# State of South Carolina

# Annual Ambient Air Monitoring Network Plan

## July 1, 2024 – December 31, 2025

SC DEPARTMENT *of*
ENVIRONMENTAL
SERVICES

Bureau of Air Quality

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## Certification

This document contains the planned changes and final description of the sites, monitors, and samplers of the South Carolina Ambient Air Monitoring Network (Monitoring Network) for criteria pollutants and related parameters for the eighteen-month period of July 1, 2024 through December 31, 2025. The South Carolina Department of Environmental Services (Department) certifies that the network described herein meets or exceeds the minimum requirements needed to support the State Implementation Plan, national air quality assessments, and policy decisions as required in 40 Code of Federal Regulations (CFR) Part 58, Ambient Air Quality Surveillance, at the time of submittal to the U.S. Environmental Protection Agency (EPA), Region 4. Due to circumstances that may arise during the implementation of the Network Plan from July 1, 2024 through December 31, 2025, some elements of the network may require modification. A notification of modifications will be posted on the Department website and provided to the EPA Region 4 office. Where necessary, a request for approval of deviations from this Network Plan and supporting documentation will be submitted to the EPA Region 4 office.

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## Acronyms

AADT – Annual Average Daily Traffic
AQI – Air Quality Index
AQS – Air Quality System
CBSA – Core-Based Statistical Area
CFR – Code of Federal Regulation
CO – Carbon Monoxide
CPW – Charleston Public Works
CSA – Combined Statistical Area
CSN – Chemical Speciation Network
DAQA – Department of Air Quality Analysis
DJJ – Department of Juvenile Justice
DNPH – Analysis method using 2,4-dinitrophenylhydrazine
EPA – Environmental Protection Agency
ESC – Employment Security Commission
EtO – Ethylene Oxide
FDMS – Filter Dynamics Measurement System
FEM – Federal Equivalent Method
FRM – Federal Reference Method
GC/MS – Gas Chromatography / Mass Spectroscopy
HPLC – High Performance Liquid Chromatography
IC – Ion Chromatography
IMPROVE – Interagency Monitoring of Protected Visual Environments
ICP/MS – Inductively Coupled Plasma Mass Spectroscopy
ID – Site Identification
JCI – Johnson Controls Incorporated
MET – Meteorology
MOA – Memorandum of Agreement
Monitoring Network – South Carolina Ambient Air Monitoring Network
MSA – Metropolitan Statistical Area
mSA – Micropolitan Statistical Area
$\mu g/m^3$ – Micrograms per cubic meter
NAAQS – National Ambient Air Quality Standards
NATTS – National Air Toxics Trends Site
NCFS – North Charleston Fire Station
NCore – National Core Monitoring Network
Network Plan – South Carolina Annual Ambient Air Monitoring Network Plan
NO – Nitric Oxide
$NO_2$ – Nitrogen Dioxide
$NO_X$ – Nitrogen Oxides
$NO_y$ – $NO_X$ and other oxidized species
NPAP – National Performance Audit Program
NWR – National Wildlife Refuge
OMB – Office of Management and Budget
PAMS – Photochemical Assessment Monitoring Stations
PEP – Performance Evaluation Program
$PM_{2.5}$ – Particulate Matter ≤ 2.5 microns
$PM_{10}$ – Particulate Matter ≤ 10 microns
PPB – Parts Per Billion
PPM – Parts Per Million
PTFE – Polytetrafluoroethylene
PUF – Polyurethane Foam
PWEI – Population Weighted Emissions Index
QA – Quality Assurance
QAPP – Quality Assurance Project Plan
QC – Quality Control
SCC – Sharp Cut Cyclone
SCDES – South Carolina Department of Environmental Services
SLAMS – State and Local Air Monitoring Station
$SO_2$ – Sulfur Dioxide
SPM – Special Purpose Monitor
STN – Speciation Trends Network
SVOC – Semi-volatile Organic Compound
TAD – Technical Assistance Document
TEOM – Tapered Element Oscillating Microbalance

TPY – Tons Per Year
TSP – Total Suspended Particulate
UV – Ultraviolet
VOC – Volatile Organic Compound
VSCC – Very Sharp Cut Cyclone

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## Summary of Changes for July 1, 2024 through December 31, 2025

**Augusta-Richmond County, GA-SC MSA**
Trenton Monitoring Site – The rotational SPM $SO_2$ monitor was discontinued on December 31, 2023.

**Charleston-North Charleston MSA**
Cape Romain Monitoring Site – The SPM $NO_2$ monitor was discontinued on December 31, 2023.

**Charlotte-Concord-Gastonia, NC-SC MSA**
York Landfill Monitoring Site – The York Landfill Monitoring Site began operating a SPM rotating $SO_2$ monitor on January 1, 2024.

**Columbia MSA**
No changes planned.

**Florence MSA**
No changes planned.

**Greenville-Anderson-Greer MSA**
On July 21, 2023, OMB changed the MSA name from the Greenville-Anderson MSA to the Greenville-Anderson-Greer MSA.
No changes planned.

**Hilton Head Island-Bluffton-Port Royal MSA**
On July 21, 2023, OMB changed the MSA name from the Hilton Head Island-Bluffton MSA to the Hilton Head Island-Bluffton-Port Royal MSA.
No changes planned.

**Myrtle Beach-Conway-North Myrtle Beach SC MSA**
On July 21, 2023, OMB removed Brunswick County, North Carolina from this MSA. The Department has started the process of finding an appropriate Site for a second ozone monitor in the MSA.

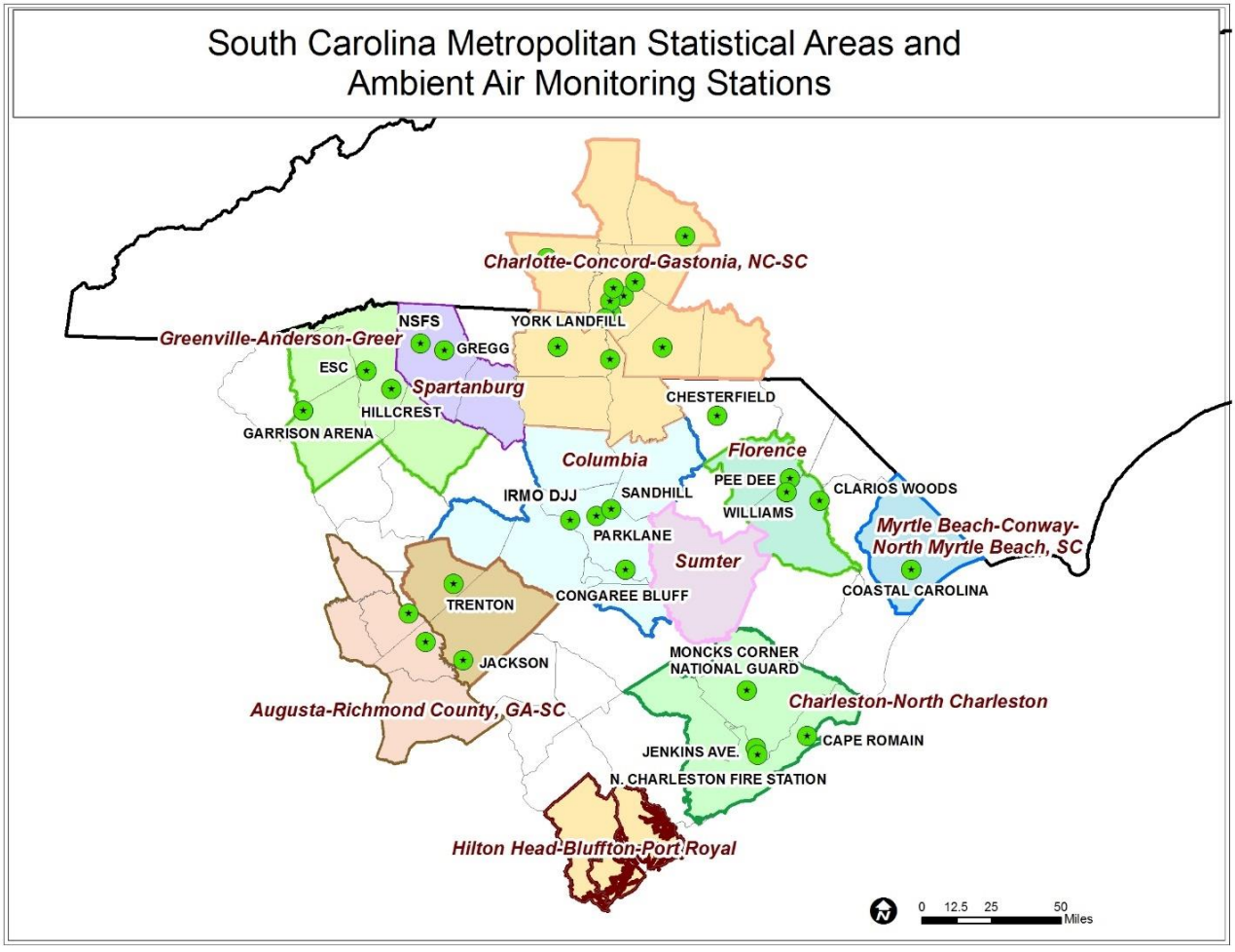
**Spartanburg MSA**
On July 21, 2023, OMB added Union County to the Spartanburg MSA. A second ozone monitor is now required. The Department is investigating possible locations for the new Site.

**Sumter MSA**
No changes planned.

**Remainder of State**
No changes planned.

## Introduction

The Department or its predecessors have operated an air quality monitoring network in South Carolina since 1959. During that time, the network has continually evolved to meet the requirements and needs of the Department's Air Program and to comply with federal requirements. In 2024-2025, the network within South Carolina will be comprised of 60 monitors and samplers at 21 sites. The South Carolina Monitoring Sites can be seen in the map below.



***The Annual Ambient Air Monitoring Network Plan***

On October 17, 2006, the EPA published revisions to the ambient monitoring regulations (71 FR 61298) requiring quality assurance (QA), monitor designations, minimum requirements for both number and distribution of monitors among metropolitan statistical areas (MSAs), and probe siting changes. The regulations also included the requirement for the submission of an annual monitoring network plan and 5-year periodic network assessments.

This document constitutes the 2024-2025 South Carolina Annual Ambient Air Monitoring Network Plan (2024 Network Plan) and covers the eighteen-month period from July 1, 2024, through December 31, 2025. This 2024 Network Plan, as required and described in 40 CFR 58.10, and Periodic Network Assessment, must contain the following information for each monitoring station in the network:

- The Air Quality System (AQS) site identification number (ID) for existing stations,
- Location of each monitoring station, including street address and geographical coordinates,
- The sampling and analysis method used for each measured parameter,
- The operating schedule for each monitor,
- Any proposal to remove or relocate a monitoring station within a period of eighteen months following the network plan submittal,
- The monitoring objective and spatial scale of representativeness for each monitor,
- The identification of any sites that are suitable for comparison against the Particulate Matter < 2.5 microns ($PM_{2.5}$) National Ambient Air Quality Standard (NAAQS), and
- The MSA, Core-Based Statistical Area (CBSA), Combined Statistical Area (CSA), or other area represented by the monitor.

Each MSA and their monitoring sites are listed in the Site Description section. They are organized into two main parts:

- Network Summaries: A table which presents the total number of sites and monitors for the State and a list of all proposed changes to the current network, as well as descriptions of the monitoring network for each pollutant, and
- Air Monitoring Station Descriptions: An outline of the designations, parameters, monitoring methods, and the purpose for each monitor at the site.

The Monitoring Network is reviewed annually, and any planned changes are described in the annual Network Plan. Network Plans go through a 30-day public

review and comment period prior to submission to the EPA Region 4 Administrator.

***Public Participation Opportunities***

In response to public interest, prior to publication of documents, the Department solicits involvement from both internal (the Department) and external workgroups about the potential impact of the monitoring changes. Opportunities for public involvement include:

- A webpage maintained for public review of draft publications, and access to current monitoring plan, reference documents, and announcements.[1]
- The proposed 2024 Network Plan was available for public review and comment from April 26, 2024, through May 28, 2024. All public comments received are summarized and addressed in Appendix B of the final 2024 Network Plan submitted to the EPA.

The Department is committed to the continuation of opportunities for input and participation in the development of the annual revisions of the Network Plan and the periodic assessments of the air quality surveillance system.

***Environmental Justice***

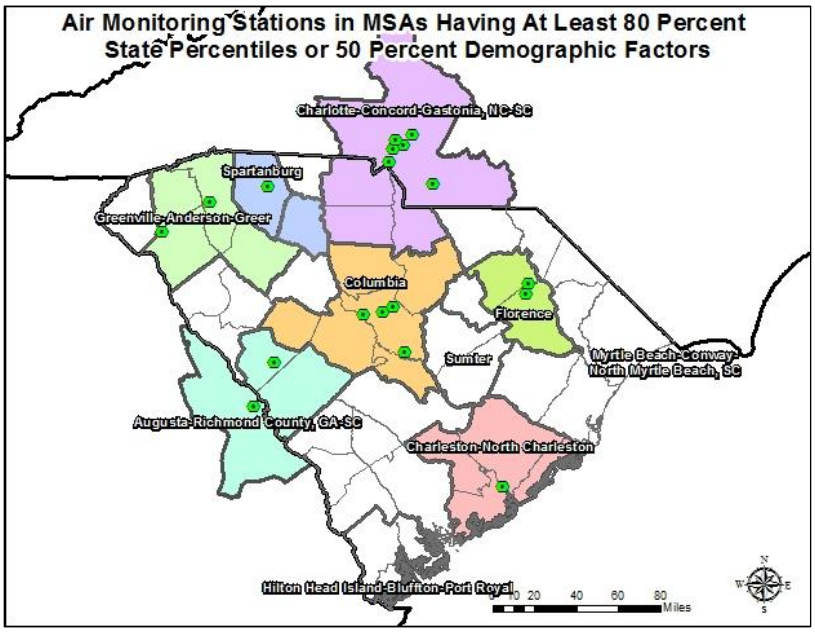
Environmental Justice (EJ), as defined by the EPA is "the just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, tribal affiliation, or disability, in agency decision-making and other Federal activities that affect human health and the environment so that people:

- are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and
- have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices".

The EPA developed the Environmental Justice Screening and Mapping Tool (EJSCREEN) to combine environmental and demographic indicators in maps and reports based on national data. The Department has adopted the use of the EPA's Environmental

[1] https://gis.dhec.sc.gov/monitors/

Justice Screening and Mapping Tool to conduct a preliminary EJ assessment when considering monitoring issues. The map below indicates there are seven MSAs that have monitoring sites in areas that have either a high state percentile (80 percentile or above) or a high percent of demographic indicators (50 percent or above).




***South Carolina Ambient Air Monitoring***

South Carolina monitors for criteria pollutants, air toxics, meteorology, and precipitation. The following sections explain the role that the CBSA and MSA population and design values have in ambient air monitoring.

***Population, MSAs, and Design Values***

The EPA regulation 40 CFR Part 58 requires each state to maintain a minimum number of ambient air monitors to properly characterize air quality and to meet any required objectives of the air monitoring network.[2] In general, ambient air monitoring requirements are based on the Metropolitan Statistical Area (MSA) population, emissions, and current ambient air monitoring design values.

In July 2023, the Office of Management and Budget released the newest lists of MSAs and their associated counties. Modifications in the MSA delineations include the changes listed below.

- The Myrtle Beach-North Myrtle Beach MSA no longer includes Brunswick, North

[2] 40 CFR 58.11 paragraph (a)(3)(c) and Appendix D to 40 CFR Part 58.

Carolina.

- The Spartanburg MSA now includes Union and Spartanburg Counties.
- The name of the Greenville-Anderson MSA was changed to the Greenville-Greenville-Anderson-Greer, SC MSA, and
- The name of the Hilton Head-Bluffton MSA was changed to Hilton Head Island-Bluffton-Port Royal, SC MSA.

The current South Carolina MSA names, associated counties, and populations are listed below. An MSA's total population is derived by adding the separate populations of all the counties.

| **2023 South Carolina MSAs and Shared MSAs with Counties and Populations** | |
|---|---|
| **MSA Name and Counties Included in MSA** | **Population** |
| **Augusta-Richmond County, GA-SC MSA**<br>Burke County, GA<br>Columbia County, GA<br>Lincoln County, GA<br>McDuffie County, GA<br>Richmond County, GA<br>Aiken County, SC<br>Edgefield County, SC | **624,083** |
| **Charleston-North Charleston, SC MSA**<br>Berkeley County, SC<br>Charleston County, SC<br>Dorchester County, SC | **830,529** |
| **Charlotte-Concord-Gastonia, NC-SC MSA**<br>Anson County, NC<br>Cabarrus County, NC<br>Gaston County, NC<br>Iredell County, NC<br>Lincoln County, NC<br>Mecklenburg County, NC<br>Rowan County, NC<br>Union County, NC<br>Chester County, SC<br>Lancaster County, SC<br>York County, SC | **2,756,069** |
| **Columbia, SC MSA** | **847,686** |

| 2023 South Carolina MSAs and Shared MSAs with Counties and Populations | |
|---|---|
| **MSA Name and Counties Included in MSA** | **Population** |
| Calhoun County, SC<br>Fairfield County, SC<br>Kershaw County, SC<br>Lexington County, SC<br>Richland County, SC<br>Saluda County, SC | |
| **Florence, SC MSA**<br>Darlington County<br>Florence County | **199,119** |
| **Greenville-Anderson-Greer, SC MSA**<br>Anderson County, SC<br>Greenville County, SC<br>Laurens County, SC<br>Pickens County, SC | **958,958** |
| **Hilton Head Island-Bluffton-Port Royal, SC MSA**<br>Beaufort County, SC<br>Jasper County, SC | **228,410** |
| **Myrtle Beach-Conway-North Myrtle Beach, SC MSA**<br>Horry County, SC | **383,101** |
| **Spartanburg, SC MSA**<br>Spartanburg County, SC<br>Union County, SC | **372,825** |
| **Sumter, SC MSA**<br>Sumter County, SC | **134,925** |

South Carolina has one MSA (Augusta-Richmond County, GA-SC) shared with Georgia and one MSA (Charlotte-Concord-Gastonia, NC-SC MSA) shared with North Carolina. In cooperation with the State of South Carolina. Each of the two States have signed Memorandum of Agreements (MOA), which specifies the responsibilities of each party to develop a monitoring network that meets the appropriate monitoring objectives for the shared MSAs. The MOAs (located in Appendix F) are with the Georgia Department of Natural Resources Environmental Protection Division,[3] the North

[3] The Memorandum of Agreement on Air Quality Monitoring for Criteria Pollutants for the Augusta-Richmond County Metropolitan Statistical Area (MSA) was signed on March 6, 2017, by the South Carolina Bureau of Air Quality and the Georgia Environmental Protection Division-Air Protection Branch.

Carolina Department of Environmental Quality Division of Air Quality, and Mecklenburg County, North Carolina Land Use and Environmental Services Agency[4].

Once the MSA boundaries are determined by OMB and their populations are calculated, the ambient air monitors are established at ambient air monitoring sites within the MSAs as determined by federal regulations and EPA guidance for each pollutant.

***Network Operation and Summary***

The Division of Air Quality Analysis (DAQA) in the Bureau of Regional and Laboratory Services has the primary responsibility for the establishment, maintenance, and operation of the monitoring network using the EPA designated Federal Reference Method (FRM) or Federal Equivalent Method (FEM) to ensure the precision and accuracy of the measurements across the air quality surveillance system. They also analyze the samples collected as a part of routine monitoring or special projects and verify the network data to be accurate. This data is reported to the national AQS database for storage and public access.

It is the Department's intent that all criteria pollutant monitors and samplers be sited and operated in accordance with all requirements of 40 CFR Part 58, Appendix A, C, D, and E. Appendix G is also discussed below.

**Appendix A**: As specified in Appendix A, regular calibrations, flow verifications, and QC checks of the measurement systems are performed to verify that the instruments are operating correctly, and data being collected is accurate. All monitors and samplers are calibrated at least once per year. Calibration is also performed whenever the monitor/sampler fails a bi-weekly Quality Control (QC)/precision check or multi-point check, when maintenance is performed that may affect the monitor response, or if the monitor is located away from the building in which it was calibrated. If possible, a QC/precision check or flow check should precede any maintenance that would affect monitor response.

The QA activities supporting the Monitoring Network meet or exceed the QA requirements defined in 40 CFR Part 58, Appendix A (Quality Assurance Requirements

[4] The Memorandum of Agreement on Air Quality Monitoring for Criteria Pollutants for the Charlotte-Gastonia-Concord Metropolitan Statistical Area (MSA) was signed on July 1, 2016, by the South Carolina Bureau of Air Quality, the North Carolina Department of Environmental and Natural Resources-Division of Air Quality and the Mecklenburg County, North Carolina Land Use and Environmental Service Agency-Air Quality.

for SLAMS and SPM Air Monitoring). Raw data is collected hourly from sites across the state and provided to internal data users (forecasters and data analysts) and to the AIRNow database for presentation to the public. Ozone monitors provide hourly data during Ozone Season (March 1-October 31).

Before the data is submitted to AQS, it is verified to be accurate through review of the instrument QC and QA performance documentation. Instrument QA/QC alone is not sufficient to assure monitoring data quality. In addition to periodic site assessments, the Department conducts additional visits to monitoring sites to document comparisons with applicable siting criteria.

**Appendix C**: All criteria pollutant monitoring in the monitoring networks for comparison to the NAAQS is performed using the EPA designated FRM or FEM.

**Appendix D**: All criteria pollutant monitoring in the monitoring networks meets the monitoring objectives, spatial scales, and design criteria of this Appendix.

**Appendix E**: Each site description page in this document contains a statement addressing compliance to 40 CFR Part 58, Appendix E for State and Local Air Monitoring Station (SLAMS) monitors. If the site is not in compliance, a plan is presented to address the deficiency. For special purpose monitor (SPM) monitors, 40 CFR 58.20 states that compliance is optional, but monitoring organizations are encouraged to meet as many of the Appendix E requirements as possible.

**Appendix G**: The Air Quality Index (AQI) reporting is required if an MSA has a population over 350,000 people. Although not required, the Florence MSA also reports AQI values. The following MSAs report AQI values:

- Charlotte-Concord-Gastonia, NC-SC MSA
- Greenville-Anderson-Greer MSA
- Columbia MSA
- Charleston-North Charleston MSA
- Augusta-Richmond County, GA-SC MSA
- Myrtle Beach-Conway-North Myrtle Beach MSA
- Spartanburg MSA
- Florence MSA

The Mecklenburg County Air Quality reports AQI values for the Charlotte-Concord-Gastonia, NC-SC MSA. Both the Georgia Environmental Protection Division (GA EPD) and the Department report AQI values for the Augusta-Richmond County GA-SC MSA.

Finally, the DAQA operates under the approved Environmental Quality Control Quality Assurance Management Plan, the Ambient Air Quality Monitoring Quality Assurance Project Plan, and approved plans for specific projects. The EPA Region 4 office may conduct audits of any component of the operation of the network or quality management system. The DAQA also participates in the National Performance Audit Program (NPAP) and the Performance Evaluation Program (PEP) administered by the EPA to provide independent audits.

***The NAAQS and Design Values***

Although all monitoring measurement equipment may be referred to as monitors, there are actually two types of monitoring equipment. A "monitor" samples for data continuously, while a "sampler" monitors intermittently (e.g. once daily (1:1), once every 3 days (1:3), or once every 6 days (1:6)).

Once the monitors collect enough data (1 or 3 years, depending on criteria pollutant), a design value can be calculated and compared to the EPA established NAAQS, which are shown in the table below. The "Primary/Secondary" column in the table refers to the type of standard. A criteria pollutant may have more than one type of standard. The primary standards are for protection of the public's health, while the secondary standards are for the protection of animals, crops, vegetation, and buildings. The "Averaging Time" is how the data is combined and calculated. The "Level" is the NAAQS standard. The "Form" are additional requirements to calculate the standard.

| Pollutant | Primary/ Secondary | Averaging Time | Level | Form |
|---|---|---|---|---|
| Carbon Monoxide (CO) | Primary | 8 hours | 9 ppm | Not to be exceeded more than once per year |
| | | 1 hour | 35 ppm | |
| Lead (Pb) | Primary and Secondary | Rolling 3-month average | 0.15 $\mu g/m^3$ | Not to be exceeded |
| Nitrogen Dioxide ($NO_2$) | Primary | 1 hour | 100 ppb | 98$^{th}$ percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| | Primary and Secondary | 1 year | 53 ppb | Annual mean |
| Ozone ($O_3$) | Primary and Secondary | 8 hours | 0.070 ppm | Annual fourth-highest daily maximum 8-hour concentration averaged over 3 years |
| $PM_{2.5}$ | Primary | 1 year | 9.0 $\mu g/m^3$ | Annual mean, averaged over 3 years |

| Pollutant | Primary/ Secondary | Averaging Time | Level | Form |
|---|---|---|---|---|
| | Secondary | 1 year | 15.0 µg/$m^3$ | Annual mean, averaged over 3 years |
| | Primary and Secondary | 24 hours | 35 µg/$m^3$ | 98$^{th}$ percentile averaged over 3 years |
| $PM_{10}$ | Primary and Secondary | 24 hours | 150 µg/$m^3$ | Not to be exceeded more than once per year |
| Sulfur Dioxide ($SO_2$) | Primary | 1 hour | 75 ppb | 99$^{th}$ percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| | Secondary | 3 hours | 0.5 ppm | Not to be exceeded more than once per year |

The criteria pollutant design values are calculated each year and compared to the standards to determine whether the MSA is in attainment for that criteria pollutant. The two tables presented below indicate the 2022 and 2023 certified design values for the South Carolina criteria pollutant monitoring network.

***2022 Criteria Pollutant Design Values***

| Site ID | County | Site Name | Ozone (ppm) | $PM_{2.5}$ Annual ($\mu g/m^3$) | $PM_{2.5}$ 24-hour ($\mu g/m^3$) | $PM_{10}$ (# Expected Exceedances) | $SO_2$ 1-hour (ppb) | $NO_2$ 1-hour (ppb) | $NO_2$ Annual (ppb) | CO 8-hour (ppm) | CO 1-hour (ppm) | Lead ($\mu g/m^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 003-0003 | Aiken | Jackson Middle School | .058 | | | | | | | | | |
| 007-0006 | Anderson | Garrison Arena | .058 | | | | | | | | | |
| 015-1002 | Berkeley | Moncks Corner | .057 | | | | | | | | | |
| 019-0003 | Charleston | Jenkins Avenue | | | | 0* | 12 | 31* | 6.33 | | | |
| 019-0046 | Charleston | Cape Romain | .057* | | | | 3* | 11* | 1.3 | | | |
| 019-0048 | Charleston | FAA | | 7.2 | 17 | | | | | | | |
| 025-0001 | Chesterfield | Chesterfield | .059 | 6.4 | 14 | | | | | | | |
| 031-0003 | Darlington | Pee Dee | .057 | | | | | | | | | |
| 037-0001 | Edgefield | Trenton | .058 | 7.5 | 17 | | | | | | | |
| 041-0003 | Florence | Williams Middle School | | 7.4 | 15 | | | | | | | |

| Site ID | County | Site Name | Ozone (ppm) | $PM_{2.5}$ Annual ($\mu g/m^3$) | $PM_{2.5}$ 24-hour ($\mu g/m^3$) | $PM_{10}$ (# Expected Exceedances) | $SO_2$ 1-hour (ppb) | $NO_2$ 1-hour (ppb) | $NO_2$ Annual (ppb) | CO 8-hour (ppm) | CO 1-hour (ppm) | Lead ($\mu g/m^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 041-8003 | Florence | JCI Woods | | | | | | | | | | .15 |
| 045-0015 | Greenville | Greenville ESC | | 8.0 | 19 | 0 | 2 | 37 | 6.84 | | | |
| 045-0016 | Greenville | Hillcrest Middle School | .064 | 7.4 | 17 | | | | | | | |
| 051-0008 | Horry | Coastal Carolina | .058 | | | | | | | | | |
| 063-0008 | Lexington | Irmo | | 7.9 | 19 | | | | | | | |
| 063-0010 | Lexington | Cayce City Hall | | | | 0* | | | | | | |
| 079-0007 | Richland | Parklane | .058 | 6.9 | 15 | | 2 | | | 1 | 1 | |
| 079-0021 | Richland | Congaree Bluff | .055 | | | | | | | | | |
| 079-1001 | Richland | Sandhill | .061 | | | | | 28* | 3.5 | | | |
| 083-0009 | Spartanburg | North Spartanburg Fire Station | .063 | | | | | | | | | |
| 083-0011 | Spartanburg | T.K. Gregg | | 8.1 | 19 | | | | | | | |

| Site ID | County | Site Name | Ozone (ppm) | $PM_{2.5}$ Annual ($\mu g/m^3$) | $PM_{2.5}$ 24-hour ($\mu g/m^3$) | $PM_{10}$ (# Expected Exceedances) | $SO_2$ 1-hour (ppb) | $NO_2$ 1-hour (ppb) | $NO_2$ Annual (ppb) | CO 8-hour (ppm) | CO 1-hour (ppm) | Lead ($\mu g/m^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 091-0008 | York | York County Landfill | .059 | | | | 2 | | | | | |
| *denotes design values that did not meet data completeness requirements | | | | | | | | | | | | |

***2023 Criteria Pollutant Design Values***

| Site ID | County | Site Name | Ozone (ppm) | $PM_{2.5}$ Annual ($\mu g/m^3$) | $PM_{2.5}$ 24-hour ($\mu g/m^3$) | $PM_{10}$ (# Expected Exceedances) | $SO_2$ 1-hour (ppb) | $NO_2$ 1-hour (ppb) | $NO_2$ Annual (ppb) | CO 8-hour (ppm) | CO 1-hour (ppm) | Lead ($\mu g/m^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 003-0003 | Aiken | Jackson Middle School | .062 | | | | | | | | | |
| 007-0006 | Anderson | Garrison Arena | .062 | | | | | | | | | |
| 015-1002 | Berkeley | Moncks Corner | .060 | | | | | | | | | |
| 019-0003 | Charleston | Jenkins Avenue | | | | | 10 | 32* | 6.58 | | | |
| 019-0046 | Charleston | Cape Romain | .058 | | | | | 11* | 1.23 | | | |
| 025-0001 | Chesterfield | Chesterfield | .060 | 7.0 | 18 | | | | | | | |
| 031-0003 | Darlington | Pee Dee | .062 | | | | | | | | | |

| Site ID | County | Site Name | Ozone (ppm) | $PM_{2.5}$ Annual ($\mu g/m^3$) | $PM_{2.5}$ 24-hour ($\mu g/m^3$) | $PM_{10}$ (# Expected Exceedances) | $SO_2$ 1-hour (ppb) | $NO_2$ 1-hour (ppb) | $NO_2$ Annual (ppb) | CO 8-hour (ppm) | CO 1-hour (ppm) | Lead ($\mu g/m^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 037-0001 | Edgefield | Trenton | .059 | 8.1 | 18 | | | | | | | |
| 041-0003 | Florence | Williams Middle School | | 8.2 | 19 | | | | | | | |
| 041-8003 | Florence | Clarios Woods | | | | | | | | | | .04* |
| 045-0015 | Greenville | Greenville ESC | | 8.4 | 19 | 0 | 2 | 39* | 6.76 | | | |
| 045-0016 | Greenville | Hillcrest Middle School | .066 | 7.9 | 19 | | | | | | | |
| 051-0008 | Horry | Coastal Carolina | .063 | | | | | | | | | |
| 079-0007 | Richland | Parklane | .062 | 7.4 | 17 | | 2 | | | 1 | 1 | |
| 079-0021 | Richland | Congaree Bluff | .057 | | | | | | | | | |
| 079-1001 | Richland | Sandhill | .065 | | | | | 29* | 3.24 | | | |
| 083-0009 | Spartanburg | North Spartanburg Fire Station | .065 | | | | | | | | | |
| 083- | Spartanburg | T.K. Gregg | | 8.4 | 20 | | | | | | | |

| Site ID | County | Site Name | Ozone (ppm) | $PM_{2.5}$ Annual ($\mu g/m^3$) | $PM_{2.5}$ 24-hour ($\mu g/m^3$) | $PM_{10}$ (# Expected Exceedances) | $SO_2$ 1-hour (ppb) | $NO_2$ 1-hour (ppb) | $NO_2$ Annual (ppb) | CO 8-hour (ppm) | CO 1-hour (ppm) | Lead ($\mu g/m^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0011 | | | | | | | | | | | | |
| 091-0008 | York | York County Landfill | .064 | | | | | | | | | |
| * denotes design values that did not meet data completeness requirements | | | | | | | | | | | | |

***Required Minimum Monitoring Summary***

Based on the latest MSA population data and design values information, the minimum monitoring requirements for each MSA are:

| MSA | Ozone | $PM_{2.5}$ | $PM_{2.5}$ Cont. | $PM_{10}$ | Lead | $SO_2$ | $NO/NO_y/NO_2$ | CO |
|---|---|---|---|---|---|---|---|---|
| **Augusta-Richmond County, GA-SC MSA | 2 | 2 | 1 | 1-2 | 0 | 0 | 0 | 0 |
| Charleston-North Charleston MSA | 2 | 1 | 1 | 1-2 | 0 | 1 | 0 | 0 |
| **Charlotte-Concord-Gastonia, NC-SC MSA | 2 | 3 | 2 | 2-4 | 0 | 1 | 4*** | 2 |
| Columbia MSA (NCore) | 2 | 1 | 1 | 1-2 | 0 | 1 | 1 | 1 |
| Florence MSA | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Greenville-Anderson-Greer MSA | 2 | 2 | 1 | 1-2 | 0 | 0 | 1 | 0 |
| Hilton Head Island-Bluffton-Port Royal MSA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Myrtle Beach-Conway-North Myrtle Beach, SC MSA | 2 | 0 | 0 | 0-1 | 0 | 0 | 0 | 0 |
| Spartanburg MSA | 2 | 1 | 1 | 0-1 | 0 | 0 | 0 | 0 |
| Sumter MSA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*United States Census Bureau population estimates and 40 CFR Part 58, Appendix D.
**Minimum ambient air monitoring requirements are met cooperatively with the States of Georgia and North Carolina.
***The Charlotte-Concord-Gastonia MSA is required to have two near-road monitors, one area-wide monitor, and a $NO_y$ at the NCore site.

South Carolina also measures air toxics and meteorology. The table below summarizes the 2024-2025 Ambient Air Monitoring Network.

| **Network Summary: Calendar Year July 1, 2024, through December 31, 2025, Air Monitoring Stations and Monitors** | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | Sites | $PM_{2.5}$ Intermittent | $PM_{2.5}$ Continuous | $PM_{2.5}$ Speciation | $PM_{10}$ | Lead | Ozone | $SO_2$ | $NO_2/NO/NO_y$ | CO | Metals | Carbonyls | SVOC | VOC | EtO | Precipitation Chem. | Precipitation | Meteorology |
| *Augusta-Richmond County, GA-SC MSA | 2 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Charleston-North Charleston MSA | 4 | 2 | 2 | 0 | 1 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| *Charlotte-Concord-Gastonia, NC-SC MSA | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Columbia MSA | 4 | 3 | 2 | 1 | 2 | 0 | 3 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| Florence MSA | 3 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Greenville-Anderson-Greer MSA | 3 | 3 | 1 | 0 | 1 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Myrtle Beach-Conway-North Myrtle Beach, SC MSA | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spartanburg MSA | 2 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Remainder of State | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 1 | 0 | 0 | 0 |
| **Totals** | **21** | **12** | **10** | **1** | **4** | **2** | **14** | **4*** | **4** | **1** | **2** | **2** | **2** | **2** | **1** | **1** | **1** | **2** |

*Minimum ambient air monitoring requirements are met cooperatively with the States of Georgia and North Carolina.
**These monitors have been selected to run on a rotational schedule in order to best utilize resources,

***Monitoring Network Descriptions***

The following sections describe each South Carolina Monitoring Network, including the location of each monitor, how the network meets the required objectives, and how the pollutant is measured.

**Carbon Monoxide (CO) Network**

CO is a colorless, odorless gas that can be harmful when inhaled in large amounts. CO is released when something is burned.

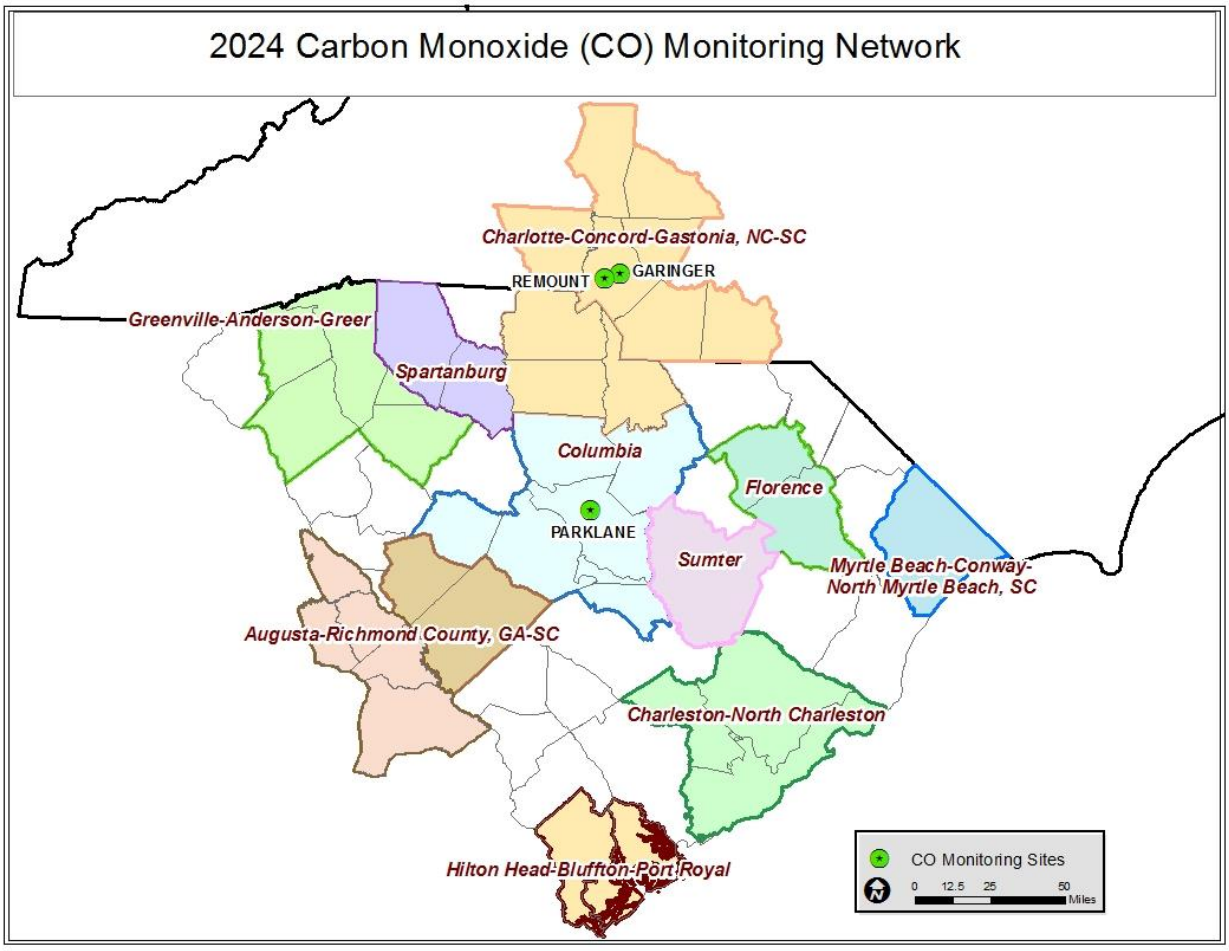
CO has a one-hour NAAQS of 35 ppm and an eight-hour NAAQS of 9 ppm.

*Minimum Requirements –*

The CO minimum monitoring criteria has two requirements:

1) Near-road CO Monitors – Each state with CBSAs having a population of 1,000,000 or more people must have one CO monitor collocated with one required near-road $NO_2$ monitor to be operational by January 1, 2017. The Charlotte-Concord-Gastonia, NC-SC MSA is the only CBSA in South Carolina that meets the population requirement for a collocated CO monitor. The Mecklenburg County Air Quality office operates a CO monitor at the Remount Road Monitoring Site in Charlotte, North Carolina that became operational on January 1, 2017.
2) NCore Requirement – Each NCore site in a CBSA with a population of 500,000 or more must include a CO monitor. The Parklane Monitoring Site in the Columbia, SC MSA is the NCore site for South Carolina and supports one CO monitor. The Garinger Monitoring Site in Mecklenburg County is also an NCore site for the Charlotte-Concord-Gastonia, NC-SC MSA and supports a CO monitor.

The CO Monitoring Network Map below indicates the location and the 2023 design values.




*Analytical Methods* –

FRM non-dispersive infrared correlation monitors are used for continuous monitoring of CO concentrations in ambient air. CO monitors are operated in accordance with SCDES's Quality Assurance Project Plan for Ambient Air Quality Monitoring. Data is stored locally on redundant data acquisition systems and recovered hourly by the DAQA central office computer system (AirVision).

## Lead Network

Lead may be found in small quantities naturally in the environment or produced in man-made products like gasoline or paint. Exposure to lead can cause neurological damage.

The lead minimum monitoring criteria has one requirement: that any facility with annual lead emissions exceeding 0.5 tons per year (tpy) will be required to have a lead sampler. Based on the state-submitted 2014 National Emissions Inventory, there are no facilities in South Carolina with lead emissions greater than 0.5 tpy.

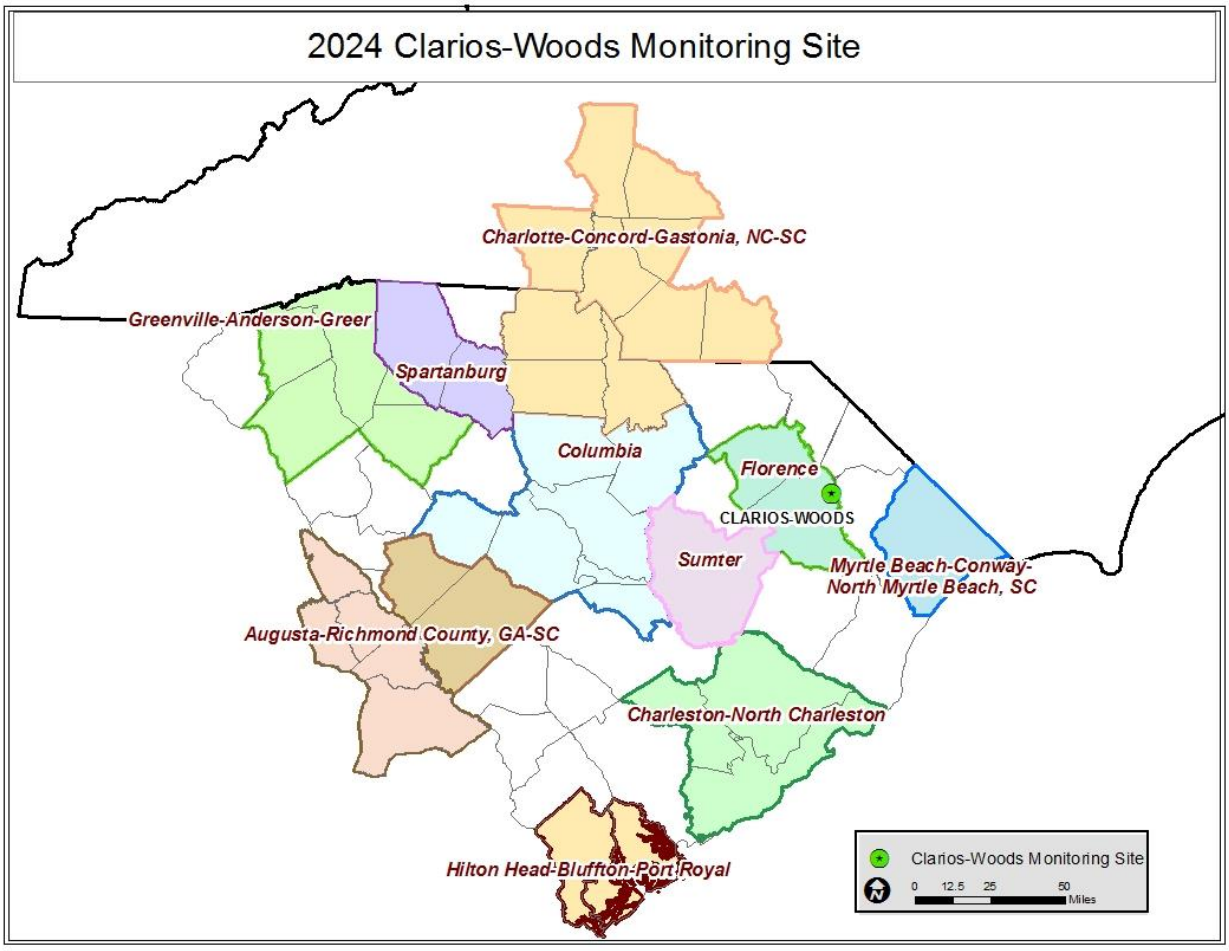
*Court Ordered Monitoring* –
On May 7, 2010, the Department issued an air synthetic minor construction permit to Johnson Controls Battery Group for the Florence Recycling Center (Permit No. 1040-0129-CA). The company has since been purchased by Clarios, LLC. Originally, under a settlement agreement[5] with several petitioners, the Florence Recycling Center had to support source-oriented ambient lead monitoring conducted by the Department at three sites around the facility. The Monitoring Sites were originally called JCI-Entrance, JCI-Railroad, and JCI-Woods. Additional details of the monitoring of this facility can be found in the Florence MSA section of this monitoring plan under the Monitoring Site name Clarios-Woods. Clarios ceased production at the Florence Recycling Center as of March 22, 2021. The Department discontinued monitoring at the JCI Railroad and JCI Entrance Monitoring Sites on November 8, 2021. The Department is continuing to monitor lead at the Clarios-Woods Monitoring Site.

*Analytical Methods* –
Lead samples are collected using high volume total suspended particulate (TSP) samplers. Lead samplers are operated in accordance with the Department's Quality Assurance Project Plan for Johnson Controls Recycling Center (Clarios) Lead Monitoring Project. Lead filter samples are sent to an EPA contract laboratory for extraction and analysis of concentrations. Particulate samples are extracted using hot block acid digestion and analyzed by Inductively Coupled Plasma Mass Spectroscopy (ICP/MS).

The Clarios-Woods Monitoring Site Location Map below indicates the location and

[5] https://scdhec.gov/sites/default/files/docs/HomeAndEnvironment/Docs/JCI/JCI-Settlement%20Agreement_07142010.pdf

the 2023 design value.




