

State of South Carolina

Annual Ambient Air Monitoring Network Plan

July 1, 2023 – December 31, 2024

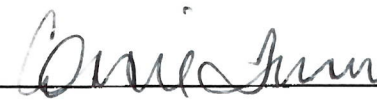


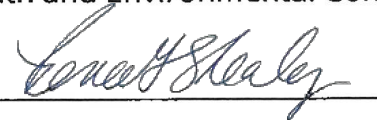
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South Carolina Department of Health &
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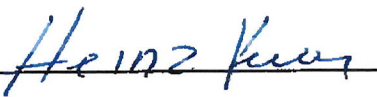
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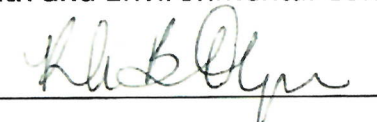
Certification

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, 2023, through December 31, 2024. The South Carolina Department of Health and Environmental Control (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 plan from July 1, 2023, through December 31, 2024, 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 Plan and supporting documentation will be submitted to the EPA Region 4 office.

Connie Turner Signature:  Date: 7/7/23
Director, Division of Air Quality Analysis, Bureau of Environmental Health Services
South Carolina Department of Health and Environmental Control

Renee G. Shealy Signature:  Date: 7/7/2023
Bureau Chief, Bureau of Environmental Health Services
South Carolina Department of Health and Environmental Control

Heinz Kaiser Signature:  Date: 7/6/2023
Director, Division of Emissions Evaluation and Support
South Carolina Department of Health and Environmental Control

Rhonda B. Thompson Signature:  Date: 07/05/23
Bureau Chief, Bureau of Air Quality
South Carolina Department of Health and Environmental Control

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 – Division of Air Quality Analysis
Department – South Carolina Department of Health and Environmental Control
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
 $\mu\text{g}/\text{m}^3$ – 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
NO₂ – 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
PM₁₀ – 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
SLAMS – State and Local Air Monitoring Station
SO₂ – 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, 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 PM₁₀ 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 PM₁₀ monitoring was relocated from the Jenkins Ave. Fire Station Monitoring Site to the North Charleston Fire Station Monitoring Site. 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 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 SO₂ monitor 2020-2022. SO₂ monitoring was discontinued on January 13, 2023.

Columbia MSA

Cayce City Hall Monitoring Site – Approval for the discontinuation and relocation of PM₁₀ monitoring from the Cayce City Hall Monitoring Site to the Parklane Monitoring site was approved by EPA on February 22, 2023. PM₁₀ monitoring was discontinued on May 30, 2023.

Parklane Monitoring Site – Approval for the discontinuation and relocation of PM₁₀ monitoring from the Cayce City Hall Monitoring Site to the Parklane Monitoring site was approved by EPA on February 22, 2023. PM₁₀ monitoring began on May 30, 2023. SVOC monitoring was discontinued on January 30, 2023. 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, 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 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, 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-NC MSA

Coastal Carolina Monitoring Site – According to the U.S. Census 2021 population estimate, the population in the MSA is above the minimum threshold for PM₁₀ and PM_{2.5}, requiring one PM₁₀ and one PM_{2.5} monitor. 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 PM₁₀ 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

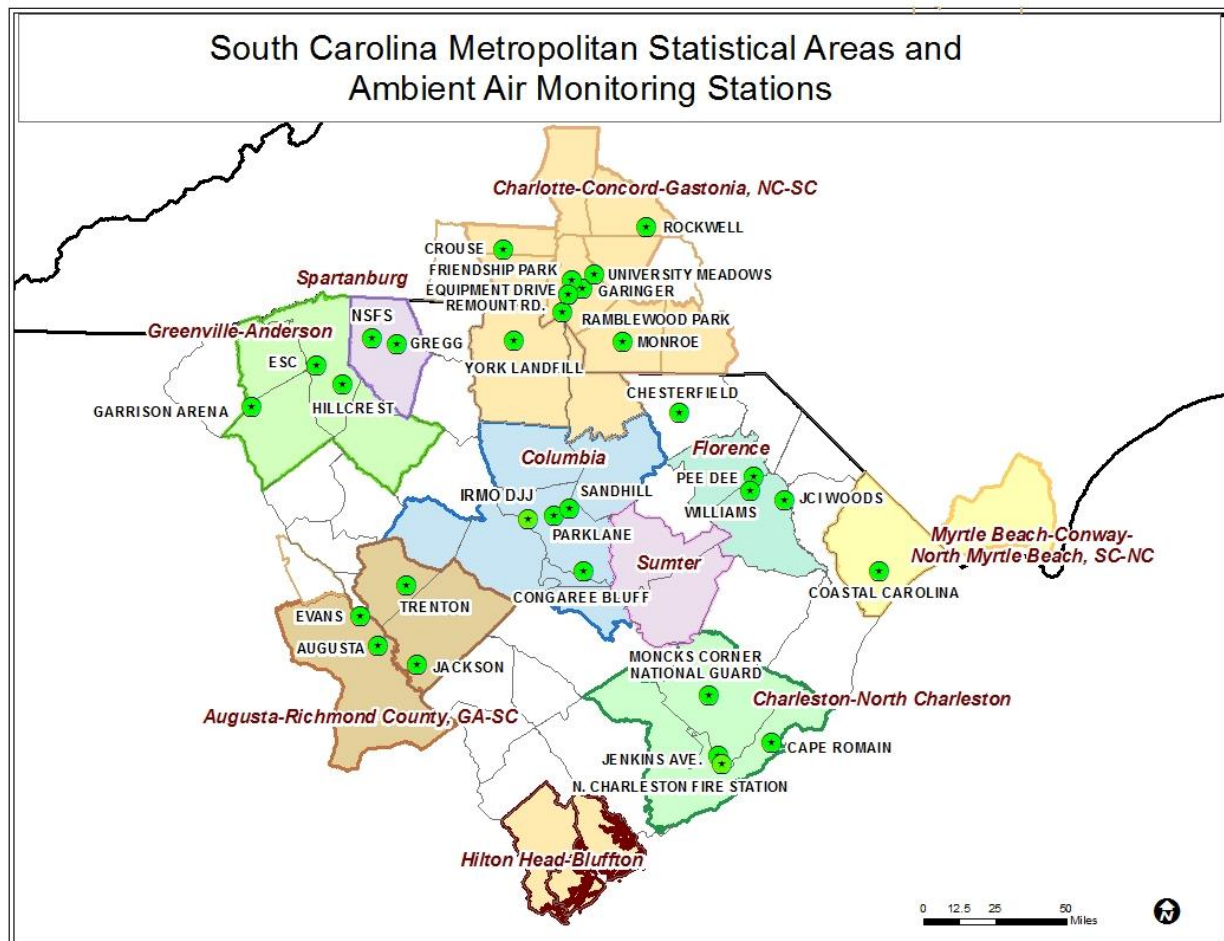
No changes planned.

Remainder of State

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

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 2023-2024, the network within South Carolina will be comprised of 66 monitors and samplers at 22 sites. The South Carolina Monitoring Sites can be seen in the map below.



On October 17, 2006, the EPA published revisions to the ambient monitoring regulations (71 FR 61236) 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 an annual monitoring network plan and periodic network assessments.

This South Carolina Annual Ambient Air Monitoring Network Plan (2023 Network Plan) covers the eighteen-month period from July 1, 2023, through December 31, 2024. This 2023 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.

This document constitutes the 2023-2024 South Carolina Annual Ambient Air Monitoring Network Plan (2023 Network Plan). The site pages 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. Planned changes are described in this 2023 Network Plan and provided for public review and comment prior to submission to the EPA Region 4 Administrator.

Public Participation Opportunities

In response to public interest and the potential impact of the monitoring regulation changes, the Department's Air Program solicits involvement from both internal (to the Department) and external workgroups. Opportunities for public involvement include:

- A webpage maintained for publication and access to current and draft monitoring plan reference documents and announcements¹.
- The proposed 2023 Network Plan was available for public review and comment from April 28, 2023, through May 30, 2023. All public comments received are summarized and addressed in Appendix B of the final 2023 Network Plan submitted to the EPA.

The Department is committed to continuing the 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.

Network Operation

The primary responsibility for the operation of the Monitoring Network is assigned to the Division of Air Quality Analysis (DAQA) in the Bureau of Environmental Health Services. The DAQA establishes, maintains, and operates the sites and instruments that make up the network and performs the analysis of samples collected as part of routine monitoring or special projects. Data generated by the network for comparison to the NAAQS is verified to be accurate and reported by the DAQA to the national AQS database for storage and public access.

Criteria pollutant monitoring for comparison to the NAAQS is performed 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.

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

¹<https://www.scdhec.gov/environment/your-air/ambient-air-monitoring-network>

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 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.

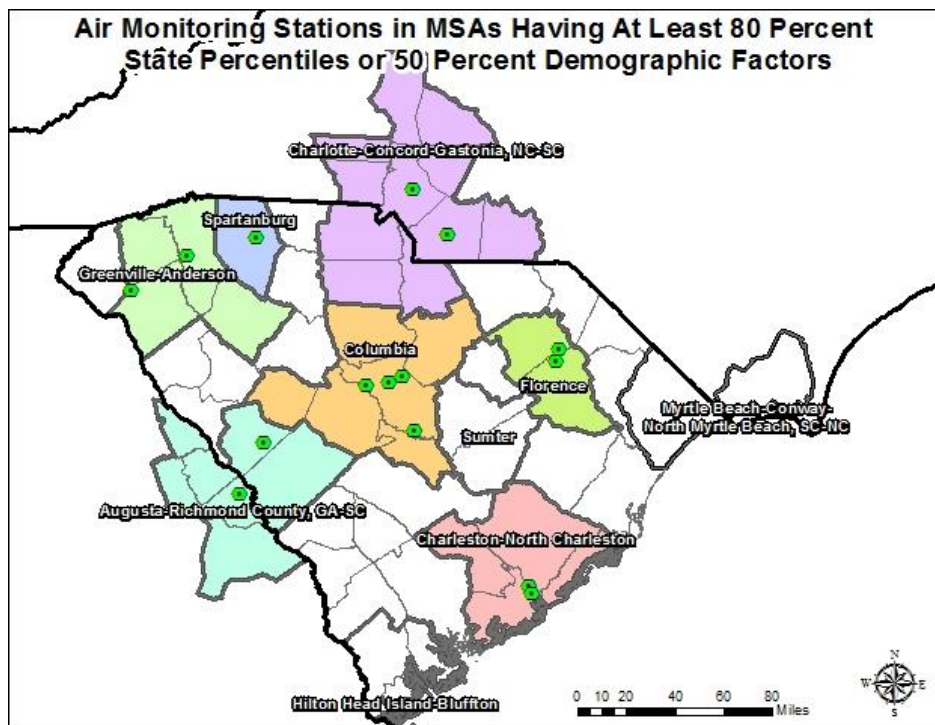
It is the Department's intent that all criteria pollutant monitors and samplers be sited and operated in accordance with the requirements of 40 CFR Part 58. As required in 40 CFR Part 58, Appendix A, the DAQA establishes, maintains, and operates the sites and instruments and performs the analysis of samples collected. Data generated by the network for comparison to the NAAQS is verified to be accurate and reported by the DAQA to the national AQS database for storage and public access. Regular calibrations, flow verifications, and QC checks are performed to verify that the instruments are operating correctly, and data being collected is accurate. As required in 40 CFR Part 58, Appendix C, all criteria pollutant monitoring in the Monitoring Network for comparison to the NAAQS is performed using the EPA designated FRM or FEM. Also, all criteria pollutant monitoring in the Monitoring Network as described in this 2023 Network Plan meets the monitoring objectives, spatial scales, and design criteria as described in 40 CFR Part 58, Appendix D. Finally, in this document, each site page 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. An element of the Quality System² employed by the DAQA

² The Quality System is the means by which the Department implements the quality management process through the Quality Assurance Management Plan for SC DHEC, March 2014.

is periodic assessments of systems and monitor performance. As the primary QA organization for ambient air monitoring activities, 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.

Environmental Justice

The Department uses the definition created by the EPA to define environmental justice (EJ). It is defined “as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” 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 Justice Screening and Mapping Tool to conduct a preliminary environmental justice assessment. 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).



July 1, 2023 through December 31, 2024 Network Summary

This summary table presents the elements of the 2023-2024 Monitoring Plan.

Network Summary: Calendar Year July 1, 2023, through December 31, 2024, 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 Chemistry	Precipitation	Meteorology
Augusta-Richmond County, GA-SC MSA	2	1	1	0	0	0	2	1*	0	0	0	0	0	0	0	0	0	0
Charleston-North Charleston MSA	4	2	2	0	1	0	2	1	2	0	0	0	0	0	0	0	0	1
Charlotte-Concord-Gastonia, NC-SC MSA	1	0	0	0	0	0	1	0	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 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-NC 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	22	12	10	1	4	2	14	4*	5	1	2	2	2	2	1	1	1	2
*These monitors have been selected to run on a rotational schedule. In order to best utilize resources, in 2022-2023, 5 total SO ₂ monitors will be operational across the state at any given time. Please refer to the site description pages for specific information about each rotational SO ₂ monitor.																		

2021 Criteria Pollutant Design Values

This section presents the 2021 certified design values for the South Carolina criteria pollutant monitoring network.

Site ID	County	Site Name	Ozone (ppm)	PM _{2.5} Annual (µg/m ³)	PM _{2.5} 24-hour (µg/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 (µg/m ³)
003-0003	Aiken	Jackson Middle School	0.057*									
019-0003	Charleston	Jenkins Avenue				0*	11	30*	6.32*			
019-0046	Charleston	Cape Romain	0.054*				2	11*	1.84*			
019-0048	Charleston	FAA		7.1	16							
019-0049	Charleston	Charleston Public Works		6.8*	15*							
025-0001	Chesterfield	Chesterfield	0.057*	7.0	15							
031-0003	Darlington	Pee Dee	0.057*									
037-0001	Edgefield	Trenton	0.056*	7.5	17							
041-0003	Florence	Williams Middle School		7.3	16							

Site ID	County	Site Name	Ozone (ppm)	PM _{2.5} Annual (µg/m ³)	PM _{2.5} 24-hour (µg/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 (µg/m ³)
041-8001	Florence	JCI Railroad										0.11*
041-8002	Florence	JCI Entrance										0.09*
041-8003	Florence	JCI Woods										0.15*
045-0015	Greenville	Greenville ESC		8.1	20	0	2	37*	6.70			
045-0016	Greenville	Hillcrest Middle School	0.064*	7.5	16							
051-0008	Horry	Coastal Carolina	0.055*									
063-0008	Lexington	Irmo		7.8	18							
063-0010	Lexington	Cayce City Hall				0*						
079-0007	Richland	Parklane	0.059*	7.2	16		2			0.7	0.972	
079-0021	Richland	Congaree Bluff	0.052*									
079-1001	Richland	Sandhill	0.059*					28*	3.61*			

Site ID	County	Site Name	Ozone (ppm)	PM _{2.5} Annual (µg/m ³)	PM _{2.5} 24-hour (µg/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 (µg/m ³)
083-0009	Spartanburg	North Spartanburg Fire Station	0.064*									
083-0011	Spartanburg	T.K. Gregg		8.1	18							
091-0008	York	York County Landfill	0.062*				2					
*denotes design values that did not meet data completeness requirements												

2022 Criteria Pollutant Design Values

This section presents the 2022 certified design values for the South Carolina criteria pollutant monitoring network.

Site ID	County	Site Name	Ozone (ppm)	PM _{2.5} Annual (µg/m ³)	PM _{2.5} 24-hour (µg/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 (µg/m ³)
003-0003	Aiken	Jackson Middle School	0.058									
007-0006	Greenville	Garrison Arena	0.058									
015-1002	Berkeley	Moncks Corner	0.057									
019-0003	Charleston	Jenkins Avenue				0*	12	31*	6.33			
019-0046	Charleston	Cape Romain	0.057*	7.2*	15*			11*	1.30			
019-0048	Charleston	FAA		7.2	17							
019-0020	Charleston	North Charleston Fire Station		8.5*	18*							
025-0001	Chesterfield	Chesterfield	0.059	6.7	14							
031-0003	Darlington	Pee Dee	0.057									

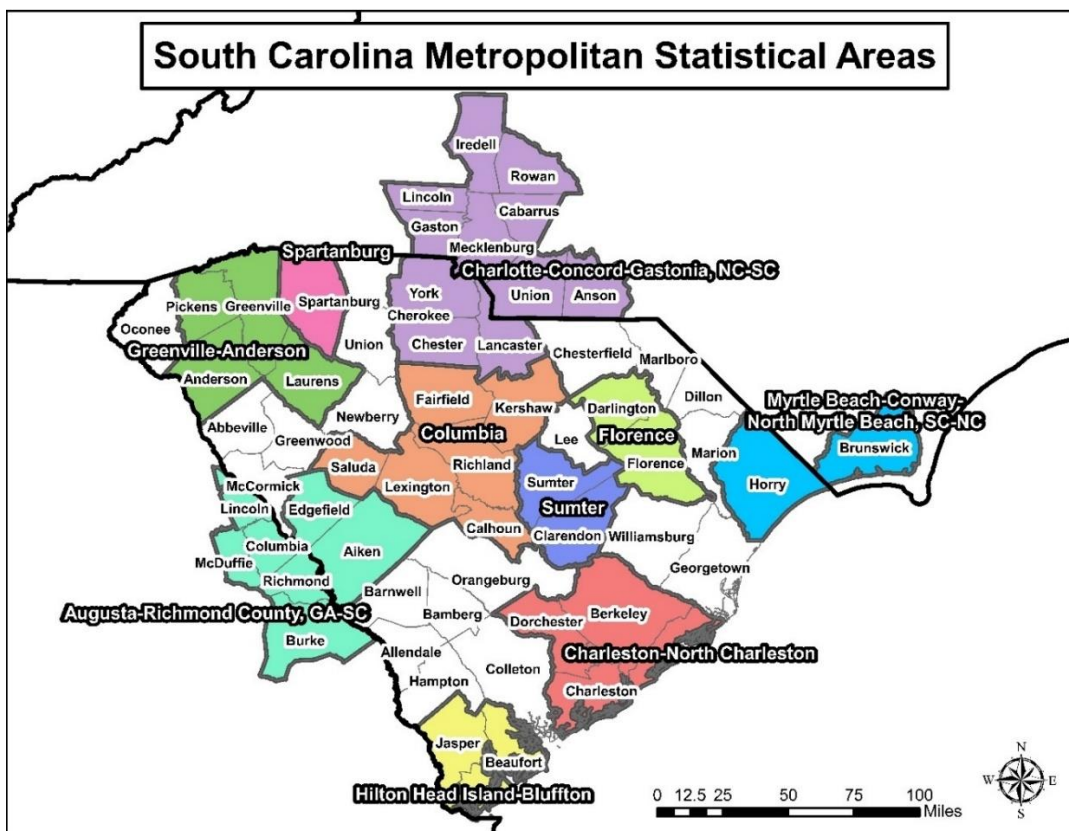
Site ID	County	Site Name	Ozone (ppm)	PM _{2.5} Annual (µg/m ³)	PM _{2.5} 24-hour (µg/m ³)	PM ₁₀ (# Expected Exceedances)	SO ₂ 1-hour (ppb)	NO ₂ 1-hour (ppb)	NO ₂ Annual (ppb)	CO 8-hour (ppm)	CO 1-hour (ppm)	Lead (µg/m ³)
037-0001	Edgefield	Trenton	0.058	7.6	17		2*					
041-0003	Florence	Williams Middle School		7.5	15							
041-8003	Florence	JCI Woods										0.15*
045-0015	Greenville	Greenville ESC		8.2	20	0	2	37	6.84			
045-0016	Greenville	Hillcrest Middle School	0.064	7.4	17							
051-0008	Horry	Coastal Carolina	0.058									
063-0008	Lexington	Irmo		7.9	19							
063-0010	Lexington	Cayce City Hall				0*						
079-0007	Richland	Parklane	0.058	7	15		2			0.6	1.057	
079-0021	Richland	Congaree Bluff	0.055									
079-1001	Richland	Sandhill	0.061					28*	3.50			

Site ID	County	Site Name	Ozone (ppm)	PM _{2.5} Annual (µg/m ³)	PM _{2.5} 24-hour (µg/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 (µg/m ³)
083-0009	Spartanburg	North Spartanburg Fire Station	0.063									
083-0011	Spartanburg	T.K. Gregg		8.1	19							
091-0008	York	York County Landfill	0.059				2					
*denotes design values that did not meet data completeness requirements												

Required Monitoring Summary

The EPA regulation 40 CFR Part 58 requires that each state maintain a minimum number of monitors to properly characterize air quality and to meet any required objectives of the monitoring network³. In general, these minimum requirements are based on the MSA population and current ambient air monitoring design values. The following sections summarize the minimum monitoring required by 40 CFR Part 58, Appendix D for each of the criteria pollutants (ozone, particulate matter (PM_{2.5} and PM₁₀), lead, SO₂, NO₂, and CO), the CBSAs, and the MSA population.

Population and the Minimum Monitoring Requirements Summary - The minimum monitoring criteria only applies to MSAs.



South Carolina shares one MSA with Georgia and two MSAs with North Carolina. South Carolina has established a memorandum of agreement (MOA) with the Georgia Department of Natural Resources, Environmental Protection Division⁴,

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

⁴ 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 DHEC Bureau of Air Quality and the Georgia Environmental Protection Division-Air Protection Branch.

North Carolina Department of Environmental and Natural Resources Division of Air Quality, and Mecklenburg County, North Carolina^{5,6} which specifies the responsibilities of each party to develop a monitoring network that meets the appropriate monitoring objectives for the shared MSAs.

The table below represents the 2022* population estimates for each MSA in South Carolina and the total population of MSAs shared with North Carolina and Georgia.

