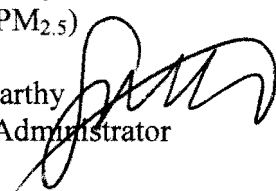


JUL 21 2011

**MEMORANDUM**

**SUBJECT:** Revised Policy to Address Reconsideration of Interpollutant Trading Provisions for Fine Particles (PM<sub>2.5</sub>)

**FROM:** Gina McCarthy   
Assistant Administrator

**TO:** Regional Air Division Directors, Regions 1-10

The purpose of this memorandum is to announce a change in the policy that the U.S. Environmental Protection Agency originally set forth in the 2008 PM<sub>2.5</sub> New Source Review Implementations Rule (the 2008 final rule) concerning the development and adoption of interpollutant trading (offset) provisions for PM<sub>2.5</sub> under state nonattainment area New Source Review (NA NSR) programs for PM<sub>2.5</sub>. As a result of our reconsideration of the policy, we no longer support the ratios provided in the preamble to the 2008 final rule as presumptively approvable ratios for adoption in state implementation plan (SIPs) containing NA NSR programs for PM<sub>2.5</sub>. This revised policy does not affect the EPA rule provisions that allow states to adopt as part of their NA NSR programs for PM<sub>2.5</sub> appropriately supported interpollutant offset provisions involving PM<sub>2.5</sub> precursors.

In sum, the new policy is that any ratio involving PM<sub>2.5</sub> precursors submitted to EPA for approval for use in a state's interpollutant offset program for PM<sub>2.5</sub> nonattainment areas must be accompanied by a technical demonstration that shows the net air quality benefits of such ratio for the PM<sub>2.5</sub> nonattainment area in which it will be applied.

**Background:**

The 2008 final rule authorizes states to adopt provisions in their NA NSR rules that would allow major stationary sources and major modifications locating in areas designated nonattainment for PM<sub>2.5</sub> to offset emissions increases of direct PM<sub>2.5</sub> emissions or PM<sub>2.5</sub> precursors with reductions of either direct PM<sub>2.5</sub> emissions or PM<sub>2.5</sub> precursors in accordance with offset ratios contained in the approved SIP for the applicable nonattainment area. The inclusion, in whole or in part, of the interpollutant offset provisions for PM<sub>2.5</sub> is discretionary on the part of the states.

In the preamble to the 2008 final rule, the EPA included preferred or presumptive offset ratios, applicable to specific PM<sub>2.5</sub> precursors that states may adopt in conjunction with the new interpollutant offset provisions for PM<sub>2.5</sub>, and for which the state could rely on the EPA's technical work to

demonstrate the adequacy of the ratios for use in any PM<sub>2.5</sub> nonattainment area. Alternatively, the preamble indicated that states may adopt their own ratios, subject to the EPA's approval, that would have to be substantiated by modeling or other technical demonstrations of the net air quality benefit for ambient PM<sub>2.5</sub> concentrations. The preferred ratios were subsequently the subject of a petition for reconsideration, which the Administrator granted. This memo is a result of that reconsideration and, as stated above, we no longer support the ratios provided in the preamble to the 2008 final rule as presumptively approvable ratios for adoption in SIPs containing NA NSR programs for PM<sub>2.5</sub>.

### **Additional Background:**

Section 173 of the Clean Air Act (CAA) sets forth certain requirements for obtaining a preconstruction permit for major stationary sources that are located, or propose to locate, in an area designated nonattainment for a NAAQS. One such requirement is that the proposed major stationary sources and major modifications must obtain emissions reductions of the affected nonattainment pollutant from the same source or other sources in the area to offset the proposed emissions increase. CAA § 173(c). The 2008 final rule included a provision in the nonattainment NSR regulations at 40 CFR § 51.165 and 40 CFR Part 51, Appendix S that provided an option for meeting the offset requirement for PM<sub>2.5</sub> with interpollutant (precursor) offsets. Under the provision, states could allow reductions in direct PM<sub>2.5</sub> emissions to offset precursor emissions increases, emissions reductions of one precursor to offset emissions increases of another precursor, and reductions in precursor emissions to offset direct PM<sub>2.5</sub> emissions increases. The provision further stipulates that the use of a PM<sub>2.5</sub> precursor offset must "comply with the interprecursor trading hierarchy and ratio established in the approved plan for a particular nonattainment area." 40 CFR § 51.165(a)(11).

