

How Will a Reduction in the Fine Particulate Matter National Ambient Air Quality Standard Impact My Facility?

Authors:

Deanna L. Duram, PE

Trinity Consultants

Managing Consultant, Atlanta, GA

Pulp, Paper, and Tissue Sector Subject Matter Expert Air Modeling Subject Matter Expert

Tony Schroeder, CCM, QEP

Trinity Consultants

Principal Consultant, Cleveland, OH

On January 6, 2023, the United States Environmental Protection Agency (EPA) announced its proposed decision to revise the National Ambient Air Quality Standard (NAAQS) for fine particulate (PM_{2.5}). EPA has established NAAQS for particulate matter (PM) that include both PM_{2.5} and PM₁₀. EPA's proposal is to lower the primary (health-based) annual NAAQS for PM_{2.5} from the current value of 12.0 µg/m³ to a value within the range of 9.0 to 10.0 µg/m³ while accepting comment on changing the annual standard levels to a range of 8.0 µg/m³ to 11.0 µg/m³. As part of this action, EPA proposed to retain the current secondary (welfare-based) annual PM_{2.5} NAAQS at 15.0 µg/m³, retain the current 24-hour primary and secondary PM_{2.5} NAAQS at a value of 35 µg/m³, and retain the primary and secondary PM₁₀ NAAQS of 150 µg/m³ (24-hour average). EPA is also accepting comments on lowering the 24-hour PM_{2.5} NAAQS to 25 µg/m³.¹

A reduction of a NAAQS can have significant impacts on the ability of existing facilities to consider expansion opportunities and could require the implementation of expensive emission reduction strategies regardless of any intent to expand. This article focuses on the possible implications of changes to attainment area designations based on the levels proposed by EPA. Opportunities for strategic planning by mill management and environmental personnel will be reviewed, including considerations on air quality permitting and air dispersion modeling, among others.

EPA's PROPOSAL

In the proposed rulemaking, EPA has concluded that available scientific information calls into question the adequacy of the current annual PM_{2.5} NAAQS to protect public health. Therefore, EPA has proposed to reduce the primary annual PM_{2.5} NAAQS to a level between 9.0 and 10.0 µg/m³ and retain the existing 24-hour PM_{2.5} and PM₁₀ NAAQS. The current and proposed Primary PM NAAQS are shown in Table I.

Table I. Current and Proposed Primary PM NAAQS

Pollutant and Averaging Period	Current (µg/m ³)	Proposed (µg/m ³)
PM ₁₀ - 24-hour	150	150
PM _{2.5} - 24-hour	35	35
PM _{2.5} - Annual	12	9-10

Within the preamble to the proposed rulemaking, EPA specifically sought comments on the proposed magnitude of both the annual and 24-hour PM_{2.5} NAAQS. EPA indicated that they would take comments on alternative annual levels as low as 8.0 µg/m³ and as high as 11.0 µg/m³. EPA is also taking comment on alternative levels of the 24-hour PM_{2.5} NAAQS as low as 25 µg/m³.

Within this proposed rulemaking, EPA has also proposed or requested comment on several other changes in addition to the change in the magnitude of the primary annual PM_{2.5} NAAQS that are related to the NAAQS for PM. These proposals and requests for comment relate to the Air Quality Index (AQI) for PM_{2.5}, calculation methodologies for PM₁₀ ambient monitor data, changes to monitoring network design criteria to focus on at-risk populations, and ways to incorporate data from next generation monitoring technologies into non-regulatory communication of air quality information. This article focuses on the potential impacts of the reduction of the NAAQS standard itself; therefore, no further discussion related to the AQI or monitoring networks is included herein.