MSA	2022 Population
Charlotte-Concord-Gastonia, NC-SC MSA	2,756,069
Greenville-Anderson MSA	958,958
Columbia MSA	847,686
Charleston-North Charleston MSA	830,529
Augusta-Richmond County, GA-SC MSA	624,083
Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA	536,165
Spartanburg MSA	345,831
Hilton Head Island-Bluffton MSA	228,410
Florence MSA	199,119
Sumter MSA	134,925
*United States Census Bureau and CFR 40 Part 58, Appendix D	

⁵ The Memorandum of Agreement on Air Quality Monitoring for Criteria Pollutants for the Myrtle Beach-Conway-North Myrtle Beach, SC-NC Metropolitan Statistical Area (MSA) was signed on July 1, 2015, by the South Carolina DHEC Bureau of Air Quality and the North Carolina Department of Environmental and Natural Resources-Division of Air Quality.

⁶ 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 DHEC 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.

South Carolina Minimum Monitoring Requirements – Federal minimum monitoring requirements are based on the latest available United States Census population estimates* and the 2022 ambient air quality design values (page 18).

Based on this information, the minimum monitoring requirements for each MSA are:

MSA	Ozone	PM_{2.5}	PM_{2.5} Cont.	PM₁₀	Lead	SO₂	NO/NO_y/NO₂	CO
**Augusta-Richmond County, GA-SC MSA	2	2	1	1-2	0	0	0	0
Charleston-North Charleston MSA	1	1	1	1-2	0	1	0	0
Charlotte-Concord-Gastonia, NC-SC MSA	2	2	1	2-4	0	1	4*	2
Columbia MSA (NCore)	2	1	1	1-2	0	1	1	1
Florence MSA	0	0	0	0	0	0	0	0
Greenville-Anderson MSA	2	1	1	1-2	0	0	1	0
Hilton Head Island-Bluffton MSA	0	0	0	0	0	0	0	0
Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA	1	1	1	1-2	0	0	0	0
Spartanburg MSA	1	0	0	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.

***Charlotte MSA is required to have two near-road monitors, one area-wide monitor and an NO_y at the NCore site.

Monitoring Network Descriptions

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

Carbon Monoxide (CO) Network

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 NO₂ 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.

Analytical Methods – Continuous monitoring for CO is performed using the FRM non-dispersive infrared correlation method. Data is stored locally on redundant data acquisition systems and recovered hourly by the DAQA central office computer system (AirVision).

Calibration of the instrument, bi-weekly QC checks and annual performance audits are done using the EPA protocol gas mixtures containing a certified concentration of CO in air. The gas is diluted to provide known concentrations of CO. Known concentrations are supplied to the instrument, which is adjusted so the instrument output corresponds with the specific concentrations.

Lead Network

Minimum Requirements –

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.

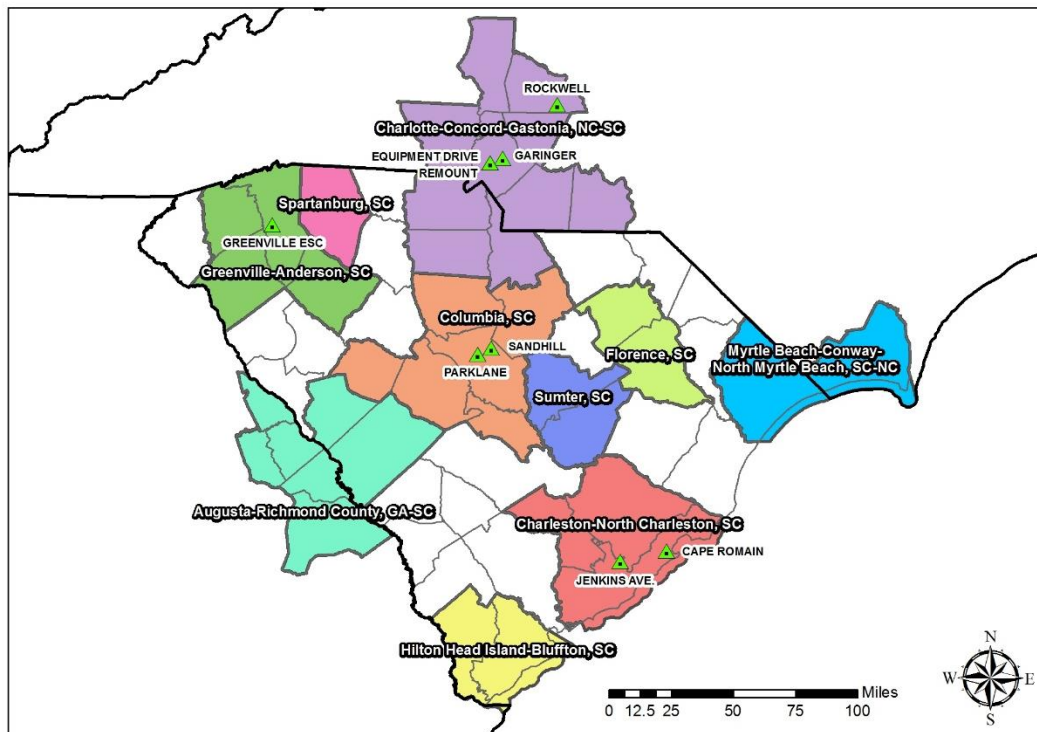
On May 7, 2010, the Department issued an air synthetic minor construction permit to Johnson Controls Battery Group for the Florence Recycling Center (Permit No. 1040-0129-CA). The company has since changed its name to Clarios, LLC. Under a settlement agreement⁷ with several petitioners, the Florence Recycling Center supports source-oriented ambient lead monitoring being conducted by the Department at several sites around the facility. Additional details of the monitoring of this facility can be found in the Florence MSA section of this Monitoring Plan under the Site name “Johnson Controls.” Clarios has 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 JCI Woods Monitoring Site.

Analytical Methods – 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).

⁷https://www.scdhec.gov/sites/default/files/docs/HomeAndEnvironment/Docs/JCI/JCI-Settlement%20Agreement_07142010.pdf

Nitrogen Dioxide Network

South Carolina NO₂ Network



Minimum Requirements - The NO₂ minimum monitoring criteria has four requirements:

- 1) Near-road NO₂ Monitors - Each state must have one microscale near-road NO₂ monitoring site in each CBSA with a population of at least 1,000,000 or more persons. An additional near-road NO₂ 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 (37-119-0050) Monitoring Site, which is also located in Charlotte, North Carolina.
- 2) Requirements for Area-Wide NO₂ 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 NO₂ concentrations

representing the neighborhood or larger spatial scales. The Garinger High School Monitoring Site in Charlotte, North Carolina also operates an area wide NO₂ monitor.

- 3) Regional Administrator Required Monitoring – The Regional Administrators, in collaboration with states, require a minimum of forty additional NO₂ 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.
- 3) 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 NO₂ 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.

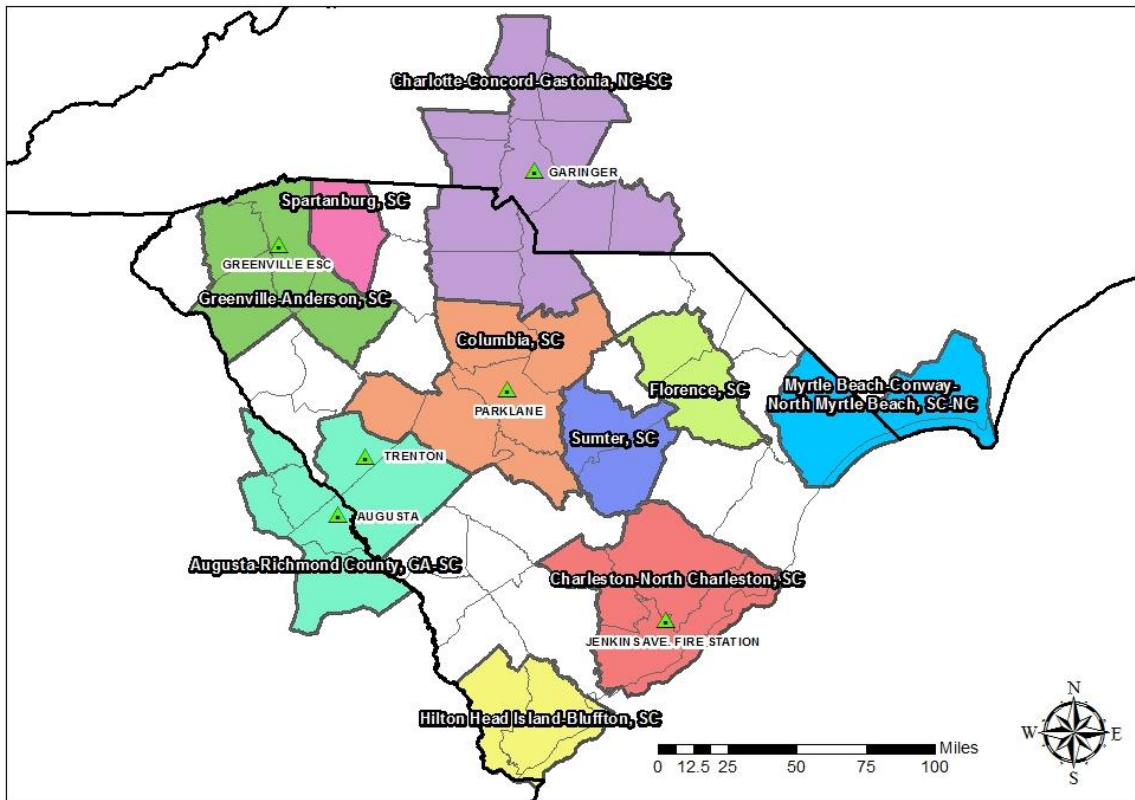
Analytical Methods –

Nitrogen Dioxide (NO₂) – The FRM UV chemiluminescence method is used for measurement of NO₂ concentration in the ambient air. 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).

Calibration of the instrument, bi-weekly QC checks, and annual performance audits are done using the EPA protocol gas mixtures containing a certified concentration of Nitric Oxide (NO) and Nitrogen Oxides (NO_x) in nitrogen. The gas is diluted to present several known concentrations of the oxides. A converter is used to convert NO₂ to NO for reaction with internally generated ozone and measurement of the light produced by the reaction of NO and ozone. Known concentrations are supplied to the instrument, which is adjusted so the instrument output corresponds with the supplied concentrations.

Sulfur Dioxide Network

South Carolina SO₂ Network



Minimum Requirements – The SO₂ minimum monitoring criteria has three requirements:

- 1) Requirement for 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 SO₂ 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 SO₂ 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 SO₂ 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 SO₂ monitor is required.

The following table presents each CBSA's 2022 population, 2017 SO₂ emissions, calculated index, and minimum monitoring requirements. The process for calculating the index can be found at the bottom of the table.

CBSA	2022 CBSA Population	2017 CBSA SO₂ Emissions (Tons)	PWEI	SO₂ Minimum Monitors Required
*Charlotte-Concord-Gastonia, NC-SC	2,756,069	5,358	14767	1
Greenville-Anderson, SC	958,958	720	690	0
Columbia, SC	847,686	3,679	3119	0
Charleston-North Charleston, SC	830,529	8,128	6751	1
*Augusta-Richmond County, GA-SC	624,083	2,058	1284	0
*Myrtle Beach-Conway-North Myrtle Beach, SC-NC	536,165	3,915	2099	0
Spartanburg, SC	345,831	253	87	0
Hilton Head Island-Bluffton, SC	228,410	363	83	0
Florence, SC	199,119	1,855	369	0
Sumter, SC	134,925	225	30	0

The PWEI is calculated using US Census population data and state emission inventory data at the CBSA level. The population for each CBSA (based on the most recent US Census or Census estimate) is multiplied by the CBSA total SO₂ emissions (reported in tons using the latest National Emissions Inventory data). This product is divided by 1,000,000 to derive the index. 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 SO₂ monitor. The Department also operates an additional SLAMS monitor in the Greenville ESC Monitoring Site located in the Greenville-Anderson MSA.

- 2) Regional Administrator Required Monitoring – The Regional Administrator may require additional SO₂ monitoring sites above the minimum number of monitors required by the PWEI in areas that have the potential to have high SO₂ 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 SO₂ Regional Administrator Required Monitoring.
- 3) NCore Requirement – Each NCore site must include a SO₂ 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 SO₂ monitor.

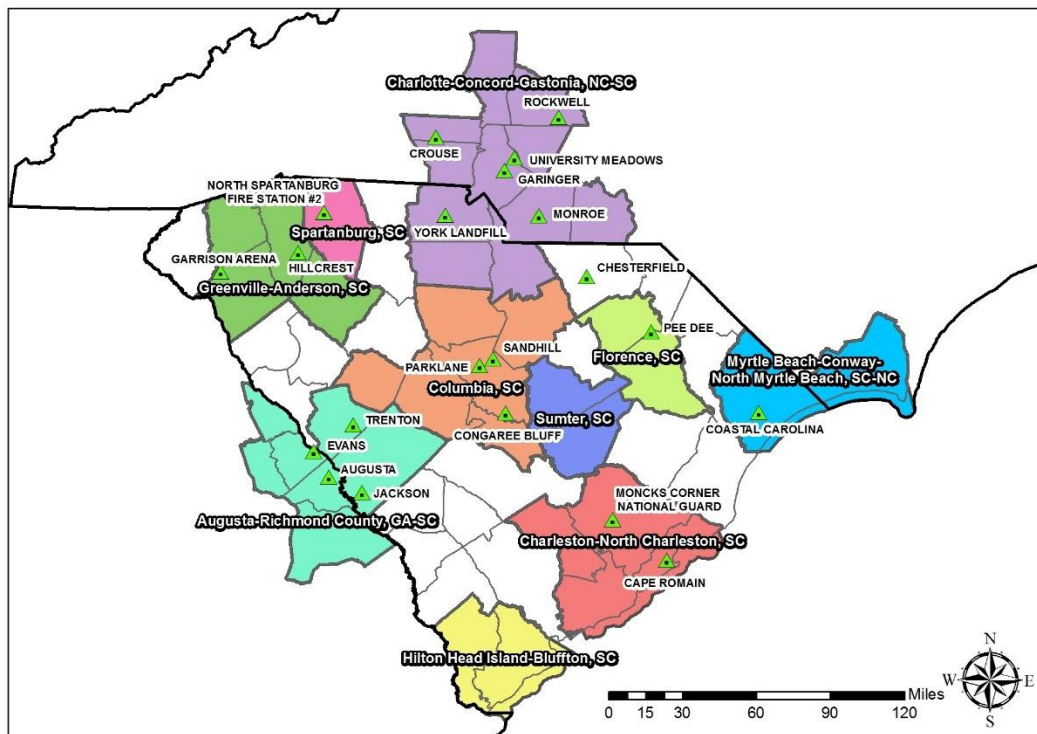
The Department also operates two additional SPM SO₂ monitors at the Trenton Monitoring Site and the York Landfill Monitoring Site. On a rotational basis, two consecutive years of data is collected every four years at each site. The Trenton Monitoring Site is scheduled to operate an SO₂ monitor in 2022 and 2023.

Analytical Methods – Instruments used to continuously monitor SO₂ concentrations in the atmosphere use the Ultraviolet (UV) Fluorescence Federal Equivalent Method. The continuous data output from the instrument is stored locally on redundant data acquisition systems and recovered hourly by central office computer system (AirVision).

Calibration of these instruments, bi-weekly QC checks and annual performance audits are done using the EPA protocol gas mixtures containing a certified concentration of SO₂ in nitrogen. This gas is diluted to provide known concentrations of SO₂. These known concentrations are supplied to the instrument, which is adjusted so the instrument output corresponds with the specific concentrations.

Ozone Network

South Carolina Ozone Network



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. Three additional SLAMS monitors for the CBSA are located in North Carolina and are operated by the North Carolina Department of Air Quality and Mecklenburg County Air Quality. Sites in North Carolina that have ozone monitors include 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, SC MSA – Two required monitors

The two required SLAMS monitors are located at the Garrison Arena and Hillcrest Monitoring Sites.

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

Myrtle Beach-North Myrtle Beach-Conway, SC-NC MSA – One required monitor

The one required SLAMS monitor is located at the Coastal Carolina Monitoring Site. The Department and the State of North Carolina have started the process of finding an appropriate Site for a second ozone monitor in the MSA, should it be required in accordance with Appendix D of 40 CFR Part 58.

Spartanburg, SC MSA – One required monitor

The one required monitor is located at the North Spartanburg Fire Station Monitoring Site.

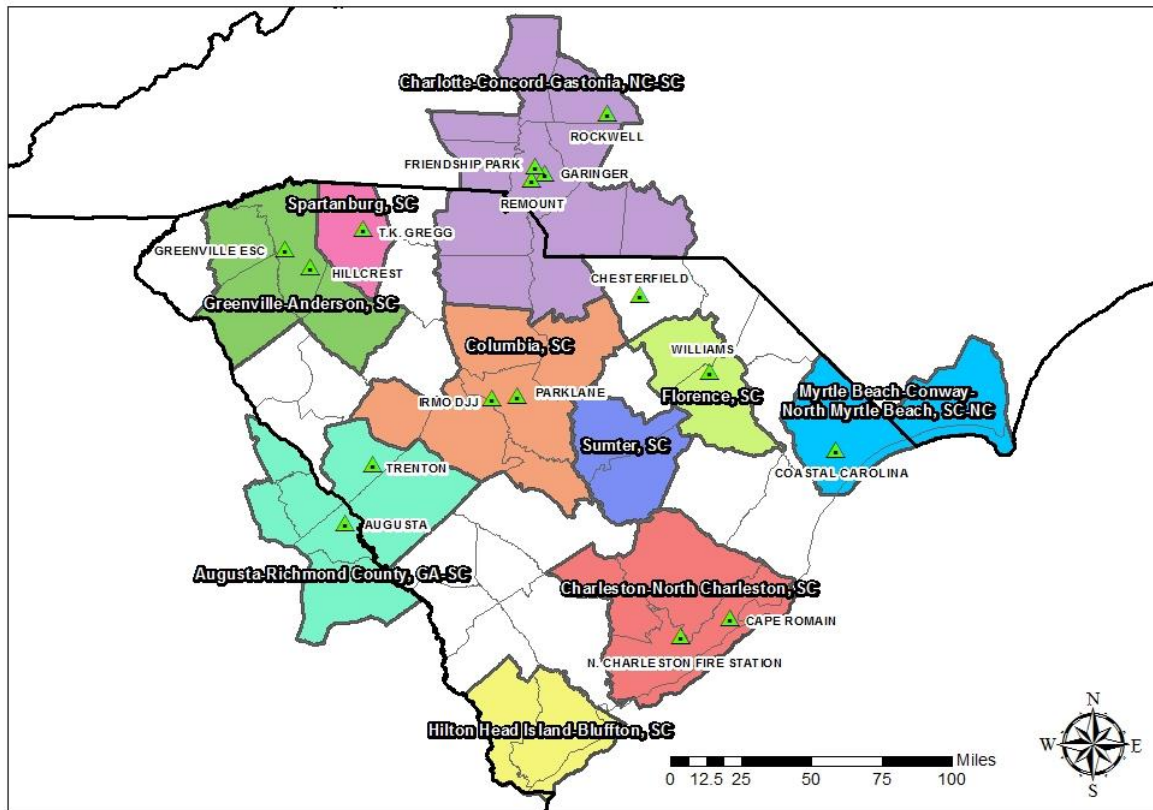
Sumter, SC MSA – No required monitors

Analytical Methods- Ozone is monitored using the FEM UV photometry method. 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). Monitors are routinely calibrated, and their performance audited using portable ozone transfer standards.

PM_{2.5} Network

South Carolina PM_{2.5} Network



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% 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 FEM primary method with method code 236 and one FRM primary method with method code 145. Based on the number of monitors operated by the Department, each 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 236 at the Chesterfield Monitoring Site.

In addition, primary FRM monitors designated for collocation must be collocated with another FRM, and for primary FEM monitors designated for collocation 50% must be collocated with an FRM and 50% 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 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 NO₂ 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 monitors and one continuous SPM FEM monitor. The Cape Romain Monitoring Site 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 monitors and one continuous SLAMS FEM monitor. The Irmo DJJ Monitoring Site operates one SLAMS FRM and one continuous SPM FEM.

Florence, SC MSA – No required monitors

Although no monitors are required, there is one SLAMS FRM and one continuous SPM FEM monitor located at the Williams Monitoring Site.

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

There are three SLAMS monitors and one SPM in this CBSA. Two SLAMS FRM monitors 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, SC MSA – No required monitors

Myrtle Beach-North Myrtle Beach-Conway, SC-NC MSA – Required: one SLAMS monitor, one continuous monitor

The Coastal Carolina Monitoring Site has the one required SLAMS monitor. It is a continuous FEM.

Spartanburg, SC MSA – No required monitors

Although no monitors are required, there is one SLAMS FRM and one continuous SPM FEM located at the T.K. Gregg Monitoring Site.

Sumter, SC MSA – No required monitors

Chesterfield County (not in an MSA) – No required monitors

Although no monitors are required, there are two SLAMS monitors operated at the Chesterfield Monitoring Site, one FRM and one continuous FEM.

Analytical Methods – The network consists of both PM_{2.5} monitors and PM_{2.5} samplers. The analysis 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. Manual samplers are operated consistent with the requirements in 40 CFR Part 50, Appendix L. Samples are collected on 46.2-millimeter polytetrafluoroethylene (PTFE) filters over a 24-hour sampling period. Air flow through the filter is maintained at 16.7 liters per minute at local ambient temperature and pressure. The flow rate must be maintained within ±5 percent throughout the sample period. Sample filters are collected within 177 hours of the end of the sample run and are kept cooled during transit to the laboratory to minimize potential sample loss. Samples are analyzed in the laboratory.

