

**Regulatory Impact Analysis for Revisions to 15A NCAC 02D .0410**

**Rule Citation Number** 15A NCAC 02D .0410

**Rule Topic:** PM<sub>2.5</sub> NAAQS Revision

**DEQ Division:** Division of Air Quality

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**Impact Summary:** State government: No  
Local government: No  
Substantial impact: No  
Private Sector: No

**Authority:** G.S. 143-215.3(a)(1); G.S. 143-215.107(a)(3)

**Necessity:** To revise the primary annual ambient air quality standard for particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers (PM<sub>2.5</sub>) in 15A NCAC 02D .0410 from 12.0 micrograms per cubic meter (µg/m<sup>3</sup>) to 9.0 µg/m<sup>3</sup> to incorporate the United States (U.S.) Environmental Protection Agency (EPA) revision to the primary annual PM<sub>2.5</sub> National Ambient Air Quality Standard (NAAQS) for PM<sub>2.5</sub> effective May 6, 2024.

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## Acronyms

Abbreviation	Term
\$	Dollars
%	Percent
15A NCAC	Title 15A of the North Carolina Administrative Code
40 CFR	Title 40 of the Code of Federal Regulations
CO	Carbon Monoxide
CAA	Clean Air Act
DAQ	Division of Air Quality
DEQ	Department of Environmental Quality
EE	Exceptional Events
EPA	U.S. Environmental Protection Agency
FR	Federal Register
I-SIP	Infrastructure SIP
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
NAAQS	National Ambient Air Quality Standards
NO <sub>2</sub>	Nitrogen Dioxide
NC	North Carolina
O <sub>3</sub>	Ozone
Pb	Lead
PM	Particulate Matter
PM <sub>2.5</sub>	Particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM <sub>10</sub>	Particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
RIA	Regulatory Impact Analysis
SIP	State Implementation Plan
SO <sub>2</sub>	Sulfur Dioxide
U.S.	United States

## I. Background

The requirements in 15A NCAC 02D .0410, *PM<sub>2.5</sub> Particulate Matter*, provide the primary annual and 24-hour ambient air quality standards for particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers (PM<sub>2.5</sub>) based on the National Ambient Air Quality Standards (NAAQS). The PM<sub>2.5</sub> NAAQS are set by the EPA to protect the public from the health impacts of fine particulate matter.

Sections 108 and 109 of the Clean Air Act (CAA) govern the establishment, review, and revision, as appropriate, of the NAAQS. The EPA has set primary and secondary NAAQS for six pollutants that are considered harmful to public health and the environment. These pollutants include carbon monoxide (CO), lead (Pb), particulate matter (PM), ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), and sulfur dioxide (SO<sub>2</sub>). The standard for PM includes both particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM<sub>10</sub>) and PM<sub>2.5</sub>. These primary standards are set at a level that protects public health with “an adequate margin of safety” and the secondary standards are set at a level to protect the public welfare from “any known or anticipated adverse effects.” Section 109(d) of the CAA requires the EPA to review the standards every five years to ensure their adequacy. The CAA requires the EPA to base the decisions for primary standards on health considerations only without consideration of economic factors.

The first primary ambient standards for PM<sub>2.5</sub> were established by the EPA on July 18, 1997, at an annual ambient concentration of 15 µg/m<sup>3</sup> and a 24-hour concentration of 65 µg/m<sup>3</sup> (62 Federal Register (FR) 38652).<sup>1</sup> On October 17, 2006, the EPA reviewed the ambient air quality standards for PM<sub>2.5</sub> and revised the 24-hour standard to 35 µg/m<sup>3</sup> while keeping the annual ambient standard at 15 µg/m<sup>3</sup> (71 FR 61144).<sup>2</sup> On January 15, 2013, the EPA reviewed the ambient air quality standards for PM<sub>2.5</sub> and revised the annual ambient standard to 12.0 µg/m<sup>3</sup> while retaining the 24-hour standard at 35 µg/m<sup>3</sup> (78 FR 3086).<sup>3</sup>