¹ Proposal published in the Federal Register on January 27, 2023 (88 FR 5558)

CURRENT PM_{2.5} AIR QUALITY LEVELS

Sources of PM_{2.5} in the atmosphere include fuel combustion (burning coal, oil, or natural gas to generate electricity or heat for industrial, residential, and commercial purposes), industrial processes (metal production, cement manufacturing, pulp, paper and tissue manufacturing, and other types of heavy industry), and mobile sources (diesel- and gasoline-powered highway vehicles and other engine-driven sources). Additionally, natural sources of PM_{2.5} include dust from the wind erosion of natural surfaces, sea salt, wildland fire (including both wildfire and prescribed fire), and primary biological aerosol particles (PBAP).²

NAAQS standards and air quality monitoring data are relied upon by EPA to designate areas as either “attainment” or “nonattainment” with respect to the applicable NAAQS. Areas designated as attainment are considered “clean” areas with ambient background concentrations less than the applicable NAAQS; nonattainment areas have data to indicate that ambient background concentrations exceeded the applicable standard. These designations are critical as they directly influence the resulting air quality permitting and regulations that are mandated per the Clean Air Act (CAA). Manufacturing operations located in nonattainment areas face more stringent construction permitting requirements and often can be subject to emission standards that operations located in attainment areas do not have to address.

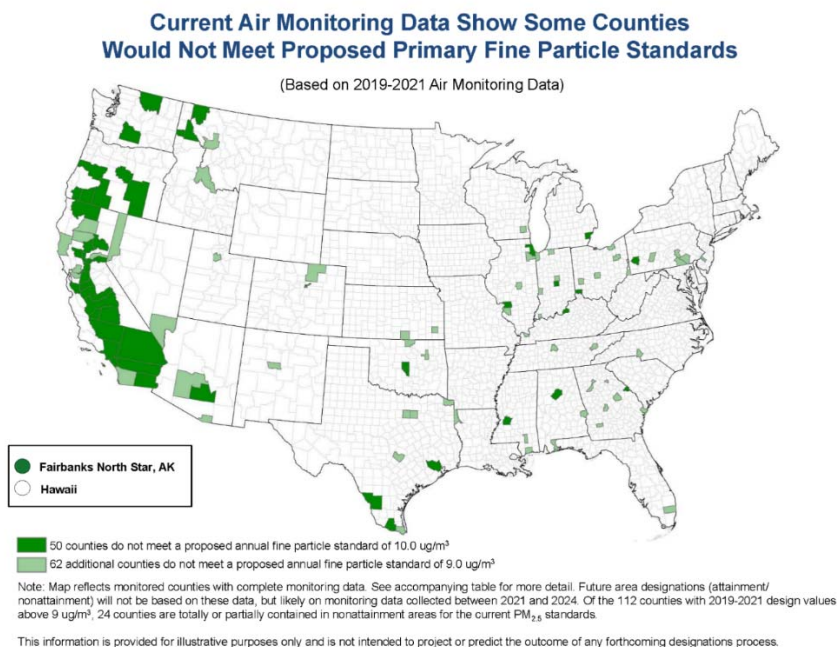
Figure I shows the counties that could potentially become nonattainment areas if EPA finalizes a NAAQS value between 9.0 µg/m³ and 10.0 µg/m³. Currently, there are only 13 areas within the country that are not attaining the annual PM_{2.5} NAAQS.³ Based on EPA estimates, up to 50 counties will not meet a 10.0 µg/m³ standard and an additional 62 counties will not meet a 9.0 µg/m³ standard. However, EPA projects that half of the potential nonattainment areas will be able to attain the NAAQS by 2032 and only 51 counties will remain in nonattainment.⁴ It should be noted that areas shown in Figure 1 are counties that currently have monitors; however, nonattainment areas would be larger than the counties with monitors, potentially encompassing neighboring counties. Nonattainment areas are established by the states in consultation with EPA, taking into account various parameters including emissions-related data (e.g., population density and degree of urbanization, traffic and commuting patterns), meteorology, geography/topography, and jurisdictional boundaries. Moreover, based on EPA’s proposal, states may be required to install additional PM_{2.5} ambient monitors to demonstrate attainment.

² 88 FR 5569

³ EPA Green Book accessible at <https://www3.epa.gov/airquality/greenbook/rnc12.html>

⁴ Obtained from EPA at <https://www.epa.gov/system/files/documents/2023-01/PM%20Maps%20-%202022%20proposal%20%28%29.pdf>

Figure I. Potential Nonattainment Areas Based on EPA’s Analysis⁵



REQUIREMENTS TRIGGERED ONCE REVISED NAAQS ARE FINALIZED

Once EPA finalizes the new annual PM_{2.5} NAAQS, states will be required to take certain actions to address the new NAAQS including:

- 1) Initial designations (i.e., attainment or nonattainment),
- 2) State Implementation Plan (SIP) changes, and
- 3) Enforcement of new NAAQS through permitting programs.

