6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R05-OAR-2015-0700; FRL-9982-28-Region 5]

Air Plan Approval; Indiana; Attainment Plan for Indianapolis, Southwest Indiana, and Terre Haute SO_2 Nonattainment Areas

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to approve as a State Implementation Plan (SIP) revision an Indiana submission to EPA dated October 2, 2015. The submission addresses attainment of the 2010 sulfur dioxide (SO_2) national ambient air quality standard (NAAQS) for the Indianapolis (Marion County), Southwest Indiana (Daviess and Pike Counties), and Terre Haute (Vigo County) areas. Indiana also submitted a SIP revision request for the Morgan County area. In this proposed action, EPA is not addressing the Morgan County portion of the SIP revision request, and will address it separately in a future action. This plan (herein called a "nonattainment plan") includes Indiana's attainment demonstration and other elements required under the Clean Air Act (CAA). In addition to an attainment demonstration, the nonattainment plan addresses the requirement for meeting reasonable further progress (RFP) toward attainment of the NAAQS, reasonably available control measures

and reasonably available control technology (RACM/RACT), base-year and projection-year emission inventories, enforceable emissions limitations and control measures, and contingency measures. EPA proposes to conclude that Indiana has appropriately demonstrated that the plan provisions provide for attainment of the 2010 SO_2 NAAQS in the Indianapolis, Southwest Indiana, and Terre Haute areas by the applicable attainment date and that the plan meets the other applicable requirements under the CAA.

DATES: 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-R05-OAR-2015-0700 at http://www.regulations.gov, or via email to aburano.douglas@epa.gov. 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: Michelle Becker, Life Scientist, Attainment Planning and Maintenance Section, Air Programs Branch (AR-18J), Environmental Protection Agency, Region 5, 77 West Jackson Boulevard, Chicago, Illinois 60604, (312) 886-3901, becker.michelle@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.

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I. Why was Indiana Required to Submit an SO_2 Plan for Indianapolis, Southwest Indiana, and Terre Haute?

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 Indianapolis (Marion County), Morgan County, Southwest Indiana (Daviess and Pike Counties), and Terre Haute (Vigo County) areas within Indiana. *See* 78 FR 47191, codified at 40 CFR part 81, subpart C. These area designations were 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), the states are required to demonstrate that their respective areas will attain the NAAQS as expeditiously as practicable, but no later than 5 years from the effective date of designation, which is October 4, 2018.

In response to the requirement for SO_2 nonattainment plan submittals, Indiana submitted nonattainment plans for the Indianapolis, Morgan County, Southwest Indiana, and Terre Haute areas on October 2, 2015. EPA will address the Morgan County portion of the submittal in a future action. The remainder of this preamble describes the requirements that such plans must meet in order to obtain EPA approval, provides a review of the

state's plans with respect to these requirements, and describes EPA's proposed action on the plans.

II. Requirements for SO_2 Nonattainment Area Plans

Nonattainment SIPs must meet the applicable requirements of the CAA, specifically CAA sections 110, 172, 191 and 192. EPA's regulations governing nonattainment 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 57 FR 13545-13549, 13567-13568. On April 23, 2014, EPA issued guidance for meeting the statutory requirements in SO_2 SIPs submitted under the 2010 NAAQS, in a document entitled, "Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions," available at https://www.epa.gov/sites/production/files/2016-06/documents/20140423guidance_nonattainment_sip.pdf. In this guidance EPA described the statutory requirements for a complete nonattainment area SO_2 SIP, which includes: an accurate emissions inventory of current emissions for all sources of SO_2

within the nonattainment area; an attainment demonstration; demonstration of RFP; implementation of RACM (including RACT); new source review (NSR); enforceable emissions limitations and control measures; and adequate contingency measures for the affected area. A synopsis of these requirements is also provided in the notice of proposed rulemaking on the Illinois SO_2 nonattainment plans, published on October 5, 2017 at 82 FR 46434.

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 ensures equivalent or greater emission reductions of such air pollutant.