On February 7, 2024, the EPA announced a revision to the primary ambient PM<sub>2.5</sub> standard by strengthening the annual concentration from 12.0 µg/m<sup>3</sup> to 9.0 µg/m<sup>3</sup>; EPA is retaining the current primary 24-hour PM<sub>2.5</sub> standard at a level of 35 µg/m<sup>3</sup>. These changes are based on a reconsideration of the December 18, 2020, final decision on the primary NAAQS for particulate matter. In that December 2020 final decision, the EPA retained the 2012 particulate matter standards without any revisions (85 FR 82684).<sup>4</sup> In June 2021, the EPA announced its decision to reconsider the December 2020 decision because the available scientific evidence and technical information indicated that the current standards may not be adequate to protect public health and welfare, as required by the CAA.<sup>5</sup> The reconsideration

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<sup>1</sup> U.S. EPA, National Ambient Air Quality Standards for Particulate Matter, 62 FR 38652, July 18, 1997. <https://www.govinfo.gov/content/pkg/FR-1997-07-18/pdf/97-18577.pdf>

<sup>2</sup> U.S. EPA, National Ambient Air Quality Standards for Particulate Matter, 71 FR 61144, October 17, 2006. <https://www.govinfo.gov/content/pkg/FR-2006-10-17/pdf/06-8477.pdf>

<sup>3</sup> U.S. EPA, National Ambient Air Quality Standards for Particulate Matter, 78 FR 3086, January 15, 2013. <https://www.govinfo.gov/content/pkg/FR-2013-01-15/pdf/2012-30946.pdf>

<sup>4</sup> U.S. EPA, Review of the National Ambient Air Quality Standards for Particulate Matter, 85 FR 82684, December 18, 2020. <https://www.govinfo.gov/content/pkg/FR-2020-12-18/pdf/2020-27125.pdf>

<sup>5</sup> EPA to Reexamine Health Standards for Harmful Soot that Previous Administration Left Unchanged, June 10, 2021, <https://www.epa.gov/newsreleases/epa-reexamine-health-standards-harmful-soot-previous-administration-left-unchanged>

process concluded that the scientific evidence and information supported revising the level of the primary annual PM<sub>2.5</sub> standard to 9.0 µg/m<sup>3</sup> while retaining the primary 24-hour PM<sub>2.5</sub> standard at a level of 35 µg/m<sup>3</sup>. The revised annual standard was published in the FR on March 6, 2024, with an effective date of May 6, 2024 (89 FR 16202).<sup>6</sup>

## **II. Reason for Rule Adoption**

North Carolina codifies the EPA’s NAAQS in Title 15A of the North Carolina Administrative Code (15A NCAC), Subchapter 02D, Section .0400, *Ambient Air Quality Standards*. Specifically, Rule 02D .0410 contains the annual and 24-hour NAAQS for PM<sub>2.5</sub>.

To reflect the EPA’s revision to the annual PM<sub>2.5</sub> NAAQS, the DAQ is proposing to revise the primary annual ambient air quality standard for PM<sub>2.5</sub> in 15A NCAC 02D .0410 to reflect the revised PM<sub>2.5</sub> annual NAAQS of 9.0 µg/m<sup>3</sup>.

## **III. Proposed Rules**

The DAQ is proposing amendment to the following rule:

### 15A NCAC 02D .0410, PM<sub>2.5</sub> Particulate Matter

This Rule is proposed for amendment to update the primary annual ambient standard for PM<sub>2.5</sub> from 12.0 µg/m<sup>3</sup> to 9.0 µg/m<sup>3</sup>.

