-Methylnaphthalene | 2-Methylnaphthalene | Acenaphthene | Acenaphthylene |
| | | | | | | | m&p-Xylenes | o-Xylene | Xylene (Total) | | | | | | | | | | |
| Reporting Units | | % | % | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EPA RSL Industrial Sediment | | NE | NE | 5.1 | 25 | 47000 | 2400 | 2800 | 2500 | NE | 11 | 670000 | 1300 | 35000 | 17 | 73 | 3000 | 45000 | NE |
| EPA RSL Residential Sediment | | NE | NE | 1.2 | 5.8 | 4900 | 560 | 650 | 580 | NE | 2.6 | 61000 | 280 | 6000 | 3.8 | 18 | 240 | 3600 | NE |
| EPA R4 Sediment RSV | | NE | NE | 2.185 | 1.467 | 2.074 | NE | NE | 1.074 | 0.468 | 0.468 | 38.133 | 0.939 | 1.621 | 3.85 | 4.46 | 4.47 | 4.91 | 4.52 |
| Location ID | Sample Collection Date | Analytical Results | | Analytical Results | | | | | | Analytical Results | | | | | Analytical Results | | | | |
| DA4-SB-1 (0-0.7) | 10/14/2020 | 17 | NM | < 0.0031 | < 0.0031 | **0.0042** | < 0.0061 | **0.0028 j** | < 0.0061 | < 0.0031 | < 0.0031 | **0.0306 j** | < 0.0031 | < 0.0031 | < 2.01 | < 2.01 | < 2.01 | < 2.01 | < 2.01 |
| DA4-SB-1 (0.7-1.3) | 10/14/2020 | 27.4 | NM | < 0.0052 | < 0.0052 | **0.0136** | **0.0113** | **0.0052** | **0.0165** | < 0.0052 | < 0.0052 | < 0.103 | < 0.0052 | < 0.0052 | < 0.457 | < 0.457 | < 0.457 | < 0.457 | < 0.457 |
| DA4-SB-1 (0-0.6) | 4/1/2021 | NM | NM | **0.006 j** | **0.022** | **0.0271** | **0.05** | **0.0293** | **0.0794** | < 0.0113 | < 0.0113 | **0.142 j** | < 0.0113 | < 0.0113 | **0.244 ^** | < 0.545 | < 0.545 | < 0.545 | < 0.545 |
| DA4-SB-1 (2-2.5) | 4/1/2021 | NM | NM | < 0.0087 | < 0.0087 | < 0.0087 | < 0.0173 | < 0.0087 | < 0.0173 | < 0.0087 | < 0.0087 | < 0.173 | < 0.0087 | < 0.0087 | < 0.0087 | < 0.472 | < 0.472 | < 0.472 | < 0.472 |
| DA4-SB-1A (0-0.6) | 4/1/2021 | NM | NM | < 0.0098 | **0.005 j** | **0.0091 j** | **0.0125 j** | **0.0075 j** | **0.02** | < 0.0098 | < 0.0098 | < 0.195 | < 0.0098 | < 0.0098 | **0.0255 ^** | < 4.92 | < 4.92 | < 4.92 | < 4.92 |
| DA4-SB-1A (2-2.5) | 4/1/2021 | NM | NM | < 0.0094 | < 0.0094 | < 0.0094 | < 0.0187 | < 0.0094 | < 0.0187 | < 0.0094 | < 0.0094 | < 0.187 | < 0.0094 | < 0.0094 | < 0.0094 | < 0.516 | < 0.516 | < 0.516 | < 0.516 |
| DA4-SB-1B (0-0.6) | 4/1/2021 | NM | NM | < 0.01 | < 0.01 | < 0.01 | < 0.0199 | < 0.01 | < 0.0199 | < 0.01 | < 0.01 | < 0.199 | < 0.01 | < 0.01 | **0.0092 j^** | < 0.491 | < 0.491 | < 0.491 | < 0.491 |
| DA4-SB-1B (2-2.5) | 4/1/2021 | NM | NM | < 0.0111 | < 0.0111 | **0.0109 j** | < 0.0222 | < 0.0111 | < 0.0222 | < 0.0111 | < 0.0111 | **0.088 j** | < 0.0111 | < 0.0111 | < 0.0111 | < 0.471 | < 0.471 | < 0.471 | < 0.471 |
| DA4-SB-2 (0-0.7) | 10/14/2020 | 53.8 | NM | < 0.0039 | < 0.0039 | **0.0199** | < 0.0079 | < 0.0039 | < 0.0079 | < 0.0039 | < 0.0039 | < 0.0787 | < 0.0039 | < 0.0039 | < 0.711 | < 0.711 | < 0.711 | < 0.711 | **0.251 j** |
| DA4-SB-2 (0.7-1.3) | 10/14/2020 | 31.7 | NM | < 0.0078 | < 0.0078 | **0.0064 j** | < 0.0156 | < 0.0078 | < 0.0156 | < 0.0078 | < 0.0078 | < 0.156 | < 0.0078 | < 0.0078 | **0.124 j** | < 0.488 | < 0.488 | **0.19 j** | **0.335 j** |
| DA4-SB-2 (0-0.6) | 4/1/2021 | NM | NM | < 0.0163 | **0.0133 j** | **0.0428** | **0.0346** | **0.0182** | **0.0527** | < 0.0163 | < 0.0163 | **0.143 j** | < 0.0163 | < 0.0163 | **0.171 ^** | < 0.685 | < 0.685 | < 0.685 | < 0.685 |
| DA4-SB-2 (2-2.5) | 4/1/2021 | NM | NM | < 0.0074 | < 0.0074 | **0.0038 j** | < 0.0147 | < 0.0074 | < 0.0147 | < 0.0074 | < 0.0074 | < 0.147 | < 0.0074 | < 0.0074 | **0.0095 ^** | < 0.446 | < 0.446 | < 0.446 | < 0.446 |
| DA4-SB-3 (0-0.7) | 10/14/2020 | 59.1 | NM | < 0.01 | < 0.01 | **0.0265** | < 0.0201 | < 0.01 | < 0.0201 | < 0.01 | < 0.01 | **0.0926 j** | < 0.01 | < 0.01 | < 0.817 | < 0.817 | < 0.817 | < 0.817 | < 0.817 |
| DA4-SB-3 (0.7-1.3) | 10/14/2020 | 57.1 | NM | < 0.0109 | **0.0177** | **0.278** | **0.0722** | **0.0414** | **0.114** | < 0.0109 | < 0.0109 | **0.124 j** | < 0.0109 | < 0.0109 | < 0.763 | < 0.763 | < 0.763 | < 0.763 | < 0.763 |
| DA4-SB-3 (0-0.6) | 4/1/2021 | NM | NM | **0.174** | **0.0703** | **0.391** | **0.347** | **0.107** | **0.454** | < 0.033 | < 0.033 | **0.586 j** | < 0.033 | < 0.033 | **3.35 ^** | < 0.935 | < 0.935 | < 0.935 | < 0.935 |
| DA4-SB-3 (4-5) | 4/1/2021 | NM | NM | < 0.0099 | < 0.0099 | < 0.0099 | **0.0069 j** | < 0.0099 | **0.0069 j** | < 0.0099 | < 0.0099 | < 0.198 | < 0.0099 | < 0.0099 | **0.25 ^** | < 0.499 | < 0.499 | < 0.499 | < 0.499 |
| DA4-SB-3A (0-0.6) | 4/1/2021 | NM | NM | < 0.0056 | < 0.0056 | < 0.0056 | < 0.0112 | < 0.0056 | < 0.0112 | < 0.0056 | < 0.0056 | < 0.112 | < 0.0056 | < 0.0056 | < 0.0056 | < 0.473 | < 0.473 | < 0.473 | < 0.473 |
| DA4-SB-3A (2-2.5) | 4/1/2021 | NM | NM | < 0.0099 | < 0.0099 | < 0.0099 | < 0.0199 | < 0.0099 | < 0.0199 | < 0.0099 | < 0.0099 | < 0.199 | < 0.0099 | < 0.0099 | < 0.0099 | < 0.514 | < 0.514 | < 0.514 | < 0.514 |
| DA4-SB-3B (0-0.6) | 4/1/2021 | NM | NM | **0.0072 j** | **0.0106 j** | **0.0283** | **0.0363** | **0.0188** | **0.0551** | < 0.0128 | < 0.0128 | **0.119 j** | < 0.0128 | < 0.0128 | **0.14 ^** | < 0.55 | < 0.55 | < 0.55 | < 0.55 |
| DA4-SB-3B (2-2.5) | 4/1/2021 | NM | NM | < 0.0072 | < 0.0072 IK | < 0.0072 | < 0.0144 | < 0.0072 | < 0.0144 | < 0.0072 | < 0.0072 | < 0.144 | < 0.0072 | < 0.0072 | **0.0131 ^** | < 0.517 | < 0.517 | < 0.517 | < 0.517 |
| DA4-SB-4 (0-0.7) | 10/14/2020 | 64.7 | NM | < 0.0158 | < 0.0158 | < 0.0158 | < 0.0317 | < 0.0158 | < 0.0317 | < 0.0158 | < 0.0158 | < 0.317 | < 0.0158 | < 0.0158 | < 0.95 | < 0.95 | < 0.95 | < 0.95 | < 0.95 |
| DA4-SB-4 (0.7-1.3) | 10/14/2020 | 34.4 | NM | < 0.007 | < 0.007 | **0.0102** | < 0.0141 | **0.0049 j** | < 0.0141 | < 0.007 | < 0.007 | < 0.141 | < 0.007 | < 0.007 | < 0.503 | < 0.503 | < 0.503 | < 0.503 | **0.156 j** |
| DA4-SB-4 (0-0.6) | 3/23/2021 | NM | NM | < 0.0237 | **0.0145 j** | **0.0678 D6** | **0.0332 j** | **0.0155 j** | **0.0487** | < 0.0237 | < 0.0237 | **0.388 j** | < 0.0237 | < 0.0237 | **0.237 ^** | **0.593 j** | **1.25** | **1.72** | **7.65 E** |
| DA4-SB-4 (3-4) | 3/23/2021 | NM | NM | < 0.0071 | **0.0047 j** | **0.0086** | **0.0096 j** | **0.0037 j** | **0.0133 j** | < 0.0071 | < 0.0071 | < 0.142 | < 0.0071 | < 0.0071 | **0.186 ^** | < 0.419 | < 0.419 | < 0.419 | < 0.419 |
| DA4-SB-4A (0-0.6) | 3/23/2021 | NM | NM | < 0.0088 | < 0.0088 | **0.011** | < 0.0176 | < 0.0088 | < 0.0176 | < 0.0088 | < 0.0088 | < 0.176 | < 0.0088 | < 0.0088 | < 0.0088 | < 0.472 | < 0.472 | < 0.472 | < 0.472 |
| DA4-SB-4A (3-4) | 3/23/2021 | NM | NM | < 0.01 | < 0.01 | **0.0112** | < 0.02 | < 0.01 | < 0.02 | < 0.01 | < 0.01 | < 0.2 | < 0.01 | < 0.01 | < 0.01 | < 0.451 | < 0.451 | < 0.451 | < 0.451 |
| DA4-SB-4B (0-0.6) | 3/23/2021 | NM | NM | < 0.0093 | < 0.0093 | **0.0154** | < 0.0187 | < 0.0093 | < 0.0187 | < 0.0093 | < 0.0093 | < 0.187 | < 0.0093 | < 0.0093 | < 0.0093 | < 0.521 | < 0.521 | < 0.521 | < 0.521 |
| DA4-SB-4B (3-4) | 3/23/2021 | NM | NM | < 0.0068 | < 0.0068 | **0.0107** | < 0.0137 | < 0.0068 | < 0.0137 | < 0.0068 | < 0.0068 | < 0.137 | < 0.0068 | < 0.0068 | < 0.0068 | < 0.44 | < 0.44 | < 0.44 | < 0.44 |
| DA4-SB-5 (0-0.7) | 10/14/2020 | 60.1 | NM | < 0.0147 | < 0.0147 | **0.0103 j** | < 0.0295 | < 0.0147 | < 0.0295 | < 0.0147 | < 0.0147 | < 0.295 | < 0.0147 | < 0.0147 | < 0.838 | < 0.838 | < 0.838 | < 0.838 | < 0.838 |
| DA4-SB-5 (0.7-1.3) | 10/14/2020 | 42.4 | NM | **0.0098 j** | **0.0155** | **0.0348** | **0.0397** | **0.0235** | **0.0632** | < 0.0125 | < 0.0125 | < 0.249 | < 0.0125 | < 0.0125 | < 0.563 | < 0.563 | < 0.563 | < 0.563 | < 0.563 |
| DA4-SB-5 (0-0.6) | 3/24/2021 | NM | NM | < 0.0187 | **0.0146 j** | **0.0345** | **0.0339 j** | **0.0169 j** | **0.0508** | < 0.0187 | < 0.0187 | **0.251 j** | < 0.0187 | < 0.0187 | **0.268 ^** | < 0.729 | < 0.729 | < 0.729 | **0.637 j** |
| DA4-SB-5 (6-7) | 3/24/2021 | NM | NM | < 0.0085 | **0.0062 j** | **0.005 j** | **0.0105 j** | < 0.0085 | **0.0105 j** | < 0.0085 | < 0.0085 | **0.0915 j** | < 0.0085 | < 0.0085 | **0.523 ^** | < 0.467 | < 0.467 | < 0.467 | < 0.467 |
| DA4-SB-5A (0-0.6) | 3/24/2021 | NM | NM | < 0.0103 | **0.011** | **0.0337** | **0.0339** | **0.0115** | **0.0454** | < 0.0103 | < 0.0103 | **0.0981 j** | < 0.0103 | < 0.0103 | **0.04 ^** | < 0.522 | < 0.522 | < 0.522 | **0.281 j** |
| DA4-SB-5A (2-2.5) | 3/24/2021 | NM | NM | < 0.0119 | < 0.0119 | < 0.0119 | < 0.0238 | < 0.0119 | < 0.0238 | < 0.0119 | < 0.0119 | < 0.238 | < 0.0119 | < 0.0119 | < 0.0119 | < 0.561 | < 0.561 | < 0.561 | < 0.561 |
| DA4-SB-5B (0-0.6) | 3/24/2021 | NM | NM | < 0.0118 | < 0.0118 | < 0.0118 | < 0.0237 | < 0.0118 | < 0.0237 | < 0.0118 | < 0.0118 | < 0.237 | < 0.0118 | < 0.0118 | < 0.0118 | < 0.525 | < 0.525 | < 0.525 | < 0.525 |
| DA4-SB-5B (2-2.5) | 3/24/2021 | NM | NM | < 0.008 | < 0.008 | < 0.008 | < 0.016 | < 0.008 | < 0.016 | < 0.008 | < 0.008 | < 0.16 | < 0.008 | < 0.008 | < 0.008 | < 0.489 | < 0.489 | < 0.489 | < 0.489 |
| DA4-SB-6 (0-0.6) | 3/24/2021 | NM | NM | **0.0378** | **0.0637** | **0.0986** | **0.24** | **0.127** | **0.367** | < 0.0246 | < 0.0246 | **0.301 j** | < 0.0246 | < 0.0246 | **9.39 ^** | **0.315 j** | < 0.883 | **0.794 j** | **0.501 j** |
| DA4-SB-6 (4-5) | 3/24/2021 | NM | NM | < 0.0081 | **0.0055 j** | **0.0051 j** | < 0.0163 | < 0.0081 | < 0.0163 | < 0.0081 | < 0.0081 | < 0.163 | < 0.0081 | < 0.0081 | **0.311 ^** | < 0.458 | < 0.458 | < 0.458 | < 0.458 |
| DA4-SB-6A (0-0.6) | 3/24/2021 | NM | NM | **0.0073 j** | **0.0081 j** | **0.0331** | **0.028** | **0.0117** | **0.0397** | < 0.0095 | < 0.0095 | < 0.19 | < 0.0095 | < 0.0095 | **0.0556 ^** | < 0.535 | < 0.535 | < 0.535 | < 0.535 |
| DA4-SB-6A (2-2.5) | 3/24/2021 | NM | NM | < 0.0073 | < 0.0073 | < 0.0073 | < 0.0146 | < 0.0073 | < 0.0146 | < 0.0073 | < 0.0073 | < 0.146 | < 0.0073 | < 0.0073 | < 0.0073 | < 0.434 | < 0.434 | < 0.434 | < 0.434 |
| DA4-SB-6B (0-0.6) | 3/24/2021 | NM | NM | < 0.0117 | < 0.0117 | < 0.0117 | < 0.0234 | < 0.0117 | < 0.0234 | < 0.0117 | < 0.0117 | < 0.234 | < 0.0117 | < 0.0117 | < 0.0117 | < 0.565 | < 0.565 | < 0.565 | < 0.565 |
| DA4-SB-6B (2-2.5) | 3/24/2021 | NM | NM | < 0.0101 | < 0.0101 | < 0.0101 | < 0.0201 | < 0.0101 | < 0.0201 | < 0.0101 | < 0.0101 | < 0.201 | < 0.0101 | < 0.0101 | < 0.0101 | < 0.495 | < 0.495 | < 0.495 | < 0.495 |
| DA4-SB-7 (0-0.6) | 3/24/2021 | NM | NM | **0.0866** | **0.143** | **0.165** | **0.472** | **0.24** | **0.712** | < 0.066 | < 0.066 | < 1.32 | < 0.066 | **0.0386 j** | **58.6 ^** | **0.942** | **1.34** | **1.92** | **1.99** |
| DA4-SB-7 (5-6) | 3/24/2021 | NM | NM | < 0.0091 | < 0.0091 | < 0.0091 | < 0.0181 | < 0.0091 | < 0.0181 | < 0.0091 | < 0.0091 | < 0.181 | < 0.0091 | < 0.0091 | **0.198 ^** | **0.309 j** | **0.275 j** | **0.321 j** | < 0.495 |
| DA4-SB-8 (0-0.6) | 3/29/2021 | NM | NM | **0.0155 j** | **0.0169 j** | **0.0449** | **0.0576** | **0.0207** | **0.0783** | < 0.0188 | **0.0281** | **0.347 j** | < 0.0188 | < 0.0188 | **0.566 ^** | < 3.5 | < 3.5 | **1.72 j** | **2.1 j** |
| DA4-SB-8 (5-6) | 3/29/2021 | NM | NM | < 0.0091 | **0.005 j** | **0.0085 j** | **0.01 j** | < 0.0091 | **0.01 j** | < 0.0091 | < 0.0091 | < 0.182 | < 0.0091 | < 0.0091 | **0.211 ^** | < 0.495 | < 0.495 | **0.193 j** | **0.257 j** |

**TABLE 4-3**
**SUMMARY OF SEDIMENT ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (PAH) (Continued) | | | | | | | | | | | | 8270D (Other SVOC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **Anthracene** | **Benzo(a)anthracene** | **Benzo(a)pyrene** | **Benzo(b)fluoranthene** | **Benzo(g,h,i)perylene** | **Benzo(k)fluoranthene** | **Chrysene** | **Dibenz(a,h)anthracene** | **Fluoranthene** | **Fluorene** | **Indeno(1,2,3-cd)pyrene** | **Phenanthrene** | **2,4-Dimethylphenol** | **2-Methylphenol(o-Cresol)** |
| **Reporting Units** | | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** |
| **EPA RSL Industrial Sediment** | | **230000** | **21** | **2.1** | **21** | **NE** | **210** | **2100** | **2.1** | **30000** | **30000** | **21** | **NE** | **16000** | **41000** |
| **EPA RSL Residential Sediment** | | **18000** | **1.1** | **0.11** | **1.1** | **NE** | **11** | **110** | **0.11** | **2400** | **2400** | **1.1** | **NE** | **1300** | **3200** |
| **EPA R4 Sediment RSV** | | **5.94** | **8.41** | **9.65** | **9.79** | **10.9** | **9.81** | **8.44** | **11.2** | **7.07** | **5.38** | **11.2** | **5.96** | **1.437** | **1.773** |
| **Location ID** | **Sample Collection Date** | **Analytical Results** | | | | | | | | | | | | **Analytical Results** | |
| DA4-SB-1 (0-0.7) | 10/14/2020 | < 2.01 | < 2.01 | < 2.01 | < 2.01 | < 2.01 | < 2.01 | < 2.01 | < 2.01 | < 2.01 | < 2.01 | < 2.01 | < 2.01 | < 2.01 | < 2.01 |
| DA4-SB-1 (0.7-1.3) | 10/14/2020 | < 0.457 | < 0.457 | < 0.457 | < 0.457 | < 0.457 | < 0.457 | **0.159 j** | < 0.457 | **0.434 j** | < 0.457 | < 0.457 | < 0.457 | < 0.457 | < 0.457 |
| DA4-SB-1 (0-0.6) | 4/1/2021 | < 0.545 | < 0.545 | **0.143** | < 0.545 | < 0.545 | < 0.545 | < 0.545 | < 0.545 | < 0.545 | < 0.545 | < 0.545 | < 0.545 | < 0.545 | < 0.545 |
| DA4-SB-1 (2-2.5) | 4/1/2021 | < 0.472 | < 0.472 | **0.0027 j** | < 0.472 | < 0.472 | < 0.472 | < 0.472 | < 0.472 | < 0.472 | < 0.472 | < 0.472 | < 0.472 | < 0.472 | < 0.472 |
| DA4-SB-1A (0-0.6) | 4/1/2021 | **3.8 j** | **9.8** | **2.4** | **10.4** | **5.3** | **3.88 j** | **8.5** | < 4.92 | **24.7** | < 4.92 | **4.86 j** | **12.1** | < 4.92 | < 4.92 |
| DA4-SB-1A (2-2.5) | 4/1/2021 | **0.174 j** | **0.23 j** | **0.0345** | **0.2 j** | < 0.516 | < 0.516 | < 0.516 | < 0.516 | **0.617** | < 0.516 | < 0.516 | **0.667** | < 0.516 | < 0.516 |
| DA4-SB-1B (0-0.6) | 4/1/2021 | < 0.491 | < 0.491 | **0.0187** | < 0.491 | < 0.491 | < 0.491 | < 0.491 | < 0.491 | < 0.491 | < 0.491 | < 0.491 | < 0.491 | < 0.491 | < 0.491 |
| DA4-SB-1B (2-2.5) | 4/1/2021 | < 0.471 | < 0.471 | **0.0093 j** | < 0.471 | < 0.471 | < 0.471 | < 0.471 | < 0.471 | < 0.471 | < 0.471 | < 0.471 | < 0.471 | < 0.471 | < 0.471 |
| DA4-SB-2 (0-0.7) | 10/14/2020 | **0.596 j** | **1.39** | **0.344** | **1.3** | **0.629 j** | **0.475 j** | **1.12** | < 0.711 | **2.74 D6** | **0.205 j** | **0.57 j** | **1.48 D6** | < 0.711 | < 0.711 |
| DA4-SB-2 (0.7-1.3) | 10/14/2020 | **1.7** | **2.12** | **0.0115 j** | **1.65** | **0.682** | **0.658** | **1.62** | < 0.488 | **4.87** | **0.484 j** | **0.677** | **3.52** | < 0.488 | < 0.488 |
| DA4-SB-2 (0-0.6) | 4/1/2021 | < 0.685 | **0.408 j** | **0.266** | **0.484 j** | < 0.685 | < 0.685 | **0.321 j** | < 0.685 | **0.608 j** | < 0.685 | < 0.685 | < 0.685 | < 0.685 | < 0.685 |
| DA4-SB-2 (2-2.5) | 4/1/2021 | < 0.446 | < 0.446 | **0.0238** | < 0.446 | < 0.446 | < 0.446 | < 0.446 | < 0.446 | < 0.446 | < 0.446 | < 0.446 | < 0.446 | < 0.446 | < 0.446 |
| DA4-SB-3 (0-0.7) | 10/14/2020 | < 0.817 | < 0.817 | < 0.817 | < 0.817 | < 0.817 | < 0.817 | < 0.817 | < 0.817 | < 0.817 | < 0.817 | < 0.817 | < 0.817 | < 0.817 | < 0.817 |
| DA4-SB-3 (0.7-1.3) | 10/14/2020 | < 0.763 | < 0.763 | < 0.763 | < 0.763 | < 0.763 | < 0.763 | < 0.763 | < 0.763 | < 0.763 | < 0.763 | < 0.763 | < 0.763 | < 0.763 | < 0.763 |
| DA4-SB-3 (0-0.6) | 4/1/2021 | **0.309 j** | **1.03** | **0.536** | **1.15** | **0.511 j** | **0.512 j** | **0.945** | < 0.935 | **2.01** | < 0.935 | **0.504 j** | **0.572 j** | < 0.935 | < 0.935 |
| DA4-SB-3 (4-5) | 4/1/2021 | < 0.499 | < 0.499 | **0.0489** | < 0.499 | < 0.499 | < 0.499 | < 0.499 | < 0.499 | **0.262 j** | < 0.499 | < 0.499 | **0.174 j** | < 0.499 | < 0.499 |
| DA4-SB-3A (0-0.6) | 4/1/2021 | < 0.473 | < 0.473 | **0.0085 j** | < 0.473 | < 0.473 | < 0.473 | < 0.473 | < 0.473 | < 0.473 | < 0.473 | < 0.473 | < 0.473 | < 0.473 | < 0.473 |
| DA4-SB-3A (2-2.5) | 4/1/2021 | < 0.514 | < 0.514 | **0.0507** | < 0.514 | < 0.514 | < 0.514 | < 0.514 | < 0.514 | < 0.514 | < 0.514 | < 0.514 | < 0.514 | < 0.514 | < 0.514 |
| DA4-SB-3B (0-0.6) | 4/1/2021 | < 0.55 | **0.546 j** | **0.862** | **0.633** | **0.301 j** | **0.287 j** | **0.518 j** | < 0.55 | **0.907** | < 0.55 | **0.264 j** | **0.301 j** | < 0.55 | < 0.55 |
| DA4-SB-3B (2-2.5) | 4/1/2021 | **0.293 j** | **0.764** | **0.777** | **0.803** | **0.353 j** | **0.294 j** | **0.693** | < 0.517 | **1.57** | < 0.517 | **0.337 j** | **0.557** | < 0.517 | < 0.517 |
| DA4-SB-4 (0-0.7) | 10/14/2020 | < 0.95 | < 0.95 | **0.443 D6** | < 0.95 | < 0.95 | < 0.95 | < 0.95 | < 0.95 | < 0.95 | < 0.95 | < 0.95 | < 0.95 | < 0.95 | < 0.95 |
| DA4-SB-4 (0.7-1.3) | 10/14/2020 | **0.373 j** | **1.46** | **1.29** | **1.52** | **0.601** | **0.651** | **1.16** | < 0.503 | **2.94** | < 0.503 | **0.572** | **1.03** | < 0.503 | < 0.503 |
| DA4-SB-4 (0-0.6) | 3/23/2021 | **23.5** | **47.8** | **3.14** | **39.8** | **18.9** | **17.7** | **40.2** | < 0.714 | **85.6** | **8.11 E** | **16.9** | **53.9** | < 0.714 | < 0.714 |
| DA4-SB-4 (3-4) | 3/23/2021 | < 0.419 | < 0.419 | **0.0534 M1** | < 0.419 | < 0.419 | < 0.419 | < 0.419 | < 0.419 | **0.237 j** | < 0.419 | < 0.419 | **0.208 j** | < 0.419 | < 0.419 |
| DA4-SB-4A (0-0.6) | 3/23/2021 | **0.278 j** | **0.556** | **0.114** | **0.495** | **0.217 j** | **0.222 j** | **0.471 j** | < 0.472 | **1.06** | < 0.472 | **0.199 j** | **0.837** | < 0.472 | < 0.472 |
| DA4-SB-4A (3-4) | 3/23/2021 | < 0.451 | < 0.451 | **0.0052 j** | < 0.451 | < 0.451 | < 0.451 | < 0.451 | < 0.451 | < 0.451 | < 0.451 | < 0.451 | < 0.451 | < 0.451 | < 0.451 |
| DA4-SB-4B (0-0.6) | 3/23/2021 | < 0.521 | < 0.521 | **0.0226** | < 0.521 | < 0.521 | < 0.521 | < 0.521 | < 0.521 | < 0.521 | < 0.521 | < 0.521 | < 0.521 | < 0.521 | < 0.521 |
| DA4-SB-4B (3-4) | 3/23/2021 | < 0.44 | < 0.44 | **0.0036 j** | < 0.44 | < 0.44 | < 0.44 | < 0.44 | < 0.44 | < 0.44 | < 0.44 | < 0.44 | < 0.44 | < 0.44 | < 0.44 |
| DA4-SB-5 (0-0.7) | 10/14/2020 | **0.283 j** | **0.999** | **0.66** | **0.961** | **0.502 j** | **0.393 j** | **0.829 j** | < 0.838 | **1.74** | < 0.838 | **0.427 j** | **0.69 j** | < 0.838 | < 0.838 |
| DA4-SB-5 (0.7-1.3) | 10/14/2020 | **0.17 j** | **0.74** | **0.259** | **0.742** | **0.371 j** | **0.305 j** | **0.619** | < 0.563 | **1.27** | < 0.563 | **0.365 j** | **0.291 j** | < 0.563 | < 0.563 |
| DA4-SB-5 (0-0.6) | 3/24/2021 | **1.59** | **5.3** | **3.38** | **5.35** | **2.75** | **2.31** | **4.61** | **0.773** | **8.13** | **0.394 j** | **2.49** | **3.34** | < 0.729 | < 0.729 |
| DA4-SB-5 (6-7) | 3/24/2021 | < 0.467 | < 0.467 | **0.179** | < 0.467 | < 0.467 | < 0.467 | < 0.467 | < 0.467 | < 0.467 | < 0.467 | < 0.467 | < 0.467 | < 0.467 | < 0.467 |
| DA4-SB-5A (0-0.6) | 3/24/2021 | **0.773** | **1.33** | **0.696 M1** | **1.17** | **0.542** | **0.461 j** | **1.13** | < 0.522 | **2.63** | **0.331 j** | **0.507 j** | **2.81** | < 0.522 | < 0.522 |
| DA4-SB-5A (2-2.5) | 3/24/2021 | < 0.561 | < 0.561 | **0.0623 D6** | < 0.561 | < 0.561 | < 0.561 | < 0.561 | < 0.561 | < 0.561 | < 0.561 | < 0.561 | < 0.561 | < 0.561 | < 0.561 |
| DA4-SB-5B (0-0.6) | 3/24/2021 | < 0.525 | < 0.525 | **1.01** | < 0.525 | < 0.525 | < 0.525 | < 0.525 | < 0.525 | < 0.525 | < 0.525 | < 0.525 | < 0.525 | < 0.525 | < 0.525 |
| DA4-SB-5B (2-2.5) | 3/24/2021 | < 0.489 | < 0.489 | **0.0037 j** | < 0.489 | < 0.489 | < 0.489 | < 0.489 | < 0.489 | < 0.489 | < 0.489 | < 0.489 | < 0.489 | < 0.489 | < 0.489 |
| DA4-SB-6 (0-0.6) | 3/24/2021 | **1.5** | **2.99** | **3.6** | **2.9** | **1.43** | **1.18** | **2.57** | **0.36 j** | **5.32** | **0.865 j** | **1.25** | **3.07** | < 0.883 | < 0.883 |
| DA4-SB-6 (4-5) | 3/24/2021 | < 0.458 | **0.174 j** | **0.265** | < 0.458 | < 0.458 | < 0.458 | < 0.458 | < 0.458 | **0.303 j** | < 0.458 | < 0.458 | **0.349 j** | < 0.458 | < 0.458 |
| DA4-SB-6A (0-0.6) | 3/24/2021 | < 0.535 | **0.283 j** | **0.0494** | **0.3 j** | < 0.535 | < 0.535 | **0.258 j** | < 0.535 | **0.607** | < 0.535 | < 0.535 | **0.336 j** | < 0.535 | < 0.535 |
| DA4-SB-6A (2-2.5) | 3/24/2021 | < 0.434 | < 0.434 | < 0.0132 | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 |
| DA4-SB-6B (0-0.6) | 3/24/2021 | < 0.565 | < 0.565 | **0.334** | < 0.565 | < 0.565 | < 0.565 | < 0.565 | < 0.565 | < 0.565 | < 0.565 | < 0.565 | < 0.565 | < 0.565 | < 0.565 |
| DA4-SB-6B (2-2.5) | 3/24/2021 | < 0.495 | < 0.495 | < 0.015 | < 0.495 | < 0.495 | < 0.495 | < 0.495 | < 0.495 | < 0.495 | < 0.495 | < 0.495 | < 0.495 | < 0.495 | < 0.495 |
| DA4-SB-7 (0-0.6) | 3/24/2021 | **3.83** | < 0.657 | **12.2** | **11.1** | **5.67** | **3.87** | **9.09** | **1.8** | **16.3** | **1.98** | **5.38** | **7.4** | < 0.657 | < 0.657 |
| DA4-SB-7 (5-6) | 3/24/2021 | < 0.495 | < 0.495 | **0.162** | < 0.495 | < 0.495 | < 0.495 | < 0.495 | < 0.495 | **0.316 j** | < 0.495 | < 0.495 | **0.431 j** | < 0.495 | < 0.495 |
| DA4-SB-8 (0-0.6) | 3/29/2021 | **5.82** | **9.87** | **1.54 M1** | **10.4** | **5.55** | **3.65** | **8.61** | < 3.5 | **25.8** | **2.37 j** | **5.13** | **19.7** | < 3.5 | < 3.5 |
| DA4-SB-8 (5-6) | 3/29/2021 | **0.547** | **1.06** | **0.531** | **0.974** | **0.544** | **0.415 j** | **0.945** | < 0.495 | **2.39** | **0.537** | **0.485 j** | **1.93** | < 0.495 | < 0.495 |

