6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

EPA-R03-OAR-2019-0044; EPA-R05-OAR-2015-0699
[FRL-9995-43-Region 3 and 5]

Approval of Air Quality Implementation Plans; Ohio and West Virginia; Attainment Plans for the Steubenville, Ohio-West Virginia 2010 Sulfur Dioxide Nonattainment Area

AGENCY: Environmental Protection Agency (EPA)

ACTION: Proposed rule

SUMMARY: The Environmental Protection Agency (EPA) is proposing to approve, under the Clean Air Act (CAA), two State Implementation Plan (SIP) revision submittals, submitted by Ohio and West Virginia, respectively. Ohio's requested SIP revision was submitted to EPA through the Ohio Environmental Protection Agency (OEPA) on April 1, 2015 with supplemental submissions on October 13, 2015 and March 25, 2019, with expectation of an additional submittal within two to three months. This additional submittal is expected to include final, adopted limits corresponding to the limits in proposed form in the March 25, 2019 submittal. West Virginia's requested SIP revision was submitted to EPA through the West Virginia Department of Environmental Protection (WVDEP) on April 25, 2016 with a supplemental submission from WVDEP on November 27, 2017 and a clarification letter on May 1, 2019. The Ohio and West Virginia submittals include each State's attainment demonstration for the Steubenville Ohio-West Virginia sulfur dioxide (SO_2) nonattainment area (hereinafter "Steubenville Area" or "Area"). Each state plan contains an attainment demonstration, enforceable emission limits and control measures and other elements required under the CAA to address the nonattainment area requirements for the Steubenville Area.

EPA proposes to conclude that the Ohio and West Virginia attainment plan submittals demonstrate that the provisions in the States' respective plans provide for attainment of the 2010 1-hour primary SO_2 national ambient air quality standard (NAAQS) in the entire Steubenville Area and meet the requirements of the CAA. EPA is also proposing to approve into the West Virginia SIP new emissions limits, operational restrictions, and associated compliance requirements for Mountain State Carbon, and proposing to approve into the Ohio SIP the limits on emissions from Mingo Junction Energy Center and JSW Steel as well as the proposed limits for the Cardinal Power Plant.

DATES: Written comments must be received on or before **[Insert date 30 days AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-R03-OAR-2019-0044 for comments relating to West Virginia or EPA-R05-2015-0699 for comments relating to Ohio at http://www.regulations.gov, or via email to spielberger.susan@epa.gov at EPA Region III or to aburano.douglas@epa.gov at EPA Region V. For comments submitted at Regulations.gov, follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from Regulations.gov. For either manner of submission, EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be confidential business information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. EPA will generally not consider comments or comment contents located outside of the primary submission (i.e. on the web,

cloud, or other file sharing system). For additional submission methods, please contact the person identified in the "For Further Information Contact" section. For the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit http://www2.epa.gov/dockets/commenting-epa-dockets.

FOR FURTHER INFORMATION CONTACT: Marilyn Powers at EPA Region III, Planning & Implementation Branch (3AD30), Air & Radiation Division, U.S. Environmental Protection Agency, Region III, 1650 Arch Street, Philadelphia, Pennsylvania 19103, (215) 814-2308, powers.marilyn@epa.gov. John Summerhays at EPA Region V, Attainment Planning and Maintenance Section, Air Programs Branch (AR-18J), Environmental Protection Agency, Region V, 77 West Jackson Boulevard, Chicago, Illinois 60604, (312) 886-6067, summerhays.john@epa.gov.

SUPPLEMENTARY INFORMATION:

Throughout this document whenever ''we,'' ''us,'' or ''our'' is used, we mean EPA.

The following outline is provided to aid in locating information in this preamble.

Table of Contents

I. Why Were Ohio and West Virginia Required to Submit SO_2 Plans for the Steubenville Area?

On June 22, 2010, EPA promulgated a new 1-hour primary SO_2 NAAQS of 75 parts per billion (ppb), which is met at an ambient air quality monitoring site when the 3-year average of the annual 99^{th} percentile of daily maximum 1-hour average concentrations does not exceed 75 ppb, as determined in accordance with appendix T of 40 CFR part 50. *See* 75 FR 35520, codified at 40 CFR 50.17(a)-(b). On August 5, 2013, EPA designated a first set of 29 areas of the country as nonattainment for the 2010 SO_2 NAAQS, including the Steubenville nonattainment area comprised of portions within Ohio and West Virginia. *See* 78 FR 47191, codified at 40 CFR part 81, subpart C, §§ 81.336 and 81.349. These area designations became effective October 4, 2013. Section 191(a) of the CAA directs states to submit SIPs for areas designated as nonattainment for the SO_2 NAAQS to EPA within 18 months of the effective date of the designation, i.e., by no later than April 4, 2015 in this case. Under CAA section 192(a), these SIPs are required to demonstrate that their respective areas will attain the NAAQS as expeditiously as practicable, but no later than five years from the effective date of designation, which is October 4, 2018.

For a number of areas, including the West Virginia portion of the Steubenville Area, EPA published a notice on March 18, 2016 finding that West Virginia and other states had failed to submit the required SO_2 attainment SIPs by this submittal deadline. *See* 81 FR 14736. This finding initiated a deadline under CAA section 179(a) for the potential imposition of new source and highway funding sanctions. Ohio submitted its SO_2 attainment plan before the required deadline, therefore, EPA did not make such a finding with respect to Ohio's submittal for the Ohio portion of the Steubenville Area. Pursuant to West Virginia's submittal of its attainment plan on April 25, 2016, which became complete by operation of law, EPA subsequently notified West Virginia via letter dated June 13, 2017 that the SIP submittal was complete and that sanctions under section 179(a) would not be imposed in West Virginia due to its prior failure to submit a SIP. Additionally, under CAA section 110(c), the failure to submit finding triggered a requirement that EPA promulgate a Federal implementation plan (FIP) for West Virginia within two years of the finding unless, by that time (a) the state has made the necessary complete submittal and (b) EPA has approved the submittal as meeting all applicable requirements. The FIP obligation for West Virginia will no longer apply if EPA finalizes the approval that is proposed in today's action. The SIPs that West Virginia and Ohio submitted focus on four sources in the Steubenville area. The significant source in Brooke County, West Virginia, is the Mountain State Carbon facility (Mountain State Carbon), located in Follansbee. The other three significant sources in the Steubenville area are in Jefferson County, Ohio. Two of these facilities are located in Mingo Junction, namely the Mingo Junction Energy Center and the JSW Steel facility.[1] The other significant source in Jefferson County is the Cardinal power plant (Cardinal) located near Brilliant, Ohio.

[1] Although this facility (formerly owned by Wheeling-Pittsburgh Steel and other owners) is identified as Mingo

In accordance with section 172(c) of the CAA, the April 25, 2016 West Virginia SO_2 attainment plan submittal for the West Virginia portion of the Area includes a 2011 base year emissions inventory; an attainment demonstration; the assertion that West Virginia's existing SIP-approved NSR program meets the applicable requirements for SO_2; requirements for RFP toward attaining the SO_2 NAAQS; a determination that the control strategy for the primary SO_2 source within the nonattainment areas constitutes RACM/RACT; contingency measures; and a consent order between West Virginia and Mountain State Carbon (the primary SO_2 source in the West Virginia portion of the Area) that includes emission limitations, operational restrictions, and associated compliance requirements for Mountain State Carbon, which WVDEP requested be incorporated into the West Virginia SIP. The attainment demonstration is comprised of an analysis that locates, identifies, and quantifies sources of emissions contributing to violations of the 2010 SO_2 NAAQS in the Steubenville Area and dispersion modeling of the emissions control measures in the Area that shows attainment of the 2010 SO_2 NAAQS. On November 27, 2017, WVDEP submitted a revised consent order for Mountain State Carbon to clarify certain provisions related to enforceability.

Likewise, Ohio's April 1, 2015 submittal for the Ohio portion of the Steubenville Area, as supplemented on October 13, 2015, included the nonattainment area submittal requirements under sections 172, 191 and 192 of the CAA. The supplemental submittal included rules which in the Steubenville Area limited the emissions of Mingo Junction Energy Center and JSW Steel.

Junction Steel Works, LLC in Ohio's rules, this action will refer to this facility by the name of its current owners, JSW Steel.

On March 25, 2019, Ohio provided a requested SIP revision comprised of proposed further revisions to Ohio Administrative Code (OAC) Rule 3745-18-47, along with proposed revisions to associated compliance provisions in OAC Rules 3745-18-03 and 3745-18-04. The proposed SIP revision would modify the SO_2 limit for the coal-fired boilers at Cardinal. In the submittal, Ohio requested that EPA initiate action to propose approval of its attainment SIP concurrently with Ohio's administrative process to adopt the rule and submit the rule as a SIP revision to EPA. Under this process, EPA publishes its notice of proposed rulemaking in the **Federal Register** and solicits public comment in approximately the same time frame during which Ohio is completing its rulemaking process. OEPA provided an anticipated schedule for submittal of the final SIP package to EPA. If changes are made to the SIP revision after this proposal, such changes will be described in EPA's final rulemaking action and, if such changes are significant, EPA may re-propose the action and provide an additional public comment period before issuing a final action.

The remainder of this notice describes the requirements that such plans must meet in order to obtain EPA approval, provides a review of each States' plan with respect to these requirements, and describes EPA's proposed action on the plans.

II. Requirements for SO_2 Nonattainment Area Plans

Nonattainment area SIPs must meet the applicable requirements of the CAA, and specifically CAA sections 110, 172, 191 and 192. The EPA's regulations governing nonattainment area SIPs are set forth at 40 CFR part 51, with specific procedural requirements and control strategy requirements residing at subparts F and G, respectively. Soon after Congress enacted the 1990 Amendments to the CAA, EPA issued comprehensive guidance on SIPs, in a document entitled

the "General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990," published at 57 FR 13498 (April 16, 1992) (General Preamble). Among other things, the General Preamble addressed SO_2 SIPs and fundamental principles for SIP control strategies. *Id.*, at 13545-49, 13567-68. On April 23, 2014, the EPA issued recommended guidance for meeting the statutory requirements in SO_2 SIPs, in a document entitled, "Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions," (April 2014 guidance) available at https://www.epa.gov/sites/production/files/2016-06/documents/20140423guidance_nonattainment_sip.pdf. In the April 2014 guidance, EPA described the statutory requirements for a complete nonattainment area SIP, which includes: an accurate emissions inventory of current emissions for all sources of SO_2 within the nonattainment area; an attainment demonstration; enforceable emissions limitations and control measures; demonstration of RFP; implementation of RACM (including RACT); NSR; and adequate contingency measures for the affected area.