III. Requirements for Attainment Demonstrations and Longer-Term Averaging

CAA sections 172(c)(1), 172(c)(6) and 192(a) direct states

with SO_2 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* 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 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 parts per billion. 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 hourly exceedance of the 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 hourly exceedances, 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 three-year average of the annual fourth highest daily maximum hourly 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 plans for SO_2 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"[1] 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-

[1] 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 values (e.g., the fourth highest maximum daily 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.

term emission limits can allow short periods with emissions above the "critical emissions value," which, if coincident with meteorological conditions conducive to high SO_2 concentrations, could in turn create the possibility of a NAAQS exceedance 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 emissions value) and that takes the source's emissions profile into account. As a result, EPA expects either form of emission limit to yield 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 more 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 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 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 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 5 highest maximum daily 1-hour average 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 (lbs/hour). It is theoretically possible for a source meeting this limit to have emissions that occasionally exceed 1000 lbs/hour, but with a typical emissions profile emissions would much more commonly be between 600 and 800 lbs/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/hour, 1100 lbs/hour, 500 lbs/hour, 900 lbs/hour, and 1200 lbs/hour, respectively. (This is a conservative example because the average of these emissions, 900 lbs/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 that would not otherwise have occurred, but the third day would not have an exceedance that otherwise would have occurred, and the fourth day would have had a concentration below, rather than at 75 ppb. In this example, the fourth highest maximum daily 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 SO_2 nonattainment planning guidance, EPA found that the requirement for lower average emissions 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 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 sections 110(a)(1), 172(c)(1), 172(c)(6) and 192(a) for SIPs to contain emissions limitations and control measures to "provide for attainment" of the NAAQS. For SO_2, as for other pollutants, it is generally impossible to design a nonattainment 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.[2] 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 EPA's *Guideline on Air Quality Models* (40 CFR part 51, appendix W*).*[3] In 2005, EPA promulgated AERMOD as the Agency's preferred near-field

[2] 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.
[3] EPA published revisions to the *Guideline on Air Quality Models* (40 CFR part 51, appendix W) on January 17, 2017.

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 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.

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" (EPA, 2010a).

IV. Review of Indiana's Modeled Attainment Plans

The following discussion evaluates various features of the modeling that Indiana used in its attainment demonstrations.

A. Model Selection

Indiana's attainment demonstrations used AERMOD, the preferred model for these applications as identified in appendix W to CFR part 51. Indiana used version 14134 of this model, utilizing the regulatory default mode for all air quality modeling runs. This version of AERMOD was the most recent version at the time the state conducted its nonattainment

planning; and, in any case, the results of this version are likely to be similar to those that more recent versions would provide. Therefore, EPA finds the use of this version of AERMOD acceptable.

The receptor grids and modeling domain followed the recommended approaches from appendix W, Guidelines on Air Quality Models. Receptor spacing for each modeled facility fence line was every 50 meters with 100-meter spacing of receptors out to a distance of 500 meters beyond each facility. The distances between modeled facilities contained receptors which were spaced at 100-meter intervals. The 100-meter spacing receptor grid contained in excess of several thousand receptors for each modeled nonattainment area. The above receptor spacing and facility fence line receptors brought the total modeled receptors for Marion County to 17,925 receptors, including two additional receptors placed at the Marion County SO_2 monitor locations; Vigo County to 7,111 receptors, including two receptors at each of the Vigo County SO_2 monitors; and Daviess and Pike to 5,354 receptors, including two located at Daviess and Pike County SO_2 monitors.

Indiana did not assess impacts within any one facility's property from the emissions from other facilities. EPA reviewed Indiana's modeling results to assess whether any further modeling was warranted to evaluate impacts within of other

facilities on any plant's property. For Southwest Indiana, peak impacts from the two facilities were well off any plant property, and therefore insufficient to cause a violation within each other's property. For the Terre Haute area, since the Duke Wabash River Power Plant and sgSolutions sources were adjacent, EPA conducted additional modeling that demonstrated that neither plant contributed to a violation within the other plant's property. Finally, in Indianapolis, EPA conducted additional modeling for the Vertellus and Rolls Royce facilities due to their proximity to one another and due to peak concentrations for both facilities occurring at their property boundaries. The analysis showed that collective impacts at on-property receptors from the other source and from other sources in Marion County were below the NAAQS. Further description of EPA's review is provided in the technical support document available in the docket for this rulemaking[4]. EPA finds that Indiana's receptor grids, supplemented with the results of EPA's additional analysis, are adequate for assessing whether the adopted limits provide for attainment throughout the respective areas.

