

Agenda Item: **Request to Proceed to Hearing on Revision to Ambient Standard for Particulate Matter (PM2.5) (524)**

Explanation: The Environmental Management Commission (EMC) is requested to approve one or more public hearings to consider an amendment to Rule 15A NCAC 02D .0410 to update the ambient standards for Particulate Matter.

The United States Environmental Protection Agency (USEPA) strengthened its National Ambient Air Quality Standards (NAAQS) for particulate matter, also known as PM2.5, on December 14, 2012. The revisions are the result of USEPA's every five year review of NAAQS required under the Clean Air Act and also responded to a court remand of portions of the agency's 2006 decision on the PM2.5 standards. The USEPA revised the primary annual standard from 15.0 ug/m³, set in 1997, to 12.0 ug/m³. USEPA retained the existing 24-hour primary standard for PM2.5 at 35 ug/m³ as set in 2006. USEPA also retained the existing secondary standards for PM2.5 to address PM-related effects such as visibility impairment, ecological effects, damage to materials and climate impacts. This includes an annual standard of 15.0 µg/m³ and a 24-hour standard of 35 µg/m³. In addition USEPA retained the existing 24-hour PM10 primary and secondary standards for health and environmental effects of 150 ug/m³ that have been in place since 1987. Changes to ambient air monitoring, reporting, and network design requirements, including addition of a near-road component to the PM2.5 monitoring network, were also made when the NAAQS was revised. 15A NCAC 02D .0410 is proposed to be amended to reflect the revised standard.

State implementation plans (SIPs) demonstrating the state has the infrastructure in place address attainment and maintenance of the NAAQS are required to be submitted to USEPA within three years of revision of the NAAQS. Amendments to 15A NCAC 02D .0410 are necessary to reflect the revised NAAQS for PM2.5 in the state ambient air quality standards rule as part of that process.

The Office of State Budget and Management (OSBM) reviewed an analysis for the proposed amendment to Rule 15A NCAC 02D .0410 in accordance with G.S. 150B-19.1, 150B-21.4, and E.O. 70. The analysis was certified by OSBM on August 15, 2014 and the proposed rule amendment was determined to not require a fiscal note.

Recommendation: The Director recommends that the Commission approve the proposed rule along with authorizing a public hearing(s) on these items and that the Chairman appoint a member(s) of the Commission to serve as a hearing officer(s).

RULE SUMMARY

Subject: **Revisions to the particulate matter rule (PM2.5) (524)**

Rule Citation	What is Changed	Purpose of Change (Why)	Who is Affected and How	Impacts
15A NCAC 02D .0410 PM2.5 Particulate Matter	The proposed changes to .0410 revise the level of the annual arithmetic mean concentration from the current level, established in October 17, 2006, of 15.0 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to $12.0\mu\text{g}/\text{m}^3$ and leave the current 24-hour average concentration of $35.0 \mu\text{g}/\text{m}^3$ unchanged.	This rule change is identical to the requirements of 40 CFR 50.18 that the DAQ is required to implement in accordance with the CAA Section 107(a), "Each State shall have the primary responsibility for assuring air quality within the entire geographic area comprising such State by submitting an implementation plan for such State which will specify the manner in which national primary and secondary ambient air quality standards will be achieved and maintained within each air quality control region in such State."	Based on the 2010 – 2012 ambient monitoring data, all counties in North Carolina are below the newly established $12 \mu\text{g}/\text{m}^3$ annual standard and the established daily $35 \mu\text{g}/\text{m}^3$ standard. DAQ will need to relocate only one monitor to meet the EPA monitoring requirements. The Mecklenburg County Air Quality local program will also need to relocate one monitor to meet the EPA monitoring requirements. The cost of the relocation does not affect the state and local funds and is expected to be negligible.	The state and local funds will not be affected.

1 15A NCAC 02D .0410 is amended 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 PM_{2.5} particulate matter are:

5 (1) ~~15.0 micrograms per cubic meter (ug/m³), annual arithmetic mean concentration; and~~

6 (2) ~~35 micrograms per cubic meter (ug/m³), 24 hour average concentration.~~

7 PM_{2.5} are 12.0 micrograms per cubic meter (µg/m³) annual arithmetic mean concentration and 35 µg/m³ 24-hour average
 8 Concentration measured in the ambient air as PM_{2.5} (particles with an aerodynamic diameter less than or equal to a
 9 nominal 2.5 micrometers) by either:

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

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

13 ~~These standards are attained when the annual arithmetic mean concentration is less than or equal to 15.0 ug/m³ and when~~
 14 ~~the 98th percentile 24 hour concentration is less than or equal to 35 ug/m³, as determined according to Appendix N of 40~~
 15 ~~CFR Part 50.~~

16 (b) The primary annual PM_{2.5} standard is met when the annual arithmetic mean concentration, as determined in
 17 accordance with appendix N of 40 CFR Part 50, is less than or equal to 12.0 mg/m³.