In order for EPA to fully approve a SIP as meeting the requirements of CAA sections 110, 172 and 191-192 and EPA's regulations at 40 CFR part 51, the SIP for the affected area needs to demonstrate to EPA's satisfaction that each of the aforementioned requirements have been met. Under CAA sections 110(l) and 193, EPA may not approve a SIP that would interfere with any applicable requirement concerning NAAQS attainment and RFP, or any other applicable requirement, and no requirement in effect (or required to be adopted by an order, settlement, agreement, or plan in effect before November 15, 1990) in any area which is a nonattainment area for any air pollutant, may be modified in any manner unless it insures equivalent or greater emission reductions of such air pollutant.

III. Attainment Demonstration and Longer-Term Averaging

CAA section 172(c)(1) directs states with areas designated as nonattainment to demonstrate that the submitted plan provides for attainment of the NAAQS. 40 CFR part 51, subpart G further delineates the control strategy requirements that SIPs must meet, and EPA has long required that all SIPs and control strategies reflect four fundamental principles of quantification, enforceability, replicability, and accountability. General Preamble, at 13567-68. SO_2 attainment plans must consist of two components: (1) emission limits and other control measures that assure implementation of permanent, enforceable and necessary emission controls, and (2) a modeling analysis which meets the requirements of 40 CFR part 51, appendix W which demonstrates that these emission limits and control measures provide for timely attainment of the primary SO_2 NAAQS as expeditiously as practicable, but by no later than the attainment date for the affected area. In all cases, the emission limits and control measures must be accompanied by appropriate methods and conditions to determine compliance with the respective emission limits and control measures and must be quantifiable (i.e., a specific amount of emission reduction can be ascribed to the measures), fully enforceable (specifying clear, unambiguous and measurable requirements for which compliance can be practicably determined), replicable (the procedures for determining compliance are sufficiently specific and non-subjective so that two independent entities applying the procedures would obtain the same result), and accountable (source specific limits must be permanent and must reflect the assumptions used in the SIP demonstrations).

EPA's April 2014 guidance recommends that the emission limits be expressed as short-term average limits (e.g., addressing emissions averaged over one or three hours), but also describes the option to utilize emission limits with longer averaging times of up to 30 days so long as the state meets various suggested criteria. *See* April 2014 guidance, pp. 22 to 39. The guidance

recommends that—should states and sources utilize longer averaging times—the longer-term average limit should be set at an adjusted level that reflects a stringency comparable to the 1-hour average limit at the critical emission value shown to provide for attainment that the plan otherwise would have set.

The April 2014 guidance provides an extensive discussion of EPA's rationale for concluding that appropriately set, comparably stringent limitations based on averaging times for periods as long as 30 days can be found to provide for attainment of the 2010 SO_2 NAAQS. In evaluating this option, EPA considered the nature of the standard, conducted detailed analyses of the impact of use of 30-day average limits on the prospects for attaining the standard, and carefully reviewed how best to achieve an appropriate balance among the various factors that warrant consideration in judging whether a state's plan provides for attainment. *Id*. at pp. 22 to 39. *See* also *id*. at Appendices B, C, and D.

As specified in 40 CFR 50.17(b), the 1-hour primary SO_2 NAAQS is met at an ambient air quality monitoring site when the 3-year average of the annual 99^{th} percentile of daily maximum 1-hour average concentrations is less than or equal to 75 ppb. In a year with 365 days of valid monitoring data, the 99^{th} percentile would be the fourth highest daily maximum 1-hour value. The 2010 SO_2 NAAQS, including this form of determining compliance with the standard, was upheld by the U.S. Court of Appeals for the District of Columbia Circuit in Nat'l Envt'l Dev. Ass'n's Clean Air Project v. EPA, 686 F.3d 803 (D.C. Cir. 2012). Because the standard has this form, a single exceedance of the NAAQS' 75 ppb level does not create a violation of the standard. Instead, at issue is whether a source operating in compliance with a properly set longer term average could cause exceedances of 75 ppb, and if so the resulting frequency and

magnitude of such exceedances, and in particular whether EPA can have reasonable confidence that a properly set longer term average limit will provide that the 3-year average of the annual fourth highest daily maximum 1-hour average value will be at or below 75 ppb. A synopsis of how EPA judges whether such plans "provide for attainment," based on modeling of projected allowable emissions and in light of the NAAQS' form for determining attainment at monitoring sites, follows.

For SO_2 attainment demonstrations based on 1-hour emission limits, the standard approach is to conduct modeling using fixed emission rates. The maximum emission rate that would be modeled to result in attainment (i.e., in an "average year"[2] shows three, not four days with maximum hourly levels exceeding 75 ppb) is labeled the "critical emission value." The modeling process for identifying this critical emissions value inherently considers the numerous variables that affect ambient concentrations of SO_2, such as meteorological data, background concentrations, and topography. In the standard approach, the state would then provide for attainment by setting a continuously applicable 1-hour emission limit at this critical emission value. EPA recognizes that some sources have highly variable emissions, for example due to variations in fuel sulfur content and operating rate, that can make it extremely difficult, even with a well-designed control strategy, to ensure in practice that emissions for any given hour do not exceed the critical emission value. EPA also acknowledges the concern that longer term emission limits can allow short periods with emissions above the critical emission value which, if coincident with meteorological conditions conducive to high SO_2 concentrations, could in turn

[2] An "average year" is used to mean a year with average air quality. While 40 CFR 50 appendix T provides for averaging three years of 99th percentile daily maximum 1-hour values (e.g., the fourth highest daily maximum 1-hour concentration in a year with 365 days with valid data), this discussion and an example below uses a single "average year" in order to simplify the illustration of relevant principles.

create the possibility of an exceedance of the NAAQS level occurring on a day when an exceedance would not have occurred if emissions were continuously controlled at the level corresponding to the critical emission value. However, for several reasons, EPA believes that the approach recommended in its guidance document suitably addresses this concern. First, from a practical perspective, EPA expects the actual emission profile of a source subject to an appropriately set longer term average limit to be similar to the emission profile of a source subject to an analogous 1-hour average limit. EPA expects this similarity because it has recommended that the longer-term average limit be set at a level that is comparably stringent to the otherwise applicable 1-hour limit, reflecting a downward adjustment from the critical emission value that is proportionate to the anticipated variability in the source's emissions profile. As a result, EPA expects either form of emission limit to yield a comparable reduction in SO_2 emissions and comparable air quality.

Second, from a more theoretical perspective, EPA has compared the likely air quality with a source having maximum allowable emissions under an appropriately set longer term limit, as compared to the likely air quality with the source having maximum allowable emissions under the comparable 1-hour limit. In this comparison, in the 1-hour average limit scenario, the source is presumed at all times to emit at the critical emission level, and in the longer-term average limit scenario, the source is presumed occasionally to emit at levels higher than the critical emission value but on average, and presumably at most times, to emit well below the critical emission value. In an "average year," compliance with the 1-hour limit is expected to result in three exceedance days (i.e., three days with maximum hourly values above 75 ppb) and a fourth day with a maximum hourly value at 75 ppb. By comparison, with the source complying with a longer-term limit, it is possible that additional exceedances of 75 ppb would occur that would not

occur in the 1-hour limit scenario (if emissions exceed the critical emission value at times when meteorology is conducive to poor air quality). However, this comparison must also factor in the likelihood that exceedances of 75 ppb that would be expected in the 1-hour limit scenario would not occur in the longer-term limit scenario. This result arises because the longer-term limit requires lower emissions most of the time (because the limit is set well below the critical emission value), so a source complying with an appropriately set longer term limit is likely to have lower emissions at critical times than would be the case if the source were emitting as allowed with a 1-hour limit.

As a hypothetical example to illustrate these points, suppose a source that always emits 1000 pounds of SO_2 per hour, which results in air quality at the level of the NAAQS (i.e., results in a design value of 75 ppb). Suppose further that in an "average year," these emissions cause the five highest maximum daily average 1-hour concentrations to be 100 ppb, 90 ppb, 80 ppb, 75 ppb, and 70 ppb. Then suppose that the source becomes subject to a 30-day average emission limit of 700 pounds per hour. It is theoretically possible for a source meeting this limit to have emissions that occasionally exceed 1000 pounds per hour, but with a typical emissions profile, emissions would much more commonly be between 600 and 800 pounds per hour. In this simplified example, assume a zero background concentration, which allows one to assume a linear relationship between emissions and air quality. (A nonzero background concentration would make the mathematics more difficult but would give similar results.) Air quality will depend on what emissions happen on what critical hours but suppose that emissions at the relevant times on these 5 days are 800 pounds per hour, 1100 pounds per hour, 500 pounds per hour, 900 pounds per hour, and 1200 pounds per hour, respectively. (This is a conservative example because the average of these emissions, 900 pounds per hour, is well over the 30-day

average emission limit.) These emissions would result in daily maximum 1-hour concentrations of 80 ppb, 99 ppb, 40 ppb, 67.5 ppb, and 84 ppb. In this example, the fifth day would have an exceedance of 75 ppb that would not otherwise have occurred, but the third day would not have exceedances that otherwise would have occurred, and the fourth day would be below rather than at 75 ppb. In this example, the fourth highest maximum daily 1-hour concentration under the 30-day average would be 67.5 ppb.

This simplified example illustrates the findings of a more complicated statistical analysis that EPA conducted using a range of scenarios using actual plant data. As described in appendix B of EPA's April 2014 guidance, EPA found that the requirement for lower average emissions over a longer averaging period is highly likely to yield better air quality than is required with a comparably stringent 1-hour limit. Based on analyses described in appendix B of its 2014 guidance, EPA expects that an emission profile with maximum allowable emissions under an appropriately set comparably stringent 30-day average limit is likely to have the net effect of having a *lower* number of exceedances of 75 ppb and better air quality than an emission profile with maximum allowable emissions under a 1-hour emission limit at the critical emission value. This result provides a compelling policy rationale for allowing the use of a longer averaging period, in appropriate circumstances where the facts indicate this result can be expected to occur.