States are required to address transportation conformity and general conformity processes which are not discussed here. Given the strong scientific evidence for disparities in PM_{2.5} exposures and PM_{2.5}-related health risks among certain populations, EPA expects states to address Environmental Justice (EJ) through their planning. Each of the three actions identified are further discussed in the following sections.

Initial Designations

Within one year but no sooner than 120 days after the promulgation of a new NAAQS, states will have to submit their initial recommendation to designate areas as nonattainment, attainment, or unclassifiable.⁶ EPA expects states to base their initial recommendations on the most current available 3 years of complete and valid air quality data. EPA will review the initial area designations on a case-by-case basis, evaluating area boundary decisions taking into account those nearby counties that may contribute to the monitored violation in the violating area.⁷ EPA expects to issue a guidance memorandum around the time of promulgation of the new standard to help states propose the initial

⁵ Obtained from <https://www.epa.gov/system/files/documents/2023-01/PM%20Maps%20-%202022%20proposal%20%28%29.pdf>

⁶ CAA Section 107(d)(1)

⁷ Ibid.

designations in a manner similar to 2012 PM_{2.5} NAAQS designation guidance.⁸ EPA intends to utilize the existing frameworks to address the impact of exceptional events (e.g., wildfires or high wind dust storms) using the 2016 Exceptional Events Rule and work with states to identify and exclude such events from the design value calculation, as appropriate.⁹ EPA will use 3 consecutive years of certified air quality monitoring data, most likely 2021-2023, for the final designations, and has up to two years (which can be extended for one more year in certain circumstances) from the promulgation of a new NAAQS to review the recommendations by the states and issue the final designations.¹⁰

SIP Changes

EPA is obligated to initially designate all PM_{2.5} nonattainment areas as “Moderate,” which provides states up to 6 calendar years (i.e., by December 31 of the sixth year) to attain compliance with the new NAAQS.¹¹ For any areas not able to attain the NAAQS by the 6th calendar year, EPA will increase the area to a “Serious” nonattainment designation, giving states an additional 4 calendar years to attain this standard. Within 18 months of the effective date of the area designations, states are required to develop attainment plan SIP submissions outlining how the nonattainment area(s) will attain the new PM_{2.5} standard. States will also need to identify the additional reasonably available control measures (RACM) and reasonably available control technologies (RACT), as necessary, to attain the new PM_{2.5} standard.

RACT requirements apply to all existing sources within a nonattainment area and can mandate installation of controls as a means of helping the area reduce pollution and move towards attainment. RACT is often implemented in a “one size fits all” manner, meaning that all sources of a particular type must meet a specific emission standard. In some instances, states may utilize a “case-by-case” approach, which places an initial burden on each facility to present an analysis as to the types of controls that may be viable for their operations, with proposal of a corresponding emission limitation or work practice standard. Therefore, facilities that are presently in an attainment area that becomes a nonattainment area as a result of a reduced NAAQS standard must be prepared for the likelihood of new regulatory requirements that could mandate the installation of controls.

It should also be noted that EPA expects states to address EJ when developing the attainment plan SIPs in order to maximize the health benefits for the overburdened populations experiencing disparities in PM_{2.5} exposures and PM_{2.5}-related health risk.

Permitting Program Changes

With a reduced PM_{2.5} standard and an increased number of nonattainment areas, many counties will potentially be subject to more stringent construction permitting requirements, implemented via the federal New Source Review (NSR) permitting program. Nonattainment area sources are traditionally subject to both lower major source thresholds and lower major modification thresholds than their counterparts located in attainment areas [which are subject to the Prevention of Significant Deterioration (PSD) program], making planning for expansions or changes at existing operations challenging. Nonattainment NSR (NANSR) is designed to allow for expansion opportunities at manufacturing locations in nonattainment areas, while also requiring lowest achievable emission rates (LAER) and emission offsets to ensure the air quality of the region will improve despite a facility’s expansion or modification.