**Nitrogen Dioxide Network**

Nitrogen Dioxide ($NO_2$) is a highly reactive gas that is used as an indicator for the larger group of nitrogen oxides. $NO_2$ in the air primarily comes from burning fossil fuels. Breathing air with a high concentration of $NO_2$ can cause respiratory issues.

Nitrogen Dioxide has a one-hour NAAQS of 100 ppb and an annual mean NAAQS of 53 ppb.

*Minimum Requirements* –

The $NO_2$ minimum monitoring criteria has four requirements:

1) Near-road $NO_2$ Monitors – Each state must have one microscale near-road $NO_2$ monitoring site in each CBSA with a population of at least 1,000,000 or more persons. An additional near-road $NO_2$ monitoring site is required for any CBSA

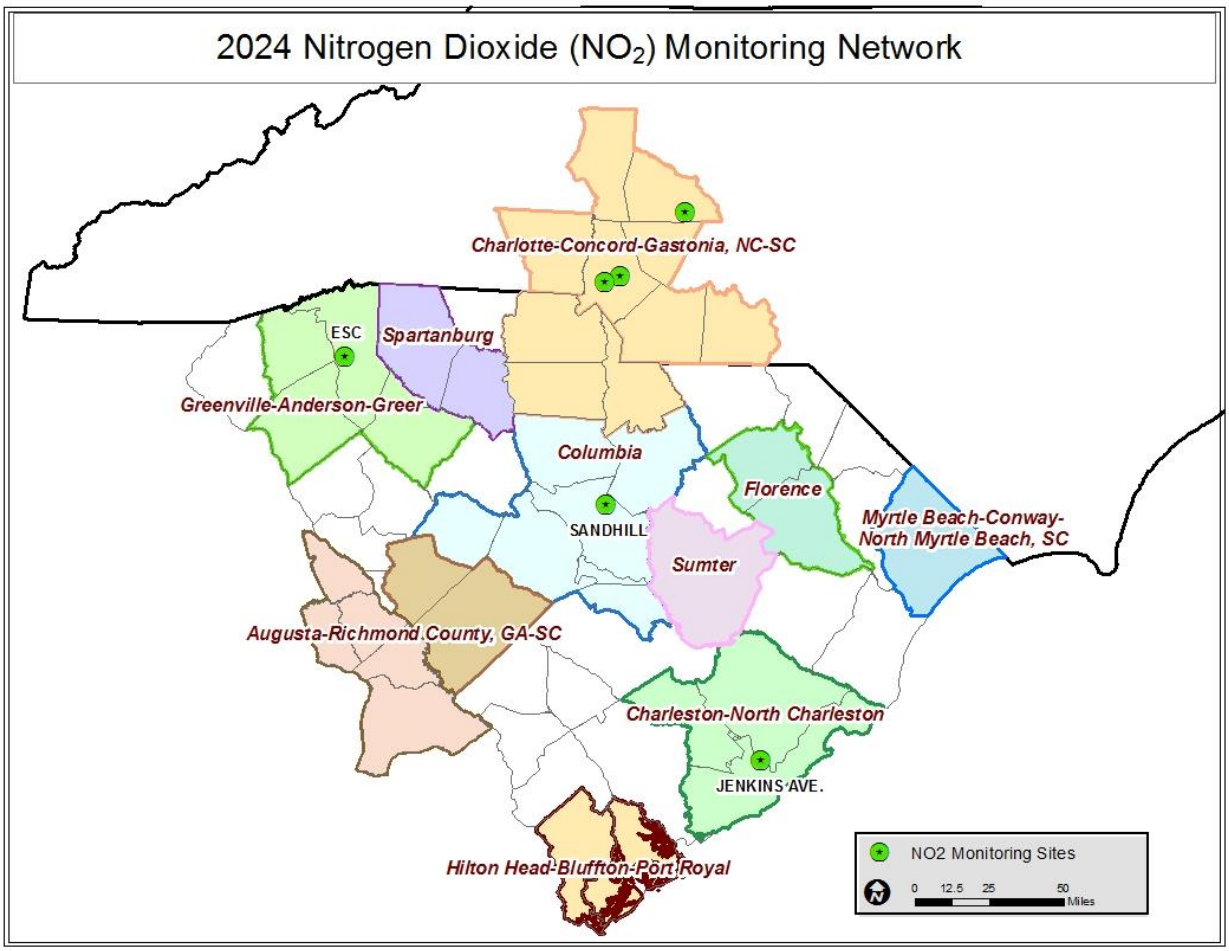
with a population of 2,500,000 or more, or in any CBSA with a population of 1,000,000 or more that has one or more roadway segments with 250,000 or greater Annual Average Daily Traffic (AADT) counts. The Charlotte-Gastonia-Concord NC-SC MSA meets the population requirement of at least 2,500,000 or more persons. The first near-road site is the Remount Road Monitoring Site located in Charlotte, North Carolina. The second near-road monitoring site is the Equipment Drive Monitoring Site, which is also located in Charlotte, North Carolina. It may start operation in 2024.

2) Area-Wide $NO_2$ Monitoring – Each state must have one monitoring site in each CBSA with a population of 1,000,000 or more persons which will monitor a location of expected highest $NO_2$ concentrations representing the neighborhood or larger spatial scales. The Garinger High School and Rockwell Monitoring Sites in the Charlotte-Gastonia-Concord, NC-SC MSA operate area wide $NO_2$ monitors.

3) Regional Administrator Required Monitoring – The Regional Administrators, in collaboration with states, require a minimum of forty additional $NO_2$ monitoring sites above the minimum monitoring requirements (nationwide) in any area, with a primary focus on siting these monitors in locations to protect susceptible and vulnerable populations. The Greenville ESC Monitoring Site is a Regional Administrator Required Monitoring site.

4) NCore Requirement ($NO/NO_y$ Monitoring) – Each NCore site must include a $NO/NO_y$ monitor that will collect data to be used to produce conservative estimates for $NO_2$ and further ozone research. The Parklane Monitoring Site in Columbia, South Carolina is the NCore site for South Carolina. The Garinger High School Monitoring Site in Mecklenburg County is also an NCore site for the Charlotte-Concord-Gastonia, NC-SC MSA and supports a $NO/NO_y$ monitor.

The $NO_2$ Monitoring Network Map below indicates the location and the 2023 design values.




*Analytical Methods –*

Nitrogen Dioxide ($NO_2$) – The FRM gas-phase chemiluminescence monitors are used for continuous monitoring of $NO_2$ concentrations in ambient air. The FRM gas-phase chemiluminescence $NO_2$ monitors directly measure NO and indirectly measure both $NO_2$ and $NO_X$. The $NO_2$ monitors are operated in accordance with the Department's Quality Assurance Project Plan for Ambient Air Quality Monitoring. The continuous data output from the instrument is stored locally on redundant data acquisition systems and recovered hourly by a central office computer system (AirVision).

**Sulfur Dioxide Network**

$SO_2$ is a gas and is used as an indicator for the larger group of sulfur oxides. The largest source of $SO_2$ in the atmosphere is the burning of fossil fuels by power plants and other industrial facilities. Short-term exposures to $SO_2$ can harm the respiratory

system and make breathing difficult.

Sulfur dioxide only has one NAAQS of 75 ppb.

*Minimum Requirements* –
The $SO_2$ minimum monitoring criteria has three requirements:

> Monitoring by the Population Weighted Emissions Index – The population weighted emissions index (PWEI) is determined using the most current population of each CBSA and the most recent level of $SO_2$ emissions for each county within the CBSA. The emissions data is available from the National Emissions Inventory. For any CBSA with a calculated PWEI value equal to or greater than 1,000,000, a minimum of three $SO_2$ monitors are required. For any CBSA with a calculated PWEI value equal to or greater than 100,000, but less than 1,000,000, a minimum of two $SO_2$ monitors are required. For any CBSA with a calculated PWEI value equal to or greater than 5,000, but less than 100,000, a minimum of one $SO_2$ monitor is required.
>
> The following table presents each CBSA's 2023 population, 2017 $SO_2$ emissions, calculated index, and minimum monitoring requirements. The process for calculating the index can be found at the bottom of the table.

| CBSA | 2023 CBSA Population | 2017 CBSA $SO_2$ Emissions (Tons) | PWEI | $SO_2$ Minimum Monitors Required |
|---|---|---|---|---|
| *Charlotte-Concord-Gastonia, NC-SC | 2,756,069 | 5603 | 15,442 | 1 |
| Greenville-Anderson-Greer, SC | 958,958 | 720 | 690 | 0 |
| Columbia, SC | 847,686 | 3,679 | 3,119 | 0 |
| Charleston-North Charleston, SC | 830,529 | 8,128 | 6,751 | 1 |
| *Augusta-Richmond County, GA-SC | 624,083 | 2,058 | 1,284 | 0 |
| Myrtle Beach-Conway-North Myrtle Beach, SC | 383,101 | 185 | 71 | 0 |
| Spartanburg, SC | 372,825 | 506 | 189 | 0 |
| Hilton Head Island- | 228,410 | 363 | 83 | 0 |

| CBSA | 2023 CBSA Population | 2017 CBSA $SO_2$ Emissions (Tons) | PWEI | $SO_2$ Minimum Monitors Required |
|---|---|---|---|---|
| Bluffton-Port Royal, SC | | | | |
| Florence, SC | 199,119 | 1,855 | 369 | 0 |
| Sumter, SC | 134,925 | 143 | 19 | 0 |

The PWEI is calculated using the latest US Census population data and state emission inventory data at the CBSA level. The population for each CBSA is multiplied by the CBSA total $SO_2$ emissions (reported in tons using the latest National Emissions Inventory data). This product is divided by 1,000,000 to derive the index. A CBSA with index greater than 1,000,000 will require three monitors. CBSA with index less than 1,000,000 but greater than 100,000 will require two monitors. CBSA with index less than 100,000 but greater than 5,000 will require one monitor. CBSA with index less than 5,000 will require no monitors.
*Monitors may be operated in the non-South Carolina portion of the CBSA.

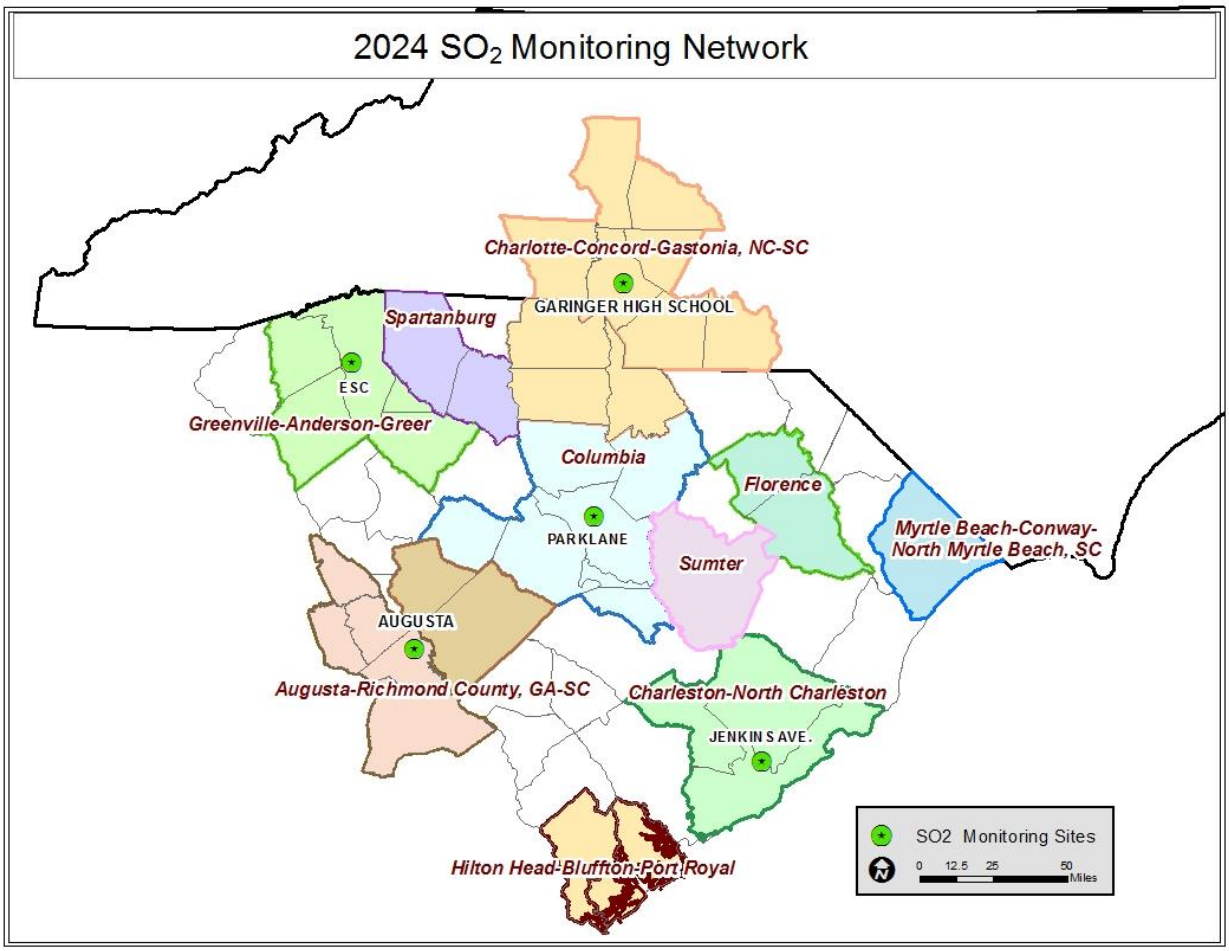
In the Charleston-North Charleston MSA, the Jenkins Ave. Fire Station Monitoring Site hosts the required $SO_2$ monitor. The Department also operates an additional SLAMS monitor in the Greenville ESC Monitoring Site located in the Greenville-Anderson-Greer MSA.

1) Regional Administrator Required Monitoring – The Regional Administrator may require additional $SO_2$ monitoring sites above the minimum number of monitors required by the PWEI in areas that have the potential to have high $SO_2$ concentrations, in areas impacted by sources which are not conducive to modeling, or in locations with susceptible and vulnerable populations that are not otherwise being monitored. South Carolina does not have any $SO_2$ Regional Administrator Required Monitoring.

2) NCore Requirement – Each NCore site must include an $SO_2$ monitor. The Parklane Monitoring Site in Columbia, South Carolina is the NCore site for South Carolina. The Garinger High School Monitoring Site in Mecklenburg County is also an NCore site for the Charlotte-Concord-Gastonia, NC-SC MSA and supports a $SO_2$ monitor.

The Department also operates two additional rotating SPM $SO_2$ monitors at the Trenton Monitoring Site and the York Landfill Monitoring Site. Each monitor operates for approximately two consecutive years. The York Monitoring Site is scheduled to operate an $SO_2$ monitor in 2024 and 2025.

The $SO_2$ Monitoring Network Map below indicates the location and the 2023 design values.




*Analytical Methods* –
The FEM ultraviolet (UV) fluorescence monitors are used for continuous monitoring of $SO_2$ concentrations in ambient air. $SO_2$ monitors are operated in accordance with the Department's Quality Assurance Project Plan for Ambient Air Quality Monitoring. The continuous data output from the instrument is stored locally on redundant data acquisition systems and recovered hourly by central office computer system (AirVision).

**Ozone Network**
Ground level ozone is created by chemical reactions between nitrogen oxides ($NO_X$) and volatile organic compounds (VOC) in the presence of sunlight. Breathing in high levels of ozone can cause respiratory issues, especially in vulnerable populations, the elderly, and children.

Ozone has one eight-hour three-year design value NAAQS level that is 0.070 ppm.

*Minimum Requirements* –
The ozone minimum monitoring criteria has two requirements:

1) Required Ozone SLAMS Sites – A minimum number of required ozone SLAMS sites for each CBSA that is determined by CBSA population and the peak ozone concentrations.

2) NCore Requirement – Each NCore site must include an ozone monitor. The Parklane Monitoring Site in Columbia, South Carolina is the NCore site for South Carolina. The Garinger High School Monitoring Site in Mecklenburg County is also an NCore site for the Charlotte-Concord-Gastonia, NC-SC MSA and supports an ozone monitor.

The number of required ozone SLAMS sites for each CBSA and the site where each monitor is located is summarized below.

*Augusta-Richmond County GA-SC* – Two required monitors
Two SLAMS monitors are located at the Jackson Middle School and Trenton Sites. Two additional SLAMS sites are operated in Georgia by the Georgia Environmental Protection Division: Augusta Monitoring Site and Evans Monitoring Site.

*Charleston-North Charleston, SC* – Two required monitors
The two required SLAMS monitors are located at the Moncks Corner National Guard and Cape Romain Monitoring Sites.

*Charlotte-Concord-Gastonia, NC-SC* – Two required monitors
South Carolina operates one of the required monitors at the York Landfill Monitoring Site. Five additional SLAMS monitors for the CBSA are located in the Charlotte Metro area and are operated by the North Carolina Department of Air Quality and Mecklenburg County Air Quality. These Sites include ozone monitors at the Crouse, Garinger, University Meadows, Rockwell, and Monroe Monitoring Sites.

*Columbia, SC MSA* – Two required monitors
The two required SLAMS monitors are located at the Parklane and Sandhill Monitoring Sites. There is an additional ozone SPM at the Congaree Bluff Monitoring Site.

*Florence, SC MSA* – One required monitor
The required SLAMS monitor is located at the Pee Dee Experimental Station Monitoring Site.

*Greenville-Anderson-Greer, SC MSA* – Two required monitors
The two required SLAMS monitors are located at the Garrison Arena and Hillcrest Monitoring Sites.

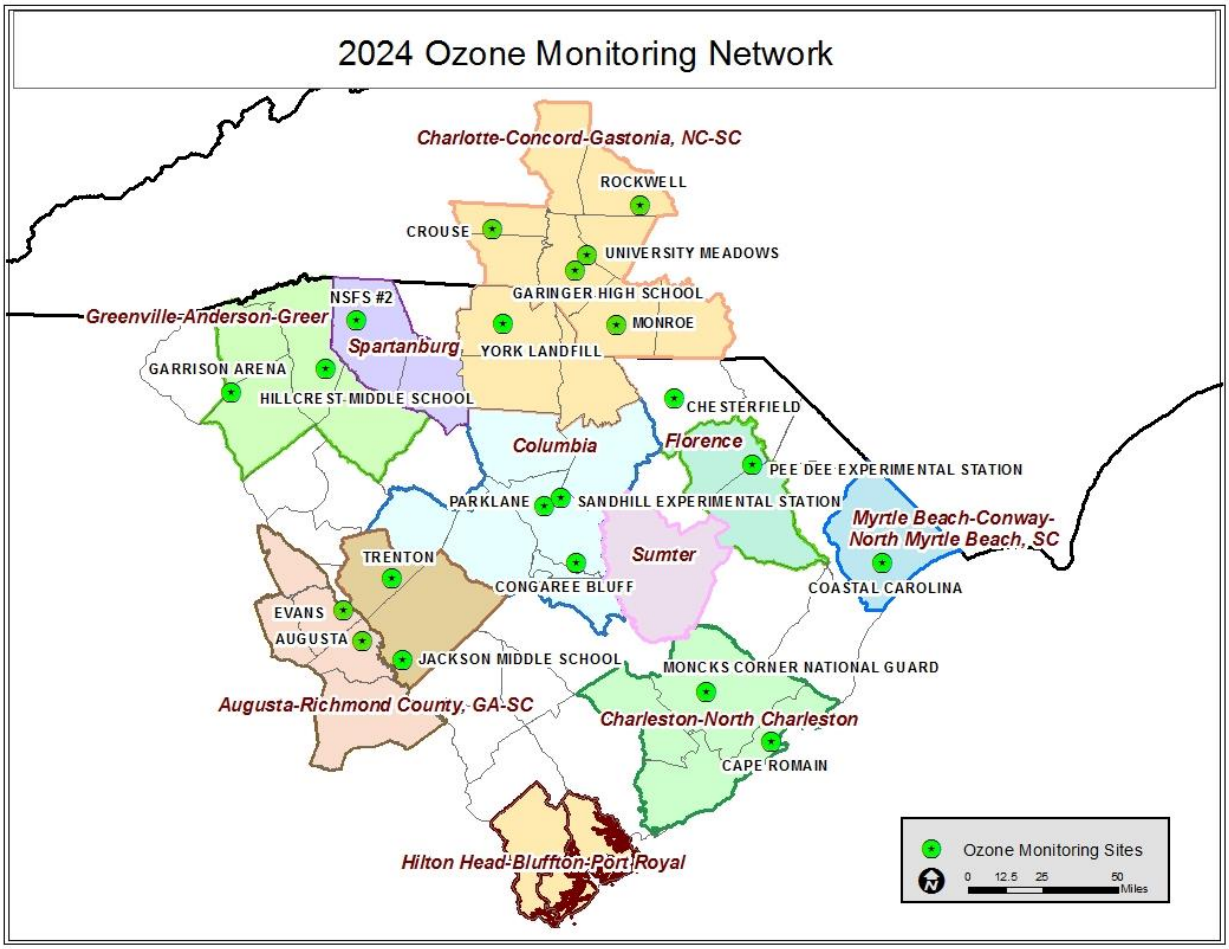
*Hilton Head Island-Bluffton-Port Royal, SC MSA* – No required monitors

*Myrtle Beach-North Myrtle Beach-Conway, SC MSA* – Two required monitors
One required SLAMS monitor is located at the Coastal Carolina Monitoring Site. The Department has started the process of finding an appropriate site for a second ozone monitor in the MSA.

*Spartanburg, SC MSA* – Two required monitors
One required monitor is located at the North Spartanburg Fire Station Monitoring Site. The Department is currently in the process of finding an appropriate location for the second ozone monitoring site.

*Sumter, SC MSA* – No required monitors

The Ozone Monitoring Network map below indicates the location and the 2023 design values.




*Analytical Methods –*

The FEM UV photometry monitors are used for continuous monitoring of ozone concentrations in the ambient air. Ozone monitors are operated in accordance with the Department's Ambient Air Quality Monitoring QAPP. The continuous data output from the instrument is stored locally on redundant data acquisition systems and recovered hourly by the central office computer system (AirVision).

**$PM_{2.5}$ Network**

Particulate matter (PM) is not a single pollutant, but a complex mixture of many liquid and solid chemicals in the air. For regulatory and scientific use, air particles are defined by their size. Fine particulate matter ($PM_{2.5}$) is defined as particles that are 2.5 microns or less in diameter. Some of the sources of $PM_{2.5}$ are chemical reactions of gases, smoke from fires, industrial processes, vehicle emissions and dust. $PM_{2.5}$ can cause respiratory and heart issues.

The Department began operating Teledyne T640 (method code 236) and T640X (method code 238) FEM monitors in 2020 to collect continuous $PM_{2.5}$ data at multiple sites throughout the state. It became apparent that these monitors showed a significantly higher bias when compared to FRM samplers. On June 13, 2023, Teledyne released a data alignment firmware update that was meant to correct this bias and make the data collected by the T640 and T640X more comparable to the FRM samplers. On September 6, 2023, the Department applied this firmware update to all T640 and T640X monitors, which changed their method codes to 636 and 638, respectively. All data collected by the T640 and T640X monitors before the firmware update (method codes 236 and 238) have had a NAAQS Exclusion applied by EPA, and bias corrected data for this period has been uploaded to AQS by EPA under method codes C636 and C638. All data aligned T640 and T640X monitors (method codes 636 and 638), excluding those located at the Cape Romain, Coastal Carolina, and Chesterfield Monitoring Sites, will also have a NAAQS Exclusion applied for up to 23 months after the firmware update to evaluate the comparability of the new method code to the FRM samplers.

In 2023, the 2012 $PM_{2.5}$ annual mean NAAQS was 12.0 $\mu g/m^3$ with a 24-hour NAAQS of 35 $\mu g/m^3$. As of February 07, 2024, the EPA lowered the $PM_{2.5}$ annual mean NAAQS to 9.0 $\mu g/m^3$ and the 24-hour NAAQS of 35 $\mu g/m^3$ was retained.

The $PM_{2.5}$ minimum monitoring criteria has seven requirements:

1) Required $PM_{2.5}$ SLAMS sites – A minimum number of required $PM_{2.5}$ SLAMS sites for each CBSA.

2) Collocated Requirement – Collocated monitors are two $PM_{2.5}$ monitors that are located at the same monitoring site and compared to ensure that high quality data is being collected. The Department is required to collocate at least 15 percent of the monitors of a method code for each distinct primary monitor method code it operates. Method codes are a way to categorize the different methods that the

monitors use to collect data. The Department operates one primary FEM monitor with method code 636 and one primary FRM sampler with method code 145. Based on the number of monitors operated by the Department, each primary method code requires one collocated monitor. The collocation requirement is met for method code 145 at the Hillcrest, Parklane, and North Charleston Fire Station Monitoring Sites. The collocation requirement is met for the method code 636 at the Chesterfield Monitoring Site.

In addition, primary FRM samplers designated for collocation must be collocated with another FRM, and for primary FEM monitors designated for collocation, 50 percent must be collocated with an FRM and 50 percent must be collocated with an FEM of the same method code. At each of the sites mentioned, the QA collocated monitor is an FRM. Since there is only one required collocated monitor for each method code, this meets the required ratio between FRM and FEM collocated monitors. The details of each monitor, their method codes, and the primary monitor and collocation status of site can be seen in more detail in the Site Description section of this 2024 Network Plan.

3) Continuous Monitoring – A continuous $PM_{2.5}$ monitoring requirement which is equal to at least one-half (round up) the minimum required $PM_{2.5}$ SLAMS sites. No continuous collocation requirement applies as every required continuous analyzer operated by the Department is an FEM monitor.

4) Regional Background and Transport – At least one $PM_{2.5}$ site must be established in each state to monitor for regional background and at least one $PM_{2.5}$ site to monitor regional transport. The Cape Romain Monitoring Site in Charleston County is the regional background site, and the Chesterfield Monitoring Site in Chesterfield County is the regional transport site.

5) NCore Requirement – Each state is required to operate at least one NCore site which measures $PM_{2.5}$ using both continuous and integrated/filter-based samplers. The Parklane Monitoring Site in Columbia, South Carolina is the NCore site for South Carolina. The Garinger High School Monitoring Site in Mecklenburg County is also an NCore site for the Charlotte-Concord-Gastonia, NC-SC MSA and supports the required $PM_{2.5}$ monitors.

6) Near-road $PM_{2.5}$ Monitoring – The EPA required the collocation of one $PM_{2.5}$ monitor with a near-road $NO_2$ monitor in urban areas having populations of 1,000,000 or more by January 1, 2017. The Charlotte-Concord-Gastonia, NC-SC

MSA is the only MSA in South Carolina that met the population requirement for a collocated $PM_{2.5}$ monitor. The near-road monitoring requirement for the Charlotte-Concord-Gastonia, NC-SC MSA is being fulfilled at the Remount Road Monitoring Site by the Mecklenburg County Air Quality Commission.

The required number of $PM_{2.5}$ SLAMS monitors and continuous monitors for each CBSA and the site where each monitor is located is summarized below.

*Augusta-Richmond County, GA-SC MSA* – Required: two SLAMS monitors, one continuous monitor
One required SLAMS site is the Trenton Monitoring Site, which has one FRM and one continuous FEM monitor. The additional required SLAMS monitoring site is the Augusta Monitoring Site in Georgia, operated by the Georgia Environmental Protection Division.

*Charleston-North Charleston, SC MSA* – Required: one SLAMS monitor, one continuous monitor
There are three SLAMS monitors located in this CBSA. The North Charleston Fire Station Monitoring Site operates two SLAMS FRM samplers and one continuous SPM FEM monitor. The Cape Romain Monitoring Site is the $PM_{2.5}$ background site for the state and operates one continuous SLAMS FEM monitor.

*Charlotte-Concord-Gastonia, NC-SC MSA* – Required: two SLAMS monitors, one continuous monitor
All required monitors for this CBSA are operated in North Carolina. The Monitoring Sites in North Carolina are the Garinger High School, Remount Road, Friendship Park, and Rockwell Monitoring Sites. Each of these Sites operates a continuous monitor.

*Columbia, SC MSA* – Required: one SLAMS monitor, one continuous monitor
There are four SLAMS monitors located in this CBSA. At the Parklane Monitoring Site, there are two SLAMS FRM samplers and one continuous SLAMS FEM monitor. The Irmo DJJ Monitoring Site operates one SLAMS FRM and one continuous SPM FEM.

*Florence, SC MSA* – Required: one SLAMS monitor, one continuous monitor
There is one SLAMS FRM and one continuous SPM FEM monitor located at the Williams Monitoring Site.

*Greenville-Anderson-Greer, SC MSA* – Required: one SLAMS monitor, one continuous monitor

There are three SLAMS monitors and one SPM in this CBSA. Two SLAMS FRM samplers are located at the Hillcrest Monitoring site. One SLAMS FRM and one SPM continuous FEM is located at the Greenville ESC Monitoring Site.

*Hilton Head Island-Bluffton-Port Royal, SC MSA* – No required monitors

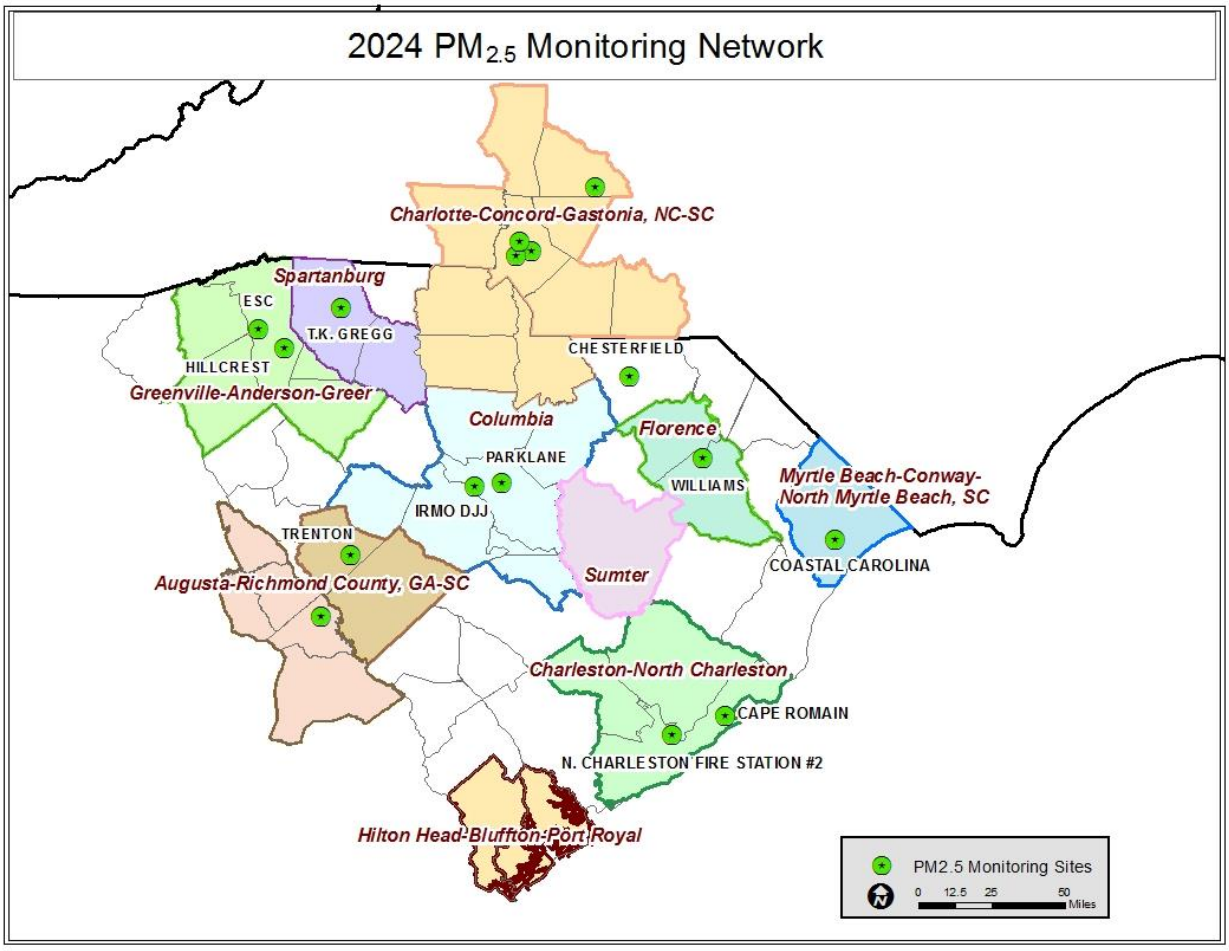
*Myrtle Beach-North Myrtle Beach-Conway, SC MSA* – No required monitors
The Coastal Carolina Monitoring Site has one SPM monitor. It is a continuous FEM.

*Spartanburg, SC MSA* – Required: one SLAMS monitor, one continuous monitor
The T.K. Gregg Monitoring Site has one SLAMS FRM and one continuous SPM FEM.

*Sumter, SC MSA* – No required monitors

*Chesterfield County (not in an MSA)* – Required: one required monitor
The Chesterfield Monitoring Site is the $PM_{2.5}$ regional transport site for the state and operates one FRM and one continuous FEM.

The $PM_{2.5}$ Monitoring Network map below indicates the location and the 2023 design values.




*Analytical Methods* – The network consists of both $PM_{2.5}$ monitors and $PM_{2.5}$ samplers. The analytical method for each one is described below.

a) All $PM_{2.5}$ samplers operated by the Department for comparison to the NAAQS are designated FRM samplers. The $PM_{2.5}$ sampler operation, sample collection, and sample analysis are done in accordance with the Department's Quality Assurance Project Plan for the $PM_{2.5}$ Ambient Air Monitoring Program.

b) Continuous $PM_{2.5}$ monitors, unless designated a FEM, do not provide concentration data suitable for comparison to the NAAQS. Non-FEM continuous monitors that provide reasonably comparable measurements may be used to provide data for calculation of an area AQI. Continuous $PM_{2.5}$ monitors provide continuous concentration measurements every day. All

$PM_{2.5}$ monitors operated by the Department for comparison to the NAAQS are designated FEM monitors using the broadband spectroscopy method. The continuous $PM_{2.5}$ monitors are operated in accordance with the Department's Quality Assurance Project Plan for the $PM_{2.5}$ Ambient Air Monitoring Program. Concentration measurements are averaged over 1-minute, 1-hour and 24-hour periods. Data is stored locally on redundant data acquisition systems and recovered hourly by a central office computer system (AirVision). Only 24-hour daily averages from FEM monitors are used for comparison to the ambient standards.

7) $PM_{2.5}$ Speciation Monitoring – Chemical speciation is the testing of the $PM_{2.5}$ sample to examine what air pollutants are in the sample. Chemical speciation monitoring is required at all NCore sites and is conducted at the Parklane Monitoring Site. It is funded as part of the $PM_{2.5}$ STN. There is also $PM_{2.5}$ speciation monitoring at the Garinger Monitoring Site in Mecklenburg County for the Charlotte-Concord-Gastonia, NC-SC MSA.

   *Analytical Methods* – The Department operates a $PM_{2.5}$ Speciation sampler to collect samples for analysis to determine the chemical makeup of the particulate. The $PM_{2.5}$ speciation samplers are operated according to the Department's Quality Assurance Project Plan for $PM_{2.5}$ Chemical Speciation Sampling at Trends, NCore, Supplemental, and Tribal Sites. The samples are collected on a set of two cartridges on the Met-One SASS sampler for nitrates, sulfates, and metals and on a single cartridge in the URG 3000N sampler for carbon containing material. The samples are collected over a 24-hour sampling period. The individual cartridges contain denuders and filters designed to efficiently capture the major components of $PM_{2.5}$.

   After collection, the samples are shipped cold to an EPA contract laboratory for analysis. At the laboratory, the samples are analyzed using thermal optical analysis (for carbon), ion chromatography (IC) for nitrates and sulfates, and x-ray fluorescence for metals to determine the presence and concentration of specific compounds. Sample results are available on the EPA website.

**$PM_{10}$ Network**

$PM_{10}$ particles range from 2.5 to 10 micrometers in size. These particles usually come from roadways, construction sites, windblown dust and industrial sources. High $PM_{10}$ levels can cause issues with a person's throat and lungs.

$PM_{10}$ has a 24-hour NAAQS of 150 μg/$m^3$ that cannot be exceeded more than once per year on average over three years.

The $PM_{10}$ minimum monitoring criteria has one requirement that is based on the CBSA population, the number of exceedances of the NAAQS, and the percentage of $PM_{10}$ concentrations over or under the NAAQS. Unlike other criteria pollutants, the minimum monitoring requirement for $PM_{10}$ is given as a range of required monitoring sites for a CBSA, depending on the level of $PM_{10}$ pollution.

*Minimum Requirements* –
The required number of SLAMS monitors in each CBSA are summarized below.

*Augusta-Richmond County, GA-SC MSA* – 1-2 required monitors
One SLAMS monitor is located at the Augusta Monitoring Site in Georgia, operated by the GA EPD.

*Charleston-North Charleston, SC MSA* – 1-2 required monitors
One SLAMS monitor is located at the North Charleston Fire Station.

*Charlotte-Concord-Gastonia, NC-SC MSA* – 2-4 required monitors
Two SLAMS monitors are operated by the MCAQ in North Carolina at the Garinger and Ramblewood Park Monitoring Sites.

*Columbia, SC MSA* – 1-2 required monitors
One SLAMS monitor is located at the Parklane Monitoring Site.

*Florence, SC MSA* – No required monitors

*Greenville-Anderson-Greer, SC MSA* – 1-2 required monitors
One SLAMS monitor is located at the Greenville ESC Monitoring Site.

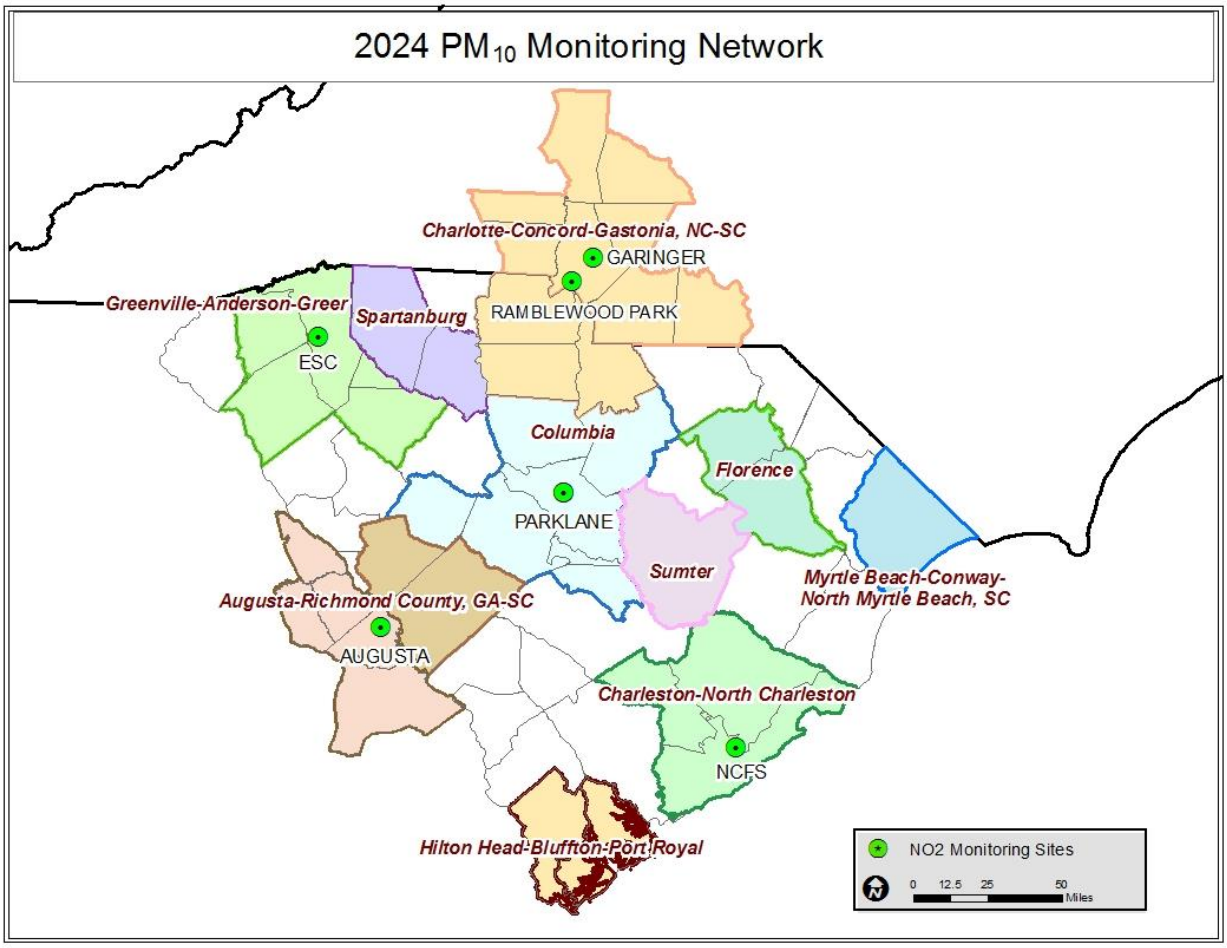
*Hilton Head Island-Bluffton-Port Royal, SC MSA* – No required monitors

*Myrtle Beach-Conway-North Myrtle Beach, SC MSA* – 0-1 required monitors

*Spartanburg, SC MSA* – 0-1 required monitors

*Sumter, SC MSA* – No required monitors

The $PM_{10}$ Monitoring Network map below indicates the locations of the monitors. There have been no violations of the NAAQS.




*Analytical Methods* –
The network consists of both $PM_{10}$ monitors and $PM_{10}$ samplers. The analysis for each one is described below.

a. $PM_{10}$ samplers operated by the Department are designated as either FRM or FEM and are operated consistent with the requirements in 40 CFR Part 50, Appendix J and 40 CFR Part 58. The $PM_{10}$ samplers located at the Chesterfield Monitoring Site are used for the National Air Toxics Trends Station (NATTS) metals. Filters collected from these samplers are analyzed as described in subsection "d" of the Air Toxics Network Analytical Methods.

b. Continuous $PM_{10}$ monitors provide continuous concentration measurements every day. All $PM_{10}$ monitors operated by the Department for comparison to

the NAAQS are designated FEM monitors using the broadband spectroscopy method. The continuous $PM_{10}$ monitors are operated in accordance with the Department's Quality Assurance Project Plan for Ambient Air Quality Monitoring. The concentration measurements are averaged over 1-minute, 1-hour, and 24-hour periods. Data is stored locally on redundant data acquisition systems and recovered hourly by a central office computer system (AirVision). Only 24-hour daily averages from FEM monitors are used for comparison to the ambient standards.

**Photochemical Assessment Monitoring Station (PAMS) Network**

South Carolina is not subject to the PAMS requirement.

**Air Toxics Network**

South Carolina monitors for air toxics in the ambient air. Volatile organic compounds, semi-volatile organic compounds, carbonyls, and metals are sampled at the Chesterfield Monitoring Site.

*Analytical Methods* –

a) Volatile Organic Compounds – Volatile organic compounds (VOCs) are collected into passivated or silica lined stainless steel canisters. The canisters are cleaned, tested, and evacuated at the laboratory prior to installation at the sampling site. At the sampling location, the canisters are filled and pressurized with ambient air throughout the sampling period (typically 24 hours). Measured portions of the captured air are concentrated at low temperature and analyzed using gas chromatography with a mass spectrometer detector (GC/MS) to identify and quantitate target compounds. The VOC samplers are operated in accordance with the Department's Quality Assurance Project Plan for the Chesterfield, South Carolina National Air Toxics Trends Station. The collection and analysis method are based on the EPA Method TO-15 and the NATTS Technical Assistance Document (TAD). The EtO canisters will be sent to a contract laboratory for analysis.

b) Semi-volatile Organic Compounds – Semi-volatile organic compounds (SVOCs) are collected using polyurethane foam (PUF) and a solid adsorbent to trap the compounds from air pulled through the material by a high-volume sampler. High-volume PUF samplers are operated in accordance with the Department's Quality Assurance Project Plan for the Chesterfield, South Carolina National Air Toxics Trends Station. The SVOCs are extracted from the collection cartridge using a solvent, and the rinses are concentrated for analysis.

Measured portions of the extract are analyzed using GC/MS to identify and quantitate the collected compounds. The collection and analysis method are based on the EPA Method TO-13A and the NATTS TAD.

c) Carbonyls – Carbonyls (including aldehydes and ketones) are extracted from ambient air by reaction with a compound that stabilizes them enough to capture and hold. The reaction of the target compounds with Dinitrophenylhydrazine (DNPH) removes them from the sampled air and concentrates them in the sample cartridge. The carbonyl samplers are operated in accordance with the Department's Quality Assurance Project Plan for the Chesterfield, South Carolina National Air Toxics Trends Station. The collection and analysis method are based on the EPA Method TO-11A and the NATTS TAD.

d) NATTS Metals – NATTS metals in particulate are collected on filters using the $PM_{10}$ High Volume samplers. $PM_{10}$ High Volume samplers are operated in accordance with the Department's Quality Assurance Project Plan for the Chesterfield, South Carolina National Air Toxics Trends Station. Metals are extracted from a portion of the filter using hot block digestion in an acid solution. Detection, identification, and quantitation of the target metals inductively coupled plasma with a mass spectrometer. The collection and analysis method are based on the EPA Method IO-3.1, IO-3.5, and the NATTS TAD.

**Meteorology and Precipitation Network**

Meteorological parameters are monitored at the Cape Romain and Parklane Monitoring Sites. Precipitation monitoring, including precipitation chemistry, is conducted at the Parklane Monitoring Site.

*Analytical Methods* –

Meteorology consists of wind direction, wind speed, temperature, and pressure. Collection and/or analysis methods are discussed below.

a. Wind Direction and Speed – Wind data is collected using systems that incorporate high precision 'Air Quality' systems. The systems use separate or combined wind vanes and anemometers mounted 10 meters above ground. The systems provide supporting information about the local meteorology.

b. Ambient Temperature and Pressure – Ambient temperature is available from sensors that are part of the sampling systems for the FRM $PM_{2.5}$ samplers and FEM $PM_{2.5}$ continuous monitors. Ambient temperature measurement is necessary for the systems to maintain the required flow rate used to reproducibly separate the desired particulate size fractions as conditions change. Although the primary use of the measurement is for sampler flow control, the sensors are accurate and regularly audited. Temperature and pressure sensors are compared to reference systems at least once per month. In addition to the $PM_{2.5}$ sampler, the Parklane Monitoring Site also has a Met-One Model 597 Ambient Temperature, Pressure, and Relative Humidity probe. The readings are stored on the data logger in both 1-minute and 1-hour averages.