## **IV. Estimating the Fiscal Impacts**

This rulemaking proposes to reflect a federal regulation that the agency is required to adopt. The EPA’s strengthened primary annual PM<sub>2.5</sub> NAAQS value becomes effective on May 6, 2024, and is required to be implemented by states and regulated entities upon this date. Therefore, the effects described below on the state and regulated entities are directly attributable to EPA’s action, not the DAQ’s proposed incorporation of EPA’s revised NAAQS into 15A NCAC 02D .0410. For context, this section provides an overview of key items that impact the DAQ and discusses uncertainties associated with air quality permitting impacts on industries. For the State, the key impacts include following a process for designating the State’s attainment status for specific geographic areas with respect to the revised NAAQS and preparing a State Implementation Plan (SIP) referred to as an “Infrastructure SIP” (I-SIP). In addition, this section also summarizes information from EPA’s regulatory impact analysis (RIA) for the final rule revising the PM<sub>2.5</sub> NAAQS.

### Designation Process

Consistent with the schedule in CAA section 107(d)(1), the EPA’s promulgation of a new or revised NAAQS starts a 2-year process for designating geographic areas of the state as either “attainment,”

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<sup>6</sup> U.S. EPA, Reconsideration of the National Ambient Air Quality Standards for Particulate Matter, 89 FR 16202, March 6, 2024. <https://www.govinfo.gov/content/pkg/FR-2024-03-06/pdf/2024-02637.pdf>

“nonattainment,” or “unclassifiable.” Table 1 provides the anticipated schedule of milestones and milestone dates for completing the designation process for the revised PM<sub>2.5</sub> NAAQS.

**Table 1. Anticipated Timeline for 2024 Revised Primary Annual PM<sub>2.5</sub> NAAQS Initial Area Designations Process\***

<b>Milestone</b>	<b>Date</b>
EPA promulgates 2024 Revised Primary Annual PM <sub>2.5</sub> NAAQS final rule	February 7, 2024
2023 Design Values Available	June 2024
Initial notifications for intent to submit an Exceptional Events (EE) demonstration supporting initial area designations recommendations	No later than January 1, 2025
State submits (on behalf of the Governor) recommendations for PM <sub>2.5</sub> designations and EE demonstration to EPA	No later than February 7, 2025
2024 Design Values Available	June 2025
EPA notifies North Carolina concerning any intended modifications to their recommendations (120-day letter)	No later than October 9, 2025 (120 days prior to final PM <sub>2.5</sub> area designations)
EPA publishes public notice of availability of state recommendations and EPA’s intended modifications, if any, and initiates 30-day public comment period	Mid-October 2025
End of 30-day public comment period	Mid-November 2025
State submits additional information, if any, to respond to EPA’s modification of recommended designations	Mid-December 2025 (60 days following the publication of the notice of availability of State recommendations and EPA’s intended modifications)
EPA promulgates final 2024 PM <sub>2.5</sub> NAAQS area designations	February 6, 2026

\* This table reflects EPA’s anticipated designations timeline. Some dates may shift as the process moves forward.

A State must submit its initial designation recommendations to the EPA for the revised PM<sub>2.5</sub> NAAQS by February 7, 2025 (i.e., no later than 1 year following promulgation of the revised NAAQS). The DAQ will follow EPA’s guidance in preparing its designation recommendations.<sup>7</sup> A State’s recommendations must be based on the design value calculated using the three most recent years of certified monitoring data (i.e., 2021-2023) measured by an air quality monitor sited and operated in accordance with federal reference methods (or equivalent methods) for tracking compliance with the NAAQS.<sup>8</sup> Based upon these monitoring data (as well as the emissions and emissions-related data, meteorology, geography/topography

<sup>7</sup> EPA Memorandum from Joseph Goffman, Assistant Administrator, to Regional Administrators, Regions 1-10, "Initial Area Designations for the 2024 Revised Primary Annual Fine Particle National Ambient Air Quality Standard," February 7, 2024, [https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-designations-memo\\_2.7.2024\\_-jg-signed.pdf](https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-designations-memo_2.7.2024_-jg-signed.pdf)