NEW SOURCE REVIEW PERMITTING REQUIREMENTS

The proposed annual PM_{2.5} NAAQS will have several impacts on sources planning to construct major NSR projects across the country. Sources located in new nonattainment areas must consider the implications of pursuing NANSR permits versus development of NANSR avoidance strategies. For sites remaining in attainment areas, the PSD

⁸ EPA memorandum titled “Initial Area Designations for the 2012 Revised Primary Annual Fine Particle National Ambient Air Quality Standard” issued on 4/1/2013 available at <https://www3.epa.gov/pmdesignations/2012standards/docs/april2013guidance.pdf>

⁹ 81 FR 68216

¹⁰ CAA Section 107(d)(1)(B)(i)

¹¹ CAA Section 188(a)

permitting process may still prove more challenging and problematic than before. Each of these topics are further discussed in the following sections.

NANSR Program

The NANSR program applies to new major stationary sources and major modifications at existing major stationary sources. The “major stationary source” threshold for moderate and serious PM_{2.5} nonattainment areas are 100 tpy and 70 tpy, respectively, of direct PM_{2.5} or its precursors (i.e., NO_x, SO₂, VOC, and ammonia, as applicable). As such, a site with potential to emit of 100 tpy or more of SO₂ (a PM_{2.5} precursor) in a PM_{2.5} moderate nonattainment area will be considered a major stationary source for purposes of PM_{2.5}.

“Major modification” is any physical change or a change in the method of operation of an existing major stationary source that results 1) in a significant emissions increase of the pollutant for which the area is nonattainment (or its precursors) and 2) in a significant net emissions increase of that pollutant. As such, a major stationary source having potential to emit of 100 tpy or more of SO₂ will need to have a net emissions increase of less than 10 tpy of direct PM_{2.5} or 40 tpy of SO₂, NO_x, or VOC (if demonstrated to be a precursor by the state) to avoid triggering NANSR.¹² It should be noted that there is no significant emission rate for ammonia established by EPA and it is up to the states to define “significant” or pursue the optional precursor demonstration to exclude ammonia from planning requirements.¹³

NANSR permitting is more complex and challenging than its counterpart for attainment areas, PSD permitting. Specifically, the following elements can make NANSR permitting worth avoiding for many facilities:

1) Implementation of Lowest Achievable Emission Rate (LAER) for modified or new emission sources

Major sources making a major modification in a nonattainment area are required to meet LAER. LAER is defined as follows:

- The most stringent emission limitation contained in the implementation plan of any State for such class or category of source; or
- The most stringent emission limitation achieved in practice by such class or category of source.¹⁴

Unlike its PSD counterpart, Best Available Control Technology (BACT), a LAER assessment does not take into consideration the economic feasibility associated with implementation of potential control technologies or strategies. In a BACT evaluation, if a control technology is technically feasible for use on a modified or new emission source, the applicant may still be able to demonstrate that use of the technology is too expensive, demonstrated through a cost analysis which derives a \$/ton pollutant removed value on the basis of annualized capital and operational costs. In the case of LAER, if a control technology is deemed to be technically feasible, use of it would be required regardless of the costs involved. For many projects, the implementation of LAER can lead to failure of a project.

2) Requirement to obtain emission offsets for proposed emission increases

Proposed project emission increases must be offset by obtaining emission reductions of the air pollutant from the same source or other sources, typically in the same nonattainment area.¹⁵ Offsets must be obtained at a ratio of 1.1 to 1, meaning that for every 1 ton of emission increases proposed, 1.1 tons of offsets must be obtained.

The offset requirement can often be difficult to meet, depending on the availability of offsets within a given nonattainment area. Through the years of dealing with ozone nonattainment area requirements, many states

¹² 88 FR 5685

¹³ 88 FR 5686

¹⁴ 40 CFR 51.165(a)(1)(xiii)(A) and (B)

¹⁵ 40 CFR Appendix S to Part 51 IV.D

developed banking programs to facilitate the verification of offsets (often then referred to as emission reduction credits or ERCs) and the connection of potential buyers and sellers for the banked ERCs. However, such programs likely do not exist in many of the locations that will be designated as nonattainment as a result of the proposed NAAQS reduction. This adds a complication to identifying necessary offsets.

