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Sent Via Electronic Transmittal

November 5, 2021

Mr. George Bridgers (*by email to bridgers.george@epa.gov*)
Air Quality Modeling Group
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina 27709

Dear Mr. Bridgers:

TENNESSEE VALLEY AUTHORITY (TVA) COMMENTS ON U.S. ENVIRONMENTAL PROTECTION AGENCY'S (EPA'S) REVISED DRAFT GUIDANCE FOR OZONE AND FINE PARTICULATE MATTER PERMIT MODELING

TVA appreciates the opportunity to submit comments on the EPA's Revised DRAFT Guidance for Ozone and Fine Particulate Matter Permit Modeling, which was released on September 20, 2021.

TVA is a non-profit corporate agency of the United States that provides electricity for business customers and local power distributors serving nearly 10 million people in parts of seven southeastern states. TVA receives no taxpayer funding, deriving virtually all of its revenues from sales of electricity. As part of its regional resource development mission, TVA operates the nation's largest public power system. The energy resources that TVA relies upon to serve the public include coal-fired power plants, nuclear plants, natural gas plants, hydroelectric dams, renewable energy, and energy efficiency.

Our comments focus on Section II.2: Pollutant Applicability for O₃ and PM_{2.5} PSD Air Quality Assessments. Section II.2 of the revised 2021 draft guidance provides that sources should provide a *full accounting* of the combined impacts of their allowable precursor (and direct component, in the case of PM_{2.5}) emissions on ambient concentrations of the relevant NAAQS (*i.e.*, O₃ or PM_{2.5}) if *any* precursor(s) (or the direct component, in the case of PM_{2.5}) would be emitted in a *significant* amount. For O₃, if either NO_x or VOC precursor emissions would be emitted in a significant amount, then both precursors should be included in the assessment of O₃ impacts. Analogously, for PM_{2.5}, if a source would emit a significant amount of NO_x, SO₂, or direct PM_{2.5} emissions, then the source should include the NO_x and SO₂ precursor and direct PM_{2.5} emissions in the assessment of PM_{2.5} impacts.

According to the EPA, this revised approach to PSD air quality assessments for O₃ and PM_{2.5} is supported both scientifically and legally because it ensures that the source provides a full accounting of its projected air quality impacts for the relevant NAAQS pollutant, including all precursor (and direct component, in the case of PM_{2.5}) emissions. Therefore, the agency believes it better aligns with the requirements in the PSD regulations that the owner or operator of a proposed new major stationary source or major modification demonstrate that it will not cause or contribute to a NAAQS or PSD increment violation.

The requirements in the PSD regulations are based on the premise of *significance*. According to 40 CFR 52.21(a)(2)(iv)(a), PSD applicability is determined for any new source or major modification if it causes two types of emissions increases: a *significant emissions increase* (as defined in paragraph (b)(40)) and a *significant net emissions increase* (as defined in paragraphs (b)(3) and (23)).

40 CFR 52.21(b)(23) further defines *significant* as a rate of emissions that would equal or exceed any of the following established rates for the pollutants of concern:

- NO_x: 40 tons per year (TPY);
- SO₂: 40 TPY;
- PM_{2.5}: 10 TPY of direct PM_{2.5} emissions; 40 TPY of SO₂ precursor emissions; 40 TPY of NO_x precursor emissions unless demonstrated not to be a PM_{2.5} precursor;
- VOC: 40 TPY;
- O₃: 40 TPY of VOC or 40 TPY of NO_x.

Therefore, if a major source has pollutant emissions above the respective significant emission rate (SER), the emissions are considered *significant* and the source is subject to PSD applicability. Likewise, if a pollutant's emissions are below the SER, PSD applicability is not triggered. The BACT and the air quality analysis requirements of the PSD regulations apply only to those pollutants that are emitted above the SER. The 2021 draft guidance departs from the PSD regulations, and from the manner in which these regulations have been applied over the years, by requiring significant and insignificant precursor emissions to be added in determining PSD applicability. Furthermore, the requirement in the guidance for including all O₃ precursors, regardless of their SERs, effectively creates a new O₃ SER of 40 TPY for the combined emissions of VOC *and* NO_x, which is contradictory to the definition established in 40 CFR 52.21(b)(2)(ii). The draft guidance greatly undermines the application of *significance*, and it does not align with the requirements set forth in the PSD regulations established decades ago as part of the Clean Air Act.