The appropriate rural or urban land classifications were selected by Indiana, with only the Indianapolis SO_2 area being classified as urban. The remaining 1-hour SO_2 nonattainment

[4] June 27, 2018 Technical Support Document- "Evaluation of Concentrations on Facility Property Attributable to Nearby Sources"

areas addressed in this action, in Southwest Indiana and Terre Haute, were modeled as rural. While Indiana's submittal does not discuss the rationale for these determinations, EPA agrees that these selections appropriately characterize these areas. The Indianapolis area has historically been modeled using "urban dispersion." This combined statistical area includes 2.3 million people, including Marion County, with just under 1 million people. The population density for Marion County is 917 people per square kilometer, and the modeled area is a relatively urban portion of the county, thus meeting the criterion in appendix W that areas with at least 750 people per square kilometer may be treated as urban. Conversely, Vigo, Pike, and Daviess Counties have population densities of 102, 13, and 42 people per square mile, respectively. Examination of satellite imagery for these areas confirms that a land use analysis of these areas would be expected to yield the same character of Indianapolis as urban and the other areas as rural. For Indianapolis, a population of 1,000,000 (reflecting the approximate population of Marion County) was used in AERMOD to characterize the strength of the urban heat island effect. The use of urban dispersion with a 1,000,000 population is appropriate for this modeling. For these reasons, EPA finds it appropriate to model these areas using the land classifications identified by Indiana.

B. Meteorological Data

Indiana used the Indianapolis National Weather Service (NWS) surface data and the Lincoln, Illinois upper air station (WBAN#048233) data for Indianapolis and Terre Haute, and the Evansville NWS for surface data and the Lincoln upper air station data for Southwest Indiana. These are the closest National Weather Service surface stations to each respective area. The State determined these stations to be the most representative for the respective modeling domains. The upper air stations were chosen on the basis of regional representativeness. EPA finds Indiana's choices of surface and upper air meteorological stations appropriate based on: 1) The suitability of meteorological data for the study area; and 2) the actual similarity of surface conditions and surroundings at the emissions source/receptor impact area compared to the locations of the meteorological instrumentation towers.

C. Emissions Data

Indiana modeled 14 sources in the three nonattainment areas of Indianapolis (6 sources), Southwest Indiana (2 sources), and Terre Haute (6 sources). The sources were physically located within the nonattainment area; Indiana excluded facilities that emitted less than ten tons per year, and Indiana found no sources outside the nonattainment areas with sufficient likely concentration gradient in the modeled area to warrant modeling

explicitly. The emission limits used for the model for 12 of the sources correspond to the revised sulfur dioxide limitations on a 1-hour basis and are found in Indiana Administrative Code (IAC) Part 326, Article 7, and have been included by Indiana in this submission for SIP approval. The applicable emission limits for sgSolutions in Vigo County (Terre Haute) and IPL – Petersburg in Daviess County (Southwest Indiana) are established on a 30-day average basis and are lower than the modeled 1-hour attainment emission rates (the critical emission values) by virtue of application of adjustment factors determined and applied in accordance with the 2014 SO_2 Guidance. These limits are established and made enforceable in 326 IAC 7. EPA finds Indiana's choice of included sources appropriate, and finds that the modeled emission levels appropriately correspond to the limits given in 326 IAC 7, in the case of IPL – Petersburg and sgSolutions by modeling the 1-hour emission level that corresponds (before adjustment) to the 30-day average limit established in 326 IAC 7. Further discussion of the 30-day average limits is provided below.

D. Emission Limits

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. Some of the limits that

Indiana's plan relies on are expressed as 30-day average limits. Therefore, part of the review of Indiana's attainment plan must address 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 plan have been suitably demonstrated to provide for attainment. The first subsection that follows addresses the enforceability of the limits in the plan, and the second subsection that follows addresses the 30-day average limits.