In addition to the challenge of locating required offsets, the cost will be dependent on market availability, if any are even available for sale. Oftentimes, facilities that generate offsets opt to retain them instead of selling them, anticipating they may have a need for relying on them in the future. Hence, scarcity of offsets can lead to failure of a project, either because none are available to offset the proposed project's emission increases or because the market price is cost-prohibitive.

3) Alternatives analysis

Another component of the NANSR program is the alternative sites analysis which requires "an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source [that] demonstrates that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification."¹⁶ The breadth and depth of this analysis will be dependent on the state or local regulatory authority responsible for the application review and could ultimately impact the facility's ability to proceed with a project at its selected location should the reviewing authority disagree with the company's analyses/conclusions.

4) Compliance statement for all major sources within a state

Another unique aspect for NANSR permitting is the requirement to demonstrate that all major sources owned or operated by the company in the state the permitting action is occurring are in compliance, or on a schedule for compliance, with all applicable emission limitations and standards.¹⁷ Therefore, a proposed project within the nonattainment area could be impacted by potential compliance concerns at other manufacturing locations owned and operated by the applicant in the same state.¹⁸

Although air dispersion modeling is not required under NANSR (since the area is already violating the NAAQS), states may require modeling to demonstrate that impacts from a given project in the nonattainment area are below the PSD modeling Significant Impact Level (SIL) as a means to demonstrate that the proposed project would not have a significant adverse impact on the air quality in the area.

The components of a NANSR permitting activity adds complexity, risk, and costs to the permitting process, potentially impacting a facility's ability to expand operations to meet market demands or to remain competitive with manufacturing facilities operating in attainment areas.

PSD Program

The PSD program applies to major stationary sources and major modifications at existing major sources.¹⁹ SO₂ and NO_x are considered precursors to PM_{2.5} in all attainment and unclassified areas with the exception that NO_x can be excluded if states can demonstrate emissions of NO_x from sources in a specific area are not a significant contributor to that area's ambient PM_{2.5} concentrations. Conversely, VOC is presumed not to be a precursor to PM_{2.5} in any attainment or unclassifiable area, unless a state or the EPA demonstrates that emissions of VOC from sources in a specific area are a significant contributor to that area's ambient PM_{2.5} concentrations. Therefore, under the PSD program, agencies are required to review and control direct PM_{2.5} as well as SO₂, NO_x, and VOC, as applicable.

¹⁶ CAA Section 173(a)(5), 40 CFR Appendix S to Part 51 IV.A Condition 5

¹⁷ 40 CFR Appendix S to Part 51 IV.D

¹⁸ This includes any entity controlling, controlled by, or under common control with the applicant.

¹⁹ Major source threshold of either 100 or 250 tpy, based on source category classifications.

For projects that may require PSD permitting, the most significant impact of the proposed NAAQS reduction relate to the air dispersion modeling analyses.

1) Increased likelihood that PM_{2.5} modeling will be required

With the recent modeling guidance on PM_{2.5}, EPA is now expecting sources to demonstrate compliance through air dispersion modeling for both direct PM_{2.5} and secondary PM_{2.5} if a project triggers PSD for direct PM_{2.5}, NO_x, or SO₂.²⁰ Therefore, a site may not actually have a PM_{2.5} increase exceeding the PSD major modification threshold of 10 tpy, but if the precursor pollutants exceed their modification thresholds of 40 tpy, EPA requires completion of air quality dispersion analyses for PM_{2.5}.

2) Monitored background concentrations likely close to the NAAQS Standard

For PSD projects requiring a demonstration via modeling that a project does not cause or contribute to a violation of a NAAQS standard, the monitored background PM_{2.5} concentration essentially limits the available “headroom” for impacts from new or modified sources. Consider an existing site with a monitored annual PM_{2.5} background concentration of 8.8 µg/m³. Under the existing 12 µg/m³ standard, the headroom available for expansion as part of a NAAQS analysis is 3.2 µg/m³. If the annual standard is lowered to 10 µg/m³, the available headroom for expansion activities drops to 1.2 µg/m³, whereas if it is lowered to 9 µg/m³, only 0.2 µg/m³ is available. The lowering headroom may result in facilities being unable to pursue potential projects as modeling “solutions” may be cost prohibitive.