The 2021 draft guidance also departs from the requirements established in the PSD regulations for air quality analysis. The regulations require applicants to provide an analysis of ambient air quality in the area where the major stationary source or the major modification is located. See 40 CFR § 52.21(m)(1). They require an air quality analysis only for pollutants emitted in significant quantities. Thus, for a major stationary source, an air quality analysis is required for "each pollutant that the [the source] would have the potential to emit in a significant amount. *Id.* § 52.21(m)(1)(i). And, for a major modification, an air quality analysis is required for "each pollutant for which [the modification] would result in a significant net emissions increase. *Id.* § 52.21(m)(1)(ii). In the draft guidance, EPA deviates from the requirements of its own regulations by requiring an air quality analysis for the summation of precursor emissions, including precursors emitted at insignificant levels.

In EPA's practice over more than three decades, it has consistently taken the position that different precursors should not be combined to determine PSD applicability. Emissions of individual O₃ and PM_{2.5} precursors (*i.e.*, NO_x, VOC, SO₂, and direct PM_{2.5}) are not summed when determining a significant emission increase for either criteria pollutant. Only those precursors of O₃ and PM_{2.5} that would by themselves be emitted by a source in a significant amount are subject to individual PSD requirements, such as the BACT and air quality analysis requirements. See 57 Fed. Reg. 55,620, 55,624 (Nov. 15, 1992) ("The EPA finds nothing in the statutory language to suggest that emissions of VOC and NO_x are to be added together for part D NSR applicability purposes. That is, VOCs and NO_x are to be considered separately for purposes of determining whether a source is subject to the permit requirements."); 73 Fed. Reg. 28,321, 28,331 (May 16, 2008) ("Different pollutants, including precursors, are not summed up to determine applicability."); 80 Fed. Reg. 65,292, 65,441 (Oct. 26, 2015) ("For PSD, the O₃ SER applies independently to emissions of VOC and NO_x (emissions of precursors are not added together) to determine when the proposed major stationary source or major modification must undergo PSD review for that precursor and whether individual PSD requirements, such as BACT, apply to that precursor.")

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The draft guidance *full accounting* approach also further complicates the MERPs analyses when netting is applied. The February 2020 final MERPs guidance and the proposed 2021 draft guidance allow for “project emission increases” to be utilized. If a MERPs precursor net emission increase is greater than its SER, how does the proposed *full accounting* approach consider the other MERPs precursor in the event its net emissions are less than zero? Can negative emissions be used in dispersion modeling to account for the air quality benefit? Based on the methodology proposed, negative emissions should be considered in secondary pollutant assessments. Furthermore, is “project emission increases” equivalent to 40 CFR 52.21(b)(3)(i) “net emission increases”?

No scientific evidence was directly presented (*i.e.*, cited in a footnote or attachment) in the draft guidance to provide credibility that precursors, regardless of their emissions *in relation to* other precursors, will lead to the significant formation of secondary pollutants. Decades of research validate that the formation of secondary pollutants is highly dependent on the chemical quantities and ratios of the precursor amounts emitted. The relationships between O₃ and its precursors are nonlinear and depend on precursor concentrations, reactivity, and *concentration ratios* between NO_x and VOC. Therefore, exclusion of O₃ precursors below their SERs would accurately capture NO_x-limited and/or VOC-limited conditions. Scientific evidence is needed to support the conclusion that precursor emissions, in *insignificant* amounts, will *significantly* contribute to the formation of secondary pollutants.

Accordingly, TVA recommends that EPA withdraw from the 2021 draft guidance the segment in Section II.2 requiring the summation of precursors for air quality analysis. If EPA wishes to pursue this revision relating to adding precursor emissions, it should do so through the formal rulemaking process that amends appropriate provisions of the PSD regulations pertaining to significance and air quality analysis.

If you have questions, please contact me at 865-617-6226.

Sincerely,



M. Carolyn Koroa
Director
Environment and Energy Policy