The PTFE filters are equilibrated in the laboratory before each weighing for a minimum of 24 hours at a mean temperature between 20°C and 23°C and 30 to 40 percent mean relative humidity. Filters are weighed before and after the sample period. Filters are used within thirty days of initial weighing. Collected samples are typically weighed within two weeks of sampling. If the samples are received below the average ambient temperature during the sampling event, they can be held for up to thirty days from the end of the sampling period. The mass collected and the volume sampled are used to calculate the concentration, expressed in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

- 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. During sampling, the sampling head draws a representative sample of ambient aerosol at a flow rate of 5 liters per minute for the regular T640, or 16.7 liters per minute for the T640x. The aspirated particles in the 5.0 liters per minute sample flow are then dried (i.e., brought below 35% RH) with the Aerosol Sample Conditioner (ASC) and moved into the optical particle sensor. Optical measurements are converted to mass measurements by determining sampled particle size via scattered light at the

single particle level. 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.

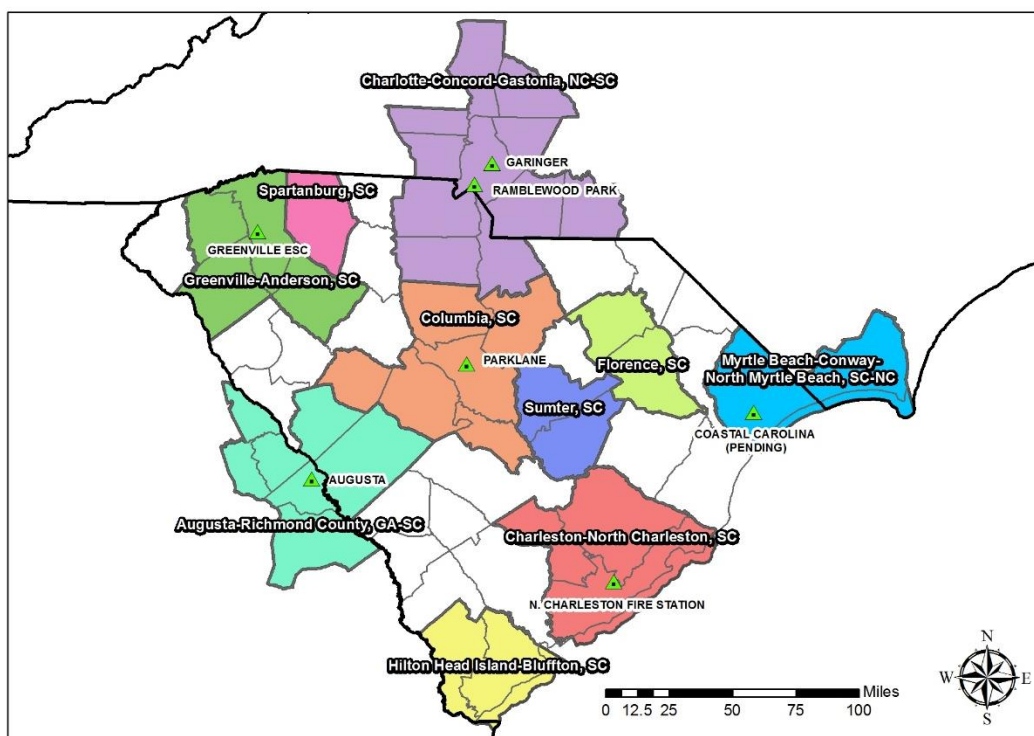
- 7) PM_{2.5} Speciation Monitoring – Chemical speciation monitoring is required at all NCore sites and is conducted at the Parklane Monitoring Site. It is funded as part of the PM_{2.5} STN. There is also PM_{2.5} speciation monitoring at the Garinger Monitoring Site in Mecklenburg County for the Charlotte-Concord-Gastonia, 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 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.

PM₁₀ Network

South Carolina PM₁₀ Network



The PM₁₀ minimum monitoring criteria has one requirement that is based on the CBSA population, the number of exceedances of the NAAQS, and the percentage of PM₁₀ concentrations over or under the NAAQS. Unlike other criteria pollutants, the minimum monitoring requirement for PM₁₀ is given as a range of required monitoring sites for a CBSA, depending on the level of PM₁₀ pollution.

The required number of SLAMS monitors in each CBSA, as well as the sites they are located, 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, SC MSA – 1-2 required monitors

One SLAMS monitor is located at the Greenville ESC Monitoring Site.

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

Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA – 1-2 required monitors

One SLAMS monitor will be located at the Coastal Carolina Monitoring Site by the end of 2023.

Spartanburg, SC MSA – 0-1 required monitors

Sumter, SC MSA – No required monitors

Analytical Methods – The network consists of both PM₁₀ monitors and PM₁₀ samplers. The analysis for each one is described below.

- a. PM₁₀ 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 PM₁₀ 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 PM₁₀ monitors provide continuous concentration measurements every day. All PM₁₀ monitors operated by the Department for comparison to the NAAQS are designated FEM monitors. During sampling, the sampling head draws a representative sample of ambient aerosol at a flow rate of 16.7 liters per minute. The flow is split with 5.0 liters per minute going directly to the monitor and 11.7 liters per minute discarded as bypass flow. The aspirated particles in the 5.0 liters per minute sample flow are then dried (i.e., brought below 35% RH) with the Aerosol Sample Conditioner (ASC) and moved into the optical particle sensor. Optical measurements are converted to mass measurements by determining sampled particle size via scattered light at the single particle level. 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. Locations where different categories of air toxics are monitored are listed below.

Volatile Organic Compounds – Chesterfield Monitoring Site

Semi-Volatile Organic Compounds – Chesterfield Monitoring Site

Carbonyls – Chesterfield Monitoring Site

Metals – 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 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. 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. Solvent extraction of the DNPH derivatives from the cartridge is followed by analysis using High Performance Liquid Chromatography to identify and quantitate the collected Carbonyls. 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 PM₁₀ High Volume samplers. Metals are extracted from a portion of the filter using sonication 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 (45-019-0046) and Parklane (45-079-0007) Monitoring Sites. Precipitation monitoring, including precipitation chemistry, is conducted at the Parklane (45-079-0007) Monitoring Site.

- a) *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.

- b) 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.
- c) 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).⁸
- 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.

⁸ The US Census Bureau periodically adjusts CSA and MSA names and boundaries. This plan uses the latest available revision (March 2020).

- 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.
- 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 stations 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.

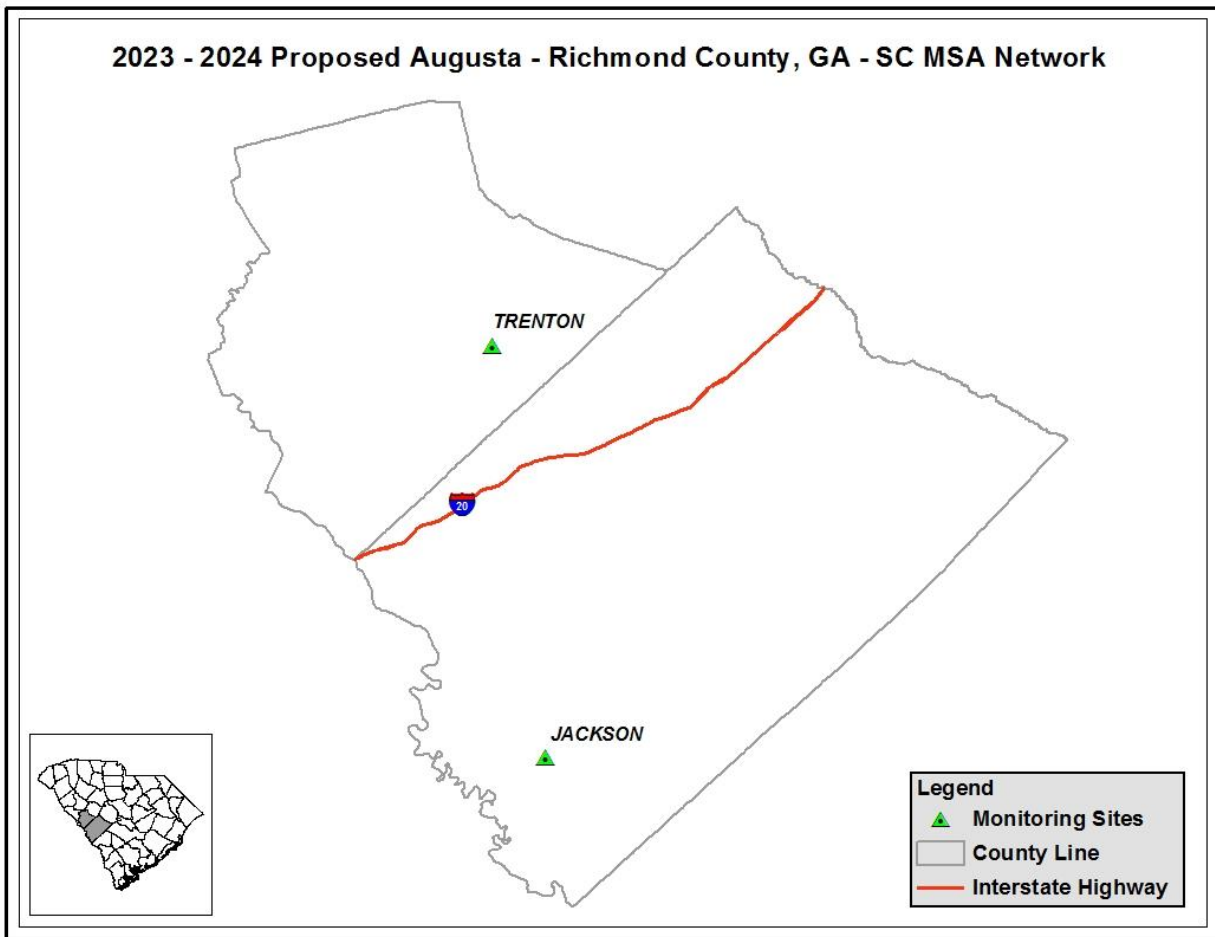
The SLAMS and SPM data may be used in the reporting of an area's AQI. The AQI is a method of reporting that converts concentration levels of pollution to a simple number scale of 0-500. Index reporting is required for all urban areas with a population exceeding 350,000. Intervals on the AQI scale are 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 15 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	1	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: April 25, 2023

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 to monitor ozone concentrations upwind of the Augusta urbanized area. The sample inlet is 128 meters from the nearest road.

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

Changes for 2023-2024:

There are no changes planned for 2023-2024.

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: April 25, 2023

The Trenton Monitoring Site is located in southeastern Edgefield County. This Site was originally established to monitor for ozone crossing into South Carolina from Georgia. The Trenton Monitoring Site monitors for ozone, SO₂ and PM_{2.5}. The PM_{2.5} monitors are the required FRM PM_{2.5} sampler and continuous PM_{2.5}. SO₂ monitoring will run in 2022 and 2023. The sample inlets are 30.3 meters from the nearest road.

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

Changes for 2023-2024:

SO₂ monitoring is scheduled to run in 2022 and 2023. There are no other changes planned for 2023-2024.

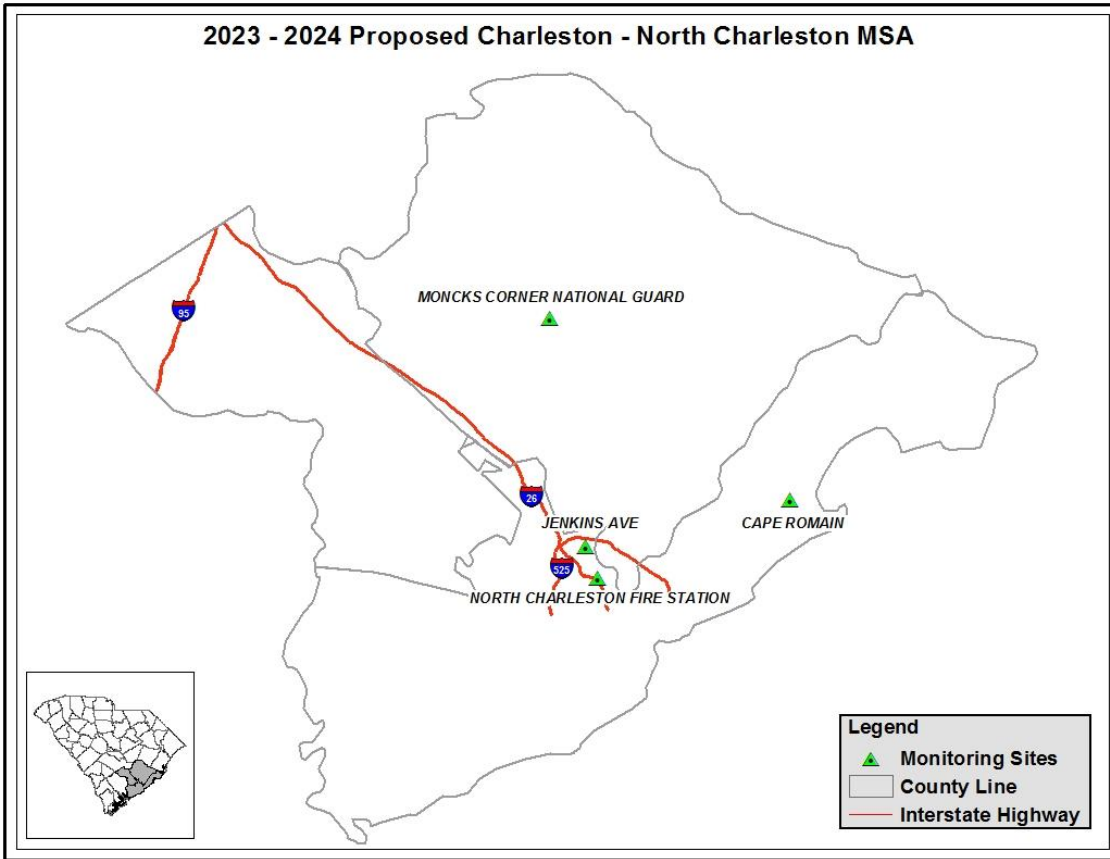
Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
PM _{2.5} 88101-1	Urban	Extreme Downwind	SLAMS	5.05	FRM Gravimetric w/ VSCC (145)*	1:3
PM _{2.5} 88101-3	Urban	Extreme Downwind	SLAMS	4.26	FEM Broadband Spectroscopy (236)	Continuous
Ozone 44201-1	Urban	Maximum Ozone Concentration	SLAMS	4.1	Ultraviolet Absorption (087)	Continuous

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
		/ Extreme Downwind				
SO ₂ 42401-1	Urban	Upwind Background	SPM	4.1	Pulsed Fluorescent (560)	Continuous

* Indicates the Primary Monitoring Method for PM_{2.5}

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	2	1

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 9, 2023

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. This Site monitors for ozone with a monitoring objective of maximum ozone concentration. The sample inlet is 177 meters from the nearest road.

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

Changes for 2023-2024:

There are no changes planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
Ozone 44201-1	Urban	Max Ozone Concentration	SLAMS	4.43	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 9, 2023

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 monitors for SO₂, and NO₂. The sample inlets are 33.5 meters from the nearest road.

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

Changes for 2023-2024:

The required SLAMS PM₁₀ monitoring at the Jenkins Ave. Fire Station Monitoring Site was discontinued on February 2, 2023, and relocated to the North Charleston Fire Station Monitoring Site. This change was approved by EPA on February 22, 2023. There are no other changes planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
Sulfur Dioxide 42401-1	Neighbor-hood	Population Exposure	SLAMS	4.63	Pulsed Fluorescent (560)	Continuous
Nitrogen Dioxide 42602-2	Neighbor-hood	Highest Concentration Source Oriented	SPM	4.63	Chemiluminescence (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: February 25, 2023

The North Charleston Fire Station (NCFS) Monitoring Site is 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. This serves as a replacement for the FAA Beacon and the CPW Monitoring Sites. This Site supports collocated PM_{2.5} intermittent samplers, a continuous PM_{2.5} monitor, and a continuous PM₁₀ monitor. The sampler began monitoring PM_{2.5} on November 8, 2021, and the continuous monitor began monitoring PM_{2.5} on November 9, 2021. The collocated PM_{2.5} sampler began monitoring PM_{2.5} on November 30, 2021. The PM₁₀ continuous monitor began on February 2, 2023.

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

Changes for 2023-2024:

On February 2, 2023, the continuous PM_{2.5} monitor was replaced with a Teledyne T640X, which also monitors for PM₁₀. This serves as a replacement for the required PM₁₀ SLAMS monitoring at the Jenkins Ave. Fire Station Monitoring Site which was approved by EPA on February 22, 2023. 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 PM_{2.5} T640X monitor at this site will be designated SPM. There are no other changes planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
PM _{2.5} 88101-3	Neighborhood	Highest Concentration Population Exposure	SPM	2.83	FEM Broadband Spectroscopy (238)	Continuous
PM _{2.5} 88101-1	Neighborhood	Highest Concentration Population Exposure	SLAMS	2.31	FRM Gravimetric w/ VSCC (145)*	1:1
PM _{2.5} 88101-2	Neighborhood	Highest Concentration Population Exposure	QA Collocated SLAMS	2.31	FRM Gravimetric w/ VSCC (145)	1:6
PM ₁₀ 85101-3	Neighborhood	Highest Concentration Population Exposure	SLAMS	2.83	FEM Broadband Spectroscopy (239)	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 14, 2023

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 continuous monitors for ozone, NO₂, PM_{2.5}, and meteorological parameters. The sample inlets are 86 meters from the nearest road. This Site fulfills a monitoring requirement for regional background for PM_{2.5}.

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

Changes for 2023-2024:

The SO₂ monitoring was discontinued on February 1, 2022, and the Site will no longer operate on a two-year rotation for SO₂ monitoring. Precipitation monitoring has been discontinued. There are no other changes planned for 2023-2024.

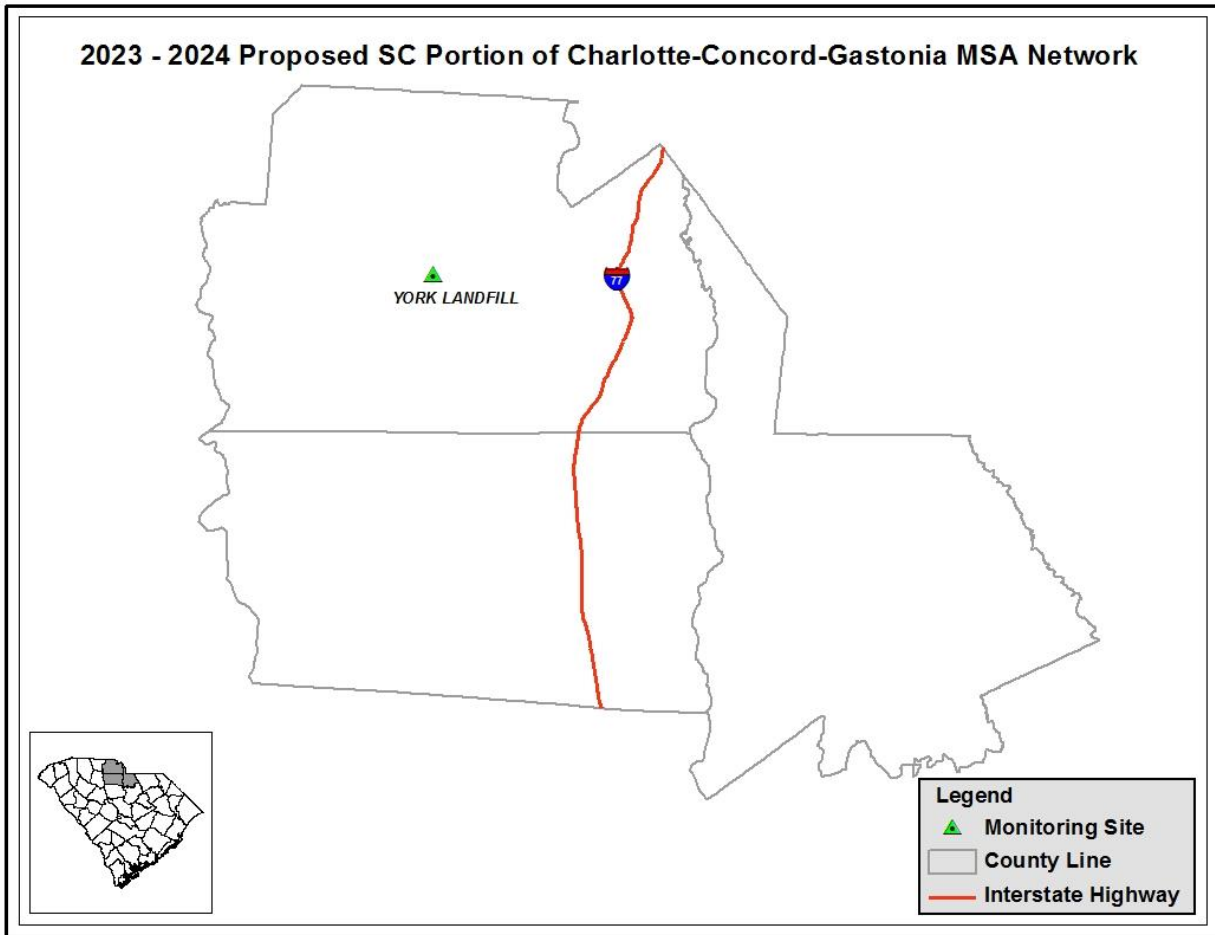
Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
PM _{2.5} 88101-3	Regional	General / Background	SLAMS	4.83	FEM Broadband Spectroscopy (236)*	Continuous

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
Ozone 44201-1	Regional	General / Background	SLAMS	4.20	Ultraviolet Absorption (087)	Continuous
Nitrogen Dioxide 42602-1	Regional	General / Background	SPM	4.20	Chemiluminescence (599)	Continuous
Wind Speed and Wind Direction	Neighborhood	Local Conditions	SLAMS	N/A	Instruments for wind speed and direction (020)	Continuous

* Indicates the Primary Monitoring Method for PM_{2.5}

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	0	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 4, 2023

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 background levels near the Charlotte urban area. The York Landfill Monitoring Site currently operates monitors for ozone. This Site has also been designated as a rotational site for SO₂. The SO₂ monitor operated from January 1, 2020 through January 13, 2023, and will resume in 2024. The sample inlets are 34.8 meters from the nearest road.