3) Timing of transition from attainment area to nonattainment area

A potential complication may arise for sources going through PSD permitting after the effective date of the new NAAQS in areas that are currently designated as attainment or unclassified for annual PM_{2.5} NAAQS but are going to become nonattainment once EPA finalizes the designation. These sources will still be subject to the PSD program since the area has not officially been designated as nonattainment via rulemaking, but air dispersion modeling would show that the project causes or contributes to a NAAQS violation as the background monitor exceeds the NAAQS. In these cases, a PSD permit may not be issued unless the source can compensate for the adverse impact through remedial projects.

WHAT SHOULD FACILITIES DO NOW?

The reduction of the PM_{2.5} NAAQS is looming given EPA’s proposal. Facilities must start planning for the potential implications so that they can engage in the upcoming regulatory processes that will ensue and to plan accordingly for potential projects.

Engage With Local Regulatory Agency Now

First, determine what your local regulatory agency or local interest groups may be doing in preparation for the designation process. For example, ambient monitors in proximity to Richmond County in Georgia will likely exceed the proposed reduced NAAQS standards. As Richmond County lies across the Savannah River from South Carolina, the South Carolina Department of Health and Environmental Control (SC DHEC) and the Georgia Environmental Protection Division (GA EPD) have started a Central Savannah River Area Local Air Coalition (CSRA), which is comprised of industries in Aiken County, South Carolina, Richmond County, Georgia and other surrounding areas to discuss concerns and strategies related to the reduced standards with the agencies. This is necessary as the counties in South Carolina in proximity to Richmond County, Georgia, will likely be considered part of the overall nonattainment area. If your facility is in proximity to any of the areas identified in Figure 1, take an opportunity to reach out to your local regulatory agency and determine where they are in their planning process and how you may be able to participate.

²⁰ EPA’s “Guidance for Ozone and Fine Particulate Matter Permit Modeling” issued 7/29/2022 available at https://www.epa.gov/system/files/documents/2022-07/Guidance_for_O3_PM25_Permit_Modeling.pdf

Engaging in such discussions and activities will allow your facility to provide input prior to rulemaking as to how your state may address RACT requirements for nonattainment areas. Implementation of RACT can bring about substantial costs to existing facilities. As RACT requirements will potentially involve direct emissions of PM_{2.5} and its precursors (SO₂, NO_x, and potentially VOC and ammonia), the operational and capital costs to existing facilities could become substantial. The more engaged facilities are to ensure any of their unique processes or circumstances are considered, the less challenging RACT may be to a site in the future. For example, perhaps a facility could advocate for inclusion of a “case-by-case” RACT evaluation to allow for unique considerations instead of the more traditional application of the same emission limitation for every source in a specific category. Engagement during the rule making process is where agencies can more easily pivot to address site specific concerns, hopefully minimizing the burden that RACT could be on facilities.

An additional focus for discussions with regulatory agencies is related to how they are proceeding with addressing EJ considerations and ascertaining if any of the identified EJ areas are in proximity to your operations. As EPA has expressed an expectation that EJ considerations be addressed in the planning process, understanding where the areas of concern are located will be important for a facility’s own planning process. As EPA’s EJ focus continues to expand, more states are being required to formalize procedures for how EJ considerations should be included in their permitting processes. Do not miss out on the opportunity to influence an agency’s development of their EJ program.

Plan Ahead Now

Facilities in areas that will become new nonattainment areas.

If your facility is located in an area that may become a future nonattainment area, it is important to review capital projects being considered and consider if action on those projects should move forward now, before an area is redesignated. The reality is that any permitting requirements for proposed projects will continue to become more challenging and potentially more costly the longer a site waits.

An additional consideration is whether there may be opportunities at your facility to generate emission offsets, perhaps before implementation of RACT becomes a requirement. Once RACT is established, such emission reductions could not be claimed as an emission offset. But if a facility were to put in place federally enforceable reductions prior to the promulgation of RACT requirements, a regulatory agency may view that as a “voluntary” reduction such that emission offsets could be claimed. It is important to dialogue with your regulatory agency before moving forward to confirm.