Precipitation – Precipitation is measured by tipping bucket gauges that provide a signal indicating the occurrence, rate, and amount of precipitation. The gauges are not heated, so they may not accurately provide the time and rate for frozen precipitation events. The monitors are checked periodically for operation and accuracy using a known volume of water and compared with actual volumes of collected precipitation where there are collocated samplers.

Precipitation Chemistry – A portion of the precipitation sample collected each week is analyzed for pH and conductivity. To determine concentrations of dissolved material that contributes to acid rain, the collected material is analyzed for cations and anions using ion chromatography.

## Site Descriptions

Specific siting information for each site and monitor or sampler is stored in the EPA's AQS, the national ambient air database. The AQS Site Description includes the exact location of the site, local and regional population, and description of the site location, monitor types, and monitoring objectives. This site and monitor/sampler information are routinely updated whenever there is a change in site characteristics or pollutants monitored. Pictures for each monitoring site can be viewed at: https://gis.dhec.sc.gov/monitors/.

The AQS is used as the primary repository for all South Carolina ambient air monitoring information, including site descriptions. All ambient air monitoring data is stored in AQS, including criteria pollutants, non-NAAQS parameters, ambient air toxics, total suspended particulate (TSP), and supporting QA data.

Each network station description contained in this document includes a Site Description and Monitor Details. An explanation of the information in each station description is presented below.

*Site Description* – The site description includes specific information about each ambient air monitoring site. The site description header includes the following:

1) Site Name – The name that is given to the site.
2) CSA/MSA – The area where the site is located as defined by the United States Census.[6]
3) AQS Site ID – The unique site ID used in AQS is in the form of 45-ccc-ssss where:
    a. 45 is the federal identification code for South Carolina,
    b. ccc is the county identification code, and
    c. ssss is the site identification code within the county.
4) Location – Typically the street address of the site, where available.
5) County – County in which the site is located.
6) Coordinates – Latitude (N), then Longitude (W) listed in decimal degrees.
7) Date Established – The date when each existing monitoring station was established is shown in the description. Individual monitors at a site may have differing start and stop dates.
8) Site Evaluation (most recent date visited) – Each monitoring station in the network is visited annually to determine whether all required probe exposure criteria for monitors are met. If necessary, corrective action is scheduled to address deficiencies. If a new monitoring site has not yet been evaluated, it will be denoted with the word “PENDING”.

*Monitor Details* – Each station description has a table that lists the parameter(s) and the descriptive information associated with that particular parameter. An explanation of the information in the tables is presented below.

1) Parameter – The chemicals that are being measured. These may be criteria pollutants (compounds for which a NAAQS has been established), non-criteria pollutants, and/or supporting information (primarily meteorological measurements) measured at the site.

[6] The US Census Bureau periodically adjusts CSA and MSA names and boundaries. This plan uses the latest available revision (July 21, 2023).

2) Scale – Each monitor or sampler in the monitoring network is described in terms of the approximate physical dimensions of the air parcel nearest the monitoring station throughout which pollutant concentrations are expected to be reasonably similar. This is most often referred to as the "Scale" of the monitor. Different pollutants monitored at the same location may represent different scales depending on the characteristics of the pollutant. Area dimensions or scales of representativeness used in the network description are:
    a. Microscale – Air volumes associated with area dimensions ranging from several meters up to about 100 meters.
    b. Middle scale – Areas up to several city blocks in size with dimensions ranging from approximately 100 meters to 0.5 kilometers.
    c. Neighborhood scale – Extended areas of a city that have relatively uniform land use with dimensions ranging from 0.5 to 4.0 kilometers.
    d. Urban scale – Citywide or equivalent rural areas with dimensions ranging from 4 to 50 kilometers.
    e. Regional scale – Areas ranging from 50 to hundreds of kilometers in diameter.

    The true representative area may best be described by an irregular shape of the approximate dimensions indicated above to account for local sources, topography, and differing land use. The representative scale of a monitor is closely associated with the monitoring objective.

3) Objective – The ambient air monitoring network is designed to meet three primary objectives:
    a. Provide air pollution data to the public in a timely manner. Near real-time data is made available on the internet through AIRNow and Air Quality Index (AQI) reporting and forecasting in the major metropolitan areas.
    b. Support compliance with ambient air quality standards and emissions strategy development. Monitors are operated to measure concentrations for comparison to NAAQS and to provide information to aid in the development of strategies to improve air quality.
    c. Support air pollution research studies. Data from the monitoring network support greater understanding of the impacts and effects of ambient air pollution.

Individual monitors within a monitoring network that support these basic objectives generally serve one or more of the following purposes:

i. Determine highest concentrations of pollutants,
ii. Determine representative concentrations in areas of high population density,
iii. Determine impact on air quality of significant sources or source categories,
iv. Determine general background concentrations,
v. Determine extent of regional pollutant transport, and
vi. Determine welfare-related impacts in more rural and remote areas (ex. visibility impairment and impacts to vegetation).

The design intent in siting monitors is to correctly match the area represented by the sample of monitored air with the scale most appropriate to meet the monitoring objective of the monitor. The relationship of appropriate scale to the six basic purposes is as follows:

| **Monitoring Purpose** | **Siting Scale** |
|---|---|
| Highest concentration | Micro, Middle, Neighborhood |
| Population exposure | Neighborhood, Urban |
| Source impact | Micro, Middle, Neighborhood |
| General/background | Neighborhood, Urban, Regional |
| Regional transport | Urban, Regional |
| Welfare-related impacts | Urban, Regional |

Monitor and sampler data is regularly reviewed to assure the assigned scale is correct and appropriate for the intended objective.

4) Designation – Monitor designations that may be found in the tables include the SLAMS, SPM, and Other monitoring. Definitions of these designations are:
    a. SLAMS – Monitors for which NAAQS have been established. These stations must meet requirements that relate to four major areas: QA/QC, monitoring methodology, sampling interval, and siting of instruments and instrument probes.
    b. SPM – Monitors which support investigations addressing complaints, areas and pollutants of concern, network refinement, modeling verification, and compliance. These monitors are committed to investigation and projects as described in the associated Quality

Assurance Project Plan (QAPP). They may be located as separate monitoring stations or be included at existing monitoring locations. The SPM may also monitor for air toxics, particulate, criteria pollutants, precipitation, and meteorology. Supplemental speciation is a type of SPM monitor that operates according to Chemical Speciation Network (CSN) protocols but is not contained in the Speciation Trends Network (STN) Network. This monitoring data is reported to AQS by the University of California – Davis. Although siting and probe exposure will conform to all requirements for SLAMS monitors whenever possible, 40 CFR 58.20 states that compliance for SPM monitors is optional.

c. Other Monitor/Sampler – A monitor or sampler that measures data on a pollutant that will not be used for regulatory purposes.
d. Collocated QA/QC Sampler – A particulate matter sampler that is paired with, but operated independent of, a similar sampler. It is used to indicate measurement precision.

The SLAMS and SPM data may be used in the reporting of an area's AQI. The AQI is a method of reporting that converts concentration levels of pollution to a simple number scale of 0-500. Index reporting is required for all urban areas with a population exceeding 350,000. Intervals on the AQI scale are related to potential health effects of the daily measured concentration of the measured pollutants. All stations in a metropolitan area provide data for daily index reporting. Data from continuous ozone and $PM_{2.5}$ monitors is collected hourly and reported as AQI maps on the EPA's AIRNow website. A daily AQI is provided for the areas in and around Aiken, Charleston, Columbia, Florence/Darlington, Greenville-Spartanburg, Myrtle Beach, and York/Chester/Lancaster.

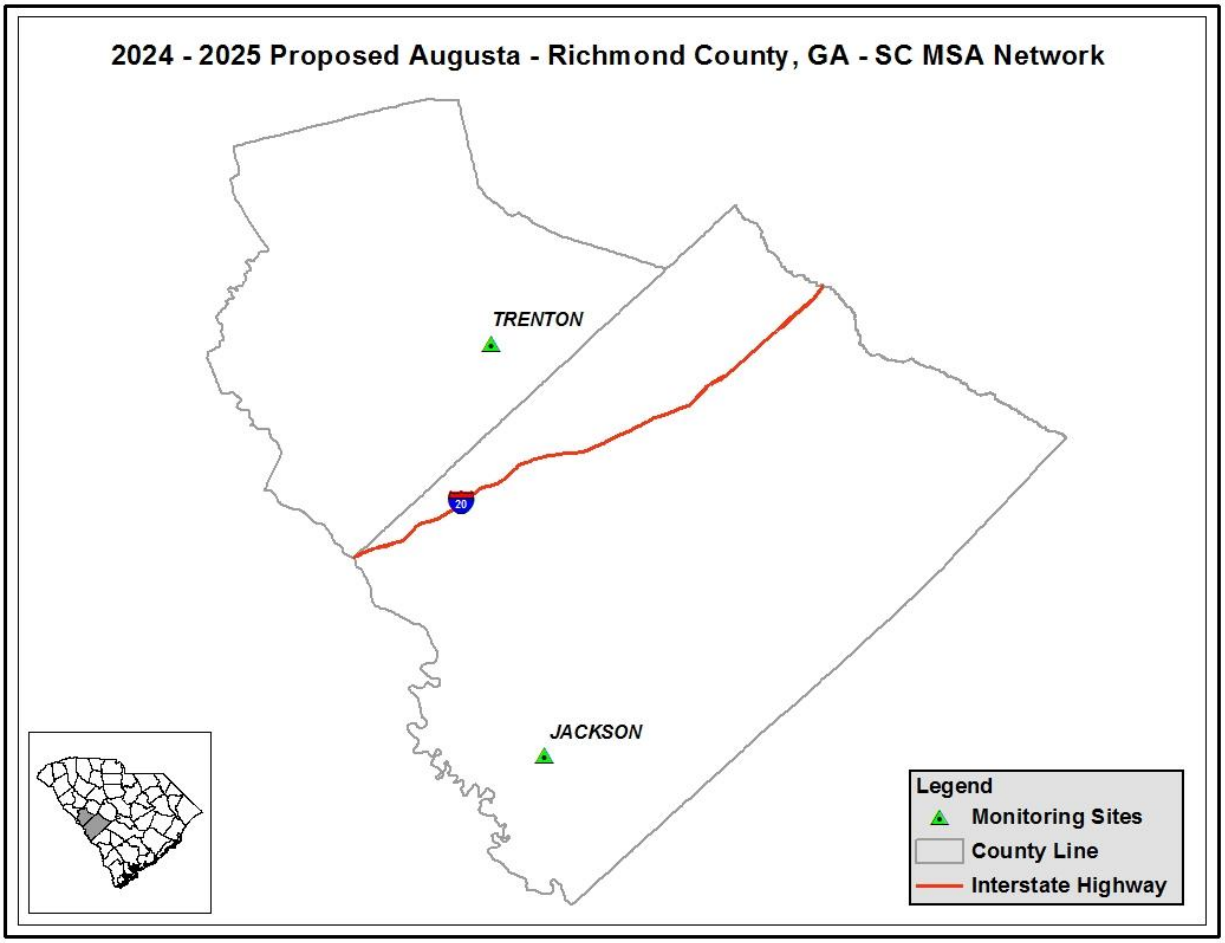
5) Probe Height – The monitor or sampler probe is the point where ambient air enters the analytical or sample collection system. Ideally, air would be sampled approximately at nose height, but due to operational, exposure, and security considerations, air may be sampled further from ground level. Proper probe height is specified in the monitoring regulations (typically between two and fifteen meters) and is checked as part of the periodic site evaluations.

6) Sampling and Analysis Methods – All sampling and analytical procedures used to determine ambient concentrations of criteria pollutants for comparison to the NAAQS will use either FRM or FEM. For the reactive gases, borosilicate glass or FEP Teflon are used in the sampling train.

   Where appropriate for specific monitoring objectives, well characterized, non-equivalent methods may be used. The analysis method for the parameters most commonly measured and listed in the station descriptions are described in the corresponding pollutant's Network Descriptions section.

The following sections describe each of the South Carolina monitoring sites organized by MSA.

***Augusta-Richmond County, GA-SC MSA***




Classification of Monitoring Type by Sites:

| Site ID | Site Name | $PM_{2.5}$ | $PM_{2.5}$ Cont. | $PM_{10}$ | Lead | Ozone | $SO_2$ | $NO_2$ | CO |
|---|---|---|---|---|---|---|---|---|---|
| 45-003-0003 | Jackson Middle School | | | | | ● | | | |
| 45-037-0001 | Trenton | ● | ● | | | ● | * | | |
| | Total | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 |

○ SPM / Other ● SLAMS Duplicate / QA Monitors ○○/●●
*Please refer to the site description page for details on this monitor's operational schedule.

**Jackson Middle School**
**CSA/MSA:** none/Augusta-Richmond County MSA
**AQS Site ID:** 45-003-0003
**Location:** 8217 Atomic Road, Jackson
**County:** Aiken
**Coordinates:** +33.342226, -81.788731
**Date Established:** October 24, 1985
**Site Evaluation:** May 2, 2024

The Jackson Middle School Monitoring Site is located in southwestern Aiken County, within the town limits of Jackson at Jackson Middle School. This Site is located in a suburban setting. The Site supports an ozone monitor that measures ozone concentrations upwind of the Augusta urbanized area. The sample inlet is 128 meters from the nearest road.

This site meets all 40 CFR Part 58 Appendix E siting criteria except for Section 2.3 - Spacing from Obstructions. The distance from one tree to the probe is not at least twice the height that the obstacle protrudes above the probe, however the probe still meets 270º of continuous airflow as required by Section 2.3(b).

**Changes for 2024-2025:**
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Ozone 44201-2 | Urban | Upwind Background | SLAMS | 3.38 | Ultraviolet Absorption (087) | Continuous |

**Trenton**

**CSA/MSA:** none/Augusta-Richmond County MSA
**AQS Site ID:** 45-037-0001
**Location:** 660 Woodyard Road (Hwy 121), Trenton
**County:** Edgefield
**Coordinates:** +33.739963, -81.853635
**Date Established:** March 28, 1980
**Site Evaluation:** May 2, 2024

The Trenton Monitoring Site is located in southeastern Edgefield County. This Site was originally established to monitor ozone crossing into South Carolina from Georgia. The Trenton Monitoring Site supports an ozone monitor and the required FRM $PM_{2.5}$ sampler and a continuous FEM $PM_{2.5}$ monitor that fulfills 40 CFR Part 58, Appendix D, Section 4.7 requirements. This Site also has been designated as a rotational site for $SO_2$. The $SO_2$ monitoring will run from 2026 through 2027. The sample inlets are 30.3 meters from the nearest road.

This Site meets all 40 CFR Part 58, Appendix E siting criteria.

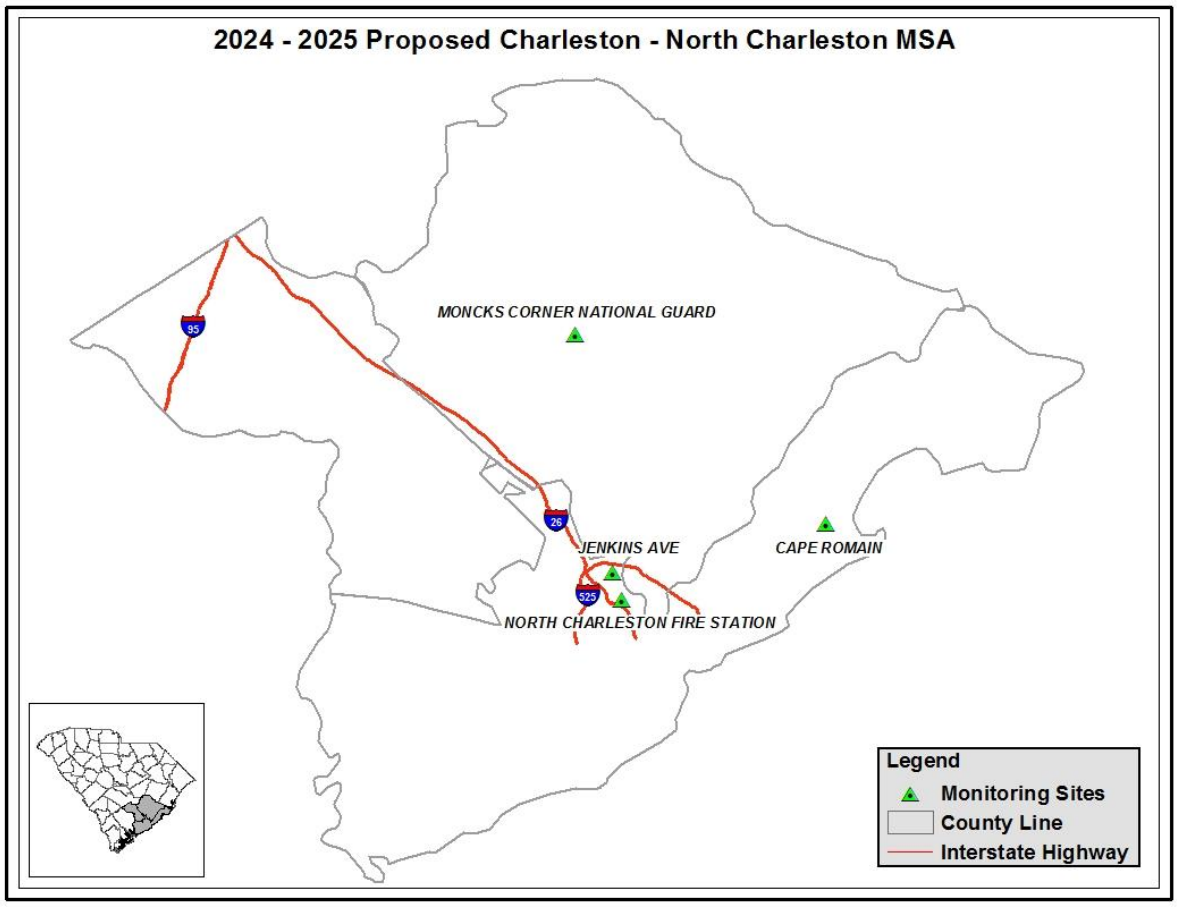
**Changes for 2024-2025:**
The rotational $SO_2$ monitor was discontinued on January 3, 2024. Data collected by the FEM T640 monitor at this site will be labeled with a NAAQS Exclusion for up to 23 months after the data alignment firmware update on September 6, 2023, to assess the comparability of the data to the FRM sampler. There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designa-tion | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Ozone 44201-1 | Urban | Maximum Ozone Concentration/ Extreme Downwind | SLAMS | 4.24 | Ultraviolet Absorption (087) | Continuous |
| $PM_{2.5}$ 88101-1 | Urban | Extreme Downwind | SLAMS | 4.66 | FRM Gravimetric w/ VSCC (145) | 1:3 |

| Parameter | Scale | Objective | Designa-tion | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| $PM_{2.5}$ 88101-3 | Urban | Extreme Downwind | SLAMS | 4.5 | FEM Broadband Spectroscopy (636) | Continuous |

### *Charleston-North Charleston MSA*




Classification of Monitoring Type by Site:

| Site ID | Site Name | $PM_{2.5}$ | $PM_{2.5}$ Cont. | $PM_{10}$ | Ozone | $SO_2$ | $NO_2$ | Meteorology |
|---|---|---|---|---|---|---|---|---|
| 45-015-1002 | Moncks Corner National Guard | | | | ● | | | |
| 45-019-0003 | Jenkins Ave. Fire Station | | | | | ● | ○ | |
| 45-019-0020 | North Charleston Fire Station (NCFS) | ●● | ○ | ● | | | | |
| 45-019-0046 | Cape Romain | | ● | | ● | | | ● |
| | Total | 2 | 2 | 1 | 2 | 1 | 1 | 1 |

○ SPM / Other ● SLAMS Duplicate / QA Monitors ○○/●●

**Moncks Corner National Guard**
**CSA/MSA**: none/Charleston-North Charleston MSA
**AQS Site ID:** 45-015-1002
**Location**: 320 Airport Road, Moncks Corner
**County:** Berkeley
**Coordinates**: +33.183016, -80.030712
**Date Established:** February 28, 2020
**Site Evaluation:** March 7, 2024

The Moncks Corner National Guard Monitoring Site is located in Moncks Corner, downwind from the Charleston urban area. It is a replacement for the Bushy Park Monitoring Site. The Site operates a required ozone monitor that fulfills the 40 CFR Part 58, Appendix D, Section 4.1 minimum monitoring requirements for this MSA and measures maximum ozone concentrations. The sample inlet is 177 meters from the nearest road.

This site meets all 40 CFR Part 58, Appendix E siting requirements.

**Changes for 2024-2025:**
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Ozone 44201-1 | Urban | Max Ozone Concentration | SLAMS | 4.42 | FEM Ultraviolet Absorption (087) | Continuous |

**Jenkins Ave. Fire Station**

**CSA/MSA:** none/Charleston-North Charleston MSA
**AQS Site ID:** 45-019-0003
**Location:** 4830 Jenkins Avenue, North Charleston
**County:** Charleston
**Coordinates:** +32.882289, -79.977538
**Date Established**: February 14, 1969
**Site Evaluation:** March 7, 2024

The Jenkins Ave. Fire Station Monitoring Site is located in the city of North Charleston behind a fire station in an urban and central city setting. This Site supports a required $SO_2$ monitor that fulfills the 40 CFR Part 58, Appendix D, Section 4.4 minimum monitoring requirements (PWEI) for the MSA and a $NO_2$ monitor. The sample inlets are 33.5 meters from the nearest road.

This Site meets all 40 CFR Part 58, Appendix E siting requirements.

**Changes for 2024-2025:**
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Sulfur Dioxide 42401-1 | Neighbor-hood | Population Exposure | SLAMS | 4.65 | Pulsed Fluorescent (560) | Continuous |
| Nitrogen Dioxide 42602-2 | Neighbor-hood | Highest Concentration /Source Oriented | SPM | 4.65 | Chemilumi-nescence (599) | Continuous |

**North Charleston Fire Station (NCFS)**

**CSA/MSA:** none/Charleston-North Charleston MSA
**AQS Site ID:** 45-019-0020
**Location:** 2800 Carner Avenue, North Charleston
**County:** Charleston
**Coordinates:** +32.84755, -79.96517
**Date Established:** November 8, 2021
**Site Evaluation:** March 19, 2024

The North Charleston Fire Station (NCFS) Monitoring Site is located in the central portion of the Charleston peninsula on the grounds of the North Charleston Fire Station #3. This Site was selected for its heavy exposure to population and industry and is a replacement for the FAA Beacon and the CPW Monitoring Sites. This Site supports a continuous $PM_{10}$ monitor that fulfills the 40 CFR Part 58, Appendix D, Section 4.6 requirements. This $PM_{10}$ monitor was moved from the Jenkins Ave. Monitoring Site and began operation on February 2, 2023.

Also, this Site operates collocated $PM_{2.5}$ intermittent samplers that fulfill the 40 CFR Part 58, Appendix A, Section 3.2 collocation requirements and a continuous $PM_{2.5}$ monitor that fulfills the 40 CFR Part 58, Appendix D, Section 4.7.2 requirements. The sample inlets are 24.6 meters from the nearest road.

This Site meets all 40 CFR Part 58, Appendix E siting requirements.

**Changes for 2024-2025:**

Data collected by the FEM T640X monitor at this site will be labeled with a NAAQS Exclusion for up to 23 months after the data alignment firmware update on September 6, 2023, to assess the comparability of the data to the FRM sampler.

There are no other changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| $PM_{10}$ 81102-1 | Neighbor-hood | Highest Concentra-tion/ Population Exposure | SLAMS | 2.89 | FEM Broadband Spectroscopy (639) | Continuous |
| $PM_{2.5}$ 88101-1 | Neighbor-hood | Highest Concentra-tion/ Population Exposure | SLAMS | 2.33 | FRM Gravimetric w/ VSCC (145)* | 1:1 |
| $PM_{2.5}$ 88101-2 | Neighbor-hood | Highest Concentra-tion/ Population Exposure | QA Collocated SLAMS | 2.33 | FRM Gravimetric w/ VSCC (145) | 1:3 |
| $PM_{2.5}$ 88101-3 | Neighbor-hood | Highest Concentra-tion/ Population Exposure | SPM | 2.89 | FEM Broadband Spectroscopy (638) | Continuous |

*Indicates the Primary Monitoring Method for $PM_{2.5}$

**Cape Romain**

**CSA/MSA:** none/Charleston-North Charleston MSA
**AQS Site ID:** 45-019-0046
**Location:** 390 Bulls Island Road, Awendaw
**County:** Charleston
**Coordinates**: +32.941023, -79.657187
**Date Established:** July 11, 1983
**Site Evaluation:** March 19, 2024

The Cape Romain Monitoring Site is located in Charleston County at the Cape Romain National Wildlife Refuge (NWR) near Moore's Landing. The Cape Romain NWR is a Class I area about 20 miles northeast of Charleston. The majority of the Refuge area is offshore, extending from Bull Island 20 miles northeast to Cape Romain. The Refuge is bordered on the west by the Intracoastal Waterway. Inland are large tracts of forests with scattered residences. Several miles inland, a primary coastal route, US Highway (Hwy) 17, parallels the coast, with some development along the section of highway that is closest to the Refuge.

The Cape Romain Monitoring Site has a required ozone monitor that fulfills the 40 CFR Part 58, Appendix D, Section 4.1 requirement, and a required continuous FEM $PM_{2.5}$ monitor that fulfills the 40 CFR Part 58, Appendix D, Section 4.7.3 monitoring requirement for regional background of $PM_{2.5}$. Also, meteorological parameters are being measured. The sample inlets are 86 meters from the nearest road.

This Site meets all 40 CFR Part 58, Appendix E siting requirements.

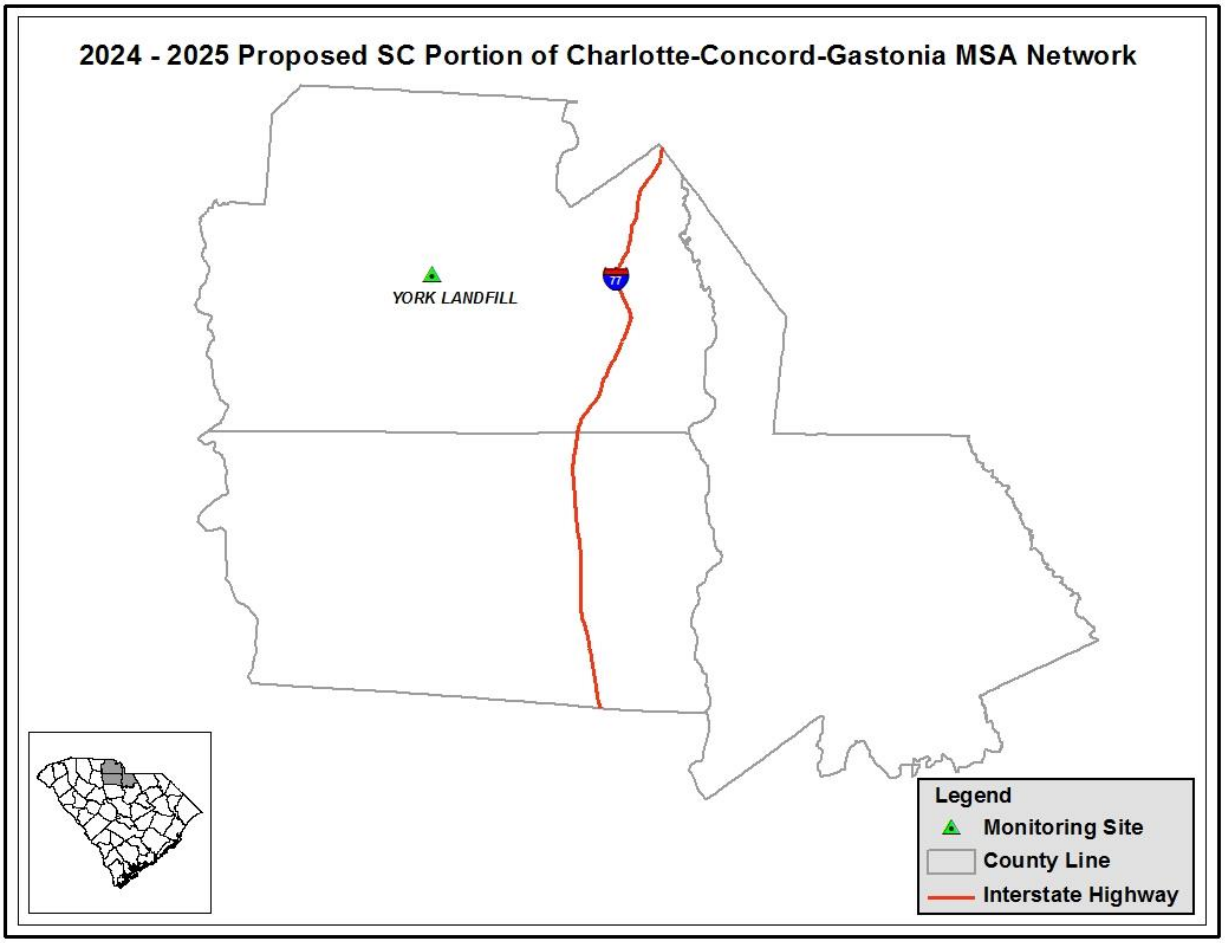
**Changes for 2024-2025:**
The SPM $NO_2$ monitor was discontinued on January 3, 2024. There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Ozone 44201-1 | Regional | General/ Background | SLAMS | 4.15 | Ultraviolet Absorption (087) | Continuous |

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| $PM_{2.5}$ 88101-3 | Regional | General/ Background | SLAMS | 4.85 | FEM Broadband Spectrosco-py (636) | Continuous |
| Wind Speed and Wind Direction | Neigh-borhood | Local Conditions | SLAMS | N/A | Instruments for wind speed and direction (020) | Continuous |

***Charlotte-Concord-Gastonia, NC-SC MSA***




Classification of Monitoring Type by Site:

| Site ID | Site Name | $PM_{2.5}$ | $PM_{2.5}$ Cont. | $PM_{10}$ | Lead | Ozone | $SO_2$ | $NO_2$ | CO |
|---|---|---|---|---|---|---|---|---|---|
| 45-091-0008 | York Landfill | | | | | ● | ○ | | |
| | Total | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| ○ SPM / Other ● SLAMS ○○/●● Duplicate / QA Monitors | | | | | | | | | |

**York Landfill**

**CSA/MSA:** Charlotte-Concord CSA / Charlotte-Concord-Gastonia, NC-SC MSA
**AQS Site ID:** 45-091-0008
**Location:** 310 Langrum Branch Road, York
**County:** York
**Coordinates:** +34.977000, -81.207000
**Date Established:** February 27, 2017
**Site Evaluation:** April 08, 2024

The York Landfill Monitoring Site is located in south central York County in a rural setting. This Site was established to replace the York Monitoring Site and represents ozone background levels near the Charlotte urban area. The York Landfill Monitoring Site currently operates an ozone monitor. Also, this Site has been designated as a rotational site for $SO_2$ and will operate from December 15, 2023 through December 2025. The sample inlets are 34.8 meters from the nearest road.

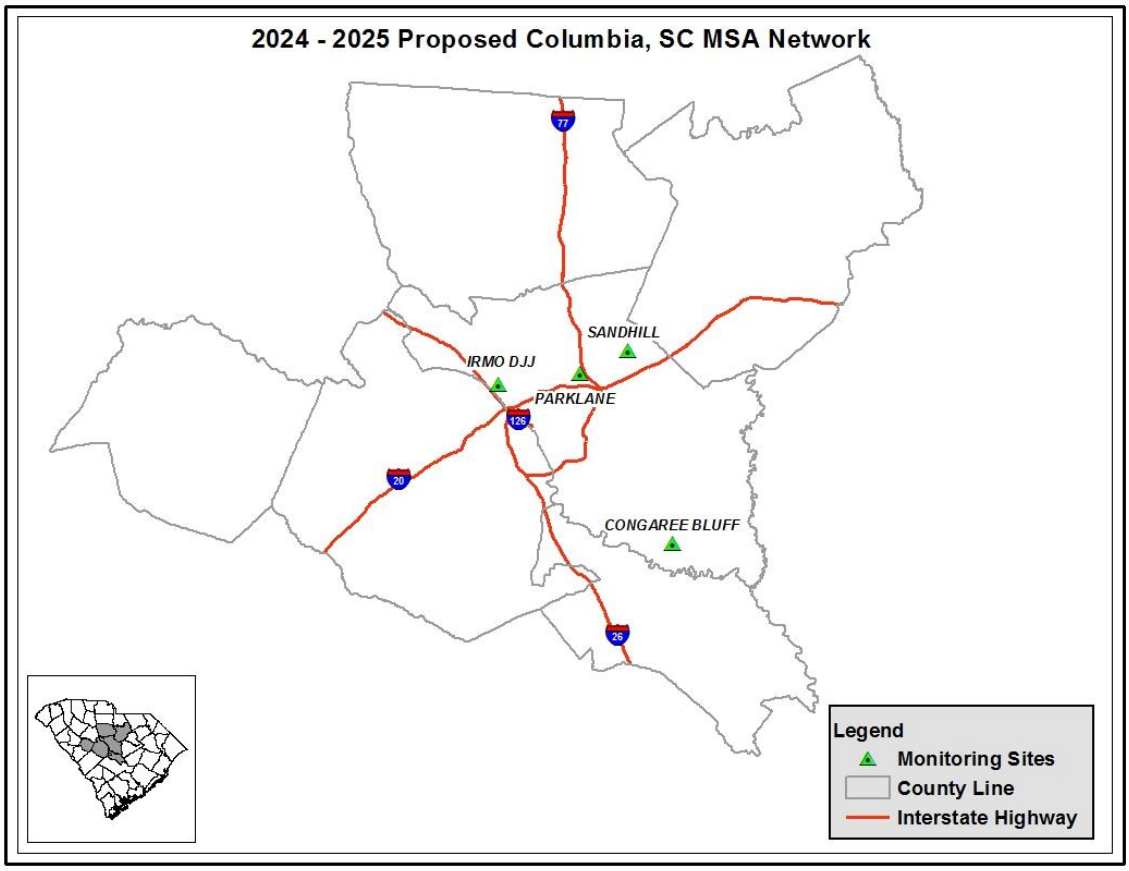
This Site meets all 40 CFR Part 58, Appendix E siting requirements.

**Changes for 2024-2025:**
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Ozone 44201-1 | Urban | Upwind Background | SLAMS | 4.53 | Ultraviolet Absorption (087) | Continuous |
| Sulfur Dioxide 42401-1 | Urban | Upwind Background | SPM | 4.53 | Pulsed Florescent (560) | Continuous |

***Columbia MSA***




Classification of Monitoring Type by Site:

| Site ID | Site Name | $PM_{2.5}$ | $PM_{2.5}$ Cont. | $PM_{2.5}$ Speciation | $PM_{10}$ | $PM_{10-2.5}$ | Ozone | $SO_2$ | $NO_2/NO/NO_y$ | CO | Precipitation Chem. | Precipitation | Meteorology |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45-079-0007 | Parklane (NCore) | ●● | ● | ● | ●○ | ● | ● | ● | ● | ● | ○ | ○ | ● |
| 45-079-0021 | Congaree Bluff | | | | | | ○ | | | | | | |
| 45-079-0022 | Irmo DJJ | ● | ○ | | | | | | | | | | |
| 45-079-1001 | Sandhill | | | | | | ● | | ○ | | | | |
| | Total | 3 | 2 | 1 | 2 | 1 | 3 | 1 | 2 | 1 | 1 | 1 | 1 |
| ○ SPM / Other ● SLAMS ○○/●● Duplicate / QA Monitors | | | | | | | | | | | | | |

**Parklane (NCore)**
**CSA/MSA:** Columbia-Orangeburg-Newberry CSA / Columbia MSA
**AQS Site ID:** 45-079-0007
**Location:** 8311 Parklane Road, Columbia
**County:** Richland
**Coordinates:** +34.093959, -80.962304
**Date Established:** April 3, 1980
**Site Evaluation:** May 21, 2024

The Parklane Monitoring Site is in north central Richland County within the city limits of Columbia. This Site was originally established to provide downwind population exposure measurements at the edge of the Columbia urban area population. The Parklane Monitoring Site is the required national core (NCore) multi-pollutant monitoring site as designated in 40 CFR Part 58, Appendix D, Section 3. It supports the required continuous monitors that sample for $PM_{2.5}$, speciated $PM_{2.5,}$ $PM_{10\text{-}2.5}$, ozone, $SO_2$, CO, and $NO/NO_y$. Also, an intermittent sampler for $PM_{2.5}$, and instruments for wind speed, wind direction, relative humidity, and ambient temperature are operated here. Besides the NCore requirement, the ozone monitor also fulfills the 40 CFR Part 58, Appendix D, Section 4.1 requirement.

The Site also operates a pair of collocated FRM $PM_{2.5}$ samplers to fulfill the required 40 CFR Part 58, Appendix A, Section 3.2 requirement, a low volume $PM_{10}$, precipitation chemistry and precipitation samplers. In addition, the required $PM_{10}$ monitor that fulfills the 40 CFR Part 58, Appendix D, Section 4.6, originally at the Cayce City Hall Monitoring Site, was moved to the Parklane Monitoring Site on May 30, 2023.

The sample inlets are 41.6 meters from the nearest road.

This Site meets all 40 CFR Part 58, Appendix E requirements.

**Changes for 2024-2025:**
The continuous $PM_{2.5}$ monitor located at Parklane was replaced with a Teledyne T640x, which also monitors for $PM_{10}$. The $PM_{10}$ monitoring began on May 30, 2023. Data collected by the FEM T640X monitor at this site will be labeled with a NAAQS Exclusion for up to 23 months after the data alignment firmware update on September 6, 2023, to assess the comparability of the data to the FRM sampler.

There are no other changes planned for 2024-2025.

**Monitors:**

***Bolded*** parameters are an NCore requirement.

| Parameter *Required | Scale | Objective | Designa-tion | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| **Carbon Monoxide** 42101-1 | Neighbor-hood | NCore Population Exposure | SLAMS | 4.21 | Gas filter Correlation (593) | Continuous |
| **Sulfur Dioxide** 42401-1 | Neighbor-hood | NCore Population Exposure/ Other | SLAMS | 4.21 | Pulsed Fluorescent (560) | Continuous |
| **Nitric Oxide /$NO_y$** 42600-2 42601-2 | Neighbor-hood | NCore Population Exposure | SLAMS | 8.6 | Chemilumi-nesence (674) | Continuous |
| **Ozone** 44201-1 | Urban | NCore Max Ozone Concentration | SLAMS | 4.21 | Ultraviolet Absorption (087) | Continuous |
| $PM_{10}$ 81102-3 | Neighbor-hood | Population Exposure | SLAMS | 4.76 | FEM Broadband Spectrosco-py (639) | Continuous |
| **$PM_{2.5}$** 88101-1 | Neighbor-hood | NCore Population Exposure | SLAMS | 4.61 | FRM Gravimetric w/ VSCC (145)* | 1:3 |
| $PM_{2.5}$ 88101-2 | Neighbor-hood | Population Exposure | Collocated SLAMS | 4.94 | FRM Gravimetric w/ VSCC (145) | 1:3 |
| **$PM_{2.5}$** 88101-3 | Neighbor-hood | NCore Population Exposure | SLAMS | 4.71 | FEM Broadband Spectrosco-py (638) | Continuous |
| **Speciated $PM_{2.5}$** | Neighbor-hood | NCore Population | SLAMS | 2.04 | CSN Protocol | 1:3 |

| Parameter *Required | Scale | Objective | Designa-tion | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| | | Exposure | | | (811,812,826,838,839,841, 842) | |
| Low Volume $PM_{10}$ 85101-1 | Urban | Population Exposure | SPM | 4.65 | Gravimetric (127) | 1:3 |
| **$PM_{10-2.5}$** 86101-1 | Neighbor-hood | NCore Population Exposure | SLAMS | 4.65 | FEM Broadband Spectrosco-py (640) | Continuous |
| Precipitation Chemistry | Neighbor-hood | Regional Transport | Other | N/A | Not applicable | Weekly-Tues-Tues |
| Precipitation | Neighbor-hood | General / Background | SPM | N/A | Tipping bucket (011) | Continuous and Sample |
| **Wind Speed / Direction** | Neighbor-hood | NCore Local Conditions | SLAMS | N/A | Instruments for wind speed/wind direction (020) | Continuous |

*Indicates the Primary Monitoring Method for $PM_{2.5}$.

**Congaree Bluff**

**CSA/MSA:** Columbia-Orangeburg-Newberry CSA / Columbia MSA
**AQS Site ID:** 45-079-0021
**Location:** 1850 South Cedar Creek Road, Gadsden
**County:** Richland
**Coordinates:** +33.814680, -80.781135
**Date Established:** December 27, 1999
**Site Evaluation:** May 24, 2024

The Congaree Bluff Monitoring Site is located in southern Richland County which is in a rural setting within the boundaries of the Congaree National Park. Monitoring within the Congaree Bluff area began in 1981 with the establishment of the Congaree Swamp Monitoring Site. The original Site was established in cooperation with the Department of the Interior, with the support of the General Assembly, to provide long term monitoring in this unique area, but, because of flooding issues, had to be relocated to the current Congaree Bluff Monitoring Site in 2001. Ozone monitoring at this Site only represents conditions found in the National Park. The sample inlet is 187.5 meters from the nearest road.

This Site meets all 40 CFR Part 58 Appendix E requirements except for the tree obstructions. This Site does not have a t least 270 degrees of open airflow around the probe. The Site has a waiver (March 24, 2021) for the tree obstructions.

**Changes for 2024-2025:**
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Ozone 44201-1 | Neighbor-hood | General / Background | SPM | 4.43 | Ultraviolet (047) | Continuous |

**Irmo DJJ**

**CSA/MSA:** Columbia-Orangeburg-Newberry CSA / Columbia MSA
**AQS Site ID:** 45-079-0022
**Location:** 4900 Broad River Road, Columbia
**County:** Richland
**Coordinates:** +34.0757, -81.1248
**Date Established:** January 20, 2023
**Site Evaluation:** May 24, 2024

The Irmo DJJ Monitoring Site was established on January 20, 2023, to serve as the replacement for the Irmo Monitoring Site. It operates a $PM_{2.5}$ sampler and a $PM_{2.5}$ continuous monitor that fulfills 40 CFR Part 58, Appendix D, Section 4.7.2. The sample inlets are 33.0 meters from the nearest road.

This Site meets all the 40 CFR Part 58, Appendix E siting requirements.

**Changes for 2024-2025:**
Data collected by the FEM T640 monitor at this site will be labeled with a NAAQS Exclusion for up to 23 months after the data alignment firmware update on September 6, 2023, to assess the comparability of the data to the FRM sampler. No further changes are planned for 2024-2025.

**Monitors:** * Indicates the Primary Monitoring Method for $PM_{2.5}$

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| $PM_{2.5}$ 88101-1 | Neighbor-hood | Population Exposure | SLAMS | 2.33 | FRM Gravimetric w/ VSCC (145)* | 1:1 |
| $PM_{2.5}$ 88101-3 | Neighbor-hood | Population Exposure | SPM | 2.57 | FEM Broadband Spectrosco-py (636) | Continuous |

* Indicates the Primary Monitoring Method for $PM_{2.5}$

**Sandhill Experimental Station**
**CSA/MSA:** Columbia-Orangeburg-Newberry CSA / Columbia MSA
**AQS Site ID:** 45-079-1001
**Location:** 900 Clemson Road, Columbia
**County:** Richland
**Coordinates:** +34.131262, -80.868318
**Date Established:** January 1, 1959
**Site Evaluation:** May 7, 2024

The Sandhill Experimental Station Monitoring Site is located in northeastern Richland County, downwind from the Columbia metropolitan area. This Site is located in a rapidly urbanizing portion of the City of Columbia. This Site operates a $NO_2$ monitor and a required ozone monitor that fulfills 40 CFR Part 58, Appendix D, Section 4.1 for this MSA. The sample inlets are 31.1 meters from the nearest road.

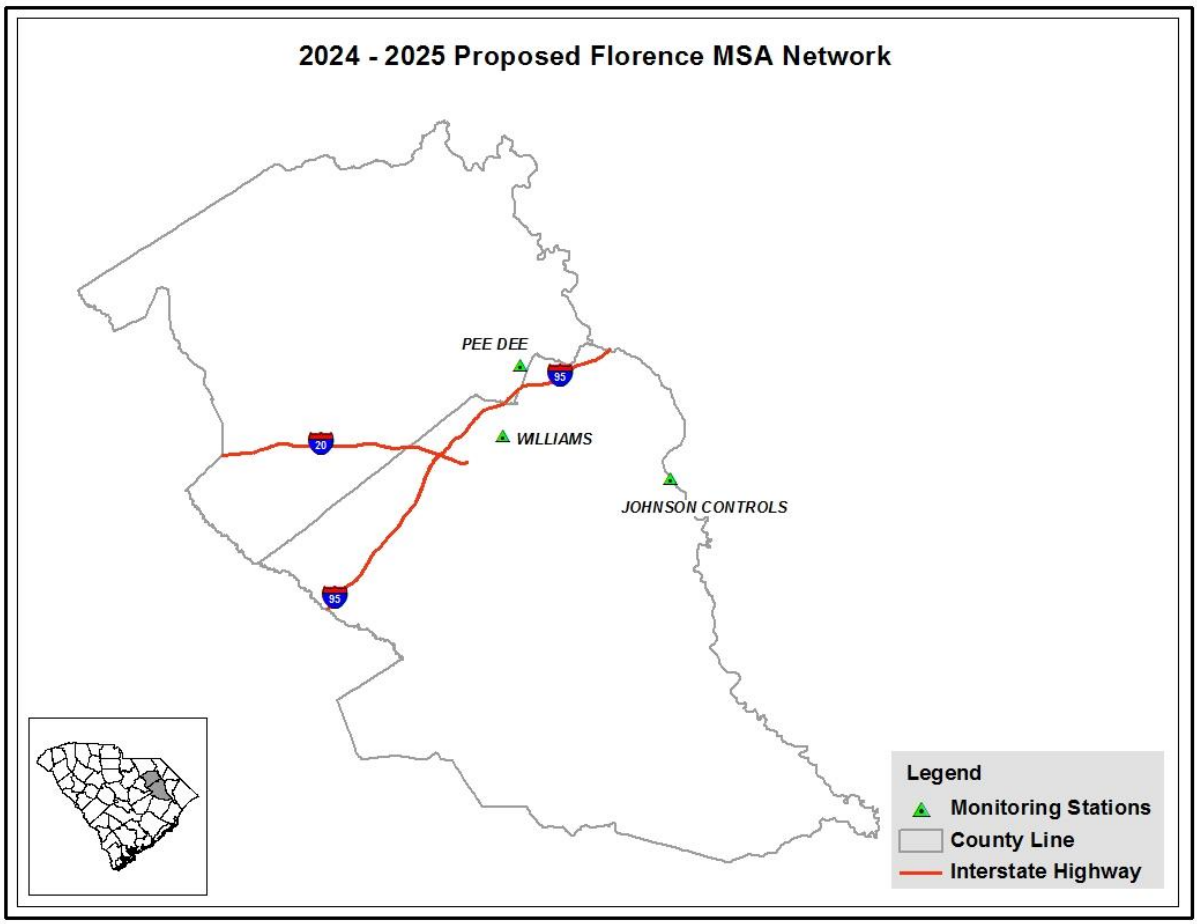
This Site meets all 40 CFR Part 58, Appendix E siting criteria.