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

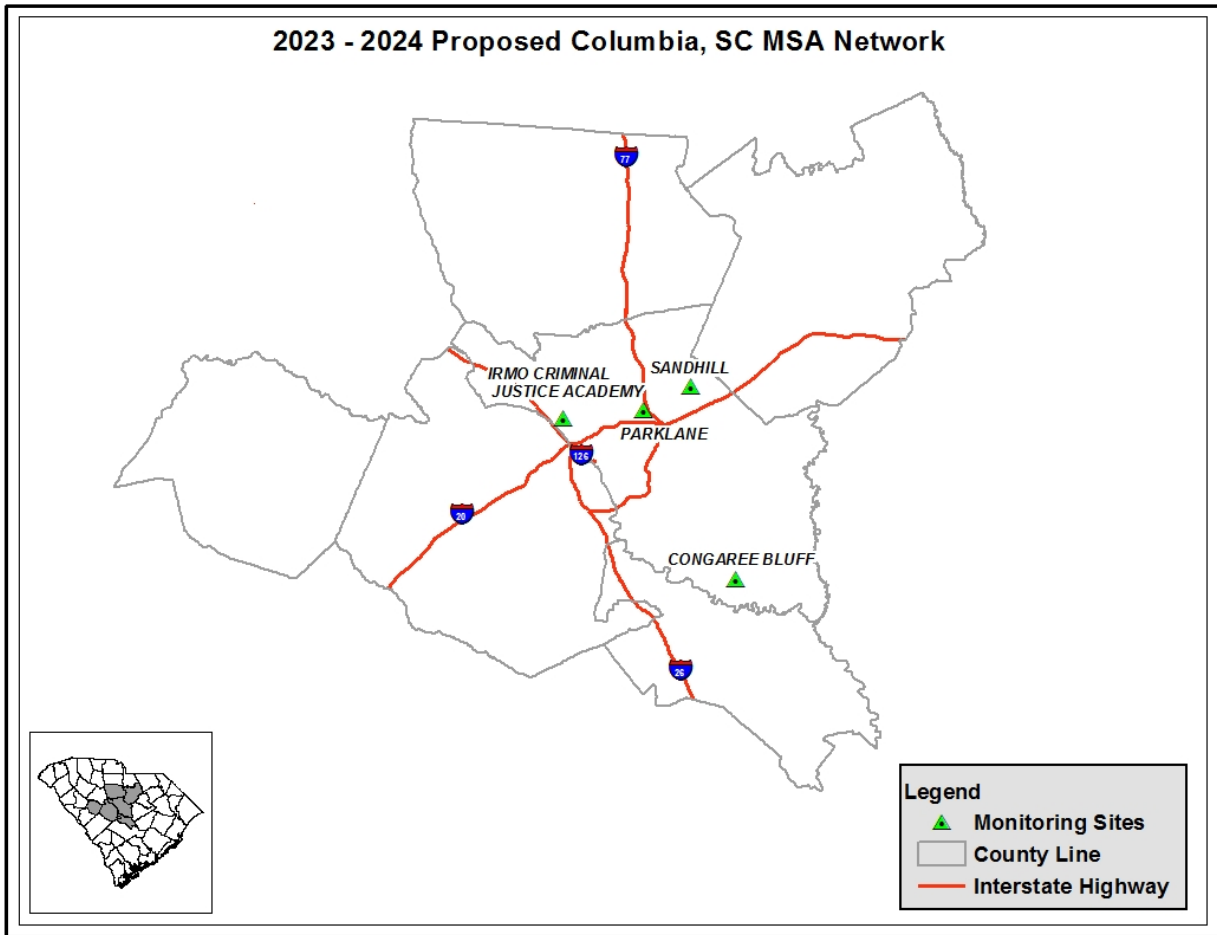
Changes for 2023-2024:

SO₂ monitoring ended on January 13, 2023, and will resume in 2024. There are no other changes planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
Ozone 44201-1	Urban	Upwind Background	SLAMS	4.55	Ultraviolet Absorption (087)	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 Department of Juvenile Justice (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 25, 2023

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. It has now been expanded to support the full complement of NCORE parameters. The suite of samplers measures collocated FRM PM_{2.5}, Low Volume PM₁₀, speciated PM_{2.5}, precipitation chemistry, and precipitation. The suite of continuous monitors measure PM_{2.5}, PM₁₀, ozone, SO₂, CO, and NO/NO_y. This Site also provides support for demonstration, training, and equipment evaluation convenient to the Department's Air Analysis offices. The sample inlets are 41.6 meters from the nearest road.

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

Changes for 2023-2024:

SVOC monitoring was discontinued at the Parklane Monitoring Site on January 30, 2023. Approval for the discontinuation and relocation of PM₁₀ monitoring from the Cayce City Hall Monitoring Site to the Parklane Monitoring site was approved by EPA on February 22, 2023. The continuous PM_{2.5} monitor located at Parklane was replaced with a Teledyne T640x, which also monitors for PM₁₀. The PM₁₀ monitoring began on May 30, 2023. 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, an additional PM_{2.5} T640X monitor at this site will be used for testing and designated SPM with a NAAQS exclusion. There are no other changes planned for 2023-2024.

Monitors:

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

Parameter *Required	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
PM_{2.5} 88101-1	Neighbor -hood	NCore Population Exposure	SLAMS	4.69	FRM Gravimetric w/ VSCC (145)*	1:3
PM _{2.5} 88101-2	Neighbor -hood	Population Exposure	Collocated SLAMS	4.69	FRM Gravimetric w/ VSCC (145)	1:3
PM_{2.5} 88101-3	Neighbor -hood	NCore Population Exposure	SLAMS	4.65	FEM Broadband Spectroscopy (238)	Continuous
Speciated PM_{2.5}	Neighbor -hood	NCore Population Exposure	SLAMS	2.43	CSN Protocol (811,812,82 6,838,839,84 1, 842)	1:3
Low Volume PM ₁₀ 85101-1	Urban	Population Exposure	SPM	4.69	Gravimetric (127)	1:3
PM ₁₀ 81102-1	Neighbor -hood	Population Exposure	SLAMS	4.65	FEM Broadband Spectroscopy (239)	Continuous
PM_{10-2.5} 86101-1	Neighbor -hood	NCore Population Exposure	SLAMS	4.65	FEM Broadband Spectroscopy (240)	Continuous

Parameter *Required	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
Ozone 44201-1	Urban	NCore Max Ozone Concentration	SLAMS	4.21	Ultraviolet Absorption (087)	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	9.6	Chemilumi- nesence (674)	Continuous
Carbon Monoxide 42101-1	Neighbor- hood	NCore Population Exposure	SLAMS	4.21	Gas filter Correlation (593)	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 8, 2023

The Congaree Bluff Monitoring Site is located in southern Richland County which is located 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. Monitoring for ozone at this Site is only intended to represent conditions found in the National Park. The sample inlet is 187.5 meters from the nearest road. The SPM SO₂ monitoring was discontinued on January 15, 2020, and the Site will no longer operate on a two-year rotational schedule for SO₂ monitoring.

This Site has a waiver from the EPA dated March 24, 2021, for 40 CFR Part 58 Appendix E Section 5-Spacing from Trees. This Site does not have at least 270° of open airflow around the probe. Except for the tree obstructions, this Site meets all other 40 CFR Part 58 Appendix E siting criteria.

Changes for 2023-2024:

There are no changes planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
Ozone 44201-1	Neighborhood	General / Background	SPM	4.54	Ultraviolet (047)	Continuous

Irmo Department of Juvenile Justice (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: April 28, 2023

The Department was granted approval on October 26, 2021, for this monitoring Site to serve as the replacement for the Irmo Monitoring. The Irmo DJJ Monitoring Site was established on January 20, 2023, and operates a PM_{2.5} sampler and a PM_{2.5} continuous monitor. The sample inlets are 33.0 meters from the nearest road. This Site meets all the 40 CFR Part 58, Appendix E siting criteria.

Changes for 2023-2024:

This site was established on January 20, 2023. PM_{2.5} monitoring began on January 20, 2023. 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, an additional PM_{2.5} T640 monitor at this site will be used for testing and designated SPM with a NAAQS exclusion. No further changes are planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
PM _{2.5} 88101-1	Neighbor- hood	Population Exposure	SLAMS	2.05	FRM Gravimetric w/ VSCC (145)*	1:1
PM _{2.5} 88101-3	Neighbor- hood	Population Exposure	SPM	2.06	FEM Broadband Spectroscopy (236)	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 8, 2023

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 contains ozone and NO₂ monitors. The sample inlets are 31.1 meters from the nearest road.

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

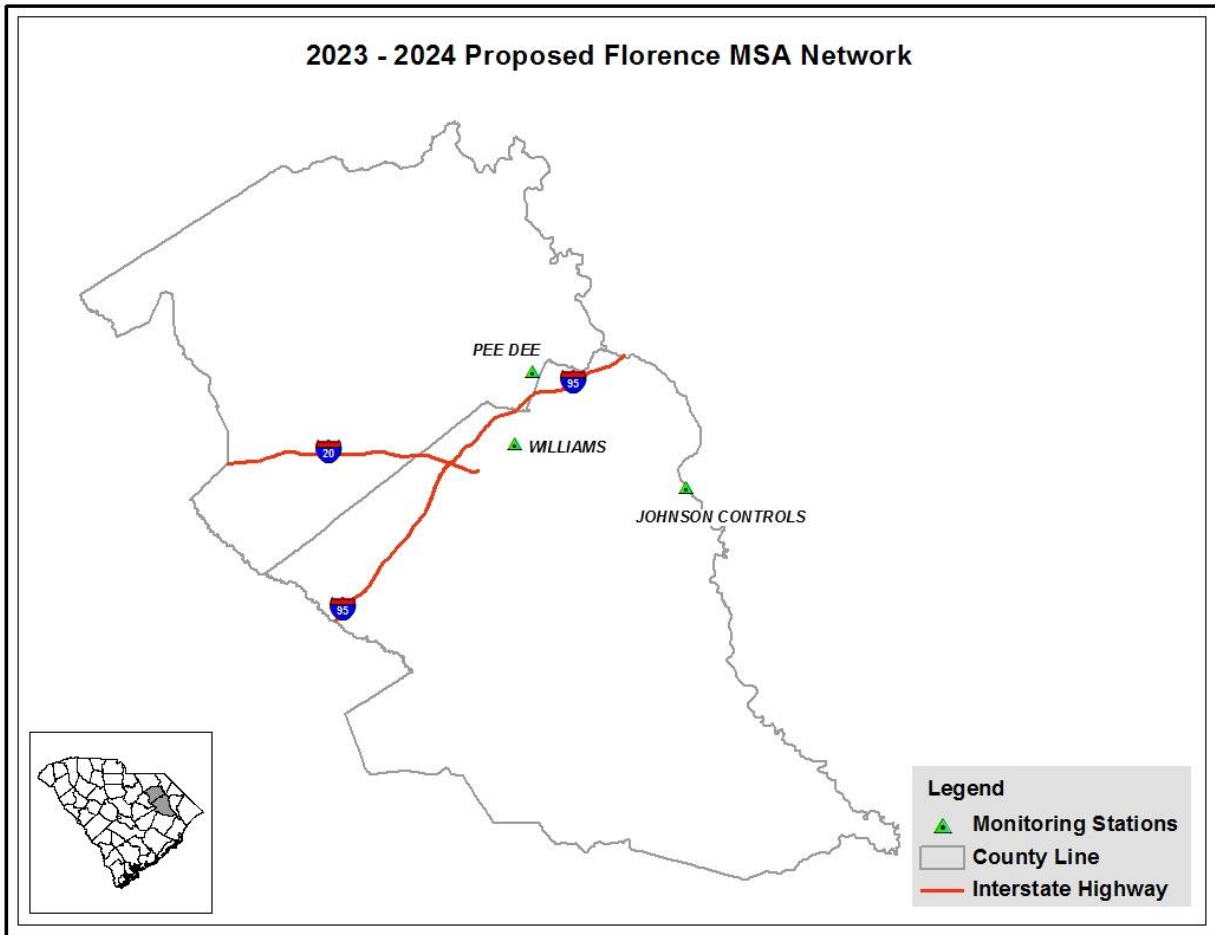
Changes for 2023-2024:

There are no changes planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
Ozone 44201-1	Urban	Max Ozone Concentration	SLAMS	3.42	Ultraviolet Absorption (087)	Continuous
Nitrogen Dioxide 42602-1	Urban	General / Background Max Precursor Emissions Impact	SPM	3.42	Chemiluminescence (599)	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	Johnson Controls (JCI) 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 20, 2023

The Pee Dee Experimental Station Monitoring Site is located in northeastern Darlington County. This Site serves as the required ozone monitor in the Florence MSA. The sample inlets are 193.3 meters from the nearest road.

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

Changes for 2023-2024:

There are no changes planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
Ozone 44201-1	Urban	Max Ozone Concentration/ General / Background	SLAMS	4.11	Ultraviolet Absorption (047)	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 20, 2023

The Williams Middle School Monitoring Site is located in Florence County. The Department originally established this Site to meet the 40 CFR Part 58, Appendix D requirements for collocated continuous monitoring for the Florence MSA (now no longer needed). This Site 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 2023-2024:

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. There are no changes planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
PM _{2.5} 88101-1	Neighbor-hood	Population Exposure/ Highest Concentration	SLAMS	2.2	FRM Gravimetric w/ VSCC (145)*	1:3
PM _{2.5} 88101-3	Neighbor-hood	Population Exposure/ Highest Concentration	SPM	2.47	FEM Broadband Spectroscopy (236)	Continuous

* Indicates the Primary Monitoring Method for PM_{2.5}

Johnson Controls (JCI) 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 Evaluations: May 2, 2023

Johnson Controls Incorporated (JCI) is located in Florence County. It is now owned by Clarios. 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 petitioners⁹, the Florence Recycling Center and the Department conducted source-oriented ambient lead monitoring at three locations around the facility. Clarios ceased production March 22, 2021. Because the facility has ceased production, 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 JCI 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 JCI Woods Monitoring Site has primary and collocated samplers and are set on a 1:6 sampling schedule. This Site meets all of the 40 CFR Part 58 Appendix E requirements except the obstructions of trees to the North. This Site has a waiver from EPA for the trees to the North.

Changes for 2023-2024:

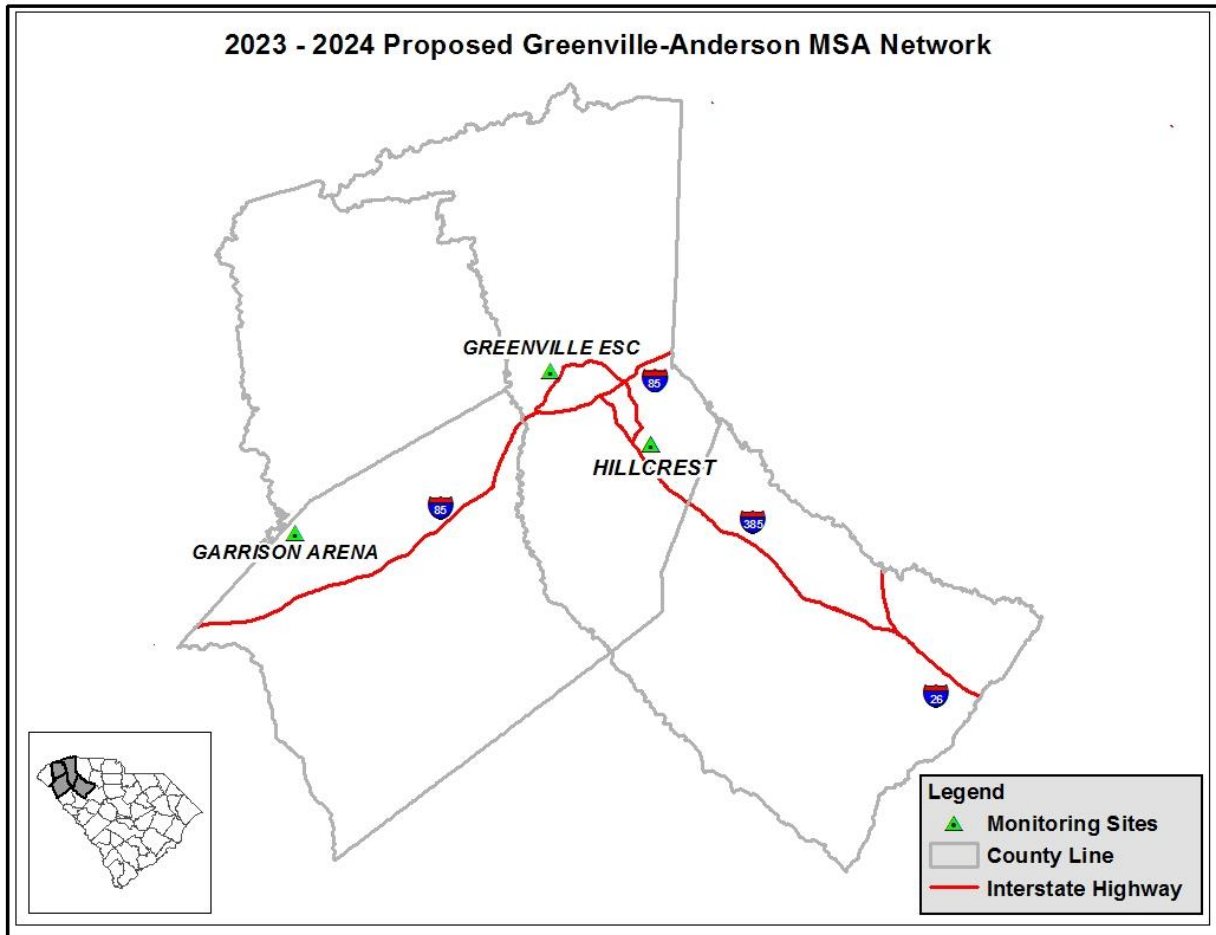
There are no changes planned for 2023-2024.

⁹ 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).

Monitors:

Site ID	Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
041-8003-1	Lead 14129	Middle	Source oriented	SPM	2.51	ICP/MS (193)	1:6
041-8003-2	Lead 14129	Middle	Source oriented	SPM	2.51	ICP/MS (193)	1:6

Greenville-Anderson 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 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: June 2, 2023

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 an ozone monitor that measure concentrations upwind of the Greenville-Spartanburg urbanized area. This Site is 14.25 meters from the nearest road.

This Site meets the siting criteria found in 40 CFR Part 58, Appendix E.

Changes for 2023-2024:

There are no changes planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
Ozone 44201-1	Urban	Max Ozone Concentration	SLAMS	4.60	Ultraviolet Absorption (087)	Continuous

Greenville Employment Security Commission (ESC)

CSA/MSA: Greenville-Spartanburg-Anderson CSA / Greenville-Anderson 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 1, 2023

The Greenville ESC Monitoring Site is located in the City of Greenville and was established on April 11, 2008. This Site supports a PM_{2.5} FRM sampler and continuous PM_{2.5} FEM monitor. It also supports PM₁₀, SO₂, NO₂, and measurements for wind speed and wind direction. The sample inlets are 12.1 meters from the nearest road. The EPA Region 4 has selected this Site as one of the locations for a Regional Administrator required NO₂ monitor to help protect susceptible and vulnerable populations, as required by 40 CFR Part 58, Appendix D, Section 4.3.4.

This Site meets all 40 CFR Part 58 Appendix E requirements. The distance from two trees to the probe is not at least twice the height that the obstacles protrude above the probe, but the probe still meets the required 270° of required airflow around the probe.

Changes for 2023-2024:

There are no changes planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
PM _{2.5} 88101-1	Neighborhood	Population Exposure / Welfare Related Impacts	SLAMS	3.65	FRM Gravimetric w/ VSCC (145) *	1:1
PM _{2.5} 88101-3	Neighborhood	Population Exposure/	SPM	4.93	FEM	Continuous

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
		Welfare Related Impacts			Broadband Spectroscopy (238)	
PM ₁₀ 81102-1	Neighborhood	Population Exposure	SLAMS	4.93	FEM Broadband Spectroscopy (239)	Continuous
Sulfur Dioxide 42401-1	Neighborhood	Population Exposure	SLAMS	4.20	Pulsed fluorescent (560)	Continuous
Nitrogen Dioxide 42602-1	Neighborhood	Population Exposure	SLAMS	4.20	Chemiluminescence (599)	Continuous

* Indicates the Primary Monitoring Method for PM_{2.5}

Hillcrest Middle School

CSA/MSA: Greenville-Spartanburg-Anderson CSA / Greenville-Anderson 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 1, 2023

The Hillcrest Middle School Monitoring Site 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, a PM_{2.5} FRM sampler, and a collocated PM_{2.5} FRM sampler. The sample inlets are 259 meters from the nearest road.