For companies that anticipate the possibility of needing to pursue a NANSR permitting action in the future, it may be worth considering the elements of the alternatives analysis and the compliance statement for all sources in the state now. Companies will need to clearly show as part of the permitting exercise that they have considered alternatives to proceeding with a proposed project in the nonattainment area. It only makes sense that such a review of alternatives is documented as part of a company’s internal evaluation and planning process. Such an analysis can vary significantly depending on the size of a company. For example, if a corporation has many locations in proximity to the site proposing a change, a state would likely expect a detailed analysis from the corporation as to why facilities in nearby attainment areas have not been chosen for the proposed project, and those reasons have to ensure that the benefits of the proposed change “outweigh the environmental costs and social costs,” which is not necessarily part of a typical analysis conducted by a corporation in their decision making process.

Similarly, a corporation must make a compliance statement for all major source operations within the state. Take an opportunity to ensure that there are no compliance problems at other manufacturing operations that could impede the ability to move forward with a planned NANSR permitting action.

Facilities in areas that will remain attainment areas.

The proposed PM_{2.5} NAAQS reduction will still have an impact on PSD major sources operating in areas that will remain in attainment with the new standard. Facilities should start planning to help ensure the ability to pursue PSD permits in the future.

As air quality dispersion modeling to demonstrate compliance with the NAAQS standard will become increasingly challenging, it is important that facilities have an idea of what their site's modeled impacts are relative to the new standard. This is especially important given that modeling for PM_{2.5} will now be triggered if a major modification for NO_x or SO₂ is proposed, regardless of whether the PM_{2.5} emission increase exceeds the respective major modification threshold. Understanding your site's contributions and predicted impacts from a modeling perspective will allow a site to identify if emission reductions or improved air dispersion (e.g., increased stack heights) will be necessary on existing operations themselves, without consideration of any proposed expansion or modification projects. Many facilities can be surprised to learn that their existing operations may require significant investment before they can proceed with plans for future projects.

Understanding your own site's predicted modeling impacts is important given the variables out of a site's control that can also influence modeling results. Such factors include:

- Ambient monitored background concentration updates
- Updates to required meteorological datasets
- Changes or updates to the air dispersion model relied upon
- Regional emission inventories

Considering the limited headroom anticipated between existing ambient monitored background concentrations and the reduced NAAQS standard, changes to the background concentration can impact the ability of a facility to demonstrate compliance with the NAAQS standard. Understanding the magnitude of your facility's modeled impacts become important given that the ambient background concentrations are typically updated annually.

In addition, the air dispersion model itself is often tweaked by EPA, and the meteorological dataset required to be used in the model will typically be updated with newer data each year. These changes can influence the site's modeled impacts, and it cannot be predicted if those changes will be to the site's benefit or detriment.

Another variable involves regional emission inventories that must be included in NAAQS assessments. The inclusion of other facilities that operate within proximity to your facility is a requirement of a NAAQS analysis and can therefore have a bearing on your ability to proceed with a PSD permitting action, depending on the magnitude and nature of emissions in your region.

Given these variables outside of your facility's control, the most important step is to understand your predicted impacts via a dispersion modeling exercise, as that will inform you of the ease of challenge your site may have in pursuing PSD permitting. For many, such an analysis can show that the best path forward is to avoid PSD permitting, which could necessitate installation of additional controls as part of a project planning process or operational restrictions on a proposed project or existing operations to move forward. Having this knowledge in advance allows your corporation to plan accordingly and avoid unpleasant surprises as they move forward in any capital planning process.

KEY TAKEAWAYS

EPA's proposed reduction of the PM_{2.5} NAAQS will lead to more nonattainment areas as well as more challenging permitting for projects involving modeling in attainment areas. Facilities should note that the requirement to demonstrate compliance with the revised annual PM_{2.5} NAAQS could be triggered through not only direct PM_{2.5} emissions but also emissions of PM_{2.5} precursors (i.e., SO₂ and NO_x). Sources of PM_{2.5} emissions should be aware of the possible future attainment status of locations in which they have operations and the changing impacts of air permitting requirements for facilities in locations of attainment and nonattainment.