**Changes for 2024-2025:**
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Nitrogen Dioxide 42602-1 | Urban | General / Background Max Precursor Emissions Impact | SPM | 4.02 | Chemilumi-nesence (599) | Continuous |
| Ozone 44201-1 | Urban | Max Ozone Concentration | SLAMS | 4.02 | Ultraviolet Absorption (047) | Continuous |

***Florence MSA***




Classification of Monitoring Type by Site:

| Site ID | Site Name | $PM_{2.5}$ | $PM_{2.5}$ Cont. | $PM_{10}$ | Lead | Ozone | $SO_2$ | $NO_2$ | CO |
|---|---|---|---|---|---|---|---|---|---|
| 45-031-0003 | Pee Dee Experimental Station | | | | | ● | | | |
| 45-041-0003 | Williams Middle School | ● | ○ | | | | | | |
| 45-041-8003 | Clarios-Woods | | | | ○○ | | | | |
| | Total | 1 | 1 | 0 | 2 | 1 | 0 | 0 | 0 |
| ○ SPM / Other ● SLAMS ○○/●● Duplicate / QA Monitors | | | | | | | | | |

**Pee Dee Experimental Station**

**CSA/MSA:** none/Florence MSA
**AQS Site ID:** 45-031-0003
**Location:** 2200 Pocket Road, Darlington
**County:** Darlington
**Coordinates:** +34.285696, -79.744859
**Date Established:** February 25, 1993
**Site Evaluation:** April 4, 2024

The Pee Dee Experimental Station Monitoring Site is located in northeastern Darlington County. This Site has an ozone monitor. The sample inlets are 193.3 meters from the nearest road.

This Site meets all 40 CFR Part 58 Appendix E siting criteria.

**Changes for 2023-2024:**
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Ozone 44201-1 | Urban | Max Ozone Concentration/ General / Background | SLAMS | 4.10 | Ultraviolet Absorption (087) | Continuous |

**Williams Middle School**

**CSA/MSA:** none/Florence MSA
**AQS Site ID:** 45-041-0003
**Location:** 1119 N. Irby Street, Florence
**County:** Florence
**Coordinates:** +34.214263, -79.767347
**Date Established:** August 4, 2008
**Site Evaluation:** April 4, 2024

The Williams Middle School Monitoring Site is located in Florence County and operates one $PM_{2.5}$ FRM sampler and one $PM_{2.5}$ FEM continuous monitor. Sample inlets are 110 meters from the nearest road.

This Site meets all 40 CFR Part 58, Appendix E requirements.

**Changes for 2024-2025:**
Data collected by the FEM T640 monitor at this site will be labeled with a NAAQS Exclusion for up to 23 months after the data alignment firmware update on September 6, 2023, to assess the comparability of the data to the FRM sampler.
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designa-tion | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| $PM_{2.5}$ 88101-1 | Neighbor-hood | Population Exposure/ Highest Concentration | SLAMS | 2.64 | FRM Gravimetric w/ VSCC (145)* | 1:3 |
| $PM_{2.5}$ 88101-3 | Neighbor-hood | Population Exposure/ Highest Concentration | SPM | 2.85 | FEM Broadband Spectroscopy (636) | Continuous |

*Indicates the Primary Monitoring Method for $PM_{2.5}$

**Clarios-Woods**

**CSA/MSA:** none/Florence MSA
**AQS Site IDs:** 45-041-8003
**Locations:** Liberty Chapel Road at Paper Mill Road, Florence
**County:** Florence
**Coordinates:** +34.167500, -79.562660
**Dates Established:** January 4-10, 2012
**Site Evaluation:** June 6, 2024

Clarios-Woods is located in Florence County. It was originally owned by Johnson Controls Incorporated (JCI). On May 7, 2010, the Department issued an air synthetic minor construction permit to Johnson Controls Battery Group for the Florence Recycling Center (Permit No. 1040-0129-CA). Under a settlement agreement with several petitioners[7], the Florence Recycling Center and the Department conducted source-oriented ambient lead monitoring at three locations around the facility. The facility was sold to Clarios, LLC, who ceased production on March 22, 2021. Because of this, the lead monitoring requirements of the settlement agreement are viewed as terminated and no longer in effect. The Department discontinued monitoring at the JCI Railroad and JCI Entrance Sites on November 8, 2021.

As a precaution, and per discussions with EPA, monitoring will continue at the Clarios-Woods Site (2 samplers) while the air permit remains open. The Department discontinued monitoring at the JCI Railroad and JCI Entrance Sites on November 8, 2021. The facility is also continuing to operate pollution controls under the permit to address fugitives while equipment is being removed from the site and a cleanup plan is being developed.

The Clarios-Woods Monitoring Site has primary and collocated samplers that are set on a 1:6 sampling schedule.

This site meets all 40 CFR Part 58 Appendix E siting criteria except Appendix E Section 2.3- Spacing from Obstructions. This site has multiple tree obstructions which restrict airflow less than 270° continuous, however the site has a waiver from EPA for multiple trees to the north and east of site. Additionally, this site operates SPM lead monitors, and 40 CFR Part 58.20(b) states that compliance with Appendix E is optional for SPM monitors.

[7] Coastal Conservation League and League of Women Voters of South Carolina vs South Carolina Department of Health and Environmental Control and Johnson Controls Battery Group, Inc., (State of SC, 2010).

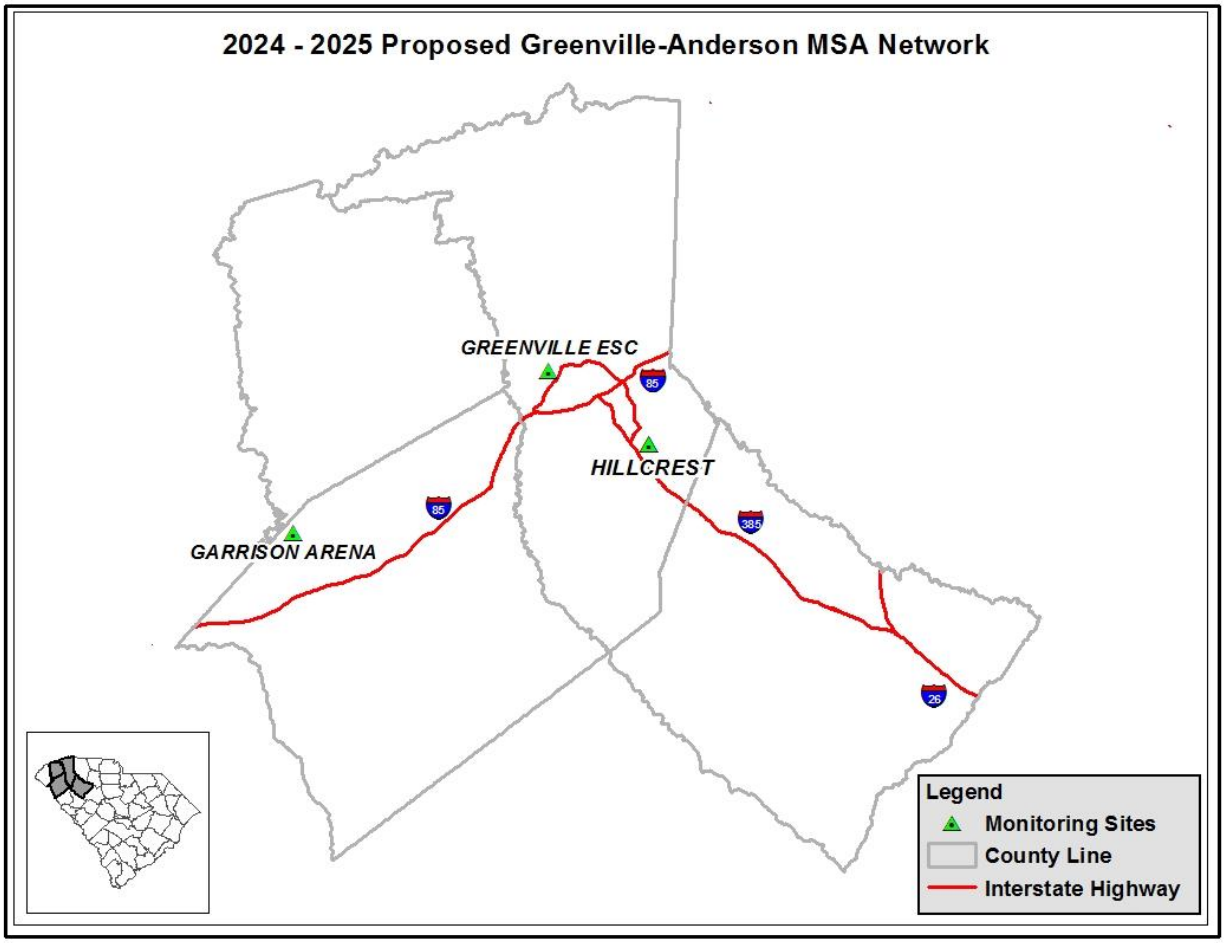
**Changes for 2024-2025:**
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Lead 14129-1 | Middle | Source oriented | SPM | 2.45 | ICP/MS (193)* | 1:6 |
| Lead 14129-2 | Middle | Source oriented | SPM | 2.53 | ICP/MS (193) | 1:6 |

*Indicates the Primary Sampler for Lead

***Greenville-Anderson-Greer MSA***




Classification of Monitoring Type by Site:

| Site ID | Site Name | $PM_{2.5}$ | $PM_{2.5}$ Cont. | $PM_{10}$ | Lead | Ozone | $SO_2$ | $NO_2$ | CO |
|---|---|---|---|---|---|---|---|---|---|
| 45-007-0006 | Garrison Arena | | | | | ● | | | |
| 45-045-0015 | Greenville ESC | ● | ○ | ● | | | ● | ● | |
| 45-045-0016 | Hillcrest | ●● | | | | ● | | | |
| | Total | 3 | 1 | 1 | 0 | 2 | 1 | 1 | 0 |

○ SPM / Other ● SLAMS ○○/●● Duplicate / QA Monitors

**Garrison Arena**

**CSA/MSA:** Greenville-Spartanburg-Anderson CSA / Greenville-Anderson-Greer MSA
**AQS Site ID:** 45-007-0006
**Location:** 1101 W. Queen Street, Pendleton
**County:** Anderson
**Coordinates:** +34.635958, -82.810667
**Date Established:** February 28, 2020
**Site Evaluation:** May 16, 2024

The Garrison Arena Monitoring Site is located on the grounds of Clemson University at the T. Ed Garrison Arena near the northern border of Anderson County. This Site supports a required ozone monitor that fulfills the 40 CFR Part 58, Appendix D, Section 4.1 minimum monitoring requirements. The monitor measures ozone concentrations upwind of the Greenville-Spartanburg urbanized area. This Site is 14.25 meters from the nearest road.

This Site meets all 40 CFR Part 58, Appendix E siting criteria.

**Changes for 2024-2025**
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Ozone 44201-1 | Urban | Max Ozone Concentra-tion | SLAMS | 4.55 | Ultraviolet Absorption (087) | Continuous |

**Greenville Employment Security Commission (ESC)**

**CSA/MSA:** Greenville-Spartanburg-Anderson CSA / Greenville-Anderson-Greer MSA
**AQS Site ID:** 45-045-0015
**Location:** 133 Perry Avenue, Greenville
**County:** Greenville
**Coordinates:** +34.843895, -82.414585
**Date Established:** April 11, 2008
**Site Evaluation:** March 13, 2024

The Greenville ESC Monitoring Site was established on April 11, 2008, in the City of Greenville. This Site supports a $PM_{2.5}$ FRM sampler and a T640X monitor, which measures both continuous $PM_{2.5}$ and $PM_{10}$. The continuous $PM_{2.5}$ monitor fulfills the 40 CFR Part 58, Appendix A Section 3.2 and the 40 CFR Part 58, Appendix D, Section 4.7 minimum monitoring requirements. The continuous $PM_{10}$ monitor fulfills the 40 CFR Part 58, Appendix D, Section 4.6 requirements.

In addition, this Site monitors for $SO_2$ and $NO_2$. The EPA Region 4 selected this Site as one of the locations for a Regional Administrator required $NO_2$ monitor to help protect susceptible and vulnerable populations, as required by 40 CFR Part 58, Appendix D, Section 4.3.4.

The sample inlets are 12.1 meters from the nearest road.

This Site meets all 40 CFR Part 58 Appendix E siting criteria except for Appendix E, Section 2.3 - Spacing from Obstructions. This site does not have at least 270 degrees of open airflow around the $PM_{2.5}$ Intermittent probe due to two tree obstructions. The Department is requesting a waiver from EPA for Appendix E, Section 2.3 for the Greenville ESC Monitoring Site since the probe cannot be reasonably relocated.

**Changes for 2024-2025:**
Data collected by the FEM T640X monitor at this site will be labeled with a NAAQS Exclusion for up to 23 months after the data alignment firmware update on September 6, 2023, to assess the comparability of the data to the FRM sampler.
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Sulfur Dioxide 42401-1 | Neighbor-hood | Population Exposure | SLAMS | 4.34 | Pulsed fluorescent (560) | Continuous |
| Nitrogen Dioxide 42602-1 | Neighbor-hood | Population Exposure | SLAMS | 4.34 | Chemilumi-nescence (599) | Continuous |
| $PM_{10}$ 81102-1 | Neighbor-hood | Population Exposure | SLAMS | 4.95 | FEM Broadband Spectrosco-py (639) | Continuous |
| $PM_{2.5}$ 88101-1 | Neighbor-hood | Population Exposure / Welfare Related Impacts | SLAMS | 3.47 | FRM Gravimetric w/ VSCC (145) * | 1:1 |
| $PM_{2.5}$ 88101-3 | Neighbor-hood | Population Exposure/ Welfare Related Impacts | SPM | 4.94 | FEM Broadband Spectrosco-py (638) | Continuous |

*Indicates the Primary Monitoring Method for $PM_{2.5}$

**Hillcrest Middle School**

**CSA/MSA:** Greenville-Spartanburg-Anderson CSA / Greenville-Anderson-Greer MSA
**AQS Site ID:** 45-045-0016
**Location:** 510 Garrison Road, Simpsonville
**County:** Greenville
**Coordinates:** +34.751848, -82.256701
**Date Established:** February 17, 2009
**Site Evaluation:** March 12, 2024

The Hillcrest Middle School Monitoring Site is located in Simpsonville and represents suburban areas near the interstate corridors in the Greenville MSA. Initiated in 2008, this Site was selected as a monitoring location based on results of the Greenville MSA Ozone Study. This Site supports an ozone monitor that fulfills the 40 CFR Part 58, Appendix D, Section 4.1 requirement and a required collocated $PM_{2.5}$ FRM sampler pair that fulfills 40 CFR Part 58, Appendix A, Section 3.2. The sample inlets are 259 meters from the nearest road.

This Site meets all 40 CFR Part 58, Appendix E requirements.

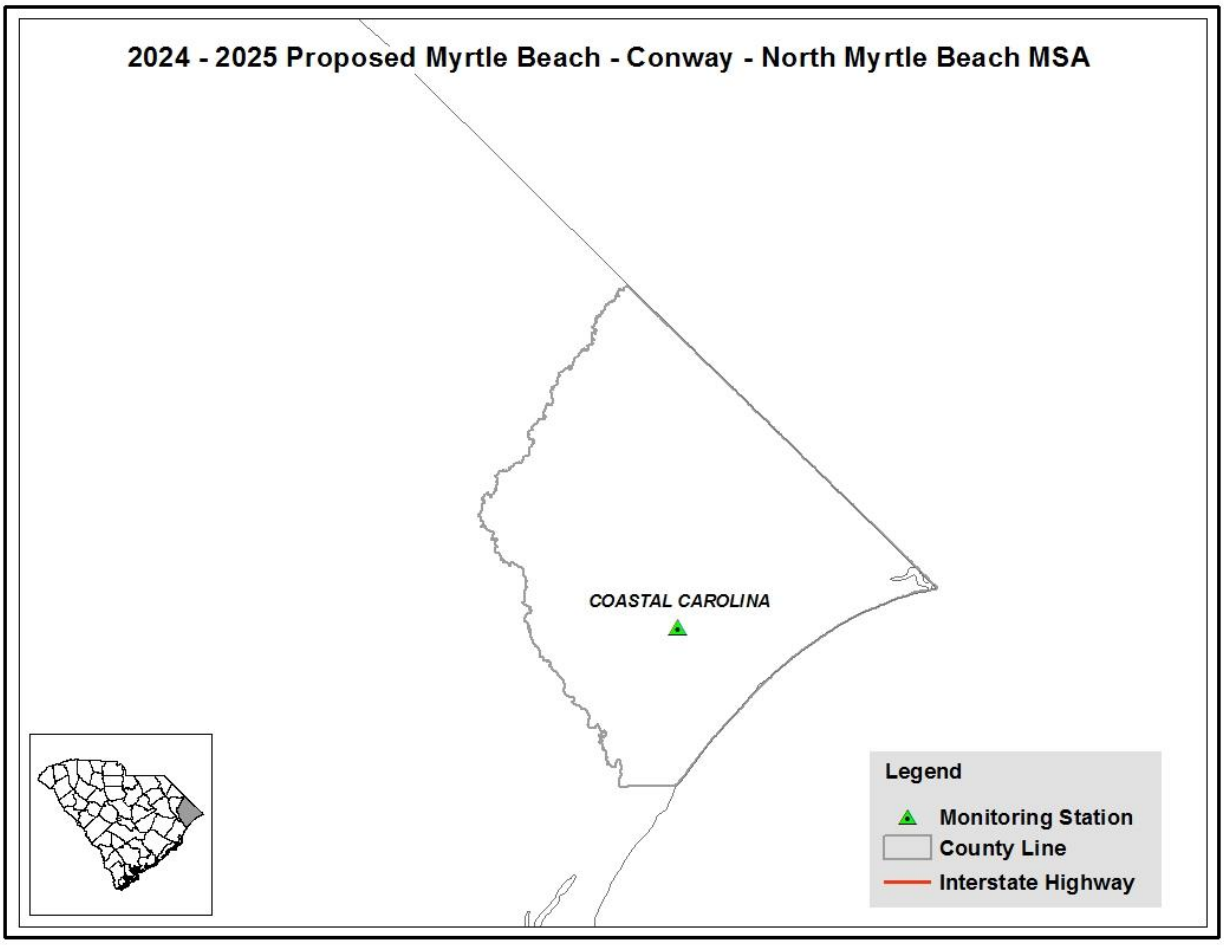
**Changes for 2024-2025**
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Ozone 44201-1 | Urban | Population Exposure | SLAMS | 3.70 | Ultraviolet Adsorption (087) | Continuous |
| $PM_{2.5}$ 88101-1 | Urban | Population Exposure | SLAMS | 4.73 | FRM Gravimetric w/ VSCC (145)* | 1:3 |
| $PM_{2.5}$ 88101-2 | Urban | Population Exposure | QA Collocated SLAMS | 4.73 | FRM Gravimetric w/ VSCC (145) | 1:3 |

*Indicates the Primary Monitoring Method for $PM_{2.5}$

***Myrtle Beach-Conway-North Myrtle Beach MSA***




Classification of Monitoring Type by Site:

| Site ID | Site Name | $PM_{2.5}$ | $PM_{2.5}$ Cont. | $PM_{10}$ | Lead | Ozone | $SO_2$ | $NO_2$ | CO |
|---|---|---|---|---|---|---|---|---|---|
| 45-051-0008 | Coastal Carolina | | ○ | | | ● | | | |
| | Total | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| ○ SPM / Other ● SLAMS ○○/●● Duplicate / QA Monitors | | | | | | | | | |

**Coastal Carolina**

**CSA/MSA:** Myrtle Beach-Conway-North Myrtle Beach MSA
**AQS Site ID:** 45-051-0008
**Location:** 485 Century Circle, Conway
**County:** Horry
**Coordinates:** +33.800500, -78.994100
**Date Established:** June 27, 2016
**Site Evaluation:** April 23, 2024

In 2016, the Department established the Coastal Carolina Monitoring Site on the grounds of the Coastal Carolina University in Conway. This Site supports a $PM_{2.5}$ monitor and a required ozone monitor that fulfills 40 CFR Part 58, Appendix D, Section 4.1 for the MSA and measures maximum ozone concentrations.

40 CFR Part 58, Appendix D, Section 4.1 states that if the most recent 3-year ozone design value exceeds 85 percent of the ozone NAAQS (which is 0.070 ppm), then another ozone monitor must be added in the MSA. The EPA invalidated portions of the 2018 and 2019 ozone data sets. In 2023, the 3-year ozone design value exceeded 85 percent of the ozone NAAQS. Therefore, the Department has started the process of finding an appropriate Site for a second ozone monitor in the MSA. Monitoring for $PM_{2.5}$ began February 23, 2023; however, the CBSA was updated in July 2023 and the $PM_{2.5}$ monitor is no longer required. The $PM_{2.5}$ monitor will remain at the Site as an SPM monitor.

The sample inlet is 18.3 meters from the nearest road.

This Site meets all 40 CFR Part 58, Appendix E requirements.

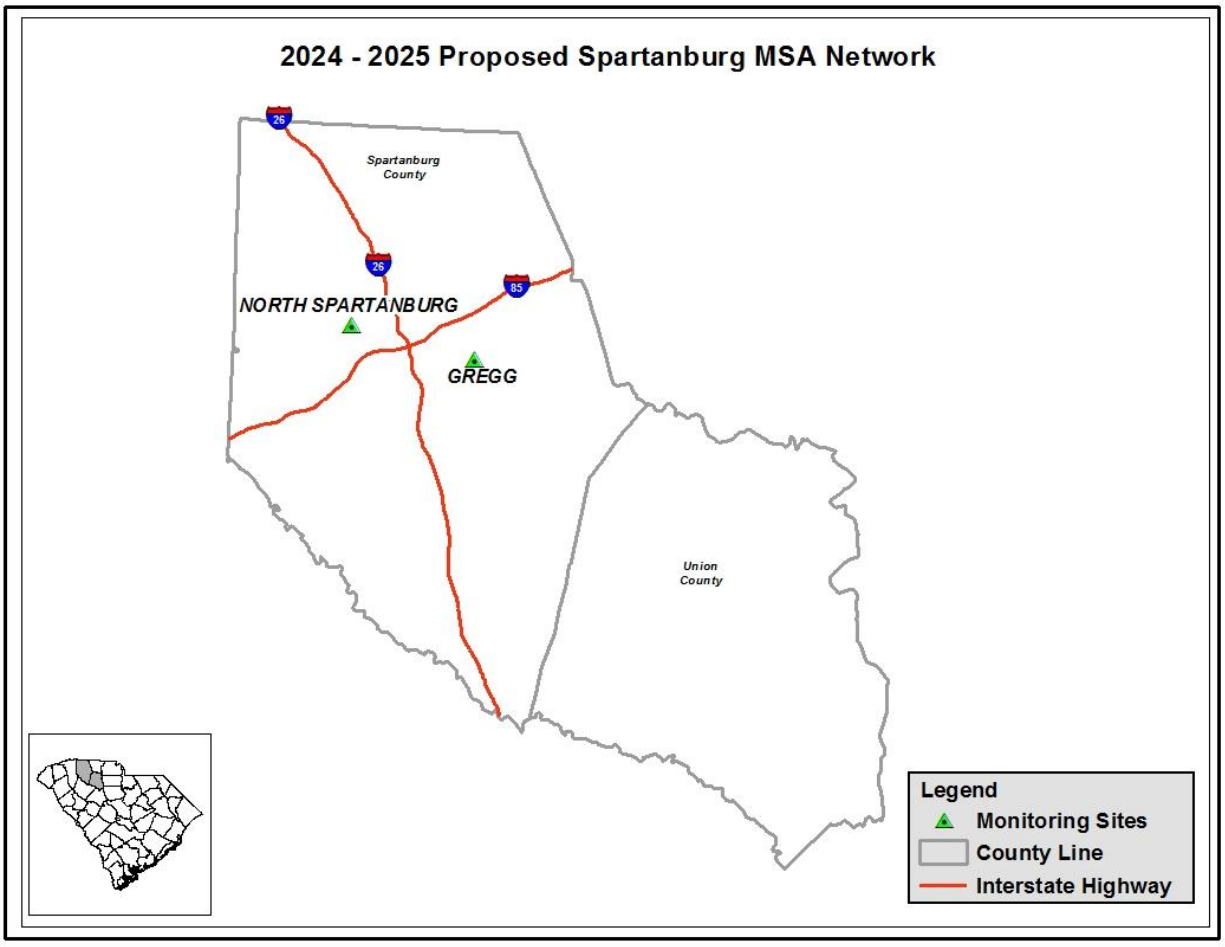
**Changes for 2024-2025:**
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Ozone 44201-1 | Urban | Population Exposure | SLAMS | 4.11 | Ultraviolet (087) | Continuous |
| $PM_{2.5}$ | Neigh- | Population | SPM | 4.52 | Broadband | Continuous |

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| 88101-3 | borhood | Exposure | | | Spectroscopy (636) | |

***Spartanburg MSA***




Classification of Monitoring Type by Site:

| Site ID | Site Name | $PM_{2.5}$ | $PM_{2.5}$ Cont. | $PM_{10}$ | Lead | Ozone | $SO_2$ | $NO_2$ | CO |
|---|---|---|---|---|---|---|---|---|---|
| 45-083-0009 | North Spartanburg Fire Station #2 | | | | | ● | | | |
| 45-083-0011 | T.K. Gregg | ● | ○ | | | | | | |
| | Total | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| ○ SPM / Other ● SLAMS ○○/●● Duplicate / QA Monitors | | | | | | | | | |

**North Spartanburg Fire Station #2**

**CSA/MSA:** Greenville-Spartanburg-Anderson CSA / Spartanburg MSA
**AQS Site ID:** 45-083-0009
**Location:** 1556 John Dodd Road, Inman
**County:** Spartanburg
**Coordinates:** +34.988706, -82.075802
**Date Established:** April 4, 1990
**Site Evaluation:** April 16, 2024

The North Spartanburg Fire Station #2 Monitoring Site was established on April 4, 1990, in rural Spartanburg County, northwest of the City of Spartanburg. This Site supports a required ozone monitor to fulfill the 40 CFR Part 58, Appendix D, Section 4.1 requirements. The objective is to measure maximum ozone concentration. The sample inlet is 92.5 meters from the nearest road.

This site meets all the 40 CFR Part 58 Appendix E siting criteria.

**Changes for 2024-2025:**
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Ozone 44201-1 | Urban | Max Ozone Concentration | SLAMS | 3.85 | Ultraviolet Absorption (087) | Continuous |

**T.K. Gregg Recreation Center**

**CSA/MSA:** Greenville-Spartanburg-Anderson CSA / Spartanburg MSA
**AQS Site ID:** 45-083-0011
**Location:** 267 Northview Street, Spartanburg
**County**: Spartanburg
**Coordinates:** +34.955566, -81.924797
**Date Established:** December 29, 2008
**Site Evaluation:** April 16, 2024

The T.K. Gregg Recreation Center Monitoring Site is located in downtown Spartanburg in Spartanburg County. This Site has a $PM_{2.5}$ FRM sampler and a continuous $PM_{2.5}$ monitor. The sample inlets are 48.2 meters from the nearest road.

This Site meets all 40 CFR Part 58, Appendix E requirements.

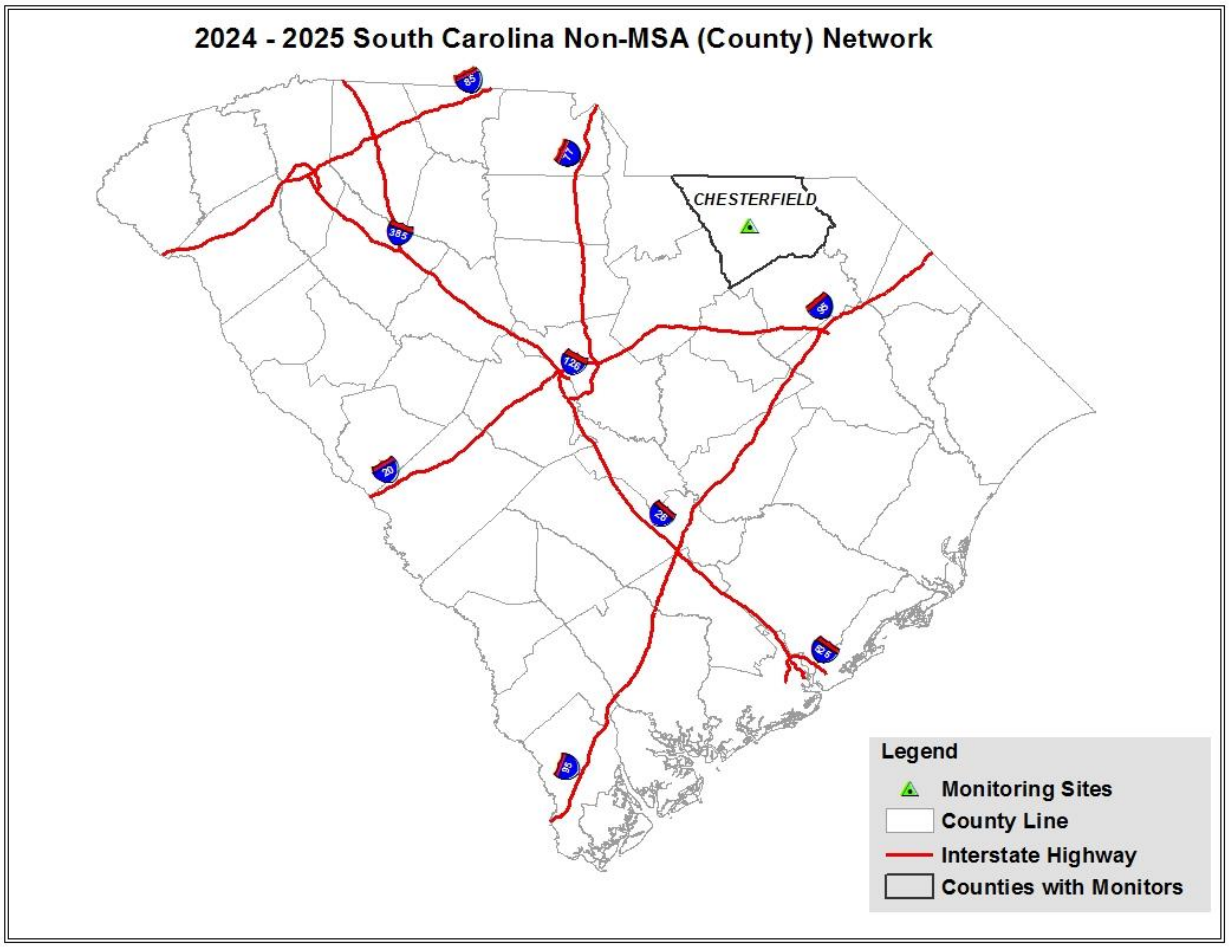
**Changes for 2024-2025:**
Data collected by the FEM T640 monitor at this site will be labeled with a NAAQS Exclusion for up to 23 months after the data alignment firmware update on September 6, 2023, to assess the comparability of the data to the FRM sampler. There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| $PM_{2.5}$ 88101-1 | Neigh-borhood | Highest Concentration | SLAMS | 2.44 | FRM Gravimetric w/VSCC (145)* | 1:1 |
| $PM_{2.5}$ 88101-3 | Neigh-borhood | Highest Concentration | SPM | 2.85 | Broadband Spectroscopy (636) | Continuous |

*Indicates the Primary Monitoring Method for $PM_{2.5}$

***Remainder of State***




Classification of Monitoring Type by Site:

| Site ID | Site Name | $PM_{2.5}$ | $PM_{2.5}$ Cont. | Ozone | Metals | Carbonyls | SVOCs | VOCs | EtO |
|---|---|---|---|---|---|---|---|---|---|
| 45-025-0001 | Chesterfield | ● | ● | ○ | ○○ | ○○ | ○○ | ○○ | ○ |
| | Total | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 1 |
| ○ SPM / Other ● SLAMS ○○/●● Duplicate / QA Monitors | | | | | | | | | |

**Chesterfield (NATTS)**

**CSA/MSA:** none/none
**AQS Site ID:** 45-025-0001
**Location:** SC Hwy 145, McBee (Route 2 Box 100)
**County:** Chesterfield
**Coordinates:** +34.615367, -80.198787
**Date Established:** January 6, 2000
**Site Evaluation:** March 25, 2024

The Chesterfield Monitoring Site is located in central Chesterfield County. This Site has an ozone monitor and a required continuous FEM $PM_{2.5}$ monitor that is collocated with a FRM $PM_{2.5}$ sampler, which fulfills the 40 CFR Part 58, Appendix A, Section 3.2 collocation requirement. The FRM $PM_{2.5}$ sampler also fulfills the Appendix D, Section 4.7.3 requirement for regional transport concentrations.

The Chesterfield Monitoring Site is a rural NATTS Site which includes carbonyls, total VOCs, EtO, SVOCs, and metals sampling. The sample inlets are 34 meters from the nearest road.

The criteria pollutants meet all 40 CFR Part 58, Appendix E requirements. The duplicate metals have a tree that is an obstruction, but there is still 356º of air flow around those monitors.

**Changes for 2024-2025:**
There are no changes planned for 2024-2025.

**Monitors:**

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| Ozone 44201-1 | Regional | General / Background | SPM | 4.44 | Ultraviolet Absorption (087) | Continuous |
| $PM_{2.5}$ 88101-1 | Regional | Regional Transport | QA Collocated SLAMS | 2.87 | FRM Gravimetric w/ VSCC (145) | 1:3 |
| $PM_{2.5}$ | Regional | Regional | SLAMS | 3.00 | FEM | Continuous |

| Parameter | Scale | Objective | Designation | Probe Height (m) | Analysis & (Method Code) | Sampling Frequency |
|---|---|---|---|---|---|---|
| 88101-3 | | Transport | | | Broadband Spectrosco-py (636)* | |
| Carbonyls | Urban | NATTS | Other | 4.20 | DNPH/HPLC | 1:6 |
| Collocated Carbonyls | Urban | NATTS | Other | 4.20 | DNPH/HPLC | 1:6 |
| SVOC | Urban | NATTS | Other | 1.98 | PUF/GCMS | 1:6 |
| Collocated SVOC | Urban | NATTS | Other | 1.94 | PUF/GCMS | 1:6 |
| VOC | Urban | NATTS | Other | 4.40 | Canister/ GCMS | 1:6 |
| Collocated VOC | Urban | NATTS | Other | 1.94 | Canister/ GCMS | 1:6 |
| Ethylene Oxide | Urban | NATTS | Other | 4.40 | Canister/ GCMS | 1:6 |
| Metals | Urban | NATTS | Other | 2.43 | $PM_{10}$ / ICP/MS | 1:6 |
| Collocated Metals | Urban | NATTS | Other | 2.42 | $PM_{10}$ / ICP/MS | 1:6 |

*Indicates the Primary Monitoring Method for $PM_{2.5}$

## Appendix A: Summary of Public Comments

Below is a summary of the comments received and the Department's responses.

There were no public comments received.

## Appendix B:  Site Evaluations Summary for CFR 40 Part 58, Appendix E Table

Site Evaluations are conducted yearly on each monitoring site to ensure compliance to requirements found in 40 CFR Part 58, Appendix E. After appropriate administrative review, the Site Evaluations are sent to the EPA Region 4. The following tables summarize the information about the latest Site Evaluation for each of the monitoring sites.
The first table gives the column number and the shortened Column Name listed in the columns of the second table. It also gives the Section number and the regulatory requirement it represents from 40 CFR, Part 58, Appendix E. The second table lists each monitoring site, their individual criteria pollutant monitors, and the fulfillment and/or measurements of the 40 CFR Part 58, Appendix E requirements. For brevity, the column titles in the second table have been shortened as follows:

| Column | Column Name | 40 CFR Part 58, Appendix E Requirements |
|---|---|---|
| Column 1: | Site ID, Site Name and Date Visited | Site Identification information and date the Site Evaluation was conducted. |
| Column 2: | Parameter | Criteria Pollutant. |
| Column 3: | Sampling Train | Section 2.6. For reactive gases, is sampling train made of borosilicate glass, FEP Teflon or their equivalent? |
| Column 4: | Sampling Time | Section 2.6. For reactive gases, is sampling time <20 seconds? |
| Column 5: | Probe Height | Section 2.1. Horizontal and Vertical Placement: Height from ground to probe must be 2-15 meters. |
| Column 6: | Support Structure | Section 2.1. Horizontal and Vertical Placement: Is Horizontal and vertical distance from supporting structure >1 meter. |
| Column 7: | Collocation Placement | Section 11. Horizontal and Vertical Placement: Collocated monitors must be within 4 meters of each other. |
| Column 8: | Flow Rates | Section 11. Horizontal and Vertical Placement: For PM collocation, flow rates greater than 200 liters/min must be at least 2 meters apart or at least 1-meter flow rates for less than 200 liters/min. |
| Column 9: | Minor Sources | Section 2.2. Spacing from Minor Sources: Probe should be away from minor sources. |
| Column 10: | Obstructions | Section 2.3. Spacing from Obstructions: Distance from probe to obstacle must be at least twice the height the obstacle protrudes above the probe. |
| Column 11: | Airflow | Section 2.3. Spacing from Obstructions: Must have continuous unrestricted airflow 270 degrees around probe. (Yes means the probe has at least 270 degrees around the probe). |
| Column 12: | Dripline | Section 2.4. Spacing from Trees: Distance from dripline of trees to probe must be <10 meters. |
| Column 13: | Roadway | Section 2.5. Spacing from Roadways: Does it meet distance from roadway to probe? |

| Site ID; Site Name; Date Visited | Parameter | Sam-pling Train | Sam-pling Time | Probe Height (m) | Vertical Distance from Support (m) | Collocation Placement (m) | Flow Rate | Minor Sources | Obstructions | Airflow | Drip-line (m) | Roadway (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Augusta-Richmond County, GA-SC MSA** | | | | | | | | | | | | |
| 45-003-0003; Jackson; May 2, 2024 | Ozone | Yes | Yes | 3.40 | 0.82 | N/A | N/A | Yes | Yes | Yes | 11.4 | 128 |
| 45-037-0001; Trenton; May 2, 2024 | Ozone | Yes | Yes | 4.24 | 1.62 | N/A | N/A | Yes | Yes | Yes | 31.4 | 30.3 |
| 45-037-0001; Trenton; May 2, 2024 | $PM_{2.5}$ Cont. | N/A | N/A | 4.5 | 1.71 | N/A | Yes | Yes | Yes | Yes | 31.4 | 30.3 |
| 45-037-0001; Trenton; May 2, 2024 | $PM_{2.5}$ Int. | N/A | N/A | 4.66 | 2.04 | N/A | Yes | Yes | Yes | Yes | 31.4 | 30.3 |
| **Charleston-North Charleston MSA** | | | | | | | | | | | | |
| 45-015-1002; Moncks Corner; March 7, 2024 | Ozone | Yes | Yes | 4.42 | 1.77 | N/A | N/A | Yes | Yes | Yes | 16.5 | 177 |
| 45-019-0003; Jenkins Ave; March 7, 2024 | $NO_2$ | Yes | Yes | 4.65 | 1.95 | N/A | N/A | Yes | Yes | Yes | 18.8 | 33.5 |
| 45-019-0003; Jenkins Ave; March 7, 2024 | $SO_2$ | Yes | Yes | 4.65 | 1.95 | N/A | N/A | Yes | Yes | Yes | 18.8 | 33.5 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45-019-0020<br>N. Charleston F.S.<br>March 19, 2024 | $PM_{2.5}$ Int. | N/A | N/A | 2.33 | 2.05 | 2.05 | Yes | Yes | Yes | Yes | 24.0 | 24.6 |
| 45-019-0020<br>N. Charleston F.S.<br>March 19, 2024 | $PM_{2.5}$ Int. | N/A | N/A | 2.33 | 2.05 | 2.05 | Yes | Yes | Yes | Yes | 24.0 | 24.6 |
| 45-019-0020<br>N. Charleston F.S.<br>March 19, 2024 | $PM_{2.5}$ Cont. | N/A | N/A | 2.89 | 2.61 | N/A | Yes | Yes | Yes | Yes | 24.0 | 24.6 |
| 45-019-0020<br>N. Charleston F.S.<br>March 19, 2024 | $PM_{10}$ Cont. | N/A | N/A | 2.89 | 2.61 | N/A | Yes | Yes | Yes | Yes | 24.0 | 24.6 |
| 45-019-0046;<br>Cape Romain;<br>March 19, 2024 | Ozone | Yes | Yes | 4.15 | 1.4 | N/A | N/A | Yes | Yes | Yes | 12.9 | 86 |
| 45-019-0046;<br>Cape Romain;<br>March 19, 2024 | $NO_2$ | Yes | Yes | 4.15 | 1.4 | N/A | N/A | Yes | Yes | Yes | 12.9 | 86 |
| 45-019-0046;<br>Cape Romain;<br>March 19, 2024 | $PM_{2.5}$ Cont. | N/A | N/A | 4.85 | 2.1 | N/A | Yes | Yes | Yes | Yes | 12.3 | 86 |
| **Charlotte-Concord-Gastonia MSA** | | | | | | | | | | | | |
| 45-091-0008;<br>York Landfill;<br>April 8, 2024 | Ozone | Yes | Yes | 4.53 | 1.98 | N/A | N/A | Yes | Yes | Yes | 26.4 | 34.8 |
| **Columbia MSA** | | | | | | | | | | | | |
| 45-079-0022;<br>Irmo DJJ;<br>May 24, 2024 | $PM_{2.5}$ Int. | N/A | N/A | 2.33 | 2.02 | 2.15 | Yes | Yes | Yes | Yes | 19.4 | 33.0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45-079-0022; Irmo DJJ; May 24, 2024 | $PM_{2.5}$ Cont. | N/A | N/A | 2.57 | 2.26 | 2.15 | Yes | Yes | Yes | Yes | 19.4 | 33.0 |
| 45-079-0007; Parklane; May 21, 2024 | $PM_{2.5}$ Int. | N/A | N/A | 4.61 | 2.06 | 2.38 | Yes | Yes | Yes | Yes | 10.4 | 41.6 |
| 45-079-0007; Parklane; May 21, 2024 | $PM_{2.5}$ Int. | N/A | N/A | 4.94 | 2.39 | 2.38 | Yes | Yes | Yes | Yes | 12.71 | 41.6 |
| 45-079-0007; Parklane; May 21, 2024 | $PM_{2.5}$ Cont. | N/A | N/A | 4.71 | 2.16 | N/A | Yes | Yes | Yes | Yes | >10.4 | 41.6 |
| 45-079-0007; Parklane; May 21, 2024 | Speciated $PM_{2.5}$ | N/A | N/A | 2.04 | 2.0 | N/A | Yes | Yes | Yes | Yes | 12.8 | 41.6 |
| 45-079-0007; Parklane; May 21, 2024 | $PM_{10}$ | N/A | N/A | 4.65 | 2.05 | N/A | Yes | Yes | Yes | Yes | 10.4 | 41.6 |
| 45-079-0007; Parklane; May 21, 2024 | Ozone | Yes | Yes | 4.21 | 1.6 | N/A | N/A | Yes | Yes | Yes | 10.4 | 41.6 |
| 45-079-0007; Parklane; May 21, 2024 | $SO_2$ | Yes | Yes | 4.21 | 1.6 | N/A | N/A | Yes | Yes | Yes | 10.4 | 41.6 |
| 45-079-0007; Parklane; May 21, 2024 | CO | Yes | Yes | 4.21 | 1.6 | N/A | N/A | Yes | Yes | Yes | 10.4 | 41.6 |
| 45-079-0007; Parklane; May 21, 2024 | $NO/NO_y$ | Yes | Yes | 9.6 | N/A | N/A | N/A | Yes | Yes | Yes | 10.4 | 41.6 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45-079-0021; Congaree Bluff; May 24, 2024 | Ozone | Yes | Yes | 4.43 | 1.75 | N/A | N/A | Yes | No | No | 11.8 | 187.5 |
| 45-079-1001; Sandhill; May 7, 2024 | Ozone | Yes | Yes | 4.02 | 1.32 | N/A | N/A | Yes | Yes | Yes | 15.0 | 31.1 |
| 45-079-1001; Sandhill; May 7, 2024 | $NO_2$ | Yes | Yes | 4.02 | 1.32 | N/A | N/A | Yes | Yes | Yes | 15.0 | 31.1 |
| **Florence MSA** | | | | | | | | | | | | |
| 45-031-0003; Pee Dee; March 4, 2024 | Ozone | Yes | Yes | 4.10 | 1.40 | N/A | N/A | Yes | Yes | Yes | No Trees | 193.3 |
| 45-041-0003; Williams Middle School; April 04, 2024 | $PM_{2.5}$ Cont. | N/A | N/A | 2.64 | 2.14 | N/A | Yes | Yes | Yes | Yes | 19.4 | 110 |
| 45-041-0003; Williams Middle School; April 04, 2024 | $PM_{2.5}$ Int. | N/A | N/A | 2.85 | 2.60 | N/A | Yes | Yes | Yes | Yes | 19.4 | 110 |
| 45-041-8003; JCI Woods; June 6, 2024 | Lead POC 1 | N/A | N/A | 2.45 | 1.4 | 3.1 | Yes | Yes | No | No | 12.2 | 1030.0 |
| 45-041-8003; JCI Woods; June 6, 2024 | Lead POC 2 | N/A | N/A | 2.53 | 1.48 | 3.1 | Yes | Yes | No | No | 12.2 | 1030.0 |
| **Greenville-Anderson-Greer MSA** | | | | | | | | | | | | |
| 45-007-0006; Garrison Arena; May 16, 2024 | Ozone | Yes | Yes | 4.55 | 1.9 | N/A | N/A | Yes | Yes | Yes | 43.8 | 14.25 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45-045-0015; Greenville ESC; March 12, 2024 | $SO_2$ | Yes | Yes | 4.34 | 1.40 | N/A | N/A | Yes | No | Yes | 14.3 | 12.1 |
| 45-045-0015; Greenville ESC; March 12, 2024 | $NO_2$ | Yes | Yes | 4.34 | 1.40 | N/A | N/A | Yes | No | Yes | 14.3 | 12.1 |
| 45-045-0015; Greenville ESC; March 12, 2024 | $PM_{2.5}$ Cont. | N/A | N/A | 4.95 | 2.01 | N/A | Yes | Yes | No | Yes | 14.3 | 12.1 |
| 45-045-0015; Greenville ESC; March 12, 2024 | $PM_{10}$ Cont. | N/A | N/A | 4.95 | 2.01 | N/A | Yes | Yes | No | Yes | 14.3 | 12.1 |
| 45-045-0015; Greenville ESC; March 12, 2024 | $PM_{2.5}$ Int. | N/A | N/A | 3.47 | 2.05 | N/A | Yes | Yes | No | No | 14.3 | 12.1 |
| 45-045-0016; Hillcrest; March 12, 2024 | Ozone | Yes | Yes | 3.70 | 1.00 | N/A | N/A | Yes | Yes | Yes | No Trees | 259 |
| 45-045-0016; Hillcrest; March 12, 2024 | $PM_{2.5}$ Int. | N/A | N/A | 4.73 | 2.03 | 1.67 | Yes | Yes | Yes | Yes | No Trees | 259 |
| 45-045-0016; Hillcrest; March 12, 2024 | $PM_{2.5}$ Int. | N/A | N/A | 4.73 | 2.03 | 1.67 | Yes | Yes | Yes | Yes | No Trees | 259 |
| **Myrtle Beach-Conway-North Myrtle Beach MSA** | | | | | | | | | | | | |
| 45-051-0008; Coastal Carolina; April 23, 2024 | Ozone | Yes | Yes | 4.11 | 1.55 | N/A | N/A | Yes | Yes | Yes | 28.0 | 18.3 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45-051-0008; Coastal Carolina; April 23, 2024 | $PM_{2.5}$ Cont. | N/A | N/A | 4.52 | 1.96 | N/A | Yes | Yes | Yes | Yes | 28.0 | 18.3 |
| **Spartanburg MSA** | | | | | | | | | | | | |
| 45-083-0009; N. Spartanburg #2; April 16, 2024 | Ozone | Yes | Yes | 3.85 | 1.09 | N/A | N/A | Yes | Yes | Yes | 20.4 | 92.5 |
| 45-083-0011; T.K. Gregg; April 16, 2024 | $PM_{2.5}$ Int. | N/A | N/A | 2.44 | 2.04 | 3.72 | Yes | Yes | Yes | Yes | 46.8 | 48.2 |
| 45-083-0011; T.K. Gregg; April 16, 2024 | $PM_{2.5}$ Cont. | N/A | N/A | 2.85 | 2.45 | 3.72 | Yes | Yes | Yes | Yes | 46.8 | 48.2 |
| **Remainder of State** | | | | | | | | | | | | |
| 45-025-0001; Chesterfield; March 25, 2024 | $PM_{2.5}$ Cont. | N/A | N/A | 3.00 | 2.18 | N/A | Yes | Yes | Yes | Yes | 14.8 | 34 |
| 45-025-0001; Chesterfield; March 25, 2024 | Ozone | Yes | Yes | 4.44 | 1.74 | N/A | N/A | Yes | Yes | Yes | 12.6 | 34 |
| 45-025-0001; Chesterfield; March 25, 2024 | $PM_{2.5}$ Int. | N/A | N/A | 2.87 | 2.05 | N/A | Yes | Yes | Yes | Yes | >14.8 | 34 |

## Appendix C: Alphabetical Order of Monitoring Sites

| Monitoring Site Name | MSA/County | Page |
|---|---|---|
| Cape Romain | Charleston-North Charleston MSA | 62 |
| Chesterfield | Chesterfield County | 90 |
| Coastal Carolina | Myrtle Beach-Conway-North Myrtle Beach MSA | 84 |
| Congaree Bluff | Columbia MSA | 70 |
| Garrison Arena | Greenville-Anderson-Greer MSA | 79 |
| Greenville Employment Security Commission (ESC) | Greenville-Anderson-Greer MSA | 78 |
| Hillcrest Middle School | Greenville-Anderson-Greer | 82 |
| Irmo DJJ | Columbia MSA | 71 |
| Jackson Middle School | Augusta-Richmond County, GA-SC MSA | 54 |
| Jenkins Ave. Fire Station | Charleston-North Charleston MSA | 55 |
| Clarios-Woods | Florence MSA | 76 |
| Moncks Corner National Guard | Charleston-North Charleston MSA | 58 |
| North Charleston Fire Station | Charleston-North Charleston MSA | 60 |
| North Spartanburg Fire Station #2 | Spartanburg MSA | 87 |
| Parklane (NCore) | Columbia MSA | 67 |
| Pee Dee Experimental Station | Florence MSA | 74 |
| Sandhill Experimental Station | Columbia MSA | 72 |
| T.K. Gregg Recreational Center | Spartanburg MSA | 88 |
| Trenton | Augusta-Richmond County, GA-SC MSA | 55 |
| Williams Middle School | Florence MSA | 75 |
| York Landfill | Charlotte-Concord-Gastonia, SC-NC MSA | 65 |

# Appendix D: Summary of Changes for July 1, 2023 through December 31, 2024

**Augusta-Richmond County, GA-SC MSA**

No changes planned.