In the preamble to the 2008 final rule, the EPA issued "preferred" offset ratios that it recommended states use as part of an interpollutant offset provision in their NSR rules. As part of its policy authorizing states to implement the new PM<sub>2.5</sub> offset provision within their approved NSR SIPs, the EPA provided a hierarchy and "preferred" ratios involving two PM<sub>2.5</sub> precursors--sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>). Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM<sub>2.5</sub>), 73 Fed. Reg. 28321, 28339-40 (May 16, 2008). We indicated that the preferred ratios were the result of a technical assessment that we conducted to support use of the ratios. (The preamble clearly indicated that such ratios were for purposes of offsets only and not applicable to source netting for applicability purposes.) The technical assessment, with details on data and modeling inputs, was fully described in a technical memo entitled "Details on Technical Assessment to Develop Interpollutant Trading Ratios for PM<sub>2.5</sub> Offsets," which was placed in the docket to the 2008 final rule. We recommended that states use the EPA-preferred ratios in their PM<sub>2.5</sub> SIPs for PM<sub>2.5</sub> nonattainment areas, and that we would approve such ratios based on our own technical demonstration, "absent a credible showing that the EPA's trading ratios are not appropriate for that location." We further stated that if any states chose to develop their own hierarchies and ratios, then such states would have to "substantiate by modeling and/or other technical demonstrations of [sic] the net air quality benefit for PM<sub>2.5</sub> ambient concentrations, and such trading programs will have to be approved by EPA." *Ibid.*

In 2009, portions of the 2008 final rule, including the preferred interpollutant offset ratios for PM<sub>2.5</sub> precursors, were the subject of a Petition for Reconsideration filed by Earthjustice on behalf of NRDC and Sierra Club. On April 24, 2009, the Administrator signed a letter granting the Petition for

Reconsideration and agreed to reconsider portions of the 2008 final rule, including the preferred offset ratios discussed in the preamble. The reconsideration proceedings for the Interpollutant Trading Policy have resulted, in part, in the issuance of this policy memorandum.

### **Revised Policy on Preferred Ratios:**

We continue to support the basic policy that sources may offset increases in emissions of direct PM<sub>2.5</sub> or of any PM<sub>2.5</sub> precursor in a PM<sub>2.5</sub> nonattainment area with actual emissions reductions in direct PM<sub>2.5</sub> or PM<sub>2.5</sub> precursors in accordance with offset ratios as approved in the SIP for the applicable nonattainment area. However, we will no longer consider the preferred ratios set forth in the preamble to the 2008 final rule for PM<sub>2.5</sub> NSR implementation to be presumptively approvable. Instead, any ratio involving PM<sub>2.5</sub> precursors adopted by the state for use in the interpollutant offset program for PM<sub>2.5</sub> nonattainment areas must be accompanied by a technical demonstration that shows the net air quality benefits of such ratio for the PM<sub>2.5</sub> nonattainment area in which it will be applied.

We have revised the policy based on our re-evaluation of the “preferred” ratios. We have reached several key conclusions. First, upon re-examination of the original data, we believe that the original preferred ratios are not sufficiently representative of conditions in all areas of the country. Any preferred ratios would need to be considerably more conservative to be applied nationwide and to account for the inherent differences in the nature of PM<sub>2.5</sub> ambient concentrations across nonattainment areas and the associated variability in responsiveness to direct and precursor emissions changes. We believe that the 2008 preferred precursor offset ratios for PM<sub>2.5</sub> are not sufficiently conservative to ensure the net air quality benefit for PM<sub>2.5</sub> ambient concentrations across all areas of the country and, thus, to serve as presumptively approvable ratios for the EPA’s general SIP approval in state PM<sub>2.5</sub> NA NSR programs. The EPA’s original technical assessment only reflected nine urban areas in detail and therefore did not sufficiently account for the full spectrum of differences across all nonattainment areas. As a result, the technical assessment did not adequately identify the offset ratios that would be needed to be considered presumptively approvable ratios.

Second, we have determined that the ratios defined in the 2008 preamble are generally not suitable for application to offsets that address violations of the 24-hour primary PM<sub>2.5</sub> NAAQS. The 2008 preamble did not distinguish between the annual and daily averaging periods to define applicable offset ratios. One could have assumed that the offset ratios provided in the 2008 final rule would apply with respect to offsets for any averaging period. However, we have determined that those ratios are not adequate for addressing the precursor relationship for PM<sub>2.5</sub> for the short-term averaging period, because the modeling setup that we used to develop the original preferred ratios does not adequately capture the local and seasonal nature of the short-term PM<sub>2.5</sub> responsiveness to direct and precursor emissions changes. Daily PM<sub>2.5</sub> concentrations in the air are highly dependent on both source and meteorological factors and are widely variable across and within urban and rural areas. Accordingly, states will be expected to develop separate PM<sub>2.5</sub> precursor offset ratios that are demonstrated to be suitable for addressing the particular precursor’s relationship with ambient PM<sub>2.5</sub> concentrations for 24-hour averaging period(s) that are causing violations in that nonattainment area.