The question then becomes whether this approach–which is likely to produce a lower number of overall exceedances even though it may produce some unexpected exceedances above the critical emission value–meets the requirement in section 110(a)(1) and 172(c)(1) for state implementation plans to "provide for attainment" of the NAAQS. For SO_2, as for other pollutants, it is generally impossible to design a nonattainment area plan in the present that will

guarantee that attainment will occur in the future. A variety of factors can cause a well-designed attainment plan to fail and unexpectedly not result in attainment, for example if meteorology occurs that is more conducive to poor air quality than was anticipated in the plan. Therefore, in determining whether a plan meets the requirement to provide for attainment, EPA's task is commonly to judge not whether the plan provides absolute certainty that attainment will in fact occur, but rather whether the plan provides an adequate level of confidence of prospective NAAQS attainment. From this perspective, in evaluating use of a 30-day average limit, EPA must weigh the likely net effect on air quality. Such an evaluation must consider the risk that occasions with meteorology conducive to high concentrations will have elevated emissions leading to exceedances that would not otherwise have occurred and must also weigh the likelihood that the requirement for lower emissions on average will result in days not having exceedances that would have been expected with emissions at the critical emissions value. Additional policy considerations, such as in this case the desirability of accommodating real world emissions variability without significant risk of violations, are also appropriate factors for EPA to weigh in judging whether a plan provides a reasonable degree of confidence that the plan will lead to attainment. Based on these considerations, especially given the high likelihood that a continuously enforceable limit averaged over as long as 30 days, determined in accordance with EPA's guidance, will result in attainment, EPA believes as a general matter that such limits, if appropriately determined, can reasonably be considered to provide for attainment of the 2010 SO_2 NAAQS.

The April 2014 guidance offers specific recommendations for determining an appropriate longer-term average limit. The recommended method starts with determination of the 1-hour emission limit that would provide for attainment (i.e., the critical emission value), and applies an

adjustment factor to determine the (lower) level of the longer-term average emission limit that would be estimated to have a stringency comparable to the otherwise necessary 1-hour emission limit. This method uses a database of continuous emission data reflecting the type of control that the source will be using to comply with the SIP emission limits, which (if compliance requires new controls) may require use of an emission database from another source. The recommended method involves using these data to compute a complete set of emission averages, computed according to the averaging time and averaging procedures of the prospective emission limitation. In this recommended method, the ratio of the 99th percentile among these long term averages to the 99th percentile of the 1-hour values represents an adjustment factor that may be multiplied by the candidate 1-hour emission limit to determine a longer term average emission limit that may be considered comparably stringent.[3] The guidance provided extensive recommendations regarding the calculation of the adjustment factor, for example to derive the adjustment factor from long term average versus 1-hour emissions statistics computed in accordance with the compliance determination procedures that the state is applying. These recommendations are intended to yield the most pertinent estimate of the impact of applying a longer-term average limit on the stringency of the limit in the relevant context. The guidance also addresses a variety of related topics, such as the potential utility of setting supplemental emission limits, such as mass-based limits, to reduce the likelihood and/or magnitude of elevated emission levels that might occur under the longer-term emission rate limit.

Preferred air quality models for use in regulatory applications are described in appendix A of

[3] For example, if the critical emission value is 1000 pounds of SO_2 per hour, and a suitable adjustment factor is determined to be 70 percent, the recommended longer term average limit would be 700 pounds per hour.

EPA's *Guideline on Air Quality Models* (40 CFR part 51, *a*ppendix W*)*.[4] In 2005, EPA promulgated AERMOD as the Agency's preferred near-field dispersion modeling for a wide range of regulatory applications addressing stationary sources (for example in estimating SO_2 concentrations) in all types of terrain based on extensive developmental and performance evaluation. Supplemental guidance on modeling for purposes of demonstrating attainment of the SO_2 standard is provided in appendix A to the April 23, 2014 SO_2 nonattainment area SIP guidance document referenced above. Appendix A provides extensive guidance on the modeling domain, the source inputs, assorted types of meteorological data, and background concentrations. Consistency with the recommendations in this guidance is generally necessary for the attainment demonstration to offer adequately reliable assurance that the plan provides for attainment.

As stated previously, attainment demonstrations for the 2010 1-hour primary SO_2 NAAQS must demonstrate future attainment and maintenance of the NAAQS in the entire area designated as nonattainment (*i.e.*, not just at the violating monitor) by using air quality dispersion modeling (*see* appendix W to 40 CFR part 51) to show that the mix of sources and enforceable control measures and emission rates in an identified area will not lead to a violation of the SO_2 NAAQS. For a short-term (*i.e.*, 1-hour) standard, EPA believes that dispersion modeling, using allowable emissions and addressing stationary sources in the affected area (and in some cases those sources located outside the nonattainment area which may affect attainment in the area) is technically appropriate, efficient and effective in demonstrating attainment in nonattainment areas because it takes into consideration combinations of meteorological and emission source operating conditions that may contribute to peak ground-level concentrations of SO_2.

[4] The EPA published revisions to the *Guideline on Air Quality Models* (40 CFR part 51, appendix W) on January 17, 2017.

The meteorological data used in the analysis should generally be processed with the most recent version of AERMET. Estimated concentrations should include ambient background concentrations, should follow the form of the standard, and should be calculated as described in section 2.6.1.2 of the August 23, 2010 clarification memo on "Applicability of appendix W Modeling Guidance for the 1-hr SO_2 National Ambient Air Quality Standard" (U. S. EPA, 2010a).

IV. Review of Modeled Attainment Plans

Ohio and West Virginia have submitted various modeling analyses of prospective allowable SO_2 air quality in the Steubenville, OH-WV area. Ultimately, Ohio and West Virginia reached agreement on a common set of modeling runs that may be considered their joint attainment demonstration, which Ohio submitted on March 25, 2019 and West Virginia concurred with on May 1, 2019. The following subsection describes the history and nature of these various modeling analyses. Subsequent subsections review various features of the air dispersion modeling in Ohio's and West Virginia's joint attainment demonstration. Additional, more detailed discussion of the modeling is contained in the EPA technical support document (TSD) for today's action, which is available in the docket for this proposed rulemaking.

A. History of Ohio's and West Virginia's Modeling Analyses

Ohio and West Virginia have made a variety of submittals in response to the requirements for nonattainment plans for SO_2 for the Steubenville area. As noted above, Ohio submitted its nonattainment plans for Steubenville and other areas on April 1, 2015. (A supplemental submittal dated October 13, 2015 provides rules with limits that are reflected in these nonattainment plans but does not change the pertinent modeling analyses.) West Virginia

submitted its nonattainment plan for the Steubenville area on April 25, 2016, and on November 27, 2016, submitted a supplemental submission that changed certain provisions of the consent order with Mountain State Carbon.

Ohio's and West Virginia's modeling analyses were similar in most respects but differed in important respects as well. Both modeling analyses used a hybrid approach to characterize the release of fugitive emissions from the Mountain State Carbon facility, using hourly meteorology to estimate hourly plume heights and initial plume dispersion, as discussed at length below. Both analyses used the same version of AERMOD, the same receptor grid, the same set of modeled sources, the same emission rates for these facilities, and the same background concentration. However, Ohio and West Virginia used different meteorological data sets and used different approaches to characterize the release of emissions from Cardinal.

Ohio used meteorological data for a 1-year period from July 1, 2013 to June 30, 2014, using data from a tower near Mountain State Carbon to represent meteorology in the northern part of the area and using data from a station near Cardinal to represent meteorology in the southern part of the area. In contrast, West Virginia used meteorological data from a 3-year period from 2007 to 2009 from the tower near Mountain State Carbon to represent meteorology throughout the area.

Cardinal has three boilers, two of which (Units 1 and 2) emit from separate vents on a single stack and one of which (Unit 3) is vented out the top of a cooling tower that services the facility. Ohio represented the release from Units 1 and 2 as being released from the actual height of the stack. For Unit 3, Ohio found that the use of actual cooling tower parameters yielded concentration estimates dramatically unlike the concentrations monitored nearby, and Ohio instead used a hybrid approach (similar in some respects to the approach used in modeling

Mountain State Carbon). West Virginia used the same characterization of Units 1 and 2 but for Unit 3 used the stack height and other release characteristics of a previously used Unit 3 stack.

EPA also conducted modeling of this Area, to inform discussions among EPA and the states regarding this Area. This modeling used West Virginia's meteorological data but used a different characterization of the stacks at Cardinal, for Units 1 and 2 using the height calculated from the formula in 40 CFR 51.100(ii)(2)(ii) (the stack height regulations) and for Unit 3 using the actual stack height in combination with historic other release characteristics.

Finally, as noted above, Ohio and West Virginia agreed on a joint attainment demonstration, which Ohio submitted on March 25, 2019 and West Virginia concurred with on May 1, 2019. This modeling used West Virginia's meteorological data, used EPA's characterization of the release of emissions from the stacks at Cardinal, but used an updated background concentration and demonstrated attainment based on an allowable Cardinal emission level that was somewhat higher than the previously modeled level. The details of this joint attainment demonstration and EPA's review are provided in the following subsections.

B. Model Selection

Ohio and West Virginia used the EPA-recommended AERMOD Model (version 18081, the most recent version) for their joint attainment demonstration. AERMOD is a refined, steady-state (both emissions and meteorology over a 1-hour time step), multiple source, air-dispersion model that, according to the Guideline on Air Quality Models, is the preferred model to use for industrial sources in this type of air quality analysis.