<sup>8</sup> A design value is a statistic that describes the air quality status of a given air quality monitor relative to the level of the NAAQS. Design values are defined to be consistent with the individual NAAQS as described in Title 40 of the Code of Federal Regulations (40 CFR), Part 50. The design value for the primary PM<sub>2.5</sub> NAAQS is the 3-year average of the of PM<sub>2.5</sub> annual mean mass concentrations that is compared to the NAAQS to determine compliance. If the design value for a monitor is ≤9.04 ug/m<sup>3</sup>, the monitor is attainment with the standard. If the design value for a monitor is >9.04 ug/m<sup>3</sup>, the monitor is in violation of the standard.

and jurisdictional boundaries) the DAQ will develop recommendations to identify areas as attainment, nonattainment, or unclassifiable. The DAQ anticipates requesting township level designation due to potential implications for the Prevention of Significant Deterioration (PSD) permitting program of having an entire county designated as a single area rather than smaller areas (e.g., partial counties).

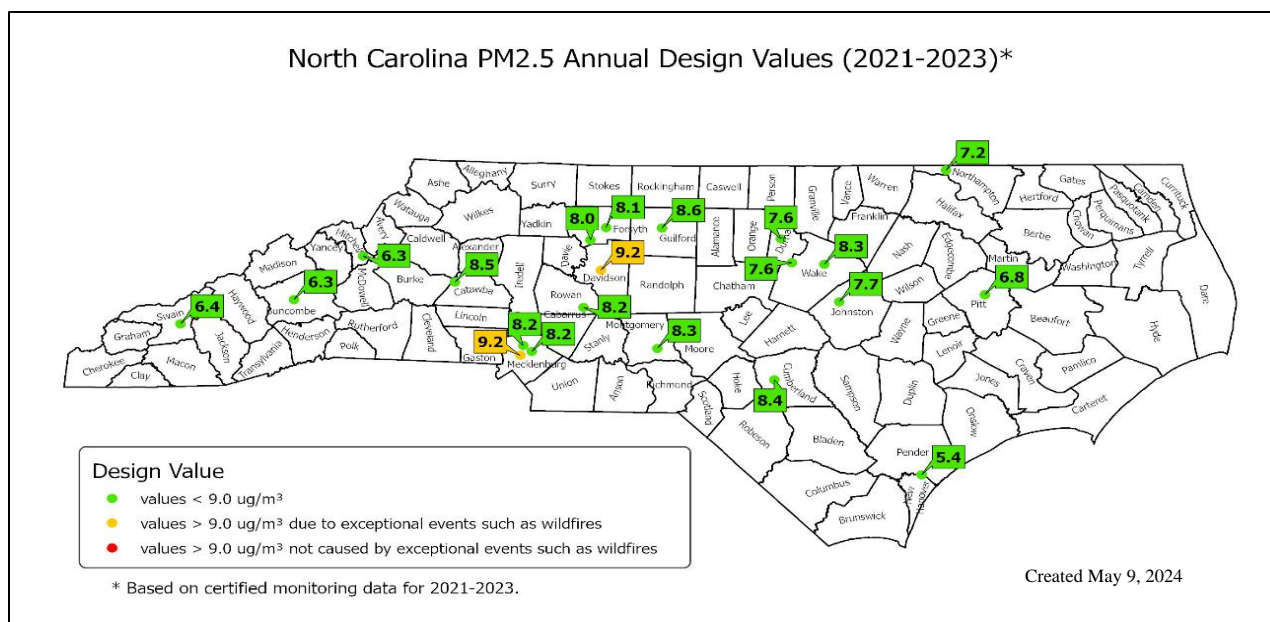
North Carolina operates 21 PM<sub>2.5</sub> regulatory air quality monitors across the state to track compliance with the PM<sub>2.5</sub> standards. Based on the certified monitoring data from 2020-2022, all areas of North Carolina would have been meeting the revised annual PM<sub>2.5</sub> standard (9.0 µg/m<sup>3</sup>) during this time. Based on certified monitoring data for 2021-2023, design values for 19 of the 21 PM<sub>2.5</sub> regulatory monitors are below the revised annual standard (see Figure 1). The design values for monitors in Mecklenburg and Davidson Counties are slightly above the revised standard due to the influences of Canadian wildfire smoke. Without the influence from Canadian wildfire smoke, none of North Carolina's monitors would have exceeded the new standard in 2023.