**TABLE 4-3**
**SUMMARY OF SEDIMENT ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (Other SVOC) (Continued) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **3&4-Methylphenol(m&p Cresol)** | **1,2,4-Trichlorobenzene** | **1,2,4-Trimethylbenzene** | **1,3,5-Trimethylbenzene** | **2,4-Dinitrotoluene** | **2,6-Dinitrotoluene** | **2-Butanone (MEK)** | **2-Chloronaphthalene** | **4-Methyl-2-pentanone (MIBK)** | **Aniline** | **bis(2-Ethylhexyl)phthalate** |
| **Reporting Units** | | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** |
| **EPA RSL Industrial Sediment** | | **820** | **110** | **1800** | **1500** | **7.4** | **1.5** | **190000** | **60000** | **140000** | **400** | **160** |
| **EPA RSL Residential Sediment** | | **63** | **24** | **300** | **270** | **1.7** | **0.36** | **27000** | **4800** | **33000** | **95** | **39** |
| **EPA R4 Sediment RSV** | | **0.26** | **0.485** | **0.361** | **0.354** | **2.9** | **0.131** | **22.707** | **NE** | **8.165** | **0.012** | **2.6** |
| **Location ID** | **Sample Collection Date** | **Analytical Results** | | | | | | | | | | |
| DA4-SB-1 (0-0.7) | 10/14/2020 | NA | < 0.0031 | **0.0028 j** | < 0.0031 | < 2.01 | < 2.01 | < 0.0613 | < 2.01 | < 0.0307 | < 2.01 | < 2.01 |
| DA4-SB-1 (0.7-1.3) | 10/14/2020 | NA | < 0.0052 | **0.0041 j** | < 0.0052 | < 0.457 | < 0.457 | < 0.103 | < 0.457 | < 0.0517 | < 0.457 | < 0.457 |
| DA4-SB-1 (0-0.6) | 4/1/2021 | < 0.545 | < 0.0113 | **0.0328** | **0.0133** | < 0.545 | < 0.545 | **0.0606 j** | < 0.545 | < 0.113 | < 0.545 | < 0.545 |
| DA4-SB-1 (2-2.5) | 4/1/2021 | < 0.472 | < 0.0087 | < 0.0087 | < 0.0087 | < 0.472 | < 0.472 | < 0.173 | < 0.472 | < 0.0867 | < 0.472 | < 0.472 |
| DA4-SB-1A (0-0.6) | 4/1/2021 | < 4.92 | < 0.0098 | **0.0066 j** | < 0.0098 | < 4.92 | < 4.92 | < 0.195 | < 4.92 | < 0.0977 | < 4.92 | < 4.92 |
| DA4-SB-1A (2-2.5) | 4/1/2021 | < 0.516 | < 0.0094 | < 0.0094 | < 0.0094 | < 0.516 | < 0.516 | < 0.187 | < 0.516 | < 0.0937 | < 0.516 | < 0.516 |
| DA4-SB-1B (0-0.6) | 4/1/2021 | < 0.491 | < 0.01 | < 0.01 | < 0.01 | < 0.491 | < 0.491 | < 0.199 | < 0.491 | < 0.0997 | < 0.491 | < 0.491 |
| DA4-SB-1B (2-2.5) | 4/1/2021 | < 0.471 | < 0.0111 | < 0.0111 | < 0.0111 | < 0.471 | < 0.471 | < 0.222 | < 0.471 | < 0.111 | < 0.471 | < 0.471 |
| DA4-SB-2 (0-0.7) | 10/14/2020 | NA | < 0.0039 | < 0.0039 | < 0.0039 | < 0.711 | < 0.711 | < 0.0787 | < 0.711 | < 0.0393 | < 0.711 | < 0.711 |
| DA4-SB-2 (0.7-1.3) | 10/14/2020 | NA | < 0.0078 | < 0.0078 | < 0.0078 | < 0.488 | < 0.488 | < 0.156 | < 0.488 | < 0.0781 | < 0.488 | < 0.488 |
| DA4-SB-2 (0-0.6) | 4/1/2021 | < 0.685 | < 0.0163 | **0.0186** | < 0.0163 | < 0.685 | < 0.685 | < 0.327 | < 0.685 | < 0.163 | < 0.685 | < 0.685 |
| DA4-SB-2 (2-2.5) | 4/1/2021 | < 0.446 | < 0.0074 | < 0.0074 | < 0.0074 | < 0.446 | < 0.446 | < 0.147 | < 0.446 | < 0.0736 | < 0.446 | < 0.446 |
| DA4-SB-3 (0-0.7) | 10/14/2020 | NA | < 0.01 | < 0.01 | < 0.01 | < 0.817 | < 0.817 | **0.114 j** | < 0.817 | < 0.1 | < 0.817 | < 0.817 |
| DA4-SB-3 (0.7-1.3) | 10/14/2020 | NA | < 0.0109 | **0.0335** | < 0.0109 | < 0.763 | < 0.763 | **0.13 j** | < 0.763 | < 0.109 | < 0.763 | < 0.763 |
| DA4-SB-3 (0-0.6) | 4/1/2021 | < 0.935 | < 0.033 | **0.109** | **0.0536** | < 0.935 | < 0.935 | **0.278 j** | < 0.935 | < 0.33 | < 0.935 | < 0.935 |
| DA4-SB-3 (4-5) | 4/1/2021 | < 0.499 | < 0.0099 | < 0.0099 | < 0.0099 | < 0.499 | < 0.499 | < 0.198 | < 0.499 | < 0.0991 | < 0.499 | < 0.499 |
| DA4-SB-3A (0-0.6) | 4/1/2021 | < 0.473 | < 0.0056 | < 0.0056 | < 0.0056 | < 0.473 | < 0.473 | < 0.112 | < 0.473 | < 0.056 | < 0.473 | < 0.473 |
| DA4-SB-3A (2-2.5) | 4/1/2021 | < 0.514 | < 0.0099 | < 0.0099 | < 0.0099 | < 0.514 | < 0.514 | < 0.199 | < 0.514 | < 0.0993 | < 0.514 | < 0.514 |
| DA4-SB-3B (0-0.6) | 4/1/2021 | < 0.55 | < 0.0128 | **0.0172** | **0.0057 j** | < 0.55 | < 0.55 | < 0.256 | < 0.55 | < 0.128 | < 0.55 | < 0.55 |
| DA4-SB-3B (2-2.5) | 4/1/2021 | < 0.517 | < 0.0072 | < 0.0072 | < 0.0072 | < 0.517 | < 0.517 | < 0.144 | < 0.517 | < 0.072 | < 0.517 | < 0.517 |
| DA4-SB-4 (0-0.7) | 10/14/2020 | NA | < 0.0158 | < 0.0158 | < 0.0158 | < 0.95 | < 0.95 | < 0.317 | < 0.95 | < 0.158 | < 0.95 | < 0.95 |
| DA4-SB-4 (0.7-1.3) | 10/14/2020 | NA | < 0.007 | < 0.007 | < 0.007 | < 0.503 | < 0.503 | < 0.141 | < 0.503 | < 0.0704 | < 0.503 | < 0.503 |
| DA4-SB-4 (0-0.6) | 3/23/2021 | **0.486 j** | < 0.0237 | **0.0186 j** | < 0.0237 | < 0.714 | < 0.714 | **0.183 j** | < 0.714 | < 0.237 | < 0.714 | < 0.714 |
| DA4-SB-4 (3-4) | 3/23/2021 | < 0.419 | < 0.0071 | **0.0065 j** | < 0.0071 | < 0.419 | < 0.419 | < 0.142 | < 0.419 | < 0.0712 | < 0.419 | < 0.419 |
| DA4-SB-4A (0-0.6) | 3/23/2021 | < 0.472 | < 0.0088 | < 0.0088 | < 0.0088 | < 0.472 | < 0.472 | < 0.176 | < 0.472 | < 0.0882 | < 0.472 | < 0.472 |
| DA4-SB-4A (3-4) | 3/23/2021 | < 0.451 | < 0.01 | < 0.01 | < 0.01 | < 0.451 | < 0.451 | < 0.2 | < 0.451 | < 0.0999 | < 0.451 | < 0.451 |
| DA4-SB-4B (0-0.6) | 3/23/2021 | < 0.521 | < 0.0093 | < 0.0093 | < 0.0093 | < 0.521 | < 0.521 | < 0.187 | < 0.521 | < 0.0933 | < 0.521 | < 0.521 |
| DA4-SB-4B (3-4) | 3/23/2021 | < 0.44 | < 0.0068 | < 0.0068 | < 0.0068 | < 0.44 | < 0.44 | < 0.137 | < 0.44 | < 0.0685 | < 0.44 | < 0.44 |
| DA4-SB-5 (0-0.7) | 10/14/2020 | NA | < 0.0147 | < 0.0147 | < 0.0147 | < 0.838 | < 0.838 | < 0.295 | < 0.838 | < 0.147 | < 0.838 | < 0.838 |
| DA4-SB-5 (0.7-1.3) | 10/14/2020 | NA | < 0.0125 | **0.0187** | < 0.0125 | < 0.563 | < 0.563 | < 0.249 | < 0.563 | < 0.125 | < 0.563 | < 0.563 |
| DA4-SB-5 (0-0.6) | 3/24/2021 | < 0.729 | < 0.0187 | **0.0212** | < 0.0187 | < 0.729 | < 0.729 | **0.16 j** | < 0.729 | < 0.187 | < 0.729 v2 | < 0.729 v1 |
| DA4-SB-5 (6-7) | 3/24/2021 | < 0.467 | < 0.0085 | **0.0124** | **0.0073 j** | < 0.467 | < 0.467 | < 0.169 | < 0.467 | < 0.0846 | < 0.467 v2 | < 0.467 v1 |
| DA4-SB-5A (0-0.6) | 3/24/2021 | < 0.522 | < 0.0103 | **0.0088 j** | < 0.0103 | < 0.522 | < 0.522 | < 0.205 | < 0.522 | < 0.103 | < 0.522 v2 | < 0.522 v1 |
| DA4-SB-5A (2-2.5) | 3/24/2021 | < 0.561 | < 0.0119 | < 0.0119 | < 0.0119 | < 0.561 | < 0.561 | < 0.238 | < 0.561 | < 0.119 | < 0.561 v2 | < 0.561 v1 |
| DA4-SB-5B (0-0.6) | 3/24/2021 | < 0.525 | < 0.0118 | < 0.0118 | < 0.0118 | < 0.525 | < 0.525 | < 0.237 | < 0.525 | < 0.118 | < 0.525 v2 | < 0.525 v1 |
| DA4-SB-5B (2-2.5) | 3/24/2021 | < 0.489 | < 0.008 | < 0.008 | < 0.008 | < 0.489 | < 0.489 | < 0.16 | < 0.489 | < 0.0799 | < 0.489 | < 0.489 v1 |
| DA4-SB-6 (0-0.6) | 3/24/2021 | < 0.883 | < 0.0246 | **0.449** | **0.228** | < 0.883 | < 0.883 | **0.124 j** | < 0.883 | < 0.246 | < 0.883 v2 | < 0.883 v1 |
| DA4-SB-6 (4-5) | 3/24/2021 | < 0.458 | < 0.0081 | **0.0076 j** | **0.0055 j** | < 0.458 | < 0.458 | < 0.163 | < 0.458 | < 0.0813 | < 0.458 v2 | < 0.458 v1 |
| DA4-SB-6A (0-0.6) | 3/24/2021 | < 0.535 | < 0.0095 | **0.0086 j** | < 0.0095 | < 0.535 | < 0.535 | < 0.19 | < 0.535 | < 0.0952 | < 0.535 | < 0.535 v1 |
| DA4-SB-6A (2-2.5) | 3/24/2021 | < 0.434 | < 0.0073 | < 0.0073 | < 0.0073 | < 0.434 | < 0.434 | < 0.146 | < 0.434 | < 0.0728 | < 0.434 | < 0.434 v1 |
| DA4-SB-6B (0-0.6) | 3/24/2021 | < 0.565 | < 0.0117 | < 0.0117 | < 0.0117 | < 0.565 | < 0.565 | < 0.234 | < 0.565 | < 0.117 | < 0.565 | < 0.565 v1 |
| DA4-SB-6B (2-2.5) | 3/24/2021 | < 0.495 | < 0.0101 | < 0.0101 | < 0.0101 | < 0.495 | < 0.495 | < 0.201 | < 0.495 | < 0.101 | < 0.495 | < 0.495 v1 |
| DA4-SB-7 (0-0.6) | 3/24/2021 | **0.329 j** | < 0.066 | **1.65** | **0.893** | < 0.657 | < 0.657 | < 1.32 | < 0.657 | < 0.66 | < 0.657 | < 0.657 v1 |
| DA4-SB-7 (5-6) | 3/24/2021 | < 0.495 | < 0.0091 | < 0.0091 | < 0.0091 | < 0.495 | < 0.495 | < 0.181 | < 0.495 | < 0.0905 | < 0.495 | < 0.495 v1 |
| DA4-SB-8 (0-0.6) | 3/29/2021 | < 3.5 | < 0.0188 | **0.0285** | < 0.0188 | < 3.5 | < 3.5 | **0.153 j** | < 3.5 | < 0.188 | < 3.5 | < 3.5 |
| DA4-SB-8 (5-6) | 3/29/2021 | < 0.495 | < 0.0091 | **0.0056 j** | < 0.0091 | < 0.495 | < 0.495 | < 0.182 | < 0.495 | < 0.091 | < 0.495 | < 0.495 |

**TABLE 4-3**
**SUMMARY OF SEDIMENT ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (Other SVOC) (Continued) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **Butyl benzyl phthalate** | **Chloroform** | **Dibenzofuran** | **Di-n-butyl phthalate** | **Isopropylbenzene (Cumene)** | **Methylene chloride** | **n-Butylbenzene** | **n-Propylbenzene** | **PCB-1248 (Aroclor 1248)** | **PCB-1260 (Aroclor 1260)** | **p-Isopropyltoluene** | **Tetrachloroethene** | **Trichloroethene** |
| **Reporting Units** | | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** |
| **EPA RSL Industrial Sediment** | | **1200** | **1.4** | **1000** | **82000** | **9900** | **1000** | **58000** | **24000** | **0.94** | **0.99** | **NE** | **100** | **6** |
| **EPA RSL Residential Sediment** | | **290** | **0.32** | **73** | **6300** | **1900** | **57** | **3900** | **3800** | **0.23** | **0.24** | **NE** | **24** | **0.94** |
| **EPA R4 Sediment RSV** | | **0.481** | **3.352** | **2.313** | **0.319** | **0.713** | **2.404** | **NE** | **NE** | **NE** | **NE** | **0.242** | **NE** | **NE** |
| **Location ID** | **Sample Collection Date** | **Analytical Results** | | | | | | | | | | | | |
| DA4-SB-1 (0-0.7) | 10/14/2020 | < 2.01 | < 0.0031 | < 2.01 | < 2.01 | < 0.0031 | < 0.0123 | < 0.0031 | < 0.0031 | NA | NA | **0.0498** | < 0.0031 | < 0.0031 |
| DA4-SB-1 (0.7-1.3) | 10/14/2020 | < 0.457 | < 0.0052 | < 0.457 | < 0.457 | < 0.0052 | < 0.0207 | < 0.0052 | < 0.0052 | NA | NA | < 0.0052 | < 0.0052 | < 0.0052 |
| DA4-SB-1 (0-0.6) | 4/1/2021 | < 0.545 | < 0.0113 | < 0.545 | < 0.545 | **0.0065 j** | < 0.0453 | < 0.0113 | **0.007 j** | < 0.0541 | < 0.0541 | **0.0063 j** | < 0.0113 | < 0.0113 |
| DA4-SB-1 (2-2.5) | 4/1/2021 | < 0.472 | < 0.0087 | < 0.472 | < 0.472 | < 0.0087 | < 0.0347 | < 0.0087 | < 0.0087 | < 0.0475 | < 0.0475 | < 0.0087 | < 0.0087 | < 0.0087 |
| DA4-SB-1A (0-0.6) | 4/1/2021 | < 4.92 | < 0.0098 | < 4.92 | < 4.92 | < 0.0098 | < 0.0391 | < 0.0098 | < 0.0098 | < 0.0491 | < 0.0491 | < 0.0098 | < 0.0098 | < 0.0098 |
| DA4-SB-1A (2-2.5) | 4/1/2021 | < 0.516 | < 0.0094 | < 0.516 | < 0.516 | < 0.0094 | < 0.0375 | < 0.0094 | < 0.0094 | < 0.0514 | < 0.0514 | < 0.0094 | < 0.0094 | < 0.0094 |
| DA4-SB-1B (0-0.6) | 4/1/2021 | < 0.491 | < 0.01 | < 0.491 | < 0.491 | < 0.01 | < 0.0399 | < 0.01 | < 0.01 | < 0.0491 | < 0.0491 | < 0.01 | < 0.01 | < 0.01 |
| DA4-SB-1B (2-2.5) | 4/1/2021 | < 0.471 | < 0.0111 | < 0.471 | < 0.471 | < 0.0111 | < 0.0444 | < 0.0111 | < 0.0111 | < 0.0485 | < 0.0485 | < 0.0111 | < 0.0111 | < 0.0111 |
| DA4-SB-2 (0-0.7) | 10/14/2020 | < 0.711 | < 0.0039 | < 0.711 | < 0.711 | < 0.0039 | < 0.0157 | < 0.0039 | < 0.0039 | NA | NA | < 0.0039 | < 0.0039 | < 0.0039 |
| DA4-SB-2 (0.7-1.3) | 10/14/2020 | < 0.488 | < 0.0078 | **0.128 j** | < 0.488 | < 0.0078 | **0.0503** | < 0.0078 | < 0.0078 | NA | NA | < 0.0078 | < 0.0078 | < 0.0078 |
| DA4-SB-2 (0-0.6) | 4/1/2021 | < 0.685 | < 0.0163 | < 0.685 | < 0.685 | < 0.0163 | < 0.0653 | < 0.0163 | < 0.0163 | < 0.339 | **0.279 j** | **0.0089 j** | < 0.0163 | < 0.0163 |
| DA4-SB-2 (2-2.5) | 4/1/2021 | < 0.446 | < 0.0074 | < 0.446 | < 0.446 | < 0.0074 | < 0.0294 | < 0.0074 | < 0.0074 | < 0.0451 | < 0.0451 | < 0.0074 | < 0.0074 | < 0.0074 |
| DA4-SB-3 (0-0.7) | 10/14/2020 | < 0.817 | < 0.01 | < 0.817 | < 0.817 | < 0.01 | < 0.0401 | < 0.01 | < 0.01 | NA | NA | < 0.01 | < 0.01 | < 0.01 |
| DA4-SB-3 (0.7-1.3) | 10/14/2020 | < 0.763 | < 0.0109 | < 0.763 | < 0.763 | < 0.0109 | < 0.0438 | < 0.0109 | < 0.0109 | NA | NA | < 0.0109 | < 0.0109 | < 0.0109 |
| DA4-SB-3 (0-0.6) | 4/1/2021 | < 0.935 | < 0.033 | < 0.935 | < 0.935 | **0.0206 j** | < 0.132 | < 0.033 | **0.019 j** | < 0.458 | < 0.458 | **0.0376** | < 0.033 | < 0.033 |
| DA4-SB-3 (4-5) | 4/1/2021 | < 0.499 | < 0.0099 | < 0.499 | < 0.499 | **0.0071 j** | < 0.0396 | < 0.0099 | < 0.0099 | < 0.0499 | < 0.0499 | < 0.0099 | < 0.0099 | < 0.0099 |
| DA4-SB-3A (0-0.6) | 4/1/2021 | < 0.473 | < 0.0056 | < 0.473 | < 0.473 | < 0.0056 | < 0.0224 | < 0.0056 | < 0.0056 | < 0.0485 | < 0.0485 | < 0.0056 | < 0.0056 | < 0.0056 |
| DA4-SB-3A (2-2.5) | 4/1/2021 | < 0.514 | < 0.0099 | < 0.514 | < 0.514 | < 0.0099 | < 0.0397 | < 0.0099 | < 0.0099 | < 0.0514 | < 0.0514 | < 0.0099 | < 0.0099 | < 0.0099 |
| DA4-SB-3B (0-0.6) | 4/1/2021 | < 0.55 | < 0.0128 | < 0.55 | < 0.55 | < 0.0128 | < 0.0513 | < 0.0128 | < 0.0128 | < 0.277 | < 0.277 | **0.0077 j** | < 0.0128 | < 0.0128 |
| DA4-SB-3B (2-2.5) | 4/1/2021 | < 0.517 | < 0.0072 | < 0.517 | < 0.517 | < 0.0072 | < 0.0288 | < 0.0072 | < 0.0072 | < 0.259 | < 0.259 | < 0.0072 | < 0.0072 | < 0.0072 |
| DA4-SB-4 (0-0.7) | 10/14/2020 | < 0.95 | < 0.0158 | < 0.95 | < 0.95 | < 0.0158 | **0.0424 j** | < 0.0158 | < 0.0158 | NA | NA | **0.0111 j** | < 0.0158 | < 0.0158 |
| DA4-SB-4 (0.7-1.3) | 10/14/2020 | < 0.503 | < 0.007 | < 0.503 | < 0.503 | < 0.007 | < 0.0282 | < 0.007 | < 0.007 | NA | NA | < 0.007 | < 0.007 | < 0.007 |
| DA4-SB-4 (0-0.6) | 3/23/2021 | < 0.714 | < 0.0237 | **2.17** | < 0.714 | < 0.0237 | < 0.0947 | < 0.0237 | < 0.0237 | < 0.0724 | **0.43** | < 0.0237 | < 0.0237 | < 0.0237 |
| DA4-SB-4 (3-4) | 3/23/2021 | < 0.419 | < 0.0071 | < 0.419 | < 0.419 | **0.0044 j** | < 0.0285 | < 0.0071 | < 0.0071 | < 0.0432 | < 0.0432 | **0.0041 j** | < 0.0071 | < 0.0071 |
| DA4-SB-4A (0-0.6) | 3/23/2021 | < 0.472 | < 0.0088 | < 0.472 | < 0.472 | < 0.0088 | < 0.0353 | < 0.0088 | < 0.0088 | < 0.0483 | < 0.0483 | < 0.0088 | < 0.0088 | < 0.0088 |
| DA4-SB-4A (3-4) | 3/23/2021 | < 0.451 | < 0.01 | < 0.451 | < 0.451 | < 0.01 | < 0.04 | < 0.01 | < 0.01 | < 0.0451 | < 0.0451 | < 0.01 | < 0.01 | < 0.01 |
| DA4-SB-4B (0-0.6) | 3/23/2021 | < 0.521 | < 0.0093 | < 0.521 | < 0.521 | < 0.0093 | < 0.0373 | < 0.0093 | < 0.0093 | < 0.0517 | < 0.0517 | < 0.0093 | < 0.0093 | < 0.0093 |
| DA4-SB-4B (3-4) | 3/23/2021 | < 0.44 | < 0.0068 | < 0.44 | < 0.44 | < 0.0068 | < 0.0274 | < 0.0068 | < 0.0068 | < 0.0433 | < 0.0433 | < 0.0068 | < 0.0068 | < 0.0068 |
| DA4-SB-5 (0-0.7) | 10/14/2020 | < 0.838 | < 0.0147 | < 0.838 | < 0.838 | < 0.0147 | **0.218** | < 0.0147 | < 0.0147 | NA | NA | **0.0272** | < 0.0147 | < 0.0147 |
| DA4-SB-5 (0.7-1.3) | 10/14/2020 | < 0.563 | < 0.0125 | < 0.563 | < 0.563 | < 0.0125 | **0.0877** | < 0.0125 | < 0.0125 | NA | NA | < 0.0125 | < 0.0125 | < 0.0125 |
| DA4-SB-5 (0-0.6) | 3/24/2021 | < 0.729 v1 | **0.017 j,1g** | < 0.729 | < 0.729 | < 0.0187 | < 0.0747 | < 0.0187 | < 0.0187 | < 0.0729 | **0.109** | **0.0133 j** | < 0.0187 | < 0.0187 |
| DA4-SB-5 (6-7) | 3/24/2021 | < 0.467 v1 | **0.0075 j,1g** | < 0.467 | < 0.467 | < 0.0085 | < 0.0339 | < 0.0085 | < 0.0085 | < 0.0481 | < 0.0481 | < 0.0085 | < 0.0085 | < 0.0085 |
| DA4-SB-5A (0-0.6) | 3/24/2021 | < 0.522 v1 | **0.0136 B,1g** | < 0.522 | < 0.522 | < 0.0103 | < 0.0411 | < 0.0103 | < 0.0103 | < 0.0526 | < 0.0526 | < 0.0103 | < 0.0103 | < 0.0103 |
| DA4-SB-5A (2-2.5) | 3/24/2021 | < 0.561 v1 | **0.0097 j,1g** | < 0.561 | < 0.561 | < 0.0119 | < 0.0476 | < 0.0119 | < 0.0119 | < 0.0567 | < 0.0567 | < 0.0119 | < 0.0119 | < 0.0119 |
| DA4-SB-5B (0-0.6) | 3/24/2021 | < 0.525 v1 | **0.0089 j,1g** | < 0.525 | < 0.525 | < 0.0118 | < 0.0473 | < 0.0118 | < 0.0118 | < 0.0532 | < 0.0532 | < 0.0118 | < 0.0118 | < 0.0118 |
| DA4-SB-5B (2-2.5) | 3/24/2021 | < 0.489 v1 | **0.0066 j,1g** | < 0.489 | < 0.489 | < 0.008 | < 0.032 | < 0.008 | < 0.008 | < 0.0489 | < 0.0489 | < 0.008 | < 0.008 | < 0.008 |
| DA4-SB-6 (0-0.6) | 3/24/2021 | < 0.883 v1 | **0.0194 j,1g** | **0.457 j** | < 0.883 | **0.026** | < 0.0984 | < 0.0246 | < 0.0246 | < 0.0875 | **0.228** | **0.0832** | < 0.0246 | < 0.0246 |
| DA4-SB-6 (4-5) | 3/24/2021 | < 0.458 v1 | **0.0058 j,1g** | < 0.458 | < 0.458 | < 0.0081 | < 0.0325 | < 0.0081 | < 0.0081 | < 0.0453 | < 0.0453 | < 0.0081 | < 0.0081 | < 0.0081 |
| DA4-SB-6A (0-0.6) | 3/24/2021 | < 0.535 v1 | **0.0132 B,1g** | < 0.535 | < 0.535 | < 0.0095 | < 0.0381 | < 0.0095 | < 0.0095 | < 0.0532 | < 0.0532 | < 0.0095 | < 0.0095 | < 0.0095 |
| DA4-SB-6A (2-2.5) | 3/24/2021 | < 0.434 v1 | **0.0071 j,1g** | < 0.434 | < 0.434 | < 0.0073 | < 0.0291 | < 0.0073 | < 0.0073 | < 0.0436 | < 0.0436 | < 0.0073 | < 0.0073 | < 0.0073 |
| DA4-SB-6B (0-0.6) | 3/24/2021 | < 0.565 v1 | **0.0089 j,1g** | < 0.565 | < 0.565 | < 0.0117 | < 0.0468 | < 0.0117 | < 0.0117 | < 0.0562 | < 0.0562 | < 0.0117 | < 0.0117 | < 0.0117 |
| DA4-SB-6B (2-2.5) | 3/24/2021 | < 0.495 v1 | **0.0084 j,1g** | < 0.495 | < 0.495 | < 0.0101 | < 0.0403 | < 0.0101 | < 0.0101 | < 0.05 | < 0.05 | < 0.0101 | < 0.0101 | < 0.0101 |
| DA4-SB-7 (0-0.6) | 3/24/2021 | < 0.657 v1 | **0.0537 j,1g** | **1.19** | < 0.657 | **0.102** | < 0.264 | < 0.066 | < 0.066 | < 0.0653 | **0.189** | **0.265** | < 0.066 | < 0.066 |
| DA4-SB-7 (5-6) | 3/24/2021 | < 0.495 v1 | **0.0081 j,1g** | < 0.495 | < 0.495 | **0.0073 j** | < 0.0362 | < 0.0091 | < 0.0091 | < 0.0497 | < 0.0497 | < 0.0091 | < 0.0091 | < 0.0091 |
| DA4-SB-8 (0-0.6) | 3/29/2021 | < 3.5 | < 0.0188 | < 3.5 | < 3.5 | < 0.0188 | < 0.0752 | < 0.0188 | < 0.0188 | < 0.0702 | **0.187** | < 0.0188 | < 0.0188 | < 0.0188 |
| DA4-SB-8 (5-6) | 3/29/2021 | < 0.495 | < 0.0091 | **0.35 j** | < 0.495 | < 0.0091 | < 0.0364 | < 0.0091 | < 0.0091 | < 0.0503 | < 0.0503 | < 0.0091 | < 0.0091 | < 0.0091 |