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

Changes for 2023-2024:

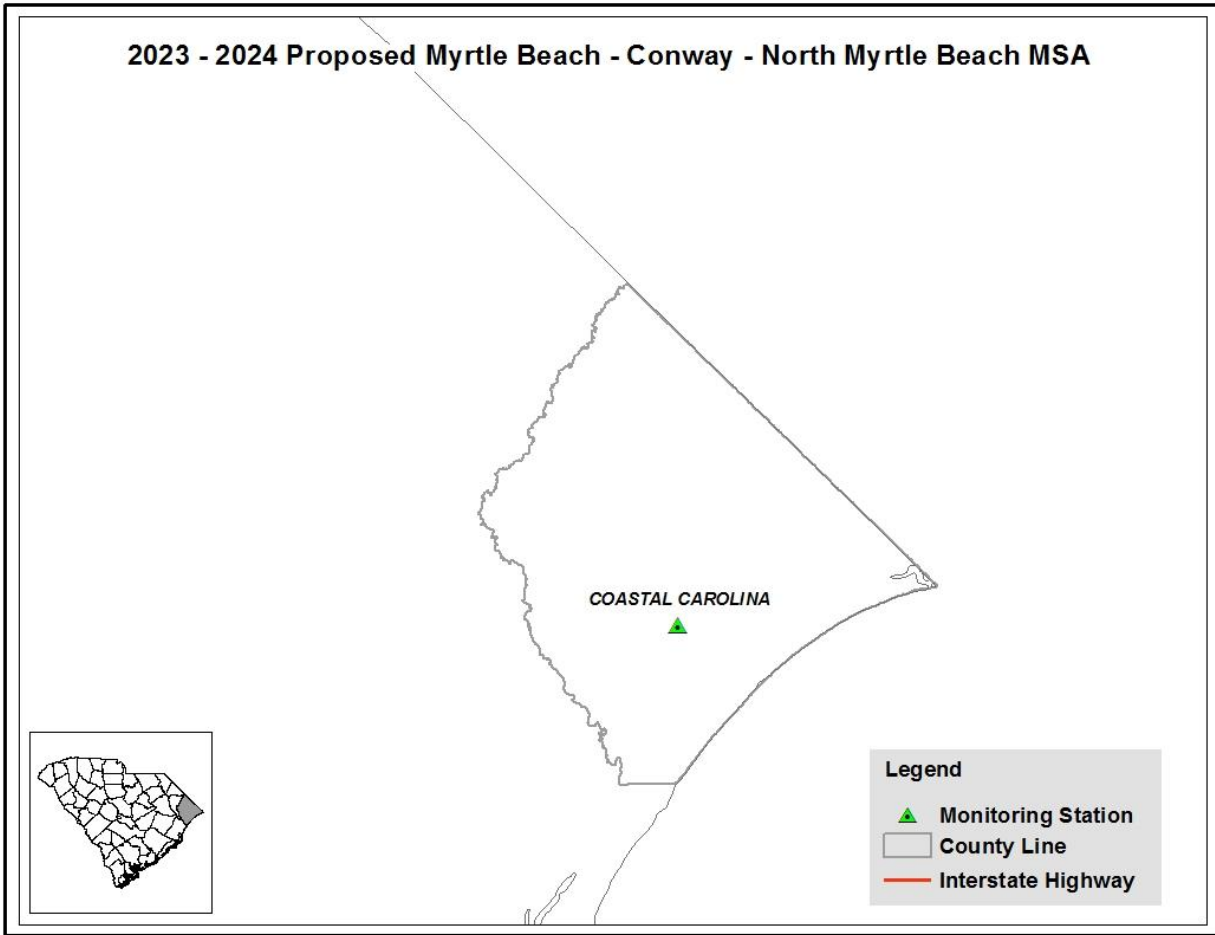
There are no changes planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
PM _{2.5} 88101-1	Urban	Population Exposure	SLAMS	3.48	FRM Gravimetric w/ VSCC (145)*	1:3
PM _{2.5} 88101-2	Urban	Population Exposure	QA Collocated SLAMS	3.48	FRM Gravimetric w/ VSCC (145)	1:3
Ozone 44201-1	Urban	Population Exposure	SLAMS	3.92	Ultraviolet Adsorption (047)	Continuous

* Indicates the Primary Monitoring Method for PM_{2.5}

Myrtle Beach-Conway-North Myrtle Beach, SC-NC 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 ● Pending									

Coastal Carolina

CSA/MSA: Myrtle Beach-Conway-North Myrtle Beach, SC-NC 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: May 2, 2023

In February 2013, OMB combined Horry County with Brunswick County, NC to establish the Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA. In conjunction with the State of North Carolina, local government, and stakeholders, the Department established the Coastal Carolina Monitoring Site to be representative of expected maximum ozone concentrations in northeast South Carolina. In order to meet the minimum monitoring criteria in 40 CFR Part 58, Appendix D, at least one ozone monitor is required in the MSA. The Department and the State of North Carolina have started the process of finding an appropriate Site for a second ozone monitor in the MSA, should it be required in accordance with Appendix D of 40 CFR Part 58. Also, according to the U.S. Census 2021 population estimate, the population in the MSA is above the minimum threshold for PM₁₀ and PM_{2.5}, requiring one PM₁₀ and one PM_{2.5} monitor. Monitoring for PM_{2.5} began on February 23, 2023; monitoring for PM₁₀ will begin by the end of 2023.

The sample inlet is 18.3 meters from the nearest road.

This Site meets all 40 CFR Part 58 Appendix E requirements except the drip line and the tree are less than 10 meters away from the PM_{2.5} Continuous probe. This tree is scheduled to be removed.

Changes for 2023-2024:

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} in the MSA. PM_{2.5} monitoring began at the Coastal Carolina Monitoring Site on February 23, 2023. PM₁₀ monitoring will begin by the end of 2023. No further changes are currently planned for 2023-2024.

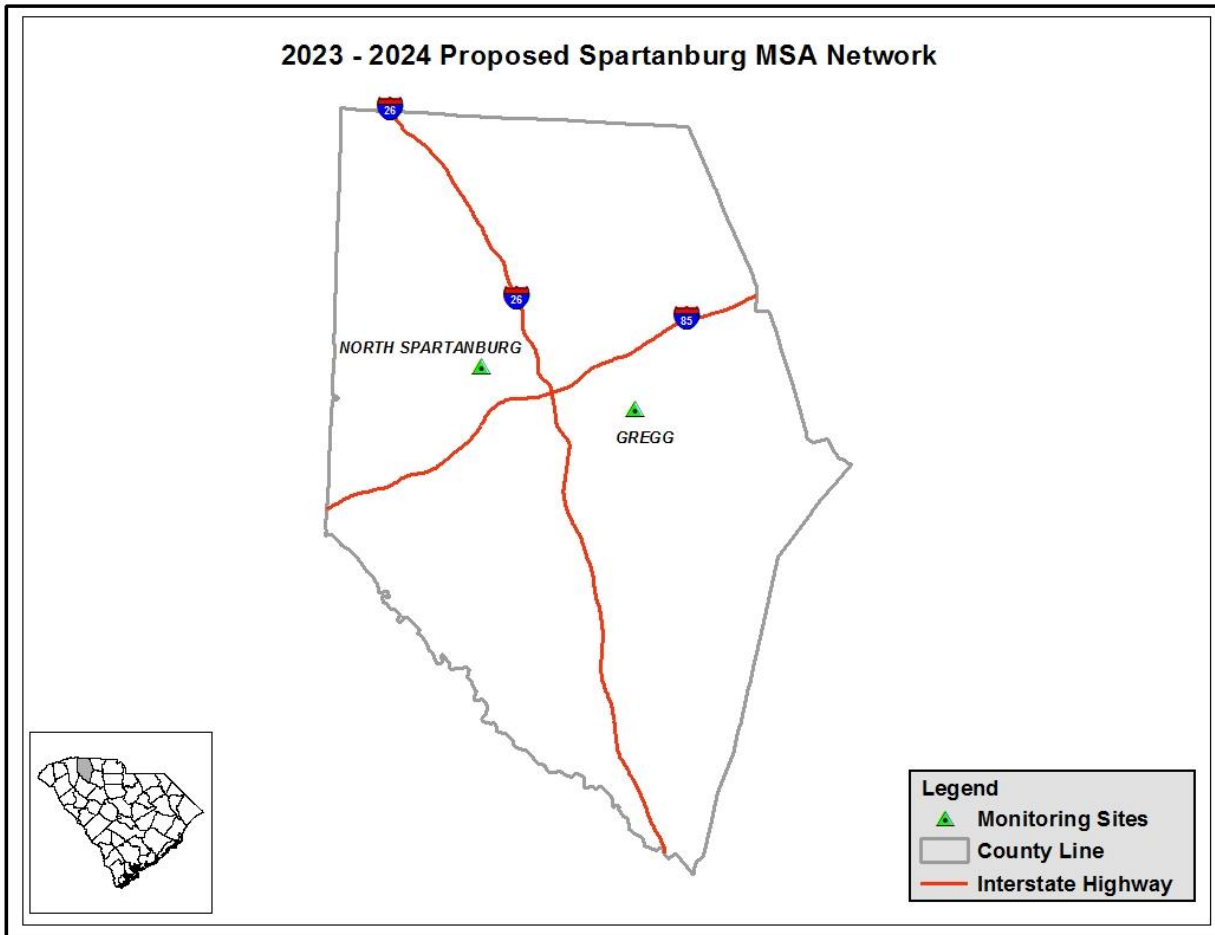
Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
Ozone 44201-1	Urban	Population Exposure	SLAMS	4.10	Ultraviolet (087)	Continuous
PM _{2.5} 88101-3	Neighborhood	Population Exposure	SLAMS	4.50	Broadband Spectroscopy (236)*	Continuous
PM ₁₀ 81102-1	Neighborhood	Population Exposure	SLAMS		Broadband Spectroscopy (239)	Continuous

* Indicates the Primary Monitoring Method for PM_{2.5}

PM₁₀ Monitor is pending.

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, Spartanburg

County: Spartanburg

Coordinates: +34.988706, -82.075802

Date Established: April 4, 1990

Site Evaluation: April 11, 2023

The North Spartanburg Fire Station #2 Monitoring Site is located in rural Spartanburg County, northwest of the City of Spartanburg. This Site supports an ozone monitor and was established as a maximum ozone concentration monitor for the Greenville-Spartanburg-Anderson urban area on April 4, 1990. This monitor is designated SLAMS and fulfills the requirement for a maximum concentration Site for the Spartanburg MSA. 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 2023-2024:

There are no changes planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
Ozone 44201-1	Urban	Max Ozone Concentration	SLAMS	3.90	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 11, 2023

The T.K. Gregg Recreation Center Monitoring Site is located in Spartanburg County. With the cooperation of local government and stakeholders, the Department originally established this PM_{2.5} Site in the downtown Spartanburg area to meet the 40 CFR Part 58, Appendix D requirements for monitoring objectives, reporting, and collocation requirements (now no longer needed). 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 2023-2024:

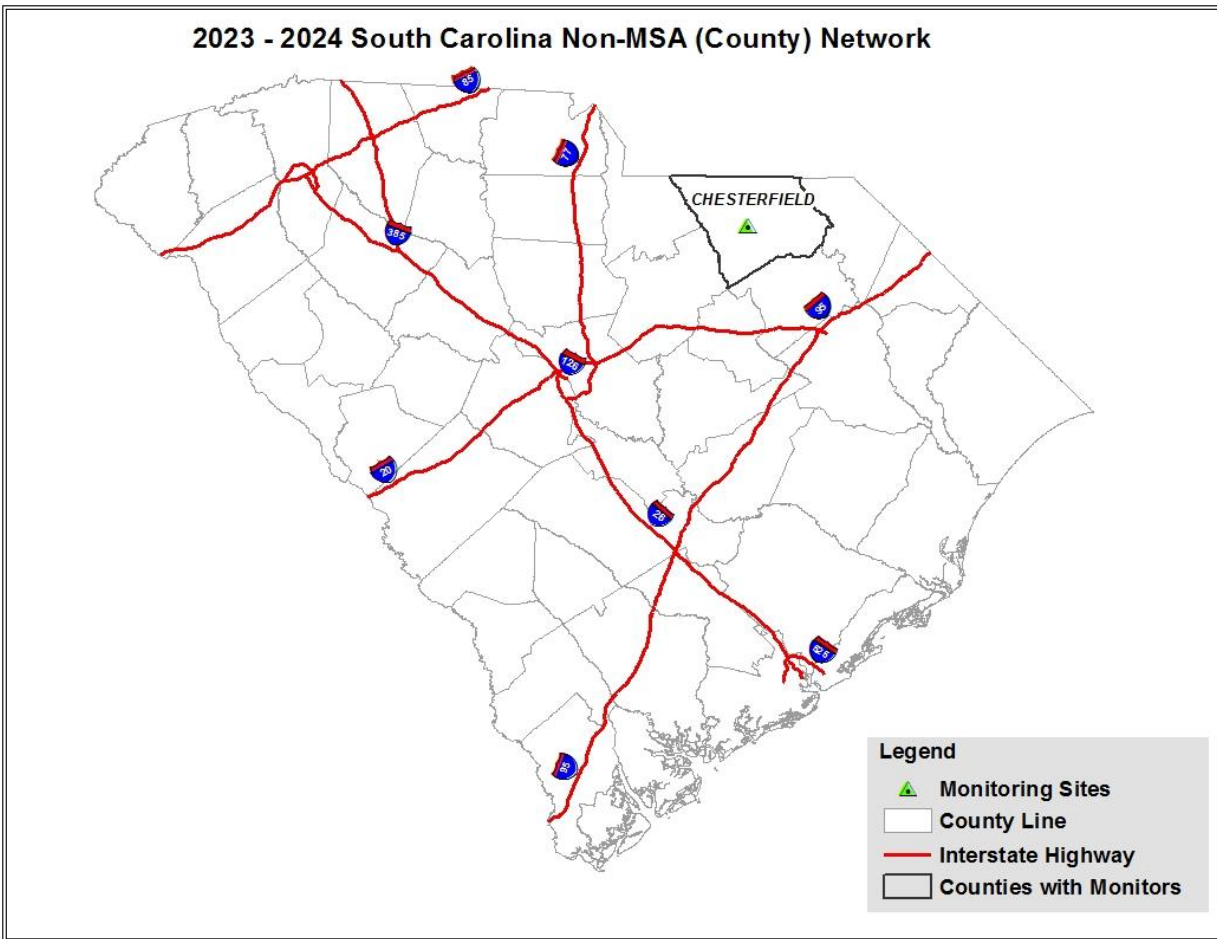
There are no changes planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
PM _{2.5} 88101-1	Neighborhood	Highest Concentration	SLAMS	2.43	FRM Gravimetric w/VSCC (145)*	1:1
PM _{2.5} 88101-3	Neighborhood	Highest Concentration	SPM	2.73	Broadband Spectroscopy (236)	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 21, 2023

The Chesterfield Monitoring Site is located in central Chesterfield County. This Site has continuous monitors for PM_{2.5} and ozone as well as one sampler for PM_{2.5}. This Site serves as the required regional transport site for PM_{2.5}. 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 356° of air flow around the monitors.

Changes for 2023-2024:

Collocated Ethylene Oxide monitoring was discontinued on December 19, 2022. There are no other changes planned for 2023-2024.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
PM _{2.5} 88101-1	Regional	Regional Transport	QA Collocated SLAMS	2.87	FRM Gravimetric w/ VSCC (145)	1:3
PM _{2.5} 88101-3	Regional	Regional Transport	SLAMS	4.65	FEM Broadband Spectroscopy (236)*	Continuous
Ozone 44201-1	Regional	General / Background	SPM	4.50	Ultraviolet Absorption	Continuous

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis & (Method Code)	Sampling Frequency
					(087)	
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	4.39	Canister/ GCMS	1:6
Collocated VOC	Urban	NATTS	Other	4.39	Canister/ GCMS	1:6
Ethylene Oxide	Urban	NATTS	Other	4.39	Canister/ GCMS	1:6
Metals	Urban	NATTS	Other	2.36	PM ₁₀ / ICP/MS	1:6
Collocated Metals	Urban	NATTS	Other	2.44	PM ₁₀ / ICP/MS	1:6

* Indicates the Primary Monitoring Method for PM_{2.5}

Appendix A: Notification of Discontinuation

Discontinuation of PM_{2.5} monitoring at the FAA Beacon Monitoring Site:

The FAA Beacon Monitoring Site was established April 9, 1999. The FAA Beacon Monitoring Site operated for one year concurrently with the replacement North Charleston Fire Station Monitoring Site. On January 5, 2023, PM_{2.5} monitoring was discontinued.

Discontinuation of PM₁₀ monitoring at the Jenkins Ave. Fire Station Monitoring Site:

The SLAMS PM₁₀ monitoring at the Jenkins Ave. Fire Station Monitoring Site was discontinued on February 2, 2023, and relocated to the North Charleston Fire Station Monitoring Site.

Discontinuation of SO₂ monitoring at York Landfill Monitoring Site:

The York Landfill Monitoring Site was scheduled to operate a special purpose rotating SO₂ monitor 2020-2022. SO₂ monitoring was discontinued on January 13, 2023.

Discontinuation of PM₁₀ monitoring at Cayce City Hall Monitoring Site:

Approval for the discontinuation and relocation of PM₁₀ monitoring from the Cayce City Hall Monitoring Site to the Parklane Monitoring site was approved by EPA on February 22, 2023. PM₁₀ monitoring was discontinued on May 30, 2023.

Discontinuation of SVOC monitoring at the Parklane Monitoring Site:

SVOC monitoring was discontinued on January 30, 2023.

Discontinuation of the 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.

Discontinuation of Collocated Ethylene Oxide monitoring at the Chesterfield Monitoring Site:

Collocated Ethylene Oxide monitoring was discontinued on December 19, 2022.

Appendix B: Summary of Public Comments

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

No comments were provided on the Network Plan.

EPA preliminary comments on the 2022 Ongoing Data Requirements Annual Report:

Comment: The emission data for the Santee Cooper Cross Generation Station provided in Table 9 indicates that the 2022 maximum 1-hour emission rates for Units 1, 3 and 4 are higher than the modeled 1-hour emission rates in the original DRR modeling. Also, the 2022 average hourly emission rate for Unit 1 is above the modeled average hourly rate. This information could trigger the need for additional modeling to show attainment using the current emissions. However, the 2022 annual tons per year emissions for all 4 units are much lower than 3-year average of the 2012-2014 modeled years, and SC DHEC provided an analysis to show that the increases in maximum hourly emissions are not likely to cause a concern that the 1-hour SO₂ NAAQS will be exceeded. It would be helpful to provide further information to supplement the analysis. We suggest that South Carolina perform additional analysis for the specific dates and times in 2022 that the maximum hourly emissions were higher than the modeled emissions. Then the emissions from all 4 units could be summed together for the hours corresponding to the maximum emission value for each unit presented in column 3 of Table 9 (e.g., for the date and hour when the Unit 1 emissions were 4,485.6 lb/hr, add the hourly emissions from the other 3 units for that specific hour). These cumulative values could then be compared to the cumulative emissions of all 4 units corresponding to the hours of modeled maximum emission rates presented in column 2 of Table 9 (e.g., the cumulative emissions from all 4 units corresponding the date and hour when the modeled emissions from Unit 1 were 4,236 lb/hr). This additional analysis could help justify the conclusion that additional modeling is not needed to address these emissions increases. EPA staff is available to further discuss this recommended additional analysis, if requested.

Response: The Department added the requested information to Table 9 of Appendix I.