18 (b) ~~For the purpose of determining attainment of the standards in Paragraph (a) of this Rule, particulate matter shall be~~
 19 ~~measured in the ambient air as PM_{2.5} (particles with an aerodynamic diameter less than or equal to a nominal 2.5~~
 20 ~~micrometers) by either:~~

21 (1) ~~a reference method based on Appendix L of 40 CFR Part 50 and designed according to 40 CFR Part~~
 22 ~~53; or~~

23 (2) ~~an equivalent method designed according to 40 CFR Part 53.~~

24 (c) The primary 24-hour PM_{2.5} standard is met when the 98th percentile 24-hour concentration, as determined in
 25 accordance with appendix N of 40 CFR Part 50, is less than or equal to 35 mg/m³.

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

28 *Eff. April 1, 1999;*

29 *Amended Eff. January 1, 2010-2010;*

30 *Amended Eff. January 1, 2015.*

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Fiscal Note

Rule Topic: Revisions to the particulate matter rule (PM_{2.5}) (524)

RULE CITATION: 15A NCAC 02D .0410 PM_{2.5} Particulate Matter

DENR Division: Division of Air Quality

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Impact Summary: State government: No
Local government: No
Substantial impact: No
Federal government: No

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

I. Executive Summary

Two sections of the Clean Air Act (CAA) govern the establishment, review, and revision of the National Ambient Air Quality Standard (NAAQS). Section 108 (42 U.S.C. 7408) directs the Environmental Protection Agency (EPA) to identify and list certain air pollutants and then to issue air quality criteria for those pollutants. Section 109 (42 U.S.C. 7409) directs the EPA to propose and promulgate “primary” and “secondary” NAAQS for pollutants for which air quality criteria are issued. Section 109(b)(1) defines a primary standard as one “the attainment and maintenance of which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health.”

Section 109(d)(1) of the CAA requires that not later than December 31, 1980, and at 5-year intervals thereafter, the EPA shall complete a thorough review of the criteria published under Section 108 and the national ambient air quality standards and shall make such revisions in criteria and standards and promulgate new standards as may be appropriate.

The EPA initially established NAAQS for particulate matter (PM) under Section 109 of the CAA in 1971. Since then, the Agency has made a number of changes to these standards to

reflect continually expanding scientific information, particularly with respect to the selection of indicator and level.

In 1997, new standards were added, using PM_{2.5} as the indicator for fine particles. The primary annual fine particle standard is designed to protect against health effects associated with both long- and short-term exposure to PM_{2.5}. On October 17, 2006, the EPA published revisions to the PM NAAQS to provide increased protection of public health and welfare. As a result, DENR amended the Rule 15A NCAC 02D .0410 PM_{2.5} Particulate Matter on January 1, 2010 to meet NAAQS standards of 15.0 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) annual arithmetic mean concentration and 24-hour average concentration of 35.0 $\mu\text{g}/\text{m}^3$ for PM_{2.5}. During the 2010 PM_{2.5} rulemaking process, DAQ submitted the federal certification statement to the Environmental Management Commission in accordance with the state budget manual.

EPA further strengthened NAAQS for fine particle pollution on Dec. 14, 2012 to improve public health protection, revising the level of the annual arithmetic mean concentration from the level of 15.0 $\mu\text{g}/\text{m}^3$, established in 2006 and reflected in the current rule, to 12.0 $\mu\text{g}/\text{m}^3$. The EPA made no changes at that time to the 24-hour average concentration of 35.0 $\mu\text{g}/\text{m}^3$. Based on the EPA revision, an area will meet the standard if the three-year average of its annual average PM_{2.5} concentration (at each monitoring site in the area) is less than or equal to 12.0 $\mu\text{g}/\text{m}^3$. The EPA codified these 2012 revisions to the PM_{2.5} NAAQS in 40 CFR 50.18.