**TABLE 4-3**
**SUMMARY OF SEDIMENT ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | ASTM D2974-87 | | 8260B (VOA) | | | | | | 8260B (Other VOCs) | | | | | 8270D (PAH) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Parameter | | Percent Moisture | Percent Total Solids | Benzene | Ethylbenzene | Toluene | Xylenes | | | 1,3-Dichlorobenzene | 1,4-Dichlorobenzene | Acetone | Chlorobenzene | Styrene | Naphthalene | 1-Methylnaphthalene | 2-Methylnaphthalene | Acenaphthene | Acenaphthylene |
| | | | | | | | m&p-Xylenes | o-Xylene | Xylene (Total) | | | | | | | | | | |
| Reporting Units | | % | % | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EPA RSL Industrial Sediment | | NE | NE | 5.1 | 25 | 47000 | 2400 | 2800 | 2500 | NE | 11 | 670000 | 1300 | 35000 | 17 | 73 | 3000 | 45000 | NE |
| EPA RSL Residential Sediment | | NE | NE | 1.2 | 5.8 | 4900 | 560 | 650 | 580 | NE | 2.6 | 61000 | 280 | 6000 | 3.8 | 18 | 240 | 3600 | NE |
| EPA R4 Sediment RSV | | NE | NE | 2.185 | 1.467 | 2.074 | NE | NE | 1.074 | 0.468 | 0.468 | 38.133 | 0.939 | 1.621 | 3.85 | 4.46 | 4.47 | 4.91 | 4.52 |
| Location ID | Sample Collection Date | Analytical Results | | Analytical Results | | | | | | Analytical Results | | | | | Analytical Results | | | | |
| DA4-SB-8A (0-0.6) | 3/29/2021 | NM | NM | < 0.0086 | < 0.0086 | **0.0047 j** | < 0.0172 | < 0.0086 | < 0.0172 | < 0.0086 | < 0.0086 | < 0.172 | < 0.0086 | < 0.0086 | < 0.0086 | < 0.473 | < 0.473 | < 0.473 | < 0.473 |
| DA4-SB-8A (2-2.5) | 3/29/2021 | NM | NM | < 0.0083 | < 0.0083 | **0.007 j** | **0.0059 j** | < 0.0083 | **0.0059 j** | < 0.0083 | < 0.0083 | **0.0696 j** | < 0.0083 | < 0.0083 | **0.0153 ^** | < 0.438 | < 0.438 | < 0.438 | < 0.438 |
| DA4-SB-8B (0-0.6) | 3/29/2021 | NM | NM | < 0.0094 | < 0.0094 | **0.0069 j** | < 0.0188 | < 0.0094 | < 0.0188 | < 0.0094 | < 0.0094 | < 0.188 | < 0.0094 | < 0.0094 | **0.0198 ^** | < 2.62 | < 2.62 | < 2.62 | **2.49 j** |
| DA4-SB-8B (2-2.5) | 3/29/2021 | NM | NM | < 0.0097 | < 0.0097 | < 0.0097 | < 0.0193 | < 0.0097 | < 0.0193 | < 0.0097 | < 0.0097 | < 0.193 | < 0.0097 | < 0.0097 | < 0.0097 | < 0.492 | < 0.492 | < 0.492 | < 0.492 |
| DA4-SB-9 (0-0.6) | 3/29/2021 | NM | NM | < 0.0166 | **0.0101 j** | **0.0236** | **0.0183 j** | < 0.0166 | **0.0183 j** | < 0.0166 | < 0.0166 | **0.206 j** | < 0.0166 | < 0.0166 | **0.147 ^** | < 0.688 | < 0.688 | < 0.688 | < 0.688 |
| DA4-SB-9 (7-8) | 3/29/2021 | NM | NM | < 0.0077 | < 0.0077 | **0.0066 j** | < 0.0154 | < 0.0077 | < 0.0154 | < 0.0077 | < 0.0077 | < 0.154 | < 0.0077 | < 0.0077 | **0.0142 ^** | < 0.448 | < 0.448 | < 0.448 | < 0.448 |
| DA4-SB-10 (0-0.6) | 3/30/2021 | NM | NM | < 0.0147 | < 0.0147 | **0.0106 j** | **0.0126 j** | < 0.0147 | **0.0126 j** | < 0.0147 | < 0.0147 | < 0.294 | < 0.0147 | < 0.0147 | **0.0476 ^** | < 0.645 | < 0.645 | < 0.645 | < 0.645 |
| DA4-SB-10 (5-6) | 3/30/2021 | NM | NM | < 0.0076 | < 0.0076 | < 0.0076 | < 0.0152 | < 0.0076 | < 0.0152 | < 0.0076 | < 0.0076 | < 0.152 | < 0.0076 | < 0.0076 | **0.0091 ^** | < 0.462 | < 0.462 | < 0.462 | < 0.462 |
| DA4-SB-10A (0-0.6) | 3/30/2021 | NM | NM | < 0.0094 | < 0.0094 | **0.0049 j** | < 0.0187 | < 0.0094 | < 0.0187 | < 0.0094 | < 0.0094 | < 0.187 | < 0.0094 | < 0.0094 | < 0.0094 | < 0.503 | < 0.503 | < 0.503 | < 0.503 |
| DA4-SB-10A (2-2.5) | 3/30/2021 | NM | NM | < 0.0091 | < 0.0091 | < 0.0091 | < 0.0182 | < 0.0091 | < 0.0182 | < 0.0091 | < 0.0091 | < 0.182 | < 0.0091 | < 0.0091 | < 0.0091 | < 0.474 | < 0.474 | < 0.474 | < 0.474 |
| DA4-SB-10B (0-0.6) | 3/30/2021 | NM | NM | < 0.0128 | **0.0085 j** | **0.0188** | **0.0237 j** | **0.0118 j** | **0.0355** | < 0.0128 | < 0.0128 | < 0.255 | < 0.0128 | < 0.0128 | **0.0853 ^** | < 0.578 | < 0.578 | < 0.578 | < 0.578 |
| DA4-SB-10B (2-2.5) | 3/30/2021 | NM | NM | < 0.0098 | < 0.0098 | **0.0063 j** | < 0.0196 | < 0.0098 | < 0.0196 | < 0.0098 | < 0.0098 | < 0.196 | < 0.0098 | < 0.0098 | **0.0122 ^** | < 0.477 | < 0.477 | < 0.477 | < 0.477 |
| DA4-SB-11 (0-0.6) | 3/30/2021 | NM | NM | < 0.0197 | **0.0126 j** | **0.0158 j** | **0.0238 j** | **0.0103 j** | **0.034 j** | < 0.0197 | **0.0141 j** | **0.498** | < 0.0197 | < 0.0197 | **0.147 ^** | < 3.55 | < 3.55 | < 3.55 | < 3.55 |
| DA4-SB-11 (6-7) | 3/30/2021 | NM | NM | < 0.0099 | < 0.0099 | < 0.0099 | < 0.0198 | < 0.0099 | < 0.0198 | < 0.0099 | < 0.0099 | **0.137 j** | < 0.0099 | < 0.0099 | **0.0333 ^** | < 0.525 | < 0.525 | < 0.525 | < 0.525 |
| DA4-SB-11A (0-0.6) | 3/30/2021 | NM | NM | < 0.0103 | < 0.0103 | < 0.0103 | < 0.0206 | < 0.0103 | < 0.0206 | < 0.0103 | < 0.0103 | < 0.206 | < 0.0103 | < 0.0103 | **0.0055 j^** | < 0.528 | < 0.528 | < 0.528 | < 0.528 |
| DA4-SB-11A (2-2.5) | 3/30/2021 | NM | NM | < 0.0093 | < 0.0093 | < 0.0093 | < 0.0186 | < 0.0093 | < 0.0186 | < 0.0093 | < 0.0093 | < 0.186 | < 0.0093 | < 0.0093 | **0.0057 j^** | < 0.491 | < 0.491 | < 0.491 | < 0.491 |
| DA4-SB-11B (0-0.6) | 3/30/2021 | NM | NM | < 0.0112 | **0.009 j** | **0.0193** | **0.0187 j** | < 0.0112 | **0.0187 j** | < 0.0112 | < 0.0112 | **0.0731 j** | < 0.0112 | < 0.0112 | **0.0712 ^** | < 0.531 | < 0.531 | < 0.531 | < 0.531 |
| DA4-SB-11B (2-2.5) | 3/30/2021 | NM | NM | < 0.0081 | < 0.0081 | < 0.0081 | < 0.0163 | < 0.0081 | < 0.0163 | < 0.0081 | < 0.0081 | < 0.163 | < 0.0081 | < 0.0081 | < 0.0081 | < 0.47 | < 0.47 | < 0.47 | < 0.47 |
| DA4-SB-12 (0-0.6) | 3/30/2021 | NM | NM | < 0.0206 | < 0.0206 | **0.0203 j** | < 0.0412 | < 0.0206 | < 0.0412 | < 0.0206 | < 0.0206 | **0.378 j** | < 0.0206 | < 0.0206 | **0.0558 ^** | < 0.698 | < 0.698 | < 0.698 | < 0.698 |
| DA4-SB-12 (4-5) | 3/30/2021 | NM | NM | < 0.0081 | < 0.0081 | **0.0244** | < 0.0162 | < 0.0081 | < 0.0162 | < 0.0081 | < 0.0081 | **0.131 j** | < 0.0081 | < 0.0081 | < 0.0081 | < 0.465 | < 0.465 | < 0.465 | < 0.465 |
| DA4-SB-13 (0-0.6) | 4/5/2021 | NM | NM | **0.0753** | **0.035** | **0.0546** | **0.0729** | **0.0245** | **0.0974** | < 0.0129 | **0.0483** | **0.333** | < 0.0129 | < 0.0129 | **1.3 ^** | < 2.69 | < 2.69 | < 2.69 | **1.59 j** |
| DA4-SB-13 (6.5-7.5) | 4/5/2021 | NM | NM | **0.17** | **0.278** | **0.144** | **0.31** | **0.228** | **0.538** | < 0.0305 | < 0.0305 | < 0.609 | < 0.0305 | **0.0252 j** | **18.8 ^** | **0.214 j** | **0.38 j** | **0.246 j** | < 0.446 |
| DA4-SB-13A (0-0.6) | 4/6/2021 | NM | NM | **0.0957** | **0.0635** | **0.1** | **0.158** | **0.0586** | **0.216** | < 0.0398 | < 0.0398 | **0.746 j** | < 0.0398 | < 0.0398 | **1.98 ^** | < 5.1 | < 5.1 | < 5.1 | **1.83 j** |
| DA4-SB-13A (5-6) | 4/6/2021 | NM | NM | < 0.0112 | < 0.0112 | < 0.0112 | < 0.0224 | < 0.0112 | < 0.0224 | < 0.0112 | < 0.0112 | < 0.224 | < 0.0112 | < 0.0112 | **0.0237 ^** | < 0.518 | < 0.518 | < 0.518 | **0.52** |
| DA4-SB-13B (0-0.6) | 4/6/2021 | NM | NM | < 0.0137 | < 0.0137 | **0.0096 j** | **0.0118 j** | < 0.0137 | **0.0118 j** | < 0.0137 | < 0.0137 | **0.189 j** | < 0.0137 | < 0.0137 | **0.0601 ^** | < 2.8 | < 2.8 | < 2.8 | **4.12** |
| DA4-SB-13B (2-2.5) | 4/6/2021 | NM | NM | < 0.0094 | < 0.0094 | < 0.0094 | < 0.0187 | < 0.0094 | < 0.0187 | < 0.0094 | < 0.0094 | < 0.187 | < 0.0094 | < 0.0094 | < 0.0094 | < 0.502 | < 0.502 | < 0.502 | < 0.502 |
| DA5-SB-1 (0-0.7) | 10/15/2020 | 20.3 | NM | < 0.0072 | **0.0223** | **0.157** | **0.15** | **0.104** | **0.254** | < 0.0072 | < 0.0072 | < 0.145 | < 0.0072 | < 0.0072 | < 2.07 | < 2.07 | < 2.07 | < 2.07 | < 2.07 |
| DA5-SB-1 (0.7-1.3) | 10/15/2020 | 27.9 | NM | < 0.0063 | **0.0108** | **0.0464** | **0.049** | **0.0335** | **0.0825** | < 0.0063 | < 0.0063 | < 0.126 | < 0.0063 | < 0.0063 | < 2.26 | < 2.26 | < 2.26 | < 2.26 | < 2.26 |
| DA5-SB-2 (0-0.7) | 10/15/2020 | 38.2 | NM | < 0.0087 | **0.0129** | **0.0786** | **0.0757** | **0.0484** | **0.124** | < 0.0087 | < 0.0087 | < 0.175 | < 0.0087 | < 0.0087 | < 0.541 | < 0.541 | < 0.541 | < 0.541 | < 0.541 |
| DA5-SB-2 (0.7-1.3) | 10/15/2020 | 31.3 | NM | < 0.0072 | **0.0182** | **0.0721** | **0.121** | **0.0825** | **0.203** | < 0.0072 | < 0.0072 | < 0.145 | < 0.0072 | < 0.0072 | < 0.478 | < 0.478 | < 0.478 | < 0.478 | < 0.478 |
| DA5-SB-3 (0-0.7) | 10/15/2020 | 40.5 | NM | **0.0118** | **0.0188** | **0.0893** | **0.12** | **0.0807** | **0.2** | < 0.0088 | < 0.0088 | < 0.176 | < 0.0088 | < 0.0088 | < 0.56 | < 0.56 | < 0.56 | < 0.56 | < 0.56 |
| DA5-SB-3 (0.7-1.3) | 10/15/2020 | 35.2 | NM | < 0.0077 | < 0.0077 | **0.0129** | **0.0169** | **0.0099** | **0.0267** | < 0.0077 | < 0.0077 | < 0.154 | < 0.0077 | < 0.0077 | < 0.504 | < 0.504 | < 0.504 | < 0.504 | < 0.504 |
| DA5-SB-4 (0-0.7) | 10/15/2020 | 46.9 | NM | **0.013** | **0.0234** | **0.103** | **0.136** | **0.0875** | **0.223** | < 0.0107 | < 0.0107 | **0.151 j** | < 0.0107 | < 0.0107 | **0.176 j** | < 0.632 | **0.168 j** | < 0.632 | < 0.632 |
| DA5-SB-4 (0.7-1.3) | 10/15/2020 | 33.1 | NM | < 0.0069 | **0.0115** | **0.0364** | **0.0635** | **0.0477** | **0.111** | < 0.0069 | < 0.0069 | < 0.138 | < 0.0069 | < 0.0069 | < 0.488 | < 0.488 | < 0.488 | < 0.488 | < 0.488 |
| REF1 (0-0.5) | 9/9/2020 | NM | 81.7 | < 0.00065 | < 0.0013 | < 0.0013 | < 0.0026 | < 0.0013 | < 0.0013 | < 0.202 | < 0.202 | **0.05** | < 0.00065 | < 0.0013 | **0.0761** | **0.0164** | **0.0206** | **0.0114 j** | **0.0378** |
| RI-SB-37 (0-0.6) | 4/6/2021 | NM | NM | < 0.0128 | **0.0064 j** | **0.0101 j** | **0.0166 j** | **0.0079 j** | **0.0245 j** | < 0.0128 | < 0.0128 | **0.127 j** | < 0.0128 | < 0.0128 | **0.03 ^** | < 0.596 | < 0.596 | < 0.596 | < 0.596 |
| RI-SB-37 (2-2.5) | 4/6/2021 | NM | NM | < 0.0104 | < 0.0104 | < 0.0104 | < 0.0208 | < 0.0104 | < 0.0208 | < 0.0104 | < 0.0104 | < 0.208 | < 0.0104 | < 0.0104 | < 0.0104 | < 0.545 | < 0.545 | < 0.545 | < 0.545 |
| RI-SB-38 (0-0.6) | 4/6/2021 | NM | NM | < 0.0344 | **0.0272 j** | **0.0505** | **0.0914** | **0.0522** | **0.144** | < 0.0344 | < 0.0344 | **0.88** | < 0.0344 | < 0.0344 | **0.0867 ^** | < 1.06 | < 1.06 | < 1.06 | < 1.06 |
| RI-SB-38 (2-2.5) | 4/6/2021 | NM | NM | < 0.0091 | < 0.0091 | < 0.0091 | < 0.0182 | < 0.0091 | < 0.0182 | < 0.0091 | < 0.0091 | **0.0612 j** | < 0.0091 | < 0.0091 | < 0.0091 | < 0.496 | < 0.496 | < 0.496 | < 0.496 |
| RI-SB-39 (0-0.6) | 4/6/2021 | NM | NM | < 0.0134 | **0.0115 j** | **0.0233** | **0.0468** | **0.0232** | **0.0701** | < 0.0134 | < 0.0134 | **0.225 j** | < 0.0134 | < 0.0134 | **0.0932 ^** | < 0.623 | < 0.623 | < 0.623 | < 0.623 |
| RI-SB-39 (2-2.5) | 4/6/2021 | NM | NM | < 0.0072 | < 0.0072 | < 0.0072 | < 0.0144 | < 0.0072 | < 0.0144 | < 0.0072 | < 0.0072 | < 0.144 | < 0.0072 | < 0.0072 | < 0.0072 | < 0.451 | < 0.451 | < 0.451 | < 0.451 |
| RR-0 (0-0.7) | 10/20/2020 | 23.2 | NM | < 0.0079 | < 0.0079 | < 0.0079 | < 0.0157 | < 0.0079 | < 0.0157 | < 0.0079 | < 0.0079 | < 0.157 | < 0.0079 | < 0.0079 | < 0.437 | < 0.437 | < 0.437 | < 0.437 | < 0.437 |
| RR-0 (0.7-1.3) | 10/20/2020 | 27.3 | NM | < 0.0075 | < 0.0075 | < 0.0075 | < 0.0149 | < 0.0075 | < 0.0149 | < 0.0075 | < 0.0075 | < 0.149 | < 0.0075 | < 0.0075 | < 0.448 | < 0.448 | < 0.448 | < 0.448 | < 0.448 |
| RR-1 (0-0.7) | 10/20/2020 | 25.4 | NM | < 0.0054 | < 0.0054 | < 0.0054 | < 0.0109 | < 0.0054 | < 0.0109 | < 0.0054 | < 0.0054 | < 0.109 | < 0.0054 | < 0.0054 | < 0.442 | < 0.442 | < 0.442 | < 0.442 | < 0.442 |
| RR-1 (0.7-1.3) | 10/20/2020 | 19 | NM | < 0.0054 | < 0.0054 | **0.0037 j** | < 0.0108 | < 0.0054 | < 0.0108 | < 0.0054 | < 0.0054 | < 0.108 | < 0.0054 | < 0.0054 | < 0.41 | < 0.41 | < 0.41 | < 0.41 | < 0.41 |

**TABLE 4-3**
**SUMMARY OF SEDIMENT ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (PAH) (Continued) | | | | | | | | | | | | 8270D (Other SVOC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **Anthracene** | **Benzo(a)anthracene** | **Benzo(a)pyrene** | **Benzo(b)fluoranthene** | **Benzo(g,h,i)perylene** | **Benzo(k)fluoranthene** | **Chrysene** | **Dibenz(a,h)anthracene** | **Fluoranthene** | **Fluorene** | **Indeno(1,2,3-cd)pyrene** | **Phenanthrene** | **2,4-Dimethylphenol** | **2-Methylphenol(o-Cresol)** |
| **Reporting Units** | | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** |
| **EPA RSL Industrial Sediment** | | **230000** | **21** | **2.1** | **21** | **NE** | **210** | **2100** | **2.1** | **30000** | **30000** | **21** | **NE** | **16000** | **41000** |
| **EPA RSL Residential Sediment** | | **18000** | **1.1** | **0.11** | **1.1** | **NE** | **11** | **110** | **0.11** | **2400** | **2400** | **1.1** | **NE** | **1300** | **3200** |
| **EPA R4 Sediment RSV** | | **5.94** | **8.41** | **9.65** | **9.79** | **10.9** | **9.81** | **8.44** | **11.2** | **7.07** | **5.38** | **11.2** | **5.96** | **1.437** | **1.773** |
| **Location ID** | **Sample Collection Date** | **Analytical Results** | | | | | | | | | | | | **Analytical Results** | |
| DA4-SB-8A (0-0.6) | 3/29/2021 | < 0.473 | **0.225 j** | **0.089** | **0.239 j** | < 0.473 | < 0.473 | **0.206 j** | < 0.473 | **0.458 j** | < 0.473 | < 0.473 | **0.256 j** | < 0.473 | < 0.473 |
| DA4-SB-8A (2-2.5) | 3/29/2021 | < 0.438 | < 0.438 | **0.0199** | < 0.438 | < 0.438 | < 0.438 | < 0.438 | < 0.438 | < 0.438 | < 0.438 | < 0.438 | < 0.438 | < 0.438 | < 0.438 |
| DA4-SB-8B (0-0.6) | 3/29/2021 | **7.08** | **12.9** | **0.103** | **12.4** | **5.41** | **5.16** | **11** | **1.39 j** | **30.5** | **3.05** | **5.24** | **28.7** | < 2.62 | < 2.62 |
| DA4-SB-8B (2-2.5) | 3/29/2021 | < 0.492 | < 0.492 | **0.0069 j** | < 0.492 | < 0.492 | < 0.492 | < 0.492 | < 0.492 | < 0.492 | < 0.492 | < 0.492 | < 0.492 | < 0.492 | < 0.492 |
| DA4-SB-9 (0-0.6) | 3/29/2021 | < 0.688 | **0.244 j** | **0.299** | **0.317 j** | < 0.688 | < 0.688 | < 0.688 | < 0.688 | **0.343 j** | < 0.688 | < 0.688 | < 0.688 | < 0.688 | < 0.688 |
| DA4-SB-9 (7-8) | 3/29/2021 | **0.223 j** | **0.236 j** | **0.174** | **0.22 j** | < 0.448 | < 0.448 | **0.21 j** | < 0.448 | **0.536** | < 0.448 | < 0.448 | **0.53** | < 0.448 | < 0.448 |
| DA4-SB-10 (0-0.6) | 3/30/2021 | < 0.645 | < 0.645 | **0.102** | < 0.645 | < 0.645 | < 0.645 | < 0.645 | < 0.645 | < 0.645 | < 0.645 | < 0.645 | < 0.645 | < 0.645 | < 0.645 |
| DA4-SB-10 (5-6) | 3/30/2021 | < 0.462 | < 0.462 | **0.0097 j** | < 0.462 | < 0.462 | < 0.462 | < 0.462 | < 0.462 | < 0.462 | < 0.462 | < 0.462 | < 0.462 | < 0.462 | < 0.462 |
| DA4-SB-10A (0-0.6) | 3/30/2021 | < 0.503 | < 0.503 | < 0.0155 | < 0.503 | < 0.503 | < 0.503 | < 0.503 | < 0.503 | < 0.503 | < 0.503 | < 0.503 | < 0.503 | < 0.503 | < 0.503 |
| DA4-SB-10A (2-2.5) | 3/30/2021 | < 0.474 | < 0.474 | < 0.0143 | < 0.474 | < 0.474 | < 0.474 | < 0.474 | < 0.474 | < 0.474 | < 0.474 | < 0.474 | < 0.474 | < 0.474 | < 0.474 |
| DA4-SB-10B (0-0.6) | 3/30/2021 | **0.329 j** | **0.92** | **1.37** | **0.964** | **0.528 j** | **0.409 j** | **0.754** | < 0.578 | **1.8** | < 0.578 | **0.485 j** | **0.774** | < 0.578 | < 0.578 |
| DA4-SB-10B (2-2.5) | 3/30/2021 | < 0.477 | **0.211 j** | **0.0397** | **0.245 j** | < 0.477 | < 0.477 | **0.185 j** | < 0.477 | **0.339 j** | < 0.477 | < 0.477 | < 0.477 | < 0.477 | < 0.477 |
| DA4-SB-11 (0-0.6) | 3/30/2021 | < 3.55 | < 3.55 | **0.194** | **1.22 j** | < 3.55 | < 3.55 | < 3.55 | < 3.55 | **1.91 j** | < 3.55 | < 3.55 | < 3.55 | < 3.55 | < 3.55 |
| DA4-SB-11 (6-7) | 3/30/2021 | < 0.525 | < 0.525 | **0.0382** | < 0.525 | < 0.525 | < 0.525 | < 0.525 | < 0.525 | < 0.525 | < 0.525 | < 0.525 | < 0.525 | < 0.525 | < 0.525 |
| DA4-SB-11A (0-0.6) | 3/30/2021 | < 0.528 | < 0.528 | **0.0578** | < 0.528 | < 0.528 | < 0.528 | < 0.528 | < 0.528 | < 0.528 | < 0.528 | < 0.528 | < 0.528 | < 0.528 | < 0.528 |
| DA4-SB-11A (2-2.5) | 3/30/2021 | < 0.491 | < 0.491 | **0.041** | < 0.491 | < 0.491 | < 0.491 | < 0.491 | < 0.491 | < 0.491 | < 0.491 | < 0.491 | < 0.491 | < 0.491 | < 0.491 |
| DA4-SB-11B (0-0.6) | 3/30/2021 | < 0.531 | < 0.531 | **0.233** | < 0.531 | < 0.531 | < 0.531 | < 0.531 | < 0.531 | < 0.531 | < 0.531 | < 0.531 | < 0.531 | < 0.531 | < 0.531 |
| DA4-SB-11B (2-2.5) | 3/30/2021 | < 0.47 | < 0.47 | < 0.0143 | < 0.47 | < 0.47 | < 0.47 | < 0.47 | < 0.47 | < 0.47 | < 0.47 | < 0.47 | < 0.47 | < 0.47 | < 0.47 |
| DA4-SB-12 (0-0.6) | 3/30/2021 | < 0.698 | < 0.698 | **0.08** | < 0.698 | < 0.698 | < 0.698 | < 0.698 | < 0.698 | < 0.698 | < 0.698 | < 0.698 | < 0.698 | < 0.698 | < 0.698 |
| DA4-SB-12 (4-5) | 3/30/2021 | < 0.465 | < 0.465 | **0.0037 j** | < 0.465 | < 0.465 | < 0.465 | < 0.465 | < 0.465 | < 0.465 | < 0.465 | < 0.465 | < 0.465 | < 0.465 | < 0.465 |
| DA4-SB-13 (0-0.6) | 4/5/2021 | **1.54 j** | **4.43** | **3.41** | **4.84** | **2 j** | **2.21 j** | **3.44** | < 2.69 | **9.72** | < 2.69 | **1.85 j** | **3** | < 2.69 | < 2.69 |
| DA4-SB-13 (6.5-7.5) | 4/5/2021 | **0.215 j** | **0.298 j** | **3.85** | **0.29 j** | < 0.446 | < 0.446 | **0.228 j** | < 0.446 | **0.71** | < 0.446 | < 0.446 | **0.553** | < 0.446 | < 0.446 |
| DA4-SB-13A (0-0.6) | 4/6/2021 | **4.53 j** | **9.22** | **44.1** | **8.45** | **5.01 j** | **4.35 j** | **6.7** | < 5.1 | **20.2** | **2.36 j** | **4.49 j** | **15.8** | < 5.1 | < 5.1 |
| DA4-SB-13A (5-6) | 4/6/2021 | **0.728** | **1.96** | **8.74** | **1.95** | **0.734** | **0.722** | **1.36** | < 0.518 | **3.84** | **0.264 j** | **0.704** | **1.49** | < 0.518 | < 0.518 |
| DA4-SB-13B (0-0.6) | 4/6/2021 | **5.93** | **13.7** | **3.29** | **12.8** | **4.86** | **5.3** | **10.3** | **1.37 j** | **26.3** | **1.96 j** | **4.84** | **16.8** | < 2.8 | < 2.8 |
| DA4-SB-13B (2-2.5) | 4/6/2021 | < 0.502 | < 0.502 | **0.182** | < 0.502 | < 0.502 | < 0.502 | < 0.502 | < 0.502 | < 0.502 | < 0.502 | < 0.502 | < 0.502 | < 0.502 | < 0.502 |
| DA5-SB-1 (0-0.7) | 10/15/2020 | < 2.07 | < 2.07 | < 2.07 | < 2.07 | < 2.07 | < 2.07 | < 2.07 | < 2.07 | **0.857 j** | < 2.07 | < 2.07 | **0.642 j** | < 2.07 | < 2.07 |
| DA5-SB-1 (0.7-1.3) | 10/15/2020 | < 2.26 | < 2.26 | < 2.26 | < 2.26 | < 2.26 | < 2.26 | < 2.26 | < 2.26 | < 2.26 | < 2.26 | < 2.26 | < 2.26 | < 2.26 | < 2.26 |
| DA5-SB-2 (0-0.7) | 10/15/2020 | < 0.541 | < 0.541 | **0.0087 j** | < 0.541 | < 0.541 | < 0.541 | < 0.541 | < 0.541 | < 0.541 | < 0.541 | < 0.541 | < 0.541 | < 0.541 | < 0.541 |
| DA5-SB-2 (0.7-1.3) | 10/15/2020 | < 0.478 | < 0.478 | < 0.478 | < 0.478 | < 0.478 | < 0.478 | < 0.478 | < 0.478 | < 0.478 | < 0.478 | < 0.478 | < 0.478 | < 0.478 | < 0.478 |
| DA5-SB-3 (0-0.7) | 10/15/2020 | < 0.56 | < 0.56 | **0.0125 j** | < 0.56 | < 0.56 | < 0.56 | < 0.56 | < 0.56 | < 0.56 | < 0.56 | < 0.56 | < 0.56 | < 0.56 | < 0.56 |
| DA5-SB-3 (0.7-1.3) | 10/15/2020 | < 0.504 | < 0.504 | **0.0019 j** | < 0.504 | < 0.504 | < 0.504 | < 0.504 | < 0.504 | < 0.504 | < 0.504 | < 0.504 | < 0.504 | < 0.504 | < 0.504 |
| DA5-SB-4 (0-0.7) | 10/15/2020 | < 0.632 | < 0.632 | < 0.632 | < 0.632 | < 0.632 | < 0.632 | **0.192 j** | < 0.632 | **0.345 j** | < 0.632 | < 0.632 | **0.215 j** | < 0.632 | < 0.632 |
| DA5-SB-4 (0.7-1.3) | 10/15/2020 | < 0.488 | < 0.488 | < 0.488 | < 0.488 | < 0.488 | < 0.488 | **0.142 j** | < 0.488 | **0.294 j** | < 0.488 | < 0.488 | **0.256 j** | < 0.488 | < 0.488 |
| REF1 (0-0.5) | 9/9/2020 | **0.0713** | **0.276** | **0.398** | **0.531** | **0.446** | NA | **0.514** | NA | **0.616** | **0.0191** | **0.385** | **0.295** | < 0.202 | < 0.202 |
| RI-SB-37 (0-0.6) | 4/6/2021 | < 0.596 | < 0.596 | **0.016 j** | < 0.596 | < 0.596 | < 0.596 | < 0.596 | < 0.596 | < 0.596 | < 0.596 | < 0.596 | < 0.596 | < 0.596 | < 0.596 |
| RI-SB-37 (2-2.5) | 4/6/2021 | < 0.545 | < 0.545 | < 0.0162 | < 0.545 | < 0.545 | < 0.545 | < 0.545 | < 0.545 | < 0.545 | < 0.545 | < 0.545 | < 0.545 | < 0.545 | < 0.545 |
| RI-SB-38 (0-0.6) | 4/6/2021 | < 1.06 | < 1.06 | **0.0169 j** | < 1.06 | < 1.06 | < 1.06 | < 1.06 | < 1.06 | < 1.06 | < 1.06 | < 1.06 | < 1.06 | < 1.06 | < 1.06 |
| RI-SB-38 (2-2.5) | 4/6/2021 | < 0.496 | < 0.496 | < 0.015 | < 0.496 | < 0.496 | < 0.496 | < 0.496 | < 0.496 | < 0.496 | < 0.496 | < 0.496 | < 0.496 | < 0.496 | < 0.496 |
| RI-SB-39 (0-0.6) | 4/6/2021 | < 0.623 | < 0.623 | **0.0159 j** | < 0.623 | < 0.623 | < 0.623 | < 0.623 | < 0.623 | < 0.623 | < 0.623 | < 0.623 | < 0.623 | < 0.623 | < 0.623 |
| RI-SB-39 (2-2.5) | 4/6/2021 | < 0.451 | < 0.451 | **0.0016 j** | < 0.451 | < 0.451 | < 0.451 | < 0.451 | < 0.451 | < 0.451 | < 0.451 | < 0.451 | < 0.451 | < 0.451 | < 0.451 |
| RR-0 (0-0.7) | 10/20/2020 | < 0.437 | < 0.437 | **0.0045 j** | < 0.437 | < 0.437 | < 0.437 | < 0.437 | < 0.437 | < 0.437 | < 0.437 | < 0.437 | < 0.437 | < 0.437 | < 0.437 |
| RR-0 (0.7-1.3) | 10/20/2020 | < 0.448 | < 0.448 | < 0.0137 | < 0.448 | < 0.448 | < 0.448 | < 0.448 | < 0.448 | < 0.448 | < 0.448 | < 0.448 | < 0.448 | < 0.448 | < 0.448 |
| RR-1 (0-0.7) | 10/20/2020 | < 0.442 | < 0.442 | < 0.442 | < 0.442 | < 0.442 | < 0.442 | < 0.442 | < 0.442 | < 0.442 | < 0.442 | < 0.442 | < 0.442 | < 0.442 | < 0.442 |
| RR-1 (0.7-1.3) | 10/20/2020 | < 0.41 | < 0.41 | **0.0042 j** | < 0.41 | < 0.41 | < 0.41 | < 0.41 | < 0.41 | < 0.41 | < 0.41 | < 0.41 | < 0.41 | < 0.41 | < 0.41 |