The EPA has said it will consider impacts from wildfire smoke when making designations if the State submits an exceptional events (EE) demonstration for the dates impacted by wildfire smoke for all affected monitors. The EPA's EE rule establishes criteria and procedures for use in determining if air quality monitoring data has been influenced by EE such as wildfire smoke and fireworks.<sup>9</sup> The DAQ is reviewing its monitoring data from 2023 in preparation for preparing and submitting an EE demonstration to EPA for monitoring sites above 9.04 µg/m<sup>3</sup>.

Final designations will be based on PM<sub>2.5</sub> monitoring data collected from 2022-2024. Until these data are collected and reviewed, it is too early to know which, if any, areas of North Carolina may be in nonattainment with the revised standard. As with all the NAAQS, it is DAQ's priority to evaluate PM<sub>2.5</sub> levels daily and identify and address elevated levels caused by anthropogenic sources to maintain statewide attainment with the revised PM<sub>2.5</sub> NAAQS and receiving a statewide designation of attainment by EPA in February 2026.

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<sup>9</sup> Treatment of Data Influenced by Exceptional Events, Final Rule, 81 FR 68216, October 3, 2016, <https://www.govinfo.gov/content/pkg/FR-2016-10-03/pdf/2016-22983.pdf>



**Figure 1. North Carolina PM<sub>2.5</sub> Annual Design Values (2021-2023)**  
(Based on certified monitoring data for 2021-2023)

***Infrastructure SIP (I-SIP)***

CAA Title I (Air Pollution Prevention and Control), Section 110(a) requires a State to prepare a SIP for submittal to EPA for approval that documents the State's infrastructure (authority, rules, programs/policies) to implement, maintain, and enforce compliance with a new or revised primary and/or secondary NAAQS. CAA Section 110(a)(1) requires a State to submit this SIP to EPA within 3 years from promulgation of the new or revised NAAQS. CAA Section 110(k)(1) directs EPA to determine if a SIP is complete within 60 days of submission, but no later than 6 months after the submission date. CAA Section 110(k)(2) directs EPA to take final action on a SIP submission within 1 year after the submission is determined to be complete. Section 110(a)(2) specifies the substantive elements that a State's I-SIP must address to receive EPA's approval. It includes requirements of various air programs, resources, and authority to be in place such as an ambient air quality monitoring network and data systems, programs for enforcement of control measures, and adequate authority and resources to implement the plan.

The DAQ will prepare an I-SIP for the revised PM<sub>2.5</sub> NAAQS for submittal to EPA (after public notice and comment) by February 5, 2027. The I-SIP will need to be issued for a 30-day comment period and revised to address any comments prior to submittal to EPA. The I-SIP must address each of the following 12 CAA elements:

- Section 110(a)(2)(A) - Enforceable Emission Limitations and Other Control Measures
- Section 110(a)(2)(B) - Air Quality Monitoring, Compilation, Data Analysis, and Reporting
- Section 110(a)(2)(C) - Enforcement and Stationary Source Permitting
- Section 110(a)(2)(D) - Interstate Transport
- Section 110(a)(2)(E) - Resources, Conflict of Interest, and Emergency Backstop
- Section 110(a)(2)(F) - Stationary Source Emissions Monitoring, Data Collection, and Reporting
- Section 110(a)(2)(G) - Emergency Powers and Contingency Plans



- Section 110(a)(2)(H) - SIP Revision for Revised Air Quality Standards or New Attainment Methods
- Section 110(a)(2)(J) - Consultation and Public Notification
- Section 110(a)(2)(K) - Air Quality Modeling and Reporting
- Section 110(a)(2)(L) - Major Stationary Source Permitting Fees
- Section 110(a)(2)(M) - Consultation with Local Entities

Note that the Section 110(a)(2)(D) (Interstate Transport) element (often referred to as the “Good Neighbor” SIP) typically is supported by air quality modeling to determine an upwind State’s PM<sub>2.5</sub> concentration contributions to downwind State maintenance and nonattainment monitors. The DAQ anticipates that EPA will be issuing future guidance to states for preparing their Good Neighbor SIPs and depending on EPA’s schedule, this CAA element may be addressed in a SIP that is separate from the I-SIP.