C. Meteorological Data

The joint attainment demonstration used processed meteorological data from Mountain State Carbon's 50 m meteorological tower in Follansbee, reflecting the data used in West Virginia's original attainment demonstration. Meteorological tower measurements were taken at 2 meters, 10 meters and 50 meters and included wind direction, wind speed, temperature and turbulence measurements. Additional surface meteorological data also came from the Pittsburgh International Airport located in western Pennsylvania, as necessary when data were not available from the Follansbee tower. One-minute data from Pittsburgh, Pennsylvania were processed using AERMINUTE (version 14337) and included in AERMET's (version 14134) Stage 2 processing. Surface characteristics were processed seasonally according to the Stage 3 file included in West Virginia's modeling files. Upper-air soundings needed to create the final processed meteorology data sets came from Pittsburgh. Three years of meteorological data from 2007-09 were processed in AERMET to produce the surface and profile files used in West Virginia's modeling demonstration. The Mountain State Carbon meteorological tower is considered an on-site measurement and therefore meets the minimum records length requirement (one year) outlined in section 8.4.2 (e) of appendix W. The Guideline recommends using up to five years of on-site data where available. In this case, since subsequent years had significant missing data, EPA believes that the three years of data from 2007 to 2009 provides as good or better representation of meteorology in the area as any other available data set. Given the close location of the Follansbee met tower, EPA believes that the meteorological data is likely representative of conditions in the northern portion of the Steubenville area near Mountain State Carbon and the Mingo Junction facilities, where the highest collective impacts from the various sources in the area are estimated to occur. EPA believes the tower provides good measurements of the flow within the Ohio River Valley where the nonattainment sources are located, which is

important because relatively steep terrain surrounding the Ohio River creates complex wind flows as air channels through the valley.

D. Receptor Network

In their joint demonstration, Ohio and West Virginia used a receptor network with 21,476 receptors within the nonattainment area. Ohio also conducted additional modeling using numerous receptors outside the nonattainment area that demonstrated that the limits also provide for attainment outside the nonattainment area as well. Further discussion of the receptor network is provided in the TSD. EPA finds the receptor network used in the joint demonstration to be consistent with EPA guidance.

E. Emissions Data

The joint modeling analysis included SO_2 emissions from the Mountain State Carbon coke plant and three facilities in Ohio including Cardinal, the Mingo Junction Energy Center, and JSW Steel. The modeling includes 59 emission points from these four facilities, including 48 emission points from the Mountain State Carbon coke plant.

The consent order for Mountain State Carbon sets limits applicable most of the year reflecting well controlled operation of coke oven gas desulfurization equipment. The consent order authorizes the company to shut down this control equipment for maintenance for up to 10 days in April and 10 days in November, while continuing coke production; however, the consent order also establishes a limit on coal sulfur content and limits operation of the coke plant, to minimize the SO_2 emissions during these periods. The joint modeling analysis uses an hourly emissions file reflecting the lower limits most of the year but reflecting the higher emissions associated with the restrictions that apply for 10 days in April and November.

Mingo Junction Energy Center is currently not operating. However, this facility is authorized to restart partially, and is subject to limits in Ohio's rules that would allow modest emissions upon restarting. Ohio's and West Virginia's modeling both appropriately reflect the emissions this facility would be allowed to emit, were it to resume operating. JSW Steel was not operating at the time of Ohio's original rule adoption, but this facility has resumed operation, subject to the adopted limits.

Cardinal was modeled as emitting 6,942 pounds per hour (lbs/hr) of SO_2. As discussed further below, in Subsection F, in lieu of setting a 1-hour emission limit at this level, Ohio determined that a comparably stringent 30-day average emission limit would be 4,858.75 pounds per hour, which is the limit that Ohio has proposed. No other source emitting 100 tons of SO_2 per year or more is located within the nonattainment area in either Ohio or West Virginia. Table 1 shows the hourly allowable emissions and the modeled emissions (annual total) from the four facilities that were included in the attainment demonstration. The modeled emission rate for Cardinal in this table corresponds to the modeled emission rate of 6,942 pounds per hour, even though annual emissions would not be allowed to be greater than 21,281 tons per year (tpy), corresponding to the 30-day average limit of 4,858.75 pounds per hour (lb/hr).

Table 1. Facility Total Emissions

Facility	**Hourly Allowable Emissions (lb/hr)**	**Modeled Combined Emission Rate (tpy)**
Mountain State Carbon, West Virginia	See below	2,229.7
Mingo Junction Energy Center, Ohio	0.0028 lb/MMBTU*	8.8
JSW Steel, Ohio	120	534.4
Cardinal, Ohio	4,859	30,406.7

*Corresponds to a maximum of 2 lb/hr.

West Virginia's consent order for Mountain State Carbon establishes individual limits for numerous emission points at the facility. Some of these limits are in the form of 1-hour limits, applicable every day of the year. Other limits are expressed as 24-hour average limits. Table 2 shows the emission limits included in West Virginia's consent order and the emission rate. For the emission points with 24-hour average limits, the limits are set at a lower level than the emission rate used in the attainment demonstration; the relationship between these two values is discussed in more detail in Subsection F below. (Subsection F also discusses the relationship between the critical emission value and the 30-day average limit that Ohio has proposed for Cardinal.)

Table 2. Limits for Sources at Mountain State Carbon

Source		**Emission Limits, lbs/hr**		**Limit Averaging Time**
		Normal Operation	Outage Operation	
Pushing Emission Control Sources	#1, 2, and 3 Batteries	10.48	10.48	1-hour
	#8 Battery	15.72	15.72	1-hour
Acid Plant Tail Gas Scrubber		6.0	0	24-hour
Battery 1 Combustion		21.4	241.5*	24-hour
Battery 2 Combustion		21.4	76.8*	24-hour
Battery 3 Combustion		24.5	76.8*	24-hour
Battery 8 Combustion		115.4	360.6*	24-hour
Batteries 6, 7, 9,10 Combustion Stack		85.7	344.8*	24-hour
Excess COG Flare		137.7	241.5*	24-hour

*As described in section V.B, the consent order establishes operational restrictions on the ovens and other measures to limit SO_2 emissions during the outages. The modeled rates during the outages were engineering estimates for maximum emissions with the required operational restrictions and measures.

No other source emitting 100 tons of SO_2 per year or more is located within the nonattainment area in either state, and the nearest source emitting 100 tons of SO_2 per year outside of Ohio (i.e.,

in West Virginia or Pennsylvania) is about 35 kilometers south, in the Marshall County nonattainment area, sufficiently distant that explicit modeling of that source is not warranted for the Steubenville Area. According to the 2014 National Emissions Inventory (NEI), two other Ohio sources emitting over 100 tons of SO_2 per year are located within 50 kilometers of the nonattainment area, both within Jefferson County, Ohio. The first is the Sammis plant, located in Stratton, 20 kilometers north of the modeled design site near Steubenville, and which in 2014 emitted 10,262 tons of SO_2. The second is a landfill, located in Amsterdam, 25 kilometers northwest of the modeled design value, and which in the 2014 NEI is estimated to emit 206 tons of SO_2 per year. The most common wind directions in this area are from the south and southwest, and modeling shows that these are the applicable wind directions at the times the design concentrations were modeled to occur. During these times, these sources would not be upwind of the nonattainment area. Furthermore, these sources are relatively distant from the relevant portions of the nonattainment area (and the concentration gradients in the area of interest resulting from these sources can be presumed to be relatively insignificant). For these reasons, explicit modeling of these sources to the north and northwest of the area would not have altered the design concentrations in the nonattainment area, and explicit modeling of these sources is not warranted.

F. Source Characterization

Emissions from Mingo Junction Energy Center and from JSW Steel are released from conventional stacks, and Ohio and West Virginia have modeled these sources as point sources with reasonable stack parameters. However, determining appropriate release characteristics for Mountain State Carbon and Cardinal is considerably more difficult.

The various SO_2 emission points at Mountain State Carbon were modeled as either point sources or as volume sources. In numerous cases, emissions are released out of a stack, and these emissions were modeled as point sources with the associated stack parameters. Of particular note is one coke oven gas flare, which was modeled as a point source with its actual release height and typical other release characteristics. Fugitive coke battery emissions were modeled as volume sources, using hourly release heights and initial vertical dispersion values, reflecting hourly estimates from an independent run of the BLP dispersion model, which were entered into the hourly varying input file for use in AERMOD. As noted by West Virginia, this technique was used in previous particulate matter (PM_{10}) modeling demonstrations and was also used for the Allegheny County, Pennsylvania modeling demonstration for the 1-hour SO_2 nonattainment area. The BLP/AERMOD hybrid approach, however, is considered an alternative model under section 3.2.2 of appendix W – Guideline on Air Quality Models, and therefore requires approval from EPA's Regional Administrator as well as concurrence from EPA's Model Clearinghouse.

Allegheny County confronted similar circumstances in developing a plan for assuring attainment near the Clairton Works coke batteries, also involving coke plants in relatively complex terrain. The Allegheny County Health Department (ACHD) conducted extensive statistical analyses, finding that the same hybrid approach that West Virginia and Ohio used provides a more realistic simulation of fugitive emissions from coke ovens in that area than more conventional characterizations of the release of these emissions.[5] A more complete description of the ACHD

[5] *See* appendix A and I of Allegheny County Health Department's 1-Hour SO_2 SIP available in Docket No. EPA-R03-OAR-2017-0730 (83 FR 58206, November 19, 2018).

approach can be found in the Model Clearinghouse Information Storage and Retrieval System (Record No: 18-III-01).[6]

EPA Region 3 approved and requested concurrence from the Model Clearinghouse on the use for Mountain State Carbon of the same BLP/AERMOD hybrid approach for the fugitive coke oven emissions that Allegheny County justified for Clairton Works, based on the similarities of the sources and the complex terrain and meteorology in the two areas. On October 30, 2018 the Model Clearinghouse granted concurrence with EPA Region 3's approval to use the BLP/AERMOD hybrid approach for Mountain State Carbon's fugitive coke oven emissions. This concurrence is available on EPA's Model Clearinghouse Information Storage and Retrieval System, Record No: 18-III-02[7] and explains that the Model Clearinghouse concurred on the alternate model approval for the West Virginia SIP based on the unique similarities between the emissions sources at these two facilities, the similarities in complex topographical and meteorological settings surrounding these two facilities, and the similarities in alternative modeling approach for assessing the fugitive emissions from the coke oven batteries at these two facilities. Since Ohio as well as West Virginia is relying on this alternative modeling approach, Region 5 has also requested Model Clearinghouse concurrence on the use of this approach in the joint attainment plan, which the Model Clearinghouse has granted.[8]

Characterizing the release of emissions from Cardinal also poses significant challenges. The emissions for Unit 3 are released from a cooling tower, i.e. with nearly unique release

[6] https://cfpub.epa.gov/oarweb/MCHISRS/index.cfm?fuseaction=main.resultdetails&recnum=18-III-01
[7] https://cfpub.epa.gov/oarweb/MCHISRS/index.cfm?fuseaction=main.resultdetails&recnum=18-III-02
[8] See the concurrence on EPA's Clearinghouse Information Storage and Retrieval System, Record No: 19-V-01, available at https://cfpub.epa.gov/oarweb/MCHISRS/index.cfm?fuseaction=main.resultdetails&recnum=19-V-01.