As stated above, under the EPA's revised policy, the ratios contained in the preamble to the 2008 final rule will no longer carry a presumptive approval status. While we believe that our original modeling analysis is valid and demonstrates the technical capability and approach to develop such ratios for areas across the country, states wishing to adopt any of those ratios contained in the 2008 preamble must treat them as any other ratios that they may choose, such that each ratio will need to be supported by modeling or other technical demonstration to show that such ratio is suitable for the particular PM<sub>2.5</sub> nonattainment area(s) of concern, and will be subject to the EPA's evaluation prior to approval in the state plan. For the nine urban areas included in the EPA's original technical assessment, that assessment may already contain the kind of information that a state needs to support the ratios of their choosing.

### **General Guidance for Developing Case-specific Offset Ratios for PM<sub>2.5</sub> Precursors:**

The July 23, 2007 technical analysis entitled "Details on Technical Assessment to Develop Interpollutant Trading Ratios for PM<sub>2.5</sub> Offsets," provides details on the method used to establish the original "preferred" precursor offset ratios. We do not expect that the specific results from the EPA's 2007 technical assessment could be used generally by a state as part of their demonstration without additional technical demonstration specific to the area(s) within which the ratios would be applied, unless the area(s) is among the nine areas in the 2007 assessment. We expect EPA regional offices, with assistance from the EPA's Office of Air Quality Planning and Standards, to assist states, as necessary, to structure appropriate technical demonstrations leading to the development of area-specific ratios for PM<sub>2.5</sub> nonattainment areas. We do not, however, plan to develop new EPA-preferred or presumptive ratios. We believe any presumptively approvable ratios at the national level that we might ultimately develop for use across the different PM<sub>2.5</sub> nonattainment areas would need to be considerably more conservative, such that they likely would be considered undesirable by most states and permit applicants for use in many, if not most, nonattainment areas' permitting scenarios.

We expect existing models and techniques to be adequate for states to conduct local demonstrations leading to the development of area-specific ratios for PM<sub>2.5</sub> nonattainment areas. The general framework for such developmental efforts would include the following steps:

- 1) Define the geographic area(s) in which offsets between emission sources are allowed, i.e., nonattainment area(s).
- 2) Conduct a series of sensitivity runs with appropriate air quality models to develop a database of modeled PM<sub>2.5</sub> concentration changes associated with reductions of direct PM<sub>2.5</sub> emissions and PM<sub>2.5</sub> precursor emissions (e.g., SO<sub>2</sub> and NO<sub>x</sub>) from anthropogenic point sources within the area of interest. For precursor emissions, a photochemical model (e.g., CMAQ, CAMx) at grid resolution of 12 kilometers (km) or less is recommended to predict changes in PM<sub>2.5</sub> concentrations. For direct PM<sub>2.5</sub> emissions, a dispersion model (e.g., AERMOD) or photochemical model at grid resolution of 4 km or less is recommended to predict changes in PM<sub>2.5</sub> concentrations.
- 3) Calculate the interpollutant offset ratios for PM<sub>2.5</sub> between direct PM<sub>2.5</sub> emissions and precursor emissions in a manner similar to the EPA's 2007 technical assessment, i.e., the ratio of impact metrics from step 3, above.

- 4) Conduct quality assurance of the resulting ratios and evaluate their interpretation and appropriateness given the nature of PM<sub>2.5</sub> sources and formation in the area of interest. This evaluation will likely require emissions inventory data and observed ambient data for PM<sub>2.5</sub> and its component species.

If there are questions about applying these steps we encourage states to contact their Regional Office modeling contact for further technical consultation.

#### **Effects of This Revised Policy:**

This document is intended as a general statement of the EPA's policy with respect to the review and approval of interpollutant offset ratios to meet offset requirements for PM<sub>2.5</sub> in accordance with 40 CFR § 51.165(a)(11) and 40 CFR Part 51, Appendix S(IV)(G)(5). The preferred offset ratios described in the preamble to the 2008 final rule were not promulgated in the Code of Federal Regulations, were not outlined in the proposed rule, and were not subject to public review and comment. The description of the preferred offset ratios in the preamble did not impose binding, enforceable requirements on the states, but rather provided a statement of the EPA's policy. The 2008 preamble described how the EPA intended to exercise its discretion in reviewing ratios submitted to the EPA for approval in accordance with 40 CFR § 51.165 and 40 CFR Part 51, Appendix S.

This memorandum reflects the EPA's reasoned reconsideration of that policy position. This document does not substitute for the statutory provisions or regulations, nor is it a regulation itself. Since each proposal to allow interpollutant offsets under a SIP or in accordance with 40 CFR Part 51, Appendix S will be considered on a case-by-case basis, this policy statement does not limit or restrict any particular approach states may take to set appropriate interpollutant offset hierarchies and ratios. Thus, the policies set forth in this paper are intended solely as guidance, do not represent final agency action, and cannot be relied upon to create any rights or obligations enforceable by any party.

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