**TABLE 4-3**
**SUMMARY OF SEDIMENT ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (Other SVOC) (Continued) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **3&4-Methylphenol(m&p Cresol)** | **1,2,4-Trichlorobenzene** | **1,2,4-Trimethylbenzene** | **1,3,5-Trimethylbenzene** | **2,4-Dinitrotoluene** | **2,6-Dinitrotoluene** | **2-Butanone (MEK)** | **2-Chloronaphthalene** | **4-Methyl-2-pentanone (MIBK)** | **Aniline** | **bis(2-Ethylhexyl)phthalate** |
| **Reporting Units** | | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** |
| **EPA RSL Industrial Sediment** | | **820** | **110** | **1800** | **1500** | **7.4** | **1.5** | **190000** | **60000** | **140000** | **400** | **160** |
| **EPA RSL Residential Sediment** | | **63** | **24** | **300** | **270** | **1.7** | **0.36** | **27000** | **4800** | **33000** | **95** | **39** |
| **EPA R4 Sediment RSV** | | **0.26** | **0.485** | **0.361** | **0.354** | **2.9** | **0.133** | **22.707** | **NE** | **8.165** | **0.012** | **2.6** |
| **Location ID** | **Sample Collection Date** | **Analytical Results** | | | | | | | | | | |
| DA4-SB-8A (0-0.6) | 3/29/2021 | < 0.473 | < 0.0086 | < 0.0086 | < 0.0086 | < 0.473 | < 0.473 | < 0.172 | < 0.473 | < 0.0862 | < 0.473 | < 0.473 v1 |
| DA4-SB-8A (2-2.5) | 3/29/2021 | < 0.438 | < 0.0083 | < 0.0083 | < 0.0083 | < 0.438 | < 0.438 | < 0.166 | < 0.438 | < 0.0829 | < 0.438 | < 0.438 v1 |
| DA4-SB-8B (0-0.6) | 3/29/2021 | < 2.62 v1 | < 0.0094 | < 0.0094 | < 0.0094 | < 2.62 | < 2.62 | < 0.188 | < 2.62 | < 0.0939 | < 2.62 | < 2.62 v1 |
| DA4-SB-8B (2-2.5) | 3/29/2021 | < 0.492 | < 0.0097 | < 0.0097 | < 0.0097 | < 0.492 | < 0.492 | < 0.193 | < 0.492 | < 0.0966 | < 0.492 | < 0.492 v1 |
| DA4-SB-9 (0-0.6) | 3/29/2021 | < 0.688 | < 0.0166 | **0.01 j** | < 0.0166 | < 0.688 | < 0.688 | **0.0801 j** | < 0.688 | < 0.166 | < 0.688 | < 0.688 v1 |
| DA4-SB-9 (7-8) | 3/29/2021 | < 0.448 | < 0.0077 | < 0.0077 | < 0.0077 | < 0.448 | < 0.448 | < 0.154 | < 0.448 | < 0.0768 | < 0.448 | < 0.448 v1 |
| DA4-SB-10 (0-0.6) | 3/30/2021 | < 0.645 | < 0.0147 | < 0.0147 | < 0.0147 | < 0.645 | < 0.645 | < 0.294 | < 0.645 | < 0.147 | < 0.645 | < 0.645 |
| DA4-SB-10 (5-6) | 3/30/2021 | < 0.462 | < 0.0076 | < 0.0076 | < 0.0076 | < 0.462 | < 0.462 | < 0.152 | < 0.462 | < 0.0761 | < 0.462 | < 0.462 |
| DA4-SB-10A (0-0.6) | 3/30/2021 | < 0.503 | < 0.0094 | < 0.0094 | < 0.0094 | < 0.503 | < 0.503 | < 0.187 | < 0.503 | < 0.0935 | < 0.503 | < 0.503 |
| DA4-SB-10A (2-2.5) | 3/30/2021 | < 0.474 | < 0.0091 | < 0.0091 | < 0.0091 | < 0.474 | < 0.474 | < 0.182 | < 0.474 | < 0.0911 | < 0.474 | < 0.474 |
| DA4-SB-10B (0-0.6) | 3/30/2021 | < 0.578 | < 0.0128 | **0.0111 j** | < 0.0128 | < 0.578 | < 0.578 | < 0.255 | < 0.578 | < 0.128 | < 0.578 | < 0.578 |
| DA4-SB-10B (2-2.5) | 3/30/2021 | < 0.477 | < 0.0098 | < 0.0098 | < 0.0098 | < 0.477 | < 0.477 | < 0.196 | < 0.477 | < 0.0978 | < 0.477 | < 0.477 |
| DA4-SB-11 (0-0.6) | 3/30/2021 | < 3.55 | < 0.0197 | **0.0139 j** | < 0.0197 | < 3.55 | < 3.55 | **0.254 j** | < 3.55 | < 0.197 | < 3.55 | < 3.55 |
| DA4-SB-11 (6-7) | 3/30/2021 | < 0.525 | < 0.0099 | < 0.0099 | < 0.0099 | < 0.525 | < 0.525 | < 0.198 | < 0.525 | < 0.099 | < 0.525 | < 0.525 |
| DA4-SB-11A (0-0.6) | 3/30/2021 | < 0.528 | < 0.0103 | < 0.0103 | < 0.0103 | < 0.528 | < 0.528 | < 0.206 | < 0.528 | < 0.103 | < 0.528 | < 0.528 |
| DA4-SB-11A (2-2.5) | 3/30/2021 | < 0.491 | < 0.0093 | < 0.0093 | < 0.0093 | < 0.491 | < 0.491 | < 0.186 | < 0.491 | < 0.093 | < 0.491 | < 0.491 |
| DA4-SB-11B (0-0.6) | 3/30/2021 | < 0.531 | < 0.0112 | < 0.0112 | < 0.0112 | < 0.531 | < 0.531 | < 0.223 | < 0.531 | < 0.112 | < 0.531 | < 0.531 |
| DA4-SB-11B (2-2.5) | 3/30/2021 | < 0.47 | < 0.0081 | < 0.0081 | < 0.0081 | < 0.47 | < 0.47 | < 0.163 | < 0.47 | < 0.0813 | < 0.47 | < 0.47 |
| DA4-SB-12 (0-0.6) | 3/30/2021 | < 0.698 | < 0.0206 | < 0.0206 | < 0.0206 | < 0.698 | < 0.698 | **0.178 j** | < 0.698 | < 0.206 | < 0.698 | < 0.698 |
| DA4-SB-12 (4-5) | 3/30/2021 | < 0.465 | < 0.0081 | < 0.0081 | < 0.0081 | < 0.465 | < 0.465 | < 0.162 | < 0.465 | < 0.0808 | < 0.465 | < 0.465 |
| DA4-SB-13 (0-0.6) | 4/5/2021 | < 2.69 | **0.0231** | **0.0265** | **0.0118 j** | < 2.69 v1 | < 2.69 | **0.119 j** | < 2.69 | < 0.129 | < 2.69 | < 2.69 |
| DA4-SB-13 (6.5-7.5) | 4/5/2021 | < 0.446 | < 0.0305 | **0.331** | **0.129** | < 0.446 v1 | < 0.446 | < 0.609 | < 0.446 | < 0.305 | < 0.446 | < 0.446 |
| DA4-SB-13A (0-0.6) | 4/6/2021 | < 5.1 | < 0.0398 | **0.0761** | **0.0376 j** | < 5.1 | < 5.1 | **0.365 j** | < 5.1 | < 0.398 | < 5.1 | < 5.1 |
| DA4-SB-13A (5-6) | 4/6/2021 | < 0.518 | < 0.0112 | < 0.0112 | < 0.0112 | < 0.518 v1 | < 0.518 | < 0.224 | < 0.518 | < 0.112 | < 0.518 | < 0.518 |
| DA4-SB-13B (0-0.6) | 4/6/2021 | < 2.8 | < 0.0137 | < 0.0137 | < 0.0137 | < 2.8 v1 | < 2.8 | < 0.273 | < 2.8 | < 0.137 | < 2.8 | < 2.8 |
| DA4-SB-13B (2-2.5) | 4/6/2021 | < 0.502 | < 0.0094 | < 0.0094 | < 0.0094 | < 0.502 v1 | < 0.502 | < 0.187 | < 0.502 | < 0.0937 | < 0.502 | < 0.502 |
| DA5-SB-1 (0-0.7) | 10/15/2020 | NA | < 0.0072 | **0.0633** | **0.0194** | < 2.07 | < 2.07 | **0.0736 j** | < 2.07 | < 0.0724 | < 2.07 | < 2.07 |
| DA5-SB-1 (0.7-1.3) | 10/15/2020 | NA | < 0.0063 | **0.02** | **0.0067** | < 2.26 | < 2.26 | **0.182** | < 2.26 | < 0.0628 | < 2.26 | < 2.26 |
| DA5-SB-2 (0-0.7) | 10/15/2020 | NA | < 0.0087 | **0.0312** | **0.0117** | < 0.541 | < 0.541 | **0.262** | < 0.541 | < 0.0875 | < 0.541 | < 0.541 |
| DA5-SB-2 (0.7-1.3) | 10/15/2020 | NA | < 0.0072 | **0.0662** | **0.0226** | < 0.478 | < 0.478 | **0.203** | < 0.478 | < 0.0724 | < 0.478 | < 0.478 |
| DA5-SB-3 (0-0.7) | 10/15/2020 | NA | < 0.0088 | **0.0488** | **0.0192** | < 0.56 | < 0.56 | **0.253** | < 0.56 | < 0.0878 | < 0.56 | < 0.56 |
| DA5-SB-3 (0.7-1.3) | 10/15/2020 | NA | < 0.0077 | **0.0076 j** | < 0.0077 | < 0.504 | < 0.504 | **0.212** | < 0.504 | < 0.0768 | < 0.504 | < 0.504 |
| DA5-SB-4 (0-0.7) | 10/15/2020 | NA | < 0.0107 | **0.0569** | **0.0182** | < 0.632 | < 0.632 | **0.322** | < 0.632 | < 0.107 | < 0.632 | < 0.632 |
| DA5-SB-4 (0.7-1.3) | 10/15/2020 | NA | < 0.0069 | **0.0341** | **0.0103** | < 0.488 | < 0.488 | **0.213** | < 0.488 | < 0.0689 | < 0.488 | < 0.488 |
| REF1 (0-0.5) | 9/9/2020 | NA | < 0.202 | < 0.00252 | < 0.00252 | < 0.202 | < 0.202 | < 0.013 | < 0.202 | < 0.013 | **0.0477 j** | **0.874** |
| RI-SB-37 (0-0.6) | 4/6/2021 | < 0.596 | < 0.0128 | **0.0086 j** | < 0.0128 | < 0.596 v1 | < 0.596 | < 0.256 | < 0.596 | < 0.128 | < 0.596 | < 0.596 |
| RI-SB-37 (2-2.5) | 4/6/2021 | < 0.545 | < 0.0104 | < 0.0104 | < 0.0104 | < 0.545 v1 | < 0.545 | < 0.208 | < 0.545 | < 0.104 | < 0.545 | < 0.545 |
| RI-SB-38 (0-0.6) | 4/6/2021 | < 1.06 | < 0.0344 | **0.0463** | < 0.0344 | < 1.06 v1 | < 1.06 | **0.365 j** | < 1.06 | < 0.344 | < 1.06 | < 1.06 |
| RI-SB-38 (2-2.5) | 4/6/2021 | < 0.496 | < 0.0091 | < 0.0091 | < 0.0091 | < 0.496 v1 | < 0.496 | < 0.182 | < 0.496 | < 0.091 | < 0.496 | < 0.496 |
| RI-SB-39 (0-0.6) | 4/6/2021 | < 0.623 | < 0.0134 | **0.0252** | **0.0125 j** | < 0.623 v1 | < 0.623 | **0.093 j** | < 0.623 | < 0.134 | < 0.623 | < 0.623 |
| RI-SB-39 (2-2.5) | 4/6/2021 | < 0.451 | < 0.0072 | < 0.0072 | < 0.0072 | < 0.451 v1 | < 0.451 | < 0.144 | < 0.451 | < 0.072 | < 0.451 | < 0.451 |
| RR-0 (0-0.7) | 10/20/2020 | NA | < 0.0079 | < 0.0079 | < 0.0079 | < 0.437 | < 0.437 | **0.194** | < 0.437 | < 0.0785 | < 0.437 | < 0.437 |
| RR-0 (0.7-1.3) | 10/20/2020 | NA | < 0.0075 | < 0.0075 | < 0.0075 | < 0.448 | < 0.448 | **0.201** | < 0.448 | < 0.0747 | < 0.448 | < 0.448 |
| RR-1 (0-0.7) | 10/20/2020 | NA | < 0.0054 | < 0.0054 | < 0.0054 | < 0.442 | < 0.442 | **0.144** | < 0.442 | < 0.0543 | < 0.442 | < 0.442 |
| RR-1 (0.7-1.3) | 10/20/2020 | NA | < 0.0054 | < 0.0054 | < 0.0054 | < 0.41 | < 0.41 | **0.147** | < 0.41 | < 0.0541 | < 0.41 | < 0.41 |

**TABLE 4-3**
**SUMMARY OF SEDIMENT ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (Other SVOC) (Continued) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **Butyl benzyl phthalate** | **Chloroform** | **Dibenzofuran** | **Di-n-butyl phthalate** | **Isopropylbenzene (Cumene)** | **Methylene chloride** | **n-Butylbenzene** | **n-Propylbenzene** | **PCB-1248 (Aroclor 1248)** | **PCB-1260 (Aroclor 1260)** | **p-Isopropyltoluene** | **Tetrachloroethene** | **Trichloroethene** |
| **Reporting Units** | | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** |
| **EPA RSL Industrial Sediment** | | **1200** | **1.4** | **1000** | **82000** | **9900** | **1000** | **58000** | **24000** | **0.94** | **0.99** | **NE** | **100** | **6** |
| **EPA RSL Residential Sediment** | | **290** | **0.32** | **73** | **6300** | **1900** | **57** | **3900** | **3800** | **0.23** | **0.24** | **NE** | **24** | **0.94** |
| **EPA R4 Sediment RSV** | | **0.481** | **3.352** | **2.313** | **0.319** | **0.713** | **2.404** | **NE** | **NE** | **NE** | **NE** | **0.242** | **NE** | **NE** |
| **Location ID** | **Sample Collection Date** | **Analytical Results** | | | | | | | | | | | | |
| DA4-SB-8A (0-0.6) | 3/29/2021 | < 0.473 v1 | < 0.0086 | < 0.473 | < 0.473 | < 0.0086 | < 0.0345 | < 0.0086 | < 0.0086 | < 0.047 | < 0.047 | < 0.0086 | < 0.0086 | < 0.0086 |
| DA4-SB-8A (2-2.5) | 3/29/2021 | < 0.438 v1 | < 0.0083 | < 0.438 | < 0.438 | < 0.0083 | < 0.0332 | < 0.0083 | < 0.0083 | < 0.0438 | < 0.0438 | < 0.0083 | < 0.0083 | < 0.0083 |
| DA4-SB-8B (0-0.6) | 3/29/2021 | < 2.62 v1 | < 0.0094 | **1.69 j** | < 2.62 | < 0.0094 | < 0.0376 | < 0.0094 | < 0.0094 | < 0.0516 | < 0.0516 | < 0.0094 | < 0.0094 | < 0.0094 |
| DA4-SB-8B (2-2.5) | 3/29/2021 | < 0.492 v1 | < 0.0097 | < 0.492 | < 0.492 | < 0.0097 | < 0.0386 | < 0.0097 | < 0.0097 | < 0.0497 | < 0.0497 | < 0.0097 | < 0.0097 | < 0.0097 |
| DA4-SB-9 (0-0.6) | 3/29/2021 | < 0.688 v1 | < 0.0166 | < 0.688 | < 0.688 | < 0.0166 | < 0.0666 | < 0.0166 | < 0.0166 | < 0.07 | **0.0901** | < 0.0166 | < 0.0166 | < 0.0166 |
| DA4-SB-9 (7-8) | 3/29/2021 | < 0.448 v1 | < 0.0077 | < 0.448 | < 0.448 | < 0.0077 | < 0.0307 | < 0.0077 | < 0.0077 | < 0.0448 | < 0.0448 | < 0.0077 | < 0.0077 | < 0.0077 |
| DA4-SB-10 (0-0.6) | 3/30/2021 | < 0.645 | < 0.0147 | < 0.645 | < 0.645 | < 0.0147 | < 0.0589 | < 0.0147 | < 0.0147 | < 0.0628 | **0.0792** | < 0.0147 | < 0.0147 | < 0.0147 |
| DA4-SB-10 (5-6) | 3/30/2021 | < 0.462 | < 0.0076 | < 0.462 | < 0.462 | < 0.0076 | < 0.0304 | < 0.0076 | < 0.0076 | < 0.0462 | < 0.0462 | < 0.0076 | < 0.0076 | < 0.0076 |
| DA4-SB-10A (0-0.6) | 3/30/2021 | < 0.503 | < 0.0094 | < 0.503 | < 0.503 | < 0.0094 | < 0.0374 | < 0.0094 | < 0.0094 | < 0.0503 | < 0.0503 | < 0.0094 | < 0.0094 | < 0.0094 |
| DA4-SB-10A (2-2.5) | 3/30/2021 | < 0.474 | < 0.0091 | < 0.474 | < 0.474 | < 0.0091 | < 0.0364 | < 0.0091 | < 0.0091 | < 0.0481 | < 0.0481 | < 0.0091 | < 0.0091 | < 0.0091 |
| DA4-SB-10B (0-0.6) | 3/30/2021 | < 0.578 | < 0.0128 | < 0.578 | < 0.578 | < 0.0128 | < 0.0511 | < 0.0128 | < 0.0128 | < 0.0578 | **0.0361 j** | < 0.0128 | < 0.0128 | < 0.0128 |
| DA4-SB-10B (2-2.5) | 3/30/2021 | < 0.477 | < 0.0098 | < 0.477 | < 0.477 | < 0.0098 | < 0.0391 | < 0.0098 | < 0.0098 | < 0.0464 | **0.0542** | < 0.0098 | < 0.0098 | < 0.0098 |
| DA4-SB-11 (0-0.6) | 3/30/2021 | < 3.55 | < 0.0197 | < 3.55 | < 3.55 | < 0.0197 | < 0.0788 | < 0.0197 | < 0.0197 | < 0.0713 | **0.275** | < 0.0197 | < 0.0197 | < 0.0197 |
| DA4-SB-11 (6-7) | 3/30/2021 | < 0.525 | < 0.0099 | < 0.525 | < 0.525 | < 0.0099 | < 0.0396 | < 0.0099 | < 0.0099 | < 0.0531 | < 0.0531 | **0.0123** | < 0.0099 | < 0.0099 |
| DA4-SB-11A (0-0.6) | 3/30/2021 | < 0.528 | < 0.0103 | < 0.528 | < 0.528 | < 0.0103 | < 0.0411 | < 0.0103 | < 0.0103 | < 0.0531 | < 0.0531 | < 0.0103 | < 0.0103 | < 0.0103 |
| DA4-SB-11A (2-2.5) | 3/30/2021 | < 0.491 | < 0.0093 | < 0.491 | < 0.491 | < 0.0093 | < 0.0372 | < 0.0093 | < 0.0093 | < 0.049 | < 0.049 | < 0.0093 | < 0.0093 | < 0.0093 |
| DA4-SB-11B (0-0.6) | 3/30/2021 | < 0.531 | < 0.0112 | < 0.531 | < 0.531 | < 0.0112 | < 0.0446 | < 0.0112 | < 0.0112 | < 0.0541 | **0.0672** | < 0.0112 | < 0.0112 | < 0.0112 |
| DA4-SB-11B (2-2.5) | 3/30/2021 | < 0.47 | < 0.0081 | < 0.47 | < 0.47 | < 0.0081 | < 0.0325 | < 0.0081 | < 0.0081 | < 0.0465 | < 0.0465 | < 0.0081 | < 0.0081 | < 0.0081 |
| DA4-SB-12 (0-0.6) | 3/30/2021 | < 0.698 | < 0.0206 | < 0.698 | < 0.698 | < 0.0206 | < 0.0825 | < 0.0206 | < 0.0206 | < 0.0679 | **0.119** | < 0.0206 | < 0.0206 | < 0.0206 |
| DA4-SB-12 (4-5) | 3/30/2021 | < 0.465 | < 0.0081 | < 0.465 | < 0.465 | < 0.0081 | < 0.0323 | < 0.0081 | < 0.0081 | < 0.0456 | < 0.0456 | < 0.0081 | < 0.0081 | < 0.0081 |
| DA4-SB-13 (0-0.6) | 4/5/2021 | < 2.69 | < 0.0129 | < 2.69 | < 2.69 | **0.0068 j** | < 0.0516 | < 0.0129 | < 0.0129 | < 0.534 | **1.84** | < 0.0129 | < 0.0129 | < 0.0129 |
| DA4-SB-13 (6.5-7.5) | 4/5/2021 | < 0.446 | < 0.0305 | < 0.446 | < 0.446 | **0.0268 j** | < 0.122 | < 0.0305 | < 0.0305 | < 0.0458 | < 0.0458 | **0.0367** | < 0.0305 | < 0.0305 |
| DA4-SB-13A (0-0.6) | 4/6/2021 | < 5.1 | < 0.0398 | < 5.1 | < 5.1 | **0.035 j** | < 0.159 | < 0.0398 | < 0.0398 | < 0.522 | **1.41** | < 0.0398 | < 0.0398 | < 0.0398 |
| DA4-SB-13A (5-6) | 4/6/2021 | < 0.518 | < 0.0112 | < 0.518 | < 0.518 | < 0.0112 | < 0.0448 | < 0.0112 | < 0.0112 | < 0.534 | < 0.534 | < 0.0112 | < 0.0112 | < 0.0112 |
| DA4-SB-13B (0-0.6) | 4/6/2021 | < 2.8 | < 0.0137 | < 2.8 | < 2.8 | < 0.0137 | < 0.0547 | < 0.0137 | < 0.0137 | < 0.57 | < 0.57 | < 0.0137 | < 0.0137 | < 0.0137 |
| DA4-SB-13B (2-2.5) | 4/6/2021 | < 0.502 | < 0.0094 | < 0.502 | < 0.502 | < 0.0094 | < 0.0375 | < 0.0094 | < 0.0094 | < 0.0507 | < 0.0507 | < 0.0094 | < 0.0094 | < 0.0094 |
| DA5-SB-1 (0-0.7) | 10/15/2020 | < 2.07 | < 0.0072 | < 2.07 | < 2.07 | **0.0095** | < 0.029 | **0.0084** | **0.0139** | NA | NA | < 0.0072 | < 0.0072 | < 0.0072 |
| DA5-SB-1 (0.7-1.3) | 10/15/2020 | < 2.26 | < 0.0063 | < 2.26 | < 2.26 | < 0.0063 | < 0.0251 | **0.0038 j** | **0.0058 j** | NA | NA | < 0.0063 | < 0.0063 | < 0.0063 |
| DA5-SB-2 (0-0.7) | 10/15/2020 | < 0.541 | < 0.0087 | < 0.541 | < 0.541 | < 0.0087 | < 0.035 | < 0.0087 | **0.0066 j** | NA | NA | **0.01** | < 0.0087 | < 0.0087 |
| DA5-SB-2 (0.7-1.3) | 10/15/2020 | < 0.478 | < 0.0072 | < 0.478 | < 0.478 | **0.0093** | < 0.029 | < 0.0072 | **0.0101** | NA | NA | **0.0075** | < 0.0072 | < 0.0072 |
| DA5-SB-3 (0-0.7) | 10/15/2020 | < 0.56 | < 0.0088 | < 0.56 | < 0.56 | **0.0092** | < 0.0351 | < 0.0088 | **0.0108** | NA | NA | **0.0097** | < 0.0088 | < 0.0088 |
| DA5-SB-3 (0.7-1.3) | 10/15/2020 | < 0.504 | < 0.0077 | < 0.504 | < 0.504 | < 0.0077 | < 0.0307 | < 0.0077 | < 0.0077 | NA | NA | < 0.0077 | < 0.0077 | < 0.0077 |
| DA5-SB-4 (0-0.7) | 10/15/2020 | < 0.632 | < 0.0107 | < 0.632 | < 0.632 | **0.0103 j** | < 0.0427 | < 0.0107 | **0.0132** | NA | NA | **0.0093 j** | < 0.0107 | < 0.0107 |
| DA5-SB-4 (0.7-1.3) | 10/15/2020 | < 0.488 | < 0.0069 | < 0.488 | < 0.488 | **0.0061 j** | < 0.0276 | **0.0045 j** | **0.0066 j** | NA | NA | **0.0052 j** | < 0.0069 | < 0.0069 |
| REF1 (0-0.5) | 9/9/2020 | < 0.202 | < 0.0019 | **0.013** | **0.0578 j** | < 0.0013 | < 0.0065 | < 0.0013 | < 0.0013 | NA | NA | < 0.0013 | < 0.00065 | < 0.00065 |
| RI-SB-37 (0-0.6) | 4/6/2021 | < 0.596 | < 0.0128 | < 0.596 | < 0.596 | < 0.0128 | < 0.0511 | < 0.0128 | < 0.0128 | < 0.0606 | < 0.0606 | < 0.0128 | < 0.0128 | < 0.0128 |
| RI-SB-37 (2-2.5) | 4/6/2021 | < 0.545 | < 0.0104 | < 0.545 | < 0.545 | < 0.0104 | < 0.0416 | < 0.0104 | < 0.0104 | **0.123** | < 0.0531 | < 0.0104 | < 0.0104 | < 0.0104 |
| RI-SB-38 (0-0.6) | 4/6/2021 | < 1.06 | < 0.0344 | < 1.06 | < 1.06 | < 0.0344 | < 0.138 | < 0.0344 | < 0.0344 | < 0.217 | < 0.217 | 0.0173 j | < 0.0344 | < 0.0344 |
| RI-SB-38 (2-2.5) | 4/6/2021 | < 0.496 | < 0.0091 | < 0.496 | < 0.496 | < 0.0091 | < 0.0364 | < 0.0091 | < 0.0091 | < 0.0495 | < 0.0495 | < 0.0091 | < 0.0091 | < 0.0091 |
| RI-SB-39 (0-0.6) | 4/6/2021 | < 0.623 | < 0.0134 | < 0.623 | < 0.623 | < 0.0134 | < 0.0534 | < 0.0134 | < 0.0134 | < 0.0609 | < 0.0609 | **0.0153** | < 0.0134 | < 0.0134 |
| RI-SB-39 (2-2.5) | 4/6/2021 | < 0.451 | < 0.0072 | < 0.451 | < 0.451 | < 0.0072 | < 0.0288 | < 0.0072 | < 0.0072 | < 0.045 | < 0.045 | < 0.0072 | < 0.0072 | < 0.0072 |
| RR-0 (0-0.7) | 10/20/2020 | < 0.437 | **0.0207 1g** | < 0.437 | < 0.437 | < 0.0079 | < 0.0314 | < 0.0079 | < 0.0079 | NA | NA | < 0.0079 | < 0.0079 | < 0.0079 |
| RR-0 (0.7-1.3) | 10/20/2020 | < 0.448 | **0.0207 1g** | < 0.448 | < 0.448 | < 0.0075 | < 0.0299 | < 0.0075 | < 0.0075 | NA | NA | < 0.0075 | < 0.0075 | < 0.0075 |
| RR-1 (0-0.7) | 10/20/2020 | < 0.442 | < 0.0054 | < 0.442 | < 0.442 | < 0.0054 | < 0.0217 | < 0.0054 | < 0.0054 | NA | NA | < 0.0054 | < 0.0054 | < 0.0054 |
| RR-1 (0.7-1.3) | 10/20/2020 | < 0.41 | **0.0137 1g** | < 0.41 | < 0.41 | < 0.0054 | < 0.0216 | < 0.0054 | < 0.0054 | NA | NA | < 0.0054 | < 0.0054 | < 0.0054 |