1. Enforceability

In preparing its plans, Indiana adopted revisions to a previously approved state regulation governing emissions of SO_2. These rule revisions were adopted by the Indiana Environmental Rules Board following established, appropriate public review procedures. In addition, the rule revisions provide unambiguous, permanent emission limits, expressed in lbs/hour of allowable SO_2 emissions, that, if exceeded by a source, would be clear grounds for an enforcement action.

The revised limits for significant contributing sources have a compliance date of January 1, 2017 and are codified in 326 IAC 7, titled "Sulfur Dioxide Rules." Specifically, the list of rules is "Compliance date" (326 IAC 7-1.1-3), "Reporting requirements; methods to determine compliance" (7-2-1), "Marion County sulfur dioxide emission limitations" (7-4-2.1), "Vigo

County sulfur dioxide emission limitations" (7-4-3.1), and "Pike County sulfur dioxide emission limitations" (7-4-15). The rules also include associated monitoring, testing, and recordkeeping and reporting requirements. For example, continuous emission monitoring will be conducted for assessing compliance with the 30-day average limits. Specifically, 326 IAC 7-1-9 is being replaced by 7-4-2.1 for Marion County and 326 IAC 7-1-10.1 is being replaced by 326 IAC 7-4-15 for Vigo County. EPA finds these limits to be enforceable. A summary of the limits is shown in Table 1.

As shown in this table, the emission limits for sgSolutions Tail Gas Incinerator Stack EP1 and IPL-Petersburg Units 1-4 are expressed as 30-day average limits. Other limits in the rule are expressed as 1-hour average limits. The limits are expressed as lbs/hour or pounds per million British Thermal Units (MMBTU). EPA's review of Indiana's nonattainment plan addresses the use of these limits, both with respect to the general suitability of using such limits in attainment demonstrations, and whether Indiana has demonstrated that the particular limits included in the plan provide for attainment. EPA addresses Indiana's use of a 30-day average emission limits below.

Table 1. Emission limits in submitted Indiana Rules

Source	Emission Unit	Emission Limit	Emission

	Description	(lbs/hour) or Other Requirements	Limit (lbs/MMBTU)
Marion County sulfur dioxide emission limitations 326 IAC 7-4-2.1			
Citizens Thermal – Perry K Source ID No. 00034	(A) Boiler 11	73.6	0.2
	(B) Boiler 13	80.6	0.2
	(C) Boiler 14	80.6	0.2
	(D) Boilers 12, 15, and 16	Burn natural gas	
	(E) Boiler 17	72.6	0.3
	(F) Boiler 18	72.6	0.3
Belmont Advanced Wastewater Treatment Plant Source ID No. 00032	Incinerator 1, Incinerator 2, Incinerator 3, and Incinerator 4	Comply with SO_2 limit in 40 CFR 60, subpart MMMM* or 40 CFR 60, subpart LLLL*	
Rolls-Royce Source ID No. 00311	(A) Boiler 0070-58	0.07	0.0015
	(B) Boiler 0070-59	0.07	0.0015
	(C) Boiler 0070-62	0.37	0.0015
	(D) Boiler 0070-63	0.37	0.0015
	(E) Boilers 0070-64	Burn natural gas or landfill gas	0.01
	(F) Boiler 0070-65	Burn natural gas or landfill gas	0.01
	(G) Generating Turbine 0070-80	Burn natural gas or landfill gas	0.01
	(H) 2 Gas Turbine Engines 0070-66		0.1
	(I) 12 Gas Turbine Engines 0070-67		0.05
	(J) 3 Gas Turbine Engines 0070-68c, 0070-68d, and 0070-68e		0.05
	(K) 2 Gas Turbine Engines 0070-68a and 0070-68b	Burn natural gas	
	(L) 3 Gas Turbine Engines 0070-69		0.05
	(M) Three Shack	Burn natural	