Appendix C: 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 9. For reactive gases, is sampling train made of borosilicate glass, FEP Teflon or their equivalent?
Column 4:	Sampling Time	Section 9. For reactive gases, is sampling time <20 seconds?
Column 5:	Probe Height	Section 2. Horizontal and Vertical Placement: Height from ground to probe must be 2-15 meters.
Column 6:	Support Structure	Section 2. 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 3. Spacing from Minor Sources: Probe should be away from minor sources.
Column 10:	Obstructions	Section 4. 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 4. Spacing from Obstructions: Must have unrestricted airflow 270 degrees around probe.
Column 12:	Dripline	Section 5. Spacing from Trees: Distance from dripline of trees to probe must be <10 meters.
Column 13:	Roadway	Section 6. 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; April 25, 2023	Ozone	Yes	Yes	3.38	0.8	N/A	N/A	Yes	Yes	Yes	11.4	128
45-037-0001; Trenton; April 25, 2023	Ozone	Yes	Yes	4.1	1.38	N/A	N/A	Yes	Yes	Yes	No Trees	30.3
45-037-0001; Trenton; April 25, 2023	PM2.5 Cont.	N/A	N/A	4.26	1.71	N/A	Yes	Yes	Yes	Yes	No Trees	30.3
45-037-0001; Trenton; April 25, 2023	PM2.5 Int.	N/A	N/A	5.05	2.5	N/A	Yes	Yes	Yes	Yes	No Trees	30.3
45-037-0001; Trenton; April 25, 2023	SO2	Yes	Yes	4.1	1.38	N/A	N/A	Yes	Yes	Yes	No Trees	30.3
Charleston-North Charleston MSA												
45-015-1002; Moncks Corner; March 9, 2023	Ozone	Yes	Yes	4.43	1.75	N/A	N/A	Yes	Yes	Yes	17.4	177
45-019-0003; Jenkins Ave; March 9, 2023	NO2	Yes	Yes	4.63	1.97	N/A	N/A	Yes	Yes	Yes	19.6	33.5

45-019-0003; Jenkins Ave; March 9, 2023	SO2	Yes	Yes	4.63	1.97	N/A	N/A	Yes	Yes	Yes	19.6	33.5
45-019-0020 N. Charleston F.S. February 25, 2023	PM _{2.5} Int.	N/A	N/A	2.31	2.05	2.05	Yes	Yes	Yes	Yes	21.2	24.6
45-019-0020 N. Charleston F.S. February 25, 2023	PM _{2.5} Int.	N/A	N/A	2.31	2.05	2.05	Yes	Yes	Yes	Yes	21.2	24.6
45-019-0020 N. Charleston F.S. February 25, 2023	PM _{2.5} Cont.	N/A	N/A	2.83	2.57	N/A	Yes	Yes	Yes	Yes	21.2	24.6
45-019-0020 N. Charleston F.S. February 25, 2023	PM ₁₀ Cont.	N/A	N/A	2.83	2.57	N/A	Yes	Yes	Yes	Yes	21.2	24.6
45-019-0046; Cape Romain; March 14, 2023	Ozone	Yes	Yes	4.20	1.4	N/A	N/A	Yes	Yes	Yes	13.0	86
45-019-0046; Cape Romain; March 14, 2023	NO2	Yes	Yes	4.20	1.4	N/A	N/A	Yes	Yes	Yes	13.0	86
45-019-0046; Cape Romain; March 14, 2023	PM _{2.5} Cont.	N/A	N/A	4.83	2.03	N/A	Yes	Yes	Yes	Yes	11.9	86
Charlotte-Concord-Gastonia MSA												
45-091-0008; York Landfill; April 4, 2023	Ozone	Yes	Yes	4.55	1.98	N/A	N/A	Yes	Yes	Yes	25.8	34.8
Columbia MSA												

45-079-0022; Irmo DJJ; April 28, 2023	PM2.5 Int.	N/A	N/A	2.05	1.74	2.14	Yes	Yes	Yes	Yes	19.0	33.0
45-079-0022; Irmo DJJ; April 28, 2023	PM2.5 Cont.	N/A	N/A	2.06	1.75	2.14	Yes	Yes	Yes	Yes	19.0	33.0
45-063-0010; Cayce City Hall; April 21, 2023	PM ₁₀	N/A	N/A	2.32	1.87	N/A	N/A	Yes	No	Yes	10.4	24
45-079-0007; Parklane; May 25, 2023	PM _{2.5} Int.	N/A	N/A	4.69	2.08	2.38	Yes	Yes	Yes	Yes	10.4	41.6
45-079-0007; Parklane; May 25, 2023	PM _{2.5} Int.	N/A	N/A	4.69	2.08	2.38	Yes	Yes	Yes	Yes	10.4	41.6
45-079-0007; Parklane; May 25, 2023	PM _{2.5} Cont.	N/A	N/A	4.65	2.04	N/A	Yes	Yes	Yes	Yes	10.4	41.6
45-079-0007; Parklane; May 25, 2023	Speciated PM _{2.5}	N/A	N/A	2.43	1.99	N/A	Yes	Yes	Yes	Yes	13.8	41.6
45-079-0007; Parklane; May 25, 2023	PM ₁₀	N/A	N/A	4.69	2.08	N/A	Yes	Yes	Yes	Yes	10.4	41.6
45-079-0007; Parklane; May 25, 2023	Ozone	Yes	Yes	4.21	1.6	N/A	N/A	Yes	Yes	Yes	10.4	41.6
45-079-0007; Parklane; May 25, 2023	SO ₂	Yes	Yes	4.21	1.6	N/A	N/A	Yes	Yes	Yes	10.4	41.6

45-079-0007; Parklane; May 25, 2023	CO	Yes	Yes	4.21	1.6	N/A	N/A	Yes	Yes	Yes	10.4	41.6
45-079-0007; Parklane; May 25, 2023	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 8, 2023	Ozone	Yes	Yes	4.54	1.8	N/A	N/A	Yes	No	No	14.4	187.5
45-079-1001; Sandhill; May 8, 2023	Ozone	Yes	Yes	3.42	0.76	N/A	N/A	Yes	Yes	Yes	15.8	31.1
45-079-1001; Sandhill; May 8, 2023	NO ₂	Yes	Yes	3.42	0.76	N/A	N/A	Yes	Yes	Yes	15.8	31.1
Florence MSA												
45-031-0003; Pee Dee; April 20, 2023	Ozone	Yes	Yes	4.11	1.39	N/A	N/A	Yes	Yes	Yes	No Trees	193.3
45-041-0003; Williams Middle School; April 20, 2023	PM _{2.5} Cont.	N/A	N/A	2.47	1.96	1.4	Yes	Yes	Yes	Yes	19.0	110
45-041-0003; Williams Middle School; April 20, 2023	PM _{2.5} Int.	N/A	N/A	2.2	1.69	1.4	Yes	Yes	Yes	Yes	20.4	110
45-041-8003; JCI Woods; May 2, 2023	Lead POC 1	N/A	N/A	2.51	1.18	3.1	Yes	Yes	No	Yes	12.8	1030.0

45-041-8003; JCI Woods; May 2, 2023	Lead #3	N/A	N/A	2.51	1.18	3.1	Yes	Yes	No	Yes	12.8	1030.0
Greenville-Anderson-Mauldin MSA												
45-007-0006; Garrison Arena; June 2, 2023	Ozone	Yes	Yes	4.60	1.92	N/A	N/A	Yes	Yes	Yes	47.0	14.25
45-045-0015; Greenville ESC; March 1, 2023	SO2	Yes	Yes	4.20	1.45	N/A	N/A	Yes	No	Yes	15.4	12.1
45-045-0015; Greenville ESC; March 1, 2023	NO2	Yes	Yes	4.20	1.45	N/A	N/A	Yes	No	Yes	15.4	12.1
45-045-0015; Greenville ESC; March 1, 2023	PM2.5 Cont.	N/A	N/A	4.93	2.18	2.92	Yes	Yes	No	Yes	15.4	12.1
45-045-0015; Greenville ESC; March 1, 2023	PM10 Cont.	N/A	N/A	4.93	2.18	N/A	Yes	Yes	No	Yes	15.4	12.1
45-045-0015; Greenville ESC; March 1, 2023	PM2.5 Int.	N/A	N/A	3.65	2.10	2.92	Yes	Yes	No	Yes	15.4	12.1
45-045-0016; Hillcrest; March 1, 2023	Ozone	Yes	Yes	3.92	1.22	N/A	N/A	Yes	Yes	Yes	No Trees	259
45-045-0016; Hillcrest; March 1, 2023	PM2.5 Int.	N/A	N/A	3.48	2.08	1.77	Yes	Yes	Yes	Yes	No Trees	259

45-045-0016; Hillcrest; March 1, 2023	PM2.5 Int.	N/A	N/A	3.48	2.08	1.77	Yes	Yes	Yes	Yes	No Trees	259
Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA												
45-051-0008; Coastal Carolina; May 2, 2023	Ozone	Yes	Yes	4.10	1.55	N/A	N/A	Yes	Yes	Yes	10.9	18.3
45-051-0008; Coastal Carolina; May 2, 2023	PM2.5 Cont.	N/A	N/A	4.50	1.95	N/A	Yes	Yes	Yes	Yes	8.8	18.3
Spartanburg MSA												
45-083-0009; N. Spartanburg #2; April 11, 2023	Ozone	Yes	Yes	3.9	1.18	N/A	N/A	Yes	Yes	Yes	23.0	92.5
45-083-0011; T.K. Gregg; April 11, 2023	PM2.5 Int.	N/A	N/A	2.43	2.01	3.72	Yes	Yes	Yes	Yes	31.0	48.2
45-083-0011; T.K. Gregg; April 11, 2023	PM2.5 Cont.	N/A	N/A	2.73	2.31	3.72	Yes	Yes	Yes	Yes	31.0	48.2
Remainder of State												
45-025-0001; Chesterfield; March 21, 2023	PM2.5 Cont.	N/A	N/A	4.65	1.82	N/A	Yes	Yes	Yes	Yes	23.4	34
45-025-0001; Chesterfield; March 21, 2023	Ozone	Yes	Yes	4.50	1.67	N/A	N/A	Yes	Yes	Yes	23.4	34

45-025-0001; Chesterfield; March 21, 2023	PM2.5 Int.	N/A	N/A	2.87	1.97	N/A	Yes	Yes	Yes	Yes	23.4	34
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Appendix D: Alphabetical Order of Monitoring Sites

Monitoring Site Name	MSA/County	Page
Cape Romain	Charleston-North Charleston MSA	59
Chesterfield	Chesterfield County	88
Coastal Carolina	Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA	82
Congaree Bluff	Columbia MSA	68
Garrison Arena	Greenville-Anderson MSA	77
Greenville Employment Security Commission (ESC)	Greenville-Anderson MSA	78
Hillcrest Middle School	Greenville-Anderson	80
Irmo Department of Juvenile Justice (DJJ)	Columbia MSA	69
Jackson Middle School	Augusta-Richmond County, GA-SC MSA	51
Jenkins Ave. Fire Station	Charleston-North Charleston MSA	56
Johnson Controls-JCI Woods	Florence MSA	74
Moncks Corner National Guard	Charleston-North Charleston MSA	55
North Charleston Fire Station	Charleston-North Charleston MSA	57
North Spartanburg Fire Station #2	Spartanburg MSA	85
Parklane (NCore)	Columbia MSA	65
Pee Dee Experimental Station	Florence MSA	72
Sandhill Experimental Station	Columbia MSA	70
T.K. Gregg Recreational Center	Spartanburg MSA	86
Trenton	Augusta-Richmond County, GA-SC MSA	52
Williams Middle School	Florence MSA	73
York Landfill	Charlotte-Concord-Gastonia, SC-NC MSA	62

Appendix E: Summary of Changes for July 1, 2022 through December 31, 2023

Augusta-Richmond County, GA-SC MSA

Trenton Monitoring Site – The SO₂ monitor previously located at the Long Creek Monitoring Site will become operational at this Site in 2022. This Site has been selected to run on a two-year schedule for SO₂ monitoring. SO₂ monitoring is scheduled to run in 2022 and 2023. The PM_{2.5} sampler was designated from SPM to SLAMS on January 1, 2022.

Charleston-North Charleston MSA

North Charleston Fire Station (NCFS) Monitoring Site – The sampler began monitoring for PM_{2.5} on November 8, 2021. The continuous monitor began monitoring PM_{2.5} on November 9, 2021. The collocated PM_{2.5} sampler that was temporarily relocated from the Charleston-North Charleston MSA to the T.K. Gregg Monitoring Site was relocated to the North Charleston Fire Station Monitoring Site and began monitoring PM_{2.5} on November 30, 2021.

Irving Street Monitoring Site – This Site began monitoring SO₂ and PM_{2.5} on June 10, 2020. NO₂ monitoring began June 11, 2020. This Site was scheduled to operate for 23 months after the Port began operation; the NAAQS pollutant monitoring was discontinued on June 30, 2022.

Cape Romain Monitoring Site – The SPM SO₂ monitoring was discontinued on February 1, 2022, and the Site will no longer operate on a two-year rotational schedule for SO₂ monitoring. Precipitation monitoring was discontinued on August 9, 2022.

FAA Beacon Monitoring Site – The North Charleston Fire Station Monitoring Site was established on November 08, 2021. The FAA Beacon Monitoring Site will operate concurrently with the North Charleston Fire Station Monitoring Site for one year. After one year, PM_{2.5} monitoring, and this Site, will be discontinued.

Charleston Public Works (CPW) Monitoring Site – The CPW Monitoring Site was discontinued on November 8, 2021.

Charlotte-Concord-Gastonia, NC-SC MSA

York Landfill Monitoring Site – This Site has been selected to run on a schedule for SO₂ monitoring. SO₂ monitoring is scheduled to run from 2020 through 2022.

Columbia MSA

Irmo Monitoring Site – The SO₂ monitoring was discontinued at this Site on April 22, 2020. Semi-Volatile Organic Compounds and Carbonyls were discontinued at this Site in December 2019. The landholder has requested that this site be removed from the property. The Department has identified the Irmo Department of Juvenile Justice (Irmo DJJ) Monitoring Site as a replacement for this Site. EPA granted approval for the replacement monitoring site on October 26, 2021. The Irmo Monitoring Site will be closed when the Irmo DJJ Monitoring Site begins operation.

Congaree Bluff Monitoring Site – The EPA has renewed the siting criteria waiver, as of March 24, 2021, for the 40 CFR Part 58, Appendix E, Section 4(a) and the Section 11 tree obstructions at this Site. The SPM SO₂ monitoring was discontinued on January 15, 2020, and the Site will no longer operate on a two-year rotational schedule for SO₂ monitoring.

Irmo DJJ Monitoring Site – The Department received approval of this Site to serve as the replacement site for the Irmo Monitoring Site. This Site will contain a PM_{2.5} sampler and a PM_{2.5} continuous monitor. Once this Site has been established, the Irmo Monitoring Site will be discontinued.

Florence MSA

Johnson Controls (JCI Railroad; JCI Entrance; JCI Woods) Monitoring Sites – Clarios has 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 JCI Woods Monitoring Site was designated as a reference and collocated sampler on November 12, 2021.

Greenville-Anderson MSA

No changes planned.

Hilton Head Island-Bluffton MSA

No changes planned.

Myrtle Beach-Conway-North Myrtle Beach SC-NC MSA

A PM_{2.5} sampler, a continuous PM_{2.5} monitor, and a PM₁₀ monitor will be added to the Coastal Carolina Monitoring Site.

Spartanburg MSA

T.K. Gregg Monitoring Site – The collocated PM_{2.5} sampler at the T.K. Gregg Monitoring Site was relocated to the North Charleston Fire Station Monitoring Site.

Sumter MSA

No changes planned.

Remainder of State

Precipitation monitoring at the Chesterfield Monitoring Site was discontinued on August 8, 2022.

Appendix F: EPA Correspondence



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 PM₁₀ 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 PM₁₀ 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 Lusk 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
-0500

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 (O₃), particulate matter less than 2.5 microns (PM_{2.5}), particulate matter less than 10 microns (PM₁₀), nitrogen dioxide (NO₂), sulfur dioxide (SO₂) 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 O₃, PM_{2.5}, and PM₁₀ 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, PM₁₀, 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, O₃, SO₂, CO, NO/NO_y, wind speed, wind direction, relative 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.

O₃ Monitoring Requirements
40 CFR Part 58, Appendix D, Section 4.1 and Table D-2

Ambient air monitoring network design criteria for O₃ are found in 40 CFR Part 58, Appendix D, Section 4.1. This section requires state agencies to operate O₃ 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) Trenton (AQS ID: 45-037-0001) Evans (AQS ID 13-073-0001) ¹ Augusta (AQS ID 13-245-0091) ¹	Y
Charleston-North Charleston, SC	2	2	0	Moncks Corner National Guard (AQS ID: 45-015-1002) Cape Romain (AQS ID: 45-019-0046)	Y

Charlotte-Concord-Gastonia, NC-SC	2	4	3	York Landfill (AQS ID: 45-091-0008) Crouse (AQS ID: 37-109-0004) ² Garinger (AQS ID: 37-119-0041) ³ University Meadows (AQS ID: 37-119-0046) ³ Rockwell (AQS ID: 37-159-0021) ¹	Y
Columbia, SC(NCore)	2	2	1	Parklane (AQS ID: 45-079-0007) 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) 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 O₃ 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 O₃ 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 O₃ 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 O₃ concentrations in the MSA would be used to propose a new O₃ monitoring site in the MSA.

Ozone monitors located 5-10 miles downwind from concentrated NO_x emissions areas are often representative of expected O₃ maximum concentrations in the Southeast. The characterization of the Myrtle Beach MSA could consider current population dynamics, traffic, and frequent afternoon wind directions during O₃ season. More information about O₃ 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 O₃ 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 NO₂ 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.

NO₂ Monitoring Requirements
40 CFR Part 58, Appendix D, Section 4.3

Ambient air monitoring network design criteria for NO₂ are found in 40 CFR Part 58, Appendix D, Section 4.3. Three types of NO₂ monitoring are required: near-road, area-wide, and Regional Administrator. These types of NO₂ monitoring are described in Sections 4.3.2, 4.3.3, and 4.3.4, respectively.

Ambient air monitoring design criteria for near-road NO₂ 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 NO₂ 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: NO₂ Design Criteria – Minimum Required SLAMS Near-road Monitors

CBSA	Minimum Required Near-road NO₂ Monitors	Number of Near-road NO₂ Monitors	Site Names (AQS IDs) of Existing NO₂ 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 NO₂ sites are found in Section 4.3.3 of Appendix D to 40 CFR Part 58. The MCAQ operates a NO₂ monitor at its Garinger site to meet the minimum requirement for the Charlotte-Gastonia-Concord, NC-SC CBSA.

Table 10: NO₂ Design Criteria – Minimum Required SLAMS Area-Wide Monitors

CBSA	Minimum Required Area-Wide NO₂ Monitors	Number of Area-Wide NO₂ Monitors	Site Names (AQS IDs) of Existing NO₂ 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 NO₂ 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 NO₂ monitoring stations nationwide, with a primary focus on siting these monitors in locations to protect susceptible and vulnerable populations. The full list of NO₂ 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: NO₂ 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 NO₂ monitoring in the Charlotte area, the NO₂ monitoring network described by the Network Plan meets all design criteria of 40 CFR Part 58.

SO₂ Monitoring Requirements
40 CFR Part 58, Appendix D, Section 4.4

Ambient air monitoring network design criteria for SO₂ 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 SO₂ 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 SO₂ 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: SO₂ 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 SO₂ monitoring network outlined in the Network Plan meets the SO₂ PWEI requirements specified in 40 CFR Part 58, Appendix D, Section 4.4.

The EPA finalized the SO₂ Data Requirements Rule (DRR) on August 10, 2015 (40 CFR Part 51, Subpart BB). This rule requires air quality near sources with SO₂ 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 SO₂ 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 SO₂ monitoring sites to meet the DRR requirements.

Table 13: SO₂ 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 SO₂ emissions serve as the basis for designating such area as attainment for the 2010 SO₂ 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 SO₂ 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 SO₂ 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 SO₂ emissions report for these facilities is due July 1, 2023.

The Regional Administrator may require additional SO₂ 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 SO₂ monitor by the Regional Administrator at this time.

Table 14: SO₂ 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 SO₂ 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 SO₂ 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 SO₂ 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 SO₂ source.

Table 15: SO₂ 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 SO₂ 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 PQA 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)
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	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.

PM₁₀ 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 PM₁₀ are found in 40 CFR Part 58, Appendix D, Section 4.6. Table D-4 in this section indicates the approximate number of PM₁₀ stations required in MSAs with populations exceeding 100,000 to characterize national and regional PM₁₀ air quality trends and geographical patterns. The SC DHEC, GA EPD and MCAQ are required to operate six PM₁₀ monitors at five sites in CBSAs in or abutting the state (see Table 18).

Table 18: PM₁₀ 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 PM₁₀ 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 PM₁₀ monitor.

The Network Plan Addendum, received on October 26, 2022, proposes to meet this requirement by operating a T640x monitor, which measures both PM₁₀ 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 PM₁₀ and PM_{2.5} requirements being met at the same site because PM₁₀ levels in the MSA are typically not near the NAAQS and having one site to measure both PM₁₀ and PM_{2.5} will save the SC DHEC resources. Thus,

the EPA approves the startup of PM₁₀ monitoring at the Coastal Carolina site to meet the new PM₁₀ minimum requirement.

The PM₁₀ 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 PM₁₀ 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 PQA level. The SC DHEC is not required to operate any PM₁₀ collocated monitors.

Table 19: PM₁₀ 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 PM₁₀ 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 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	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 PM₁₀ 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} measurements¹. 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 PQAQO is using for a primary monitor, the PQAQO 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 PQAQO, 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

PQAQO	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 NO₂ 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) NCFS (AQS ID: 45-019-0020)	Y
Charlotte-Concord-Gastonia, NC-SC	1	5	Garinger (AQS ID: 37-119-0041) ¹ Friendship Park (AQS ID: 37-119-0048) ¹ Remount (AQS ID: 37-119-0045) ¹ Rockwell (AQS ID: 37-159-0021) ² Catawba Longhouse (AQS ID: 45-091-8801) ³	Y
Columbia, SC (NCore)	1	2	Irmo (AQS ID: 45-063-0008) ⁴ Irmo DJJ ⁴ (AQS ID: 45-079-0022) 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 O₃ 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 O₃ monitor in the Myrtle Beach-Conway-North Myrtle Beach, SC MSA. Preference should be given to possible O₃ 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 PM₁₀ 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 concerns² 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 Teledyne T640 PM _{2.5} and PM ₁₀ FEM monitor upgrades – 5 QA collocated T640 PM _{2.5} FEM monitor – 1 PM _{2.5} monitor enclosures – 6 Data loggers – 4 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 Wind speed and direction sensor – 1 FEM PM _{2.5} monitor – 1 Flow calibrator - 1 Flow meter – 1 Zero air generator - 1
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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



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

October 26, 2021

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 2021 Annual Ambient Air Monitoring Network Plan (Network Plan) dated June 28, 2021. 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.

The Network Plan proposes several changes to the South Carolina monitoring network, including:

- Relocation of the Irmo monitoring site (AQS ID: 45-063-0008) to the Irmo Department of Juvenile Justice monitoring site (AQS ID: 45-079-0022); and
- Shutdown of the Johnson Controls Lead (Pb) monitoring sites (AQS IDs: 45-041-8001, 45-041-8002, 45-041-8003) near the Clarios facility, which ceased operation of their recycling center in March 2021.

The EPA partially approves the SC DHEC's request to discontinue monitoring for Pb near the Clarios facility. The EPA supports the request to shut down two of the three Pb monitors, but requests that the SC DHEC continue operating the JCI Woods monitor (AQS ID: 45-041-8003) that has most consistently measured the highest concentrations of lead. The EPA will support shutting down the JCI Woods monitor once the facility's operating permit has been revoked and a cleanup plan is in place that addresses minimizing re-entrainment of Pb-containing dust. Please note that the EPA understands that the Pb monitoring around the Clarios facility is required by a settlement agreement and by the facility's construction permit and that these requirements may need to be revised before changes can be made to the Pb monitor network. The EPA recommends consideration of the settlement agreement requirements and permit requirements for any lead monitoring changes near Clarios.

An increase in the PM_{2.5} design value for the Augusta MSA triggered a requirement for additional PM_{2.5} monitoring. The EPA will work with the SC DHEC to meet this monitoring requirement, and requests that the SC DHEC propose how it will meet the requirement in its 2022 Network Plan.

The Charlotte-Concord-Gastonia, NC-SC, MSA has recently triggered a requirement for one additional near-road NO₂ monitor in the Charlotte area. The Mecklenburg County Air Quality (MCAQ) program is currently working to meet the requirement for the second near-road NO₂ monitor.

Additionally, the EPA understands that the SC DHEC is deploying a short-term SO₂ monitor at the Catawba Longhouse monitoring site (AQS ID: 45-091-8801) to characterize population exposure from the nearby New Indy Container Board facility. The EPA understands that the SC DHEC has developed a quality assurance project plan (QAPP) for this study and requests that the SC DHEC provide the QAPP to the EPA for review, if it has not already done so.