**TABLE 4-3**
**SUMMARY OF SEDIMENT ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | ASTM D2974-87 | | 8260B (VOA) | | | | | | 8260B (Other VOCs) | | | | | 8270D (PAH) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Parameter | | Percent Moisture | Percent Total Solids | Benzene | Ethylbenzene | Toluene | Xylenes | | | 1,3-Dichlorobenzene | 1,4-Dichlorobenzene | Acetone | Chlorobenzene | Styrene | Naphthalene | 1-Methylnaphthalene | 2-Methylnaphthalene | Acenaphthene | Acenaphthylene |
| | | | | | | | m&p-Xylenes | o-Xylene | Xylene (Total) | | | | | | | | | | |
| Reporting Units | | % | % | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| EPA RSL Industrial Sediment | | NE | NE | 5.1 | 25 | 47000 | 2400 | 2800 | 2500 | NE | 11 | 670000 | 1300 | 35000 | 17 | 73 | 3000 | 45000 | NE |
| EPA RSL Residential Sediment | | NE | NE | 1.2 | 5.8 | 4900 | 560 | 650 | 580 | NE | 2.6 | 61000 | 280 | 6000 | 3.8 | 18 | 240 | 3600 | NE |
| EPA R4 Sediment RSV | | NE | NE | 2.185 | 1.467 | 2.074 | NE | NE | 1.074 | 0.468 | 0.468 | 38.133 | 0.939 | 1.621 | 3.85 | 4.46 | 4.47 | 4.91 | 4.52 |
| Location ID | Sample Collection Date | Analytical Results | | Analytical Results | | | | | | Analytical Results | | | | | Analytical Results | | | | |
| RR-2 (0-0.7) | 10/20/2020 | 18 | NM | < 0.0057 | < 0.0057 | **0.0084** | < 0.0115 | < 0.0057 | < 0.0115 | < 0.0057 | < 0.0057 | < 0.115 | < 0.0057 | < 0.0057 | < 0.405 | < 0.405 | < 0.405 | < 0.405 | < 0.405 |
| RR-2 (0.7-1.3) | 10/20/2020 | 21.5 | NM | < 0.0052 | < 0.0052 | **0.0044 j** | < 0.0105 | < 0.0052 | < 0.0105 | < 0.0052 | < 0.0052 | < 0.105 | < 0.0052 | < 0.0052 | < 0.415 | < 0.415 | < 0.415 | < 0.415 | < 0.415 |
| RR-3 (0-0.7) | 10/20/2020 | 23.8 | NM | < 0.0057 | < 0.0057 | **0.0088** | < 0.0114 | < 0.0057 | < 0.0114 | < 0.0057 | < 0.0057 | < 0.114 | < 0.0057 | < 0.0057 | < 0.433 | < 0.433 | < 0.433 | < 0.433 | < 0.433 |
| RR-3 (0.7-1.3) | 10/20/2020 | 30.1 | NM | < 0.0064 | < 0.0064 | **0.02** | < 0.0127 | < 0.0064 | < 0.0127 | < 0.0064 | < 0.0064 | < 0.127 | < 0.0064 | < 0.0064 | < 0.474 | < 0.474 | < 0.474 | < 0.474 | < 0.474 |
| RR-4 (0-0.7) | 10/20/2020 | 23.9 | NM | < 0.005 | < 0.005 | **0.0041 j** | < 0.01 | < 0.005 | < 0.01 | < 0.005 | < 0.005 | < 0.1 | < 0.005 | < 0.005 | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 |
| RR-4 (0.7-1.3) | 10/20/2020 | 22.2 | NM | < 0.0047 | < 0.0047 | **0.0047 j** | < 0.0095 | < 0.0047 | < 0.0095 | < 0.0047 | < 0.0047 | < 0.0949 | < 0.0047 | < 0.0047 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | < 0.424 |
| RR-5 (0-0.7) | 10/20/2020 | 23.5 | NM | < 0.0071 | < 0.0071 | **0.0055 j** | < 0.0142 | < 0.0071 | < 0.0142 | < 0.0071 | < 0.0071 | < 0.142 | < 0.0071 | < 0.0071 | < 0.438 | < 0.438 | < 0.438 | < 0.438 | < 0.438 |
| RR-5 (0.7-1.3) | 10/20/2020 | 23.1 | NM | < 0.0057 | < 0.0057 | **0.0035 j** | < 0.0115 | < 0.0057 | < 0.0115 | < 0.0057 | < 0.0057 | < 0.115 | < 0.0057 | < 0.0057 | < 0.426 | < 0.426 | < 0.426 | < 0.426 | < 0.426 |
| RR-6 (0-0.7) | 10/19/2020 | 20.1 | NM | < 0.006 | < 0.006 | **0.021** | < 0.0119 | **0.0043 j** | < 0.0119 | < 0.006 | < 0.006 | < 0.119 | < 0.006 | < 0.006 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 |
| RR-6 (0.7-1.3) | 10/19/2020 | 21 | NM | < 0.0052 | < 0.0052 | **0.0064** | < 0.0105 | < 0.0052 | < 0.0105 | < 0.0052 | < 0.0052 | < 0.105 | < 0.0052 | < 0.0052 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 |
| RR-7 (0-0.7) | 10/19/2020 | 20.7 | NM | < 0.0054 | < 0.0054 | < 0.0054 | < 0.0108 | < 0.0054 | < 0.0108 | < 0.0054 | < 0.0054 | < 0.108 | < 0.0054 | < 0.0054 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 |
| RR-7 (0.7-1.3) | 10/19/2020 | 21.5 | NM | < 0.0075 | < 0.0075 | **0.0044 j** | < 0.0149 | < 0.0075 | < 0.0149 | < 0.0075 | < 0.0075 | < 0.149 | < 0.0075 | < 0.0075 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 |
| RR-8 (0-0.7) | 10/19/2020 | 20.6 | NM | < 0.0051 | < 0.0051 | < 0.0051 | < 0.0103 | < 0.0051 | < 0.0103 | < 0.0051 | < 0.0051 | < 0.103 | < 0.0051 | < 0.0051 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 |
| RR-8 (0.7-1.3) | 10/19/2020 | 17.2 | NM | < 0.0041 | < 0.0041 | < 0.0041 | < 0.0081 | < 0.0041 | < 0.0081 | < 0.0041 | < 0.0041 | < 0.081 | < 0.0041 | < 0.0041 | < 0.401 | < 0.401 | < 0.401 | < 0.401 | < 0.401 |
| RR-9 (0-0.7) | 10/19/2020 | 21.7 | NM | < 0.0066 | < 0.0066 | **0.0095** | < 0.0132 | **0.0049 j** | < 0.0132 | < 0.0066 | < 0.0066 | < 0.132 | < 0.0066 | < 0.0066 | < 0.415 | < 0.415 | < 0.415 | < 0.415 | < 0.415 |
| RR-9 (0.7-1.3) | 10/19/2020 | 22.7 | NM | < 0.0045 | < 0.0045 | **0.0036 j** | < 0.0089 | < 0.0045 | < 0.0089 | < 0.0045 | < 0.0045 | < 0.089 | < 0.0045 | < 0.0045 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | < 0.424 |
| RR-10 (0-0.7) | 10/19/2020 | 21.5 | NM | < 0.0043 | **0.0044** | **0.0048** | < 0.0085 | < 0.0043 | < 0.0085 | < 0.0043 | < 0.0043 | < 0.085 | < 0.0043 | < 0.0043 | < 0.428 | < 0.428 | < 0.428 | < 0.428 | < 0.428 |
| RR-11 (0-0.7) | 10/19/2020 | 27.1 | NM | **0.0453** | **0.0275** | **0.285** | **0.149** | **0.0695 D6** | **0.218** | < 0.0126 | < 0.0126 | < 0.252 | < 0.0126 | < 0.0126 | < 0.445 | < 0.445 | < 0.445 | < 0.445 | < 0.445 |
| RR-11 (0.7-1.3) | 10/19/2020 | 43.3 | NM | < 0.0127 | **0.0138** | **0.0753** | **0.0534** | **0.0274** | **0.0808** | < 0.0127 | < 0.0127 | **0.338** | < 0.0127 | < 0.0127 | < 0.574 | < 0.574 | < 0.574 | < 0.574 | < 0.574 |
| SW-12 (0-0.5) | 9/9/2020 | NM | 81.6 | < 0.00054 | < 0.0011 | **0.000551 j** | < 0.0021 | < 0.0011 | < 0.0011 | < 0.0802 | < 0.0802 | **0.026 j** | < 0.00054 | **0.00059 j** | **0.755** | **0.165** | **0.292** | **2** | **1.18** |
| SW-18 (0-0.5) | 4/5/2021 | NM | NM | < 0.0131 | < 0.0131 | **0.0109 j** | **0.0132 j** | **0.0083 j** | **0.0216 j** | < 0.0131 | < 0.0131 | **0.0983 j** | < 0.0131 | < 0.0131 | **0.0174 ^** | < 0.601 | < 0.601 | < 0.601 | < 0.601 |
| SW-19 (0-0.5) | 4/5/2021 | NM | NM | < 0.0062 | < 0.0062 | **0.0037 j** | < 0.0124 | < 0.0062 | < 0.0124 | < 0.0062 | < 0.0062 | < 0.124 | < 0.0062 | < 0.0062 | **0.0052 j^** | < 0.396 | < 0.396 | < 0.396 | < 0.396 |
| SW-20 (0-0.5) | 4/5/2021 | NM | NM | < 0.0057 | < 0.0057 | **0.0084** | < 0.0114 | < 0.0057 | < 0.0114 | < 0.0057 | < 0.0057 | < 0.114 | < 0.0057 | < 0.0057 | < 0.0057 | < 0.391 | < 0.391 | < 0.391 | < 0.391 |
| SW-21 (0-0.5) | 4/5/2021 | NM | NM | < 0.0064 | < 0.0064 | **0.0054 j** | < 0.0128 | < 0.0064 | < 0.0128 | **0.006 j** | **0.0098** | < 0.128 | **0.0035 j** | < 0.0064 | < 0.0064 | < 0.41 | < 0.41 | < 0.41 | < 0.41 |

**Notes:**
This table summarizes only constituents detected at concentrations greater than the method detection limit.
- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the EPA Regional Screening Level (RSL) Industrial Sediment.
- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the EPA Regional Screening Level (RSL) Residential Sediment.
- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the EPA Region 4 Sediment Refinement Screening Value (RSV).

**Bold** type indicates that the compound was at a concentration greater than the adjusted method detection limit.
Parenthetical sample depth intervals are appended to the sample ID.
< - Concentration not detected at or greater than the adjusted reporting limit.
^ - Sample was analyzed by EPA Method 8260D.
mg/kg - micrograms per kilogram
% - percent
NA - Not analyzed
NE - No screening level established at this time. A site-specific risk-based screening level may be established as part of the risk assessment process outlined in Section 5.0 of the RIWP-A.
NM - Not measured
SVOC - Semi-volatile organic compound
VOA - Volatile organic aromatic
VOC - Volatile organic compound
1g - Result confirmed by second analysis performed out of hold.
B - Target analyte detected in method blank at or above the reporting limit. Target analyte concentration in sample is less than 10X the concentration in the method blank. Analyte concentration in sample could be due to blank contamination.
C9 - Common Laboratory Contaminant.
D6 - The relative percent difference between the sample and sample duplicate exceeded laboratory control limits.
E - Analyte concentration exceeded the calibration range. The reported result is estimated.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
M1 - Matrix spike recovery was high: the associated Laboratory Control Spike (LCS) was acceptable.
S1 - Data review findings indicate result may be biased, however, data is usable.
v1 - The continuing calibration verification was above the method acceptance limit. Any detection for the analyte in the associated samples may have a high bias.

**TABLE 4-3**
**SUMMARY OF SEDIMENT ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (PAH) (Continued) | | | | | | | | | | | | 8270D (Other SVOC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **Anthracene** | **Benzo(a)anthracene** | **Benzo(a)pyrene** | **Benzo(b)fluoranthene** | **Benzo(g,h,i)perylene** | **Benzo(k)fluoranthene** | **Chrysene** | **Dibenz(a,h)anthracene** | **Fluoranthene** | **Fluorene** | **Indeno(1,2,3-cd)pyrene** | **Phenanthrene** | **2,4-Dimethylphenol** | **2-Methylphenol(o-Cresol)** |
| **Reporting Units** | | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** |
| **EPA RSL Industrial Sediment** | | **230000** | **21** | **2.1** | **21** | **NE** | **210** | **2100** | **2.1** | **30000** | **30000** | **21** | **NE** | **16000** | **41000** |
| **EPA RSL Residential Sediment** | | **18000** | **1.1** | **0.11** | **1.1** | **NE** | **11** | **110** | **0.11** | **2400** | **2400** | **1.1** | **NE** | **1300** | **3200** |
| **EPA R4 Sediment RSV** | | **5.94** | **8.41** | **9.65** | **9.79** | **10.9** | **9.81** | **8.44** | **11.2** | **7.07** | **5.38** | **11.2** | **5.96** | **1.437** | **1.773** |
| **Location ID** | **Sample Collection Date** | **Analytical Results** | | | | | | | | | | | | **Analytical Results** | |
| RR-2 (0-0.7) | 10/20/2020 | < 0.405 | < 0.405 | < 0.405 | < 0.405 | < 0.405 | < 0.405 | < 0.405 | < 0.405 | < 0.405 | < 0.405 | < 0.405 | < 0.405 | < 0.405 | < 0.405 |
| RR-2 (0.7-1.3) | 10/20/2020 | < 0.415 | < 0.415 | **0.0093 j** | < 0.415 | < 0.415 | < 0.415 | < 0.415 | < 0.415 | < 0.415 | < 0.415 | < 0.415 | < 0.415 | < 0.415 | < 0.415 |
| RR-3 (0-0.7) | 10/20/2020 | < 0.433 | < 0.433 | < 0.433 | < 0.433 | < 0.433 | < 0.433 | < 0.433 | < 0.433 | **0.25 j** | < 0.433 | < 0.433 | < 0.433 | < 0.433 | < 0.433 |
| RR-3 (0.7-1.3) | 10/20/2020 | < 0.474 | **0.41 j** | **0.308 j** | **0.391 j** | < 0.474 | < 0.474 | **0.359 j** | < 0.474 | **0.671** | < 0.474 | < 0.474 | **0.153 j** | < 0.474 | < 0.474 |
| RR-4 (0-0.7) | 10/20/2020 | < 0.434 | < 0.434 | **0.0106 j** | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 | < 0.434 |
| RR-4 (0.7-1.3) | 10/20/2020 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | < 0.424 |
| RR-5 (0-0.7) | 10/20/2020 | < 0.438 | **0.172 j** | **0.0037 j** | **0.198 j** | < 0.438 | < 0.438 | **0.183 j** | < 0.438 | **0.356 j** | < 0.438 | < 0.438 | **0.145 j** | < 0.438 | < 0.438 |
| RR-5 (0.7-1.3) | 10/20/2020 | < 0.426 | < 0.426 | **0.0049 j** | < 0.426 | < 0.426 | < 0.426 | < 0.426 | < 0.426 | < 0.426 | < 0.426 | < 0.426 | < 0.426 | < 0.426 | < 0.426 |
| RR-6 (0-0.7) | 10/19/2020 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 |
| RR-6 (0.7-1.3) | 10/19/2020 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 | **0.178 j** | < 0.418 | < 0.418 | < 0.418 | < 0.418 | < 0.418 |
| RR-7 (0-0.7) | 10/19/2020 | < 0.423 | < 0.423 | **0.0055 j** | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 |
| RR-7 (0.7-1.3) | 10/19/2020 | < 0.42 | < 0.42 | **0.0065 j** | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 |
| RR-8 (0-0.7) | 10/19/2020 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 |
| RR-8 (0.7-1.3) | 10/19/2020 | < 0.401 | < 0.401 | < 0.401 | < 0.401 | < 0.401 | < 0.401 | < 0.401 | < 0.401 | < 0.401 | < 0.401 | < 0.401 | < 0.401 | < 0.401 | < 0.401 |
| RR-9 (0-0.7) | 10/19/2020 | < 0.415 | < 0.415 | < 0.415 | < 0.415 | < 0.415 | < 0.415 | < 0.415 | < 0.415 | **0.132 j** | < 0.415 | < 0.415 | < 0.415 | < 0.415 | < 0.415 |
| RR-9 (0.7-1.3) | 10/19/2020 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | < 0.424 | **0.132 j** | < 0.424 | **0.289 j** | < 0.424 | < 0.424 | **0.217 j** | < 0.424 | < 0.424 |
| RR-10 (0-0.7) | 10/19/2020 | < 0.428 | < 0.428 | < 0.428 | < 0.428 | < 0.428 | < 0.428 | < 0.428 | < 0.428 | < 0.428 | < 0.428 | < 0.428 | < 0.428 | < 0.428 | < 0.428 |
| RR-11 (0-0.7) | 10/19/2020 | < 0.445 | < 0.445 | **0.0088 j** | < 0.445 | < 0.445 | < 0.445 | < 0.445 | < 0.445 | < 0.445 | < 0.445 | < 0.445 | < 0.445 | < 0.445 | < 0.445 |
| RR-11 (0.7-1.3) | 10/19/2020 | < 0.574 | < 0.574 | < 0.574 | < 0.574 | < 0.574 | < 0.574 | < 0.574 | < 0.574 | < 0.574 | < 0.574 | < 0.574 | < 0.574 | < 0.574 | < 0.574 |
| SW-12 (0-0.5) | 9/9/2020 | **4.16** | **7.63** | **6.23** | **6.04** | **4.16** | NA | **6.38** | NA | **13.5 E** | **2.53** | **4.42** | **11.4 E** | **0.043 j** | **0.0407 j** |
| SW-18 (0-0.5) | 4/5/2021 | < 0.601 | < 0.601 | **0.0059 j** | < 0.601 | < 0.601 | < 0.601 | < 0.601 | < 0.601 | < 0.601 | < 0.601 | < 0.601 | < 0.601 | < 0.601 | < 0.601 |
| SW-19 (0-0.5) | 4/5/2021 | < 0.396 | < 0.396 | **0.0152** | < 0.396 | < 0.396 | < 0.396 | < 0.396 | < 0.396 | < 0.396 | < 0.396 | < 0.396 | < 0.396 | < 0.396 | < 0.396 |
| SW-20 (0-0.5) | 4/5/2021 | < 0.391 | < 0.391 | **0.0105 j** | < 0.391 | < 0.391 | < 0.391 | < 0.391 | < 0.391 | < 0.391 | < 0.391 | < 0.391 | < 0.391 | < 0.391 | < 0.391 |
| SW-21 (0-0.5) | 4/5/2021 | < 0.41 | **0.198 j** | **0.0085 j** | **0.331 j** | **0.168 j** | < 0.41 | **0.206 j** | < 0.41 | **0.302 j** | < 0.41 | < 0.41 | < 0.41 | < 0.41 | < 0.41 |

**Notes:**
This table summarizes only constituents detected at concentrations greater than the method detection limit.
- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the EPA Regional Screening Level (RSL) Industrial Sediment
- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the EPA Regional Screening Level (RSL) Residential Sediment
- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the EPA Region 4 Sediment Regional Screening Value (RSV)

**Bold** type indicates that the compound was at a concentration greater than the adjusted method detection limit.
Parenthetical sample depth intervals are appended to the sample ID.
< - Concentration not detected at or greater than the adjusted reporting limit.
^ - Sample was analyzed by EPA Method 8260D.
µg/kg - micrograms per kilogram
% - percent
NA - Not analyzed
NE - No screening level established at this time. A site-specific risk-based screening level may be established as part of the risk assessment process outlined in Section 5.0 of the RIWP-A.
NM - Not measured
SVOC - Semi-volatile organic compound
VOA - Volatile organic aromatic
VOC - Volatile organic compound
1g - Result confirmed by second analysis performed out of hold.
B - Target analyte detected in method blank at or above the reporting limit. Target analyte concentration in sample is less than 10X the concentration in the method blank. Analyte concentration in sample could be due to blank contamination.
C9 - Common Laboratory Contaminant.
D6 - The relative percent difference between the sample and sample duplicate exceeded laboratory control limits.
E - Analyte concentration exceeded the calibration range. The reported result is estimated.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
M1 - Matrix spike recovery was high: the associated Laboratory Control Spike (LCS) was acceptable.
S1 - Data review findings indicate result may be biased, however, data is usable.
V1 - The continuing calibration verification was above the method acceptance limit. Any detection for the analyte in the associated samples may have a high bias.

**TABLE 4-3**
**SUMMARY OF SEDIMENT ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (Other SVOC) (Continued) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **3&4-Methylphenol(m&p Cresol)** | **1,2,4-Trichlorobenzene** | **1,2,4-Trimethylbenzene** | **1,3,5-Trimethylbenzene** | **2,4-Dinitrotoluene** | **2,6-Dinitrotoluene** | **2-Butanone (MEK)** | **2-Chloronaphthalene** | **4-Methyl-2-pentanone (MIBK)** | **Aniline** | **bis(2-Ethylhexyl)phthalate** |
| **Reporting Units** | | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** |
| **EPA RSL Industrial Sediment** | | **820** | **110** | **1800** | **1500** | **7.4** | **1.5** | **190000** | **60000** | **140000** | **400** | **160** |
| **EPA RSL Residential Sediment** | | **63** | **24** | **300** | **270** | **1.7** | **0.36** | **27000** | **4800** | **33000** | **95** | **39** |
| **EPA R4 Sediment RSV** | | **0.26** | **0.485** | **0.361** | **0.354** | **2.9** | **0.131** | **22.707** | **NE** | **8.165** | **0.012** | **2.6** |
| **Location ID** | **Sample Collection Date** | **Analytical Results** | | | | | | | | | | |
| RR-2 (0-0.7) | 10/20/2020 | NA | < 0.0057 | < 0.0057 | < 0.0057 | < 0.405 | < 0.405 | **0.127** | < 0.405 | < 0.0573 | < 0.405 | < 0.405 |
| RR-2 (0.7-1.3) | 10/20/2020 | NA | < 0.0052 | < 0.0052 | < 0.0052 | < 0.415 | < 0.415 | **0.148** | < 0.415 | < 0.0523 | < 0.415 | < 0.415 |
| RR-3 (0-0.7) | 10/20/2020 | NA | < 0.0057 | < 0.0057 | < 0.0057 | < 0.433 | < 0.433 | **0.173** | < 0.433 | < 0.0568 | < 0.433 | < 0.433 |
| RR-3 (0.7-1.3) | 10/20/2020 | NA | < 0.0064 | < 0.0064 | < 0.0064 | < 0.474 | < 0.474 | **0.187** | < 0.474 | < 0.0637 | < 0.474 | < 0.474 |
| RR-4 (0-0.7) | 10/20/2020 | NA | < 0.005 | < 0.005 | < 0.005 | < 0.434 | < 0.434 | **0.131** | < 0.434 | < 0.0501 | < 0.434 | < 0.434 |
| RR-4 (0.7-1.3) | 10/20/2020 | NA | < 0.0047 | < 0.0047 | < 0.0047 | < 0.424 | < 0.424 | **0.111** | < 0.424 | < 0.0475 | < 0.424 | < 0.424 |
| RR-5 (0-0.7) | 10/20/2020 | NA | < 0.0071 | < 0.0071 | < 0.0071 | < 0.438 | < 0.438 | **0.174** | < 0.438 | < 0.0712 | < 0.438 | < 0.438 |
| RR-5 (0.7-1.3) | 10/20/2020 | NA | < 0.0057 | < 0.0057 | < 0.0057 | < 0.426 | < 0.426 | **0.15** | < 0.426 | < 0.0575 | < 0.426 | < 0.426 |
| RR-6 (0-0.7) | 10/19/2020 | NA | < 0.006 | < 0.006 | < 0.006 | < 0.418 | < 0.418 | **0.166** | < 0.418 | < 0.0597 | < 0.418 | < 0.418 |
| RR-6 (0.7-1.3) | 10/19/2020 | NA | < 0.0052 | < 0.0052 | < 0.0052 | < 0.418 | < 0.418 | **0.139** | < 0.418 | < 0.0524 | < 0.418 | < 0.418 |
| RR-7 (0-0.7) | 10/19/2020 | NA | < 0.0054 | < 0.0054 | < 0.0054 | < 0.423 | < 0.423 | **0.141** | < 0.423 | < 0.0541 | < 0.423 | < 0.423 |
| RR-7 (0.7-1.3) | 10/19/2020 | NA | < 0.0075 | < 0.0075 | < 0.0075 | < 0.42 | < 0.42 | **0.169** | < 0.42 | < 0.0745 | < 0.42 | < 0.42 |
| RR-8 (0-0.7) | 10/19/2020 | NA | < 0.0051 | < 0.0051 | < 0.0051 | < 0.414 | < 0.414 | **0.124** | < 0.414 | < 0.0513 | < 0.414 | < 0.414 |
| RR-8 (0.7-1.3) | 10/19/2020 | NA | < 0.0041 | < 0.0041 | < 0.0041 | < 0.401 | < 0.401 | **0.058 j** | < 0.401 | < 0.0405 | < 0.401 | < 0.401 |
| RR-9 (0-0.7) | 10/19/2020 | NA | < 0.0066 | < 0.0066 | < 0.0066 | < 0.415 | < 0.415 | **0.181** | < 0.415 | < 0.0658 | < 0.415 | < 0.415 |
| RR-9 (0.7-1.3) | 10/19/2020 | NA | < 0.0045 | < 0.0045 | < 0.0045 | **0.243 j** | **0.375 j** | **0.125** | < 0.424 | < 0.0445 | < 0.424 | < 0.424 |
| RR-10 (0-0.7) | 10/19/2020 | NA | < 0.0043 | < 0.0043 | < 0.0043 | < 0.428 | < 0.428 | **0.111** | < 0.428 | < 0.0425 | < 0.428 | < 0.428 |
| RR-11 (0-0.7) | 10/19/2020 | NA | < 0.0126 | **0.044** | < 0.0126 | < 0.445 | < 0.445 | **0.255** | < 0.445 | < 0.126 | < 0.445 | < 0.445 |
| RR-11 (0.7-1.3) | 10/19/2020 | NA | < 0.0127 | **0.0237** | < 0.0127 | < 0.574 | < 0.574 | **2 M1** | < 0.574 | < 0.127 | < 0.574 | < 0.574 |
| SW-12 (0-0.5) | 9/9/2020 | NA | < 0.0802 | < 0.00182 | < 0.00182 | < 0.0802 | < 0.0802 | **0.0041 j** | < 0.0802 | < 0.011 | < 0.0802 | < 0.0802 |
| SW-18 (0-0.5) | 4/5/2021 | < 0.601 | < 0.0131 | **0.0083 j** | < 0.0131 | < 0.601 | < 0.601 | < 0.262 | < 0.601 | < 0.131 | < 0.601 | < 0.601 |
| SW-19 (0-0.5) | 4/5/2021 | < 0.396 | < 0.0062 | < 0.0062 | < 0.0062 | < 0.396 | < 0.396 | < 0.124 | < 0.396 | < 0.0618 | < 0.396 | < 0.396 |
| SW-20 (0-0.5) | 4/5/2021 | < 0.391 | < 0.0057 | < 0.0057 | < 0.0057 | < 0.391 | < 0.391 | < 0.114 | < 0.391 | **0.0157 j** | < 0.391 | < 0.391 |
| SW-21 (0-0.5) | 4/5/2021 | < 0.41 | **0.0089** | < 0.0064 | < 0.0064 | < 0.41 | < 0.41 | < 0.128 | < 0.41 | < 0.0641 | < 0.41 | < 0.41 |

**Notes:**
This table summarizes only constituents detected at concentrations greater than the method detection limit.
- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the EPA Regional Screening Level (RSL) Industrial Sediment
- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the EPA Regional Screening Level (RSL) Residential Sediment
- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the EPA Region 4 Sediment Regional Screening Value (RSV)

**Bold** type indicates that the compound was at a concentration greater than the adjusted method detection limit.
Parenthetical sample depth intervals are appended to the sample ID.
< - Concentration not detected at or greater than the adjusted reporting limit.
^ - Sample was analyzed by EPA Method 8260D.
µg/kg - micrograms per kilogram
% - percent
NA - Not analyzed
NE - No screening level established at this time. A site-specific risk-based screening level may be established as part of the risk assessment process outlined in Section 5.0 of the RIWP-A.
NM - Not measured
SVOC - Semi-volatile organic compound
VOA - Volatile organic aromatic
VOC - Volatile organic compound
1g - Result confirmed by second analysis performed out of hold.
B - Target analyte detected in method blank at or above the reporting limit. Target analyte concentration in sample is less than 10X the concentration in the method blank. Analyte concentration in sample could be due to blank contamination.
C9 - Common Laboratory Contaminant.
D6 - The relative percent difference between the sample and sample duplicate exceeded laboratory control limits.
E - Analyte concentration exceeded the calibration range. The reported result is estimated.
j - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
M1 - Matrix spike recovery was high: the associated Laboratory Control Spike (LCS) was acceptable.
S1 - Data review findings indicate result may be biased, however, data is usable.
v1 - The continuing calibration verification was above the method acceptance limit. Any detection for the analyte in the associated samples may have a high bias.

**TABLE 4-3**
**SUMMARY OF SEDIMENT ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (Other SVOC) (Continued) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **Butyl benzyl phthalate** | **Chloroform** | **Dibenzofuran** | **Di-n-butyl phthalate** | **Isopropylbenzene (Cumene)** | **Methylene chloride** | **n-Butylbenzene** | **n-Propylbenzene** | **PCB-1248 (Aroclor 1248)** | **PCB-1260 (Aroclor 1260)** | **p-Isopropyltoluene** | **Tetrachloroethene** | **Trichloroethene** |
| **Reporting Units** | | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** |
| **EPA RSL Industrial Sediment** | | **1200** | **1.4** | **1000** | **82000** | **9900** | **1000** | **58000** | **24000** | **0.94** | **0.99** | **NE** | **100** | **6** |
| **EPA RSL Residential Sediment** | | **290** | **0.32** | *73* | **6300** | **1900** | **57** | **3900** | **3800** | **0.23** | **0.24** | **NE** | **24** | **0.94** |
| **EPA R4 Sediment RSV** | | **0.481** | **3.352** | **2.313** | **0.319** | **0.713** | **2.404** | **NE** | **NE** | **NE** | **NE** | **0.242** | **NE** | **NE** |
| **Location ID** | **Sample Collection Date** | **Analytical Results** | | | | | | | | | | | | |
| RR-2 (0-0.7) | 10/20/2020 | < 0.405 | < 0.0057 | < 0.405 | < 0.405 | < 0.0057 | **0.0365 B C9** | < 0.0057 | < 0.0057 | NA | NA | < 0.0057 | < 0.0057 | < 0.0057 |
| RR-2 (0.7-1.3) | 10/20/2020 | < 0.415 | < 0.0052 | < 0.415 | < 0.415 | < 0.0052 | **0.0126 j B C9** | < 0.0052 | < 0.0052 | NA | NA | < 0.0052 | < 0.0052 | < 0.0052 |
| RR-3 (0-0.7) | 10/20/2020 | < 0.433 | < 0.0057 | < 0.433 | < 0.433 | < 0.0057 | **0.0232 B C9** | < 0.0057 | < 0.0057 | NA | NA | < 0.0057 | < 0.0057 | < 0.0057 |
| RR-3 (0.7-1.3) | 10/20/2020 | < 0.474 | < 0.0064 | < 0.474 | < 0.474 | < 0.0064 | **0.0425 B C9** | < 0.0064 | < 0.0064 | NA | NA | < 0.0064 | < 0.0064 | < 0.0064 |
| RR-4 (0-0.7) | 10/20/2020 | < 0.434 | < 0.005 | < 0.434 | < 0.434 | < 0.005 | **0.0141 j B C9** | < 0.005 | < 0.005 | NA | NA | < 0.005 | < 0.005 | < 0.005 |
| RR-4 (0.7-1.3) | 10/20/2020 | < 0.424 | < 0.0047 | < 0.424 | < 0.424 | < 0.0047 | **0.0191 B C9** | < 0.0047 | < 0.0047 | NA | NA | < 0.0047 | < 0.0047 | < 0.0047 |
| RR-5 (0-0.7) | 10/20/2020 | < 0.438 | < 0.0071 | < 0.438 | < 0.438 | < 0.0071 | **0.0215 j B C9** | < 0.0071 | < 0.0071 | NA | NA | < 0.0071 | < 0.0071 | < 0.0071 |
| RR-5 (0.7-1.3) | 10/20/2020 | < 0.426 | < 0.0057 | < 0.426 | < 0.426 | < 0.0057 | **0.02 j B C9** | < 0.0057 | < 0.0057 | NA | NA | < 0.0057 | < 0.0057 | < 0.0057 |
| RR-6 (0-0.7) | 10/19/2020 | < 0.418 | < 0.006 | < 0.418 | < 0.418 | < 0.006 | **0.0231 j B C9** | < 0.006 | < 0.006 | NA | NA | < 0.006 | **0.0108** | < 0.006 |
| RR-6 (0.7-1.3) | 10/19/2020 | < 0.418 | < 0.0052 | < 0.418 | < 0.418 | < 0.0052 | **0.0148 j B C9** | < 0.0052 | < 0.0052 | NA | NA | < 0.0052 | **0.018** | < 0.0052 |
| RR-7 (0-0.7) | 10/19/2020 | < 0.423 | < 0.0054 | < 0.423 | < 0.423 | < 0.0054 | **0.0141 j B C9** | < 0.0054 | < 0.0054 | NA | NA | < 0.0054 | < 0.0054 | < 0.0054 |
| RR-7 (0.7-1.3) | 10/19/2020 | < 0.42 | < 0.0075 | < 0.42 | < 0.42 | < 0.0075 | **0.0485 C9** | < 0.0075 | < 0.0075 | NA | NA | < 0.0075 | < 0.0075 | < 0.0075 |
| RR-8 (0-0.7) | 10/19/2020 | < 0.414 | < 0.0051 | < 0.414 | < 0.414 | < 0.0051 | < 0.0205 | < 0.0051 | < 0.0051 | NA | NA | < 0.0051 | < 0.0051 | < 0.0051 |
| RR-8 (0.7-1.3) | 10/19/2020 | < 0.401 | < 0.0041 | < 0.401 | < 0.401 | < 0.0041 | **0.0106 j B C9** | < 0.0041 | < 0.0041 | NA | NA | < 0.0041 | < 0.0041 | < 0.0041 |
| RR-9 (0-0.7) | 10/19/2020 | < 0.415 | **0.0195** | < 0.415 | < 0.415 | < 0.0066 | < 0.0263 | < 0.0066 | < 0.0066 | NA | NA | < 0.0066 | < 0.0066 | < 0.0066 |
| RR-9 (0.7-1.3) | 10/19/2020 | < 0.424 | < 0.0045 | < 0.424 | < 0.424 | < 0.0045 | < 0.0178 | < 0.0045 | < 0.0045 | NA | NA | < 0.0045 | < 0.0045 | < 0.0045 |
| RR-10 (0-0.7) | 10/19/2020 | < 0.428 | < 0.0043 | < 0.428 | < 0.428 | < 0.0043 | < 0.017 | < 0.0043 | < 0.0043 | NA | NA | < 0.0043 | **0.0413** | **0.0092** |
| RR-11 (0-0.7) | 10/19/2020 | < 0.445 | < 0.0126 | < 0.445 | < 0.445 | < 0.0126 | **0.067 D6 C9** | < 0.0126 | < 0.0126 | NA | NA | < 0.0126 | < 0.0126 | < 0.0126 |
| RR-11 (0.7-1.3) | 10/19/2020 | < 0.574 | < 0.0127 | < 0.574 | < 0.574 | < 0.0127 | **0.617 C9** | < 0.0127 | < 0.0127 | NA | NA | < 0.0127 | < 0.0127 | **0.0191** |
| SW-12 (0-0.5) | 9/9/2020 | < 0.0802 | < 0.0016 | **1.36** | < 0.0802 | < 0.0011 | < 0.0054 | < 0.0011 | < 0.0011 | NA | NA | **0.00026 j** | < 0.00054 | < 0.00054 |
| SW-18 (0-0.5) | 4/5/2021 | < 0.601 | < 0.0131 | < 0.601 | < 0.601 | < 0.0131 | < 0.0523 | < 0.0131 | < 0.0131 | < 0.0593 | < 0.0593 | < 0.0131 | < 0.0131 | < 0.0131 |
| SW-19 (0-0.5) | 4/5/2021 | < 0.396 | < 0.0062 | < 0.396 | < 0.396 | < 0.0062 | < 0.0247 | < 0.0062 | < 0.0062 | < 0.0398 | < 0.0398 | < 0.0062 | < 0.0062 | < 0.0062 |
| SW-20 (0-0.5) | 4/5/2021 | < 0.391 | < 0.0057 | < 0.391 | < 0.391 | < 0.0057 | < 0.0228 | < 0.0057 | < 0.0057 | < 0.0393 | < 0.0393 | < 0.0057 | < 0.0057 | < 0.0057 |
| SW-21 (0-0.5) | 4/5/2021 | < 0.41 | < 0.0064 | < 0.41 | < 0.41 | < 0.0064 | < 0.0256 | < 0.0064 | < 0.0064 | < 0.0413 | **0.0352 j** | < 0.0064 | < 0.0064 | < 0.0064 |

Prepared by: RSB Checked by: PPB/ JPC

**Notes:**
This table summarizes only constituents detected at concentrations greater than the method detection limit.
- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the EPA Regional Screening Level (RSL) Industrial Sediment.
- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the EPA Regional Screening Level (RSL) Residential Sediment.
- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the EPA Region 4 Sediment Regional Screening Value (RSV).