	Heaters 0070-70	gas	
	(N) Rental Generators		0.0015
	(O) Engine Test Cells Plant 5		0.05
	(P) Engine Test Cell Plant 8		0.1
	(Q) Engine Test Cell N20	18 foot vertical stack, if operating	
	(R) Engine Test Cell N21	20 foot vertical stack, if operating	
	(S) Engine Test Cell N23	30 foot vertical stack, if operating	
	(T) Engine Test Cell N24	20 foot vertical stack, if operating	
Vertellus Agriculture and Nutrition Specialties Source ID No. 00315	(A) 70K Boiler 70-2722W	18.4	0.20
	(B) 30K Boiler 30-2726S	9.8	0.25
	(C) 28K Boiler 28-186N	9.9	0.27
	(D) Boiler CB-70K	Burn natural gas	
	(E) BM Furnace BM2724W	1.1	0.05
	(F) Box Furnace BX2707V	0.8	0.05
	(G) DAB Furnace 732714	2.8	0.05
	(H) Born Heater 722804	0.34	0.05
	(I) Born Heater Furnace BXS2706Q	0.3	0.05
	(J) EP Furnace EP2729Q	0.15	0.05
	(K) CB20 CB600-300 Boiler	2.3	0.09
	(L) 50K CN5-400 Boiler	5.5	0.09
	(M) BD Furnace	0.75	0.05

	BD2714V		
	(N) Heater BS2740Q	0.3	0.05
	(O) Heater BT2728S	0.3	0.05
	(P) Furnace HW-925.001	12.25	1.25
	(Q) CS Kettle Born Heater	Burn natural gas	
	(R) CS Still Born Heater	Burn natural gas	
	(S) Born Hot Oil Furnace (Process Heater) Unit 2607T	Burn natural gas	
Quemetco Source ID No. 00079	WESP Stack	52.0	
Indianapolis Power & Light Co. – Harding Street Generating Station Source ID No. 00033	(A) Boiler 9	Do not operate	
	(B) Boiler 10	Do not operate	
	(C) Boiler 50	Burn natural gas	
	(D) Boiler 60	Burn natural gas	
	(E) Boiler 70	Burn natural gas	
	(F) Gas Turbine 1	29.9	0.1
	(G) Gas Turbine 2	29.9	0.1
	(H) Gas Turbine 4	87.5	0.1
	(I) Gas Turbine 5	86.7	0.1
	(J) Gas Turbine 6	Burn natural gas	
	(K) Emergency Generator	500 hour calendar year operating limit	
Vigo County sulfur dioxide limitations (326 IAC 7-4-3.1)			
Wabash River Combined Cycle Source ID No. 00147	Combustion Turbine Unit 1A	333.76	0.195
sgSolutions Source ID No. 00091	(A) Tail Gas Incinerator Stack EP1	230.6 *	
	(B) Process Flare Unit 2	500 hour calendar year operating limit on coal/syngas	
SONY Digital Audio	(A) #1 Kewanee		0.05

Disc Source ID No. 00032	Boiler		
	(B) #2 Kewanee Boiler		0.05
	(C) Unit 3 Burnham Boiler		0.05
	(D) Unit 4 Burnham Boiler		0.05
	(E) Unit 5 Superior Boiler		0.05
	(F) Unit 6 Superior Boiler		0.05
	(G) Unit 18 Boiler		0.05
Taghleef Industries Source ID No. 00045	(A) Clayton Boiler (Standby)	0.03	0.0015
	(B) Nebraska Boiler	0.05	0.0015
	(C) Nebraska-D Boiler	Burn natural gas	
Terre Haute Regional Hospital Source ID No. 00046	(A) #1 Boiler		0.45
	(B) New #2 Boiler		0.45
Union Hospital Source ID No. 00047	2 Keeler Boilers		0.36
Duke Energy - Wabash River Generating Station Source ID No. 00021	(A) Boiler 6	1,499.5	0.5
	(B) Diesel Generators 7A, 7B, and 7C	500 hour calendar year operating limit (each)	0.05
Pike County sulfur dioxide limitations (326 IAC 7-4-15)			
Hoosier Energy – Ratts Source ID No. 00001	(A) Boiler 1	58	0.05
	(B) Boiler 2	58	0.05
	(C) No. 2 Auxiliary Boiler	1.0	0.05
Indianapolis Power & Light - Petersburg Generating Station Source ID No. 00002	(A) Unit 1	263.0*	0.12*
	(B) Unit 2	495.4*	0.12*
	(C) Unit 3	1,633.7*	0.29*
	(D) Unit 4	1,548.2*	0.28*
	(E) Diesel Generators PB-2, PB-3, and PB-4	500 hour calendar year operating limit (each)	
Indianapolis Power &	(A) Unit 1	330.0	0.15
	(B) Unit 2	621.6	0.15