### EPA’s Regulatory Impact Analysis

In their reconsideration of the 2020 Particulate Matter NAAQS final action, the EPA found that the current primary annual PM<sub>2.5</sub> standard may not be adequate to protect public health and welfare with an adequate margin of safety. Therefore, the EPA revised the existing annual standard from the current level of 12.0 µg/m<sup>3</sup> to 9.0 µg/m<sup>3</sup>. Even though economic factors were not considered in the EPA’s determination of the revised NAAQS value, an RIA was developed by the EPA as part of the reconsideration package.

The fiscal impacts noted in this analysis are based on the impacts estimated by the EPA in their RIA for the reconsideration package.<sup>10</sup> The analyses were performed for the U.S. in four regions (northeast, southeast, west, and California), and the EPA analyzed the final revised annual and current 24-hour standard levels of 9 µg/m<sup>3</sup> and 35 µg/m<sup>3</sup>, respectively, as well as three alternative standard levels (for the annual and/or 24-hour standards).<sup>11</sup> Within each region, the RIA identifies counties that may exceed the annual or 24-hour standard for each scenario in 2032.<sup>12</sup> Table 4A-3 of the EPA’s RIA provides the estimated annual control costs for the four scenarios (proposed standards plus three alternatives). Control costs were estimated using the EPA’s estimated 2032 design values for counties identified as possibly exceeding the standards of each scenario and calculating annual costs from application of control

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<sup>10</sup> U.S. EPA, Final Regulatory Impact Analysis for the Reconsideration of the National Ambient Air Quality Standards for Particulate Matter, January 2024. EPA-452/R-24-006.

[https://www.epa.gov/system/files/documents/2024-02/naaqs\\_pm\\_reconsideration\\_ria\\_final.pdf](https://www.epa.gov/system/files/documents/2024-02/naaqs_pm_reconsideration_ria_final.pdf)

<sup>11</sup> The four scenarios analyzed by the EPA in their RIA were: 1) the final revised annual standard (9 µg/m<sup>3</sup>) in combination with the current 24-hour standard (35 µg/m<sup>3</sup>) that is being retained by the EPA; 2) a less stringent alternative annual standard level of 10 µg/m<sup>3</sup> in combination with the current 24-hour standard (i.e., 10/35 µg/m<sup>3</sup>); 3) a more stringent alternative annual standard level of 8 µg/m<sup>3</sup> in combination with the current 24-hour standard (i.e., 8/35 µg/m<sup>3</sup>); and 4) a more stringent alternative 24-hour standard level of 30 µg/m<sup>3</sup> in combination with an annual standard level of 10 µg/m<sup>3</sup> (i.e., 10/30 µg/m<sup>3</sup>).

<sup>12</sup> The EPA used a 2018-base year modeling platform to project future-year air quality for 2032 to identify areas that would exceed the existing, revised, and alternative PM<sub>2.5</sub> NAAQS after accounting for expected emission reductions from ‘on-the-books’ rules (see Appendix 2A (Additional Air Quality Modeling Information)) of EPA’s RIA. As provided in CAA Section 188(a), the EPA will initially classify all PM<sub>2.5</sub> nonattainment areas as “Moderate” when it promulgates initial area designations for the 2024 revised primary annual PM<sub>2.5</sub> NAAQS. In accordance with CAA Section 188(c), the attainment date for each Moderate nonattainment area shall be as expeditiously as practicable but no later than the end of the sixth calendar year after the effective date of the designation.