**Bold** type indicates that the compound was at a concentration greater than the adjusted method detection limit.
Parenthetical sample depth intervals are appended to the sample ID.
< - Concentration not detected at or greater than the adjusted reporting limit.
^ - Sample was analyzed by EPA Method 8260D.
µg/kg - micrograms per kilogram
% - percent
NA - Not analyzed
NE - No screening level established at this time. A site-specific risk-based screening level may be established as part of the risk assessment process outlined in Section 5.0 of the RIWP-A.
NM - Not measured
SVOC - Semi-volatile organic compound
VOA - Volatile organic aromatic
VOC - Volatile organic compound
1g - Result confirmed by second analysis performed out of hold.
B - Target analyte detected in method blank at or above the reporting limit. Target analyte concentration in sample is less than 10X the concentration in the method blank. Analyte concentration in sample could be due to blank contamination.
C9 - Common Laboratory Contaminant.
D6 - The relative percent difference between the sample and sample duplicate exceeded laboratory control limits.
E - Analyte concentration exceeded the calibration range. The reported result is estimated.
j - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
M1 - Matrix spike recovery was high: the associated Laboratory Control Spike (LCS) was acceptable.
S1 - Data review findings indicate result may be biased, however, data is usable.
v1 - The continuing calibration verification was above the method acceptance limit. Any detection for the analyte in the associated samples may have a high bias.

**TABLE 4-4**
**SUMMARY OF SOIL ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | Other | 8260B (VOA) | | | | | | 8260B (Other VOC) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analytical Parameter | Percent Moisture | Benzene | Ethylbenzene | Toluene | Xylenes | | | 1,2,4-Trimethylbenzene | 1,4-Dichlorobenzene | 2-Butanone (MEK) | Acetone | Chlorobenzene | p-Isopropyltoluene | Styrene |
| | | | | | | m,p-Xylenes | o-Xylene | Total Xylene | | | | | | | |
| | Reporting Units | % | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | Industrial Screening Level | NE | 5.1 | 25 | 47000 | 2400 | 2800 | 2500 | 1800 | 11 | 190000 | 670000 | 1300 | NE | 35000 |
| | Residential Screening Level | NE | 1.2 | 5.8 | 4900 | 560 | 650 | 580 | 300 | 2.6 | 27000 | 61000 | 280 | NE | 6000 |
| **Sample ID** | **Sample Collection Date** | **Analytical Results** | **Analytical Results** | | | | | | **Analytical Results** | | | | | | |
| DA1-SB-3 (2-3) | 11/9/2020 | 16.9 | < 0.0066 | < 0.0066 | **0.012** | **0.0154** | **0.0109** | **0.0263** | **0.0073** | < 0.0066 | < 0.131 | < 0.131 | < 0.0066 | < 0.0066 | < 0.0066 |
| DA1-SB-4B (2-3) | 11/9/2020 | 14.4 | **0.0036 j** | < 0.0066 | **0.0193** | **0.023** | **0.0136** | **0.0365** | **0.0115** | < 0.0066 | < 0.131 | < 0.131 | < 0.0066 | **0.004 j** | < 0.0066 |
| DA1-SB-5A (2-3) | 11/9/2020 | 14.5 | < 0.0068 | < 0.0068 | **0.0084** | **0.0102 j** | **0.0048 j** | < 0.0137 | **0.0049 j** | < 0.0068 | < 0.137 | < 0.137 | < 0.0068 | **0.0037 j** | < 0.0068 |
| DA1-SB-6 (2-3) | 11/9/2020 | 22.9 | < 0.009 | < 0.009 | **0.0081 j** | **0.0175 j** | **0.0075 j** | < 0.018 | **0.0098** | < 0.009 | < 0.18 | < 0.18 | < 0.009 | < 0.009 | < 0.009 |
| DA1-SB-7 (2-3) | 11/9/2020 | 23 | < 0.0078 | < 0.0078 | **0.0083** | **0.0111 j** | **0.0047 j** | < 0.0157 | **0.0056 j** | < 0.0078 | < 0.157 | **0.0559 j** | < 0.0078 | **0.0587** | < 0.0078 |
| DA1-SB-8 (2-3) | 11/9/2020 | 17.8 | < 0.007 | < 0.007 | **0.0113** | **0.0316** | **0.0132** | **0.0448** | **0.0162** | < 0.007 | < 0.141 | < 0.141 | < 0.007 | **0.0038 j** | < 0.007 |
| DA1-SB-9 (2-3) | 11/9/2020 | 18.3 | < 0.0073 | < 0.0073 | **0.0085** | **0.0256** | **0.0125** | **0.0381** | **0.0112** | < 0.0073 | < 0.146 | < 0.146 | < 0.0073 | **0.0044 j** | < 0.0073 |
| RI-SB-13 (0.5-1) | 3/15/2021 | NA | < 0.0063 | < 0.0063 | < 0.0063 | < 0.0125 | < 0.0063 | < 0.0125 | < 0.0063 | < 0.0063 | < 0.125 | < 0.125 | < 0.0063 | < 0.0063 | < 0.0063 |
| RI-SB-13 (5.5-6) | 3/15/2021 | NA | < 0.0193 | **0.0406** | **0.0325** | **0.0906** | **0.0623** | **0.153** | **0.0667** | < 0.0193 | **0.0975 j** | **0.139 j** | **0.0119 j** | **0.0541** | < 0.0193 |
| RI-SB-14 (0.5-1) | 3/15/2021 | NA | < 0.007 | < 0.007 | **0.0128** | **0.0205** | **0.012** | **0.0325** | **0.011** | < 0.007 | < 0.139 | < 0.139 | < 0.007 | < 0.007 | < 0.007 |
| RI-SB-14 (5.5-6) | 3/15/2021 | NA | < 0.0128 | **0.0328** | **0.02** | **0.0437** | **0.0304** | **0.0741** | **0.0334** | **0.0065 j** | **0.081 j** | **0.164 j** | **0.0208** | **0.0704** | < 0.0128 |
| RI-SB-15 (0.5-1) | 3/15/2021 | NA | **0.0418** | **0.0234** | **0.0646** | **0.0498** | **0.0206** | **0.0704** | **0.0192** | < 0.0063 | < 0.125 | < 0.125 | **0.007** | **0.0096** | **0.0038 j** |
| RI-SB-15 (5.5-6) | 3/15/2021 | NA | < 0.01 | < 0.01 | **0.0051 j** | **0.0157 j** | < 0.01 | **0.0157 j** | **0.013** | < 0.01 | < 0.199 | < 0.199 | **0.0068 j** | **0.0343** | < 0.01 |
| RI-SB-16 (0.5-1) | 3/15/2021 | NA | < 0.0062 | < 0.0062 | **0.0097** | **0.0105 j** | < 0.0062 | **0.0105 j** | **0.0034 j** | < 0.0062 | < 0.124 | < 0.124 | < 0.0062 | < 0.0062 | < 0.0062 |
| RI-SB-16 (5.5-6) | 3/15/2021 | NA | < 0.0107 | **0.0108** | **0.0172** | **0.0695** | **0.0611** | **0.131** | **0.107** | **0.0122** | **0.0746 j** | **0.0835 j** | **0.0402** | **0.0569** | **0.0058 j** |
| RI-SB-17 (0.5-1) | 3/15/2021 | NA | < 0.0087 | < 0.0087 | **0.0127** | **0.0114 j** | < 0.0087 | **0.0114 j** | < 0.0087 | < 0.0087 | < 0.174 | < 0.174 | < 0.0087 | < 0.0087 | < 0.0087 |
| RI-SB-17 (5.5-6) | 3/15/2021 | NA | < 0.0064 | < 0.0064 | **0.005 j** | < 0.0129 | < 0.0064 | < 0.0129 | < 0.0064 | < 0.0064 | < 0.129 | < 0.129 | < 0.0064 | < 0.0064 | < 0.0064 |
| RI-SB-18 (0.5-1) | 3/15/2021 | NA | < 0.0074 | < 0.0074 | < 0.0074 | < 0.0148 | < 0.0074 | < 0.0148 | < 0.0074 | < 0.0074 | < 0.148 | < 0.148 | < 0.0074 | < 0.0074 | < 0.0074 |
| RI-SB-18 (5.5-6) | 3/15/2021 | NA | < 0.0091 | < 0.0091 | < 0.0091 | < 0.0183 | < 0.0091 | < 0.0183 | < 0.0091 | < 0.0091 | < 0.183 | < 0.183 | < 0.0091 | < 0.0091 | < 0.0091 |
| RI-SB-19 (0.5-1) | 3/15/2021 | 22.0 N2 | < 0.0073 | < 0.0073 | **0.0057 j** | < 0.0146 | < 0.0073 | < 0.0146 | < 0.0073 | < 0.0073 | **0.0476 j** | **0.0973 j** | < 0.0073 | < 0.0073 | < 0.0073 |
| RI-SB-19 (5.5-6) | 3/15/2021 | 22.3 N2 | < 0.0169 | **0.0092 j** | < 0.0169 | **0.0659** | **0.024** | **0.0899** | < 0.0169 | < 0.0169 | < 0.337 | < 0.337 | < 0.0169 | < 0.0169 | < 0.0169 |
| RI-SB-20 (0.5-1) | 3/15/2021 | 13.2 N2 | < 0.0066 | < 0.0066 | 0.0141 | < 0.0131 | < 0.0066 | < 0.0131 | < 0.0066 | < 0.0066 | < 0.131 | < 0.131 | < 0.0066 | < 0.0066 | < 0.0066 |
| RI-SB-20 (5.5-6) | 3/15/2021 | 18.9 N2 | < 0.0063 | < 0.0063 | 0.005 j | < 0.0126 | < 0.0063 | < 0.0126 | < 0.0063 | < 0.0063 | < 0.126 | < 0.126 | < 0.0063 | < 0.0063 | < 0.0063 |
| RI-SB-23 (0.5-1) | 3/15/2021 | NA | < 0.0071 | < 0.0071 | < 0.0071 | < 0.0141 | < 0.0071 | < 0.0141 | < 0.0071 | < 0.0071 | < 0.141 | < 0.141 | < 0.0071 | < 0.0071 | < 0.0071 |
| RI-SB-23 (5.5-6) | 3/15/2021 | NA | < 0.0088 | **0.0054 j** | **0.0081 j** | < 0.0176 | < 0.0088 | < 0.0176 | < 0.0088 | < 0.0088 | < 0.176 | < 0.176 | < 0.0088 | < 0.0088 | < 0.0088 |
| RI-SB-24 (0.5-1) | 3/15/2021 | NA | < 0.0071 | < 0.0071 | **0.0046 j** | < 0.0141 | < 0.0071 | < 0.0141 | < 0.0071 | < 0.0071 | < 0.141 | < 0.141 | < 0.0071 | < 0.0071 | < 0.0071 |
| RI-SB-24 (5.5-6) | 3/15/2021 | NA | **0.0057 j** | **0.019** | **0.0241** | **0.0942** | **0.0801** | **0.174** | **0.0693** | < 0.0111 | **0.117 j** | **0.273** | **0.0172** | < 0.0111 | < 0.0111 |
| RI-SB-31 (0.5-1) | 3/17/2021 | NA | < 0.0057 H3,R0 | < 0.0057 H3,R0 | **0.0086 H3,R0** | < 0.0114 H3,R0 | < 0.0057 H3,R0 | < 0.0114 | < 0.0057 H3,R0 | < 0.0057 H3,R0 | < 0.114 H3,R0 | 0.0612 j,H3,R0 | < 0.0057 H3,R0 | **0.0071 H3,R0** | **0.192 H3,R0** |
| RI-SB-31 (5.5-6) | 3/17/2021 | NA | **0.0311 H3,R0** | **0.103 H3,R0** | **0.214 H3,R0** | **0.396 H3,R0** | **0.237 H3,R0** | **0.632** | **0.207 H3,R0** | **0.006 j,H3,R0** | **0.064 j,H3,R0** | **0.185 j,H3,R0** | **0.03 H3,R0** | **0.0981 H3,R0** | < 0.0094 H3,R0 |
| RI-SB-32 (0.5-1) | 3/17/2021 | NA | < 0.0058 H3,R0 | < 0.0058 H3,R0 | **0.0046 j,H3,R0** | **0.0068 j,H3,R0** | **0.0033 j,H3,R0** | **0.0101 j** | **0.0118 H3,R0** | < 0.0058 H3,R0 | < 0.116 H3,R0 | < 0.116 H3,R0 | < 0.0058 H3,R0 | **0.0252 H3,R0** | < 0.0058 H3,R0 |
| RI-SB-32 (5.5-6) | 3/17/2021 | NA | < 0.0058 H3,R0 | **0.0057 j,H3,R0** | **0.0051 j,H3,R0** | **0.0109 j,H3,R0** | **0.0115 H3,R0** | **0.0224** | **0.0224 H3,R0** | < 0.0058 H3,R0 | < 0.116 H3,R0 | **0.0625 j,H3,R0** | < 0.0058 H3,R0 | **0.0321 H3,R0** | < 0.0058 H3,R0 |

**Notes:**

This table summarizes only constituents detected at concentrations greater than the method detection limit.

- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the USEPA Regional Screening Level Industrial limit.

- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the USEPA Regional Screening Level Residential limit.

**Bold** type indicates that the compound was detected at a concentration greater than the adjusted method detection limit.

Parenthetical sample depth intervals are appended to the sample ID.

^ - Sample was analyzed by EPA Method 8260d

* - Sample was analyzed by EPA Method 8260

< - Concentration not detected at or greater than the adjusted reporting limit

% - percent

mg/kg - milligrams per kilogram

NE - No screening level established at this time. A site-specific risk-based screening level may be established as part of the risk assessment process outlined in Section 5.0 of the RIWP-A.

PAH - Polycyclic aromatic hydrocarbon

SVOC - Semi-volatile organic compounds

VOA - Volatile organic aromatics

VOC - Volatile organic compounds

C8 - Result may be biased high due to carryover from previously analyzed sample.

D3 - Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

D6 - The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

E - Analyte concentration exceeded the calibration range. The reported result is estimated.

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

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

L1 - Analyte recovery in the laboratory control sample was above quality control limits. Results may be biased high.

M1 - Matrix spike recovery was high: the associated Laboratory Control Spike (LCS) was acceptable.

N2 - The lab does not hold accreditation for this parameter.

R0 - The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

S1 - Data review findings indicate result may be biased; however, data is usable.

v1 - The continuing calibration verification was above the method acceptance limit. Any detection for the analyte in theassociated samples may have a high bias.

**TABLE 4-4**
**SUMMARY OF SOIL ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (PAH) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **Naphthalene** | **1-Methylnaphthalene** | **2-Methylnaphthalene** | **Acenaphthene** | **Acenaphthylene** | **Anthracene** | **Benzo(a)anthracene** | **Benzo(a)pyrene** | **Benzo(b)fluoranthene** | **Benzo(g,h,i)perylene** | **Benzo(k)fluoranthene** |
| **Reporting Units** | | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** |
| **Industrial Screening Level** | | **17** | **73** | **3000** | **45000** | **NE** | **230000** | **21** | **2.1** | **21** | **NE** | **210** |
| **Residential Screening Level** | | **3.8** | **18** | **240** | **3600** | **NE** | **18000** | **1.1** | **0.11** | **1.1** | **NE** | **11** |
| **Sample ID** | **Sample Collection Date** | **Analytical Results** | | | | | | | | | | |
| DA1-SB-3 (2-3) | 11/9/2020 | **28.8*** | < 4.04 | < 4.04 | < 4.04 | **1.07 j** | **1.85 j** | **3.71 j** | **2.38 D3** | **3.24 j** | **2 j** | < 4.04 |
| DA1-SB-4B (2-3) | 11/9/2020 | **0.439 M1*** | < 3.92 | < 3.92 | **1.19 j** | < 3.92 | **3.36 j** | **10.2** | **6.37** | **9.94** | **5.75** | **3.74 j** |
| DA1-SB-5A (2-3) | 11/9/2020 | **29.3*** | < 1.94 | < 1.94 | < 1.94 | < 1.94 | < 1.94 | < 1.94 S1 | **0.74** | < 1.94 S1 | < 1.94 | < 1.94 |
| DA1-SB-6 (2-3) | 11/9/2020 | **30.1*** | < 4.21 | < 4.21 | < 4.21 | < 4.21 | < 4.21 | < 4.21 S1 | **0.419** | < 4.21 S1 | < 4.21 | < 4.21 |
| DA1-SB-7 (2-3) | 11/9/2020 | **20.9*** | < 2.11 | < 2.11 | < 2.11 | < 2.11 | < 2.11 | **0.826 j** | **0.788** | **0.966 j** | < 2.11 | < 2.11 |
| DA1-SB-8 (2-3) | 11/9/2020 | **27.8*** | < 3.95 | < 3.95 | < 3.95 | < 3.95 | < 3.95 | **2.83 j** | **5.84 D6** | **4.26** | **2.3 j** | < 3.95 |
| DA1-SB-9 (2-3) | 11/9/2020 | **30.6*** | < 2 | < 2 | **7.21** | **0.699 j** | **17.2** | **43** | **34.3** | **39.6** | **17.6** | **14.5** |
| RI-SB-13 (0.5-1) | 3/15/2021 | < 0.0063 | < 0.381 | < 0.381 | < 0.381 | < 0.381 | < 0.381 | < 0.381 | < 0.381 | < 0.381 | < 0.381 | < 0.381 |
| RI-SB-13 (5.5-6) | 3/15/2021 | **315^** | < 0.557 | < 0.557 | < 0.557 | < 0.557 | < 0.557 | **0.291 j** | **0.254 j** | **0.33 j** | < 0.557 | < 0.557 |
| RI-SB-14 (0.5-1) | 3/15/2021 | **29.7^** | < 0.368 | < 0.368 | < 0.368 | < 0.368 | < 0.368 | < 0.368 | < 0.368 | < 0.368 | < 0.368 | < 0.368 |
| RI-SB-14 (5.5-6) | 3/15/2021 | **203^** | < 0.493 | < 0.493 | < 0.493 | < 0.493 | < 0.493 | **0.269 j** | **0.231 j** | **0.333 j** | < 0.493 | < 0.493 |
| RI-SB-15 (0.5-1) | 3/15/2021 | **372^** | **0.458** | **0.52** | **0.214 j** | **0.169 j** | **0.376** | **0.801** | **0.693** | **0.944** | **0.436** | **0.398** |
| RI-SB-15 (5.5-6) | 3/15/2021 | **60.0^** | < 0.517 | < 0.517 | **0.269 j** | **0.185 j** | **0.716** | **1.64** | **1.44** | **2.02** | **0.975** | **0.791** |
| RI-SB-16 (0.5-1) | 3/15/2021 | **7.8^** | < 0.389 | < 0.389 | < 0.389 | < 0.389 | < 0.389 | < 0.389 | < 0.389 | < 0.389 | < 0.389 | < 0.389 |
| RI-SB-16 (5.5-6) | 3/15/2021 | **1410^** | **1.49** | **0.695** | **7.71 E** | < 0.516 | **17.3** | **23.8** | **15.9** | **21.3** | **9.63** | **8.16** |
| RI-SB-17 (0.5-1) | 3/15/2021 | **0.008 j,C8^** | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 |
| RI-SB-17 (5.5-6) | 3/15/2021 | < 0.0064 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 |
| RI-SB-18 (0.5-1) | 3/15/2021 | < 0.0074 | < 0.411 | < 0.411 | < 0.411 | < 0.411 | < 0.411 | < 0.411 | < 0.411 | < 0.411 | < 0.411 | < 0.411 |
| RI-SB-18 (5.5-6) | 3/15/2021 | < 0.0091 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 |
| RI-SB-19 (0.5-1) | 3/15/2021 | **0.0064 j^** | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 |
| RI-SB-19 (5.5-6) | 3/15/2021 | < 0.0169 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 |
| RI-SB-20 (0.5-1) | 3/15/2021 | < 0.0066 | < 0.383 | < 0.383 | < 0.383 | < 0.383 | < 0.383 | < 0.383 | < 0.383 | < 0.383 | < 0.383 | < 0.383 |
| RI-SB-20 (5.5-6) | 3/15/2021 | < 0.0063 | < 0.408 | < 0.408 | < 0.408 | < 0.408 | < 0.408 | < 0.408 | < 0.408 | < 0.408 | < 0.408 | < 0.408 |
| RI-SB-23 (0.5-1) | 3/15/2021 | < 0.0071 | < 0.385 | < 0.385 | < 0.385 | < 0.385 | < 0.385 | < 0.385 | < 0.385 | < 0.385 | < 0.385 v1 | < 0.385 |
| RI-SB-23 (5.5-6) | 3/15/2021 | **21.0^** | < 0.416 | < 0.416 | < 0.416 | < 0.416 | < 0.416 | < 0.416 | < 0.416 | < 0.416 | < 0.416 v1 | < 0.416 |
| RI-SB-24 (0.5-1) | 3/15/2021 | **7.7^** | < 0.388 | < 0.388 | < 0.388 | < 0.388 | < 0.388 | < 0.388 | < 0.388 | < 0.388 | < 0.388 v1 | < 0.388 |
| RI-SB-24 (5.5-6) | 3/15/2021 | **1320^** | < 0.492 | < 0.492 | < 0.492 | **0.194 j** | < 0.492 | **0.172 j** | **0.184 j** | **0.306 j** | **0.224 j,v1** | < 0.492 |
| RI-SB-31 (0.5-1) | 3/17/2021 | **0.0149 H3,R0^** | < 0.382 H3,R0 | < 0.382 H3,R0 | < 0.382 H3,R0 | < 0.382 H3,R0 | < 0.382 H3,R0 | < 0.382 H3,R0 | **0.0104 j,H3,R0** | < 0.382 H3,R0 | < 0.382 H3,R0 | < 0.382 H3,R0 |
| RI-SB-31 (5.5-6) | 3/17/2021 | **0.959 H3,R0^** | < 0.445 H3,R0 | < 0.445 H3,R0 | < 0.445 H3,R0 | < 0.445 H3,R0 | < 0.445 H3,R0 | < 0.445 H3,R0 | **0.132 H3,R0** | < 0.445 H3,R0 | < 0.445 H3,R0 | < 0.445 H3,R0 |
| RI-SB-32 (0.5-1) | 3/17/2021 | **0.0083 H3,R0^** | < 0.391 H3,R0 | < 0.391 H3,R0 | < 0.391 H3,R0 | < 0.391 H3,R0 | < 0.391 H3,R0 | < 0.391 H3,R0 | **0.0139 H3,R0** | < 0.391 H3,R0 | < 0.391 H3,R0 | < 0.391 H3,R0 |
| RI-SB-32 (5.5-6) | 3/17/2021 | **0.0183 H3,R0^** | **0.304 j,H3,R0** | **0.319 j,H3,R0** | **0.219 j,H3,R0** | < 0.402 H3,R0 | < 0.402 H3,R0 | **0.525 H3,R0** | **0.0117 j,H3,R0** | **0.999 H3,R0** | **0.782 H3,R0** | **0.4 j,H3,R0** |

**Notes:**

This table summarizes only constituents detected at concentrations greater than the method detection limit.

- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the USEPA Regional Screening Level Industrial limit.

- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the USEPA Regional Screening Level Residential limit.

**Bold** type indicates that the compound was detected at a concentration greater than the adjusted method detection limit.

Parenthetical sample depth intervals are appended to the sample ID.

^ - Sample was analyzed by EPA Method 8260d

* - Sample was analyzed by EPA Method 8260

< - Concentration not detected at or greater than the adjusted reporting limit

% - percent

µg/kg - micrograms per kilogram

NE - No screening level established at this time. A site-specific risk-based screening level may be established as part of the risk assessment process outlined in Section 5.0 of the RIWP-A.

PAH - Polycyclic aromatic hydrocarbon

SVOC - Semi-volatile organic compounds

VOA - Volatile organic aromatics

VOC - Volatile organic compounds

C8 - Result may be biased high due to carryover from previously analyzed sample.

D3 - Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

D6 - The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

E - Analyte concentration exceeded the calibration range. The reported result is estimated.

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

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

L1 - Analyte recovery in the laboratory control sample was above quality control limits. Results may be biased high.

M1 - Matrix spike recovery was high: the associated Laboratory Control Spike (LCS) was acceptable.

N2 - The lab does not hold accreditation for this parameter.

R0 - The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

S1 - Data review findings indicate result may be biased; however, data is usable.

v1 - The continuing calibration verification was above the method acceptance limit. Any detection for the analyte in theassociated samples may have a high bias.

**TABLE 4-4**
**SUMMARY OF SOIL ANALYTICAL RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| | | 8270D (PAH) (Continued) | | | | | | | 8270D (Other SVOC) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Analytical Parameter** | | **Chrysene** | **Dibenz(a,h)anthracene** | **Fluoranthene** | **Fluorene** | **Indeno(1,2,3-cd)pyrene** | **Phenanthrene** | **Pyrene** | **1,3,5-Trimethylbenzene** | **Butyl benzyl phthalate** | **Dibenzofuran** | **Isopropylbenzene (Cumene)** | **n-Propylbenzene** |
| **Reporting Units** | | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** | **mg/kg** |
| **Industrial Screening Level** | | **2100** | **2.1** | **30000** | **30000** | **21** | **NE** | **23000** | **1500** | **1200** | **1000** | **9900** | **24000** |
| **Residential Screening Level** | | **110** | **0.11** | **2400** | **2400** | **1.1** | **NE** | **1800** | **270** | **290** | **73** | **1900** | **3800** |
| **Sample ID** | **Sample Collection Date** | **Analytical Results** | | | | | | | **Analytical Results** | | | | |
| DA1-SB-3 (2-3) | 11/9/2020 | **2.84 j** | < 4.04 S1 | **7.93** | < 4.04 | < 4.04 S1 | **8.43** | **6.58** | < 0.0066 | < 4.04 | < 4.04 | < 0.0066 | < 0.0066 |
| DA1-SB-4B (2-3) | 11/9/2020 | **7.53** | < 3.92 S1 | **19** | **1.18 j** | **5.02** | **12.5** | **15.8** | < 0.0066 | < 3.92 | < 3.92 | < 0.0066 | < 0.0066 |
| DA1-SB-5A (2-3) | 11/9/2020 | < 1.94 | < 1.94 S1 | < 1.94 | < 1.94 | < 1.94 S1 | < 1.94 | < 1.94 | < 0.0068 | **0.894 j** | < 1.94 | < 0.0068 | < 0.0068 |
| DA1-SB-6 (2-3) | 11/9/2020 | < 4.21 | < 4.21 S1 | < 4.21 | < 4.21 | < 4.21 S1 | < 4.21 | < 4.21 | < 0.009 | < 4.21 | < 4.21 | < 0.009 | < 0.009 |
| DA1-SB-7 (2-3) | 11/9/2020 | **0.862 j** | < 2.11 S1 | **1.55 j** | < 2.11 | < 2.11 S1 | **0.968 j** | **1.34 j** | < 0.0078 | < 2.11 | < 2.11 | < 0.0078 | < 0.0078 |
| DA1-SB-8 (2-3) | 11/9/2020 | **3.29 j** | < 3.95 S1 | **5.05** | < 3.95 | **2 j** | **2.86 j** | **5.59** | < 0.007 | < 3.95 | < 3.95 | < 0.007 | < 0.007 |
| DA1-SB-9 (2-3) | 11/9/2020 | **33.6** | **4.83** | **94.5** | **10.5** | **15.4** | **57.5** | **67.6** | < 0.0073 | < 2 | **4.53** | < 0.0073 | < 0.0073 |
| RI-SB-13 (0.5-1) | 3/15/2021 | < 0.381 | < 0.381 | < 0.381 | < 0.381 | < 0.381 | < 0.381 | < 0.381 | < 0.0063 | < 0.381 | < 0.381 | < 0.0063 | < 0.0063 |
| RI-SB-13 (5.5-6) | 3/15/2021 | 0.271 j | < 0.557 | 0.574 | < 0.557 | < 0.557 | **0.219 j** | **0.556 j** | **0.0249** | < 0.557 | < 0.557 | **0.0952** | < 0.0193 |
| RI-SB-14 (0.5-1) | 3/15/2021 | < 0.368 | < 0.368 | < 0.368 | < 0.368 | < 0.368 | < 0.368 | < 0.368 | < 0.007 | < 0.368 | < 0.368 | < 0.007 | < 0.007 |
| RI-SB-14 (5.5-6) | 3/15/2021 | **0.255 j** | < 0.493 | **0.598** | < 0.493 | < 0.493 | **0.406 j** | **0.505** | < 0.0128 | < 0.493 | < 0.493 | 0.0978 | < 0.0128 |
| RI-SB-15 (0.5-1) | 3/15/2021 | **0.822** | < 0.372 | **1.37** | **0.289 j** | **0.37 j** | **1.47** | **1.4** | **0.0068** | < 0.372 | **0.26 j** | **0.0057 J** | < 0.0063 |
| RI-SB-15 (5.5-6) | 3/15/2021 | **1.53** | < 0.517 | **3.92** | **0.329 j** | **0.8** | **2.73** | **3.54** | < 0.01 | < 0.517 | < 0.517 | 0.0206 | < 0.01 |
| RI-SB-16 (0.5-1) | 3/15/2021 | < 0.389 | < 0.389 | < 0.389 | < 0.389 | < 0.389 | < 0.389 | < 0.389 | < 0.0062 | < 0.389 | < 0.389 | < 0.0062 | < 0.0062 |
| RI-SB-16 (5.5-6) | 3/15/2021 | **23** | **2.92** | **58.5** | **10.2 E** | **9.2** | **55.4** | **48.1** | **0.043** | < 0.516 | **4.16** | **0.173** | < 0.0107 |
| RI-SB-17 (0.5-1) | 3/15/2021 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.414 | < 0.0087 | < 0.414 | < 0.414 | < 0.0087 | < 0.0087 |
| RI-SB-17 (5.5-6) | 3/15/2021 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.423 | < 0.0064 | < 0.423 | < 0.423 | < 0.0064 | < 0.0064 |
| RI-SB-18 (0.5-1) | 3/15/2021 | < 0.411 | < 0.411 | < 0.411 | < 0.411 | < 0.411 | < 0.411 | < 0.411 | < 0.0074 | < 0.411 | < 0.411 | < 0.0074 | < 0.0074 |
| RI-SB-18 (5.5-6) | 3/15/2021 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.0091 | < 0.429 | < 0.429 | < 0.0091 | < 0.0091 |
| RI-SB-19 (0.5-1) | 3/15/2021 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.429 | < 0.0073 | < 0.429 v1 | < 0.429 | < 0.0073 | < 0.0073 |
| RI-SB-19 (5.5-6) | 3/15/2021 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.42 | < 0.0169 | < 0.42 v1 | < 0.42 | < 0.0169 | < 0.0169 |
| RI-SB-20 (0.5-1) | 3/15/2021 | < 0.383 | < 0.383 | < 0.383 | < 0.383 | < 0.383 | < 0.383 | < 0.383 | < 0.0066 | < 0.383 v1 | < 0.383 | < 0.0066 | < 0.0066 |
| RI-SB-20 (5.5-6) | 3/15/2021 | < 0.408 | < 0.408 | < 0.408 | < 0.408 | < 0.408 | < 0.408 | < 0.408 | < 0.0063 | < 0.408 v1 | < 0.408 | < 0.0063 | < 0.0063 |
| RI-SB-23 (0.5-1) | 3/15/2021 | < 0.385 | < 0.385 | < 0.385 | < 0.385 | < 0.385 | < 0.385 | < 0.385 | < 0.0071 | < 0.385 v1 | < 0.385 | < 0.0071 | < 0.0071 |
| RI-SB-23 (5.5-6) | 3/15/2021 | < 0.416 | < 0.416 | < 0.416 | < 0.416 | < 0.416 | < 0.416 | < 0.416 | < 0.0088 | < 0.416 v1 | < 0.416 | < 0.0088 | < 0.0088 |
| RI-SB-24 (0.5-1) | 3/15/2021 | < 0.388 | < 0.388 | < 0.388 | < 0.388 | < 0.388 | < 0.388 | < 0.388 | < 0.0071 | < 0.388 v1 | < 0.388 | < 0.0071 | < 0.0071 |
| RI-SB-24 (5.5-6) | 3/15/2021 | **0.199 j** | < 0.492 | **0.267 j** | < 0.492 | **0.209 j** | < 0.492 | **0.261 j** | **0.0299** | < 0.492 v1 | < 0.492 | **0.254** | **0.0161** |
| RI-SB-31 (0.5-1) | 3/17/2021 | < 0.382 H3,R0 | < 0.382 H3,R0 | < 0.382 H3,R0 | < 0.382 H3,R0 | < 0.382 H3,R0 | **0.177 j,H3,R0** | < 0.382 H3,R0 | < 0.0057 H3,R0 | < 0.382 H3,R0 | < 0.382 H3,R0 | < 0.0057 H3,R0 | < 0.0057 H3,R0 |
| RI-SB-31 (5.5-6) | 3/17/2021 | < 0.445 H3,R0 | < 0.445 H3,R0 | < 0.445 H3,R0 | < 0.445 H3,R0 | < 0.445 H3,R0 | < 0.445 H3,R0 | < 0.445 H3,R0 | **0.0827 H3,R0** | < 0.445 H3,R0 | < 0.445 H3,R0 | **0.193 H3,R0** | **0.0315 H3,R0** |
| RI-SB-32 (0.5-1) | 3/17/2021 | < 0.391 H3,R0 | < 0.391 H3,R0 | < 0.391 H3,R0 | < 0.391 H3,R0 | < 0.391 H3,R0 | < 0.391 H3,R0 | < 0.391 H3,R0 | < 0.0058 H3,R0 | < 0.391 H3,R0 | < 0.391 H3,R0 | < 0.0058 H3,R0 | < 0.0058 H3,R0 |
| RI-SB-32 (5.5-6) | 3/17/2021 | **0.413 H3,R0** | < 0.402 H3,R0 | **0.225 j,H3,R0** | **0.169 j,H3,R0** | **0.717 H3,R0** | **0.398 j,H3,R0** | **0.294 j,H3,R0** | < 0.0058 H3,R0 | < 0.402 H3,R0 | < 0.402 H3,R0 | < 0.0058 H3,R0 | **0.178 H3,R0** |

Prepared by: RSB Checked by: PPB/ JPC

**Notes:**

This table summarizes only constituents detected at concentrations greater than the method detection limit.

- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the USEPA Regional Screening Level Industrial limit.
- Bold highlighted concentrations indicate that the compound was detected at a concentration greater than the USEPA Regional Screening Level Residential limit.

**Bold** type indicates that the compound was detected at a concentration greater than the adjusted method detection limit.

Parenthetical sample depth intervals are appended to the sample ID.

^ - Sample was analyzed by EPA Method 8260d

* - Sample was analyzed by EPA Method 8260

< - Concentration not detected at or greater than the adjusted reporting limit

% - percent

µg/kg - micrograms per kilogram

NE - No screening level established at this time. A site-specific risk-based screening level may be established as part of the risk assessment process outlined in Section 5.0 of the RIWP-A.

PAH - Polycyclic aromatic hydrocarbon

SVOC - Semi-volatile organic compounds

VOA - Volatile organic aromatics

VOC - Volatile organic compounds

C8 - Result may be biased high due to carryover from previously analyzed sample.

D3 - Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

D6 - The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

E - Analyte concentration exceeded the calibration range. The reported result is estimated.

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

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

L1 - Analyte recovery in the laboratory control sample was above quality control limits. Results may be biased high.

M1 - Matrix spike recovery was high: the associated Laboratory Control Spike (LCS) was acceptable.

N2 - The lab does not hold accreditation for this parameter.

R0 - The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

S1 - Data review findings indicate result may be biased; however, data is usable.

v1 - The continuing calibration verification was above the method acceptance limit. Any detection for the analyte in theassociated samples may have a high bias.

# TABLE 4-5
# SUMMARY OF DEPTH TO WATER MEASUREMENTS (MARCH 2021)
# REMEDIAL INVESTIGATION REPORT ADDENDUM
# FORMER BRAMLETTE MGP
# DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC

| Location Identification | Monitoring Zone | Measuring Point TOC Elevation (ft-NAVD 88) | Measured Water Level (ft-BTOC) | Groundwater Elevation (ft-NAVD 88) |
|---|---|---|---|---|
| **MONITORING WELLS** | | | | |
| MW-1 | Shallow | 934.31 | 6.85 | 927.46 |
| MW-2TZ | Transition Zone | 934.90 | 10.81 | 924.09 |
| MW-2BR | Bedrock | 934.42 | 11.07 | 923.35 |
| MW-3 | Shallow | 935.53 | 10.26 | 925.27 |
| MW-3BR | Bedrock | 935.87 | 11.16 | 924.71 |
| MW-3BRL | Bedrock | 936.49 | 11.92 | 924.57 |
| MW-5 | Shallow | 929.73 | 9.88 | 919.85 |
| MW-7R | Shallow | 936.01 | 9.23 | 926.78 |
| MW-9R | Shallow | 936.47 | 4.66 | 931.81 |
| MW-13R | Shallow | 940.94 | 4.94 | 936.00 |
| MW-15 | Transition Zone | 939.09 | 8.64 | 930.45 |
| MW-16 | Shallow | 938.61 | 8.87 | 929.74 |
| MW-20 | Transition Zone | 935.71 | 10.64 | 925.07 |
| MW-21 | Shallow | 934.53 | NM | NM |
| MW-21BR | Bedrock | 930.89 | 11.08 | 919.81 |
| MW-21BRL | Bedrock | 931.51 | 12.07 | 919.44 |
| MW-22 | Shallow | 930.30 | 9.87 | 920.43 |
| MW-25R | Shallow | 930.75 | 3.21 | 927.54 |
| MW-26 | Bedrock | 940.91 | 5.07 | 935.84 |
| MW-27 | Shallow | 940.93 | 4.77 | 936.16 |
| MW-28 | Bedrock | 936.69 | 4.89 | 931.80 |
| MW-29S | Shallow | 932.86 | 7.90 | 924.96 |
| MW-29TZ | Transition Zone | 932.92 | 7.89 | 925.03 |
| MW-29BR | Bedrock | 933.32 | 8.31 | 925.01 |
| MW-30S | Shallow | 932.80 | 12.91 | 919.89 |
| MW-30TZ | Transition Zone | 932.54 | 13.16 | 919.38 |
| MW-31S | Shallow | 932.11 | 14.01 | 918.10 |
| MW-31TZ | Transition Zone | 932.07 | 14.03 | 918.04 |
| MW-32S | Shallow | 931.73 | 12.65 | 919.08 |
| MW-32TZ | Transition Zone | 931.92 | 13.09 | 918.83 |
| MW-33S | Shallow | 932.06 | 11.53 | 920.53 |
| MW-33TZ | Transition Zone | 931.24 | 10.75 | 920.49 |
| MW-34S | Shallow | 937.53 | 9.28 | 928.25 |
| MW-34TZ | Transition Zone | 937.91 | 10.94 | 926.97 |
| MW-34BR | Bedrock | 937.92 | 12.48 | 925.44 |
| MW-35S | Shallow | 933.26 | 4.75 | 928.51 |
| MW-35TZ | Transition Zone | 933.51 | 5.18 | 928.33 |
| MW-35BR | Bedrock | 931.40 | 3.75 | 927.65 |
| MW-36S | Shallow | 940.49 | 8.38 | 932.11 |
| MW-36TZ | Transition Zone | 940.07 | 8.22 | 931.85 |
| MW-36BR | Bedrock | 940.04 | 8.18 | 931.86 |
| MW-37S | Shallow | 943.05 | 8.36 | 934.69 |
| MW-37TZ | Transition Zone | 943.27 | 9.12 | 934.15 |
| MW-37BR | Bedrock | 943.12 | 10.08 | 933.04 |

# TABLE 4-5
# SUMMARY OF DEPTH TO WATER MEASUREMENTS (MARCH 2021)
# REMEDIAL INVESTIGATION REPORT ADDENDUM
# FORMER BRAMLETTE MGP
# DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC

| Location Identification | Monitoring Zone | Measuring Point TOC Elevation (ft-NAVD 88) | Measured Water Level (ft-BTOC) | Groundwater Elevation (ft-NAVD 88) |
|---|---|---|---|---|
| **MONITORING WELLS (Continued)** | | | | |
| MW-38S | Shallow | 929.90 | 4.29 | 925.61 |
| MW-38BR | Bedrock | 929.72 | 4.37 | 925.35 |
| MW-39S | Shallow | 938.60 | 11.91 | 926.69 |
| MW-39BR | Transition Zone | 937.92 | 11.49 | 926.43 |
| MW-39BRL | Bedrock | 937.91 | 13.07 | 924.84 |
| MW-40BR | Bedrock | 929.85 | 11.33 | 918.52 |
| MW-41S | Shallow | 929.93 | 2.02 | 927.91 |
| MW-41TZ | Transition Zone | 929.52 | 0.40 | 929.12 |
| MW-41BR | Bedrock | 929.80 | 1.50 | 928.30 |
| MW-42S | Shallow | 940.42 | 8.68 | 931.74 |
| MW-42TZ | Transition Zone | 940.18 | 8.43 | 931.75 |
| MW-42BR | Bedrock | 939.52 | 7.65 | 931.87 |
| MW-43S | Shallow | 941.26 | 7.18 | 934.08 |
| MW-43TZ | Transition Zone | 941.45 | 7.47 | 933.98 |
| MW-43BR | Bedrock | 941.30 | 7.78 | 933.52 |
| MW-44TZ | Transition Zone | 937.59 | 15.47 | 922.12 |
| MW-44BR | Bedrock | 937.38 | 14.92 | 922.46 |
| MW-45BR | Bedrock | 936.14 | 11.96 | 924.18 |
| MW-46BR | Bedrock | 934.01 | 5.48 | 928.53 |
| MW-47BR | Bedrock | 935.96 | 12.83 | 923.13 |
| MW-48S | Shallow | 932.56 | 11.87 | 920.69 |
| MW-48TZ | Transition Zone | 932.66 | 11.19 | 921.47 |
| **STAFF GAGES** | | | | |
| RI-SG1 | NA | 927.79 | 2.23 | 924.52 |
| RI-SG2 | NA | 930.31 | 1.15 | 925.96 |
| RI-SG3 | NA | 927.44 | 0.49 | 922.43 |
| **RIVER GAGES** | | | | |
| RI-RR1 | NA | 938.68 | 18.64 | 920.04 |
| RI-RR2 | NA | 934.14 | 15.60 | 918.54 |
| RI-RR3 | NA | 929.49 | 14.20 | 915.29 |
| RI-RR4 | NA | 925.81 | 9.40 | 916.41 |

Prepared by: LWD Checked by: TAW

**Notes:**

Water levels collected on 03/09/2021

BTOC - below top of casing

ft - feet

NAVD 88 - North American Vertical Datum of 1988

NM - not measured

**TABLE 4-6**
**SUMMARY OF SLUG TEST RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| Shallow Zone (Unconfined) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Well ID | Slug Test | Slug Test Number | Analytical Solution | Flow Zone | Hydraulic Conductivity (cm/sec) | | Hydraulic Conductivity (ft/day) | |
| | | | | | Measured | Geometric Mean | Measured | Geometric Mean |
| MW-29S | Rising Head | Test 1 | Bouwer-Rice | Shallow | 1.23E-02 | 1.23E-02 | 3.49E+01 | 3.49E+01 |
| | Rising Head | Test 2 | Bouwer-Rice | Shallow | 1.23E-02 | | 3.49E+01 | |
| MW-30S | Rising Head | Test 1 | Bouwer-Rice | Shallow | 8.01E-03 | 5.74E-03 | 2.27E+01 | 1.63E+01 |
| | Rising Head | Test 2 | Bouwer-Rice | Shallow | 4.12E-03 | | 1.17E+01 | |
| MW-31S | Rising Head | Test 1 | Bouwer-Rice | Shallow | 4.08E-03 | 2.43E-03 | 1.16E+01 | 6.88E+00 |
| | Rising Head | Test 2 | Bouwer-Rice | Shallow | 1.45E-03 | | 4.10E+00 | |
| MW-32S | Falling Head | Test 1 | Hvorslev | Shallow | 3.04E-04 | 2.34E-04 | 8.61E-01 | 6.62E-01 |
| | Rising Head | Test 2 | Hvorslev | Shallow | 1.80E-04 | | 5.10E-01 | |
| MW-33S | Falling Head | Test 1 | Hvorslev | Shallow | 1.32E-03 | 1.45E-03 | 3.75E+00 | 4.11E+00 |
| | Rising Head | Test 2 | Hvorslev | Shallow | 1.59E-03 | | 4.51E+00 | |
| MW-34S | Falling Head | Test 1 | Hvorslev | Shallow | 9.06E-04 | 6.52E-04 | 2.57E+00 | 1.85E+00 |
| | Rising Head | Test 2 | Hvorslev | Shallow | 4.70E-04 | | 1.33E+00 | |
| MW-35S | Falling Head | Test 1 | Hvorslev | Shallow | 6.55E-04 | 8.53E-04 | 1.86E+00 | 2.42E+00 |
| | Rising Head | Test 2 | Hvorslev | Shallow | 1.11E-03 | | 3.15E+00 | |
| MW-36S | Falling Head | Test 1 | Hvorslev | Shallow | 3.71E-04 | 3.68E-04 | 1.05E+00 | 1.04E+00 |
| | Rising Head | Test 2 | Hvorslev | Shallow | 3.64E-04 | | 1.03E+00 | |
| MW-37S | Falling Head | Test 1 | Hvorslev | Shallow | 1.12E-03 | 1.23E-03 | 3.18E+00 | 3.49E+00 |
| | Rising Head | Test 2 | Hvorslev | Shallow | 1.35E-03 | | 3.84E+00 | |
| MW-38S | Falling Head | Test 1 | Hvorslev | Shallow | 3.67E-03 | 3.85E-03 | 1.04E+01 | 1.09E+01 |
| | Rising Head | Test 2 | Hvorslev | Shallow | 3.79E-03 | | 1.08E+01 | |
| | Falling Head | Test 3 | Hvorslev | Shallow | 3.77E-03 | | 1.07E+01 | |
| | Rising Head | Test 4 | Hvorslev | Shallow | 3.88E-03 | | 1.10E+01 | |
| | Falling Head | Test 5 | Hvorslev | Shallow | 3.78E-03 | | 1.07E+01 | |
| | Rising Head | Test 6 | Hvorslev | Shallow | 4.24E-03 | | 1.20E+01 | |
| MW-39S | Falling Head | Test 1 | Springer-Gelhar | Shallow | 3.54E-02 | 7.19E-03 | 1.00E+02 | 2.04E+01 |
| | Rising Head | Test 2 | Hvorslev | Shallow | 1.46E-03 | | 4.14E+00 | |
| MW-41S | Falling Head | Test 1 | Hvorslev | Shallow | 1.13E-03 | 9.77E-04 | 3.20E+00 | 2.77E+00 |
| | Rising Head | Test 2 | Hvorslev | Shallow | 8.46E-04 | | 2.40E+00 | |
| MW-42S | Falling Head | Test 1 | Hvorslev | Shallow | 9.36E-04 | 9.15E-04 | 2.65E+00 | 2.59E+00 |
| | Rising Head | Test 2 | Hvorslev | Shallow | 8.95E-04 | | 2.54E+00 | |
| MW-43S | Falling Head | Test 1 | Hvorslev | Shallow | 2.90E-03 | 2.73E-03 | 8.22E+00 | 7.75E+00 |
| | Rising Head | Test 2 | Bouwer-Rice | Shallow | 2.44E-03 | | 6.92E+00 | |
| | Falling Head | Test 3 | Hvorslev | Shallow | 2.81E-03 | | 7.98E+00 | |
| | Rising Head | Test 4 | Bouwer-Rice | Shallow | 3.40E-03 | | 9.65E+00 | |
| | Falling Head | Test 5 | Hvorslev | Shallow | 1.99E-03 | | 5.65E+00 | |
| | Rising Head | Test 6 | Bouwer-Rice | Shallow | 3.09E-03 | | 8.75E+00 | |
| | | | | GEOMETRIC MEAN | | 1.91E-03 | - | 5.40E+00 |
| | | | | HIGHEST CONDUCTIVITY | | 3.54E-02 | - | 1.00E+02 |
| | | | | LOWEST CONDUCTIVITY | | 1.80E-04 | - | 5.10E-01 |

**TABLE 4-6**
**SUMMARY OF SLUG TEST RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| Transition Zone (Unconfined) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Well ID | Slug Test | Slug Test Number | Analytical Solution | Flow Zone | Hydraulic Conductivity (cm/sec) | | Hydraulic Conductivity (ft/day) | |
| | | | | | Measured | Geometric Mean | Measured | Geometric Mean |
| MW-2TZ | Falling Head | Test 1 | Hvorslev | Transition Zone | 9.45E-04 | 9.53E-04 | 2.68E+00 | 2.70E+00 |
| | Rising Head | Test 2 | Hvorslev | Transition Zone | 9.61E-04 | | 2.73E+00 | |
| MW-29TZ | Rising Head | Test 1 | Hvorslev | Transition Zone | 8.22E-05 | 9.60E-05 | 2.33E-01 | 2.72E-01 |
| | Rising Head | Test 2 | Hvorslev | Transition Zone | 1.12E-04 | | 3.18E-01 | |
| MW-30TZ | Falling Head | Test 1 | Hvorslev | Transition Zone | 9.16E-05 | 9.13E-05 | 2.60E-01 | 2.59E-01 |
| | Rising Head | Test 2 | Hvorslev | Transition Zone | 9.11E-05 | | 2.58E-01 | |
| MW-31TZ | Rising Head | Test 1 | Hvorslev | Transition Zone | 2.00E-04 | 1.94E-04 | 5.67E-01 | 5.50E-01 |
| | Rising Head | Test 2 | Hvorslev | Transition Zone | 1.88E-04 | | 5.32E-01 | |
| MW-32TZ | Falling Head | Test 1 | Springer-Gelhar | Transition Zone | 2.72E-02 | 3.56E-02 | 7.71E+01 | 1.01E+02 |
| | Rising Head | Test 2 | Springer-Gelhar | Transition Zone | 4.66E-02 | | 1.32E+02 | |
| MW-33TZ | Falling Head | Test 1 | Hvorslev | Transition Zone | 2.47E-05 | 5.39E-05 | 7.01E-02 | 1.53E-01 |
| | Rising Head | Test 2 | Hvorslev | Transition Zone | 1.18E-04 | | 3.33E-01 | |
| MW-34TZ | Falling Head | Test 1 | Hvorslev | Transition Zone | 9.00E-04 | 7.93E-04 | 2.55E+00 | 2.25E+00 |
| | Rising Head | Test 2 | Hvorslev | Transition Zone | 6.99E-04 | | 1.98E+00 | |
| MW-35TZ | Falling Head | Test 1 | Hvorslev | Transition Zone | 3.64E-04 | 1.29E-04 | 1.03E+00 | 3.66E-01 |
| | Rising Head | Test 2 | Hvorslev | Transition Zone | 4.58E-05 | | 1.30E-01 | |
| MW-36TZ | Falling Head | Test 1 | Hvorslev | Transition Zone | 3.77E-03 | 3.73E-03 | 1.07E+01 | 1.06E+01 |
| | Rising Head | Test 2 | Hvorslev | Transition Zone | 3.69E-03 | | 1.05E+01 | |
| MW-37TZ | Falling Head | Test 1 | Hvorslev | Transition Zone | 3.33E-05 | 3.43E-05 | 9.45E-02 | 9.71E-02 |
| | Rising Head | Test 2 | Hvorslev | Transition Zone | 3.52E-05 | | 9.98E-02 | |
| MW-39BR | Falling Head | Test 1 | Hvorslev | Bedrock | 2.82E-04 | 1.37E-04 | 7.98E-01 | 3.90E-01 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 2.79E-04 | | 7.91E-01 | |
| | Rising Head* | Test 3 | Bouwer-Rice | Bedrock | 8.19E-05 | | 2.32E-01 | |
| | Rising Head* | Test 4 | Bouwer-Rice | Bedrock | 8.47E-05 | | 2.40E-01 | |
| | Rising Head* | Test 5 | Bouwer-Rice | Bedrock | 9.02E-05 | | 2.56E-01 | |
| MW-41TZ | Falling Head | Test 1 | Hvorslev | Transition Zone | 2.05E-05 | 1.95E-05 | 5.81E-02 | 5.53E-02 |
| | Rising Head | Test 2 | Hvorslev | Transition Zone | 1.86E-05 | | 5.27E-02 | |
| MW-42TZ | Falling Head | Test 1 | Hvorslev | Transition Zone | 1.01E-03 | 1.01E-03 | 2.86E+00 | 2.86E+00 |
| | Rising Head | Test 2 | Hvorslev | Transition Zone | 1.01E-03 | | 2.86E+00 | |
| MW-43TZ | Falling Head | Test 1 | Hvorslev | Transition Zone | 8.47E-04 | 8.08E-04 | 2.40E+00 | 2.29E+00 |
| | Rising Head | Test 2 | Hvorslev | Transition Zone | 7.96E-04 | | 2.26E+00 | |
| | Falling Head | Test 3 | Hvorslev | Transition Zone | 8.33E-04 | | 2.36E+00 | |
| | Rising Head | Test 4 | Hvorslev | Transition Zone | 7.80E-04 | | 2.21E+00 | |
| | Falling Head | Test 5 | Hvorslev | Transition Zone | 8.32E-04 | | 2.36E+00 | |
| | Rising Head | Test 6 | Hvorslev | Transition Zone | 7.61E-04 | | 2.16E+00 | |
| MW-44TZ | Falling Head | Test 1 | Hvorslev | Transition Zone | 1.00E-02 | 1.05E-02 | 2.84E+01 | 2.98E+01 |
| | Rising Head | Test 2 | Hvorslev | Transition Zone | 1.15E-02 | | 3.26E+01 | |
| | Falling Head | Test 3 | Hvorslev | Transition Zone | 9.42E-03 | | 2.67E+01 | |
| | Rising Head | Test 4 | Hvorslev | Transition Zone | 1.15E-02 | | 3.27E+01 | |
| | Falling Head | Test 5 | Hvorslev | Transition Zone | 9.44E-03 | | 2.68E+01 | |
| | Rising Head | Test 6 | Hvorslev | Transition Zone | 1.15E-02 | | 3.26E+01 | |
| | | | | GEOMETRIC MEAN | | 5.41E-04 | - | 1.53E+00 |
| | | | | HIGHEST CONDUCTIVITY | | 4.66E-02 | - | 1.32E+02 |
| | | | | LOWEST CONDUCTIVITY | | 1.86E-05 | - | 5.27E-02 |

**TABLE 4-6**
**SUMMARY OF SLUG TEST RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| Bedrock Zone (Unconfined) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Well ID | Slug Test | Slug Test Number | Analytical Solution | Flow Zone | Hydraulic Conductivity (cm/sec) | | Hydraulic Conductivity (ft/day) | |
| | | | | | Measured | Geometric Mean | Measured | Geometric Mean |
| MW-2BR | Falling Head | Test 1 | Hvorslev | Bedrock | 2.65E-04 | 1.11E-04 | 7.50E-01 | 3.14E-01 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 4.64E-05 | | 1.32E-01 | |
| MW-3BR | Rising Head | Test 1 | Hvorslev | Bedrock | 1.90E-05 | 1.87E-05 | 5.38E-02 | 5.29E-02 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 1.84E-05 | | 5.21E-02 | |
| | Rising Head* | Test 1 | Bouwer-Rice | Bedrock | 3.33E-05 | 3.56E-05 | 9.45E-02 | 1.01E-01 |
| | Rising Head* | Test 2 | Bouwer-Rice | Bedrock | 3.80E-05 | | 1.08E-01 | |
| MW-3BRL | Falling Head | Test 1 | Hvorslev | Bedrock | 9.57E-04 | 3.03E-04 | 2.71E+00 | 8.59E-01 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 1.52E-04 | | 4.30E-01 | |
| | Rising Head | Test 3 | Bouwer-Rice | Bedrock | 2.40E-04 | | 6.79E-01 | |
| | Rising Head* | Test 4 | Bouwer-Rice | Bedrock | 2.51E-04 | | 7.10E-01 | |
| | Rising Head* | Test 5 | Bouwer-Rice | Bedrock | 2.93E-04 | | 8.31E-01 | |
| MW-21BR | Falling Head | Test 1 | Hvorslev | Bedrock | 1.49E-03 | 1.47E-03 | 4.21E+00 | 4.17E+00 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 1.46E-03 | | 4.13E+00 | |
| MW-21BRL | Falling Head | Test 1 | Hvorslev | Bedrock | 5.26E-04 | 5.19E-04 | 1.49E+00 | 1.47E+00 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 5.12E-04 | | 1.45E+00 | |
| MW-29BR | Falling Head | Test 1 | Hvorslev | Bedrock | 8.87E-05 | 9.05E-05 | 2.51E-01 | 2.56E-01 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 9.23E-05 | | 2.62E-01 | |
| MW-34BR | Falling Head | Test 1 | Hvorslev | Bedrock | 6.26E-05 | 6.28E-05 | 1.78E-01 | 1.78E-01 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 6.29E-05 | | 1.78E-01 | |
| MW-35BR | Falling Head | Test 1 | Hvorslev | Bedrock | 3.65E-07 | 3.65E-07 | 1.03E-03 | 1.03E-03 |
| MW-36BR | Falling Head | Test 1 | Hvorslev | Bedrock | 1.65E-03 | 1.48E-03 | 4.68E+00 | 4.19E+00 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 1.33E-03 | | 3.76E+00 | |
| MW-37BR | Falling Head | Test 1 | Hvorslev | Bedrock | 4.97E-04 | 4.75E-04 | 1.41E+00 | 1.35E+00 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 4.55E-04 | | 1.29E+00 | |
| MW-38BR | Falling Head | Test 1 | Hvorslev | Bedrock | 1.61E-03 | 1.14E-03 | 4.57E+00 | 3.22E+00 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 1.43E-03 | | 4.05E+00 | |
| | Rising Head* | Test 3 | Bouwer-Rice | Bedrock | 9.01E-04 | | 2.55E+00 | |
| | Rising Head* | Test 4 | Bouwer-Rice | Bedrock | 9.20E-04 | | 2.61E+00 | |
| | Rising Head* | Test 5 | Bouwer-Rice | Bedrock | 9.90E-04 | | 2.81E+00 | |
| MW-39BRL | Falling Head | Test 1 | Hvorslev | Bedrock | 3.73E-04 | 4.48E-04 | 1.06E+00 | 1.27E+00 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 5.38E-04 | | 1.52E+00 | |
| MW-41BR | Falling Head | Test 1 | Hvorslev | Bedrock | 2.10E-04 | 2.17E-04 | 5.94E-01 | 6.15E-01 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 2.25E-04 | | 6.37E-01 | |
| MW-42BR | Falling Head | Test 1 | Hvorslev | Bedrock | 1.50E-03 | 1.24E-03 | 4.24E+00 | 3.51E+00 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 1.02E-03 | | 2.90E+00 | |
| MW-43BR | Rising Head | Test 1 | Hvorslev | Bedrock | 1.13E-05 | 1.13E-05 | 3.20E-02 | 3.20E-02 |
| MW-44BR | Falling Head | Test 1 | Hvorslev | Bedrock | 1.11E-04 | 6.94E-05 | 3.15E-01 | 1.97E-01 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 4.34E-05 | | 1.23E-01 | |
| MW-45BR | Falling Head | Test 1 | Hvorslev | Bedrock | 4.98E-07 | 3.92E-07 | 1.41E-03 | 1.11E-03 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 3.09E-07 | | 8.77E-04 | |
| MW-46BR | Falling Head | Test 1 | Hvorslev | Bedrock | 1.07E-05 | 6.10E-06 | 3.03E-02 | 1.73E-02 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 3.49E-06 | | 9.89E-03 | |
| MW-47BR | Falling Head | Test 1 | Hvorslev | Bedrock | 3.46E-05 | 2.09E-05 | 9.80E-02 | 5.94E-02 |
| | Rising Head | Test 2 | Hvorslev | Bedrock | 1.27E-05 | | 3.59E-02 | |
| | | | | GEOMETRIC MEAN | | 1.25E-04 | - | 3.54E-01 |
| | | | | HIGHEST CONDUCTIVITY | | 1.65E-03 | - | 4.68E+00 |
| | | | | LOWEST CONDUCTIVITY | | 3.09E-07 | - | 8.77E-04 |