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characteristics. The emissions for Units 1 and 2 are released from a more conventional stack, although the vents for these two units are on the same stack in very close proximity, which raises the question whether modeling these releases as a merged plume is appropriate. The following discussion summarizes Ohio's and West Virginia's rationale for their approach in the joint attainment demonstration. More detailed discussion of the characterization of these releases from Cardinal are provided in the TSD for this action.

The cooling tower at Unit 3 has a height of approximately 129 meters and a diameter at the top of approximately 56 meters. Modeling conducted by Ohio shows that modeling using these stack dimensions yields a peak concentration over 20,000 $\mu g/m^3$ and widespread modeled concentrations over 10,000 $\mu g/m^3$, dramatically higher than the concentrations measured at well-placed nearby monitoring sites. These unrealistic concentration estimates are presumably the result of mischaracterization of the dispersion from such a wide opening, unlike the more conventional stack diameters present in the studies that informed the development of AERMOD. In the course of working with the states on planning for this Area, EPA conducted an additional modeling run using more conventional stack parameters, in particular using the actual release height of 129 meters but otherwise using the stack parameters used in West Virginia's original modeling analysis, reflecting the diameter and exit gas characteristics of the prior (conventional) stack at Cardinal's Unit 3. This run used actual emissions for a one-year period from July 1, 2013 to June 30, 2014, yielding concentration estimates that could be compared to the concentrations measured at multiple nearby monitoring sites. This run demonstrated that simulating the Unit 3 emissions as being released from a conventional stack yields concentration estimates that are dramatically closer to the observed concentrations. Indeed, based on a comparison of peak concentrations, 99^{th} percentile concentrations, and the average of the top 25

concentrations modeled and monitored at four nearby monitoring locations, EPA found that modeling the Unit 3 emissions as being released from a conventional stack with the noted stack characteristics provides a reasonable characterization of this plume. Additional details of this modeling are provided in the appendix to the TSD for this rulemaking. The subsequent state model runs, including the model runs underlying the joint attainment demonstration, reflect this characterization of the release of emissions from Unit 3.

EPA has also examined whether the emissions from Units 1 and 2 warrant being merged. The emissions from these units are vented out of different vents from a single stack. Satellite imagery indicates that the top of the stack is approximately 22 meters in diameter, and the vents are approximately 9 meters in diameter with less than 2 meters separation between the edges of the two vents. Consequently, treating the release of the emissions from these two units as a single combined release (which, given the similarity of the two units, means modeling a single plume with twice the heat flux) provides for the best simulation of expected plume behavior. Nevertheless, EPA's stack height regulations restrict the circumstances under which plume merging is creditable.

Under 40 CFR 51.100(hh), plume merging is defined to be a prohibited dispersion technique except, in the case of merging occurring after July 8, 1985, for cases in which such merging is part of a change in operation at the facility that includes the installation of pollution controls and is accompanied by a net reduction in the allowable emissions of a pollutant. (*See* 40 CFR 51.100(hh)(2)(B)). The stack height regulations also note that this exclusion from the definition of *dispersion techniques* shall apply only to the emission limitation for the pollutant affected by such change in operation.

As a compliance strategy for meeting the requirements of the Clean Air Interstate Rule (CAIR), Cardinal began operation of flue gas desulfurization of the emissions from Units 1 and 2 on March 25, 2008 and December 15, 2007, respectively. Available evidence indicates that the construction of the new stack to vent the emissions from these units was part of the same project as installation of flue gas desulfurization equipment. Although Ohio is proposing its emission limit reflecting a reduction of allowable emissions several years after the installation of the pollution controls, the merging accompanied the installation of controls and may also be considered to accompany a net reduction in allowable emissions in the sense that the initial request for credit for merging (in this SIP) is accompanied by a limit that requires the net emission reduction that the Cardinal control project achieved. In addition, although CAIR did not establish specific emission limits for Cardinal, CAIR imposed requirements contemporaneous with the installation of controls and construction of a new stack with a configuration resulting in the physical merging of the two plumes, requirements that resulted in a net reduction of SO_2 emissions from Cardinal. For these reasons, EPA views the merging of the plumes from Units 1 and 2 to qualify as creditable for SO_2 under 40 CFR 51.100(hh)(2)(ii)(B).

G. Emission Limits and Enforceability

a. Enforceability

An important prerequisite for approval of an attainment plan is that the emission limits that provide for attainment be quantifiable, fully enforceable, replicable, and accountable. *See* General Preamble at 13567-68. The attainment plan for the Steubenville Area reflects limits on all significant SO_2 emission sources in the Area.

The limits on Ohio sources are in the form of state regulations, with the limits in OAC 3745-18-47 and related compliance provisions in OAC 3745-18-03 and 3745-18-04. The limits for Mingo Junction Energy Center and for JSW Steel are already an adopted part of these rules, as submitted on October 13, 2015. Ohio proposed revisions to these rules on March 25, 2019 to limit the emissions of Cardinal as well. On this same date, Ohio submitted these proposed revisions, provided a schedule for adoption of these revisions, requested EPA approval of these revisions, and requested that EPA conclude that final adoption of the limit for Cardinal, in conjunction with the other limits already adopted by Ohio and West Virginia, would assure attainment in this area. As discussed below, EPA's proposed action today is based on the understanding that Ohio will adopt these proposed rule revisions in final form in the near future, at which time this limit would be fully state enforceable, and then Federally enforceable upon EPA's final approval of the SIP. As set forth above, if the proposed limits are not finalized at the State level, then EPA will reconsider this proposed approval based on the limits that are actually in place on Cardinal.

The limits for the Mountain State Carbon facility are in Consent Order CO-SIP-C-2017-9.[9] WVDEP issued this consent order following a process with public notice and hearing and submitted the consent order for incorporation into the West Virginia SIP. EPA finds that the revised consent order submitted on November 27, 2017 meets the requirements for Federal enforceability.

Some of the limits that Ohio and West Virginia's plans rely on are expressed as longer-term average limits. In particular, some of West Virginia's limits for Mountain State Carbon are

[9] This consent order, submitted on November 27, 2017, reflects selected revisions as compared to the consent order contained in West Virginia's April 25, 2016 submittal, to address certain enforceability issues identified by EPA.

expressed as 24-hour average limits, and Ohio's proposed limit for Cardinal is expressed as a 30-day average limit. Therefore, EPA's review of these attainment plans considered the use of these limits, both with respect to the general suitability of using such limits for this purpose and with respect to whether the particular limits included in the plans have been suitably demonstrated to provide for attainment. The two subsections that follow address the derivation and suitability of the longer-term average limits for Mountain State Carbon and Cardinal, respectively.

b. Longer term average limits for Mountain State Carbon

Modeled emission rates at Mountain State Carbon represent the set of hourly critical emission values that (in combination with critical emission values for other facilities in the area) show compliance with the standard. Several of Mountain State Carbon's sources that consume the treated coke oven gas (COG) can experience fluctuating SO_2 emissions due to the variability in the sulfur content of the coal in the coke ovens and operations at the by-product plant that can impact sulfur removal efficiencies. To allow for these fluctuations, Mountain State Carbon requested a 24-hour block limit for its #1, #2, #3 and # 8 coke batteries, its new combined boilers 6, 7, 9, and 10 stack, and its Acid Plant Tail Gas Scrubber. Appendix D-2 of West Virginia's April 25, 2016 submittal describes the statistical analysis that was used to develop the proposed 24-hour average limits.

Actual historic operating data from the sources at Mountain State Carbon were used to calculate emission point-specific adjustment factors that were applied to the modeled critical emission value for the sources to determine a comparable emission limits with a 24-hour averaging period. The hourly SO_2 emission rates were calculated using the hourly H_2S concentrations in the COG measured by Mountain State Carbon's existing analyzer and daily average COG flow rates for

the combustion sources, assuming complete stoichiometric conversion of H_2S to SO_2 during combustion of the COG. Table 3 addresses normal operation, showing the modeled emission rate, the adjustment factor, and the resulting comparable 24-hour average SO_2 emission rate for normal operation, calculated by applying the adjustment factor to the critical emissions value for normal operation.

Table 3. Equivalent longer-term emission rates at Mountain State Carbon

	Modeled 1-hour average SO_2 emission rate (lb/hr)	**Calculated Adjustment Factor**	**Equivalent 24-hour average SO_2 emission limit (lb/hr)**
Battery 1 Combustion	22.9	0.935	21.4
Battery 2 Combustion	22.9	0.933	21.4
Battery 3 Combustion	25.7	0.951	24.5
Battery 8 Combustion	122.1	0.945	115.4
Batteries 6-10	90.0	See Note.	85.7
Excess COG Flare	139.8	0.985	137.7

Note: Batteries 6-10 have a merged stack. The calculated adjustment factors are: Battery 6 – 0.968, Battery 7 – 0.968, Battery 9 – 0.947, and Battery 10 – 0.928.

Table 4 summarizes Mountain State Carbon's modeled emission rates for the total facility and for fugitive emissions during normal operations and during the two 10-day by-product plant outage periods in the model simulation. Facility wide emissions are listed in the table along with fugitive battery emissions, which were modeled using the BLP/AERMOD hybrid approach discussed previously. The fugitive coke oven emissions from Batteries 1, 2, 3 and 8 make up approximately 5% of the total emission and a smaller percentage during the by-product plant outages (~1%). Modeled emission rates represent the hourly critical emission value that shows compliance with the standard.