Light - Petersburg Generating Station Source ID No. 00002	(C) Unit 3	2,049.8	0.37
	(D) Unit 4	1,942.5	0.35
	(E) Diesel Generators PB-2, PB-3, and PB-4	500 hour calendar year operating limit (each)	

*indicates emission limit for the unit is expressed as a 30-day average limit

2. Longer term average limits

As noted above, the 2014 SO_2 Guidance discusses the option to establish limits with averaging times up to 30 days in length that are comparably stringent to the 1-hour average limit that would otherwise have been set, and recommends a detailed procedure for determining such a comparably stringent limit. The Guidance also notes that it might be appropriate to establish supplemental limits in order to limit the magnitude and/or frequency of elevated emissions, as a means of further reducing the likelihood of elevated emissions occurring on those occasions when the meteorology is conducive to high concentrations of SO_2.

For both IPL-Petersburg and sgSolutions, Indiana closely followed the six-step recommendation of the 2014 SO_2 Guidance in determining an appropriate level for the 30-day average limits. As a first step in each case, Indiana conducted modeling which determined the 1-hour emission limit that would provide for attainment. Indiana conducted a series of modeling runs identifying baseline allowable air quality (in absence of

emission reductions), evaluating the air quality consequences of feasible emission reductions, and ultimately identifying a set of reduced allowable emission levels that would provide for attainment. For IPL-Petersburg, these quantities were expressed in lbs/MMBTU, and may be termed the critical emissions rates. The critical emission rates were 0.15, 0.15, 0.37, and 0.35 lbs/MMBTU, for IPL-Petersburg Units 1-4 respectively. For sgSolutions, Indiana determined a critical emission level of 527 lbs/hour.

For the second step of the process, for IPL-Petersburg, Indiana compiled representative emissions data sets from the IPL-Petersburg Unit 2 Flue Gas Desulfurization stack, which is the same control technology IPL-Petersburg will use for Units 1,3, and 4 in order to meet the emission limits associated with attaining the 2010 SO_2 NAAQS. Indiana used data compiled from 2006-2010 for the stack. For sgSolutions, Indiana used the data from the Tail Gas Incinerator from 2009-2014 scaled to fewer operating hours to create the emissions data set.

The third step was calculating the 30-day rolling averages. The analysis for IPL-Petersburg assessed the variability of the emission rate. The 30-day average rate was calculated by summing the pounds SO_2 per hour values over the previous 720 hours (30 days) and dividing by the sum of the MMBTU per hour over the past 720 hours, yielding a separate 30-day average

pounds of SO_2 per MMBTU for each successive ending hour. Using this calculation ensured that any hours showing zero emissions did not affect the calculations. This calculation is consistent with the procedures used in determining compliance with the Mercury and Air Toxics Standard (MATS) rule, as recommended in appendix C of the 2014 EPA SO_2 Guidance. The analysis for sgSolutions used statistics on the hourly mass emission rate and the corresponding 720-hour average hourly emission rate.

The fourth step determined 99th percentile values for the 1-hour values and 30-day average values. The 1-hour values were determined by compiling the values in step 2 over the five-year period. The result for the 99th percentile 30-day average was determined from the calculations in step 3. For IPL-Petersburg, the 99th percentile of 1-hour values was 0.233 lbs/MMBTU, and the 99th percentile of 30-day average values was 0.185 lbs/MMBTU. For sgSolutions, the 99th percentile values were 139 and 60.7 lbs/hour among 1-hour and 30-day average values, respectively. In the fifth step the ratio of the values was calculated by dividing the 99th percentile values for the 30-day rolling data and the 1-hour data identified in the fourth step. For IPL-Petersburg the result was an adjustment factor of 79.7 percent, and for sgSolutions the result was an adjustment factor of 43.6 percent. The final step multiplied the modeled critical emissions values calculated in the first step by the adjustment

factors calculated in the fifth step. This resulted in 30-day average limits of 0.12, 0.12, 0.29, and 0.35 lbs/MMBTU for IPL-Petersburg Units 1-4 respectively and 230.6 lbs/hr for sgSolutions.