**Charleston-North Charleston MSA**

FAA Beacon Monitoring Site – The North Charleston Fire Station Monitoring Site was established on November 08, 2021. The FAA Beacon Monitoring Site operated for one year concurrently with the North Charleston Fire Station Monitoring Site. On January 5, 2023, $PM_{2.5}$ monitoring was discontinued.

Jenkins Ave. Fire Station Monitoring Site – The SLAMS $PM_{10}$ monitoring was discontinued on February 2, 2023, and relocated to the North Charleston Fire Station Monitoring Site.

North Charleston Fire Station Monitoring Site – On February 2, 2023, the $PM_{10}$ monitoring was relocated from the Jenkins Ave. Fire Station Monitoring Site to the North Charleston Fire Station Monitoring Site. On June 13, 2023, Teledyne released a T640 and T640X data alignment firmware update which is meant to better align data collected on these monitors to FRM samplers. In order to evaluate the comparability of the data to the FRM samplers in the network, the $PM_{2.5}$ T640X monitor at this site will be designated SPM.

**Charlotte-Concord-Gastonia, NC-SC MSA**

York Landfill Monitoring Site – The York Landfill Monitoring Site was scheduled to operate a special purpose rotating $SO_2$ monitor 2020-2022. $SO_2$ monitoring was discontinued on January 13, 2023.

**Columbia MSA**

Cayce City Hall Monitoring Site – Approval for the discontinuation and relocation of $PM_{10}$ monitoring from the Cayce City Hall Monitoring Site to the Parklane Monitoring site was approved by EPA on February 22, 2023. $PM_{10}$ monitoring was discontinued on May 30, 2023.

Parklane Monitoring Site – Approval for the discontinuation and relocation of $PM_{10}$ monitoring from the Cayce City Hall Monitoring Site to the Parklane Monitoring site was approved by EPA on February 22, 2023. $PM_{10}$ monitoring began on May 30, 2023. SVOC monitoring was discontinued on January 30, 2023. On June 13$^{th}$, 2023, Teledyne released a T640 and T640X data alignment firmware update which is meant to better align data collected on these monitors to FRM samplers. In order to evaluate the comparability of the data to the FRM samplers in the network, an additional $PM_{2.5}$ T640X monitor at this site will be used for testing and designated SPM with a NAAQS exclusion.

Irmo Monitoring Site – The Irmo DJJ Monitoring Site was established and began continuous monitoring of $PM_{2.5}$ on January 20, 2023, to replace the Irmo Monitoring Site after the landowner requested site relocation. The replacement site was approved by EPA on October 26, 2021. Continuous $PM_{2.5}$ monitoring was discontinued at Irmo Monitoring Site in conjunction with the start-up of Irmo DJJ on January 20, 2023. The Irmo Monitoring Site and its remaining $PM_{2.5}$ FRM sampler were discontinued on June 2, 2023.

Irmo DJJ Monitoring Site – The Irmo DJJ Monitoring Site was established on January 20, 2023, as a replacement for the Irmo Monitoring site. The replacement site was approved by EPA on October 26, 2021. $PM_{2.5}$ monitoring began on January 20, 2023. On June 13, 2023, Teledyne released a T640 and T640X data alignment firmware update which is meant to better align data collected on these monitors to FRM samplers. In order to evaluate the comparability of the data to the FRM samplers in the network, an additional $PM_{2.5}$ T640X monitor at this site will be used for testing and designated SPM with a NAAQS exclusion.

**Florence MSA**

On June 13th, 2023, Teledyne released a T640 and T640X data alignment firmware update which is meant to better align data collected on these monitors to FRM samplers. In order to evaluate the comparability of the data to the FRM samplers in the network, the T640 monitor at this site will be designated SPM.

**Greenville-Anderson MSA**

No changes planned.

**Hilton Head Island-Bluffton MSA**

No changes planned.

**Myrtle Beach-Conway-North Myrtle Beach SC MSA**

Coastal Carolina Monitoring Site –The Coastal Carolina Monitoring Site was approved by EPA on December 20, 2022, as a location for monitoring expected maximum concentration for $PM_{2.5}$ and $PM_{10}$ in the MSA. One Teledyne T640 monitor began monitoring for continuous $PM_{2.5}$ at the Coastal Carolina Monitoring Site on February 23, 2023.

**Spartanburg MSA**

No changes planned.

**Sumter MSA**

No changes planned.

**Remainder of State**

Chesterfield Monitoring Site – Collocated Ethylene Oxide monitoring at the Chesterfield Monitoring Site was discontinued on December 19, 2022.

## Appendix E: EPA Correspondence

REGION 4
ATLANTA, GA 30303

October 30, 2023

Rhonda B. Thompson, PE
Chief, Bureau of Air Quality Control
South Carolina Department
of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Dear Ms. Thompson:

Thank you for submitting the state of South Carolina's 2023 Annual Ambient Air Monitoring Network Plan (Network Plan) dated July 7, 2023. The Network Plan is required by 40 Code of Federal Regulations (CFR) §58.10. The U.S. Environmental Protection Agency (EPA) Region 4 understands that the South Carolina Department of Health and Environmental Control (SC DHEC) provided the public with a 30-day review period for the draft Network Plan and that no comments were received other than comments from the EPA on the draft Network Plan.

The SC DHEC is in the process of increasing the number of continuous Federal Equivalent Method (FEM) monitors, specifically Teledyne T640 and T640x monitors, in its fine particulate matter ($PM_{2.5}$) network and reducing the number of filter-based, Federal Reference Method (FRM) monitors. The EPA supports this effort, and this transition will save resources as well as provide higher time resolution $PM_{2.5}$ measurements in more areas of the state. The EPA staff recently discussed with SC DHEC staff the state's plans to continue to meet regulatory $PM_{2.5}$ collocation requirements in 2023 during this transition. Based on this discussion, the EPA believes that the SC DHEC has a good plan for maintaining compliance with $PM_{2.5}$ collocation requirements.

Please note that on July 21, 2023, the Office of Management and Budget released revised delineations of core based statistical areas and guidance on uses of the delineations of these areas (https://www.whitehouse.gov/wp-content/uploads/2023/07/OMB-Bulletin-23-01.pdf). We encourage all agencies to review and consider these delineations in preparation for developing the Network Plan due by July 1, 2024, including any proposed changes that may need to be implemented in calendar year 2025.

The EPA approves the proposed monitoring network changes and all components of South Carolina's Network Plan. Thank you for working with the EPA to monitor air pollution and safeguard the air quality in South Carolina. If you have any questions or concerns, please contact Katy Lusky at (404) 562-9130 or Katherine Beck at (404) 562-8061.

Sincerely,

ANTHONY TONEY

Digitally signed by ANTHONY TONEY
Date: 2023.10.30 12:30:36 -04'00'

Anthony G. Toney
Acting Director

Enclosure

cc: Micheal Mattocks, Assistant Bureau Chief, BEHS
Connie Turner, Director, Division of Air Quality Analysis, BEHS
Heinz Kaiser, Director, Division of Air Emissions Evaluation and Support BAQ
Mary Peyton Wall, Air Regulation and Data Support Section BAQ
Joel Hodges, Air Regulation and Data Support Section, BAQ
Keith Harris, Region 4 LSASD

# 2023 State of South Carolina Ambient Air Monitoring Network Plan
# U.S. EPA Region 4 Comments and Recommendations

This document contains the U.S. Environmental Protection Agency's comments and recommendations on the state of South Carolina's 2023 Ambient Air Monitoring Network Plan (Network Plan). Ambient air monitoring rules, which include regulatory requirements that address network plans, data certification, and minimum monitoring requirements, among other requirements, are found in 40 CFR Part 58. Minimum monitoring requirements for criteria pollutants are listed in 40 CFR Part 58, Appendix D. Minimum monitoring requirements are listed for ozone ($O_3$), particulate matter less than 2.5 microns ($PM_{2.5}$), particulate matter less than 10 microns ($PM_{10}$), nitrogen dioxide ($NO_2$), sulfur dioxide ($SO_2$), carbon monoxide (CO), and lead (Pb).

The minimum monitoring requirements are based on core based statistical area (CBSA) boundaries as defined by the U.S. Office of Management and Budget (OMB), July 6, 2021, population estimates from the U.S. Census Bureau, and historical ambient air monitoring data. Minimum monitoring requirements for $O_3$, $PM_{2.5}$, and $PM_{10}$ only apply to metropolitan statistical areas (MSAs), which are a subset of CBSAs. OMB currently defines 10 MSAs in the state of South Carolina. The July 1, 2022, population estimates from the U.S. Census Bureau for each MSA in South Carolina and the total population estimates of MSAs shared with North Carolina and Georgia are shown in Table 1.

**Table 1: Metropolitan Statistical Areas and July 1, 2022, Population Estimates**

| MSA Name | Population |
|---|---|
| Charlotte-Gastonia-Concord NC-SC | 2,756,069 |
| Greenville-Anderson, SC | 958,958 |
| Columbia, SC | 847686 |
| Charleston-North Charleston-Summerville, SC | 830,529 |
| Augusta-Richmond County, GA-SC | 624,083 |
| Myrtle Beach-Conway-North Myrtle Beach, SC-NC | 536,165 |
| Spartanburg, SC | 345,831 |
| Hilton Head Island-Bluffton, SC | 228,410 |
| Florence, SC | 199,119 |
| Sumter, SC | 134,925 |

The estimated 2022 census numbers indicate that the population of the Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA is now over 500,000 people. The Myrtle Beach area is now subject to additional minimum monitoring requirements that are discussed in the pollutant sections below.

**Proposed Monitoring Network Changes**

The EPA has approval authority for changes to regulatorily required state or local air monitoring stations (SLAMS). SLAMS include the ambient air quality monitoring sites and monitors required by 40 CFR Part 58, Appendix D and are needed to meet the monitoring objectives of Appendix D, including national ambient air quality standards (NAAQS) comparisons, and may also serve other data purposes. The EPA is not required to approve changes made to special purpose monitors (SPMs). SPMs are monitors designated by the monitoring agency as special purpose and do not count towards minimum

monitoring requirements of 40 CFR Part 58. SPMs are required to be identified in the Network Plan for public and the EPA review.

The South Carolina Department of Health and Environmental Control (SC DHEC) proposed changes to its monitoring network for 2023 through 2024. Table 2 summarizes the requested monitor discontinuations and relocations. Information related to each proposed change as well as the EPA's decision and rationale for approval/disapproval of each proposed change are contained in the following pollutant sections.

**Table 2: Monitors Proposed for Relocation or Discontinuation**

| AQS ID | CBSA | Site Name | Pollutant | Type | Comments |
|---|---|---|---|---|---|
| 45-019-0048 | Charleston-North Charleston, SC | FAA Beacon Irving Street | $PM_{2.5}$ | SPM | On January 5, 2023, the $PM_{2.5}$ monitor was shut down. |
| 45-019-0003 | Charleston-North Charleston, SC | Jenkins Ave | $PM_{10}$ | SLAMS | The SLAMS $PM_{10}$ monitor at the Jenkins Ave. site was shut down on February 2, 2023, and relocated to the North Charleston Fire Station monitoring site. |
| 45-019-0020 | Charleston-North Charleston, SC | North Charleston Fire Station | $PM_{10}$ | SLAMS | On February 2, 2023, the $PM_{10}$ monitor was relocated from the Jenkins Ave. Fire Station monitoring site to the North Charleston Fire Station site. |
| 45-091-0008 | Charlotte-Concord-Gastonia, NC-SC | York Landfill | $SO_2$ | SPM | A special purpose rotating $SO_2$ monitor was operated at the York Landfill site from 2020 to 2022. The $SO_2$ monitor was then shut down on January 13, 2023, and will resume operation in 2024. |
| 45-079-0021 | Columbia, SC | Cayce City Hall | $PM_{10}$ | SPM | Approval to relocate the $PM_{10}$ monitor at the Cayce City Hall site to the Parklane site was granted by EPA on February 22, 2023. The Cayce City Hall site was shut down on May 30, 2023. |
| 45-079-0007 | Columbia, SC | Parklane | SVOC | SPM | SVOC monitoring was discontinued on January 30, 2023. Acknowledged. |
| 45-063-0008 | Columbia, SC | Irmo | $PM_{2.5}$ cont. | SPM? | The Irmo DJJ site began continuous monitoring of $PM_{2.5}$ on January 20, 2023. It replaced the Irmo site after the landowner requested the site relocation. The replacement site was approved by the EPA on October 26, 2021. The continuous $PM_{2.5}$ monitor at Irmo site was discontinued on January 20, 2023. The Irmo site and its remaining $PM_{2.5}$ FRM sampler were shut down on June 2, 2023. |
| 45-079-0022 | Columbia, SC | Irmo DJJ | $PM_{2.5}$ | SPM | The Irmo DJJ site was established on January 20, 2023, as a replacement for the Irmo monitoring site. The replacement site was approved by EPA on October 26, 2021. The state began operating the $PM_{2.5}$ monitor on January 20, 2023. |

| | | | | | |
|---|---|---|---|---|---|
| 45-041-0003 | Florence, SC | Williams Middle School | $PM_{2.5}$ | SPM | On June 13th, 2023, Teledyne released a T640 and T640X data alignment firmware update which is meant to better align data collected on these monitors to FRM samplers. To evaluate the comparability of the data to the FRM samplers in the network, the T640 monitor at this site will be designated a SPM. |
| 45-051-0008 | Myrtle Beach, SC | Coastal Carolina | $PM_{2.5}$ | SPM | According to the U.S. Census 2022 data, the population in the MSA is above the minimum threshold for $PM_{10}$ and $PM_{2.5}$, requiring one $PM_{10}$ monitor and one $PM_{2.5}$ monitor. The Coastal Carolina site was approved by the EPA on December 20, 2022, as a location for monitoring the expected maximum concentrations for $PM_{2.5}$ and $PM_{10}$ in the MSA. One Teledyne T640 monitor began monitoring for continuous $PM_{2.5}$ at the Coastal Carolina monitoring site on February 23, 2023. |
| 45-019-0046, (45-025-0001) | multiple | Chesterfield | NATTS | Other | Collocated ethylene oxide sampling at the Chesterfield site was discontinued on December 19, 2022. Acknowledged. |

Table 3 summarizes requested monitor startups, as well as the EPA's decision and rationale for approval/disapproval/acknowledgement of each proposed startup.

**Table 3: Proposed Changes in Monitoring**

| AQS ID | CBSA | Site Name | Pollutant | Type | Comments |
|---|---|---|---|---|---|
| 45-019-0020 | Charleston-North Charleston, SC | NCFS | $PM_{2.5}$ | SLAMS | February 2. 2023, the continuous $PM_{2.5}$ monitor was replaced with a Teledyne T640X, which also monitors $PM_{10}$. |
| 45-037-0001 | Augusta-Richmond County, GA-SC | Trenton | $PM_{2.5}$ | SLAMS | Approved. SPM was converted to SLAMS to meet the new minimum monitor requirement for the Augusta area. |
| 45-051-0008 | Myrtle Beach-Conway-North Myrtle Beach, SC-NC | Coastal Carolina | $PM_{10}$, $PM_{2.5}$ | SLAMS | Approved. Start-up of a Federal Equivalent Method (FEM) monitor that measures both $PM_{2.5}$ and $PM_{10}$ (Teledyne T640x) and a $PM_{2.5}$ Federal Reference Method (FRM) sampler to meet new minimum monitoring requirements triggered by population increase in Myrtle Beach. Expected operation in 2023. |

**Network Plan Public Comments**
**40 CFR § 58.10(a)(1)**

The requirement for a public comment period and response from the agency in the final Network Plan is found in 40 CFR 58.10(a)(1):

"The annual monitoring network plan must be made available for public inspection and comment for at least 30 days prior to submission to the EPA and the submitted plan shall also include and address, as appropriate, any received comments."

The proposed 2023 Network Plan was available for public review and comment from April 28, 2023, through May 30, 2023. The Network Plan meets the public comment requirements of 40 CFR 58.10.

**Operating Schedules**
**40 CFR § 58.12**

The operating schedules proposed by the SC DHEC in its Network Plan meet the requirements for continuous analyzers and all manual Pb, $PM_{10}$, $PM_{2.5}$, and $PM_{2.5}$ Speciation Trends Network (STN) monitors.

**Air Quality Index (AQI) Reporting**
**40 CFR § 58.50**

AQI reporting is required in MSAs with populations over 350,000. Six MSAs in the state of South Carolina have populations over 350,000 (see Table 4). The SC DHEC reports AQI values for these MSAs and one additional MSA. The Mecklenburg County Air Quality reports AQI values for the Charlotte-Concord-Gastonia, NC-SC MSA. Both the Georgia Environmental Protection Division (GA EPD) and the SC DHEC report AQI values for the Augusta-Richmond County GA-SC MSA.

**Table 4: AQI Reporting**

| MSAs Reporting |
|---|
| Greenville-Anderson, SC |
| Columbia, SC |
| Charleston-North Charleston, SC |
| Augusta-Richmond County, GA-SC |
| Myrtle Beach-Conway-North Myrtle Beach, SC-NC |
| Florence, SC |
| Charlotte-Concord-Gastonia, NC-SC |

The South Carolina monitoring network satisfies the minimum AQI reporting requirements in 40 CFR Part 58.

## National Core (NCore) Monitoring Network
## 40 CFR Part 58, Appendix D, Section 3.0

A requirement that each state operate at least one NCore site is found in 40 CFR Part 58, Appendix D, Section 3. The NCore site must measure, at a minimum, $PM_{2.5}$ particulate mass using continuous and integrated/filter-based samplers, speciated $PM_{2.5}$, $PM_{10-2.5}$ particle mass, $O_3$, $SO_2$, CO, $NO/NO_y$, wind speed, wind direction, relatively humidity, and ambient temperature. This section requires each state to operate at least one NCore site. The SC DHEC meets the NCore requirement by operating the Parklane site in Columbia.

**Table 5: NCore Monitoring Sites**

| AQS ID | Site Name | CBSA | Requirement Met (Y/N) |
|---|---|---|---|
| 45-079-0007 | Parklane | Columbia, SC | Y |

The NCore monitoring network described in the Network Plan and listed in Table 5 meets all design criteria of 40 CFR Part 58.

## $O_3$ Monitoring Requirements
## 40 CFR Part 58, Appendix D, Section 4.1 and Table D-2

Ambient air monitoring network design criteria for $O_3$ are found in 40 CFR Part 58, Appendix D, Section 4.1. This section requires state agencies to operate $O_3$ sites for various locations depending upon area size and typical peak concentrations.

**Table 6: Ozone Design Criteria – Minimum Required SLAMS Monitors**

| CBSA | Minimum Required SLAMS | Number of SLAMS | Number of SPMs or Other Regulatory Monitors | Site Names (AQS IDs) of SLAMS | Requirement Met (Y/N) |
|---|---|---|---|---|---|
| Augusta-Richmond County, GA-SC | 2 | 4 | 0 | Jackson Middle School (AQS ID: 45-003-0003)<br>Trenton (AQS ID: 45-037-0001)<br>Evans (AQS ID 13-073-0001)[1]<br>Augusta (AQS ID 13-245-0091)[1] | Y |
| Charleston-North Charleston, SC | 2 | 2 | 0 | Moncks Corner National Guard (AQS ID: 45-015-1002)<br>Cape Romain (AQS ID: 45-019-0046) | Y |
| Charlotte-Concord-Gastonia, NC-SC | 2 | 4 | 3 | York Landfill (AQS ID: 45-091-0008)<br>Crouse (AQS ID: 37-109-0004)[2]<br>Garinger (AQS ID: 37-119-0041)[3]<br>University Meadows (AQS ID: 37-119-0046)[3]<br>Rockwell (AQS ID: 37-159-0021)[1] | Y |
| Columbia, SC(NCore) | 2 | 2 | 1 | Parklane (AQS ID: 45-079-0007)<br>Sandhill (AQS ID: 45-079-1001) | Y |
| Florence, SC | 0 | 1 | 0 | Pee Dee Exp. Station (AQS ID: 45-031-0003) | Y |

| | | | | | |
|---|---|---|---|---|---|
| Greenville-Anderson, SC | 2 | 2 | 0 | Garrison Arena (AQS ID: 45-007-0006)<br>Hillcrest (AQS ID: 45-045-0016) | Y |
| Myrtle Beach-Conway-North Myrtle Beach, SC-NC | 1 | 1 | 0 | Coastal Carolina (AQS ID: 45-051-0008) | Y |
| Spartanburg, SC | 1 | 1 | 0 | North Spartanburg Fire Station #2 (AQS ID: 45-083-0009) | Y |

[1]Evans and Augusta sites are operated by the Georgia Environmental Protection Division
[2]Crouse and Rockwell sites are operated by the North Carolina Department of Air Quality
[3]Garinger and University Meadows sites are operated by Mecklenburg County Air Quality

The Coastal Carolina site (AQS ID 45-051-0008) is operated by the SC DHEC. The 2020-2022 $O_3$ design value (DV) for that site was 0.058 parts per million, which is less than 85.0% of the NAAQS. According to Table D-2 of Appendix D to 40 CFR Part 58, the Myrtle Beach-Conway-North Myrtle Beach SC-NC MSA, with a population over 350,000 and a DV less than 85% of the NAAQS, is not required to have a second $O_3$ monitor. However, if the 2021-2023 DV is valid and above 85% of the NAAQS, the EPA requests that the SC DHEC and the NC DAQ collaborate to characterize the area of highest $O_3$ concentration in the MSA, and to present the results of this investigation in their respective Network Plans due July 1, 2025. The results of this investigation could indicate that the expected maximum concentration is in an area other than the area near the Coastal Carolina site. The EPA is willing to also participate in the discussions and help with this analysis. The characterization of $O_3$ concentrations in the MSA would be used to propose a new $O_3$ monitoring site in the MSA.

$O_3$ monitors located 5-10 miles downwind from concentrated $NO_x$ emission sources are often representative of expected $O_3$ maximum concentrations in the Southeast. The characterization of the Myrtle Beach area could consider current population trends, traffic, and frequent afternoon wind directions during $O_3$ season. More information about $O_3$ site selection can be found in the EPA's Guideline on Ozone Monitoring Site Selection, which can be found at: https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=2000D45M.TXT.

The $O_3$ monitoring network outlined in the Network Plan and Table 6 meets the minimum monitoring requirements found in 40 CFR Part 58, Appendix D, Table D-2 for all MSAs in South Carolina.

**CO Monitoring Requirements**
**40 CFR Part 58, Appendix D, Section 4.2**

Ambient air monitoring network design criteria for CO are found in 40 CFR Part 58, Appendix D, Section 4.2. CBSAs with populations over one million are required to operate one CO monitor collocated with a near-road $NO_2$ site. There is one CBSA in South Carolina with a population over 1,000,000, the Charlotte-Concord-Gastonia, NC-SC CBSA. The CO requirement for this area is met by the Mecklenburg County Air Quality (MCAQ) operating a CO monitor at its Remount near-road site.

**Table 7: CO Design Criteria – Minimum Required SLAMS Near-road Monitors**

| CBSA | Minimum Required Near-road CO Monitors | Number of Near-road CO Monitors | Site Names (AQS IDs) of Existing Near-road CO Monitors | Requirement Met (Y/N) |
|---|---|---|---|---|
| Charlotte-Concord-Gastonia, NC-SC | 1 | 1 | Remount (37-119-0045)[1] | Y |

[1]Remount site is operated by the MCAQ.

The Regional Administrator monitoring requirements for CO are found in 40 CFR Part 58, Appendix D 4.2.2. The section states, "The Regional Administrators, in collaboration with states, may require additional CO monitors above the minimum number of monitors required in 4.2.1." The Regional Administrator is not requiring the SC DHEC to operate an additional CO monitor at this time.

**Table 8: CO Design Criteria – Minimum Required SLAMS RA-Required Monitors**

| CBSA | Minimum RA-required CO Monitors | Number of RA-required CO Monitors | Site Names (AQS IDs) of Existing RA-required CO Monitors | Requirement Met (Y/N) |
|---|---|---|---|---|
| None | 0 | 0 | None | Y |

The CO monitoring network described in the Network Plan meets the design criteria of 40 CFR Part 58 for both near-road and RA-required monitors as identified in Tables 7 and 8 above.

### $NO_2$ Monitoring Requirements
### 40 CFR Part 58, Appendix D, Section 4.3

Ambient air monitoring network design criteria for $NO_2$ are found in 40 CFR Part 58, Appendix D, Section 4.3. Three types of $NO_2$ monitoring are required: near-road, area-wide, and Regional Administrator. These types of $NO_2$ monitoring are described in Sections 4.3.2, 4.3.3, and 4.3.4, respectively.

Ambient air monitoring design criteria for near-road $NO_2$ monitoring sites are found in 40 CFR Part 58, Appendix D, Section 4.3.2.

In the Charlotte-Gastonia-Concord, NC-SC CBSA, the MCAQ operates one near-road monitoring site at the Remount site (AQS ID: 37-119-0045). When the initial near-road monitoring network was funded by EPA and established, the Charlotte area was below the 2.5 million population threshold for a second near-road $NO_2$ monitoring site. However, the recent census population estimate for the Charlotte-Concord-Gastonia, NC-SC CBSA is over 2.5 million people. The MCAQ has identified a suitable location for the additional near-road $NO_2$ monitoring site and was preparing to install and operate the new near-road site in 2023. However, due to delays outside the control of the MCAQ, the site is not expected to begin operation until early 2024.

Table 9: $NO_2$ Design Criteria – Minimum Required SLAMS Near-road Monitors

| CBSA | Minimum Required Near-road $NO_2$ | Number of Near-road $NO_2$ | Site Names (AQS IDs) of Existing $NO_2$ Near-Road | Requirement Met (Y/N) |
|---|---|---|---|---|
| Charlotte-Gastonia-Concord, NC-SC | 2 | 2 | Remount (AQS ID: 37-119-0045)[1] Equipment Drive (AQS ID 37-119-0050)[1] | Y |

[1]The Remount and Equipment Drive sites are operated by the MCAQ.

Ambient air monitoring network design criteria for area wide $NO_2$ sites are found in Section 4.3.3 of Appendix D to 40 CFR Part 58. The MCAQ operates a $NO_2$ monitor at its Garinger site to meet the minimum requirement for the Charlotte-Gastonia-Concord, NC-SC CBSA.

Table 10: $NO_2$ Design Criteria – Minimum Required SLAMS Area-Wide Monitors

| CBSA | Minimum Required Area-Wide $NO_2$ | Number of Area-Wide $NO_2$ | Site Names (AQS IDs) of Existing $NO_2$ Area-Wide Sites | Requirement Met (Y/N) |
|---|---|---|---|---|
| Charlotte-Gastonia-Concord, NC-SC | 1 | 1 | Garinger (AQS ID: 37-119-0041)[1] | Y |

[1]The Garinger site is operated by the MCAQ.

Ambient air monitoring network design criteria for Regional Administrator-required $NO_2$ monitoring, often referred to as RA-40 monitoring, are found in 40 CFR Part 58, Appendix D, Section 4.3.4. Under these provisions, Regional Administrators must require a minimum of 40 additional $NO_2$ monitoring stations nationwide, with a primary focus on siting these monitors in locations to protect susceptible and vulnerable populations. The full list of $NO_2$ monitors identified by the EPA's Regional Administrators can be found on EPA's website at http://www.epa.gov/ttnamti1/svpop.html. The SC DHEC operates one RA-40 monitor at its Greenville ESC site in the Greenville-Anderson, SC CBSA.

Table 11: $NO_2$ Design Criteria – Minimum Required SLAMS RA-40 Monitors

| CBSA | Minimum Required RA-40 Monitors | Number of RA-40 Monitors | Site Names (AQS IDs) of Existing RA-40 Sites | Requirement Met (Y/N) |
|---|---|---|---|---|
| Greenville-Anderson, SC | 1 | 1 | Greenville ESC (AQS ID: 45-045-0015) | Y |

The $NO_2$ monitoring network described by the Network Plan meets all design criteria of 40 CFR Part 58.

## $SO_2$ Monitoring Requirements
## 40 CFR Part 58, Appendix D, Section 4.4

Ambient air monitoring network design criteria for $SO_2$ are found in 40 CFR Part 58, Appendix D, Section 4.4. This section requires that the population weighted emissions index (PWEI) be calculated by states for each CBSA. As a result, the $SO_2$ monitoring site(s) required in each CBSA will satisfy minimum monitoring requirements if the monitor(s) is sited within the boundaries of the parent CBSA and is one of the following site types: population exposure, maximum concentration, source-oriented, general background, or regional transport. A $SO_2$ monitor at an NCore station may satisfy minimum monitoring requirements if that monitor is located within a CBSA with minimally required monitors consistent with Appendix D, Section 4.4

Based upon PWEIs calculated using 2022 population estimates and 2017 emission inventory data, the minimum numbers of monitors required for the CBSAs in South Carolina are summarized in Table 12.

**Table 12: $SO_2$ Design Criteria – Minimum Required SLAMS PWEI Monitors**

| CBSA | 2022 Population Estimate | 2017 NEI Emissions (Tons per year) | PWEI | Number of Minimum Required PWEI $SO_2$ Monitors | Number of $SO_2$ SLAMS | Site Names (AQS IDs) of Existing $SO_2$ monitors | Requirement Met (Y/N) |
|---|---|---|---|---|---|---|---|
| Charlotte-Concord-Gastonia, NC-SC | 2,756,069 | 5,648 | 8,801 | 1 | 1 | Garinger (AQS ID:37-119-0041)[1] | Y |
| Columbia, SC | 847,686 | 3,709 | 2,111 | 0 | 1 | Parklane (AQS ID: 45-079-0007) | Y |
| Charleston-North Charleston, SC | 830,529 | 8,173 | 6,231 | 1 | 1 | Jenkins Ave. (AQS ID: 45-019-003) | Y |
| Greenville, SC | 958,958 | 728 | 579 | 0 | 1 | Greenville ESC (AQS ID: 45-045-0015) | Y |

[1]The Garinger site is operated by Mecklenburg County Air Quality.

The $SO_2$ monitoring network outlined in the Network Plan meets the $SO_2$ PWEI requirements specified in 40 CFR Part 58, Appendix D, Section 4.4.

The EPA finalized the $SO_2$ Data Requirements Rule (DRR) on August 10, 2015 (40 CFR Part 51, Subpart BB). This rule requires air quality near sources with $SO_2$ emissions of 2,000 tons per year (tpy) or greater be characterized using ambient air monitoring or modeling. On January 15, 2016, the SC DHEC submitted to the EPA a list of eight sources in the state around which $SO_2$ air quality must be characterized. These eight sources were characterized using modeling and/or took federally enforceable emissions limits. The SC DHEC does not operate any $SO_2$ monitoring sites to meet the DRR requirements.

**Table 13: $SO_2$ Design Criteria – Data Requirement Rule Monitors**

| CBSA | Minimum Required DRR Monitors | Number of DRR Monitors | Site Names (AQS IDs) of Existing DRR Sites | Requirement Met (Y/N) |
|---|---|---|---|---|
| None | 0 | 0 | None | Y |

The DRR also requires annual emissions reporting for sources that used modeling to show attainment with the standard under the rule. Forty (40) CFR § 51.1205 (b) requires that:

> "For any area where modeling of actual $SO_2$ emissions serve as the basis for designating such area as attainment for the 2010 $SO_2$ NAAQS, the air agency shall submit an annual report to the EPA Regional Administrator by July 1 of each year, either as a stand-alone document made available for public inspection, or as an appendix to its Annual Monitoring Network Plan (also due on July 1 each year under 40 CFR §58.10), that documents the annual $SO_2$ emissions of each applicable source in each such area and provides an assessment of the cause of any emissions increase from the previous year."

The SC DHEC submitted its 2022 annual emission report with its 2023 Network Plan to meet this requirement. The report applies to areas designated attainment/unclassifiable based on modeling of actual $SO_2$ emissions for Santee Cooper Cross Generating Station, New-Indy Catawba (formerly Resolute Industries), Sylvamo Eastover Mill (formerly International Paper – Eastover), and Dominion Wateree Station (formerly SCE&G Wateree Station).

For the DRR portion found in Appendix I of the Network Plan, the EPA responded in a separate correspondence dated September 20, 2023. The next annual $SO_2$ emissions report for these facilities is due July 1, 2024.

The Regional Administrator may require additional $SO_2$ monitoring stations above the minimum number of monitors required in 40 CFR Part 58, Appendix D, Section 4.4.2, where the minimum monitoring requirements are not sufficient to meet monitoring objectives. The SC DHEC is not required by the Regional Administrator to operate an $SO_2$ monitor at this time.

**Table 14: $SO_2$ Design Criteria – Minimum Required SLAMS RA Monitors**

| CBSA | Minimum Required RA-40 Monitors | Number of RA-40 Monitors | Site Names (AQS IDs) of Existing RA-40 Sites | Requirement Met (Y/N) |
|---|---|---|---|---|
| None | 0 | 0 | None | Y |

The SC DHEC operates an additional $SO_2$ monitoring network to provide background concentration data. Two years of data are collected every four years at two monitoring sites. These are SPMs and do not require approval from the EPA for startup or shutdown. For the data to be useable to support the SC DHEC's prevention of significant deterioration (PSD) modeling and permitting activities, the rotating $SO_2$ monitoring network must meet the requirements in Appendix B to 40 CFR Part 58. Section 8.3 of Appendix W to 40 CFR Part 51 discusses using air monitoring data for background concentrations and Appendix B to 40 CFR Part 58 discusses quality assurance requirements for PSD air monitoring procedures that must be followed for the data to be useable for PSD and permitting purposes.

Table 15 lists the two monitors that the SC DHEC includes in its $SO_2$ rotating background network and that are currently operating. The SC DHEC has updated the monitoring objective for the Trenton $SO_2$ site from source oriented to upwind background. The EPA believes this better represents the monitoring objectives of the site.

**Table 15: $SO_2$ Rotating Background Monitoring**

| CBSA | Site Name (AQS ID) | Frequency of Operation | Next Expected Years of Operation | Monitoring Objective in Network Plan |
|---|---|---|---|---|
| Columbia, SC | Congaree Bluff (AQS ID: 45-079-0021) | Every other 2 years | 2022-2023 | General Background |
| August-Richmond County, GA-SC | Trenton (AQS ID: 45-037-0001) | Every other 2 years | 2022-2023 | Upwind Background |

The South Carolina $SO_2$ monitoring network meets the monitoring requirements in 40 CFR Part 58.

**Pb Monitoring Requirements**
**40 CFR Part 58, Appendix D, Section 4.5**

The monitoring requirements for Pb found at 40 CFR Part 58, Appendix D, Section 4.5 require that, at a minimum, there must be one source-oriented SLAMS site located to measure the maximum Pb concentration in ambient air resulting from each non-airport Pb source which emits 0.5 or more tons per year and from each airport which emits 1.0 or more tons per year.

Although South Carolina has no sources that exceed the emissions thresholds for Pb monitoring, the SC DHEC and Clarios, LLC (formerly Johnson Controls Battery Group) conduct source-oriented ambient Pb monitoring at three sites around the Florence Recycling Center in Florence, South Carolina. The resulting air monitoring data are comparable to the NAAQS. The company and the SC DHEC conduct this monitoring under terms of a settlement agreement reached with several petitioners who commented on the construction permit for the facility. The locations of the monitoring sites were selected based upon an agreement between the company and stakeholders. As of March 22, 2021, Clarios ceased production at the recycling center. The SC DHEC discontinued two of three sites near the Clarios facility – JCI Entrance (AQS ID: 45-041-8002) and JCI Railroad (AQS ID: 45-041-8001).

The EPA requested that the SC DHEC continue to monitor for Pb near the Clarios facility at one site – the JCI Woods site (AQS ID: 45-041-8001). Pb monitoring should continue if there is a possibility of Pb emissions or re-entrainment of Pb dust. Pb monitoring should continue until the following occurs:

- The permit should be revoked, so that operations cannot restart, and
- A cleanup plan that addresses suppression and/or monitoring of potentially Pb-containing dust should be put in place.

The EPA requires that the SC DHEC provide documentation of the permit being revoked and of a cleanup plan that addresses minimizing the re-entrainment of Pb containing dust. The EPA will consider the monitor shutdown request once the SC DHEC provides sufficient information to support a conclusion that ambient Pb concentrations are not expected to exceed the NAAQS given the current and future disposition of the site.

**Table 16: Pb Design Criteria – Minimum Required Source-Oriented Monitors**

| Source | CBSA | Minimum Required Source-Oriented Pb Sites | Number of Source-Oriented Pb Sites | Site Names (AQS IDs) of Existing Source-Oriented Sites | Requirement Met (Y/N) |
|---|---|---|---|---|---|
| Clarios[1] | Florence, SC | 0 | 1 | JCI Woods (AQS ID: 45-041-8003) | Y |

[1]This monitoring is not required by EPA rules but is part of a settlement agreement between the SC DHEC, the facility, and community groups. The SC DHEC operates this sampler as a SPM to evaluate Pb NAAQS compliance.

The Pb monitoring collocation requirements are found in 40 CFR Part 58, Appendix A, 3.4.4. These requirements include that: 15 percent of the primary monitors are collocated and have at least one collocated quality control monitor (if the total number of monitors is less than three). These collocation requirements are assessed at the PQAO level. The SC DHEC is required to operate one collocated Pb monitor, and it operates it at the JCI Woods site (AQS ID: 45-041-8003) (see Table 17).

**Table 17: Pb Design Criteria – Minimum Required Collocated Monitors**

| PQAO | Minimum Required Collocated Monitors | Number of Collocated Monitors | Site Names (AQS IDs) of Existing Collocated Sites | Requirement Met (Y/N) |
|---|---|---|---|---|
| SC DHEC | 1 | 1 | JCI Woods (AQS ID: 45-041-8003) | Y |

The Pb monitoring network described in the Network Plan meets all design criteria of 40 CFR Part 58.

## $PM_{10}$ Monitoring Requirements
## 40 CFR Part 58, Appendix A, Section 3.3
## 40 CFR Part 58, Appendix D, Section 4.6 and Table D-4

Ambient air monitoring network design criteria for $PM_{10}$ are found in 40 CFR Part 58, Appendix D, Section 4.6. Table D-4, in this section, indicates the approximate number of $PM_{10}$ stations required in MSAs with populations exceeding 100,000 to characterize national and regional $PM_{10}$ air quality trends and geographical patterns. The SC DHEC, the GA EPD and the MCAQ are required to operate six $PM_{10}$ monitors at five sites in CBSAs in or abutting the state (see Table 18).

**Table 18: $PM_{10}$ Design Criteria – Minimum Required SLAMS Monitors**

| CBSA | Minimum Required SLAMS | Number of SLAMS | Number of SPMs or Other Regulatory Monitors | Site Names (AQS IDs) of SLAMS | Requirement Met (Y/N) |
|---|---|---|---|---|---|
| Augusta-Richmond County, GA-SC | 1 | 1 | 0 | Augusta (AQS ID: 13-245-0091)[1] | Y |
| Charleston-North Charleston, SC | 1 | 1 | 0 | Jenkins Ave. Fire Station (AQS ID: 45-019-0003) | Y |
| Charlotte-Concord-Gastonia, NC-SC | 2 | 2 | 0 | Garinger (AQS ID: 37-119-0041)[2] Ramblewood Park (AQS ID: 37-119-0047)[2] | Y |
| Columbia, SC (NCore) | 1 | 1 | 1 | Cayce City Hall (AQS ID: 45-063-0010) | Y |
| Greenville-Anderson, SC | 1 | 1 | 0 | Greenville ESC (AQS ID: 45-045-0015) | Y |
| Myrtle Beach-Conway-North Myrtle Beach SC-NC | 1 | 1 | 0 | Coastal Carolina (AQS ID 45-051-0008)[3] | Y |

[1]The Augusta site is operated by the GA EPD
[2]The Garinger and Ramblewood Park sites are operated by the MCAQ
[3]The Coastal Carolina $PM_{10}$ monitoring is expected to start by the end of 2023

The estimated 2022 census numbers indicate that the population of the Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA is now over 500,000 people. As a result, the Myrtle Beach area is now required to operate one $PM_{10}$ monitor, per 40 CFR Part 58, Appendix D, Table D-4.

The Network Plan Addendum, received on October 26, 2022, proposed to meet this requirement by operating a T640x monitor, which measures both $PM_{10}$ and $PM_{2.5}$, at the existing Coastal Carolina site (AQS ID 45-051-0008). The EPA's evaluation of this startup was based primarily on analysis of $PM_{2.5}$ in the Myrtle Beach area. This evaluation is discussed in the $PM_{2.5}$ section and supports the conclusion that the $PM_{10}$ and $PM_{2.5}$ monitoring requirements are being met by this site. The $PM_{10}$ levels are typically not near the NAAQS and having one site to measure both $PM_{10}$ and $PM_{2.5}$ will save the SC DHEC resources. Thus, the EPA approves the startup of $PM_{10}$ monitoring at the Coastal Carolina site to meet the new $PM_{10}$ minimum requirement.

The $PM_{10}$ collocation requirements for manual methods are found in 40 CFR Part 58, Appendix A, 3.3.4. Those requirements include that: 15 percent of each network of manual $PM_{10}$ methods (at least one site) must be collocated and the sites with collocated monitors should be among those measuring annual mean concentrations in the highest 25 percent of the network. These collocation requirements are assessed at the PQAO level. The SC DHEC is not required to operate any $PM_{10}$ collocated monitors.