technology by industries located in the county to attain the revised standard. In the southeast region, the EPA identified Forsyth and Mecklenburg Counties as the potential counties in North Carolina that may exceed one or both of the standard levels in at least one of the scenarios.<sup>13</sup> However, for the scenario of the proposed standard (i.e., annual 9.0  $\mu\text{g}/\text{m}^3$ , 24-hour 35  $\mu\text{g}/\text{m}^3$ ), Table 4A-3 of EPA's RIA lists annual control costs of \$0 million of 2017 dollars (2017\$) for Forsyth County and \$0 million of 2017\$ for Mecklenburg County. Table 4A-3 of the EPA's RIA only identifies control costs for Forsyth County and Mecklenburg County for the alternative scenario of an annual standard of 8  $\mu\text{g}/\text{m}^3$  in combination with a 24-hour standard of 35  $\mu\text{g}/\text{m}^3$ . No other counties in North Carolina were identified as exceeding the proposed standard or two other alternatives in 2032 in the EPA's RIA.

### Uncertainties

An uncertainty that cannot be quantified is the impact on facilities' decisions for new construction or expansion projects in relation to the revised standard. Reducing the  $\text{PM}_{2.5}$  NAAQS to a level closer to current measured ambient background concentrations may result in fewer new industrial constructions and/or plant expansions if facilities are unable to demonstrate that their project will not cause or contribute to an exceedance of the revised  $\text{PM}_{2.5}$  NAAQS, which is a critical piece of the permitting process. Prior to applying for a new permit or permit modification, facilities often evaluate the impacts of their project (which may involve air dispersion modeling or other types of analyses) to determine if the project is viable. Because this evaluation occurs at the facility during the planning stage, the DAQ will not be aware of these activities and therefore cannot estimate the impacts associated with projects that do not move forward as a result of not being able to demonstrate compliance with the  $\text{PM}_{2.5}$  NAAQS.

## **V. Public Health and Environmental Impacts**

The public health and environmental impacts associated with the DAQ's proposed change to the primary annual  $\text{PM}_{2.5}$  NAAQS concentration are attributable to EPA's rule. In the EPA's reconsideration of the primary ambient annual standard for  $\text{PM}_{2.5}$ , they found that the newly available data supports a causal relationship between long-term exposures and respiratory effects, nervous system effects, and cancer. This section discusses the health benefits provided in EPA's RIA for the revised  $\text{PM}_{2.5}$  NAAQS.

### Benefits from $\text{PM}_{2.5}$ Emission Reductions

The health benefits from the reduction of  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$  are numerous. Small particles pose the greatest risk because they can get deep in your lungs and even get into your bloodstream. Numerous scientific studies have linked particle pollution exposure to a variety of problems, including: premature death in people with heart or lung disease; nonfatal heart attacks; irregular heartbeat; aggravated asthma; decreased lung function; and increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing. People with heart or lung diseases, children, and older adults are the most likely to be affected by particle pollution exposure.

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<sup>13</sup> Table 4A-3 of EPA's RIA presents the results for each of these four scenarios, but NC DAQ has only summarized the results presented for the values in EPA's final rule, which are being incorporated into Rule 02D .0410 in this action.

PM also has environmental effects including: making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; affecting the diversity of ecosystems; and contributing to acid rain effects. PM can also cause damage to materials such as statues and monuments.

The EPA did not provide State-specific benefits in their RIA, but instead estimated benefits by region. The EPA's analysis included North Carolina in the southeast region, which also includes Virginia, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Kansas, Oklahoma, and Texas. In Table 5-9 of their RIA, the EPA estimated \$5.3 billion (in 2017\$) of health benefits for the southeast region. The EPA estimated those benefits by calculating the amount of PM<sub>2.5</sub> emission reductions that would be needed in nonattainment areas, for those areas to reach attainment in 2032. In addition, the EPA noted that there are unquantified health and welfare benefits that are not included in the total. Most of these benefits will occur as a result of reductions needed in seven counties in the southeast region, including four counties in Texas, one county in Louisiana, one county in Georgia, and one county in Florida. Since the EPA's analysis only provides a singular value of health benefits across the twelve southeast states, the DAQ is unable to refine these regional health benefits to the state- or county-level.