The EPA approves the proposed monitoring network changes and the Network Plan, with the exceptions discussed above. Detailed comments on South Carolina's Network Plan are enclosed. Thank you for working with the EPA to monitor air pollution and safeguard healthy air quality in South Carolina and the nation. If you have any questions or concerns, please contact Todd Rinck at (404) 562-9062, Adam Friedman at (404) 562-9033, or Ryan Brown at (404) 562-9147.

Sincerely,

Caroline Y. Freeman
Director
Air and Radiation Division

Enclosure

cc: Renee Shealy, Bureau Chief, BEHS
Connie Turner, Director, Division of Air Quality Analysis, BEHS
Heinz Kaiser, Director, Division of Emissions Evaluation and Support, BAQ
Mary Peyton Wall, Air Regulation and Data Analysis, BAQ
G. Renee Madden, Air Data Analysis and Support, BAQ
Floyd Wellborn, Region 4 LSASD

2021 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 (EPA) comments and recommendations on the state of South Carolina’s 2020 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 (O₃), particulate matter less than 2.5 microns (PM_{2.5}), particulate matter less than 10 microns (PM₁₀), nitrogen dioxide (NO₂), sulfur dioxide (SO₂) 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 1, 2020, population estimates from the U.S. Census Bureau, and historical ambient air monitoring data. Minimum monitoring requirements for O₃, PM_{2.5}, and PM₁₀ 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, 2020 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, 2020 Population Estimates

MSA Name	Population
Charlotte-Gastonia-Concord NC-SC	2,684,276
Greenville-Anderson, SC	923,705
Columbia, SC	847,397
Charleston-North Charleston-Summerville, SC	819,705
Augusta-Richmond County, GA-SC	614,312
Myrtle Beach-Conway-North Myrtle Beach, SC-NC	514,488
Spartanburg, SC	326,205
Hilton Head Island-Bluffton, SC	227,244
Florence, SC	204,097
Sumter, SC	139,775

The U.S. Census Bureau released initial population numbers for the 2020 census count on August 12, 2021. These population numbers were available after the Network Plan was submitted. The EPA checked the 2020 population number for the Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA, since the 2020 population estimate based on the 2010 count is greater than 500,000 people, which would trigger additional air monitoring minimum requirements. The 2020 census numbers indicate that the population of this MSA is just under 500,000 at 487,722 people. The Myrtle Beach area will likely pass 500,000 people in the next year or two based on expected population growth in this area.

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 2021 through 2022. 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	PM _{2.5}	SPM	Relocation acknowledged. PM _{2.5} monitoring for Charleston will be conducted at North Charleston Fire Station (AQS ID: 45-019-0020) by December 31, 2021.
45-019-0049	Charleston-North Charleston, SC	CPW	PM _{2.5} , PM _{2.5} Cont.	SLAMS/ SPM	Relocations previously approved. These monitors will be relocated to NCFS (AQS ID: 45-019-0020) by December 31, 2021.
45-063-0008	Columbia, SC	Irmo	PM _{2.5}	SLAMS/ SPM	Relocation approved. This monitor will be relocated to Irmo Department of Juvenile Justice (AQS ID: 45-079-0022) by December 31, 2021.
45-079-0021	Columbia, SC	Congaree Bluff	Precipitation, Precipitation Chemistry	SPM	Discontinuation acknowledged. The SC DHEC has contacted the Department of the Interior and confirmed that the data are no longer needed.
45-041-8001, 45-041-8002, 45-041-8003	Florence, SC	Johns on Controls – Railroad, Entrance, Woods	Pb	SPM	The EPA recommends that the SC DHEC continue to sample for Pb until the facility’s permit is revoked and a cleanup plan is in place.
45-007-0005	Greenville-Anderson, SC	Big Creek	O ₃	SLAMS	Shutdown previously approved. Monitor ran one year concurrently with Garrison Arena (AQS ID: 45-007-0006) to ensure data are comparable.
45-083-0011	Spartanburg, SC	T.K. Gregg	PM _{2.5}	QA Collocated SPM ¹	Relocation acknowledged. The PM _{2.5} sampler was temporarily moved to this site to fulfill collocation requirements and will be moved to NCFS (AQS ID: 45-019-0020) when that site starts, by the end of 2021.
45-043-0011	None	Howard High #3	PM ₁₀	SPM	Discontinuation acknowledged. The EPA supports discontinuing the monitor because the area has low PM ₁₀ concentrations and the resources would be better utilized elsewhere on other monitoring activities..

1. The T.K. Gregg monitor is listed as an SPM, but because it is serving as a QA collocation monitor, it must be classified as a SLAMS.

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	Previously approved. Will meet the PM _{2.5} monitoring requirements for the Charleston area. This new site (NCFS) will replace the CPW (AQS ID: 45-019-0049) and FAA (AQS ID: 45-019-0048) sites, which do not meet regulatory siting criteria. Expected to start by the end of 2021.
45-079-0022	Columbia, SC	Irmo Department of Juvenile Justice	PM _{2.5}	SLAMS	Approved. The Irmo site (AQS ID: 45-063-0008) will be operated until it is relocated to the Irmo Department of Juvenile Justice site at the end of 2021.
45-091-8801	Charlotte-Concord-Gastonia, NC-SC	Catawba Longhouse	SO ₂	SPM	Acknowledged. The site will be operated for 90 days to collect enough data to make determine whether the monitoring should continue. The SC DHEC has developed a study specific QAPP and has agreed to? share it with the EPA Region 4.

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 2021 Network Plan was held from April 23, 2021 through May 24, 2021. No comments were received. The Network Plan meets the public comment requirements of 40 CFR 58.10.

Operating Schedules

40 CFR § 58.12

The operating schedules for all the monitors proposed by the SC DHEC in its Network Plan meet the requirements continuous analyzers and all manual Pb, PM₁₀, 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, O₃, SO₂, CO, NO/NO_y, wind speed, wind direction, relative 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 with the required measurement parameters in the Columbia CBSA.

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.

**O₃ Monitoring Requirements
40 CFR Part 58, Appendix D, Section 4.1, and Table D-2**

Ambient air monitoring network design criteria for O₃ are found in 40 CFR Part 58, Appendix D, Section 4.1. This section requires state agencies to operate O₃ 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	2	0	Jackson Middle School (AQS ID: 45-003-0003) Trenton (AQS ID: 45-037-0001)	Y
Charleston-North Charleston, SC	2	2	1	Moncks Corner National Guard (AQS ID: 45-015-1002) Cape Romain (AQS ID: 45-019-0046)	Y
Charlotte-Concord-Gastonia, NC-SC	2	5	1	York Landfill (AQS ID: 45-091-0008) Crouse (AQS ID: 37-109-0004) ¹ Garinger (AQS ID: 37-119-0041) ² University Meadows (AQS ID: 37-119-0046) ² Rockwell (AQS ID: 37-159-0021) ¹	Y
Columbia, SC(NCore)	2	2	1	Parklane (AQS ID: 45-079-0007) Sandhill (AQS ID: 45-079-1001)	Y
Florence, SC	1	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) Hillcrest (AQS ID: 45-045-0016)	Y
Myrtle Beach-Conway-North Myrtle Beach, SC-NC	2	1	0	Coastal Carolina (AQS ID: 45-051-0008)	N
Spartanburg, SC	1	1	0	North Spartanburg Fire Station #2 (AQS ID: 45-083-0009)	Y

2. Crouse and Rockwell sites are operated by 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) collected its first complete O₃ design value (DV) in 2019. Its 2017-2019 DV was 0.060 ppm, or 85.7% of the NAAQS. The 2018-2020 DV was incomplete and, thus, not useable. The 2017- 2019 DV is the most recent valid design value. 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 greater than 85% of the NAAQS, is required to have a second O₃ monitor.

The EPA requests that the SC DHEC and the NC DAQ collaborate to characterize the area of highest O₃ concentrations in the MSA, identify potential monitoring locations, and then present the results of this investigation in their 2022 Network Plans. If a second monitor is still required in the MSA based on the most recent complete and valid DV being above 85% of the NAAQS, the results of the investigation should be used to propose a new O₃ monitoring site in the MSA in the 2023 Network Plans.

O₃ monitors located 5-10 miles downwind from concentrated NO_x emissions areas are often representative of expected O₃ maximum concentrations in the Southeast. The characterization of the Myrtle Beach area could consider current population dynamics, traffic, and frequent afternoon wind directions during O₃ season. More information about O₃ 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>. With the exception of the Myrtle Beach-Conway-North Myrtle Beach, SC-NC MSA, the O₃ 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 people are required to operate one CO monitor collocated with a near-road NO₂ site. The MCAQ meets the requirement in the Charlotte-Concord-Gastonia, NC-SC CBSA, which has a population over 1,000,000, by operating one 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.

NO₂ Monitoring Requirements
40 CFR Part 58, Appendix D, Section 4.3

Ambient air monitoring network design criteria for NO₂ are found in 40 CFR Part 58, Appendix D, Section 4.3. Three types of NO₂ monitoring are required: near-road, area-wide, and Regional Administrator. These types of NO₂ monitoring are described in Sections 4.3.2, 4.3.3, and 4.3.4, respectively.

Ambient air monitoring design criteria for near-road NO₂ 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 established, the Charlotte area was below the 2.5 million population threshold for a second near-road NO₂ monitoring site. However, the most recent census population estimate for the Charlotte-Concord-Gastonia, NC-SC CBSA is now over 2.5 million people. The MCAQ has identified a potential location

for the additional near-road site and is preparing to install the needed equipment. This site should be operational in 2022 or 2023.

Table 9: NO₂ 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	1	Remount (AQS ID: 37-119-0045) ¹	N

1. The Remount site is operated by the Mecklenburg County Air Quality (MCAQ). Since recent estimated population increases in the Charlotte area, the EPA is working with the MCAQ on funding and establishing a second near-road NO₂ site.

Ambient air monitoring network design criteria for area-wide NO₂ sites are found in Section 4.3.3 of Appendix D to 40 CFR Part 58. The MCAQ operates a NO₂ monitor at its Garinger site to meet the minimum requirement for the Charlotte-Gastonia-Concord, NC-SC CBSA.

Table 10: NO₂ 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 Mecklenburg County Air Quality.

Ambient air monitoring network design criteria for Regional Administrator required NO₂ 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 NO₂ monitoring stations nationwide, with a primary focus on siting these monitors in locations to protect susceptible and vulnerable populations. The full list of NO₂ monitors identified by the EPA’s Regional Administrators can be found on the 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: NO₂ 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

Except for near-road NO₂ monitoring in the Charlotte area, the NO₂ monitoring network described by the Network Plan meets all design criteria of 40 CFR Part 58.

SO₂ Monitoring Requirements 40 CFR Part 58, Appendix D, Section 4.4

Ambient air monitoring network design criteria for SO₂ 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 SO₂ 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 SO₂ 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 2019 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: SO₂ Design Criteria – Minimum Required SLAMS PWEI Monitors

CBSA	2019 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	2,636,883	5,648	14,895	1	1	Garinger (AQS ID:37-119-0041) ¹	Y
Columbia, SC	838,433	3,709	3,110	0	1	Parklane (AQS ID: 45-079-0007)	Y
Charleston-North Charleston, SC	802,122	8,173	6,555	1	1	Jenkins Ave. (AQS ID: 45-019-003)	Y

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

The SO₂ monitoring network outlined in the Network Plan meets the SO₂ PWEI requirements specified in 40 CFR Part 58, Appendix D, Section 4.4.

The EPA finalized the SO₂ Data Requirements Rule (DRR) on August 10, 2015 (40 CFR Part 51, Subpart BB). This rule requires air quality near sources with SO₂ 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 SO₂ air quality must be characterized. These eight sources were characterized using modeling and/or took federally enforceable emissions limits. The SC DHEC is not required to and does not operate any SO₂ monitoring sites to meet the DRR.

Table 13: SO₂ 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 SO₂ emissions serve as the basis for designating such area as attainment for the 2010 SO₂ 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 SO₂ 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 2020 annual emission report with its 2021 Network Plan to meet this requirement. The report applies to areas designated attainment/unclassifiable based on modeling of actual SO₂ emissions for two International Paper facilities, Eastover Mill and Wateree Station, as well as Santee Cooper Cross Generating Station and a Resolute Industries (now New-Indy Catawba) facility.

The EPA has completed the review of the Appendix H pre-hearing submission and has no comments. For the 2020 DRR portion found in Appendix H of the Network Plan, the EPA will respond in a separate correspondence. The next annual SO₂ emissions report for these facilities is due July 2, 2022.

The Regional Administrator may require additional SO₂ 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 SO₂ monitor by the Regional Administrator at this time.

Table 14: SO₂ 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 background SO₂ 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 SO₂ 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 three monitors that the SC DHEC includes in its SO₂ rotating background network. The EPA recommends that the SC DHEC evaluate the listed monitoring objective for Cape Romain, which is currently “source oriented.” The last three design values for the Cape Romain SO₂ monitor have been 4 ppb compared to the standard of 75 ppb. The SO₂ design value of 4 ppb is similar to SO₂ monitors in South Carolina with background or transport monitoring objectives. The EPA also recommends that the SC DHEC evaluate the listed monitoring objective for the Trenton site, which is currently listed as “source oriented.” The Trenton site is slated to begin operation in 2022 as a part of the SC DHEC’s rotating background monitoring network. If the SC DHEC believes Cape Romain and Trenton monitors are/will be source-oriented, the EPA requests that it provide information supporting this in the 2022 Network Plan.

Table 15: SO₂ Rotating Background Monitoring

CBSA	Site Name (AQS ID)	Frequency of Operation	Next Expected Years of Operation	Monitoring Objective in Network Plan
Charleston-North Charleston, SC	Cape Romain (AQS ID: 45-019-0046)	Every other 2 years	2020-2021	Source Oriented
Charlotte-Concord-Gastonia, NC-SC	York Landfill (AQS ID: 45-091-0008)	Every other 2 years	2020-2022	Upwind Background
Columbia, SC	Congaree Bluff	Every other 2 years	2022-2023	General Background

	(AQS ID: 45-079-0021)			
August-Richmond County, GA-SC	Trenton (AQS ID: 45-037-0001)	Every other 2 years	2022-2023	Source Oriented

It is the EPA’s understanding that the SC DHEC intends to locate an SO₂ monitor at the Catawba Longhouse (AQS ID: 45-091-8801) monitoring site, operated by CIN, to characterize population exposure from emissions at the New Indy Container Board facility. The monitor would be located about 5 miles from the facility. The monitor is expected to operate less than a year.

It is the EPA’s understanding that the SC DHEC has written a project-specific QAPP for this short-term SO₂ monitoring. In order to meet the commitments of the SC DHEC’s Section 105 Grant, the EPA requests a copy of the project-specific QAPP for review. The EPA appreciates the SC DHEC’s work in ensuring this short-term monitoring meets data quality standards.

Data collected as part of the short-term SO₂ monitoring must be reported to AQS. Forty (40) CFR 58.20 (b) requires that “... data collected at an SPM using a FRM, FEM, or ARM meeting the requirements of Appendix A must be submitted to AQS according to the requirements of § 58.16.”

In summary, the South Carolina SO₂ 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, South Carolina. This monitoring is 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. 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 and the SC DHEC is planning to discontinue Pb monitoring at the JCI monitoring sites.

In its 2021 Network Plan, the SC DHEC requested to shut down the three JCI monitoring sites. On September 17, 2021, the EPA and the SC DHEC met to discuss the future of the JCI monitoring sites. As there is equipment still on site, and the permit remains in place, the EPA requests that the SC DHEC continue to monitor for Pb near the Clarios facility. The EPA partially approves the SC DHEC’s request to discontinue monitoring for Pb near the Clarios facility. The EPA supports the request to shut down two of the three Pb monitors, but requests that the SC DHEC continue operating the JCI Woods monitor (AQS ID: 45-041-8003) that has most consistently measured the highest concentrations of lead. The EPA will support shutting down the JCI Woods monitor once the facility’s operating permit has been revoked (and provided to EPA) and a cleanup plan is in place that addresses minimizing re-entrainment of Pb-containing dust. As already noted, the EPA understands that the Pb monitoring around the Clarios

facility is required by a settlement agreement and that these requirements may need to be revised before changes can be made to the Pb monitor network.

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)
Johnson Controls Incorporated ¹	Florence, SC	0	3	JCI Railroad (AQS ID: 45-041-8001) JCI Entrance (AQS ID: 45-041-8002) 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 PQAQ level. The SC DHEC is required to operate one collocated Pb monitor, and it operates it at the JCI Entrance (AQS ID: 45-041-8002) site (see Table 17). When the JCI Entrance site is shut down, the collocated monitor will need to be housed at the JCI Woods site.

Table 17: Pb Design Criteria – Minimum Required Collocated Monitors

PQAQ	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 Entrance (AQS ID: 45-041-8002)	Y

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

PM₁₀ 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 PM₁₀ are found in 40 CFR Part 58, Appendix D, Section 4.6. Table D-4, in this section, indicates the approximate number of PM₁₀ stations required in MSAs with populations exceeding 100,000 to characterize national and regional PM₁₀ air quality trends and geographical patterns. The SC DHEC, GA EPD and MCAQ are required to operate six PM₁₀ monitors at five sites in CBSAs in or abutting the state (see Table 18).

Table 18: PM₁₀ 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

1. The Augusta site is operated by the GA EPD
2. The Garinger and Ramblewood Park sites are operated by the MCAQ

The EPA understands that the SC DHEC discontinued PM₁₀ monitoring at the Chesterfield site (AQS ID: 45-025-0001) in March 2019, and it included formal notification of this termination in an addendum to the 2020 Network Plan. In addition, the EPA acknowledges the SC DHEC’s shutdown of PM₁₀ monitoring at the Howard High School site (AQS ID: 45-043-011). As both the Chesterfield PM₁₀ monitor and Howard High School site are SPM monitors, they do not require the EPA’s approval for discontinuation. The EPA is supportive of these shutdowns to maintain an efficient and useful PM₁₀ monitoring network.

At the time of submittal, the official 2020 census results were not yet available, so the SC DHEC evaluated its minimum monitoring requires based on 2019 estimates. According to the official results of the 2020 census, the population of the Myrtle Beach-Conway-North Myrtle Beach MSA increased to 487,722. According to 40 CFR Part 58, Appendix D, Table D-4, the Myrtle Beach area is approaching requirements for one PM₁₀ and one PM_{2.5} monitor. The EPA recommends that the SC DHEC investigate possible locations for a PM₁₀ and PM_{2.5} monitoring site. If the 2021 census estimates are above the threshold, the EPA requests that the SC DHEC propose a PM₁₀ monitoring site in the Myrtle Beach area.

The PM₁₀ collocation requirements for manual methods are found in 40 CFR Part 58, Appendix A, 3.3.4. Those requirements include that: Fifteen percent of each network of manual PM₁₀ 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 PQA level. The SC DHEC is not required to operate any PM₁₀ collocated monitors.

Table 19: PM₁₀ 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 PM₁₀ 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, the GA EPD and the MCAQ are required to operate six PM_{2.5} monitors at five sites in CBSAs in or abutting the state. Instead, they operate 13 PM_{2.5} monitors at eight sites in CBSAs in or abutting the state. They also operate 12 SPMs at eight sites (see Table 20).

Table 20: PM_{2.5} 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	1	1	Augusta (AQS ID: 13-245-0091) ¹	N
Charleston-North Charleston, SC	1	2	3	CPW (AQS ID: 45-019-0049) NCFS (AQS ID: 45-019-0020) ² Cape Romain (AQS ID: 45-019-0046)	Y
Charlotte-Concord-Gastonia, NC-SC	2	3	2	Garinger (AQS ID: 37-119-0041) ³ Remount (AQS ID: 37-119-0045) ³ Rockwell (37-159-0021) ⁴ Friendship Park (AQS ID: 37-119-0048) ³	Y
Columbia, SC(NCore)	1	2	2	Irmo (AQS ID: 45-063-0008) ⁵ Irmo DJJ (AQS ID: 45-079-0022) ⁵ Parklane (AQS ID: 45-079-0007)	Y
Greenville-Anderson, SC	1	2	1	Greenville ESC (AQS ID: 45-045-0015) Hillcrest (AQS ID: 45-045-0016)	Y
Florence, SC	0	1	1	Williams Middle School (AQS ID: 45-041-0003)	Y
Spartanburg, SC	0	1	2	T.K. Gregg (AQS ID: 45-083-0011)	Y
None	0	1	1	Chesterfield (AQS ID: 45-025-0001)	Y

1. The Augusta site is operated by the GA EPD
2. NCFS will be established by December 31, 2021 and serve as the SLAMS for the Charleston area
3. The Garinger, Remount, and Friendship Park sites are operated by the MCAQ
4. The Rockwell site is operated by the NC DAQ
5. The SC DHEC has proposed relocating the Irmo site to Irmo DJJ due to site access issues.

The 2019 Network Plan proposed to establish a new PM_{2.5} monitoring site in the Charleston-North Charleston, SC MSA, the North Charleston Fire Station (NCFS) site (AQS ID: 45-019-0020), which will replace existing PM_{2.5} sites in the area. The EPA previously approved shutdown of the CPW site and startup of the NCFS site. The FAA site (AQS ID: 45-019-0048) has an SPM and the SC DHEC does not require EPA approval to shut it down. Once the NCFS site is established, the SC DHEC plans to operate the FAA monitor concurrently so that the data can be compared. While the NCFS site is being established, the SC DHEC temporarily placed the PM_{2.5} sampler with the T.K. Gregg monitor, in the Spartanburg, SC MSA, to meet collocation requirements. Once the NCFS site has been established, the sampler will be moved back to the Charleston-North Charleston, SC MSA. The EPA recommends that the SC DHEC prioritize establishment of the NCFS site in order to meet the deadline of December 31, 2021.