Based on a review of the state's submittal, these limits provide a reasonable alternative to establishing a per hour 1-hour average emission limit for this source. The state used an appropriate database and then applied an appropriate adjustment, yielding an emission limit that has comparable stringency to the 1-hour average limit that the state determined would otherwise have been necessary to provide for attainment. While the 30-day average limit allows for occasions in which emissions are higher than the level that would be allowed under the 1-hour limit, the state's limit compensates by requiring average emissions to be lower than the level that would otherwise have been required by a 1-hour average limit.

As noted above, the April 2014 Guidance recommends that 30-day average limits be accompanied by supplemental limits that help serve to minimize the frequency and/or magnitude of occasions with elevated emissions. Indiana did not use supplemental limits. Therefore, EPA examined available emissions data at IPL-Petersburg and at sgSolutions to evaluate the likely frequency and magnitude of spikes in emissions above the critical emission value while nevertheless complying with

the 30-day average limit. The most pertinent data for IPL-Petersburg are for Unit 2, addressing a five-year time period before the relevant limit became effective. Approximately seven percent of available 30-day average values in this data set exceeded the 30-day average limit of 0.12 lbs/MMBTU. In this data set, approximately six percent of the hourly emissions values exceeded the critical emission rate of 0.15 lbs/MMBTU; these elevated values on average were approximately 34 percent above 0.15 lbs/MMBTU. Reduction of emissions sufficient to meet the 0.12 lbs/MMBTU limit consistently would reduce the frequency and magnitude of hourly emissions values above the 0.15 lbs/MMBTU critical emissions rate, although the precise levels are difficult to predict. For sgSolutions, over a six-year period, in a data set with no exceedances of the 30-day average limit of 230.6 lbs/hour (in which, in fact, only one day had daily average emissions above 230.6 lbs/hour), only seven hours (approximately 0.02 percent of the hours) exceeded the critical emission value of 527 lbs/hour, and the magnitude of these exceedances on average was only nine percent above the critical emission value. Based on these data, EPA finds that the 30-day average limit without supplemental limits should suffice in these cases to provide adequate assurance of attainment.

For IPL-Petersburg, Indiana's rule identifies both a set of 30-day average limits and a corresponding set of 1-hour limits

(the latter set at the critical emission value) for the four units of this facility. Indiana's rule specifies, "Indianapolis Power & Light shall notify the department prior to [January 1, 2017] to indicate if compliance . . . will be determined using [the specified 1-hour limits or the specified 30-day average limits] and prior to switching [which set of limits applies]." Given this potential under Indiana's rules for IPL to choose to switch back and forth between a set of 30-day average limits and a set of 1-hour limits, EPA conducted additional review of the enforceability of the limits and of whether the potential to switch limits might adversely affect the degree to which these limits assure attainment.

Regarding enforceability, the primary question is whether at any time the applicable requirements are unequivocally clear, such that the occurrence of emissions above the specified level unquestionably constitutes noncompliance. Since the limits themselves are clearly specified in Indiana's rule, the pertinent question is whether the choice of limits is clear, i.e. whether it is always clear whether the 30-day average limits or the 1-hour limits apply. As noted above, Indiana's rule requires IPL-Petersburg to notify the state of its initial choice of applicable limits and to notify the state of any choice IPL makes to switch applicable limits. Thus, pursuant to the requirements of the rule, the applicable set of limits is

always specified, Indiana always knows which set of limits applies, and this information is available to EPA and any other interested party upon request to Indiana.

EPA also evaluated whether the option to switch applicable limits might yield less air quality protection than permanently imposing 30-day average limits or permanently imposing 1-hour limits. At any given time, IPL is subject to a single set of limits; IPL cannot excuse noncompliance with the applicable limits even if it is meeting the alternative limits. Therefore, IPL does not have the option to choose limits contemporaneously according to a short-term judgment as to which set of limits is less stringent for that time period. Instead, IPL must design its control strategy to meet the limits with the chosen averaging time rather than to aim simply to meet whichever set of limits might be less stringent for any particular period.