Table 4. Mountain State Carbon Modeled Emission Rates

Modeled Emissions	Normal		By-Product Plant Outage		Total
	g/s	lb/hr	g/s	lb/hr	tpy
Mountain State Carbon Total	60.68*	481.60*	151.75	1,204.39	2,229.68
Combined Coke Oven Fugitives	3.27	25.98	1.68	13.31	110.63
Battery 1 Fugitives	0.41	3.28	0.16	1.24	13.88
Battery 2 Fugitives	0.41	3.28	0.16	1.24	13.88
Battery 3 Fugitives	0.45	3.53	0.16	1.24	14.92
Battery 8 Fugitives	2.00	15.86	1.21	9.59	67.95

*In addition to the 53.35 g/s (423.43 lb/hr) shown in Table 3 and the 3.27 g/s (25.98 lb/hr) from fugitive emissions shown here, this total also includes 1.98 g/s (15.72 lb/hr) from the Battery 8 pushing scrubber, 0.76 g/s (6.00 lb/hr) from the acid plant tail gas scrubber, and 1.32 g/s (10.48 lb/hr) from the power boilers.

Based on a review of the state's submittal, EPA believes that the 24-hour average limit for sources at Mountain State Carbon provide a suitable alternative to establishing a 1-hour average emission limit for these sources. The State has used a suitable database in an appropriate manner and has thereby applied an appropriate adjustment, yielding a set of emission limits that have comparable stringency to the 1-hour average limits that the state determined would otherwise have been necessary to provide for attainment. While the 24-hour average limits allow occasions in which emissions may be higher than the level that would be allowed with the 1-hour limit, the State's limits compensate by requiring average emissions to be lower than the level that would otherwise have been required by a 1-hour average limit. For reasons described above and explained in more detail in EPA's April 2014 guidance for SO_2 nonattainment plans, EPA finds that appropriately set longer term average limits provide a reasonable basis by which nonattainment plans may provide for attainment. Based on its review of this general information as well as the particular information in West Virginia's plan, EPA finds that the 24-hour average limit for Mountain State Carbon in combination with other limitations in Ohio's plan as discussed below, will provide for attainment of the NAAQS.

c. Longer term average limits for Cardinal

The emission rate for Cardinal in the joint attainment demonstration is 6,942.2 pounds per hour. In lieu of a 1-hour limit at this level, Ohio has proposed a 30-day average limit that is designed to be comparably stringent. Specifically, Ohio's proposed 30-day average limit reflects multiplication of 6,942.2 pounds per hour times an adjustment factor (described below) determined in accordance with appendix C of EPA's SO_2 SIP guidance. The data used to determine this adjustment factor were the five then most recent years of hourly Cardinal emissions data reported to EPA's Clean Air Markets Division, i.e. the data for 2013 to 2017, except that data for a modest number of hours was not considered because the reported emissions are substitute data required under 40 CFR 75 in the absence of direct measurements. Since Cardinal already operates the control equipment necessary to meet the proposed limit, and has done so throughout this five-year period, EPA considers these data to provide a good representation of the variability of SO_2 emissions that Cardinal can be expected to continue to show.

Given Ohio's intent to adopt the limit in the form of a multi-stack limit governing the sum of emissions from the three units, the adjustment factor was derived from an evaluation of statistics for the hourly and 30-day average sums of emissions from the three units. Consistent with Ohio's proposed limit, these statistics included only days in which at least one of the three units was operating and considered only operating hours. That is, the five years of hourly emissions data were screened to eliminate a modest number of substitute data and then screened to eliminate days in which none of the three units were operating; plant total emissions were determined for each remaining hour, 30-operating-day average emissions (not including hours

with no operation) were calculated for the end of each 30-operating-day period, and the 99th percentile value among the hourly (nonzero) values and the 99th percentile among the 30-operating-day values was computed. The resulting adjustment factor, reflecting the ratio of these 99th percentile values, was 70.0 percent. This adjustment factor may be considered to represent an estimate of the impact of using a 30-day average limit on total emissions of this facility. EPA finds that this analysis supports Ohio's conclusion that its proposed limit of 4,858.75 pounds per hour as a 30-day average is comparably stringent to a limit of 6,942.2 pounds per hour as a 1-hour limit, so that modeling Cardinal as emitting 6,942.2 pounds per hour is an appropriate means of assessing whether Ohio's proposed limit of 4,858.75 pounds per hour will provide for attainment.

EPA guidance states that limits with averaging times of up to 30 days can in many cases adequately provide for attainment so long as 1) the limit is established at an adjusted level such that the limit is comparably stringent to the 1-hour limit that is shown to provide for attainment (the latter reflecting the "critical emission level"), and 2) emissions are sufficiently constrained that occasions of emissions above the critical emission value will be limited in frequency and magnitude. The dataset used in assessing an appropriate adjustment factor, reflecting the last five calendar years, is also a suitable dataset for assessing the likely frequency and magnitude of emissions above the critical emission value. During these five years, from 2013 to 2017, total emissions from Cardinal were always below 4,858.75 pounds per hour on a 30-day average basis, and hourly emissions exceeded 6,942.2 pounds per hour less than 0.05 percent of the time. A spreadsheet containing these data and the calculations supporting the above adjustment factor are included in the dockets for this rulemaking on Ohio's and West Virginia's submittals.

H. Background Concentration

The joint Ohio/West Virginia attainment demonstration used a uniform background concentration of 5.0 ppb (which AERMOD translates to 13.08 micrograms per cubic meter ($\mu g/m^3$)). While Ohio's and West Virginia's original attainment demonstrations used a background value of 8.1 ppb (21.17 $\mu g/m^3$), based on 2007 to 2009 monitor values within the Steubenville nonattainment area, the updated analysis that Ohio provided uses a 2016 to 2018 design value from a regional monitor located approximately 21 kilometers south of the Steubenville nonattainment area along the Ohio River, namely site number 39-013-0006 in Belmont County, Ohio. As Ohio has shown, the complexities of terrain and meteorology along the Ohio River in the Steubenville area make it difficult to distinguish those values monitored in the Steubenville Area that are and are not influenced by modeled Steubenville Area sources, and so it is difficult to use the Steubenville Area monitoring data to determine a concentration that truly reflects a background concentration that would exist in absence of the modeled Steubenville area sources. Thus, the Belmont County monitor likely provides the best basis for determining an appropriate background concentration, and EPA believes that the 5.0 ppb value is an appropriate representation of background concentrations in the Area without the influence of the four modeled sources included in West Virginia's model demonstration.

I. Assessment of Plant-Wide Emission Limit for Cardinal

The limit that Ohio has proposed for Cardinal is a limit on total SO_2 emissions from the plant. Therefore, an assessment of whether this limit provides for attainment must evaluate whether attainment is predicted under a full range of distributions of emissions allowed under this limit. Particularly given the 1.6 kilometer distance between the stack for Units 1 and 2 and the stack for Unit 3, the endpoints of the range of allowable distributions of emissions are 1) to have all

emissions arising from the stack for Units 1 and 2 and 2) to have all emissions arising from the stack for Unit 3.

The joint attainment demonstration includes this range of simulations. In one simulation, 6,942.2 pounds per hour were emitted from the stack for Units 1 and 2. In a second simulation, 6,942.2 pounds per hour were emitted from the stack for Unit 3. (Since Unit 1 and Unit 2 are essentially identical units with a single stack and essentially identical other stack parameters, it was not necessary to distinguish whether emissions arose from Unit 1 or from Unit 2.) A third simulation used an intermediate, more typical mix of emissions, again adding up to 6,942.2 pounds per hour. Specifically, in this run, Units 1 and 2 together emitted 5,484 pounds per hour and Unit 3 emitted 1,458 pounds per hour. EPA believes that these three runs address the range of air quality that can result from the range of possible distributions of emissions at Cardinal within the total plant emissions limit proposed by Ohio, including the worst case distribution of allowable emissions.

J. Summary of Results

The joint modeling demonstration shows that peak model concentrations occur in the northern Ohio portion of the Steubenville Area, near Mountain State Carbon, with substantial contributions from both Mountain State Carbon and Cardinal. The modeling shows that the maximum 1-hour SO_2 concentration is 192.1 microgram per cubic meter (ug/m^3) (corresponding to 73.4 parts per billion), which meets the 1-hour SO_2 NAAQS level of 196.4 ug/m^3. The maximum modeled concentration includes a fixed representative background concentration and demonstrates that the limits used in the modeling achieve compliance with the 1-hour SO_2 NAAQS. This modeling demonstration follows current guidance included in appendix W to 40

CFR Part 51 – Guideline on Air Quality Models (2017). EPA finds that the modeling demonstration properly characterized source limits, local meteorological data, background concentrations and provided an adequate model receptor grid to capture maximum modeled concentrations. Final model results are below the current 1-hour SO_2 NAAQS and demonstrate that the modeled emission limits will allow the Steubenville Area to continue to comply with the standard.

V. Review of Other Plan Requirements

A. Emissions Inventory

The emissions inventory and source emission rate data for an area serve as the foundation for air quality modeling and other analyses that enable states to: 1) estimate the degree to which different sources within a nonattainment area contribute to violations within the affected area; and 2) assess the expected improvement in air quality within the nonattainment area due to the adoption and implementation of control measures. As noted above, the state must develop and submit to EPA a comprehensive, accurate and current inventory of actual emissions from all sources of SO_2 emissions in each nonattainment area, as well as any sources located outside the nonattainment area which may affect attainment in the area. *See* CAA section 172(c)(3).

For the base year inventory of actual emissions, a "comprehensive, accurate and current" inventory can be represented by a year that contributed to the three-year design value used for the original nonattainment designation. The 2014 SO_2 Nonattainment Guidance notes that the base year inventory should include all sources of SO_2 in the nonattainment area as well as any sources located outside the nonattainment area which may affect attainment in the area.

Ohio Emissions Inventory

In Ohio, major point sources in all counties are required to submit air emissions information annually, in accordance with EPA's Consolidated Emissions Reporting Rule (CERR). OEPA prepares a new periodic inventory for all SO_2 emission sectors every three years. The 2011 periodic inventory has been identified as one of the preferred databases for SIP development and coincides with nonattainment air quality in the Steubenville Area, thus the 2011 inventory was used as the base year for OEPA's submittal to fulfill the base-year emissions inventory requirements under the 2010 SO_2 standard.

Because October 4, 2018 was the attainment date for the 2010 SO_2 NAAQS, 2018 was selected as the future year to fulfill the projected year emissions inventory requirements under the 2010 SO_2 NAAQS. Emissions from 2011 for electric generating units (EGU) and non-EGUs were based on annual data reported by these sources in accordance with the CERR. Projections for area (non-point), on-road mobile (on-road), marine/air/rail (MAR), and non-road mobile (non-road) sources sectors were developed using 2011 county level emissions data downloaded from the 2011 NEI version 1-based Emissions Modeling Platform (Version 6). For townships, county level emissions for area, MAR and non-road were adjusted using population ratios while county level emissions for on-road were adjusted using vehicle miles traveled (VMT) ratios. The resulting inventory is summarized in Table 5.