**Table 19: $PM_{10}$ Design Criteria – Minimum Required Collocated Monitors**

| PQAO | Sites with Manual $PM_{10}$ Method | Minimum Required Collocated Monitors | Number of Collocated $PM_{10}$ Monitors | Site Names (AQS IDs) of Collocated Sites | Requirement Met (Y/N) |
|---|---|---|---|---|---|
| SC DHEC | 0 | 0 | 0 | None | Y |

The proposed $PM_{10}$ monitoring network described in the Network Plan meets all design criteria of 40 CFR Part 58.

**$PM_{2.5}$ Monitoring Requirements**
**40 CFR Part 58, Appendix A, Section 3.2**
**40 CFR Part 58, Appendix D, Section 4.7 and Table D-5**

Ambient air monitoring network design criteria for $PM_{2.5}$ are found in 40 CFR Part 58, Appendix D, Section 4.7. This section requires that state and, where applicable, local agencies operate the minimum number of required $PM_{2.5}$ SLAMS sites listed in Appendix D, Table D-5. The SC DHEC, GA EPD and MCAQ operate $PM_{2.5}$ SLAMS monitors at 15 sites in CBSAs in or abutting the state (see Table 20).

**Table 20: $PM_{2.5}$ Design Criteria – Minimum Required SLAMS Monitors**

| CBSA | Minimum Required SLAMS | Number of SLAMS Sites | Number of SPMs or Other Regulatory Monitoring Sites | Site Names (AQS IDs) of SLAMS | Requirement Met (Y/N) |
|---|---|---|---|---|---|
| Augusta-Richmond County, GA-SC | 2 | 2 | 0 | Augusta (AQS ID: 13-245-0091)[1] Trenton (AQS ID 45-037-0001) | Y |
| Charleston-North Charleston, SC | 1 | 2 | 1 | NCFS (AQS ID: 45-019-0020) Cape Romain (AQS ID: 45-019-0046) | Y |
| Charlotte-Concord-Gastonia, NC-SC | 2 | 3 | 2 | Garinger (AQS ID: 37-119-0041)[2] Remount (AQS ID: 37-119-0045)[2] Friendship Park (AQS ID: 37-119-0048)[2] | Y |
| Columbia, SC(NCore) | 1 | 2 | 0 | Irmo (AQS ID: 45-063-0008)[3] Irmo DJJ (AQS ID: 45-079-0022)[3] Parklane (AQS ID: 45-079-0007) | Y |
| Greenville-Anderson, SC | 1 | 2 | 0 | Greenville ESC (AQS ID: 45-045-0015) Hillcrest (AQS ID: 45-045-0016) | Y |
| Florence, SC | 0 | 1 | 0 | Williams Middle School (AQS ID: 45-041-0003) | Y |
| Spartanburg, SC | 0 | 1 | 0 | T.K. Gregg (AQS ID: 45-083-0011) | Y |
| Myrtle Beach-Conway-North Myrtle Beach SC-NC | 1 | 1 | 0 | Coastal Carolina (AQS ID 45-051-0008)[4] | Y |
| None | 0 | 1 | 1 | Chesterfield (AQS ID: 45-025-0001) | Y |

[1]The Augusta site is operated by the GA EPD
[2]The Garinger, Remount, and Friendship Park sites are operated by the MCAQ
[3]The SC DHEC will relocate the Irmo Site monitors to the Irmo DJJ Site due to access issues.
[4]$PM_{2.5}$ monitoring at the Coastal Carolina Site is expected to start in 2023

The SC DHEC previously proposed relocating the Irmo site (AQS ID: 45-063-0008) to the Irmo Department of Juvenile Justice (DJJ) site (AQS ID: 45-079-0022). In 2019, the owners of the property where the Irmo site is located requested the monitoring site be removed from their property. After working with EPA, the SC DHEC was able locate a suitable site 2.4 miles northeast from the Irmo site. The demographics and location of the Irmo DJJ site are similar to the original Irmo site, and meet the requirements of 40 CFR Part 58, Appendix E. As such, the EPA previously approved relocating the Irmo monitors to the Irmo DJJ $PM_{2.5}$ site. The monitors were installed and operating by January 20, 2023.

The estimated 2022 census numbers indicate that the population of the Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA is now over 500,000 people. The Myrtle Beach area is now required to install one $PM_{2.5}$ monitor to meet the minimum monitoring requirements of 40 CFR Part 58, Appendix D, Table D-5. In February 2023, the SC DHEC installed and began operating a T640 at the Coastal Carolina site to measure $PM_{2.5}$ and is planning to install a T640x to monitor $PM_{10}$ by the end of the year. The EPA approves the SC DHEC's plans for the $PM_{2.5}$ monitoring at the Coastal Carolina site, as well as the $PM_{10}$ monitoring required to begin by December 31, 2023.

The level of the $PM_{2.5}$ annual NAAQS is 12.0 micrograms per cubic meter ($\mu g/m^3$) and the DV is calculated by taking the annual arithmetic mean, averaged over 3 years. The 2020 DV at the Augusta site is 10.3 $\mu g/m^3$, which is greater than 85% of the NAAQS. According to 40 CFR Part 58, Appendix D, Table D-5, two $PM_{2.5}$ monitors are required in the Augusta-Richmond County MSA, based on the 2020 DV and the MSA's estimated 2019 population of 608,980. The SC DHEC operates one required SLAMS (FRM) monitor, as well as and one continuous FEM monitor, at the Trenton monitoring site. The second required SLAMS monitor is located at the Augusta monitoring site in Georgia, operated by the Georgia Environmental Protection Division.

**$PM_{2.5}$ Collocation Requirements**
**40 CFR Part 58, Appendix A, Section 3.2**

Forty (40) CFR Part 58, Appendix A, Section 3.2.3 states that 15 percent of each network of manual $PM_{2.5}$ methods (at least one site) must be collocated. Section 3.2.3.1 states that for each distinct monitoring method designation (FRM or FEM) a PQAO is using for a primary monitor, the PQAO must have 15 percent of the primary monitors of each method designation collocated and have at least one collocated quality control monitor. The first collocated monitor must be a designated a FRM monitor.

Section 3.2.3.2 states that for each primary monitor designated as an FEM used by the PQAO, 50 percent of the monitors designated for collocation (or the first if only one collocation is necessary) shall be collocated with a FRM quality control monitor and 50 percent of the monitors shall be collocated with a monitor having the same method designation as the FEM primary monitor.

The SC DHEC is transitioning its $PM_{2.5}$ network to include more continuous FEM equipment and reduce the number of filter-based, FRM equipment. Specifically, the SC DHEC will operate more Teledyne T640 and T640x monitors (AQS method codes 636 and 638 respectively). The EPA staff recently had a discussion with SC DHEC staff on plans to continue to meet regulatory collocation requirements in 2023 as FEM methods are started up and fewer FRM samplers are operated. The EPA believes that the SC DHEC has a good plan for maintaining compliance with $PM_{2.5}$ collocation requirement.

**Table 21: $PM_{2.5}$ Design Criteria – Minimum Required Collocated Monitors**

| PQAO | Method | AQS Method Code | Number of Primary Monitors | Minimum Required Collocated Monitors | Number of Collocated Monitors | Site Names (AQS IDs) of Collocated Sites | Requirements Met (Y/N) |
|---|---|---|---|---|---|---|---|
| SC DHEC | FRM Gravimetric w/ VSCC | 145 | 8 | 1 | 3 | Hillcrest (AQS ID: 45-045-0016) Parklane (AQS ID: 45-079-0007) NCFS (AQS ID 45-019-0020) | Y |
| SC DHEC | Teledyne T640X at 16.67 LPM | 638 | 0 | 0 | 0 | Greenville ESC (AQS ID: 45-045-0015) | Y |
| SC DHEC | Teledyne T640 at 5.0 LPM | 636 | 3 | 1 | 1 | Chesterfield (AQS ID: 45-025-0001) | Y |

[1]The EPA has approved relocating the Irmo site to the Irmo DJJ site due to site access issues.

The $PM_{2.5}$ monitoring network meets all design criteria of 40 CFR Part 58.

**$PM_{2.5}$ Near-Road Monitoring Requirements**
**40 CFR Part 58, Appendix D, Section 4.7.1(b)(2)**

Regulatory requirements in 40 CFR Part 58, Appendix D, Section 4.1.1(b)(2) require that "CBSAs with a population of 1,000,000 or more persons, at least one $PM_{2.5}$ monitor is to be collocated at a near-road $NO_2$ station." One CBSA with a population of 1,000,000 or more persons is partially in the State of South Carolina, the Charlotte-Gastonia-Concord, NC-SC CBSA, and the MCAQ operates the required $PM_{2.5}$ near-road monitor at the Remount site.

**Table 22: $PM_{2.5}$ Design Criteria – Minimum Required SLAMS Near-Road Monitors**

| CBSA | Minimum Required Near-road $PM_{2.5}$ | Number of Near-road $PM_{2.5}$ | Site Names (AQS IDs) of Existing $PM_{2.5}$ Near-Road | Requirement Met (Y/N) |
|---|---|---|---|---|
| Charlotte-Gastonia-Concord, NC-SC | 1 | 1 | Remount (37-119-0045)[1] | Y |

[1]The Remount site is operated by the MCAQ

The near-road $PM_{2.5}$ monitoring network described in the Network Plan meets the design criteria of 40 CFR Part 58.

**$PM_{2.5}$ Continuous Monitoring Requirements**
**40 CFR Part 58, Appendix D, Section 4.7.2**

Regulatory requirements for continuous $PM_{2.5}$ monitoring require that "...State, or where appropriate, local agencies must operate continuous $PM_{2.5}$ analyzers equal to at least one-half (round up) the minimum required sites listed in Table D-5 of this appendix.

At least one required continuous analyzer in each MSA must be collocated with one of the required FRM/FEM/ARM (federal reference method/federal equivalent method/approved regional method) monitors, unless at least one of the required FRM/FEM/ARM monitors is itself a continuous FEM or ARM monitor in which case no collocation requirement applies."

The Teledyne API T640 is an approved FEM for $PM_{2.5}$, and the T640x is an approved FEM for $PM_{2.5}$, $PM_{10}$, and $PM_{10\text{-}2.5}$. These methods were first approved in 2016 and have grown in use around the country. They have become popular due to multiple valued attributes to the method (i.e., one monitor for multiple PM metrics and less maintenance and consumables); however, data assessments have indicated both methods have a positive bias of ~20% relative to state, local, and tribal (SLT) operated $PM_{2.5}$ FRMs. During the most recent PM NAAQS review, the desire for improved FEM/FRM comparability was a key recommendation of the Clean Air Scientific Advisory Committee (CASAC) to the EPA in its review of the PM policy assessment.

Teledyne API worked with the EPA's Office of Research and Development (ORD) on modifications to these methods to address the bias. The EPA ORD's Reference and Equivalency Program accepts and evaluates applications for new and modified methods and approves new designations and updates if

they meet performance criteria and related requirements defined in 40 CFR Part 53. The EPA recently approved a modification to the firmware of the Teledyne T640 and T640x PM FEMs that includes a "network data alignment" feature to better align data from these methods with STL FRMs. Teledyne API customers can begin applying the upgrades through firmware available from Teledyne. The EPA anticipates this upgrade will lead to greater confidence in the comparability of Teledyne FEMs to collocated FRMs. The Reference and Equivalency Program maintains and publishes a list of all designated and modified FRMs and FEMs that are currently in effect. This list can be found on the web at: https://www.epa.gov/amtic/air-monitoring-methods-criteria-pollutants.

For agencies which have previously received NAAQS exclusions for the Teledyne T640/x monitors for $PM_{2.5}$ due to an evaluation period showing unfavorable comparability and performance statistics, we recommend that they apply this upgrade as soon as possible and go back through the evaluation process. As long as there is a collocated FRM at a site meeting sample frequency requirements, a NAAQS exclusion may be applied to the $PM_{2.5}$ data from a T640/x for up to two years via the SPM provision in §58.20. In the Network Plan to be submitted in 2024, agencies operating either the T640 or the T640x FEMs must include information on when the firmware upgrade occurred, and when the data alignment function was enabled for each monitor. Also, each agency must include whether the evaluation period caused the FEM to no longer be the primary monitor at the site. If any monitors are proposed to change from a SLAMS to an SPM, then this change must be submitted in an addendum to the Network Plan for EPA approval.

Six MSAs listed in Table 23, below, are required to have continuous monitors. Eight MSAs in or partially in South Carolina have continuous $PM_{2.5}$ monitors as does one site not in an MSA. The requirements are met in all areas in the state.

**Table 23: $PM_{2.5}$ Design Criteria – Continuous Monitors**

| MSA | Minimum Required Continuous $PM_{2.5}$ | Number of Continuous $PM_{2.5}$ Monitors | Site Names (AQS IDs) of Existing $PM_{2.5}$ Monitors | Requirement Met (Y/N) |
|---|---|---|---|---|
| Augusta-Richmond County, GA-SC | 1 | 1 | Trenton (AQS ID: 45-037-0001) | Y |
| Charleston-North Charleston, SC | 1 | 2 | Cape Romain (AQS ID: 45-019-0046)<br>NCFS (AQS ID: 45-019-0020) | Y |
| Charlotte-Concord-Gastonia, NC-SC | 1 | 5 | Garinger (AQS ID: 37-119-0041)[1]<br>Friendship Park (AQS ID: 37-119-0048)[1]<br>Remount (AQS ID: 37-119-0045)[1]<br>Rockwell (AQS ID: 37-159-0021)[2]<br>Catawba Longhouse (AQS ID: 45-091-8801)[3] | Y |
| Columbia, SC (NCore) | 1 | 2 | Irmo (AQS ID: 45-063-0008)[4]<br>Irmo DJJ[4] (AQS ID: 45-079-0022)<br>Parklane (AQS ID: 45-079-0007) | Y |
| Florence, SC | 0 | 1 | Williams Middle School (AQS ID: 45-041-0003) | Y |
| Greenville-Anderson, SC | 1 | 1 | Greenville ESC (AQS ID: 45-045-0015) | Y |
| Myrtle Beach-Conway-North Myrtle Beach SC-NC | 1 | 1 | Coastal Carolina (AQS ID 45-051-0008)[5] | |

| | | | | |
|---|---|---|---|---|
| Spartanburg, SC | 0 | 1 | T.K. Gregg (AQS ID: 45-083-0011) | Y |
| Remainder of State | 0 | 1 | Chesterfield (AQS ID: 45-025-0001) | Y |

[1]The Garinger, Friendship Park, and Remount sites are operated by the MCAQ
[2]The Rockwell site is operated by the North Carolina Department of Air Quality
[3]The Catawba Longhouse site is operated by the Catawba Indian Nation (CIN)
[4]SC DHEC will relocate the Irmo continuous monitor to the Irmo DJJ site.
[5]The Coastal Carolina $PM_{2.5}$ monitoring is expected to start in 2023

### $PM_{2.5}$ Background and Transport Sites
### 40 CFR Part 58, Appendix D, Section 4.7.3

Monitoring requirements in 40 CFR Part 58, Appendix D, Section 4.7.3 require that each state install and operate at least one $PM_{2.5}$ site to monitor for regional background concentrations and at least one $PM_{2.5}$ site to monitor for regional transport.

**Table 24: $PM_{2.5}$ Regional Background and Transport Monitors**

| Requirement | Minimum Required | Number of Monitors | Site Names (AQS IDs) of SLAMS | Requirement Met (Y/N) |
|---|---|---|---|---|
| Background | 1 | 1 | Cape Romain (AQS ID: 45-019-0046) | Y |
| Transport | 1 | 1 | Chesterfield (AQS ID: 45-025-0001) | Y |

On April 10, 2020, the SC DHEC temporarily replaced the Chesterfield (AQS ID: 45-025-0001) continuous $PM_{2.5}$ TEOM sampler with a T640 and redesignated the monitor as an SPM in AQS. Use of the TEOM sampler resumed on April 23, 2021, but the monitor was not returned to a SLAMS designation. The EPA requests that the SC DHEC update the monitor's designation in AQS to reflect what is represented in the Network Plan.

As identified in Table 24, the SC DHEC meets the requirements of 40 CFR Part 58 by operating one background site and one transport site.

### $PM_{2.5}$ Chemical Speciation Network (CSN)
### 40 CFR Part 58, Appendix D, Section 4.7.4

Monitoring rules in 40 CFR Part 58, Appendix D, Section 4.7.4 require that each state conduct chemical speciation monitoring and analyses at sites designated to be part of the $PM_{2.5}$ Speciation Trends Network (STN). The selection and modification of these STN sites must be approved by the Administrator. The $PM_{2.5}$ CSN includes STN stations and supplemental speciation stations that provide chemical species data of fine particulate. The EPA funds one STN monitor in South Carolina at the Parklane site (see Table 25).

**Table 25: $PM_{2.5}$ Chemical Speciation Network – Non-SLAMS Monitors**

| CBSA | Site Name (AQS ID) of CSN Monitor |
|---|---|
| **Columbia, SC** | Parklane (AQS ID: 45-079-0007) |

**Photochemical Assessment Monitoring Stations (PAMS)**
**40 CFR Part 58, Appendix D, Section 5.0**

With the promulgation of a new $O_3$ NAAQS on October 1, 2015, the EPA finalized changes to the PAMS requirements. On December 20, 2019, the EPA revised the start date for the updated stations. The revision was published in the *Federal Register* on January 8, 2020, and extends the date by which the stations were to begin operating from June 1, 2019, to June 1, 2021. Since the state does not have a CBSA with a population of one million or more, it is not required to meet the PAMS requirement.

**Air Toxics Monitoring Network**

As part of the National Air Toxics Trends Station (NATTS) network, the SC DHEC samples for metals, semi-volatile organic compounds, carbonyls, and volatile organic compounds (SVOCS) at the Chesterfield monitoring site (AQS ID: 45-025-0001). The SC DHEC added ethylene oxide (EtO) sampling as part of the Tier 1 target analytes at Chesterfield in November 2020 and contracted with Eastern Research Group (ERG) to analyze EtO samples. All other NATTS analytes are analyzed by the SC DHEC. The collection and analysis of NATTS samples at the Chesterfield site is conducted in accordance with an EPA-approved quality assurance project plan (QAPP).

The SC DHEC was awarded a community-scale Air Toxics Monitoring Grant to collect air samples for a one-year period at three locations in several North Charleston area environmental justice communities and at one high traffic location. The sampling started on May 11, 2022, and the samples will be analyzed for EtO. The sites are Irving (45-019-0021), Rosemont (45-019-0009), and Gethsemane (45-019-0022), and FAA (45-019-0048) (high traffic site). The results will be uploaded to AQS. The EPA appreciates the SC DHEC's efforts on this study and for the operation of the NATTS program.

The SC DHEC also collects samples for SVOCs in the Columbia, SC MSA at the Parklane (AQS ID: 45-079-0020) site. Air toxics sampling at Parklane is conducted at the SC DHEC's discretion and according to SC DHEC, it is not collected using the EPA or state-match funds. The EPA recommends that the SC DHEC develop and approve a QAPP for air toxics sampling to ensure that the data is of sufficient quality for SC DHEC's intended use, such as a risk screening analysis and/or sharing with the public.

**Non-SLAMS Monitoring**

The Network Plan also includes the following non-SLAMS monitors summarized in Table 26. These monitors include criteria pollutant monitoring comparable to the NAAQS, continuous $PM_{2.5}$ monitoring used for the AQI, air toxics monitoring, and/or tribal air monitoring.

Table 26: Non-SLAMS Monitors

| CBSA | Pollutant(s) | Site Name (AQS ID) of Non-SLAMS Monitor | Monitor Type | NAAQS Comparable |
|---|---|---|---|---|
| Augusta-Richmond County, GA-SC | $SO_2$ | Trenton (AQS ID: 45-037-0001) | SPM – 2yr rotating | Y - but only operating for 2 years |
| Charleston-North Charleston, SC | $NO_2$ | Jenkins Ave. Fire Station (AQS ID: 45-019-0003) | SPM | Y |
| Charleston-North Charleston, SC | $NO_2$ | Cape Romain (AQS ID: 45-019-0046) | SPM | Y |
| Charleston-North Charleston, SC | $PM_{2.5}$ Cont. | NCFS (AQS ID: 45-019-0020) | SPM | Y |
| Charleston-North Charleston, SC | SO2 | York Landfill (45-091-0008) | SPM – 2yr rotating | Y - but only operated for 2 years |
| Charlotte-Concord-Gastonia, NC-SC | $PM_{2.5}$ Cont., $O_3$ | Catawba Longhouse (AQS ID: 45-091-8801)[1] | Tribal | Y |
| Columbia, SC | $PM_{2.5}$ Cont. | DJJ (AQS ID: 45-079-0022) | SPM | Y |
| Columbia, SC | SVOC, Precipitation, $PM_{10}$, Chemicals | Parklane (AQS ID: 45-079-0007) | SPM | Y – only for $PM_{10}$ |
| Columbia, SC | $O_3$ | Congaree Bluff (AQS ID: 45-079-0021) | SPM | Y for Congaree National Park Only |
| Columbia, SC | $NO_2$ | Sandhill Experimental Station (AQS ID: 45-079-1001) | SPM | Y |
| Florence, SC | Pb | JCI Entrance (AQS ID: 45-041-8002) JCI Woods (AQS ID: 45-041-8003) | SPM | Y |
| Greenville-Anderson, SC | $PM_{2.5}$ Cont. | Greenville ESC (AQS ID: 45-045-0015) | SPM | Y |
| Spartanburg, SC | $PM_{2.5}$ Cont. | T.K. Gregg (AQS ID: 45-083-0011) | SPM | Y |
| Not in an MSA | $O_3$, Metals, Carbonyls, SVOCs, VOCs, Precipitation | Chesterfield (AQS ID: 45-025-0001) | SPM | Y for $O_3$, N/A for all else |

[1]The Catawba Longhouse site is operated by the CIN

## Memoranda of Agreement (MOA) with Neighboring State and Local Air Monitoring Agencies 40 CFR Part 58, Appendix D, 2(e)

Section 2(e) of Appendix D to 40 CFR Part 58 states:

> "The EPA recognizes that State or local agencies must consider MSA/CSA boundaries and their own political boundaries and geographical characteristics in designing their air monitoring networks. The EPA recognizes that there may be situations where the EPA Regional Administrator and the affected State or local agencies may need to augment or to divide the overall MSA/CSA monitoring responsibilities and requirements among these various agencies to achieve an effective network design. Full monitoring requirements apply separately to each affected State or local agency in the absence of an agreement between the affected agencies and the EPA Regional Administrator."

The SC DHEC maintains MOAs to address minimum monitoring requirements with the GA EPD, the NC DAQ, and the MCAQ. These MOAs are summarized in Table 27.

**Table 27: MOAs to Meet Monitoring Requirements for CBSAs Crossing Jurisdictional Boundaries**

| CBSA | Agencies on the MOA | Pollutants | Date of Agreement | Expiration |
|---|---|---|---|---|
| Augusta-Richmond County, GA-SC | SC DHEC, GA EPD | $PM_{10}$, $PM_{2.5}$, $O_3$, and other criteria pollutants as necessary | January 2017 | Every 10 years |
| Charlotte-Concord-Gastonia, NC-SC | SC DHEC, NC DAQ, MCAQ | Criteria pollutant monitoring required by 40 CFR 58, Appendix D | July 1, 2016 | Every 10 years |
| Myrtle Beach-Conway-North Myrtle Beach, SC MSA | SC DHEC, NC DAQ | $O_3$ and other criteria pollutants as necessary | July 1, 2015 | Every 10 years |

The EPA approves of the SC DHEC agreements to share regulatory monitoring requirements for the Charlotte, Myrtle Beach, and Augusta areas.

**Monitoring Siting Criteria and Site Assessments**
**40 CFR Part 58, Appendix E**

In reference to the Network Plan, 40 CFR § 58.10(a)(1) states:

> "The plan shall include a statement of whether the operation of each monitor meets the requirements of appendices A, B, C, D, and E of this part, where applicable. The Regional Administrator may require additional information in support of this statement."

The Network Plan includes assessment information for all monitoring sites. The EPA appreciates the inclusion of this information and the work that the SC DHEC has done to evaluate siting criteria at all its monitoring sites. The EPA understands that the SC DHEC is still working to resolve siting criteria issues identified by its own assessments and in recent EPA audits and appreciates the SC DHEC's continued progress in resolving these issues.

**Areas with Environmental Justice Concerns**

The EPA recognizes that the Network Plan submitted in 2023 meets the federal regulatory requirements outlined at 40 CFR §58.10 and Appendices A through E (with the exceptions noted in above sections), including consideration of areas with susceptible and vulnerable populations. For future plans, including next year's plan, we encourage the SC DHEC to continue to evaluate areas with environmental justice concerns[1] related to ambient air monitoring. Where possible, please add detail to the discussion of environmental justice considerations taken into account and related to the ambient air quality network.

[1] Executive Order 14008, January 27, 2021. Federal Register / vol. 86, No. 19, February 1, 2021, p. 7619. Securing Environmental Justice and Spurring Economic Opportunity. Section 219. Policy.

**American Rescue Plan**

The SC DHEC and the CIN received funding in 2022 under the American Rescue Plan (ARP) to upgrade the existing ambient air monitoring network. As a recipient of this ARP direct award grants, the SC DHEC and the CIN initiated procurement requests for equipment purchases and began installation of equipment once received. The remaining equipment will be purchased before the end of the grant period unless an extension is received. The Table 28 below indicates for the SC DHEC the receipt and installation status of equipment funded under the ARP and Table 29 below indicates the planned equipment upgrades for the CIN. Quarterly reports must be submitted as well as a final progress report that is due within 120 days of the project end date. Prior to collecting environmental information, the SCDHEC and the CIN must submit to the EPA a QAPP for all new pollutants to be monitored and methods to be used for approval 180 days prior to collection of environmental data.

**Table 28. SC DHEC ARP Monitoring Equipment Upgrades**

| AQS Site ID (Location) | Equipment Description | Date Received |
|---|---|---|
| 45-037-0001 | T640 Monitor | 5/2023 |
| 45-037-0001 | 2025i Sampler | Not received |
| 45-041-0003 | T640* and Enclosure | 5/2023 |
| 45-045-0016 | T640* and Enclosure | 5/2023 |
| 45-079-0007 | T640X | 5/2023 |
| 45-063-0010 | T640X* Enclosure | 5/2023 |
| 45-083-0011 | T640 and Enclosure | 5/2023 |
| 45-051-0008 | T640 and Enclosure | 5/2023 |
| 45-025-0001 | T640 and Enclosure | 5/2023 |
| 45-045-0015 | T640X | 5/2023 |
| 45-063-0010 | T640* and Enclosure | 5/2023 |
| 45-019-0046 | T640 | 5/2023 |
| Multiple | 4 x Agilaire 8864* | 5/2023 |
| Multiple | 3 x Teledyne T703U | Not received |

**Table 29: CIN ARP Equipment Upgrades**

| PQAO | Equipment Description |
|---|---|
| Catawba Indian Nation (CIN) | Ozone Analyzer – 1<br>Wind Speed and Direction Sensor – 1<br>FEM $PM_{2.5}$ monitor – 1<br>Flow calibrator - 1<br>Flow meter – 1 |

| | |
|---|---|
| | Zero Air Generator - 1 |

## Inflation Reduction Act – Clean Air Act (CAA) Section 103 Direct Award

The SCDHEC will receive funding in 2023 under Section 60105(f) of the Inflation Reduction Act, which provides for "grants and other activities authorized under subsections (a) through (c) of section 103 and section 105 of the Clean Air Act." The CAA Section 103 statutory authority for this action specifically authorizes "the coordination and acceleration of, research, investigations, experiments, demonstrations, surveys, and studies relating to the causes, effects (including health and welfare effects), extent, prevention, and control of air pollution." As recipients of these IRA CAA grants, agencies will prepare and initiate procurement requests for equipment purchases and/or contract support services, and plan for timely set-up and installation of equipment. The table below indicates the equipment funded under these IRA CAA grants. Quarterly reports must be submitted as well as a final progress report that is due within 120 days of the applicable project end date. Prior to the collection of environmental information, including air monitoring data, agencies must have an EPA-approved QAPP. The QAPP, which should cover all pollutants and monitoring methods not already covered in an approved QAPP, needs to be submitted to the EPA for approval 180 days prior to the planned collection of environmental information.

**Table 30. IRA CAA Monitoring Equipment Upgrades**

| Location | Equipment Description |
|---|---|
| TBD between Chesterfield and Parklane | Large shelter Upgrade |
| TBD between Chesterfield and Parklane | Small Shelter Upgrade |
| NA | Laptop with Docking Shelter and Bag |
| NA | Laptop with Docking Shelter and Bag with Air Modeling Enhancement |
| NA | EtO NATTS Sampling Analysis (65 per year x 3 years) |

## Waivers of Requirements

The EPA's air monitoring regulations allow for the waiver of requirements in specific instances. The EPA requires ongoing waivers to be renewed every five years as part of the network assessment. EPA granted a renewal of the waiver for the tree obstruction requirement at the Congaree Bluff site in an addendum to the 2020 Network Plan.

**Table 31: Summary of EPA Approved Waivers of Requirements**

| CBSA | Monitoring Site(s) Affected | Pollutant(s) | CFR Requirement Waived | EPA Waiver Authority/Rationale | Year Waiver First Granted | Waiver Expiration Date | Comments |
|---|---|---|---|---|---|---|---|
| Columbia, SC | Congaree Bluff (AQS ID: 45-079-0021) | $O_3$, $SO_2$ | 40 CFR Part 58, Appendix E, Section 4 & 11 | 40 CFR Part 58, Appendix E, Section 10.1.2 | 2016 | 2025 | Approval of spacing from trees requirements |
| Florence, SC | JCI Woods (AQS ID: 45-041-8003) | Pb | 40 CFR Part 58, Appendix E, Section 4 | 40 CFR Part 58, Appendix E, Section 10.1.1 | 2020 | 2025 | Approval of spacing from obstacles |

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

December 20, 2022

Rhonda B. Thompson, PE
Chief
Bureau of Air Quality Control
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Dear Ms. Thompson,

Thank you for submitting the state of South Carolina's 2022 annual ambient air monitoring network plan, dated July 1, 2022 (Network Plan). The Network Plan is required by 40 Code of Federal Regulations (CFR) §58.10. Additionally, the South Carolina Department of Health and Environmental Control (SC DHEC) submitted an addendum to the Network Plan (Network Plan Addendum) on October 26, 2022. The U.S. Environmental Protection Agency Region 4 understands that the SC DHEC provided the public with a 30-day review period for the draft Network Plan and Network Plan Addendum and that no comments were received other than comments from the EPA on the draft Network Plan.

The Network Plan Addendum proposes to site a $PM_{10}$ and $PM_{2.5}$ monitor at the existing Coastal Carolina (AQS ID 45-051-0008) site in 2023. This action will allow the SC DHEC to meet the new minimum monitoring requirements for the Myrtle Beach Metropolitan Statistical Area, as well as save resources by having all the required monitoring for the area at one site. The EPA approves the startup of the $PM_{10}$ and $PM_{2.5}$ monitors at the Coastal Carolina site.

Also, the Network Plan indicates that the SC DHEC is transitioning its $PM_{2.5}$ network to include more continuous federal equivalent method (FEM) equipment and reducing the number of filter-based, federal reference method (FRM) equipment. The EPA supports this, and this transition will save resources as well as provide higher time resolution $PM_{2.5}$ measurements in more areas of the state. Specifically, the SC DHEC will operate more Teledyne T640 and T640x monitors (AQS method codes 236 and 238 respectively). The EPA staff recently had a discussion with SC DHEC staff on plans to continue to meet regulatory $PM_{2.5}$ collocation requirements in 2023 as FEMs are started up and fewer FRMs are operated. Based on this discussion, the EPA believes that the SC DHEC has a good plan for maintaining compliance with $PM_{2.5}$ collocation requirements.

The Network Plan and Network Plan Addendum do not, on their own, fully demonstrate that collocation requirements are met and will be met. Thus, the EPA requests that next year's network plan indicate the primary monitoring method at each site measuring $PM_{2.5}$ and if the site has a $PM_{2.5}$ QA collocated

monitor or sampler. If this will change over the year following submission of the next network plan, then the SC DHEC should indicate how $PM_{2.5}$ collocation requirements will continue to be met.

The EPA approves the proposed monitoring network changes in the Network Plan and Network Plan Addendum. Detailed comments on South Carolina's Network Plan and Network Plan Addendum are enclosed. Thank you for working with EPA Region 4 to monitor air pollution and safeguard healthy air quality in South Carolina and the nation. If you have any questions or concerns, please contact Katy Lusky at (404) 562-9130 or Ryan Brown at (404) 562-9147.

Sincerely,

CAROLINE FREEMAN

Digitally signed by CAROLINE FREEMAN
Date: 2022.12.20 12:30:50 -05'00'

Caroline Y. Freeman
Director
Air and Radiation Division

Enclosure

Cc: Micheal Mattocks, Assistant Bureau Chief, BEHS
Connie Turner, Director, Division of Air Quality Analysis, BEHS
Heinz Kaiser, Director, Division of Air Emissions Evaluation and Support BAQ
Mary Peyton Wall, Air Regulation and Data Support Section BAQ
Joel Hodges, Air Regulation and Data Support Section, BAQ
Keith Harris, Region 4 LSASD

# 2022 State of South Carolina Ambient Air Monitoring Network Plan
# U.S. EPA Region 4 Comments and Recommendations

This document contains the U.S. Environmental Protection Agency comments and recommendations on the state of South Carolina's 2022 ambient air monitoring network plan (Network Plan) and the October 26, 2022, addendum to the 2022 ambient air monitoring network plan (Network Plan Addendum). Ambient air monitoring rules, which include regulatory requirements that address network plans, data certification, and minimum monitoring requirements, among other requirements, are found in 40 CFR Part 58. Minimum monitoring requirements for criteria pollutants are listed in 40 CFR Part 58, Appendix D. Minimum monitoring requirements are listed for ozone ($O_3$), particulate matter less than 2.5 microns ($PM_{2.5}$), particulate matter less than 10 microns ($PM_{10}$), nitrogen dioxide ($NO_2$), sulfur dioxide ($SO_2$) carbon monoxide (CO), and lead (Pb).

The minimum monitoring requirements are based on core based statistical area (CBSA) boundaries as defined by the U.S. Office of Management and Budget (OMB); July 6, 2021, population estimates from the U.S. Census Bureau, and historical ambient air monitoring data. Minimum monitoring requirements for $O_3$, $PM_{2.5}$, and $PM_{10}$ only apply to metropolitan statistical areas (MSAs), which are a subset of CBSAs. OMB currently defines 10 MSAs in the state of South Carolina. The July 6, 2021, population estimates from the U.S. Census Bureau for each MSA in South Carolina and the total population estimates of MSAs shared with North Carolina and Georgia are shown in Table 1.

**Table 1: Metropolitan Statistical Areas and July 6, 2021, Population Estimates**

| MSA Name | Population |
|---|---|
| Charlotte-Gastonia-Concord NC-SC | 2,701,046 |
| Greenville-Anderson, SC | 940,774 |
| Columbia, SC | 838,250 |
| Charleston-North Charleston-Summerville, SC | 813,052 |
| Augusta-Richmond County, GA-SC | 615,933 |
| Myrtle Beach-Conway-North Myrtle Beach, SC-NC | 509,794 |
| Spartanburg, SC | 335,864 |
| Hilton Head Island-Bluffton, SC | 222,072 |
| Florence, SC | 199,529 |
| Sumter, SC | 135,782 |

The estimated 2021 census numbers indicate that the population of the Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA has surpassed 500,000 people. The Myrtle Beach area is now subject to additional minimum monitoring requirements that are discussed in the pollutant sections below.

## Proposed Monitoring Network Changes

The EPA has approval authority for changes to regulatorily required state or local air monitoring stations (SLAMS). SLAMS include the ambient air quality monitoring sites and monitors required by 40 CFR Part 58, Appendix D and are needed to meet the monitoring objectives of Appendix D, including NAAQS comparisons, and may also serve other data purposes. The EPA is not required to approve changes made to special purpose monitors (SPMs). SPMs are monitors designated by the monitoring agency as special purpose and do not count towards minimum monitoring requirements of 40 CFR Part 58. SPMs are required to be identified in the Network Plan for public and the EPA review.

The South Carolina Department of Health and Environmental Control (SC DHEC) proposed changes to its monitoring network for 2022 through 2023. Table 2 summarizes the requested monitor discontinuations and relocations. Information related to each proposed change as well as the EPA's decision and rationale for approval/disapproval of each proposed change are contained in the following pollutant sections.

**Table 2: Monitors Proposed for Relocation or Discontinuation**

| AQS ID | CBSA | Site Name | Pollutant | Type | Comments |
|---|---|---|---|---|---|
| 45-019-0049 | Charleston-North Charleston, SC | Irving Street | $PM_{2.5}$, $PM_{2.5}$ Cont., $SO_2$ | SPM | Acknowledged. 23-month special purpose monitoring near the Port of Charleston. Discontinued June 30, 2022. |
| 45-019-0046 | Charleston-North Charleston, SC | Cape Romaine | $SO_2$ | SPM | Acknowledged. Monitoring discontinued will not be part of SC DHEC's special purpose rotating $SO_2$ monitoring. |
| 45-019-0049 | Charleston-North Charleston, SC | Charleston Public Works | $PM_{2.5}$, $PM_{2.5}$ Cont. | SLAMS/ SPM | Previously approved relocation to NCFS. Site shut down November 8, 2021. |
| 45-091-0008 | Charlotte-Concord-Gastonia, NC-SC | York Landfill | $SO_2$ | SPM | Acknowledged. Operating 2020-2022 as a rotating background monitor. |
| 45-079-0021 | Columbia, SC | Congaree Bluff | $SO_2$ | SPM | Acknowledged. Monitoring discontinued will not be part of SC DHEC's special purpose rotating $SO_2$ monitoring. |
| 45-041-8001, 45-041-8002, 45-041-8003 | Florence, SC | Johnson Controls – Railroad, Entrance, Woods | Pb | SPM | Acknowledged. JCI Railroad and Entrance sites shut down March 22, 2021. JCI woods will continue to sample for Pb until the facility's permit is revoked and a cleanup plan is in place. |
| 45-019-0020 | Charleston-North Charleston, SC | NCFS | $PM_{2.5}$ | SPM | Acknowledged. The $PM_{2.5}$ collocated sampler was moved from the TK Gregg site to NCFS. Since this is meeting requirements, it needs to be classified as a SLAMS. |
| 45-019-0046, (45-025-0001) | multiple | Cape Romain, Chesterfield | precipitation | Other | Acknowledged. The Network Plan Addendum states that precipitation measurements at these sites have been discontinued. |

Table 3 summarizes requested monitor startups, as well as the EPA's decision and rationale for approval/disapproval/acknowledgement of each proposed startup.

**Table 3: Monitors Proposed for Startup**

| AQS ID | CBSA | Site Name | Pollutant | Type | Comments |
|---|---|---|---|---|---|
| 45-019-0020 | Charleston-North Charleston, SC | NCFS | $PM_{2.5}$ | SLAMS | Previously approved monitor startup. Monitor was sited to meet the $PM_{2.5}$ monitoring requirements for the Charleston area and started operating at the end of 2021. This site will also meet $PM_{2.5}$ collocation requirements by operating a primary and collocated FRM sampler. |
| 45-037-0001 | Augusta-Richmond County, GA-SC | Trenton | $PM_{2.5}$ | SLAMS | Approved. SPM converted to SLAMS to meet new minimum monitor in the Augusta area. |

| | | | | | |
|---|---|---|---|---|---|
| 45-037-0001 | Augusta-Richmond County, GA-SC | Trenton | $SO_2$ | SPM | Acknowledged. Startup of rotating $SO_2$ monitor. It will to run for two years. |
| 45-051-0008 | Myrtle Beach-Conway-North Myrtle Beach, SC-NC | Coastal Carolina | $PM_{10}$, $PM_{2.5}$ | SLAMS | Approved. Start-up of a Federal Equivalent Method (FEM) monitor that measures both $PM_{2.5}$ and $PM_{10}$ (Teledyne T640x) and a $PM_{2.5}$ Federal Reference Method (FRM) sampler at an existing $O_3$ site to meet new minimum monitoring requirements triggered by the population increase in the Myrtle Beach MSA. Expected operation in 2023. |

**Network Plan Public Comments**
**40 CFR § 58.10 (a)(1)**

The requirement for a public comment period and response from the agency in the final Network Plan is found in 40 CFR 58 (a)(1):

"The annual monitoring network plan must be made available for public inspection and comment for at least 30 days prior to submission to the EPA and the submitted plan shall also include and address, as appropriate, any received comments."

The public comment period for the 2022 Network Plan was held from April 22, 2022, through May 23, 2022, and the public comment period for the Network Plan Addendum was held from September 23, 2022, to October 24, 2022. EPA made public comments on the draft Network Plan and appreciates the SC DHEC's responses and updates included in the final Network Plan. No other comments on the draft Network Plan or draft Network Plan Addendum were received. The Network Plan and Network Plan Addendum meet the public comment requirements of 40 CFR § 58.10.

**Operating Schedules**
**40 CFR § 58.12**

The operating schedules for all of the monitors proposed by the SC DHEC in its Network Plan meet the requirements continuous analyzers and all manual Pb, $PM_{10}$, $PM_{2.5}$, and $PM_{2.5}$ Speciation Trends Network (STN).

**Air Quality Index (AQI) Reporting**
**40 CFR § 58.50**

AQI reporting is required in MSAs with populations over 350,000. Six MSAs in the state of South Carolina have populations over 350,000 (see Table 4). The SC DHEC reports AQI values for these MSAs and one additional MSA. Mecklenburg County Air Quality reports AQI values for the Charlotte-Concord-Gastonia, NC-SC MSA. Both the Georgia Environmental Protection Division (GA EPD) and the SC DHEC report AQI values for the Augusta-Richmond County GA-SC MSA.

**Table 4: AQI Reporting**

| MSAs Reporting |
|---|
| Greenville-Anderson, SC |

| |
|---|
| Columbia, SC |
| Charleston-North Charleston, SC |
| Augusta-Richmond County, GA-SC |
| Myrtle Beach-Conway-North Myrtle Beach, SC-NC |
| Florence, SC |
| Charlotte-Concord-Gastonia, NC-SC |

The South Carolina monitoring network satisfies the minimum AQI reporting requirements in 40 CFR Part 58.

## National Core (NCore) Monitoring Network
## 40 CFR Part 58, Appendix D, Section 3.0

A requirement that each state operate at least one NCore site is found in 40 CFR Part 58, Appendix D, Section 3. The NCore site must measure, at a minimum, $PM_{2.5}$ particulate mass using continuous and integrated/filter-based samplers, speciated $PM_{2.5}$, $PM_{10-2.5}$ particle mass, $O_3$, $SO_2$, CO, $NO/NO_y$, wind speed, wind direction, relatively humidity, and ambient temperature. This section requires each state to operate at least one NCore site. The SC DHEC meets the NCore requirement by operating the Parklane site in Columbia.

**Table 5: NCore Monitoring Sites**

| AQS ID | Site Name | CBSA | Requirement Met (Y/N) |
|---|---|---|---|
| 45-079-0007 | Parklane | Columbia, SC | Y |

The NCore monitoring network described in the Network Plan and listed in Table 5 meets all design criteria of 40 CFR Part 58.

## $O_3$ Monitoring Requirements
## 40 CFR Part 58, Appendix D, Section 4.1 and Table D-2

Ambient air monitoring network design criteria for $O_3$ are found in 40 CFR Part 58, Appendix D, Section 4.1. This section requires state agencies to operate $O_3$ sites at various locations depending upon area size and typical peak concentrations.

**Table 6: Ozone Design Criteria – Minimum Required SLAMS Monitors**

| CBSA | Minimum Required SLAMS | Number of SLAMS | Number of SPMs or Other Regulatory Monitors | Site Names (AQS IDs) of SLAMS | Requirement Met (Y/N) |
|---|---|---|---|---|---|
| Augusta-Richmond County, GA-SC | 2 | 4 | 0 | Jackson Middle School (AQS ID: 45-003-0003)<br>Trenton (AQS ID: 45-037-0001)<br>Evans (AQS ID 13-073-0001)[1]<br>Augusta (AQS ID 13-245-0091)[1] | Y |
| Charleston-North Charleston, SC | 2 | 2 | 0 | Moncks Corner National Guard (AQS ID: 45-015-1002)<br>Cape Romain (AQS ID: 45-019-0046) | Y |

| | | | | | |
|---|---|---|---|---|---|
| Charlotte-Concord-Gastonia, NC-SC | 2 | 4 | 3 | York Landfill (AQS ID: 45-091-0008)<br>Crouse (AQS ID: 37-109-0004)[2]<br>Garinger (AQS ID: 37-119-0041)[3]<br>University Meadows (AQS ID: 37-119-0046)[3]<br>Rockwell (AQS ID: 37-159-0021)[1] | Y |
| Columbia, SC(NCore) | 2 | 2 | 1 | Parklane (AQS ID: 45-079-0007)<br>Sandhill (AQS ID: 45-079-1001) | Y |
| Florence, SC | 0 | 1 | 0 | Pee Dee Exp. Station (AQS ID: 45-031-0003) | Y |
| Greenville-Anderson, SC | 2 | 2 | 0 | Garrison Arena (AQS ID: 45-007-0006)<br>Hillcrest (AQS ID: 45-045-0016) | Y |
| Myrtle Beach-Conway-North Myrtle Beach, SC-NC | 1 | 1 | 0 | Coastal Carolina (AQS ID: 45-051-0008) | Y |
| Spartanburg, SC | 1 | 1 | 0 | North Spartanburg Fire Station #2 (AQS ID: 45-083-0009) | Y |

1. Evans and Augusta sites are operated by the Georgia Environmental Protection Division
2. Crouse and Rockwell sites are operated by the North Carolina Department of Air Quality
3. Garinger and University Meadows sites are operated by Mecklenburg County Air Quality

The Coastal Carolina site (AQS ID: 45-051-0008) does not have a valid $O_3$ design value (DV) due to data completeness issues over the years. An analysis of the incomplete data indicates that it is possible that the MSA could have a 2021-2023 DV over 85% of the NAAQS. If so, then the Myrtle Beach MSA would need a second $O_3$ monitor in accordance with Table D-2 of Appendix D to 40 CFR Part 58.

The EPA requests that the SC DHEC and the NC DAQ collaborate to characterize the area of highest $O_3$ concentration in the MSA, and to present the results of this investigation in their 2023 Network Plans. The results of this investigation could indicate that the expected maximum concentration is located in an area other than the area near the Coastal Carolina site. EPA is willing to also participate in the discussions and help with this analysis. If the next valid DV is above 85% of the NAAQS, this characterization of $O_3$ concentrations in the MSA would be used to propose a new $O_3$ monitoring site in the MSA.