Further, it should be noted that EPA's benefits analysis focused on the health benefits directly associated with the amount of emission reductions that nonattainment areas would need to achieve to attain the proposed or alternative standards evaluated. However, there are additional benefits associated with continued attainment of the annual standard, such as the avoidance of future adverse health impacts associated with chronic exposure to PM<sub>2.5</sub>. Additionally, EPA establishes limits on the amount of pollution that an attainment area can increase. Known as "PSD increments", these limits prevent the air quality in clean areas from deteriorating to the level set by the NAAQS.<sup>14</sup>

## **VI. Cost and Benefit Summary**

As described in the sections above, any costs or benefits associated with implementation of this revised standard in North Carolina will not be the result of its incorporation into the NC Administrative Code. Rather, any costs or benefits associated with the revised standard will be attributable to EPA's action which requires implementation by the states beginning May 6, 2024. The EPA estimated no annual control costs to North Carolina associated with the revised standard. Benefits of the change to the primary annual standard were estimated to be \$5.3 billion (in 2017\$) of health benefits for the southeast region, which includes North Carolina.

## **VII. Rule Alternatives**

In accordance with N.C.G.S. 150B-21.4(b2)(5), the RIA for a proposed rulemaking with a substantial economic impact is required to contain a description of at least two alternatives to the proposed rules. As defined in N.C.G.S. 150B-21.4(b1), "substantial economic impact" means an aggregate financial impact on all persons affected of at least one million dollars (\$1,000,000) in a 12-month period. The proposed rule revision does not result in any impacts; therefore, it will not have a substantial economic impact.

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<sup>14</sup> U.S. EPA, Prevention of Significant Deterioration Basic Information. Retrieved on April 23, 2024 from [epa.gov: https://www.epa.gov/nsr/prevention-significant-deterioration-basic-information](https://www.epa.gov/nsr/prevention-significant-deterioration-basic-information)

Therefore, an evaluation of alternatives is not required for this fiscal analysis. In addition, because this is a federal regulation that the agency is required to adopt, there would not be any viable alternatives to consider.

1 15A NCAC 02D .0410 is proposed for amendment as follows:

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3 **15A NCAC 02D .0410 PM2.5 PARTICULATE MATTER**

4 (a) The national primary ambient air quality standards for PM2.5 shall be ~~12.0~~9.0 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ )  
5 annual arithmetic mean concentration and  $35 \mu\text{g}/\text{m}^3$  24-hour average concentration measured in the ambient air as  
6 PM2.5 (particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers) by either:

7 (1) A reference method based on appendix L to 40 CFR Part 50 and designated in accordance with 40  
8 CFR Part 53; or

9 (2) An equivalent method designated in accordance with 40 CFR Part 53.

10 (b) The primary annual PM2.5 standard shall be deemed met when the annual arithmetic mean concentration, as  
11 determined in accordance with Appendix N of 40 CFR Part 50, is less than or equal to ~~12.0~~9.0  $\mu\text{g}/\text{m}^3$ .

12 (c) The primary 24-hour PM2.5 standard shall be deemed met when the 98<sup>th</sup> percentile 24-hour concentration, as  
13 determined in accordance with Appendix N of 40 CFR Part 50, is less than or equal to  $35 \mu\text{g}/\text{m}^3$ .

14

15 *History Note: Authority G.S. 143-215.3(a)(1); 143-215.107(a)(3);*

16 *Eff. April 1, 1999;*

17 *Amended Eff. September 1, 2015; January 1, 2010;*

18 *Readopted Eff. January 1, ~~2018~~, 2018;*

19 *Amended Eff.*

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