Table 5. 2011 Base Year and 2018 Projection Year SO_2 Emissions Inventory for the Ohio Portion of the Steubenville, Ohio-West Virginia Nonattainment Area in tons per year (tpy)

WarrenTownship	2011 Base Year (tpy)	2018 Projected Year (tpy)
EGU Point	0.00	0.00
Non-EGU	0.20	0.20
Non-road	0.03	0.01
MAR	0.57	0.07
Area	5.86	5.86

On-road	0.65	0.25
TOTAL	7.31	6.39
Cross Creek Township	**2011 Base Year (tpy)**	**2018 Projected Year (tpy)**
EGU Point	0.00	0.00
Non-EGU	0.00	0.00
Non-road	0.06	0.03
MAR	1.13	0.13
Area	11.58	11.58
On-road	0.93	0.36
TOTAL	13.7	12.1
City of Steubenville	**2011 Base Year (tpy)**	**2018 Projected Year (tpy)**
EGU Point	0.00	0.00
Non-EGU	0.00	0.00
Non-road	0.14	0.06
MAR	2.54	0.30
Area	26.07	26.07
On-road	1.22	0.48
TOTAL	29.97	26.91
Wells Township	**2011 Base Year (tpy)**	**2018 Projected Year (tpy)**
EGU Point	25,122.43	10,681.56
Non-EGU	0.00	0.00
Non-road	0.02	0.01
MAR	0.38	0.04
Area	3.92	3.92
On-road	0.56	0.23
TOTAL	**25,127.31**	**10,685.76**
Steubenville Township	**2011 Base Year (tpy)**	**2018 Projected Year (tpy)**
EGU Point	0.00	0.00
Non-EGU	223.24	188.29
Non-road	0.03	0.01
MAR	0.58	0.07
Area	5.99	5.99
On-road	1.26	0.50
TOTAL	**231.10**	**194.86**
Ohio Portion of Steubenville Area	**2011 Base Year (tpy)**	**2018 Projected Year (tpy)**
EGU Point	25,122.43	10,685.76
Non-EGU	223.44	188.49
Non-road	0.28	0.12
MAR	5.20	0.61
Area	53.42	53.42
On-road	4.62	1.81
TOTAL	25,409.39	10,930.22

West Virginia Emissions Inventory

West Virginia submitted a 2011 base year inventory for all source categories in the West Virginia portion of the Area. West Virginia used emissions from EPA's 2011 NEI Version 2 for the 2011 base year inventory. Since designation of the Area as nonattainment was based on monitored data from the 2010 – 2012 period, EPA finds the election of 2011 as a base year to be appropriate, as 2011 data is representative of the operations of the facilities that contributed to the monitored violations leading to the Area's designation. EPA reviewed the results, procedures, and methodologies for the base year and found them to be acceptable. Actual emissions from all the sources of SO_2 in the West Virginia portion of the area were reviewed and compiled for the base year emissions inventory requirement. The primary SO_2-emitting point source located within the West Virginia portion of the area is Mountain State Carbon.

For the base year emissions inventory, WVDEP used emissions from EPA's 2011 NEI, Version 2. Table 1 shows the level of emissions, expressed in tons per year (tpy), in the West Virginia portion of the Steubenville Area for the 2011 base year and 2018 projection year inventories.

EPA has evaluated West Virginia's 2011 base year emissions inventory for the West Virginia portion of the Area and has made the determination that this inventory was developed consistent with section 172(c)(3) and EPA's guidance. Therefore, EPA is proposing to approve West Virginia's 2011 base year emissions inventory for the Area.

The attainment demonstration also provides for a projected attainment year inventory that includes estimated emissions for all emission sources of SO_2 which are determined to impact the nonattainment area for the year in which the area is expected to attain the NAAQS. West Virginia provided a 2018 projected emissions inventory for all known sources included in the

2011 base year inventory. SO_2 emissions are expected to decrease by approximately 290 tons, or approximately 33%, by 2018 from the 2011 base year. EPA finds that the use of the 2018 inventory is acceptable for use in the modeling analysis submitted by West Virginia for this Area.

Table 6. 2011 Base Year and 2018 Projection Year SO_2 Emissions Inventory for the West Virginia Portion of the Steubenville, Ohio-West Virginia Nonattainment Area

Emission Source Category	2011 Base Year (tpy)	2018 Projection Year (tpy)
Point	730	428
Non-Point (Area)	154	168
Non-road (includes Marine, Air, Rail (MAR))	2	2
On-road	2	0
Total	888	598

B. RACM/RACT

Ohio

OEPA's October 13, 2015 Attainment SIP submittal identified three sources in the Ohio portion of the Steubenville Area subject to RACM/RACT, consisting of Cardinal, JSW Steel and Mingo Junction Energy Center. As Cardinal is already equipped with a flue gas desulfurization unit, OEPA's submittal did not identify any further reductions required at this facility. However, on March 25, 2019, OEPA submitted proposed revisions to its OAC Rule 3745-18-47 that, if finalized, will impose more stringent limits on Cardinal that will assure continued, efficient operation of this control.

EPA's analysis of the proposed limit (discussed previously in section IV.J of this preamble) shows that the more stringent limits, along with the other measures in the area, will achieve attainment in the Area for the 2010 1-hour SO_2 NAAQS. As noted previously, the proposal

establishes an SO_2 emission limit of 4,858.75 pounds per hour for Cardinal, effective upon adoption of the final rule.

Mingo Junction Energy Center is currently not operational but is allowed to be partially operated in the future, subject to stringent limits. For JSW Steel, OEPA considered potential SO_2 emission controls that included wet scrubbing, spray dryer absorption and dry sorbent injection for the electric arc furnace (EAF) but determined that these emission control technologies were not technically feasible for EAF operations. In addition, the RACT/BACT/LAER Clearing House (RBLC) does not identify any EAF that employs add-on SO2 emission controls. The current recommended reasonably available control technology (RACT) for controlling SO_2 emissions from the EAF is a scrap management program, which is currently a requirement of the facility's permit. In addition, 40 CFR, Subpart YYYYY (Electric Arc Steelmaking Facilities) requires a facility subject to this subpart to employ an approved scrap management program to aid in reducing overall emissions. Therefore, EPA finds that the EAF at JSW Steel, upon resumption of operations, would be subject to limits that satisfy current RACT/RACM requirements.

In addition to the EAF, this facility also has a Ladle Metallurgical Furnace (LMF) to refine molten steel from the EAF, and three reheat furnaces. OEPA determined that with current permitted SO_2 rates at the LMF and a lower emission rate at the three reheat furnaces, additional RACT/RACM controls were not needed as a part of the control strategy for this Area.

The Mingo Junction Energy Center is comprised of four 180 MMBtu/hr boilers that can burn a combination of natural gas, blast furnace gas or COG, and two of the units can also burn

desulfurized coke oven gas. The consent order between West Virginia and Mountain State Carbon prohibits Mountain State Carbon from providing COG or desulfurized COG to the Mingo Junction Energy Center as of January 2017. Because the blast furnace at JSW Steel was permanently shut down and dismantled, this gas will also not be supplied. Therefore, it is highly likely the only form of fuel that may be burned in the future is natural gas.

Also, to meet Best Available Control Technology (BACT) requirements, a water injection system was installed on these four units. Their current permitted limits allow for 45.7 lbs/hr SO_2, as a 3-hour rolling average, when burning natural gas or natural gas/blast furnace gas blend; or 49.5 lbs/hr SO_2, as a 3-hour rolling average, when burning only COG, a blend of natural gas and COG, or a blend of natural gas, COG, and blast furnace gas. As part of the control strategy for this Area, emissions from each of the four units will be limited to 20.34 pounds per hour of SO_2. Thus, EPA finds that additional RACT/RACM to control SO_2 emissions is not necessary for these sources.

West Virginia

West Virginia's plan for attaining the 1-hour SO_2 NAAQS in the West Virginia portion of the SO_2 nonattainment area is based on measures at Mountain State Carbon. For coke oven batteries, SO_2 reduction can be accomplished by two general methodologies: pre-combustion desulfurization and restrictions on coal sulfur content. The Mountain State Carbon plant is currently controlled with a pre-combustion desulfurization unit that reduces the sulfur content of COG before it is combusted in the coke ovens. Based on its analysis, West Virginia proposed that the controls already in place, with a hydrogen sulfide (H_2S) limit of 50 grains per dry standard cubic feet (dscf), constitutes RACT, and established SO_2 emission limits on the

combustion sources during normal operation of the desulfurization unit to reflect the lowest achievable limits given the technology. However, the desulfurization unit is required to be shut down for up to 20 days a year for maintenance purposes, during which time the existing limits cannot be met without additional operational changes at the plant.

During the maintenance outages, West Virginia proposes its control strategy for Mountain State Carbon as a limit on the sulfur content of the coal to 1.25 percent and restricting the number of ovens in operation to 63 ovens per day on Battery #8, or no more than a combined 51 ovens per day on Battery #8 and no more than 72 ovens per day total on Batteries #1, #2, and #3. Additionally, Mountain State Carbon was required to physically disconnect the COG pipeline leading to the Mingo Junction Energy Center, was prohibited from providing COG to any entity outside of the Mountain State Carbon plant and was required to divert the #9 and #10 Boiler Stack into the combined #6 and #7 Boiler Stack. These requirements are part of a West Virginia consent order with Mountain State Carbon that West Virginia submitted with its April 25, 2016 attainment SIP, and revised in a supplemental submission on November 27, 2017, for incorporation into the West Virginia SIP. The consent order required compliance with these measures by January 1, 2017.

West Virginia and Ohio have determined that these measures, including the limits on Cardinal that Ohio is concurrently proposing at the State level, will suffice to provide for attainment in the Steubenville Area. EPA concurs and proposes to find that the measures submitted by Ohio and West Virginia, along with the limits on Cardinal proposed in Ohio rule 3745-18-47 to be submitted as a SIP revision after their adoption at the State level, satisfy the requirement in

section 172(c)(1) to adopt and submit all RACM as needed to attain the standard as expeditiously as practicable.