Ozone monitors located 5-10 miles downwind from concentrated $NO_X$ emissions areas are often representative of expected $O_3$ maximum concentrations in the Southeast. The characterization of the Myrtle Beach MSA could consider current population dynamics, traffic, and frequent afternoon wind directions during $O_3$ season. More information about $O_3$ site selection can be found in the EPA's Guideline on Ozone Monitoring Site Selection, which can be found at: https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=2000D45M.TXT.

The $O_3$ monitoring network outlined in the Network Plan and Table 6 meets the minimum monitoring requirements found in 40 CFR Part 58, Appendix D, Table D-2 for all MSAs in South Carolina.

**CO Monitoring Requirements**
**40 CFR Part 58, Appendix D, Section 4.2**

Ambient air monitoring network design criteria for CO are found in 40 CFR Part 58, Appendix D, Section 4.2. CBSAs with populations over one million are required to operate one CO monitor collocated with a near-road $NO_2$ site. The MCAQ meets the requirement in the one CBSA with a

population over 1,000,000, the Charlotte-Concord-Gastonia, NC-SC CBSA, by operating a CO monitor at its Remount near-road site.

**Table 7: CO Design Criteria – Minimum Required SLAMS Near-Road Monitors**

| CBSA | Minimum Required Near-road CO Monitors | Number of Near-road CO Monitors | Site Names (AQS IDs) of Existing Near-road CO Monitors | Requirement Met (Y/N) |
|---|---|---|---|---|
| Charlotte-Concord-Gastonia, NC-SC | 1 | 1 | Remount (37-119-0045)[1] | Y |

1. Remount site is operated by Mecklenburg County Air Quality.

The Regional Administrator monitoring requirements for CO are found in 40 CFR Part 58, Appendix D 4.2.2. The section states, "The Regional Administrators, in collaboration with states, may require additional CO monitors above the minimum number of monitors required in 4.2.1." The Regional Administrator is not requiring the SC DHEC to operate an additional CO monitor at this time.

**Table 8: CO Design Criteria – Minimum Required SLAMS RA Required Monitors**

| CBSA | Minimum Required RA CO Monitors | Number of RA Required CO Monitors | Site Names (AQS IDs) of Existing RA Required CO Monitors | Requirement Met (Y/N) |
|---|---|---|---|---|
| None | 0 | 0 | None | Y |

The CO monitoring network described in the Network Plan meets the design criteria of 40 CFR Part 58 for both near-road and RA required monitors as identified in Tables 7 and 8.

### $NO_2$ Monitoring Requirements
### 40 CFR Part 58, Appendix D, Section 4.3

Ambient air monitoring network design criteria for $NO_2$ are found in 40 CFR Part 58, Appendix D, Section 4.3. Three types of $NO_2$ monitoring are required: near-road, area-wide, and Regional Administrator. These types of $NO_2$ monitoring are described in Sections 4.3.2, 4.3.3, and 4.3.4, respectively.

Ambient air monitoring design criteria for near-road $NO_2$ monitoring sites are found in 40 CFR Part 58, Appendix D, Section 4.3.2.

In the Charlotte-Gastonia-Concord, NC-SC CBSA, the MCAQ operates one near-road monitoring site at the Remount site (AQS ID: 37-119-0045). When the initial near-road monitoring network was funded by EPA and established, the Charlotte area was below the 2.5 million population threshold for a second near-road $NO_2$ monitoring site. However, the recent census population estimate for the Charlotte-Concord-Gastonia, NC-SC CBSA is over 2.5 million people. Mecklenburg County has identified a location for the additional near-road site and is preparing to install and operate it. This site should be operational in 2023.

**Table 9: $NO_2$ Design Criteria – Minimum Required SLAMS Near-road Monitors**

| CBSA | Minimum Required Near-road $NO_2$ Monitors | Number of Near-road $NO_2$ Monitors | Site Names (AQS IDs) of Existing $NO_2$ Near-road Monitors | Requirement Met (Y/N) |
|---|---|---|---|---|
| Charlotte-Gastonia-Concord, NC-SC | 2 | 2 | Remount (AQS ID: 37-119-0045)[1] Equipment Drive (AQS ID 37-119-0050)[1] | Y |

1. The Remount and Equipment Drive sites are operated by Mecklenburg County Air Quality.

Ambient air monitoring network design criteria for area-wide $NO_2$ sites are found in Section 4.3.3 of Appendix D to 40 CFR Part 58. The MCAQ operates a $NO_2$ monitor at its Garinger site to meet the minimum requirement for the Charlotte-Gastonia-Concord, NC-SC CBSA.

**Table 10: $NO_2$ Design Criteria – Minimum Required SLAMS Area-Wide Monitors**

| CBSA | Minimum Required Area-Wide $NO_2$ Monitors | Number of Area-Wide $NO_2$ Monitors | Site Names (AQS IDs) of Existing $NO_2$ Area-Wide Monitors | Requirement Met (Y/N) |
|---|---|---|---|---|
| Charlotte-Gastonia-Concord, NC-SC | 1 | 1 | Garinger (AQS ID: 37-119-0041)[1] | Y |

1. The Garinger site is operated by Mecklenburg County Air Quality.

Ambient air monitoring network design criteria for Regional Administrator required $NO_2$ monitoring, often referred to as RA-40 monitoring, are found in 40 CFR Part 58, Appendix D, Section 4.3.4. Under these provisions, Regional Administrators must require a minimum of 40 additional $NO_2$ monitoring stations nationwide, with a primary focus on siting these monitors in locations to protect susceptible and vulnerable populations. The full list of $NO_2$ monitors identified by the EPA's Regional Administrators can be found on EPA's website at http://www.epa.gov/ttnamti1/svpop.html. The SC DHEC operates one RA-40 monitor at its Greenville ESC site in the Greenville-Anderson, SC CBSA.

**Table 11: $NO_2$ Design Criteria – Minimum Required SLAMS RA-40 Monitors**

| CBSA | Minimum Required RA-40 Monitors | Number of RA-40 Monitors | Site Names (AQS IDs) of Existing RA-40 Monitors | Requirement Met (Y/N) |
|---|---|---|---|---|
| Greenville-Anderson, SC | 1 | 1 | Greenville ESC (AQS ID: 45-045-0015) | Y |

Except for near-road $NO_2$ monitoring in the Charlotte area, the $NO_2$ monitoring network described by the Network Plan meets all design criteria of 40 CFR Part 58.

## $SO_2$ Monitoring Requirements
## 40 CFR Part 58, Appendix D, Section 4.4

Ambient air monitoring network design criteria for $SO_2$ are found in 40 CFR Part 58, Appendix D, Section 4.4. This section requires that a population weighted emissions index (PWEI) be calculated by states for each CBSA. As a result, the $SO_2$ monitoring site(s) required in each CBSA will satisfy minimum monitoring requirements if the monitor(s) is sited within the boundaries of the parent CBSA and is one of the following site types: population exposure, maximum concentration, source-oriented,

general background, or regional transport. A $SO_2$ monitor at an NCore station may satisfy minimum monitoring requirements if that monitor is located within a CBSA with minimally required monitors consistent with Appendix D, Section 4.4

Based upon PWEIs calculated using 2021 population estimates and 2017 emission inventory data, the minimum numbers of monitors required for the CBSAs in South Carolina are summarized in Table 12.

**Table 12: $SO_2$ Design Criteria – Minimum Required SLAMS PWEI Monitors**

| CBSA | 2021 Population Estimate | 2017 NEI Emissions (tons per year) | PWEI | Number of Minimum Required PWEI $SO_2$ Monitors | Number of $SO_2$ SLAMS | Site Names (AQS IDs) of Existing $SO_2$ Monitors | Requirement Met (Y/N) |
|---|---|---|---|---|---|---|---|
| Charlotte-Concord-Gastonia, NC-SC | 2,701,046 | 5,648 | 15,255 | 1 | 1 | Garinger (AQS ID:37-119-0041)[1] | Y |
| Columbia, SC | 830,767 | 3,709 | 3,081 | 0 | 1 | Parklane (AQS ID: 45-079-0007) | Y |
| Charleston-North Charleston, SC | 813,052 | 8,173 | 6,645 | 1 | 1 | Jenkins Ave. (AQS ID: 45-019-003) | Y |
| Greenville, SC | 940,774 | 728 | 684 | 0 | 1 | Greenville ESC (AQS ID: 45-045-0015) | Y |

1. The Garinger site is operated by Mecklenburg County Air Quality.

The $SO_2$ monitoring network outlined in the Network Plan meets the $SO_2$ PWEI requirements specified in 40 CFR Part 58, Appendix D, Section 4.4.

The EPA finalized the $SO_2$ Data Requirements Rule (DRR) on August 10, 2015 (40 CFR Part 51, Subpart BB). This rule requires air quality near sources with $SO_2$ emissions 2,000 tons per year (tpy) or greater be characterized using ambient air monitoring or modeling. On January 15, 2016, the SC DHEC submitted to the EPA a list of eight sources in the state around which $SO_2$ air quality must be characterized. These eight sources were characterized using modeling and/or took federally enforceable emissions limits. The SC DHEC does not operate any $SO_2$ monitoring sites to meet the DRR requirements.

**Table 13: $SO_2$ Design Criteria – Data Requirement Rule Monitors**

| CBSA | Minimum Required DRR Monitors | Number of DRR Monitors | Site Names (AQS IDs) of Existing DRR Sites | Requirement Met (Y/N) |
|---|---|---|---|---|
| None | 0 | 0 | None | Y |

The DRR also requires annual emissions reporting for sources that used modeling to show attainment with the standard under the rule. Forty (40) CFR § 51.1205 (b) requires that:

> "For any area where modeling of actual $SO_2$ emissions serve as the basis for designating such area as attainment for the 2010 $SO_2$ NAAQS, the air agency shall submit an annual report to the EPA Regional Administrator by July 1 of each year, either as a stand-alone document made available for public inspection, or as an appendix to its Annual Monitoring Network Plan (also due on July 1 each year under 40 CFR §58.10), that documents the annual $SO_2$ emissions of each applicable source in each such area and provides an assessment of the cause of any emissions increase from the previous year."

The SC DHEC submitted its 2021 annual emission report with its 2022 Network Plan to meet this requirement. The report applies to areas designated attainment/unclassifiable based on modeling of actual $SO_2$ emissions for Santee Cooper Cross Generating Station, New-Indy Catawba (formerly Resolute Industries), Sylvamo Eastover Mill (formerly International Paper – Eastover), and Dominion Wateree Station (formerly SCE&G Wateree Station.)

For the DRR 2021 annual emissions report found in Appendix I of the Network Plan, the EPA responded in a separate correspondence on September 19, 2022. The next annual $SO_2$ emissions report for these facilities is due July 1, 2023.

The Regional Administrator may require additional $SO_2$ monitoring stations above the minimum number of monitors required in 40 CFR Part 58, Appendix D, Section 4.4.2, where the minimum monitoring requirements are not sufficient to meet monitoring objectives. The SC DHEC is not required to operate a $SO_2$ monitor by the Regional Administrator at this time.

**Table 14: $SO_2$ Design Criteria – Minimum Required SLAMS RA Monitors**

| CBSA | Minimum Required RA-40 Monitors | Number of RA-40 Monitors | Site Names (AQS IDs) of Existing RA-40 Monitors | Requirement Met (Y/N) |
|---|---|---|---|---|
| None | 0 | 0 | None | Y |

The SC DHEC operates an additional $SO_2$ monitoring network to provide background concentration data. Two years of data are collected every four years at these sites. These are SPMs and do not require approval from the EPA for startup or shutdown. In order to be usable to support the SC DHEC's prevention of significant deterioration (PSD) modeling and permitting activities, the rotating $SO_2$ monitoring network must meet the requirements in Appendix B to 40 CFR Part 58. Section 8.3 of Appendix W to 40 CFR Part 51 discusses using air monitoring data for background concentrations and Appendix B to 40 CFR Part 58 discusses quality assurance requirements for PSD air monitoring that must be followed for the data to be useable for PSD and permitting purposes.

Table 15 lists the two $SO_2$ monitors that the SC DHEC includes in its rotating background monitoring network that are currently operating. EPA recommends that the SC DHEC evaluate the listed monitoring objective for the Trenton monitor, which is currently listed as "source oriented." The Trenton monitor began operating in 2022 as a part of the SC DHEC's rotating background monitoring network. If the SC DHEC believes the Trenton monitor is best classified as source-oriented, EPA requests that it provide information supporting this position in its 2023 Network Plan, such as the identity of the nearby $SO_2$ source.

**Table 15: $SO_2$ Rotating Background Monitoring**

| CBSA | Site Name (AQS ID) | Frequency of Operation | Next Expected Years of Operation | Monitoring Objective in Network Plan |
|---|---|---|---|---|
| Charlotte-Concord-Gastonia, NC-SC | York Landfill (AQS ID: 45-091-0008) | Every other 2 years | 2020-2022 | Upwind Background |
| August-Richmond County, GA-SC | Trenton (AQS ID: 45-037-0001) | Every other 2 years | 2022-2023 | Source-oriented |

The South Carolina $SO_2$ monitoring network meets the monitoring requirements in 40 CFR Part 58.

**Pb Monitoring Requirements**
**40 CFR Part 58, Appendix D, Section 4.5**

The monitoring requirements for Pb found at 40 CFR Part 58, Appendix D, Section 4.5 require that at a minimum, there must be one source-oriented SLAMS site located to measure the maximum Pb concentration in ambient air resulting from each non-airport Pb source which emits 0.50 or more tons per year and from each airport which emits 1.0 or more tons per year.

Although South Carolina has no sources that exceed the emissions thresholds for Pb monitoring, the SC DHEC and Clarios, LLC (formerly Johnson Controls Battery Group) conduct source-oriented ambient Pb monitoring at three sites around the Florence Recycling Center in Florence. These monitoring data are comparable to the NAAQS. The company and SC DHEC conduct this monitoring under terms of a settlement agreement reached with several petitioners who commented on the construction permit for the facility. Locations for the monitoring sites were selected based upon an agreement between the company and stakeholders. As of March 22, 2021, Clarios ceased production at the recycling center.

After production ceased, the EPA requested that the SC DHEC continue to monitor for Pb near the facility at the JCI Woods site. The SC DHEC discontinued monitoring at the other two sites – JCI Entrance (AQS ID: 45-041-8002) and JCI Railroad (AQS ID: 45-041-8001). The JCI Woods (AQS ID: 45-041-8001) site is still operating with a primary and collocated sampler. The Pb monitoring should continue as long as there is a possibility of Pb emissions or re-entrainment of Pb dust. That is, monitoring should continue until the following occurs:

- The permit should be revoked, so that operations cannot restart, and
- A cleanup plan that addresses suppression and/or monitoring of potentially Pb containing dust should be in place.

EPA requires that the SC DHEC provide documentation of the permit being revoked and of a cleanup plan that addresses minimizing the re-entrainment of Pb containing dust. The EPA will consider the monitor shutdown request once the SC DHEC provides sufficient information to support a conclusion that ambient Pb concentrations are not expected to exceed the NAAQS given the current and future disposition of the site.

**Table 16: Pb Design Criteria – Minimum Required Source-Oriented Monitors**

| Source | CBSA | Minimum Required Source-Oriented Pb Sites | Number of Source-Oriented Pb Sites | Site Names (AQS IDs) of Existing Source-Oriented Sites | Requirement Met (Y/N) |
|---|---|---|---|---|---|
| **Clarios**[1] | Florence, SC | 0 | 1 | JCI Woods (AQS ID: 45-041-8003) | Y |

1. This monitoring is not required by EPA rules, but is part of a settlement agreement between the SC DHEC, the facility, and community groups. The SC DHEC operates these samplers as SPMs to evaluate Pb NAAQS compliance.

The Pb monitoring collocation requirements are found in 40 CFR Part 58, Appendix A, 3.4.4. These requirements include that: 15 percent of the primary monitors are collocated and have at least one collocated quality control monitor (if the total number of monitors is less than three). These collocation requirements are assessed at the PQAO level. The SC DHEC is required to operate one collocated Pb monitor and it operates it at the JCI Woods (AQS ID: 45-041-8003) site (see Table 17).

**Table 17: Pb Design Criteria – Minimum Required Collocated Monitors**

| PQAO | Minimum Required | Number of | Site Names (AQS IDs) of Existing Collocated Sites | Requirement Met (Y/N) |
|---|---|---|---|---|

| | Collocated Monitors | Collocated Monitors | | |
|---|---|---|---|---|
| SC DHEC | 1 | 1 | JCI Woods (AQS ID: 45-041-8003) | Y |

The Pb monitoring network described in the Network Plan meets all design criteria of 40 CFR Part 58.

**$PM_{10}$ Monitoring Requirements**
**40 CFR Part 58, Appendix A, Section 3.3**
**40 CFR Part 58, Appendix D, Section 4.6 and Table D-4**

Ambient air monitoring network design criteria for $PM_{10}$ are found in 40 CFR Part 58, Appendix D, Section 4.6. Table D-4 in this section indicates the approximate number of $PM_{10}$ stations required in MSAs with populations exceeding 100,000 to characterize national and regional $PM_{10}$ air quality trends and geographical patterns. The SC DHEC, GA EPD and MCAQ are required to operate six $PM_{10}$ monitors at five sites in CBSAs in or abutting the state (see Table 18).

**Table 18: $PM_{10}$ Design Criteria – Minimum Required SLAMS Monitors**

| CBSA | Minimum Required SLAMS | Number of SLAMS | Number of SPMs or Other Regulatory Monitors | Site Names (AQS IDs) of SLAMS | Requirement Met (Y/N) |
|---|---|---|---|---|---|
| Augusta-Richmond County, GA-SC | 1 | 1 | 0 | Augusta (AQS ID: 13-245-0091)[1] | Y |
| Charleston-North Charleston, SC | 1 | 1 | 0 | Jenkins Ave. Fire Station (AQS ID: 45-019-0003) | Y |
| Charlotte-Concord-Gastonia, NC-SC | 2 | 2 | 0 | Garinger (AQS ID: 37-119-0041)[2] Ramblewood Park (AQS ID: 37-119-0047)[2] | Y |
| Columbia, SC (NCore) | 1 | 1 | 1 | Cayce City Hall (AQS ID: 45-063-0010) | Y |
| Greenville-Anderson, SC | 1 | 1 | 0 | Greenville ESC (AQS ID: 45-045-0015) | Y |
| Myrtle Beach-Conway-North Myrtle Beach SC-NC | 1 | 1 | 0 | Coastal Carolina (AQS ID 45-051-0008)[3] | Y |

1. The Augusta site is operated by the GA EPD
2. The Garinger and Ramblewood Park sites are operated by the MCAQ
3. The Coastal Carolina $PM_{10}$ monitoring is expected to start in 2023

The estimated 2021 census numbers indicate that the population of the Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA has surpassed 500,000 people. The Myrtle Beach area is now subject to additional minimum monitoring requirements of 40 CFR Part 58, Appendix D, Table D-4 for one $PM_{10}$ monitor.

The Network Plan Addendum, received on October 26, 2022, proposes to meet this requirement by operating a T640x monitor, which measures both $PM_{10}$ and $PM_{2.5}$, at the existing Coastal Carolina (AQS ID 45-051-0008) site. The EPA's evaluation of this proposed startup was based primarily on analysis of $PM_{2.5}$ in the Myrtle Beach MSA. This is discussed in the $PM_{2.5}$ section. The EPA supports $PM_{10}$ and $PM_{2.5}$ requirements being met at the same site because $PM_{10}$ levels in the MSA are typically not near the NAAQS and having one site to measure both $PM_{10}$ and $PM_{2.5}$ will save the SC DHEC resources. Thus,

the EPA approves the startup of $PM_{10}$ monitoring at the Coastal Carolina site to meet the new $PM_{10}$ minimum requirement.

The $PM_{10}$ collocation requirements for manual methods are found in 40 CFR Part 58, Appendix A, 3.3.4. Those requirements include that: 15 percent of each network of manual $PM_{10}$ methods (at least one site) must be collocated and the sites with collocated monitors should be among those measuring annual mean concentrations in the highest 25 percent of the network. These collocation requirements are assessed at the PQAO level. The SC DHEC is not required to operate any $PM_{10}$ collocated monitors.

**Table 19: $PM_{10}$ Design Criteria – Minimum Required Collocated Monitors**

| PQAO | Sites with Manual $PM_{10}$ Method | Minimum Required Collocated Monitors | Number of Collocated $PM_{10}$ Monitors | Site Names (AQS IDs) of Collocated Sites | Requirement Met (Y/N) |
|---|---|---|---|---|---|
| SC DHEC | 0 | 0 | 0 | None | Y |

The proposed $PM_{10}$ monitoring network described in the Network Plan meets all design criteria of 40 CFR Part 58.

### $PM_{2.5}$ Monitoring Requirements
### 40 CFR Part 58, Appendix A, Section 3.2
### 40 CFR Part 58, Appendix D, Section 4.7 and Table D-5

Ambient air monitoring network design criteria for $PM_{2.5}$ are found in 40 CFR Part 58, Appendix D, Section 4.7. This section requires that state and, where applicable, local agencies must operate the minimum number of required $PM_{2.5}$ SLAMS sites listed in Appendix D, Table D-5. The SC DHEC, GA EPD and MCAQ operate $PM_{2.5}$ SLAMS monitors at eight sites in CBSAs in or abutting the state. (see Table 20).

**Table 20: $PM_{2.5}$ Design Criteria – Minimum Required SLAMS Monitors**

| CBSA | Minimum Required SLAMS | Number of SLAMS Sites | Number of SPMs or Other Regulatory Monitoring Sites | Site Names (AQS IDs) of SLAMS | Requirement Met (Y/N) |
|---|---|---|---|---|---|
| Augusta-Richmond County, GA-SC | 2 | 2 | 0 | Augusta (AQS ID: 13-245-0091)[1]<br>Trenton (AQS ID: 45-037-0001) | Y |
| Charleston-North Charleston, SC | 1 | 2 | 1 | NCFS (AQS ID: 45-019-0020)<br>Cape Romain (AQS ID: 45-019-0046) | Y |
| Charlotte-Concord-Gastonia, NC-SC | 2 | 3 | 2 | Garinger (AQS ID: 37-119-0041)[2]<br>Remount (AQS ID: 37-119-0045)[2]<br>Friendship Park (AQS ID: 37-119-0048)[2] | Y |
| Columbia, SC (NCore) | 1 | 2 | 0 | Irmo (AQS ID: 45-063-0008)[3]<br>Irmo DJJ (AQS ID: 45-079-0022)[3]<br>Parklane (AQS ID: 45-079-0007) | Y |
| Greenville-Anderson, SC | 1 | 2 | 0 | Greenville ESC (AQS ID: 45-045-0015)<br>Hillcrest (AQS ID: 45-045-0016) | Y |
| Florence, SC | 0 | 1 | 0 | Williams Middle School (AQS ID: 45-041-0003) | Y |
| Spartanburg, SC | 0 | 1 | 0 | T.K. Gregg (AQS ID: 45-083-0011) | Y |
| Myrtle Beach-Conway-North | 1 | 1 | 0 | Coastal Carolina (AQS ID: 45-051-0008)[4] | Y |

| | | | | | |
|---|---|---|---|---|---|
| Myrtle Beach SC-NC | | | | | |
| None | 0 | 1 | 1 | Chesterfield (AQS ID: 45-025-0001) | Y |

1. The Augusta site is operated by the GA EPD
2. The Garinger, Remount, and Friendship Park sites are operated by the MCAQ
3. SC DHEC will relocate the Irmo site to Irmo DJJ due to site access issues.
4. The Coastal Carolina $PM_{2.5}$ monitoring is expected to start in 2023

The SC DHEC previously proposed relocating the Irmo monitoring site (AQS ID: 45-063-0008) to the Irmo Department of Juvenile Justice (DJJ) monitoring site (AQS ID: 45-079-0022). In 2019, the owners of the property where the Irmo site is located requested the monitoring site be removed from their property. After working with EPA Region 4, the SC DHEC was able to locate a suitable site 2.4 miles northeast from the Irmo site. The demographics and location of the new Irmo DJJ site are similar to the original Irmo site, and meet the requirements of 40 CFR Part 58, Appendix E. As such, the EPA previously approved relocating of the Irmo site to the Irmo DJJ $PM_{2.5}$ monitoring site.

The estimated 2021 census data indicate that the population of the Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA has surpassed 500,000 people. The Myrtle Beach area is now subject to additional minimum monitoring requirements of 40 CFR Part 58, Appendix D, Table D-5 for one $PM_{2.5}$ monitor.

The Network Plan Addendum, received on October 26, 2022, proposes to meet this requirement by operating a T640x monitor, which measures both $PM_{10}$ and $PM_{2.5}$, and a $PM_{2.5}$ FRM sampler at the existing Coastal Carolina site (AQS ID 45-051-0008).

$PM_{2.5}$ network design criteria in 40 CFR Part 58, Appendix D, Section 4.7 require that "(1) At least one monitoring station is to be sited at neighborhood or larger scale in an area of expected maximum concentration." Since this would be the first $PM_{2.5}$ monitoring site in the Myrtle Beach MSA, the EPA considered these criteria when evaluating the Network Plan Addendum request.

The SC DHEC provided information that the Coastal Carolina site would be spatially representative of mobile and stationary source emissions in the area. Additionally, the EPA looked at the Fused Air Quality Surface Using Downscaling (FAQSD) 2019 output file that is based on Community Multiscale Air Quality (CMAQ) and ambient $PM_{2.5}$ measurements[1]. The receptor near the Coastal Carolina site is one of the 10 highest modelled annual average $PM_{2.5}$ concentrations. The highest modeled $PM_{2.5}$ concentrations are mostly inland along the US 501 corridor. The Coastal Carolina site is five miles inland from downtown Myrtle Beach and near US 501.

Based on this information, the EPA believes that the Coastal Carolina site could be considered an area of expected maximum concentration for $PM_{2.5}$ in the Myrtle Beach MSA. Because the Coastal Carolina site is an established site, the SC DHEC would save resources by having all the required monitoring for the area at one site instead of spending additional funds to establish a second site in the area. The EPA approves the establishment of $PM_{2.5}$ monitoring at the Coastal Carolina site (AQS ID 45-051-0008) to meet minimum monitoring requirements for the area.

The proposed $PM_{2.5}$ monitoring network described in the Network Plan and Network Plan Addendum meets the minimum monitoring requirements described in 40 CFR Part 58, Appendix D, Section 4.7 and Table D-5.

[1] https://www.epa.gov/hesc/rsig-related-downloadable-data-files; FAQSD technical information https://www.epa.gov/sites/production/files/2016-07/documents/data_fusion_meta_file_july_2016.pdf

**$PM_{2.5}$ Collocation Requirements**
**40 CFR Part 58, Appendix A, Section 3.2**

Forty (40) CFR Part 58, Appendix A, Section 3.2.3 states that 15 percent of each network of manual $PM_{2.5}$ methods (at least one site) must be collocated. Section 3.2.3.1 states that for each distinct monitoring method designation (FRM or FEM) that a PQAO is using for a primary monitor, the PQAO must have 15 percent of the primary monitors of each method designation collocated, and have at least one collocated quality control monitor. The first collocated monitor must be a designated FRM monitor.

Section 3.2.3.2 states that for each primary monitor designated as an FEM used by the PQAO, 50 percent of the monitors designated for collocation (or the first if only one collocation is necessary) shall be collocated with a FRM quality control monitor and 50 percent of the monitors shall be collocated with a monitor having the same method designation as the FEM primary monitor.

The SC DHEC is transitioning its $PM_{2.5}$ network to include more continuous FEM equipment and reducing the number of filter-based, FRM equipment. Specifically, the SC DHEC will operate more Teledyne T640 and T640x monitors (AQS method codes 236 and 238 respectively). EPA staff recently discussed with SC DHEC staff their plans to continue to meet regulatory collocation requirements in 2023 as FEM methods are started up and less FRM samplers are run. The EPA believes that the SC DHEC has a good plan for maintaining compliance with the $PM_{2.5}$ collocation requirement.

The Network Plan and Network Plan Addendum do not, on their own, fully demonstrate that collocation requirements are met. Thus, the EPA requests that next year's network plan indicate the primary monitoring method at each site measuring $PM_{2.5}$ and if the site has a $PM_{2.5}$ QA collocated monitor or sampler. If this will change over the year following submission of the next network plan, then the SC DHEC should indicate how $PM_{2.5}$ collocation requirements will continue to be met.

The table below shows the SC DHEC collocated monitors and requirements for the $PM_{2.5}$ network as currently set up in AQS for four $PM_{2.5}$ measurement methods. Currently there is a gap in collocation for the Teledyne T640 FEM measurements (AQS method code 236). However, the SC DHEC will address this issue by switching the existing T640 monitor to the primary monitor at the Chesterfield site (AQS ID 45-025-0001) and the existing FRM sampler to the QA collocated sampler in AQS.

Additionally, in the Network Plan, the SC DHEC has designated the NCFS site (AQS ID: 45-019-0020) as a collocated QA SPM. However, because it is a monitor required by 40 CFR Part 58, Appendix A, Section 3.2.3.2, the collocated monitor at NCFS, or at any other required collocated site, should be classified a SLAMS. The EPA requests that SC DHEC change the monitor type of any required collocated samplers to SLAMS in AQS.

**Table 21: $PM_{2.5}$ Design Criteria – Minimum Required Collocated Monitors**

| PQAO | Method | AQS Method Code | Number of Primary Monitors | Minimum Required Collocated Monitors | Number of Collocated Monitors | Site Names (AQS IDs) of Collocated Sites | Requirements Met (Y/N) |
|---|---|---|---|---|---|---|---|
| SC DHEC | FDMS w/ VSCC | 581 | 1 | 1 | 1 | Irmo[1] (AQS ID: 45-063-0008) Irmo DJJ[1] (AQS ID: 45-079-0022) | Y |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SC DHEC | FRM Gravimetric w/ VSCC | 145 | 6 | 1 | 3 | Hillcrest (AQS ID: 45-045-0016) Parklane (AQS ID: 45-079-0007) NCFS (AQS ID 45-019-0020) | Y |
| SC DHEC | Teledyne T640X at 16.67 LPM | 238 | 2 | 1 | 2 | Greenville ESC (AQS ID: 45-045-0015) | Y |
| SC DHEC | Teledyne T640 at 5.0 LPM | 236 | 1 | 1 | 0[2] | | N[2] |

1. The EPA has approved relocating the Irmo site to the Irmo DJJ site due to access issues.
2. The SC DHEC will address this in AQS by switching the T640 at the Chesterfield site to the primary monitor and the FRM already operating to the collocated monitor.

The $PM_{2.5}$ monitoring network, after the updates in AQS to the Chesterfield site, will meet all design criteria of 40 CFR Part 58.

### $PM_{2.5}$ Near-Road Monitoring Requirements
### 40 CFR Part 58, Appendix D, Section 4.7.1(b)(2)

Regulatory requirements in 40 CFR Part 58, Appendix D, Section 4.1.1(b)(2) require that in CBSAs with populations of 1,000,000 or more persons, at least one $PM_{2.5}$ monitor is to be collocated at a near-road $NO_2$ station. One CBSA with a population of 1,000,000 or more persons is partially in the State of South Carolina, the Charlotte-Gastonia-Concord, NC-SC CBSA, and the MCAQ operates the required $PM_{2.5}$ near-road monitor at its Remount site.

**Table 22: $PM_{2.5}$ Design Criteria – Minimum Required SLAMS Near-Road Monitors**

| CBSA | Minimum Required Near-road $PM_{2/5}$ | Number of Near-road $PM_{2.5}$ | Site Names (AQS IDs) of Existing $PM_{2.5}$ Near-Road | Requirement Met (Y/N) |
|---|---|---|---|---|
| Charlotte-Gastonia-Concord, NC-SC | 1 | 1 | Remount (37-119-0045)[1] | Y |

1. The Remount site is operated by the MCAQ

The near-road $PM_{2.5}$ monitoring network described in the Network Plan meets the design criteria of 40 CFR Part 58.

### $PM_{2.5}$ Continuous Monitoring Requirements
### 40 CFR Part 58, Appendix D, Section 4.7.2

Regulatory requirements for continuous $PM_{2.5}$ continuous monitoring require that "…State, or where appropriate, local agencies must operate continuous $PM_{2.5}$ analyzers equal to at least one-half (round up) the minimum required sites listed in Table D-5 of this appendix.

At least one required continuous analyzer in each MSA must be collocated with one of the required FRM/FEM/ARM (federal reference method/federal equivalent method/approved regional method) monitors, unless at least one of the required FRM/FEM/ARM monitors is itself a continuous FEM or ARM monitor in which case no collocation requirement applies."

Six MSAs listed in Table 23, below, are required to have continuous monitors. Eight MSAs in or partially in South Carolina have continuous $PM_{2.5}$ monitors as does one site not in an MSA. The requirements are met in all MSAs in the state.

**Table 23: $PM_{2.5}$ Design Criteria – Continuous Monitors**

| MSA | Minimum Required Continuous $PM_{2.5}$ | Number of Continuous $PM_{2.5}$ Monitors | Site Names (AQS IDs) of Existing $PM_{2.5}$ Monitors | Requirement Met (Y/N) |
|---|---|---|---|---|
| Augusta-Richmond County, GA-SC | 1 | 1 | Trenton (AQS ID: 45-037-0001) | Y |
| Charleston-North Charleston, SC | 1 | 2 | Cape Romain (AQS ID: 45-019-0046)<br>NCFS (AQS ID: 45-019-0020) | Y |
| Charlotte-Concord-Gastonia, NC-SC | 1 | 5 | Garinger (AQS ID: 37-119-0041)[1]<br>Friendship Park (AQS ID: 37-119-0048)[1]<br>Remount (AQS ID: 37-119-0045)[1]<br>Rockwell (AQS ID: 37-159-0021)[2]<br>Catawba Longhouse (AQS ID: 45-091-8801)[3] | Y |
| Columbia, SC (NCore) | 1 | 2 | Irmo (AQS ID: 45-063-0008)[4]<br>Irmo DJJ[4] (AQS ID: 45-079-0022)<br>Parklane (AQS ID: 45-079-0007) | Y |
| Florence, SC | 0 | 1 | Williams Middle School (AQS ID: 45-041-0003) | Y |
| Greenville-Anderson, SC | 1 | 1 | Greenville ESC (AQS ID: 45-045-0015) | Y |
| Myrtle Beach-Conway-North Myrtle Beach SC-NC | 1 | 1 | Coastal Carolina (AQS ID 45-051-0008)[5] | |
| Spartanburg, SC | 0 | 1 | T.K. Gregg (AQS ID: 45-083-0011) | Y |
| Remainder of State | 0 | 1 | Chesterfield (AQS ID: 45-025-0001) | Y |

1. The Garinger, Friendship Park, and Remount sites are operated by the MCAQ
2. The Rockwell site is operated by North Carolina Department of Air Quality
3. The Catawba Longhouse site is operated by Catawba Indian Nation (CIN)
4. SC DHEC will relocate the Irmo continuous monitor to Irmo DJJ
5. The Coastal Carolina $PM_{2.5}$ monitoring is expected to start in 2023

## $PM_{2.5}$ Background and Transport Sites
## 40 CFR Part 58, Appendix D, Section 4.7.3

Monitoring requirements in 40 CFR Part 58, Appendix D, Section 4.7.3 state that each state shall install and operate at least one $PM_{2.5}$ site to monitor for regional background concentrations and at least one $PM_{2.5}$ site to monitor for regional transport concentrations.

**Table 24: $PM_{2.5}$ Regional Background and Transport Monitors**

| Requirement | Minimum Required $PM_{2.5}$ Monitors | Number of $PM_{2.5}$ Monitors | Site Names (AQS IDs) of $PM_{2.5}$ SLAMS | Requirement Met (Y/N) |
|---|---|---|---|---|
| Background | 1 | 1 | Cape Romain (AQS ID: 45-019-0046) | Y |
| Transport | 1 | 1 | Chesterfield (AQS ID: 45-025-0001) | Y |

On April 10, 2020, the SC DHEC temporarily replaced the Chesterfield (AQS ID: 45-025-0001) continuous $PM_{2.5}$ TEOM sampler with a T640, redesignating the monitor as an SPM in AQS. Use of the TEOM sampler resumed on April 23, 2021, but the monitor was not returned to a SLAMS in AQS. The

EPA requests that the SC DHEC update the monitor's designation in AQS to reflect what is represented in the Network Plan.

As identified in Table 24, the SC DHEC meets the requirements of 40 CFR Part 58 by operating one background site and one transport site.

**$PM_{2.5}$ Chemical Speciation Network (CSN)**
**40 CFR Part 58, Appendix D, Section 4.7.4**

Monitoring requirements in 40 CFR Part 58, Appendix D, Section 4.7.4 require that each state shall conduct chemical speciation monitoring and analyses at sites designated to be part of the $PM_{2.5}$ Speciation Trends Network (STN). The selection and modification of these STN sites must be approved by the Administrator. The $PM_{2.5}$ CSN includes STN stations and supplemental speciation stations that provide chemical species data of fine particulate.

The EPA funds one STN monitor in South Carolina at the Parklane site (see Table 25).

**Table 25: $PM_{2.5}$ Chemical Speciation Network – Non-SLAMS Monitors**

| CBSA | Site Name (AQS ID) of CSN Monitor |
|---|---|
| Columbia, SC | Parklane (AQS ID: 45-079-0007) |

**Photochemical Assessment Monitoring Stations (PAMS)**
**40 CFR Part 58, Appendix D, Section 5.0**

With the promulgation of a new $O_3$ NAAQS on October 1, 2015, the EPA finalized changes to the PAMS requirements. The 2015 regulations required the new PAMS network to begin operating by June 1, 2019. On December 20, 2019, the EPA revised the start date for the updated stations. The revision was published in the Federal Register on January 8, 2020, and extended the date by which the stations are to begin operating to June 1, 2021. South Carolina's NCore site at Parklane is not required to operate PAMS monitoring since the Columbia, SC CBSA's population is less than one million. Thus, the state is not required to meet the PAMS requirement.

**Air Toxics Monitoring Network**

As part of the National Air Toxics Trends Station (NATTS) network, the SC DHEC samples for metals, semi-volatile organic compounds, carbonyls, and volatile organic compounds (SVOCs) at the Chesterfield monitoring site (AQS ID: 45-025-0001). The SC DHEC added ethylene oxide (EtO) sampling as part of the Tier 1 target analytes at the Chesterfield site in November 2020. The SC DHEC entered into a direct contract with Eastern Research Group (ERG) to analyze EtO samples. All other NATTS analytes are analyzed by the SC DHEC. The collection and analysis of NATTS samples from the Chesterfield site are conducted in accordance with an EPA-approved quality assurance project plan (QAPP).

The SC DHEC was awarded a Community-Scale Air Toxics Monitoring grant to collect air samples for a one-year period at three locations in several North Charleston area environmental justice communities, and one location that is high traffic outside of the North Charleston area The sampling started May 11, 2022, and the samples will be analyzed for EtO. The sites are: Irving (45-019-0021), Rosemont (45-019-0009), and Gethsemane (45-019-0022), and FAA (45-019-0048) (high traffic site). The results will be

uploaded to AQS. The EPA appreciates the SC DHEC's efforts on this study and for the NATTS program.

The SC DHEC also collects samples for SVOCs in the Columbia, SC MSA at the Parklane (AQS ID: 45-079-0020) site. Air toxics sampling at Parklane is conducted at the SC DHEC's discretion and according to SC DHEC, it is not collected using EPA or state-match funds. The EPA recommends that the SC DHEC develop and approve a QAPP for air toxics sampling in order to have data of sufficient quality for SC DHEC's intended use of the data, such as risk screening analysis and/or sharing concentrations measured with the public.

## Non-SLAMS Monitoring

The Network Plan also includes the following non-SLAMS monitoring summarized in Table 26. These monitors include criteria pollutant monitoring comparable to the NAAQS, continuous $PM_{2.5}$ monitoring used for the AQI, air toxics monitoring, and/or tribal air monitoring.

**Table 26: Non-SLAMS Monitors**

| CBSA | Pollutant(s) | Site Name (AQS ID) of Non-SLAMS Monitor | Monitor Type | NAAQS Comparable? |
|---|---|---|---|---|
| Augusta-Richmond County, GA-SC | $SO_2$ | Trenton (AQS ID: 45-037-0001) | SPM – 2yr rotating | Y - but operating for only 2 years |
| Charleston-North Charleston, SC | $NO_2$ | Jenkins Ave. Fire Station (AQS ID: 45-019-0003) | SPM | Y |
| Charleston-North Charleston, SC | $NO_2$ | Cape Romain (AQS ID: 45-019-0046) | SPM | Y |
| Charleston-North Charleston, SC | $PM_{2.5}$ | FAA (AQS ID: 45-019-0048) | SPM | Y |
| Charleston-North Charleston, SC | $SO_2$ | York Landfill (45-091-0008) | SPM – 2yr rotating | Y - but operated for only 2 years |
| Charlotte-Concord-Gastonia, NC-SC | $PM_{2.5}$ Cont., $O_3$ | Catawba Longhouse (AQS ID: 45-091-8801)[1] | Tribal | Y |
| Columbia, SC | $PM_{2.5}$ Cont. | Irmo (AQS ID: 45-063-0008) | SPM | Y |
| Columbia, SC | SVOC, Precipitation, $PM_{10}$, Chemicals | Parklane (AQS ID: 45-079-0007) | SPM | Y – only for $PM_{10}$ |
| Columbia, SC | $O_3$ | Congaree Bluff (AQS ID: 45-079-0021) | SPM | Y for Congaree National Park Only |
| Columbia, SC | $NO_2$ | Sandhill Experimental Station (AQS ID: 45-079-1001) | SPM | Y |
| Florence, SC | Pb | JCI Entrance (AQS ID: 45-041-8002) JCI Woods (AQS ID: 45-041-8003) | SPM | Y |
| Greenville-Anderson, SC | $PM_{2.5}$ Continuous | Greenville ESC (AQS ID: 45-045-0015) | SPM | Y |
| Spartanburg, SC | $PM_{2.5}$ Continuous for AQI | T.K. Gregg (AQS ID: 45-083-0011) | SPM | N |
| Not in an MSA | $O_3$, Metals, Carbonyls, SVOCs, VOCs, Precipitation | Chesterfield (AQS ID: 45-025-0001) | SPM | Y for $O_3$, N/A for all else |

1. The Catawba Longhouse site is operated by the CIN

**Memoranda of Agreement (MoA) with Neighboring State and Local Air Monitoring Agencies**
**40 CFR Part 58, Appendix D, 2(e)**

Section 2(e) of Appendix D to 40 CFR Part 58 states:

> "The EPA recognizes that State or local agencies must consider MSA/CSA boundaries and their own political boundaries and geographical characteristics in designing their air monitoring networks. The EPA recognizes that there may be situations where the EPA Regional Administrator and the affected State or local agencies may need to augment or to divide the overall MSA/CSA monitoring responsibilities and requirements among these various agencies to achieve an effective network design. Full monitoring requirements apply separately to each affected State or local agency in the absence of an agreement between the affected agencies and the EPA Regional Administrator."

The SC DHEC maintains MoAs to address minimum monitoring requirements with the GA EPD, NC DAQ, and MCAQ. These MoAs are summarized in Table 27.

**Table 27: MoAs to Meet Monitoring Requirements for CBSAs Crossing Jurisdictional Boundaries**

| CBSA | Agencies on the MoA | Pollutants | Date of Agreement | Expiration |
|---|---|---|---|---|
| Augusta-Richmond County, GA-SC | SC DHEC, GA EPD | $PM_{10}$, $PM_{2.5}$, $O_3$, and other criteria pollutants as necessary | January 2017 | Every 10 years |
| Charlotte-Concord-Gastonia, NC-SC | SC DHEC, NC DAQ, MCAQ | Criteria pollutant monitoring required by 40 CFR 58, Appendix D | July 1, 2016 | Every 10 years |
| Myrtle Beach-Conway-North Myrtle Beach, SC MSA | SC DHEC, NC DAQ | $O_3$ and other criteria pollutants as necessary | July 1, 2015 | Every 10 years |

The EPA approves of the SC DHEC agreements to share regulatory monitoring requirements for the Charlotte, Myrtle Beach, and Augusta CBSAs. The EPA encourages the SC DHEC to work with the NC DAQ to investigate possible locations for a second required $O_3$ monitor in the Myrtle Beach-Conway-North Myrtle Beach, SC MSA. Preference should be given to possible $O_3$ maximum concentration areas in the MSA. The EPA requests that findings of this investigation be included in the state's 2023 Network Plan. The EPA also encourages the SC DHEC to begin investigating locations for a possible $PM_{10}$ and $PM_{2.5}$ monitoring site in the Myrtle Beach-Conway-North Myrtle Beach, SC MSA. Finally, the EPA recommends working with the GA EPD to establish a second $PM_{2.5}$ monitoring site in the Augusta-Richmond County, GA-SC MSA.

**Monitoring Siting Criteria and Site Assessments**
**40 CFR Part 58, Appendix E**

In reference to the Network Plan, 40 CFR § 58.10(a)(1) states:

> "The plan shall include a statement of whether the operation of each monitor meets the requirements of appendices A, B, C, D, and E of this part, where applicable. The Regional Administrator may require additional information in support of this statement."

The Network Plan includes assessment information for all monitoring sites. The EPA appreciates the inclusion of this information and the work that the SC DHEC has done to evaluate siting criteria at all of its monitoring sites. The EPA understands that the SC DHEC is still working to resolve siting criteria issues identified by its own assessments and in recent EPA audits and appreciates the SC DHEC's continued progress in resolving these issues.

**Areas with Environmental Justice Concerns**

The EPA recognizes that the Network Plan submitted in 2022 meets the federal regulatory requirements outlined at 40 CFR §58.10 and Appendices A through E (with the exceptions noted in above sections), including consideration of areas with susceptible and vulnerable populations. For future plans, including next year's plan, we encourage the SC DHEC to continue evaluating areas with environmental justice concerns[2] related to ambient air monitoring. Where possible, please add detail to the discussion of environmental justice considerations taken into account and related to the ambient air quality network.

**American Rescue Plan**

The primary objective of American Rescue Plan (ARP) Ambient Air Monitoring Network Upgrades funding is to enhance monitoring of $PM_{2.5}$ or other national ambient air quality standard (NAAQS) pollutants in and near communities with environmental justice concerns which face disproportionate exposure to these pollutants and health risks and are also associated with increased vulnerability to COVID-19. These funds will primarily be used to replace existing filter-based monitors or otherwise enhance existing monitors in and near those communities to provide 24/7, real-time reporting of air quality concentrations. The funds may be used to address other considerations in and near communities with environmental justice concerns including upgrading other NAAQS pollutant monitoring sites, upgrading certain NAAQS gas monitors and/or equipment not meeting performance or completeness goals, and other possible PM monitoring investments.