Prepared By: WTP Checked By: LWD

**Notes:**
* - Pneumatic Interference Slug Test
ft - feet
cm - centimeter
sec - second

**TABLE 4-7**
**SUMMARY OF VERTICAL HYDRAULIC GRADIENTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| Well ID | Monitoring Zone | Ground Surface Elevation (ft-NAVD 88) | Measured Well Depth (ft-BTOC) | Water Level Elevation Q1-2021 (ft-NAVD 88) | Vertical Gradient and Direction | |
|---|---|---|---|---|---|---|
| MW-2TZ | Transition Zone | 931.61 | 28.50 | 924.09 | 0.03 | Downward |
| MW-2BR | Bedrock | 931.37 | 62.84 | 923.35 | | |
| MW-3 | Shallow | 932.90 | 16.57 | 925.27 | 0.02 | Downward |
| MW-20 | Transition Zone | 933.23 | 27.98 | 925.07 | | |
| MW-20 | Transition Zone | 933.23 | 27.98 | 925.07 | 0.01 | Downward |
| MW-3BR | Bedrock | 932.99 | 67.01 | 924.71 | | |
| MW-3BR | Bedrock | 932.99 | 67.01 | 924.71 | 0.00 | Downward |
| MW-3BRL | Bedrock | 933.44 | 107.11 | 924.57 | | |
| MW-7R | Shallow | 932.93 | 18.69 | 926.78 | -0.17 | Upward |
| MW-28 | Bedrock | 933.88 | 44.57 | 931.80 | | |
| MW-9R | Shallow | 933.62 | 29.88 | 931.81 | 0.00 | Downward |
| MW-28 | Bedrock | 933.88 | 44.57 | 931.80 | | |
| MW-13R | Shallow | 937.93 | 23.45 | 936.00 | 0.00 | Downward |
| MW-26 | Bedrock | 937.90 | 58.50 | 935.84 | | |
| MW-27 | Shallow | 937.83 | 38.62 | 936.16 | 0.02 | Downward |
| MW-26 | Bedrock | 937.90 | 58.50 | 935.84 | | |
| MW-16 | Shallow | 936.73 | 17.87 | 929.74 | -0.02 | Upward |
| MW-15 | Transition Zone | 936.39 | 57.10 | 930.45 | | |
| MW-21 | Shallow | 930.68 | 19.28 | NM | --- | --- |
| MW-21BR | Bedrock | 928.00 | 45.00 | 919.81 | | |
| MW-21BR | Bedrock | 928.00 | 45.00 | 919.81 | 0.02 | Downward |
| MW-21BRL | Bedrock | 928.48 | 67.13 | 919.44 | | |
| MW-5 | Shallow | 929.73 | 15.58 | 919.85 | 0.02 | Downward |
| MW-40BR | Bedrock | 930.17 | 75.00 | 918.52 | | |
| MW-22 | Shallow | 930.47 | 34.92 | 920.43 | 0.05 | Downward |
| MW-40BR | Bedrock | 930.17 | 75.00 | 918.52 | | |
| MW-29S | Shallow | 930.25 | 17.79 | 924.96 | 0.00 | Upward |
| MW-29TZ | Transition Zone | 930.18 | 34.00 | 925.03 | | |
| MW-29TZ | Transition Zone | 930.18 | 34.00 | 925.03 | 0.00 | Downward |
| MW-29BR | Bedrock | 930.36 | 88.79 | 925.01 | | |
| MW-30S | Shallow | 932.80 | 19.90 | 919.89 | 0.02 | Downward |
| MW-30TZ | Transition Zone | 932.57 | 41.10 | 919.38 | | |
| MW-31S | Shallow | 932.51 | 19.75 | 918.10 | 0.00 | Downward |
| MW-31TZ | Transition Zone | 932.37 | 37.85 | 918.04 | | |
| MW-32S | Shallow | 931.98 | 34.76 | 919.08 | 0.01 | Downward |
| MW-32TZ | Transition Zone | 931.74 | 65.51 | 918.83 | | |
| MW-33S | Shallow | 932.12 | 20.02 | 920.53 | 0.00 | Downward |
| MW-33TZ | Transition Zone | 931.81 | 40.26 | 920.49 | | |
| MW-34S | Shallow | 934.82 | 28.59 | 928.25 | 0.05 | Downward |
| MW-34TZ | Transition Zone | 935.14 | 53.56 | 926.97 | | |
| MW-34TZ | Transition Zone | 935.14 | 53.56 | 926.97 | 0.03 | Downward |
| MW-34BR | Bedrock | 935.11 | 110.75 | 925.44 | | |
| MW-35S | Shallow | 930.06 | 18.44 | 928.51 | 0.01 | Downward |
| MW-35TZ | Transition Zone | 930.12 | 38.11 | 928.33 | | |
| MW-35TZ | Transition Zone | 930.12 | 38.11 | 928.33 | 0.01 | Downward |
| MW-35BR | Bedrock | 928.05 | 153.28 | 927.65 | | |
| MW-36S | Shallow | 937.18 | 23.82 | 932.11 | 0.01 | Downward |
| MW-36TZ | Transition Zone | 936.89 | 48.73 | 931.85 | | |

# TABLE 4-7
# SUMMARY OF VERTICAL HYDRAULIC GRADIENTS
# REMEDIAL INVESTIGATION REPORT ADDENDUM
# FORMER BRAMLETTE MGP SITE
# DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC

| Well ID | Monitoring Zone | Ground Surface Elevation (ft-NAVD 88) | Measured Well Depth (ft-BTOC) | Water Level Elevation Q1-2021 (ft-NAVD 88) | Vertical Gradient and Direction | |
|---|---|---|---|---|---|---|
| MW-36TZ | Transition Zone | 936.89 | 48.73 | 931.85 | 0.00 | Upward |
| MW-36BR | Bedrock | 936.72 | 71.49 | 931.86 | | |
| MW-37S | Shallow | 940.16 | 23.08 | 934.69 | 0.01 | Downward |
| MW-37TZ | Transition Zone | 940.15 | 72.94 | 934.15 | | |
| MW-37TZ | Transition Zone | 940.15 | 72.94 | 934.15 | 0.02 | Downward |
| MW-37BR | Bedrock | 940.09 | 118.68 | 933.04 | | |
| MW-38S | Shallow | 926.48 | 23.02 | 925.61 | 0.01 | Downward |
| MW-38BR | Bedrock | 926.50 | 29.91 | 925.35 | | |
| MW-39S | Shallow | 935.55 | 27.12 | 926.69 | 0.01 | Downward |
| MW-39BR | Transition Zone | 935.25 | 52.86 | 926.43 | | |
| MW-39S | Shallow | 935.55 | 27.12 | 926.69 | 0.03 | Downward |
| MW-39BRL | Bedrock | 935.17 | 82.65 | 924.84 | | |
| MW-41S | Shallow | 930.13 | 19.96 | 927.91 | -0.03 | Upward |
| MW-41TZ | Transition Zone | 929.94 | 55.65 | 929.12 | | |
| MW-41TZ | Transition Zone | 929.94 | 55.65 | 929.12 | 0.02 | Downward |
| MW-41BR | Bedrock | 929.92 | 90.40 | 928.30 | | |
| MW-42S | Shallow | 937.47 | 23.40 | 931.74 | 0.00 | Upward |
| MW-42TZ | Transition Zone | 937.04 | 57.66 | 931.75 | | |
| MW-42TZ | Transition Zone | 937.04 | 57.66 | 931.75 | -0.01 | Upward |
| MW-42BR | Bedrock | 936.84 | 79.83 | 931.87 | | |
| MW-43S | Shallow | 938.17 | 23.84 | 934.08 | 0.00 | Downward |
| MW-43TZ | Transition Zone | 938.09 | 74.52 | 933.98 | | |
| MW-43TZ | Transition Zone | 938.09 | 74.52 | 933.98 | 0.01 | Downward |
| MW-43BR | Bedrock | 938.06 | 112.92 | 933.52 | | |
| MW-44TZ | Transition Zone | 938.06 | 24.96 | 922.12 | -0.01 | Upward |
| MW-44BR | Bedrock | 937.74 | 59.24 | 922.46 | | |
| MW-48S | Shallow | 932.80 | NM | 920.69 | -0.03 | Upward |
| MW-48TZ | Transition Zone | 932.72 | NM | 921.47 | | |

Prepared by: LWD Checked by: WTP

**Notes:**

Water levels were collected within a 24-hour period on 03/09/2021.

'---"- Indicates that data is not available or not applicable

BLS - below land surface

BTOC - below top of casing

ft - feet

NAVD 88 - North American Vertical Datum 1988

Vertical hydraulic gradients (Driscoll, 1986) according to the following equation:

$$i_v = \frac{h_d - h_s}{L_v}$$

Where:

$i_v$ = the vertical hydraulic gradient

$h_d$ = the hydraulic head in the deep well in the nested well pair

$h_s$ = the hydraulic head in the shallow well in the nested well pair

$L_v$ = the vertical distance between the midpoint of the two well screens

**TABLE 4-8**
**SUMMARY OF HORIZONTAL HYDRAULIC GRADIENTS AND FLOW VELOCITIES**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

**Shallow Zone**

| Area | Upgradient Potentiometric Surface Contour $h_1$ (ft-NAVD 88)[1] | Downgradient Potentiometric Surface Contour $h_2$ (ft-NAVD 88)[2] | K (ft/day)[3] | Δh (ft) | Δl (ft)[4] | Benzene Partition Coefficient ($K_d$) | Naphthalene Partition Coefficient ($K_d$) | $n_e$[5] | $v_s$ (ft/day) | $v_s$ (ft/yr) | Gradient (Δh/Δl) | Benzene Constituent Velocity (ft/yr)[6] | Naphthalene Constituent Velocity (ft/yr)[6] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parcel 1 | 934 | 932 | 5.40 | 2 | 108 | 0.25 | 4.76 | 0.35 | 0.285 | 104.11 | 0.02 | 47 | 4 |
| Parcel 2 | 928 | 926 | 5.40 | 2 | 55 | 0.25 | 4.76 | 0.35 | 0.559 | 203.93 | 0.04 | 93 | 8 |
| Parcel 3 | 924 | 922 | 5.40 | 2 | 59 | 0.25 | 4.76 | 0.35 | 0.523 | 190.80 | 0.03 | 87 | 8 |
| | | | | | | | | Geometric Mean | 0.437 | 159.41 | 0.03 | 72 | 7 |
| | | | | | | | | Average | 0.456 | 166.28 | 0.03 | 75 | 7 |

**Transition Zone**

| Area | Upgradient Potentiometric Surface Contour $h_1$ (ft-NAVD 88)[1] | Downgradient Potentiometric Surface Contour $h_2$ (ft-NAVD 88)[2] | K (ft/day)[3] | Δh (ft) | Δl (ft)[4] | Benzene Partition Coefficient ($K_d$)[7] | Naphthalene Partition Coefficient ($K_d$)[7] | $n_e$[5] | $v_s$ (ft/day) | $v_s$ (ft/yr) | Gradient (Δh/Δl) | Benzene Constituent Velocity (ft/yr)[6] | Naphthalene Constituent Velocity (ft/yr)[6] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parcel 1 | 932 | 930 | 1.53 | 2 | 192 | 0.25 | 4.76 | 0.3 | 0.053 | 19.43 | 0.01 | 8 | 1 |
| Parcel 2 | 926 | 924 | 1.53 | 2 | 141 | 0.25 | 4.76 | 0.3 | 0.073 | 26.46 | 0.01 | 11 | 1 |
| Parcel 3 | 924 | 922 | 1.53 | 2 | 113 | 0.25 | 4.76 | 0.3 | 0.090 | 32.87 | 0.02 | 14 | 1 |
| | | | | | | | | Geometric Mean | 0.070 | 25.67 | 0.01 | 11 | 1 |
| | | | | | | | | Average | 0.072 | 26.26 | 0.01 | 11 | 1 |

**Bedrock Zone**

| Area | Upgradient Potentiometric Surface Contour $h_1$ (ft-NAVD 88)[1] | Downgradient Potentiometric Surface Contour $h_2$ (ft-NAVD 88)[2] | K (ft/day)[3] | Δh (ft) | Δl (ft)[4] | Benzene Partition Coefficient ($K_d$)[8] | Naphthalene Partition Coefficient ($K_d$)[8] | $n_e$[5] | $v_s$ (ft/day) | $v_s$ (ft/yr) | Gradient (Δh/Δl) | Benzene Constituent Velocity (ft/yr)[9] | Naphthalene Constituent Velocity (ft/yr)[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parcel 1 | 934 | 932 | 0.354 | 2 | 105 | -- | -- | 0.01 | 0.674 | 246.09 | 0.02 | 246 | 246 |
| Parcel 2 | 930 | 928 | 0.354 | 2 | 121 | -- | -- | 0.01 | 0.584 | 213.02 | 0.02 | 213 | 213 |
| Parcel 3 | 926 | 924 | 0.354 | 2 | 125 | -- | -- | 0.01 | 0.569 | 207.55 | 0.02 | 208 | 208 |
| | | | | | | | | Geometric Mean | 0.607 | 221.59 | 0.02 | 222 | 222 |
| | | | | | | | | Average | 0.609 | 222.22 | 0.02 | 222 | 222 |

Prepared by: LWD Checked by: JPC

**Notes:**

[1] Potentiometric surface elevation shown corresponds to upgradient groundwater contour on **Figures 4-1** through **4-3**.
[2] Potentiometric surface elevation shown corresponds to downgradient groundwater contour on **Figures 4-1** through **4-3**.
[3] Value is the geometric mean of hydraulic conductivities measured in site monitoring wells.
[4] The length of a flow path between an upgradient and downgradient groundwater contour within the same flow zone.
[5] $n_e$ is an assumed effective porosity
[6] constituent velocity calculated as the seepage velocity devided by the retardation factor; the retardation factor was calculated using $K_d$, bulk density ($\rho_d$), and $n_e$
[7] partition coefficients calculated using the fraction organic carbon measured from samples collected from the shallow zone
[8] $K_d$ values could not be estimated for Benzene and Naphthalene because fraction organic carbon values are not available
[9] constituent velocity assumed to equal the groundwater seepage velocity because $K_d$ values could not be estimated and igneous and metamorphic rocks generally have greatly reduced fraction organic carbon and demonstrate limited retardation (ITRC, 2017)

ft - feet
h - potentiometric surface height in feet-NAVD 88
NAVD 88 - North American Vertical Datum 1988
yr - year
l - horizontal distance between two points on separate potentiometric surface contours along the groundwater-flow path
Δh - difference in potentiometric surface elevation between upgradient and downgradient potentiometric surface contours
Δl - horizontal distance between two points on separate potentiometric surface contours (upgradient and downgradient) along the groundwater-flow path
Δh/Δl - horizontal hydraulic gradient (ft/ft)
Horizontal gradients (Driscoll, 1986) for each flow zone were calculated according to the following equation:
K - horizontal hydraulic conductivity
$n_e$ - effective porosity
$v_s$ - horizontal seepage velocity
$K_d$ - calculated by multiplying the constituent Koc by the fraction organic carbon value
retardation factor - $1+(K_d*\rho_d)/n_e$
Benzene Koc - 62 (L/Kg)
Naphthalene Koc - 1191 (L/Kg)
Koc - organic carbon-water partitioning coefficient
fraction organic carbon for shallow zone - 0.004
bulk density ($\rho_d$) - 1.7 (Kg/L)
L/Kg - liters per kilogram
Kg/L - kilograms per liter

**TABLE 5-1**
**SUMMARY OF CONSTITUENT PHYSICAL AND CHEMICAL PROPERTIES**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| Analytical Parameter | Molecular Weight (g/mol) | Solubility (mg/L at 25 °C) | Density ($g/cm^3$) | Vapor Pressure (mm Hg at 25 °C) | Vapor Density | Boiling Point (°C) | Henry's Law Constant ($atm\text{-}m^3/mol$) | Organic Carbon Partition Coefficient (log $K_{oc}$) | Octanol-Water Partition Coefficient (log $K_{ow}$) | Octanol-Air Partition Coefficient (log $K_{oa}$) |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 78.11 | 1,790 | 0.88 | 94.8 | 2.8 | 80 | 0.01 | 1.79[1] | 2.13 | 2.78 |
| Toluene | 92.14 | 526 | 0.87 | 28.4 | 3.1 | 110.6 | 0.01 | 2.15[1] | 2.73 | 3.31 |
| Methylene chloride | 84.93 | 13,000 | 1.33 | 435 | 2.93 | 40 | 0.002 | 1.00[1] | 1.25 | 2.27 |
| Naphthalene | 128.17 | 31 | 1.16 | 0.085 | 4.42 | 217.9 | 0.000440 | 3.08[1] | 3.3 | 5.19 |
| Benzo(a)anthracene | 228.3 | 0.0094 | 1.274[*] | 2.10E-07 | -- | 437.6 | 1.20E-05 | 6.14[2] | 5.76 | -- |
| Benzo(b)fluoranthene | 252.3 | 0.0015 | 1.15[#] | 5.00E-07 | -- | 481 | 6.57E-07 | 5.74[2] | 5.78 | -- |
| Benzo(a)pyrene | 252.3[3] | 0.0038[3] | 1.351*[3] | 5.49E-09[3] | -- | 495[3] | <2.4E-06[3] | 5.60 to 6.29[2] | 5.99[3] | -- |
| Chrysene | 228.3 | 0.0020 | 1.3 | 6.23E-09 | -- | 448 | 5.23E-06 | 4.66[1] | 5.73 | -- |

Prepared by : JPC/EH Checked by:TAH

**Notes:**
All data is sourced from PubChem, unless otherwise noted. https://pubchem.ncbi.nlm.nih.gov/
[1] - log $K_{OC}$ values from Table K-1 and Table K-2 https://semspub.epa.gov/work/HQ/175223.pdf
[2] - log $K_{OC}$ values from Groundwater Chemicals Desk Reference, Montgomery and Welkom, 1990
[3] - values from Groundwater Chemicals Desk Reference, Montgomery and Welkom, 1990
[*] - density relative to water (density of water = 1 $g/cm^3$)
[#] - Source - https://www.chemicalbook.com/ChemicalProductProperty_US_CB5302581.aspx
-- - No data available
°C- degrees Celsius
$atm\text{-}m^3/mol$ - atmospheres per cubic meters per mole
$g/cm^3$ - grams per cubic centimeter
g/mol - grams per mole
mg/L - milligrams per liter
mm Hg - millimeters of mercury

**TABLE 5-2**
**SUMMARY OF MANN-KENDALL TREND ANALYSIS RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| Well ID | Analyte | Number of Samples | Non-Detects | Detects | Percent Non-Detects | Is Trend Analysis Applicable? | Two-Sided P Value | S Value | Trend Conclusion |
|---|---|---|---|---|---|---|---|---|---|
| MW-1 | Benzene | 12 | 0 | 12 | 0 | Yes | 6.41E-02 | -28 | Statistically significant decreasing trend |
| MW-2 | Benzene | 1 | 0 | 1 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-2BR | Benzene | 4 | 0 | 4 | 0 | Yes | 7.34E-01 | - | Stable, no significant trend |
| MW-2TZ | Benzene | 3 | 0 | 3 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-3 | Benzene | 8 | 2 | 6 | 25 | Yes | 3.19E-01 | - | Stable, no significant trend |
| MW-3BR | Benzene | 4 | 0 | 4 | 0 | Yes | 8.94E-02 | -6 | Statistically significant decreasing trend |
| MW-3BRL | Benzene | 3 | 0 | 3 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-5 | Benzene | 12 | 12 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-7R | Benzene | 3 | 0 | 3 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-9R | Benzene | 4 | 4 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-13R | Benzene | 4 | 4 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-15 | Benzene | 11 | 11 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-16 | Benzene | 11 | 11 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-18 | Benzene | 1 | 1 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-21 | Benzene | 21 | 1 | 20 | 5 | Yes | 6.51E-01 | - | Stable, no significant trend |
| MW-21BR | Benzene | 3 | 1 | 2 | 33 | No | - | - | Cannot Analyze for Trends |
| MW-21BRL | Benzene | 2 | 1 | 1 | 50 | No | - | - | Cannot Analyze for Trends |
| MW-22 | Benzene | 11 | 11 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-25R | Benzene | 19 | 19 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-26 | Benzene | 4 | 4 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-27 | Benzene | 4 | 4 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-28 | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-29BR | Benzene | 2 | 0 | 2 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-29S | Benzene | 4 | 4 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-29TZ | Benzene | 3 | 0 | 3 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-30S | Benzene | 4 | 4 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-30TZ | Benzene | 1 | 1 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-31S | Benzene | 5 | 5 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-31TZ | Benzene | 4 | 2 | 2 | 50 | No | - | - | Cannot Analyze for Trends |
| MW-32S | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-32TZ | Benzene | 2 | 2 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-33S | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-33TZ | Benzene | 2 | 2 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-34BR | Benzene | 3 | 0 | 3 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-34S | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-34TZ | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-35BR | Benzene | 2 | 2 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-35S | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-35TZ | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-36BR | Benzene | 2 | 2 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-36S | Benzene | 3 | 0 | 3 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-36TZ | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-37BR | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-37S | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-37TZ | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-38BR | Benzene | 2 | 2 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-38S | Benzene | 1 | 1 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-39BR | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-39BRL | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-39S | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-40BR | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-41BR | Benzene | 1 | 1 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-41TZL | Benzene | 1 | 1 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-41S | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-41TZ | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-42BR | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-42S | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-42TZ | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-43BR | Benzene | 2 | 2 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-43S | Benzene | 2 | 2 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-43TZ | Benzene | 2 | 2 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-44TZ | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-45BR | Benzene | 2 | 0 | 2 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-46BR | Benzene | 3 | 1 | 2 | 33 | No | - | - | Cannot Analyze for Trends |
| MW-47BR | Benzene | 2 | 0 | 2 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-48S | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-48TZ | Benzene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-49BR | Benzene | 1 | 0 | 1 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-1 | Naphthalene | 12 | 0 | 12 | 0 | Yes | 1.91E-01 | - | Stable, no significant trend |
| MW-2 | Naphthalene | 1 | 0 | 1 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-2BR | Naphthalene | 4 | 0 | 4 | 0 | Yes | 1.00E+00 | - | Stable, no significant trend |
| MW-2TZ | Naphthalene | 3 | 0 | 3 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-3 | Naphthalene | 8 | 1 | 7 | 12 | Yes | 2.66E-01 | - | Stable, no significant trend |
| MW-3BR | Naphthalene | 4 | 0 | 4 | 0 | Yes | 7.34E-01 | - | Stable, no significant trend |
| MW-3BRL | Naphthalene | 3 | 0 | 3 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-5 | Naphthalene | 12 | 11 | 1 | 92 | No | - | - | Cannot Analyze for Trends |
| MW-7R | Naphthalene | 3 | 0 | 3 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-9R | Naphthalene | 4 | 4 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-13R | Naphthalene | 4 | 4 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-15 | Naphthalene | 11 | 11 | 0 | 100 | No | - | - | Cannot Analyze for Trends |

**TABLE 5-2**
**SUMMARY OF MANN-KENDALL TREND ANALYSIS RESULTS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| Well ID | Analyte | Number of Samples | Non-Detects | Detects | Percent Non-Detects | Is Trend Analysis Applicable? | Two-Sided P Value | S Value | Trend Conclusion |
|---|---|---|---|---|---|---|---|---|---|
| MW-16 | Naphthalene | 11 | 11 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-18 | Naphthalene | 1 | 1 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-21 | Naphthalene | 21 | 5 | 16 | 24 | Yes | 3.16E-03 | -98 | Statistically significant decreasing trend |
| MW-21BR | Naphthalene | 3 | 1 | 2 | 33 | No | - | - | Cannot Analyze for Trends |
| MW-21BRL | Naphthalene | 2 | 0 | 2 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-22 | Naphthalene | 11 | 10 | 1 | 91 | No | - | - | Cannot Analyze for Trends |
| MW-25R | Naphthalene | 19 | 19 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-26 | Naphthalene | 4 | 4 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-27 | Naphthalene | 4 | 4 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-28 | Naphthalene | 3 | 2 | 1 | 67 | No | - | - | Cannot Analyze for Trends |
| MW-29BR | Naphthalene | 2 | 0 | 2 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-29S | Naphthalene | 4 | 4 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-29TZ | Naphthalene | 3 | 0 | 3 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-30S | Naphthalene | 4 | 3 | 1 | 75 | No | - | - | Cannot Analyze for Trends |
| MW-30TZ | Naphthalene | 1 | 1 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-31S | Naphthalene | 5 | 4 | 1 | 80 | No | - | - | Cannot Analyze for Trends |
| MW-31TZ | Naphthalene | 4 | 3 | 1 | 75 | No | - | - | Cannot Analyze for Trends |
| MW-32S | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-32TZ | Naphthalene | 2 | 1 | 1 | 50 | No | - | - | Cannot Analyze for Trends |
| MW-33S | Naphthalene | 3 | 2 | 1 | 67 | No | - | - | Cannot Analyze for Trends |
| MW-33TZ | Naphthalene | 2 | 2 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-34BR | Naphthalene | 3 | 0 | 3 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-34S | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-34TZ | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-35BR | Naphthalene | 2 | 2 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-35S | Naphthalene | 3 | 2 | 1 | 67 | No | - | - | Cannot Analyze for Trends |
| MW-35TZ | Naphthalene | 3 | 2 | 1 | 67 | No | - | - | Cannot Analyze for Trends |
| MW-36BR | Naphthalene | 2 | 2 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-36S | Naphthalene | 3 | 0 | 3 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-36TZ | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-37BR | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-37S | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-37TZ | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-38BR | Naphthalene | 2 | 2 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-38S | Naphthalene | 1 | 1 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-39BR | Naphthalene | 3 | 2 | 1 | 67 | No | - | - | Cannot Analyze for Trends |
| MW-39BRL | Naphthalene | 3 | 2 | 1 | 67 | No | - | - | Cannot Analyze for Trends |
| MW-39S | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-40BR | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-41BR | Naphthalene | 1 | 1 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-41TZL | Naphthalene | 1 | 1 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-41S | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-41TZ | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-42BR | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-42S | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-42TZ | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-43BR | Naphthalene | 2 | 1 | 1 | 50 | No | - | - | Cannot Analyze for Trends |
| MW-43S | Naphthalene | 2 | 2 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-43TZ | Naphthalene | 2 | 2 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-44TZ | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-45BR | Naphthalene | 2 | 0 | 2 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-46BR | Naphthalene | 3 | 0 | 3 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-47BR | Naphthalene | 2 | 0 | 2 | 0 | No | - | - | Cannot Analyze for Trends |
| MW-48S | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-48TZ | Naphthalene | 3 | 3 | 0 | 100 | No | - | - | Cannot Analyze for Trends |
| MW-49BR | Naphthalene | 1 | 0 | 1 | 0 | No | - | - | Cannot Analyze for Trends |

Prepared by: RSB Checked by: JPC

**Notes:**

- Highlighted cells indicate that the well data set is statistically applicable.

Detection limits were adjusted in accordance with USEPA guidelines.

**TABLE 5-3**
**SUMMARY OF MONITORED NATURAL ATTENUATION ANALYTICAL PARAMETERS**
**REMEDIAL INVESTIGATION REPORT ADDENDUM**
**FORMER BRAMLETTE MGP SITE**
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**

| Well ID | Hydrostratigraphic Unit | Depth | Sample Collection Date | pH | Temperature | Specific Conductance | Dissolved Oxygen | Oxidation Reduction Potential | Turbidity | Benzene | Naphthalene | Dissolved Iron | Total Iron | Dissolved Manganese | Total Manganese | Sulfate | Sulfide | Total Organic Carbon | Location of Monitoring Well |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (ft bls) | | S.U. | Deg C | µmhos/cm | mg/L | mV | NTUs | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | mg/L | mg/L | mg/L | |
| MW-13R | Shallow | 10 - 20 | 3/11/2021 | 4.36 | 18 | 124 | 0.42 | 88 | 0.8 | < 1.0 | < 1.0 ^ | < 50.0 | < 50.0 | **296** | **314** | **34** | < 0.10 | **0.83 j** | Upgradient of the existing shallow groundwater plume. |
| MW-29S | Shallow | 5 - 15 | 3/15/2021 | 6.92 | 14 | 653 | 0.16 | 19 | 4.2 | < 1.0 | < 1.0 ^ | **528** | **705** | **154** | **165** | **18.3** | < 0.10 | **3.7** | Sidegradient of the existing shallow groundwater plume. |
| MW-21 | Shallow | 5 - 18 | 3/17/2021 | 7.05 | 11 | 433 | 0.56 | 21 | 0.5 | **0.62 j** | **1.2 ^** | **2040** | **2070** | **98** | **104** | **22.3** | < 0.10 | **3.2** | Within the southern portion of the dissolved phase shallow plume. |
| MW-15 | Transition Zone | 50 - 55 | 3/11/2021 | 5.67 | 18 | 125 | 4.22 | 59 | 2.6 | < 1.0 | < 1.0 ^ | < 50.0 | **160** | < 5.0 | **3.7 j** | **2** | < 0.10 | < 1.0 | Upgradient of the existing transition zone groundwater plume. |
| MW-39BR | Bedrock | 45 - 50 | 3/17/2021 | 7.31 | 12 | 416 | 0.68 | -57 | 3.3 | < 1.0 | < 1.0 ^ | **1690** | **1860** | **108** | **114** | **35.7** | < 0.10 | **0.62 j** | Sidegradient of the existing transition zone groundwater plume. |
| MW-29TZ | Transition Zone | 26 - 31 | 3/15/2021 | 6.73 | 15 | 374 | 0.39 | -32 | 3.5 | **1600** | **1750 M1^** | **8420** | **10400** | **114** | **121** | < 1.0 | < 0.10 | **8** | Within the northern portion of the dissolved phase transition zone plume. |
| MW-31TZ | Transition Zone | 28 - 38 | 3/10/2021 | 6.02 | 20 | 341 | 0.29 | 27 | 5.9 | **0.40 j** | < 1.0 ^ | **6570** | **16200 M1** | **4700** | **4840 M1** | **10.3** | < 0.10 | **2.4** | Downgradient of the dissolved phase transition zone plume. |
| MW-43BR | Bedrock | 110 - 115 | 3/11/2021 | 9.62 | 17 | 270 | 0.71 | -31 | 9.8 | < 1.0 | **2.3 ^** | **379** | **836** | **41.7** | **46.6** | **12.3** | **1.6** | **22.2** | Upgradient of the existing lower bedrock plume. |
| MW-28 | Bedrock | 35 - 45 | 3/11/2021 | 5.91 | 20 | 177 | 0.9 | 40 | 9.4 | < 1.0 | < 1.0 ^ | **445** | **539** | **162** | **163** | **20.2** | < 0.10 | **< 1.0 M1** | Upgradient of the existing bedrock groundwater plume. |
| MW-39BRL | Bedrock | 75 - 80 | 3/17/2021 | 10.76 | 12 | 1968 | 0.43 | -41 | 8 | < 1.0 | < 1.0 ^ | **52.2** | **91.8** | **7.8** | **4.8 j** | **586** | **0.54** | **51.7** | Upgradient of the existing bedrock groundwater plume. |
| MW-38BR | Bedrock | 42 - 47 | 3/16/2021 | 7.62 | 11 | 274 | 0.2 | 30 | 1.9 | < 1.0 | < 1.0 ^ | < 50.0 | < 50.0 | **11.9** | **12.6** | **10.3** | < 0.10 | **2.7** | Upgradient of the dissolved phase lower bedrock plume. |
| MW-46BR | Bedrock | 170 - 180 | 3/16/2021 | 8.75 | 12 | 284 | 0.3 | -151 | 9.9 | < 1.0 | **11.4 ^** | **260** | **348** | **6.3** | **7.4** | **4.2** | **0.51** | **4.1** | Within the upgradient portion of the dissolved phase lower bedrock plume |
| MW-29BR | Bedrock | 81 - 86 | 3/15/2021 | 9.42 | 16 | 320 | 0.32 | -17 | 1.6 | **214** | **250 ^** | < 50.0 | **71.6** | < 5.0 | < 5.0 | **0.56 j** | < 0.10 | **0.97 j** | Within the central portion of the dissolved phase transition zone plume. |
| MW-45BR | Bedrock | 80 - 90 | 3/16/2021 | 10.97 | 8 | 693 | 0.79 | 29 | 5.6 | **142** | **172 ^** | **10900** | **64.3** | **83.9** | < 5.0 | **118** | **0.1** | **22.8** | Within the central portion of the dissolved phase transition zone plume. |
| MW-47BR | Bedrock | 110 - 120 | 3/16/2021 | 12.65 | 11 | 5814 | 1.01 | 1 | 6.8 | **194** | **1630 ^** | **79.7** | **159** | < 5.0 | < 5.0 | **24.1** | < 0.10 | **35.2** | Within the central portion of the dissolved phase deep bedrock plume. |
| MW-44BR | Bedrock | 50 - 60 | 3/10/2021 | 9.8 | 21 | 196 | 0.29 | 45 | 27.8 | < 1.0 | < 1.0 ^ | **384** | **494** | **21.4** | **21.4** | **1.7** | < 0.10 | **1.8** | West of Reedy River |

Prepared by: EMH Checked by: LWD

**Notes:**
- Red shading indicates that the monitoring well is screened in the shallow zone
- Green shading indicates that the monitoring well is screened in the transition zone
- Yellow shading indicates that the monitoring well is screened in the bedrock zone

**Bold** type indicates that the compound was detected at a concentration greater than the adjusted method detection limit.
^ - Sample analyzed by EPA Method 8260D
< - Concentration not detected at or above the adjusted reporting limit.
bls - below land surface
Deg C - degrees Celsius
ft - feet
j - Estimated concentration above the adjusted method detection limit and less than the adjusted reporting limit.
M1 - Matrix spike recovery was high: the associated Laboratory Control Spike (LCS) was acceptable.
µg/L - micrograms per liter
µmhos/cm - micromhos per centimeter
mg/L - milligrams per liter
mV - millivolts
NTUs - Nephelometric Turbidity units
S.U. - standard units