This proposed rule change is identical to the requirements of 40 CFR 50.18 that the DAQ is required to implement in accordance with the CAA Section 107(a): “Each State shall have the primary responsibility for assuring air quality within the entire geographic area comprising such State by submitting an implementation plan for such State which will specify the manner in which national primary and secondary ambient air quality standards will be achieved and maintained within each air quality control region in such State.”

Based on the 2010 – 2012 ambient monitoring data, all counties in North Carolina are below has the newly established 12 $\mu\text{g}/\text{m}^3$ national annual standard and the established daily 35 $\mu\text{g}/\text{m}^3$ standard.¹ That means that the State will not have areas that are designated as nonattainment for the new annual PM_{2.5}, and it will not be required by EPA to develop State Implementation Plans (SIP) to attain the standards. After these amendments will be adopted, DAQ and local programs will not be required to implement further actions to comply with the newly established NAAQS for PM_{2.5} and, consequently, the state and local funds will not be affected.

¹ NCDENR. Division of Air Quality. PM_{2.5} Design Values for 2010-2012 in NC Counties.
<http://daq.state.nc.us/monitor/data/pm2pt5/10-12.shtml>

II. Cost Estimation

As part of the revisions to the PM_{2.5} standards, EPA did not propose any changes to the performance or testing criteria. EPA is not increasing the size of the national PM_{2.5} monitoring network. Nevertheless, EPA is updating monitoring requirements for fine particles to include a requirement for monitoring near heavily traveled roads in large urban areas. Particle pollution can be higher along these roads as a result of emissions from cars and heavy-duty diesel trucks and buses.

EPA will require near-roadway PM_{2.5} monitoring at one location in each urban area (a core-based statistical area, or CBSA) with a population of 1 million or more. These monitors will likely be located at existing near-road monitoring sites also measuring nitrogen dioxide or carbon monoxide. The near-roadway monitoring will be phased in, beginning with the largest urban areas (population of 2.5 million or more) by Jan. 1, 2015; and extending to the remainder of the areas by Jan. 1, 2017. EPA anticipates that states will be able to relocate existing monitors to meet the near-roadway requirement at little or no additional cost. DAQ will need to relocate only one monitor to meet the EPA monitoring requirements. The Mecklenburg County Air Quality local program will also need to relocate one monitor to meet the EPA monitoring requirements. The cost of the relocation does not affect the state and local funds and is expected to be negligible.

III. Certificate of Federal Requirement

In accordance with requirements outlined in G.S. § 150B-19.1. (g), the DAQ is proposing changes to the Rule 15A NCAC 02D .0410 PM_{2.5} Particulate Matter. These changes are identical to the requirements of 40 CFR 50.18 that the DAQ is required to implement in accordance with the CAA Section 107(a): “Each State shall have the primary responsibility for assuring air quality within the entire geographic area comprising such State by submitting an implementation plan for such State which will specify the manner in which national primary and secondary ambient air quality standards will be achieved and maintained within each air quality control region in such State.”

Sections 108 and 109 of the Clean Air Act (CAA) govern the establishment, review, and revision, as appropriate, of the national ambient air quality standards (NAAQS) to protect public health and welfare. The CAA requires periodic review of the air quality criteria—the science upon which the standards are based—and the standards themselves.

Appendix A: Proposed Rule Change

1 15A NCAC 02D .0410 is amended as follows:

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

4 (a) The national primary ambient air quality standards for PM_{2.5} particulate matter are:

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 8 average concentration measured in the ambient air as PM_{2.5} (particles with an aerodynamic diameter less than or
 9 equal to a nominal 2.5 micrometers) by either:

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 11 40 CFR Part 53; or

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

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 14 ~~when the 98th percentile 24-hour concentration is less than or equal to 35 ug/m³, as determined according to~~
 15 ~~Appendix N of 40 CFR Part 50.~~

16 (b) The primary annual PM_{2.5} standard is met when the annual arithmetic mean concentration, as determined in
 17 accordance with appendix N of 40 CFR Part 50, is less than or equal to 12.0 mg/m³.

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21 (1) ~~a reference method based on Appendix L of 40 CFR Part 50 and designed according to 40 CFR~~
 22 ~~Part 53; or~~

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24 (c) The primary 24-hour PM_{2.5} standard is met when the 98th percentile 24-hour concentration, as determined in
 25 accordance with appendix N of 40 CFR Part 50, is less than or equal to 35 mg/m³.

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