The SC DHEC and the CIN received funding under the ARP. As recipients of this funding, they will prepare and initiate procurement requests for equipment purchases, purchase the equipment, and plan for timely set-up and installation of equipment consistent with the goal of enhancing air monitoring activities in EJ and underserved communities (see Table 28 below). Quarterly reports will be submitted as well as a final progress report within 120 days of the project end date. Prior to beginning environmental information operations, the SC DHEC and the CIN must submit to the EPA a QAPP for all new pollutants to be monitored and methods to be used, if applicable, for approval 180 days prior to collection of environmental data.

**Table 28. ARP Monitoring Equipment Upgrades**

| PQAO | Equipment Upgrades |
|---|---|
| SC DHEC | Teledyne T640 $PM_{2.5}$ FEM monitor upgrades – 6<br>Teledyne T640 $PM_{2.5}$ and $PM_{10}$ FEM monitor upgrades – 5<br>QA collocated T640 $PM_{2.5}$ FEM monitor – 1<br>$PM_{2.5}$ monitor enclosures – 6<br>Data loggers – 4<br>Ozone calibrators - 3 |

[2] Executive Order 14008, January 27, 2021. Federal Register / vol. 86, No. 19, February 1, 2021, p. 7619. Securing Environmental Justice and Spurring Economic Opportunity. Section 219. Policy.

| | |
|---|---|
| Catawba Indian Nation (CIN) | Ozone analyzer – 1<br>Wind speed and direction sensor – 1<br>FEM $PM_{2.5}$ monitor – 1<br>Flow calibrator - 1<br>Flow meter – 1<br>Zero air generator - 1 |

## Waivers of Requirements

The EPA's air monitoring regulations allow for the waiver of requirements in specific instances. The EPA requires ongoing waivers to be renewed every five years as part of the network assessment. The EPA granted a renewal of the waiver for the tree obstruction requirement at Congaree Bluff in an addendum to the state's 2020 Network Plan.

**Table 29: Summary of EPA Approved Waivers of Requirements**

| CBSA | Monitoring Site (s) Affected | Pollutant (s) | CFR Requirement Waived | EPA Waiver Authority/Rationale | Year Waiver First Granted | Waiver Expiration Date | Comments |
|---|---|---|---|---|---|---|---|
| Columbia, SC | Congaree Bluff (AQS ID: 45-079-0021) | $O_3$, $SO_2$ | 40 CFR Part 58, Appendix E, Section 4 & 11 | 40 CFR Part 58, Appendix E, Section 10.1.2 | 2016 | 2025 | Approval of spacing from trees requirements |
| Florence, SC | JCI Woods (AQS ID: 45-041-8003) | Pb | 40 CFR Part 58, Appendix E, Section 4 | 40 CFR Part 58, Appendix E, Section 10.1.1 | 2020 | 2025 | Approval of spacing from obstacles |

## Appendix F: Memorandum of Agreements

DHEC MOA#: 2017-429

# MEMORANDUM OF AGREEMENT

# ON AIR QUALITY MONITORING FOR CRITERIA POLLUTANTS FOR

# THE AUGUSTA - RICHMOND COUNTY

# METROPOLITAN STATISTICAL AREA (MSA)

January 2017

Participating Agencies:

Georgia
Georgia Department of Natural Resources
Environmental Protection Division
Air Protection Branch (GA EPD)

South Carolina
Department of Health and Environmental Control (SCDHEC)
Bureau of Air Quality

## I. PURPOSE/OBJECTIVES/GOALS

The purpose of this Memorandum of Agreement (MOA) is to renew the Augusta - Richmond County Metropolitan Statistical Area (MSA) Criteria Pollutant Air Quality Monitoring Agreement between SCDHEC and GA EPD (collectively referred to as the "affected agencies") to collectively meet United States Environmental Protection Agency (EPA) minimum monitoring requirements for particles of an aerodynamic diameter of 10 micrometers and less (PM10), particles of an aerodynamic diameter of 2.5 micrometers and less (PM2.5), and ozone; as well as any other criteria pollutant air quality monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all parties. This MOA will establish the terms and conditions of this collective agreement to provide adequate criteria pollutant monitoring for the Augusta - Richmond County MSA as required by 40 CFR 58 Appendix D, Section 2(e).

## II. BACKGROUND

The Augusta - Richmond County MSA consists of the following counties: Burke, Columbia, McDuffie, Lincoln, Richmond, Aiken and Edgefield. GA EPD has jurisdiction over Burke, Columbia, McDuffie, Lincoln, and Richmond Counties in Georgia and SCDHEC has jurisdiction over Aiken and Edgefield Counties, South Carolina. The SCDHEC and GA EPD are required by the Clean Air Act to measure for certain criteria pollutants in the ambient air in the Augusta - Richmond County Metropolitan Statistical Area (MSA). The EPA has established minimum monitoring requirements based on the size of the MSA and the quality of the air in the MSA for PM10, PM2.5, and ozone.

40 CFR 58 Appendix D, Section 2(e) states (in part):

> "...The EPA recognizes that there may be situations where the EPA Regional Administrator and the affected State or local agencies may need to augment or to divide the overall MSA/CSA monitoring responsibilities and requirements among these various agencies to achieve an effective network design. Full monitoring requirements apply separately to each affected State or local agency in the absence of an agreement between the affected agencies and the EPA Regional Administrator."

Currently each air pollution control agency (affected agency) conducts monitoring in its respective jurisdiction and coordinates its monitoring with the other air pollution control agency within the MSA.

## III. ROLES AND RESPONSIBILITIES

The parties agree to the following terms and conditions:

- SCDHEC, and GA EPD (the "affected agencies") commit to conducting appropriate monitoring in their respective jurisdictions of the MSA; as needed, to collectively meet EPA minimum monitoring requirements for the entire MSA for PM10, PM2.5, and ozone, as well as any other criteria air pollutant monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all affected agencies. The minimum air quality monitoring requirements (for PM10, PM2.5, and ozone described in 40 CFR 58) for the MSA shall apply to the MSA in its entirety and shall not apply to any sole affected agency within the MSA unless agreed upon by all affected agencies.

- The affected agencies commit to coordinating monitoring "responsibilities and requirements...to achieve an effective network design" regarding criteria air pollutant monitoring conducted in the MSA and commit to communicate unexpected or unplanned changes in monitoring activities within their jurisdictions to the other affected agency. As conditions warrant, the affected agencies may conduct telephone conference calls, meetings, or other

communications to discuss monitoring activities for the MSA. Each affected agency shall inform the other affected agency via telephone or e-mail of any monitoring changes occurring in its jurisdiction of the MSA at its earliest convenience after learning of the need for the change or making the changes. Such unforeseen changes may include evictions from monitoring sites, destruction of monitoring sites due to natural disasters, or similar occurrences that result in an extended (greater than 1 quarter) or permanent change in the monitoring network. At least once a year in the second quarter of the year or before June 15th, each affected agency shall make available to the other affected agency, a copy of its proposed monitoring plan for its jurisdiction within the MSA for the next year.

- Each party reserves the right to revoke or terminate this MOA at any time and for any reason by giving thirty (30) days written notice prior to the date of termination.

## IV. LIMITATIONS

**A.** All commitments made in this MOA are subject to the availability of appropriated funds and each party's budget priorities. Nothing in this MOA, in and of itself, obligates SCDHEC or GA EPD to expend appropriations or to enter into any contract, assistance agreement, interagency agreement or other financial obligation.

**B.** This MOA is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds between parties to this MOA will be handled in accordance with applicable laws, regulations, and procedures, and will be subject to separate subsidiary agreements that will be effected in writing by representatives of the parties.

**C.** Except as provided in Section III, this MOA does not create any right or benefit, substantive or procedural, enforceable by law or equity against SCDHEC or GA EPD, their officers or employees, or any other person. This MOA does not direct or apply to any person outside SCDHEC or GA EPD.

## V. PROPRIETARY INFORMATION AND INTELLECTUAL PROPERTY

No proprietary information or intellectual property is anticipated to arise out of this MOA.

## VI. POINTS OF CONTACT

The following individuals are designated points of contact for the MOA:

GA EPD: DeAnna Oser
GA EPD Ambient Monitoring Program
4244 International Parkway, Suite 120
Atlanta, GA 30354

DeAnna.Oser@dnr.ga.gov
Voice: (404) 363-7004
FAX: (404) 363-7100

SCDHEC: Micheal Mattocks
SCDHEC Bureau of Environmental Services
8231 Parklane Road
Columbia, SC 29223

mattocm@dhec.sc.gov
Voice: (803) 896-0902
FAX: (803) 896-0980

In the event that a point of contact needs to be changed, notification may be made via email to the other parties.

## VII. MODIFICATION/DURATION/TERMINATION

This MOA will be effective when signed by all parties. This MOA may be amended at any time by the mutual written consent of the parties. The parties will review this MOA at least once every 10 years to determine whether it should be revised, renewed, or cancelled. This MOA may be revoked or terminated by an affected agency at any time and for any reason by giving thirty (30) days written notice prior to the date of termination.

## VIII. REFERENCE

United States Environmental Protection Agency, Title 40 Code of Federal Regulations, Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 2 (e), "General Monitoring Requirements."

## IX. APPROVALS

**Georgia Department of Natural Resources, Environmental Protection Division (GA EPD)**

BY: _____

TITLE: Director

DATE: 2/21/17

**South Carolina Department of Health and Environmental Control (SCDHEC) Bureau of Air Quality**

BY: _____

TITLE: Bureau Chief

DATE: 03/01/17

THIS AGREEMENT IS NOT OFFICIAL AND BINDING UNTIL SIGNED BY THE DHEC CONTRACTS MANAGER.

_____

Francine Miller
DHEC Contracts Manager
DATE: 3-6-17

**MEMORANDUM OF AGREEMENT**

**ON AIR QUALITY MONITORING FOR CRITERIA POLLUTANTS FOR**

**THE CHARLOTTE-CONCORD-GASTONIA**

**METROPOLITAN STATISTICAL AREA (MSA)**

July 1, 2016



Participating Agencies:

North Carolina
Department of Environmental Quality (NCDEQ)
Division of Air Quality (NCDAQ)

South Carolina
Department of Health and Environmental Control (SCDHEC)
Bureau of Air Quality

Mecklenburg County, North Carolina
Land Use and Environmental Services Agency
Air Quality (MCAQ)

## I. PURPOSE/OBJECTIVES/GOALS

The purpose of this Memorandum of Agreement (MOA) is to establish the Charlotte-Concord-Gastonia Metropolitan Statistical Area (MSA) Criteria Pollutant Air Quality Monitoring Agreement among NCDAQ, SCDHEC, and the MCAQ (collectively referred to as the "affected agencies") to collectively meet United States Environmental Protection Agency (EPA) minimum monitoring requirements for criteria pollutants deemed necessary to meet the needs of the MSA as determined reasonable by all parties. This MOA will renew the terms and conditions of this collective agreement to provide adequate criteria pollutant monitoring for the Charlotte-Concord-Gastonia MSA as required by 40 CFR 58 Appendix D, Section 2(e).

## II. BACKGROUND

The Charlotte-Concord-Gastonia MSA consists of

Cabarrus County, NC
Gaston County, NC
Iredell County, NC
Lincoln County, NC
Mecklenburg County, NC
Rowan County, NC
Union County, NC
Chester County, SC
Lancaster County, SC

York County, SC

NCDAQ has jurisdiction over Cabarrus, Gaston, Iredell, Lincoln, Rowan, and Union Counties; SCDHEC has jurisdiction over Chester, Lancaster, and York Counties; MCAQ has jurisdiction over Mecklenburg County.

The NCDAQ, SCDHEC, and MCAQ are required by the Clean Air Act to measure for certain criteria pollutants in the ambient air in the Charlotte-Concord-Gastonia MSA. The EPA has established minimum monitoring requirements based on the size of the MSA and the quality of the air in the MSA.

40 CFR 58 Appendix D, Section 2 (e) states (in part):

> "... The EPA recognizes that State or local agencies must consider MSA/CSA boundaries and their own political boundaries and geographical characteristics in designing their air monitoring networks. The EPA recognizes that there may be situations where the EPA Regional Administrator and the affected State or local agencies may need to augment or to divide the overall MSA/CSA monitoring responsibilities and requirements among these various agencies to achieve an effective network design. Full monitoring requirements apply separately to each affected State or local agency in the absence of an agreement between the affected agencies and the EPA Regional Administrator."

Currently each air pollution control agency (affected agency) conducts monitoring in its respective jurisdiction and coordinates monitoring with the other air pollution control agencies within the MSA.

## III. ROLES AND RESPONSIBILITIES

The parties agree to the following terms and conditions:

- NCDAQ, SCDHEC, and MCAQ (the "affected agencies") commit to conducting appropriate monitoring in their respective jurisdictions of the MSA; as needed, to collectively meet EPA minimum monitoring requirements for the entire MSA for criteria air pollutant monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all affected agencies. The minimum air quality monitoring requirements for the MSA shall apply to the MSA in its entirety and shall not apply to any sole affected agency within the MSA unless agreed upon by all affected agencies.

- The affected agencies commit to coordinating monitoring responsibilities and requirements to achieve an effective network design regarding criteria air pollutant monitoring conducted in the MSA and commit to communicate unexpected or unplanned changes in monitoring activities within their jurisdictions to the other affected agencies. As conditions warrant, the affected agencies may conduct telephone conference calls, meetings, or other communications to discuss monitoring activities for the MSA. Each affected party shall inform the others via telephone or e-mail of any monitoring changes occurring in its jurisdiction of the MSA at its earliest convenience after learning of the need for the change or making the changes. Such unforeseen changes may include evictions from monitoring sites, destruction of monitoring sites due to

natural disaster, or similar occurrences that result in extended change (greater than one quarter) or permanent change in the monitoring network. At least once a year in the second quarter or before June 15th, each agency shall make available to the other agency a copy of its proposed monitoring plan for its jurisdiction with the MSA for the next year.

- Each party reserves the right to revoke or terminate this MOA at any time for any reason by giving thirty (30) days written notice prior to the date of termination.

IV. LIMITATIONS

A. All commitments made in this MOA are subject to the availability of funds and each party's budget priorities. Nothing in this MOA, in and of itself, obligates NCDAQ, SCDHEC, or MCAQ to expend funds or to enter into any contract, assistance agreement, interagency agreement, or other financial obligation.

B. This MOA is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds between parties to this MOA will be handled in accordance with applicable laws, regulations, and procedures, and will be subject to separate subsidiary agreements what will be effected in writing by representatives of the parties.

C. Except as provided in Section III, this MOA does not create any right or benefit, substantive or procedural, enforceable by law or equity against NCDAQ, SCDHEC, or MCAQ, their officers or employees, or any other person. This MOA does not direct or apply to any person outside NCDAQ, SCDHEC, or MCAQ.

V. PROPRIETARY INFORMATION AND INTELLUCTUAL PROPERTY

No proprietary information or intellectual property is anticipated to arise out of this MOA.

VI. POINTS OF CONTACT

The following individuals are designated points of contact for the MOA:

NCDEQ DAQ:
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NC DENR Division of Air Quality
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Raleigh, NC 27699-1641

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Voice/fax: 919-707-8449

SCDHEC:
Scott Reynolds
SCDHEC Bureau of Environmental Health Services
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Columbia, SC 29201

reynolds@dhec.sc.gov
Voice: 803-896-0902

MCAQ: Jeff Francis
Mecklenburg County Land Use and Environmental Services Agency – Air Quality
2145 Suttle Avenue
Charlotte, NC 28208-5237

Jeff.Francis@mecklenburgcountync.gov
Phone 704-336-5430
Fax 704-336-4391

In the event that a point of contact needs to be changed, notification may be made via email to the other parties.

## VII. MODIFICATION/DURATION/TERMINATION

This MOA will be effective when signed by all parties. This MOA may be amended at any time by the mutual written consent of all parties. The parties will review this MOA at least once every 10 years to determine whether it should be revised, renewed, or cancelled. This MOA may be revoked or terminated by an affected party at any time and for any reason by giving thirty (30) days written notice prior to the date of termination.

## VIII. REFERENCE

United States Environmental Protection Agency, Title 40 Code of Federal Regulations, Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 2 (e), "General Monitoring Requirements"

## IX. APPROVALS

North Carolina Department of Environmental Quality
Division of Air Quality (NCDAQ)

BY: Sheila C. Holman

TITLE: Director, Division of Air Quality

DATE: 6/27/2016

South Carolina Department of Health and Environmental Control (SCDHEC)
Bureau of Air Quality

BY: _____

TITLE: Chief, Bureau of Air Quality

DATE: 07/05/2016

Mecklenburg County Land Use and Environmental Services Agency – Air Quality (MCAQ)
Mecklenburg County Air Quality

BY: Debra H Rhoads

TITLE: Director, Air Quality

DATE: 6/29/2016

D H E C
PROMOTE PROTECT PROSPER
Catherine E. Heigel, Director
*Promoting and protecting the health of the public and the environment*

MEMORANDUM

July 5, 2016

Subject: Change of Point of Contact for South Carolina

Memorandum of Agreement on Air Quality Monitoring for Criteria Pollutants for the Charlotte-Concord-Gastonia Metropolitan Statistical Area (MSA)

From: Rhonda B. Thompson, SC DHEC
Chief, Bureau of Air Quality

As of July 5, 2016, the Point of Contact for South Carolina will be Micheal Mattocks, instead of Scott Reynolds.

Micheal's contact information is below:

Micheal Mattocks
SC DHEC – Bureau of Environmental Health Services
2600 Bull Street
Columbia, SC 29201
(803)896-0856
mattock@dhec.sc.gov

# Appendix G: Waivers

## Site Waiver for Greenville ESC (45-045-0015) Monitoring Site
## Restricted Airflow Due to Obstructions

The S.C. Department of Environmental Services (Department) requests approval for a waiver to be granted for the probe siting criteria for restricted airflow due to obstructions as specified in 40 CFR Part 58 Appendix E Section 2.3 – Spacing from Obstructions for the criteria pollutant monitoring being conducted at the Greenville ESC (45-079-0021) Monitoring Site in Greenville County. Basic information on the Site is listed in the Table below. The site record indicates that both requirements in 40 CFR Part 58 Appendix E Section 4.1 for consideration of a waiver have been met.

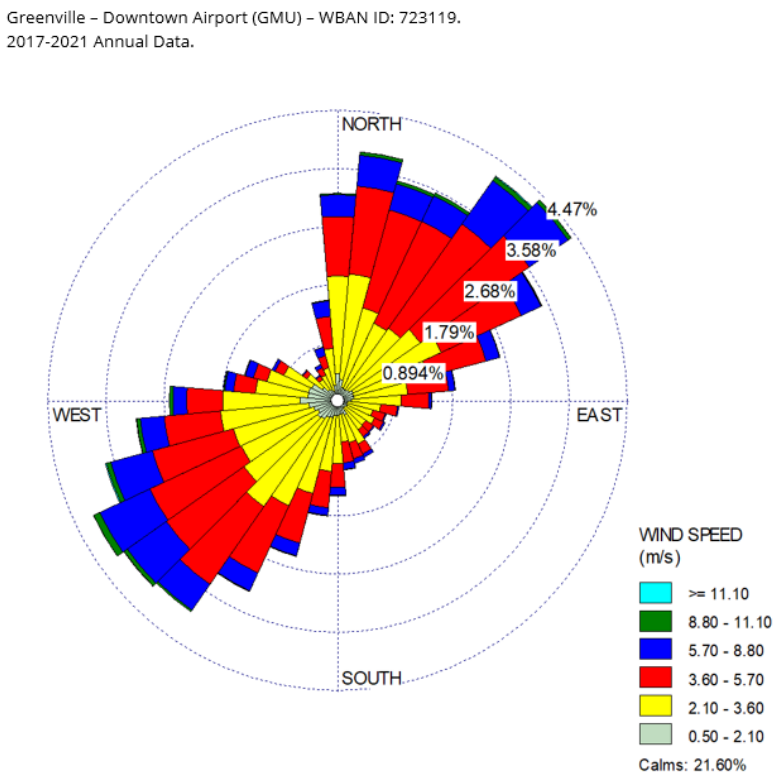
| General Information for the Greenville ESC Monitoring Site | |
|---|---|
| **Item** | **Description** |
| AQS ID | 45-045-0015 |
| Street Adress | 133 Perry Avenue, Greenville, SC |
| Geographic Coordinates | +34.84389, -82.41458 |
| MSA Represented | Greenville-Spartanburg-Anderson CSA / Greenville-Spartanburg-Greer MSA |
| ***Sulfur Dioxide*** | |
| Designation | SLAMS |
| Analysis Method | Pulsated Fluorescent |
| Sampling Frequency | Continuous |
| Monitoring Objective | Population Exposure |
| Monitoring Scale | Neighborhood |
| ***Nitrogen Dioxide*** | |
| Designation | SLAMS |
| Analysis Method | Chemiluminescence |
| Sampling Frequency | Continuous |
| Monitoring Objective | Population Exposure |
| Monitoring Scale | Neighborhood |
| ***$PM_{2.5}$ Intermittent*** | |
| Designation | SLAMS |
| Analysis Method | FRM Gravimetric w/ VSCC |
| Sampling Frequency | 1:1 |
| Monitoring Objective | Population Exposure / Welfare Related Impacts |
| Monitoring Scale | Neighborhood |
| ***$PM_{2.5}$ Continuous*** | |
| Designation | SPM |
| Analysis Method | FEM Broadband Spectroscopy |
| Sampling Frequency | Continuous |
| Monitoring Objective | Population Exposure / Welfare Related Impacts |

| General Information for the Greenville ESC Monitoring Site | |
|---|---|
| **Item** | **Description** |
| Monitoring Scale | Neighborhood |
| ***$PM_{10}$ Continuous*** | |
| Designation | SLAMS |
| Analysis Method | FEM Broadband Spectroscopy |
| Sampling Frequency | Continuous |
| Monitoring Objective | Population Exposure |
| Monitoring Scale | Neighborhood |

**Predominant and Secondary Wind Patterns**

The wind data from the Greenville-Downtown Airport (GMU) is representative of the wind pattern for the Greenville ESC Site. Using 2017-2021 data, the wind rose in Figure 1 was created. It indicates that the predominant wind directions for this Site are from the southwest and the northeast. Also, secondary dominant winds come from the north-northeast.

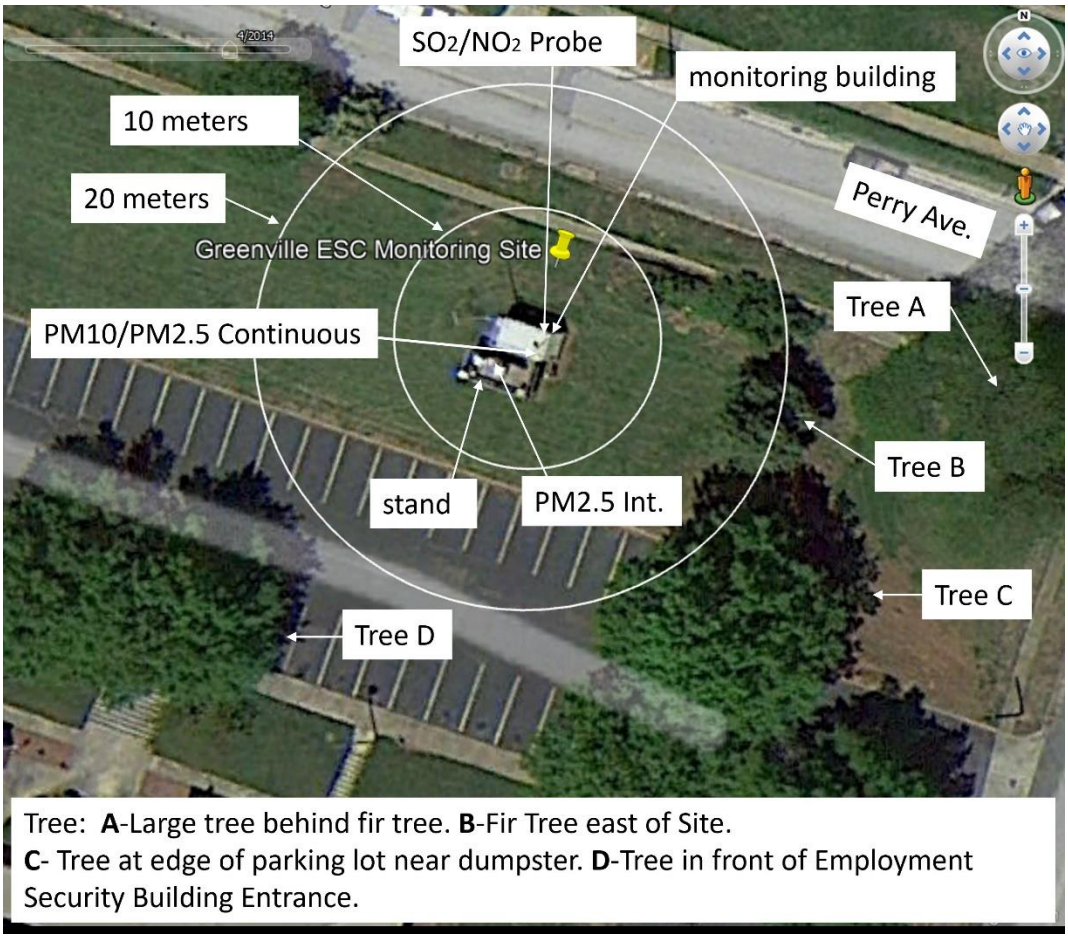
**Figure 1. Wind Rose for the Greenville ESC Site**



**Justification for Request**

An aerial picture of the Greenville ESC Site Location and the obstructions, and a panoramic view of the Site are shown below (Figures 2 and 3). Two mature trees (trees C and D in Figure 2) have been identified as protruding above the $PM_{2.5}$ Intermittent sampler probe more than half the distance to the probe, preventing 270 continuous degrees of airflow. The Site was granted a waiver for the obstruction to airflow in 2016 and in 2009. Under advice from EPA, the Department did not renew the waiver when due for renewal in 2018 since there was a total of at least 270 degrees of airflow. The Reconsideration of the National Ambient Air Quality Standards for Particulate Matter, promulgated on February 6, 2024, updated 40 CFR Part 58 Appendix E to require that the 270 degrees of necessary airflow be in a continuous arc rather than a total of 270 degrees open airflow from the possible 360° arc.

**Figure 2. Aerial View of the Greenville ESC Monitoring Site**




Tree: **A**-Large tree behind fir tree. **B**-Fir Tree east of Site.
**C**- Tree at edge of parking lot near dumpster. **D**-Tree in front of Employment Security Building Entrance.

**Figure 3. Panorama of Greenville ESC Monitoring Site**

The Greenville ESC Site is constrained by the presence of underground utilities that limits possible placement of the building and the stand. In addition, moving the $PM_{2.5}$ sampler from the stand onto the roof of the monitoring building poses safety hazards to staff retrieving daily samples, and to the integrity of the roof, which would have an increased likelihood of producing leaks due to added weight. When established, the Site was placed approximately equidistant from the most significant trees. Relocation of the sampler on the stand to maximize distance from trees was done in support of previous waver submissions, but the minor relocations did not have any detectable impact on measured concentration or representativeness of the monitoring for the criteria pollutants. Site topography, land use, and vegetation density is typical of the area being represented. All other Appendix E probe siting criteria are being met at this site.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

Received
MAY 11 2021
Bureau of Air Quality

March 24, 2021

Rhonda B. Thompson, PE
Chief
Bureau of Air Quality
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina, 29201

Dear Ms. Thompson:

On February 4, 2021, the South Carolina Department of Health and Environmental Control (DHEC) submitted to the U.S. Environmental Protection Agency (EPA) an addendum to the state of South Carolina's 2020 Annual Ambient Air Monitoring Network Plan (Addendum). The Addendum proposes several modifications to DHEC's air monitoring network. The first part of the Addendum requests a 40 CFR Part 58, Appendix E monitor siting criteria waiver to be renewed for the Congaree Bluff monitoring site (AQS ID: 45-079-0021), provides notification of the discontinuation of the State Hospital (AQS ID: 45-079-0020) and Howard High School #3 (AQS ID: 45-043-0011) monitoring sites, and notifies the EPA of discontinuation of $PM_{10}$ monitoring at the Chesterfield monitoring site (AQS ID: 45-025-0001). The second part of the Addendum requests approval for terminating the Big Creek site (AQS ID: 45-007-0005) and provides notification that precipitation and precipitation chemistry monitoring will be discontinued at the Congaree Bluff site.

The monitoring regulations found in 40 CFR Part 58.10(a)(1) require that the Addendum be made available for public comment at least 30 days before submission to the EPA for approval. The first part of the Addendum was made available for public comment in the State Register from November 27, 2020, through December 29, 2020, and the second part of the Addendum was made available for public comment in the State Register from December 25, 2020, through January 25, 2021. The EPA provided one comment for the first part, and two comments for the second part of the Addendum. The DHEC addressed all three comments, which were included in the Addendum submission.

The Addendum requests renewal of the waiver of siting requirements for the Congaree Bluff monitoring site. Numerous trees located to the northeast, east, and southeast of the site were identified as not meeting the spacing from obstructions requirement as defined in 40 CFR Part 58, Appendix E, Section 4(a):

> "The distance from the obstacle to the probe, inlet, or monitoring path must be at least twice the height that the obstacle protrudes above the probe, inlet, or monitoring path."

The width, location, and number of trees around the sampler are also such that the monitor does not meet the footnote to Table E-4 of 40 CFR Part 58, Appendix E, Section 11, requiring that the site "must have unrestricted airflow 270 degrees around the probe or sampler."

Forty (40) CFR Part 58, Appendix E, Section 10 states that waivers of siting criteria for an existing site can be granted if either of the following criteria are met:

> "10.1.1 – The site can be demonstrated to be as representative of the monitoring area as it would be if the siting criteria were being met.
>
> 10.1.2 – The monitor or probe cannot be reasonably located so as to meet the siting criteria because of physical constraints."

The EPA has determined that this situation meets waiver requirements of 40 CFR Part 58, Appendix E, Section 10. The objective of the Congaree Bluff site is to measure air quality only in the park. Within the park boundaries, this monitor cannot be reasonably located so as to meet the siting criteria because of physical constraints. The EPA, therefore, renews the waiver of the requirements of 40 CFR Part 58, Appendix E, Section 4(a) and the footnotes to Table E-4 in 40 CFR Part 58, Appendix E, Section 11, regarding the trees located to the northeast, east, and southeast of the Congaree Bluff site. This site must still meet all other siting requirements found in Appendix E of 40 CFR Part 58, including the tree dripline requirements of 40 CFR Part 58, Appendix E, Section 5 "Spacing from Trees". This waiver renewal is for five years and should be re-evaluated in the state's annual network plan due July 1, 2025, in conjunction with the next network assessment cycle.

The Addendum also requests approval for terminating the Big Creek monitoring site. Termination of this site is requested as part of the redesigned Greenville-Anderson MSA ozone monitoring network. 40 CFR §58.14(c) allows for the approval of requests to shut down monitors on a case-by-case basis when doing so will not compromise data collection needed for implementation of the NAAQS and when the requirements in 40 CFR Part 58, Appendix D will continue to be met.

The EPA has determined that shutting down the Big Creek monitoring site meets the requirements of 40 CFR §58.14(c), because shutting down the Big Creek monitoring site will not compromise data collection needed for implementation of the NAAQS in the Greenville-Anderson MSA. The DHEC has provided analyses showing: 1) that the Big Creek monitoring site has the lowest design value and annual daily maximum average concentrations in the Greenville-Anderson MSA, and 2) the similarity of data trends at the Big Creek and Garrison Arena monitoring sites. Therefore, the Big Creek Ozone monitoring site is approved for discontinuation.

Finally, the Addendum includes notification that the DHEC plans to discontinue the State Hospital and Howard High School #3 monitoring sites. The DHEC operated nonregulatory special purpose monitors (SPMs) measuring carbonyls and semi-volatile organic compounds at the State Hospital site and a $PM_{10}$ SPM at the Howard High School #3 site. The Addendum also includes notification that precipitation and precipitation chemistry monitoring will be discontinued at the Congaree Bluff site, and that the $PM_{10}$ SPM at the Chesterfield site will be discontinued. The EPA acknowledges the discontinuation of these non-regulatory and special purpose monitors and supports the DHEC's efforts to increase the efficiency of its monitoring network.

The EPA requests that the DHEC include a summary of these approved changes in the annual network plan due July 1, 2021. Thank you for working with the EPA Region 4 to monitor air pollution and promote healthy air quality in South Carolina. If you have any questions or concerns, please contact Gregg Worley at (404) 562-9141 or Adam Friedman at (404) 562-9033.

Sincerely,

KENNETH MITCHELL

Digitally signed by KENNETH MITCHELL
Date: 2021.03.24 11:41:49 -04'00'

For Caroline Y. Freeman
Director
Air and Radiation Division

cc: Renee Shealy, SC DHEC/BEHS
Connie Turner, SC DHEC/BEHS
Heinz Kaiser, SC DHEC/BAQ
Mary Payton D. Wall, SC DHEC/BAQ
G. Renee Madden, SC DHEC/BAQ
Michael Mattocks, SC DHEC/BEHS
Laura Ackerman, EPA Region 4 LSASD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

April 1, 2020

Rhonda B. Thompson
Chief
Bureau of Air Quality
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Dear Ms. Thompson:

On February 12, 2020, the South Carolina Department of Health and Environmental Control (DHEC) submitted to the U.S. Environmental Protection Agency a modification to the state of South Carolina's 2019 Annual Ambient Air Monitoring Network Plan (Network Plan Addendum). The Network Plan Addendum requests approval for a 40 CFR Part 58, Appendix E monitor siting waiver to be granted for the JCI Woods lead (Pb) monitoring site (AQS ID: 45-041-8003). The monitoring regulations found in 40 CFR Part 58.10(a)(1) require that the monitoring network plan and modification be made available for public comment for at least 30 days before submission to the EPA for approval. The Network Plan Addendum was published in the State Register for public comment from October 25, 2019 to November 25, 2019, during which no comments were received.

The Network Plan Addendum requests a waiver of siting requirements for the JCI Woods Pb monitoring site. Four trees to the north and east of the site are identified as not meeting the spacing from obstructions requirement as defined in 40 CFR Part 58, Appendix E, Section 4(a):

> "The distance from the obstacle to the probe, inlet, or monitoring path must be at least twice the height that the obstacle protrudes above the probe, inlet, or monitoring path."

The width and locations of the trees around the sampler are also such that the monitor siting does not meet the footnote to Table E-4 of 40 CFR Part 58, Appendix E, Section 11, requiring that the site "must have unrestricted airflow 270 degrees around the probe or sampler..."

Forty (40) CFR Part 58, Appendix E, Section 10 states that waivers of siting criteria for existing sites can be granted if either of the following criteria are met:

> "10.1.1 – The site can be demonstrated to be as representative of the monitoring area as it would be if the siting criteria were being met.
>
> 10.1.2 – The monitor or probe cannot be reasonably located so as to meet the siting criteria because of physical constraints"

The EPA believes that this situation meets the waiver requirements of Section 10.1.1. As the location of the JCI Woods site is located for source-oriented monitoring, and the identified trees do not obscure the path of highest concentration from the source, the site's location is still representative of the ambient Pb concentrations around the JCI facility. The EPA therefore waives the requirements of 40 CFR Part 58, Appendix E, Section 4(a) and the footnote to Table E-4 in 40 CFR Part 58, Appendix E, Section 11, regarding the four trees to the north and east of the JCI Woods site. This site must still meet all other siting requirements found in Appendix E of 40 CFR Part 58. This waiver should be re-evaluated in the 2025 South Carolina network assessment due to the EPA by July 1, 2025.

The waiver of the specific siting requirements discussed above for JCI Woods is effective on the date of this letter. The DHEC should consult the EPA Region 4 Laboratory Services and Applied Science Division (LSASD) staff on whether quality assurance flags should be added to the data in the Air Quality System (AQS) to indicate that there were siting criteria issues at the site prior to and after the EPA approval of this siting criteria waiver. The data with QA flags for siting criteria issues would still be comparable to the Lead National Ambient Air Quality Standard.

Thank you for your collaboration with the EPA to monitor air and promote clean air in South Carolina. If you have any questions about this approval, please contact Adam Friedman at 404-562-9033.

Sincerely,

KENNETH MITCHELL
Digitally signed by KENNETH MITCHELL
Date: 2020.04.01 16:01:18 -04'00'

Kenneth L. Mitchell, Ph.D.
Acting Director
Air and Radiation Division

cc: Renee Shealy, Bureau Chief, BEHS
Connie Turner, Director, DAQA, BEHS
Robert J. Brown Jr., BAQ
Mary Peyton Wall, BAQ
G. Renee Madden, BAQ
Laura Ackerman, Region 4 LSASD

## Appendix H: Ongoing Data Requirements Rule for 2010 1-hour $SO_2$ NAAQS Verification Calendar Year 2023

On June 2, 2010, the U.S. EPA revised the primary NAAQS for sulfur dioxide ($SO_2$) by establishing a 1-hour standard at a level of 75 parts per billion. In 2017, the Department of Health and Environmental Control (Department) submitted $SO_2$ designation modeling for certain facilities in Berkeley, Richland, and York counties to demonstrate these counties should be designated as attainment. These facilities included Santee Cooper Cross Generating Station, New-Indy Catawba (formerly Resolute Industries), Sylvamo Eastover Mill (formerly International Paper – Eastover), and Dominion Wateree Station (formerly SCE&G Wateree Station). On March 22, 2024, the Department proposed termination of the annual reporting requirement for Santee Cooper Cross Generating Station.

In January 2018, EPA designated each county in South Carolina as attainment/unclassifiable for the 2010 $SO_2$ standard. Under 40 CFR 51.1205(b), for areas designated as attaining the standard based on modeling of actual emissions, the Department is required to submit an annual report that documents the annual $SO_2$ emissions of these sources, an assessment of any emissions increase from the prior year, and a recommendation whether further modeling is warranted.
Attached is the Department's annual report satisfying the ongoing data requirements for the affected area's designations. The annual report was provided for a 30-day public comment period, which began on April 26, 2024, and ended May 27, 2024.

Sylvamo Eastover Mill (Sylvamo) and Wateree Station (Wateree), Richland County
Sylvamo and Wateree were modeled in the same modeling domain for the 1-hr $SO_2$ attainment modeling. Wateree has taken permit limits matching its modeled rates, and this revised permit was provided to the EPA by letter on May 11, 2017. Sylvamo modeled several units below the permitted emission rates. As shown in Tables 1-5 below, actual $SO_2$ emissions for all these sources are significantly less than the modeled rates and no further modeling is warranted.

Table 1

| Sylvamo No. 1 Power Boiler and No. 1 Recovery Furnace (Combined Stack) | | | |
|---|---|---|---|
| 2022 $SO_2$ Emissions | 2023 $SO_2$ Emissions | Modeled Emissions | Status |
| 152.4 lbs/hr | 157.1lbs/hr | 606.9 lbs/hr | No further action needed |

Table 2

| Sylvamo Recovery Furnace No. 2 and No. 2 NCG Incinerator (Combined Stack) | | | |
|---|---|---|---|
| 2022 $SO_2$ Emissions | 2023 $SO_2$ Emissions | Modeled Emissions | Status |
| 215.2 lbs/hr | 191.0 lbs/hr | 420.8 lbs/hr | No further action needed |

Table 3

| Sylvamo No. 2 Power Boiler | | | |
|---|---|---|---|
| 2022 $SO_2$ Emissions | 2023 $SO_2$ Emissions | Modeled Emissions | Status |
| 58.1 lbs/hr | 44.0 lbs/hr | 971.0 lbs/hr | No further action needed |

For Sylvamo, the source of sulfur dioxide ($SO_2$) pound per hour (lb/hr) emissions rates is actual total emissions per source per year over time period (year). An example calculation is shown below for the combined stack of No. 1 Recovery Furnace (381A) and No. 1 Power Boiler (501A):

$$Emission\ Rate\ \left(\frac{lb}{hr}\right) = \frac{Total\ SO_2\ tons\ emitted\ from\ 381A\ \&\ 501A}{Total\ time\ in\ Calendar\ Year, days} \times \frac{2000\ lb}{ton} \times \frac{day}{24\ hours}$$

Table 4

| Wateree No. 1 | | |
|---|---|---|
| 2023 $SO_2$ Emissions | Modeled Emissions | Status |
| 63.0 lbs/hr | 2687.3 lbs/hr<br>11770.3 TPY, combined stack | No further action needed |

Table 5

| Wateree No. 2 | | |
|---|---|---|
| 2023 $SO_2$ Emissions | Modeled Emissions | Status |
| 63.7 lbs/hr | 2687.3 lbs/hr<br>11770.34 TPY, combined stack | No further action needed |

The data for Wateree is based on actual emissions per actual hours of operation. Since each unit's emissions are measured on one combined stack, the emissions are

apportioned by heat rate. The final result is actual pounds/hour.

WAT1SO2:

$$\frac{266.5\ tons}{2128.5\ hrs} x \frac{4389099\ mmBtu}{4389099\ mmBtu + 13060354\ mmBtu} x\ 2000\ lbs = 63.0\ lbs/hr$$

WAT2SO2:

$$\frac{266.5\ tons}{6258.4\ hrs} x \frac{13060354\ mmBtu}{13060354\ mmBtu + 4389099\ mmBtu} x\ 2000\ lbs = 63.7\ lbs/hr$$

The Actual $SO_2$ emissions in tons per year:

| Unit | 2022 | 2023 |
|---|---|---|
| WAT Unit 1 | 238.5 | 266.5 |
| WAT Unit 2 | 238.5 | 266.5 |

New-Indy Catawba (New-Indy), formerly Resolute, York County

The New-Indy 1-hr $SO_2$ DRR modeling was based on permit allowable $SO_2$ emissions with the exception that No. 6 fuel oil combustion emissions were based on actual No. 6 fuel oil use at maximum permitted sulfur content. The information used in the assessment (shown in Table 6) for this facility shows that no further modeling is warranted.

Table 6

| New-Indy (Resolute) Facility No. 6 Fuel Oil Use | | | |
|---|---|---|---|
| 2022 fuel oil used | 2023 fuel oil used | Modeled usage: | Status |
| 2,473,333 gallons | 3,827,633 gallons | 4,041,888 gallons | No further action needed |

The primary sources of $SO_2$ at New-Indy Catawba LLC (Catawba Mill) are No. 6 fuel oil combustion for process steam generation and incineration of pulp mill non-condensable gases (NCG's) in the combination boilers. The $SO_2$ DRR modeling for the Catawba Mill was performed using the actual hourly No. 6 fuel oil usage during calendar years 2012 - 2014 year assuming the maximum fuel oil sulfur content (2.1%) as a conservative assumption. The combustion of pulp mill NCG's was modeled at the pulp mill design capacity and the permitted $SO_2$ emission rate of 10.1 pounds $SO_2$ per air dried ton pulp (Ib $SO_2$/ ADTP). Other minor sources of $SO_2$ at the Catawba Mill (biomass and natural gas combustion, etc.) were modeled at the maximum short-term permitted emission rates.

The 2022 and 2023 actual $SO_2$ emissions are compared to the modeled $SO_2$

emissions in Tables 7 and 8 and are less than the modeled emissions rates in 2012, 2013, and 2014. As shown in Table 7, the annual $SO_2$ emissions from No. 6 fuel oil are based on the total fuel oil usage and the average fuel oil sulfur content. The annual $SO_2$ emissions from pulp mill NCG combustion are based on the total pulp production and the actual NCG emissions factor per ton of production.

The highest actual hourly emissions rate is compared to the highest modeled hourly emissions rate in Table 8. The highest actual hourly emissions in 2023 from burning No. 6 fuel oil combined with the highest hourly emissions from pulp mill NCG combustion are less than the highest hourly emissions modeled during the 2012-2014 period. These two functions are related but not solely dependent upon each other. This means that the highest hourly emissions from burning No. 6 fuel oil and the highest hourly emission from pulp mill NCG combustion did not occur at the same time (e.g., during the same hour of the year). When the 2023 actual emissions are paired in time, the highest hourly emissions are 1,541 pounds per hour. The 2023 actual $SO_2$ emissions are less than 50% of the $SO_2$ emissions modeled in 2014. As shown in both Tables 7 and 8 the actual emissions during 2022 – 2023 are well below the maximum modeled $SO_2$ 1-hour emissions rates.

Table 7 – Comparison of Annual $SO_2$ Emissions

| Year | No. 6 Fuel Oil | | | Pulp Mill NCG Combustion | | | Sum |
|---|---|---|---|---|---|---|---|
| | Gallons | % S | tons $SO_2$ | ADTP | lb $SO_2$/ADTP | tons $SO_2$ | tons $SO_2$ |
| 2012 Model | 1,566,028 | 2.1 | 258 | 666,125 | 10.1 | 3,364 | 3,622 |
| 2013 Model | 1,230,464 | 2.1 | 203 | 666,125 | 10.1 | 3,364 | 3,567 |
| 2014 Model | 4,041,888 | 2.1 | 666 | 666,125 | 10.1 | 3,364 | 4,030 |
| 2022 Actual | 2,473,333 | 1.82 | 353 | 487,334 | 3.88 | 945 | 1,299 |
| 2023 Actual | 3,827,633 | 1.87 | 562 | 472,079 | 3.88 | 916 | 1,478 |

Table 8 – Comparison of Maximum Hourly $SO_2$ Emissions

| Year | No. 6 Fuel Oil | | | Pulp Mill NCG Combustion | | | Sum |
|---|---|---|---|---|---|---|---|
| | max gallons/hr | % S | lbs $SO_2$/hr | max ADTP/hr | lb $SO_2$/ADTP | lbs $SO_2$/hr | lbs $SO_2$/hr |
| 2012 Model | 6,696 | 2.1 | 2,208 | 76.0 | 10.1 | 768 | 2,976 |
| 2013 Model | 3,746 | 2.1 | 1,235 | 76.0 | 10.1 | 768 | 2,003 |
| 2014 Model | 6,086 | 2.1 | 2,007 | 76.0 | 10.1 | 768 | 2,775 |
| 2022 Actual | 4,069 | 1.82 | 1,163 | 91.8 | 3.99 | 366 | 1,529 |
| 2023 Actual | 6,835 | 1.87 | 2,007 | 85.3 | 3.99 | 333 | 2,340 |

# Appendix I: Special Projects

**Ethylene Oxide (EtO) Community Scale Grant**

The community EtO Grant has been completed. The final report will be issued by December 31, 2024.

**Odor Investigation in York County**

The Department deployed several hydrogen sulfide sensors in York County in response to odor complaints. On Nov. 23, 2022, the South Carolina Department of Health and Environmental Control entered into a Consent Order with New Indy requiring the facility to take additional and significant actions that will fully correct and control undesirable levels in the communities surrounding its Catawba facility. New Indy has deployed hydrogen sulfide sensors to replace the ones operated by the Department, which were removed January 8, 2024.