The SC DHEC also proposed relocating the Irmo (AQS ID: 45-063-0008) monitoring site 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 the EPA, the SC DHEC was able identify 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 the site meets the requirements of 40 CFR Part 58, Appendix E. As a result, the EPA approves relocation of the Irmo site to the Irmo DJJ PM_{2.5} monitoring site.

At the time of submittal, the official 2020 census results were not yet available, so the SC DHEC evaluated its minimum monitoring requirements based on 2019 estimates. According to the official results of the 2020 census, the population of the Myrtle Beach-Conway-North Myrtle Beach MSA increased to 487,722. According to 40 CFR Part 58, Appendix D, Table D-4, the Myrtle Beach area is approaching requirements for one PM_{2.5} and one PM₁₀ monitor. The EPA recommends that the SC DHEC and the NC DCAQ investigate possible locations for a PM_{2.5} and PM₁₀ monitoring site. If the 2021 census estimates are above the threshold, the EPA requests that the SC DHEC propose a PM_{2.5} monitoring site in the Myrtle Beach area in its 2022 Network Plan.

The level of the PM_{2.5} annual NAAQS is 12.0 µg/m³ 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 µg/m³, 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 EPA recommends converting the PM_{2.5} monitor at the Trenton site (AQS ID: 45-037-0001) from an SPM monitor to a SLAMS monitor. This would allow the SC DHEC to meet the minimum monitoring requirements without requiring either the GA EPD or the SC DHEC to establish a new site. The EPA understands from discussions with the SC DHEC that it may evaluate the Trenton site or an existing O₃ site to serve as a long term PM_{2.5} monitoring in the area. The EPA is potentially supportive of relocating the PM_{2.5} monitor to the Jackson Middle School site (AQS ID: 45-003-0003), if it can be demonstrated that the Jackson Middle School site would be expected to be a better location than the Trenton site, considering the PM_{2.5} design criteria set forth in 40 CFR Part 58, Appendix D, Section 4.7. The EPA requests that the SC DHEC convert the Trenton PM_{2.5} SPM to SLAMS by January 1, 2022 and submit documentation of this change in the 2022 Network Plan.

Forty (40) CFR Part 58, Appendix A, Section 3.2.3 states that fifteen percent of each network of manual PM_{2.5} methods (at least one site) must be collocated. Section 3.2.3.1 states for each distinct monitoring method designation (FRM or FEM) that a PQAQO is using for a primary monitor, the PQAQO must have fifteen 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 for each primary monitor designated as an FEM used by the PQAQO, fifty 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 fifty percent of the monitors shall be collocated with a monitor having the same method designation as the FEM primary monitor. The SC DHEC is required to operate two collocated PM_{2.5} monitors but it operates five (see Table 21).

In the Network Plan, the SC DHEC designated the T.K. Gregg (AQS ID: 45-045-0016) monitoring site 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 T.K. Gregg should be classified a SLAMS. The EPA requests that the SC DHEC change the monitor type to SLAMS in AQS.

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

PQAQO	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	9	1	3	T.K. Gregg ² (AQS ID: 45-083-0011) Hillcrest (AQS ID: 45-045-0016) Parklane (AQS ID: 45-079-0007)	Y
SC DHEC	Teledyne T640X at 16.67 LPM	238	1	1	1	Greenville ESC (AQS ID: 45-045-0015)	Y
SC DHEC	Teledyne T640 at 5.0 LPM	236	1	1	1	Irving Street (AQS ID: 45-019-0021)	Y

1. The EPA has approved relocating the Irmo site to Irmo DJJ due to site access issues.
2. Once the NCFS site is established by the end of 2021, the collocated PM_{2.5} sampler will be moved from T.K. Gregg to NCFS.

The proposed PM_{2.5} monitoring network described in the Network Plan 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 NO₂ station.” One CBSA with a population of 1,000,000 or more persons is partially located 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."

Five South Carolina MSAs listed in Table 23, below, are required to have continuous monitors. Seven MSAs in or partially in South Carolina have continuous PM_{2.5} monitors. 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	3	Irving Street (AQS ID: 45-019-0021) Cape Romain (AQS ID: 45-019-0046) CPW (AQS ID: 45-019-0049)	Y
Charlotte-Concord-Gastonia, NC-SC	1	5	Garinger (AQS ID: 37-119-0041) ¹ Friendship Park (AQS ID: 37-119-0048) ¹ Remount (AQS ID: 37-119-0045) ¹ Rockwell (AQS ID: 37-159-0021) ² Catawba Longhouse (AQS ID: 45-091-8801) ³	Y
Columbia, SC (NCore)	1	2	Irmo (AQS ID: 45-063-0008) ⁴ Irmo DJJ ⁴ (AQS ID: 45-079-0022) 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
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. The SC DHEC has proposed relocating the Irmo site to Irmo DJJ due to site access issues.

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	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, 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. 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 and the SC DHEC operates one CSN 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 O₃ 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 extends 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 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. 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 at Chesterfield 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 measure ethylene oxide (EtO) concentrations in the ambient air in the North Charleston area, which has contributions from stationary and mobile sources. This special study will measure ambient concentrations at a location with a high traffic pattern and no known EtO stationary sources as well as community concentrations at locations upwind and downwind of a known EtO source. This study will increase community and stakeholder awareness of EtO ambient concentrations in North Charleston Area and provide baseline EtO concentration in the study area. To inform the public of the status of ongoing air toxics monitoring in their communities, please include a discussion on the status of the Community Scale Air Toxics Monitoring Grant activities in the 2022 Annual Network Plan.

The SC DHEC also collects samples for air toxics in the Columbia, SC MSA at the Parklane (AQS ID: 45-079-0020) and Congaree Bluff (AQS ID: 45-079-0021) sites. Air toxics sampling at Parklane and Congaree Bluff 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 to help ensure that the data are of sufficient quality for SC DHEC's intended use(s) of the data, such as risk screening analyses and/or public dissemination.

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	PM _{2.5}	Trenton (AQS ID: 45-037-0001)	SPM	Y
Charleston-North Charleston, SC	NO ₂	Jenkins Ave. Fire Station (AQS ID: 45-019-0003)	SPM	Y
Charleston-North Charleston, SC	PM _{2.5} Cont., SO ₂ , NO ₂	Irving Street (AQS ID: 45-019-0021)	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	PM _{2.5} Cont.	CPW (AQS ID: 45-019-0049)	SPM	Y
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 Chemicals	Parklane (AQS ID: 45-079-0007)	SPM	N/A
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 Railroad (AQS ID: 45-041-8001) 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, 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
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The EPA approves of the SC DHEC agreements to share regulatory monitoring requirements for the Charlotte, Myrtle Beach, and Augusta areas. The EPA encourages the SC DHEC to work with the NC DAQ to investigate possible locations for a second required O₃ monitor in the Myrtle Beach-Conway-North Myrtle Beach, SC MSA. Preference should be given to possible O₃ maximum concentration areas in the MSA. The EPA requests that findings of this investigation be included in the state's 2022 Network Plan. The EPA also encourages the SC DHEC to begin investigating locations for possible PM₁₀ and PM_{2.5} monitoring locations 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.

Waivers of Requirements

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

Table 28: 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 G: 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: Richard J. Riley
TITLE: Director
DATE: 2/21/17

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

BY: Hubert D. Jones
TITLE: Bureau Chief
DATE: 03/02/17

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

Francine J. Miller
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)

RECEIVED
JUL 01 2016
BUREAU OF AIR QUALITY

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 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:

NCDEQ DAQ: Joette Steger
 NC DENR Division of Air Quality
 1641 Mail Service Center
 Raleigh, NC 27699-1641

joette.steger@ncdenr.gov
Voice/fax: 919-707-8449

SCDHEC: Scott Reynolds
 SCDHEC Bureau of Environmental Health Services
 2600 Bull Street
 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: Shirley 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: Ally B. Dyer

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: Kevin H. Phelan

TITLE: Director, Air Quality

DATE: 6/29/2014



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

MEMORANDUM OF AGREEMENT
ON AIR QUALITY MONITORING FOR CRITERIA POLLUTANTS FOR
THE MYRTLE BEACH-CONWAY-NORTH MYRTLE BEACH
METROPOLITAN STATISTICAL AREA (MSA)

July 1, 2015

Participating Agencies:

North Carolina
Department of Environment and Natural Resources (NCDENR)
Division of Air Quality (NCDAQ)

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 establish the Myrtle Beach-Conway-North Myrtle Beach Metropolitan Statistical Area (MSA) Criteria Pollutant Air Quality Monitoring Agreement between NCDAQ and SCDHEC (collectively referred to as the “affected agencies”) to collectively meet United States Environmental Protection Agency (EPA) minimum monitoring requirements for ozone, as well as other criteria pollutants 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 Myrtle Beach-Conway-North Myrtle Beach MSA as required by 40 CFR 58 Appendix D, Section 2(e).

II. BACKGROUND

The Myrtle Beach-Conway-North Myrtle Beach MSA consists of Horry County and Brunswick County. NCDAQ has jurisdiction over Brunswick County and SCDHEC has jurisdiction over Horry County. Brunswick County was previously included in the Wilmington (NC) MSA with New Hanover and Pender Counties. However, the United States Office of Management and Budget revised the geographic delineation in February 2013 to include Brunswick County in the Myrtle Beach-Conway-North Myrtle Beach MSA instead.

The NCDAQ and SCDHEC are required by the Clean Air Act to measure for certain criteria pollutants in the ambient air in the Myrtle Beach-Conway-North Myrtle Beach 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 ozone.

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 with the MSA.

III. ROLES AND RESPONSIBILITIES

The parties agree to the following terms and conditions:

- NCDAQ and SCDHEC (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 ozone, as well as other criteria air pollutant monitoring deemed necessary to meet the needs of the MSA as determined reasonable by both 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 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 party shall inform the other 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 extend (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 deliver 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 or SCDHEC 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 or SCDHEC, their officers or employees, or any other person. This MOA does not direct or apply to any person outside NCDAQ or SCDHEC.

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:

NC DENR DAQ: Donnie Redmond
NC DENR Division of Air Quality
1641 Mail Service Center
Raleigh, NC 27699-1641

donnie.redmond@ncdenr.gov
Voice/fax: 919-707-8468

SCDHEC: Scott Reynolds
SCDHEC Bureau of Air Quality
2600 Bull Street
Columbia, SC 29201

reynolds@dhec.sc.gov
Voice: 803-896-0902

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 Environment and Natural Resources
Division of Air Quality (NCDAQ)

BY: Shirley C. Holman
TITLE: Director, Division of Air Quality
DATE: 6/12/2015

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

BY: Myra A. Reed
TITLE: Bureau Chief, Air Quality Bureau
DATE: 6/22/15

Appendix H: Waivers



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 PM₁₀ 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 PM₁₀ 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 PM₁₀ 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 I: Ongoing Data Requirements Rule for 2010 1-hour SO₂ NAAQS Verification Calendar Year 2022

On June 2, 2010, the U.S. EPA revised the primary NAAQS for sulfur dioxide (SO₂) 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 SO₂ 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).

In January 2018, EPA designated each county in South Carolina as attainment/unclassifiable for the 2010 SO₂ 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 SO₂ 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 28, 2023, and ended May 30, 2023. The EPA provided the following comment: The emission data for the Santee Coper Cross Generation Station provided in Table 9 indicates that the 2022 maximum 1-hour emission rates for Units 1, 3 and 4 are higher than the modeled 1-hour emission rates in the original DRR modeling. Also, the 2022 average hourly emission rate for Unit 1 is above the modeled average hourly rate. This information could trigger the need for additional modeling to show attainment using the current emissions. However, the 2022 annual tons per year emissions for all 4 units are much lower than 3-year average of the 2012-2014 modeled years, and SC DHEC provided an analysis to show that the increases in maximum hourly emissions are not likely to cause a concern that the 1-hour SO₂ NAAQS will be exceeded. It would be helpful to provide further information to supplement the analysis. We suggest that South Carolina perform additional analysis for the specific dates and times in 2022 that the maximum hourly emissions were higher than the modeled emissions. Then the emissions from all 4 units could be summed together for the hours corresponding to the maximum emission value for each unit presented in column 3 of Table 9 (e.g., for the date and hour when the Unit 1 emissions were 4,485.6 lb/hr, add the hourly

emissions from the other 3 units for that specific hour). These cumulative values could then be compared to the cumulative emissions of all 4 units corresponding to the hours of modeled maximum emission rates presented in column 2 of Table 9 (e.g., the cumulative emissions from all 4 units corresponding the date and hour when the modeled emissions from Unit 1 were 4,236 lb/hr). This additional analysis could help justify the conclusion that additional modeling is not needed to address these emissions increases. The comment is addressed in this final submission.

Sylvamo Eastover Mill (Sylvamo) and Wateree Station (Wateree), Richland County

Sylvamo and Wateree were modeled in the same modeling domain for the 1-hr SO₂ 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 SO₂ 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)			
2021 SO ₂ Emissions	2022 SO ₂ Emissions	Modeled Emissions	Status
177.3 lbs/hr	152.4 lbs/hr	606.9 lbs/hr	No further action needed

Table 2

Sylvamo Recovery Furnace No. 2 and No. 2 NCG Incinerator (Combined Stack)			
2021 SO ₂ Emissions	2022 SO ₂ Emissions	Modeled Emissions	Status
204.3 lbs/hr	215.2 lbs/hr	420.8 lbs/hr	No further action needed

Table 3

Sylvamo No. 2 Power Boiler			
2021 SO ₂ Emissions	2022 SO ₂ Emissions	Modeled Emissions	Status
79.6 lbs/hr	58.1 lbs/hr	971.0 lbs/hr	No further action needed

For Sylvamo, the source of sulfur dioxide (SO₂) 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):

$$Emission\ Rate\ \left(\frac{lb}{hr}\right) = \frac{Total\ SO_2\ tons\ emitted\ from\ 381A\ \&\ 501A}{Total\ time\ in\ Calendar\ Year,\ days} \times \frac{2000\ lb}{ton} \times \frac{day}{24\ hours}$$

The slight decrease in stack emissions for the No. 1 Power Boiler (PB1)/No. 1 Recovery Furnace is attributed to less dilute NCG burn hours in PB1. The increase in stack emissions for the No. 2 Recovery Furnace /No. 2 NCG Incinerator (382A/331A) was due to increased rectified methanol and concentrated NCG burn hours in the incinerator. The decrease in stack emissions for the No. 2 Power Boiler is attributed to less concentrated NCG burn hours and rectified methanol firing.

Table 4

Wateree No. 1		
2022 SO ₂ Emissions	Modeled Emissions	Status
55.7 lbs/hr	2687.3 lbs/hr 11770.3 TPY, combined stack	No further action needed

Table 5

Wateree No. 2		
2022 SO ₂ Emissions	Modeled Emissions	Status
52.8 lbs/hr	2687.3 lbs/hr 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:

$$\frac{238.5 \text{ tons}}{4875.5 \text{ hrs}} \times \frac{10759451 \text{ mmBtu}}{10759451 \text{ mmBtu} + 8136532 \text{ mmBtu}} \times 2000 \text{ lbs} = 55.7 \text{ lbs/hr}$$

WAT2SO2:

$$\frac{238.5 \text{ tons}}{3889.2 \text{ hrs}} \times \frac{8136532 \text{ mmBtu}}{10759451 \text{ mmBtu} + 8136532 \text{ mmBtu}} \times 2000 \text{ lbs} = 52.8 \text{ lbs/hr}$$

The Actual SO₂ emissions in tons per year:

Unit	2021	2022
WAT Unit 1	159	238.5
WAT Unit 2	0	238.5

New-Indy Catawba (New-Indy), formerly Resolute, York County

The New-Indy 1-hr SO₂ DRR modeling was based on permit allowable SO₂ 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			
2021 fuel oil used	2022 fuel oil used	Modeled usage:	Status
2,947,863 gallons	2,473,333 gallons	4,041,888 gallons	No further action needed

The primary sources of SO₂ 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 SO₂ 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 SO₂ emission rate of 10.1 pounds SO₂ per air dried ton pulp (lb SO₂/ ADTP). Other minor sources of SO₂ at the Catawba Mill (biomass and natural gas combustion, etc.) were modeled at the maximum short-term permitted emission rates.

The 2021 and 2022 actual SO₂ emissions are compared to the modeled SO₂ 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 SO₂ emissions from No. 6 fuel oil are based on the total fuel oil usage and the average fuel oil sulfur content. The annual SO₂ 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 2022 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 2022 actual emissions are paired in time, the highest hourly emissions are 1,541 pounds per hour. The 2022 actual SO₂ emissions are less than 50% of the SO₂ emissions modeled in 2014. As shown in both Tables 7 and 8 the actual emissions during 2021 – 2022 are well below the maximum modeled SO₂ 1-hour emissions rates.

Table 7 – Comparison of Annual SO₂ 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
2021 Actual	2,947,863	2.01	465	499,861	5.42	1,355	1,820

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
2022 Actual	2,473,333	1.82	353	487,334	3.88	945	1,299

Table 8 – Comparison of Maximum Hourly SO₂ 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
2021 Actual	4,759	2.01	1,502	91.4	5.81	531	2,033
2022 Actual	4,069	1.82	1,163	91.8	3.99	366	1,529

Santee Cooper Cross Generating Station (Cross Station), Berkeley County

Cross Station used actual SO₂ emission data using Part 75 hourly emissions data from years 2012-2014 paired with corresponding 2012-2014 hourly meteorological data for their modeling demonstration. Annual average SO₂ emissions for Cross Station for the 2012 – 2014 timeframe were 6760.9 tons. Emissions data from 2022 along with modeled emission rates are shown in Table 9.

Table 9

Cross Station Coal Units 1-4						
Unit	Modeled SO ₂	2022 Maximum One Hour	Modeled Average Hourly	2022 Average Hourly SO ₂	2022 Hours of Operation	

	emission rates (lbs/hr)	SO₂ Emission Rates (lbs/hr)	Emission Rates [lbs/hr (tons/yr)]	Emission Rates [lbs/hr (tons/yr)]	
#1	4,236	4,485.6	280 (1226.4)	357.8 (540.5)	3,021
#2	2,935	1,779.9	370 (1620.6)	385.7 (56.3)	292
#3	8,571	9,480.9	409 (1791.4)	301.8 (1235.1)	8,185
#4	3,567	5,509.7	483 (2115.5)	269.7 (1024.1)	7,594
Total	19,309	21,256.1	1,542 (6754)	1,315.0 (2855.9)	N/A

In the Cross DRR modeling, a refined approach of determining seasonal SO₂ background concentrations (in accordance with EPA guidance) was used instead of using an annual design value concentration for the background concentration. This discussion is located in section 6.5 of the 2017 DRR Report. The modeled impacts, including the seasonal background concentrations, were tabulated separately with the highest ten values listed in Table 7-1 of the Report, with a worst-case design value of 87.7 µg/m³ (or about 45% of the NAAQS).

The maximum one-hour emission rates for Unit Nos. 1, 3, and 4 are above the modeled maximum emission rate used in the air dispersion modeling. If Unit Nos. 1, 3, and 4 were the only emissions being emitted, the resulting impact would be 54% of the SO₂ NAAQS ($45\% * (4485.6+9480.9+5509.7)/(4236+8571+3567)$). This calculation is conservative in that the background concentrations are also included in the ratio calculation.

Unit 1's 2022 annual average emission rate (357.8 lb/hr) was higher than the unit's modeled annual average emission rate (280 lb/hr). Unit 2's 2022 annual average emission rate (385.7 lb/hr) was higher than the unit's modeled annual average emission rate (370 lb/hr). The sum of the average emissions for 2022 (1,315 lb/hr) is lower than the sum of the modeled average emissions (1,542 lb/hr). Annual emissions in tons for 2022 (2855.9 tons) however, are less than average annual emissions for the 2012 through 2014 modeling time frame (6,761 tons).

In response to the EPA's comment, Santee Cooper submitted additional emissions data that was obtained from the continuous emissions monitoring system (CEMS). The highest hourly emission rate for Unit 1 was 4,485.6 lb/hr, which occurred at 0800 on December 16, 2022. The corresponding hourly emissions for Unit 2, Unit 3, and Unit 4 were 0.0 lb/hr, 902.5 lb/hr, and 458.5 lb/hr, respectively, for a total of 5,846.6 lb/hr. The highest hourly emission rate for Unit 3 was 9,480.9 lb/hr, which occurred at 2000 on December 29, 2022. The corresponding hourly emissions for Unit 1, Unit 2, and Unit 4 were 0.0 lb/hr, 0.0 lb/hr, and 652.1 lb/hr, respectively, for a total of 10,133.0 lb/hr. The highest hourly emission rate for Unit 4 was 5,509.7 lb/hr, which occurred at 1100 on May 19, 2022. The corresponding hourly emissions for Unit 1, Unit 2, and Unit 3 were 0.0 lb/hr, 0.0 lb/hr, and 0.0 lb/hr, respectively, for a total of 5,509.7 lb/hr. The total hourly emissions for each of the dates was below the total modeled maximum one-hour emission rate of 19,309 lb/hr.

Thus, this analysis of the DRR modeling results and modeled emissions compared to the current SO₂ emissions data indicates the conclusions drawn from the original modeling analysis are still valid and updated modeling for the 1-Hour SO₂ NAAQS is not needed.

Appendix J: Special Projects

Ethylene Oxide (EtO) Community Scale Grant

The Department received a 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. This study will yield data of sufficient quality that will allow a preliminary assessment of any potential EtO found at the monitoring sites. The preliminary assessment will be used to determine subsequent steps. 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.

Odor Investigation in York County

The Department deployed several hydrogen sulfide sensors in York County in response to odor complaints. On Nov. 23, 2022, DHEC 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 is in the process of getting the QAPP approved to deploy hydrogen sulfide sensors that will replace the ones operated by the Department. Information about the investigation can be found on the Department webpage: <https://scdhec.gov/environment/environmental-sites-projects-permits-interest/new-indy-odor-investigation>