C. New Source Review (NSR)

Section 172(c)(5) of the CAA requires that an attainment plan require permits for the construction and operation of new or modified major stationary sources in a nonattainment area.

Ohio has a longstanding and fully implemented NSR program that meets the nonattainment NSR permitting requirements for the entire state of Ohio. This is addressed in OAC Chapter 3745-31. The Chapter includes provisions for the PSD permitting program in OAC rules 3745-31-01 to 3745-31-20 and the nonattainment NSR program in OAC rules 3745-31-21 to 3745-31-27. Ohio's NNSR program was conditionally approved on October 10, 2001 (66 FR 51570) and was approved by EPA on January 22, 2003 (68 FR 2909). The latest revisions to OAC Chapter 3745-31 were approved into Ohio's SIP on February 20, 2013 (78 FR 11748).

EPA has approved West Virginia's nonattainment NSR rules at 45CSR13 "Permits for Construction, Modification, or Relocation of Stationary Sources or Air Pollutants, and Procedures for Registration and Evaluation" and 45CSR19 "Requirements for Pre-Construction Review, Determination of Emission Offsets for Proposed New or Modified Stationary Sources of Air Pollutants and Bubble Concept for Intrasource Pollutants," with the most recent revisions on August 20, 2014 (79 FR 42212) and on May 26, 2015 (80 FR 29973), respectively. These rules provide for appropriate new source review for SO_2 sources undergoing construction or major modification in the West Virginia portion of the Area without need for modification of the approved rules.

As both Ohio and West Virginia have appropriate NSR for SO_2 sources undergoing construction or major modification, EPA concludes that the NSR requirement has already been met for the Steubenville Area.

D. Reasonable Further Progress (RFP)

Section 172(c)(2) of the CAA requires that an attainment plan include a demonstration that shows reasonable further progress (i.e., RFP) for meeting air quality standards will be achieved through generally linear incremental improvement in air quality. Section 171(1) of the CAA defines RFP as such annual incremental reductions in emissions of the relevant air pollutant as are required by this part (part D) or may reasonably be required by EPA for the purpose of ensuring attainment of the applicable NAAQS by the applicable attainment date. As stated originally in the 1994 SO_2 Guidelines Document and repeated in the April 2014 guidance, EPA continues to believe that this definition is most appropriate for pollutants that are emitted from numerous and diverse sources, where the relationship between particular sources and ambient air quality are not directly quantified. In such cases, emissions reductions may be required from various types and locations of sources. The relationship between SO_2 and sources is much more defined, and usually there is a single step between pre-control nonattainment and post-control attainment. Therefore, EPA interpreted RFP for SO_2 as adherence to an ambitious compliance schedule in both the 1994 SO_2 Guideline Document and the April 2014 guidance. The control measures for Mountain State Carbon included in West Virginia's attainment plan submittals (which are contained in Consent Order CO-SIP-C-2017-9 between West Virginia and Mountain State Carbon) and Ohio's proposed limits for Cardinal in Ohio rule 3745-18-47, both discussed previously, achieve attainment of the 2010 SO_2 NAAQS for the Steubenville Area. The West Virginia plan required that affected sources implement appropriate control measures as

expeditiously as practicable in order to ensure attainment of the standard by the applicable attainment date (Mountain State Carbon was required under the consent order to implement the control measures starting on January 1, 2017). Proposed Ohio rule 3745-18-47 requires implementation of SO_2 emission limits for Cardinal upon the Ohio's adoption of the final rule, although Cardinal in fact has been meeting these limits for the last 6 years. Ohio and West Virginia concluded that their respective plans provide for RFP in accordance with the approach to RFP described in EPA's guidance. EPA concurs and proposes to find that the plans, along with the revised limits for Cardinal, provide for RFP in the Steubenville Area.

E. Contingency Measures

As noted above, EPA guidance describes special features of SO_2 planning that influence the suitability of alternative means of addressing the requirement in section 172(c)(9) for contingency measures for SO_2, such that in particular an appropriate means of satisfying this requirement is for the state to have a comprehensive enforcement program that identifies sources of violations of the SO_2 NAAQS and to undertake an aggressive follow-up for compliance and enforcement. OEPA's plan states that it has an active enforcement program to address violations of the SO_2 NAAQS. OEPA will continue to operate a comprehensive program to identify sources of violations of the SO_2 NAAQS and to undertake an aggressive follow-up for compliance and enforcement, including expedited procedures for establishing enforceable consent agreements pending the adoption of revised SIPs. West Virginia's plan provides for satisfying the contingency measure requirement in this manner as well. West Virginia's plan provides for thorough compliance and enforcement inspections, monthly parametric monitoring data review, and quarterly record reviews along with cyclical stack testing for an aggressive compliance assurance plan. Non-compliance may lead to an immediate notice of violation and

drafting of an enforceable consent order.

With the special features of SO_2, EPA concurs that the contingency measures described by both Ohio and West Virginia meet the EPA guidance, and EPA proposes to approve both the Ohio and West Virginia plans for meeting the contingency measure requirement in this manner.

VI. EPA's Proposed Action

EPA is proposing to approve two SIP revision submittals, one submitted by the State of Ohio on April 1, 2015, which Ohio supplemented on October 13, 2015 and March 25, 2019, and the other submitted by the State of West Virginia on April 25, 2016, which West Virginia supplemented on November 27, 2017, with a clarification letter submitted on May 1, 2019. This proposed approval is contingent on Ohio adopting in final form the limit it submitted in proposed form on March 25, 2019. The submittals provide Ohio's and West Virginia's plans for attaining the 2010 1-hour SO_2 NAAQS and how they are meeting other nonattainment area planning requirements. Specifically, EPA is proposing to approve the emissions limitations and control measures, the base year emissions inventory, NNSR program, and contingency measures submitted by Ohio and West Virginia for the Steubenville Area. In the West Virginia SIP, EPA is proposing to approve the emission limits and other measures for Mountain State Carbon contained in a consent order submitted by West Virginia, including operational restrictions and sulfur content limits during the periods in which the desulfurization unit for Mountain State Carbon is shut down for maintenance purposes, and their associated compliance requirements. In the Ohio SIP, EPA is proposing to approve Ohio Administrative Code (OAC) Rule 3745-18-03, 3745-18-04, and 3745-18-47, provided Ohio completes adoption of these rules as proposed or in substantially similar form. EPA is also proposing approval of the Ohio and West Virginia attainment

demonstrations, RFP, and RACT/RACM, provided that Ohio adopts and submits in final form its proposed SO_2 emission limits for Cardinal.

EPA is proposing approval of the attainment plans, RFP, and RACM/RACT for each State concurrently with Ohio's rulemaking process to establish revised enforceable limits on Cardinal. EPA plans no final action until Ohio finalizes and submits the proposed rule.

On May 1, 2019, WVDEP provided a letter to EPA stating that WVDEP concurs with the attainment demonstration submitted by Ohio, demonstrating that the area attains the standard notwithstanding the expected adoption of higher Cardinal emission limits than accounted for in WVDEP's initial submittal. EPA is proposing to finalize this action in conjunction with approval of the Ohio SIP submittal for revised OAC Rule 3745-18-03, pertinent sections of 3745-18-04,[10] and 3745-18-47. If Ohio fails to adopt final limits for Cardinal or adopts final limits that differ significantly from the proposed limits, EPA may withdraw this proposed action or may re-propose based on Ohio's final adopted rule before EPA takes final action.

The TSD for this proposed action is available on-line at www.regulations.gov, Docket No. EPA-R03-OAR-2019-0044 and Docket No. EPA-R05-OAR-2015-0699. The TSD provides additional explanation of EPA's analyses supporting this proposal.

EPA is taking public comments for 30 days following the publication of this proposed action in the Federal Register. We will take all comments into consideration in our final action.

[10] EPA has historically not taken action on several paragraphs of this rule as listed in section VII of this action. These paragraphs are not pertinent to today's action, and EPA is continuing to take no action on these paragraphs.

VII. Incorporation by Reference

In this document, EPA is proposing to include in a final EPA action regulatory text that includes incorporation by reference. In accordance with requirements of 1 CFR 51.5, EPA is proposing to incorporate by reference the consent order between West Virginia and Mountain State Carbon identified as CO-SIP-C-2017-9, effective September 29, 2017, and Ohio rules OAC 3745-18-03, 3745-18-04 (except for paragraphs (D)(2), (D)(3), (D)(5), (D)(6), (D)(9)(c), (E)(2), (E)(3), and (E)(4), and 3745-18-47. EPA has made, and will continue to make, these materials generally available through http://www.regulations.gov and at the EPA Regional Offices (please contact the respective EPA Region 3 or 5 person identified in the "For Further Information Contact" section of this proposed rulemaking for more information).

VIII. Statutory and Executive Order Reviews

Under the CAA, the Administrator is required to approve a SIP submission that complies with the provisions of the CAA and applicable Federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the CAA. Accordingly, this proposed action merely approves state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this proposed action:

- Is not a "significant regulatory action" subject to review by the Office of Management and Budget under Executive Order 12866 58 FR 51735, October 4, 1993) and 13563 (76 FR 3821, January 21, 2011);
- Is not an Executive Order 13771 (82 FR 9339, February 2, 2017) regulatory action because SIP approvals are exempted under Executive Order 12866;

- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);
- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Public Law 104-4);
- Does not have Federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- Is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- Is not subject to requirements of Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the CAA; and
- Does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).

In addition, the proposed approval of the SO_2 attainment plan SIPs submitted by Ohio and West Virginia is not approved to apply on any Indian reservation land or in any other area where EPA or an Indian tribe has demonstrated that a tribe has jurisdiction. In those areas of Indian country, the rule does not have tribal implications and will not impose substantial direct costs on tribal governments or preempt tribal law as specified by Executive Order 13175 (65 FR 67249, November 9, 2000).

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by Reference, Reporting and recordkeeping requirements, Sulfur oxides.

AUTHORITY: 42 U.S.C. 7401 et seq.

Dated: June 4, 2019

Cosmo Servidio,
Regional Administrator,
Region III.

Dated: June 11, 2019

Cathy Stepp,
Regional Administrator,
Region V.

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