A further question about switching limits is whether applying 1-hour limits for part of a year and longer-term limits for another part of the year provides as much air quality protection as applying a single set of limits for the entire year. Use of long term average limits creates the potential for periods with elevated emissions that may yield additional, unmodeled exceedances (i.e., exceedances beyond those identified in modeling of constant emissions), but also creates a compensating likelihood of avoiding some of the modeled

exceedances because the downward adjusted long-term average limit requires emissions to be lower most of the time. At issue here is the risk that in a year when both types of limits apply, the periods subject to 30-day average limits might have additional, unmodeled exceedances while the periods subject to 1-hour limits might not avoid any of the exceedances found in constant emissions modeling.

For several reasons, EPA believes that this concern does not apply in this case. Indiana's rule requires IPL to notify Indiana before any change in limits and, in the case of a switch from 30-day average limits to one-hour limits, to complete a 30-day period in compliance with the 30-day average limits before the one-hour limits take effect. IPL cannot change the applicable limits retroactively. While IPL may change the prospective applicable set of limits if it anticipates significant changes in operations, the experience to date is that IPL has made no switches in the selection since electing the 30-day average in January 2017, and nothing in the record suggests that IPL is likely to switch which limits apply in the future. For these reasons, EPA believes that Indiana's limits for IPL are an appropriate part of an attainment plan for Southwest Indiana that provide for attainment, most likely by requiring compliance with an appropriately adjusted set of 30-day average limits.

The issue of switching limits does not apply to sgSolutions; this source is permanently subject to a 30-day average limit. EPA believes that the 30-day average limits for IPL-Petersburg and sgSolutions are appropriate elements of Indiana's attainment plans for the applicable areas.

E. Background Concentrations

Indiana determined background concentrations by selecting the 99th percentile of a monitoring data set that excluded values from emission sources where the upwind SO_2 concentration exceeded 10 ppb. For Indianapolis, the background concentration was generated using the hourly concentrations from the Harding Street monitor (18-097-0057). At the time Indiana conducted its analysis this was the only suitable background monitor. The monitor is sited about four kilometers northeast of the Indianapolis Power and Light-Harding Station source. For the determination of a background value Harding Station Power Plant was considered a nearby source and was expressly included in the modeling analysis, and so Indiana determined the Indianapolis background concentration from a Harding Street data set that excluded values during hours with winds from the south and southwest. The resulting background concentration was 22.5 micrograms per cubic meter ($\mu g/m^3$) (8.6 ppb).

In the Southwest Indiana area there are two monitors, one located in each of Pike and Daviess counties. The monitor with

the highest background concentration is the Arda Lane monitor located in Pike County (18-125-0005) with a value of 25.9 µg/m3 (9.9 ppb). The monitor is sited about 1 kilometer to the south of IPL-Petersburg source and about 1.5 kilometers east of the Hoosier Plant. Indiana considered these two sources nearby, and determined a background concentration from a data set that excluded data when winds were from the northwest. There are two monitors located in the Terre Haute nonattainment area, both in Vigo County.

For the Vigo County analysis, the controlling monitor (i.e., highest design value over the 2011-2013 period), Harrison Road monitor (18-125-0005) was used. The monitor is sited approximately 2.5 kilometers southeast of the Duke Energy-Wabash River facility, which Indiana considered nearby, so Indiana determined background concentrations from a data set that excluded data when winds were from the northwest. The result was a background concentration of 23.0 µg/m^3 (8.8 ppb). EPA has reviewed these background concentrations and finds these values appropriate as model inputs.

F. Comments Made During State Rulemaking

During the preparation of its nonattainment plans, Indiana received and responded to a number of comments by, among others, EPA and the Sierra Club that EPA believes warrant further discussion in this action.

The first comment from EPA to Indiana pertained to the IPL-Petersburg facility having a choice between hourly and 30-day average limits in the Pike county emission limit rules, and requesting that Indiana assure clarity as to which limits apply, by including explicit requirements for reporting and recordkeeping to which limits apply.

Indiana responded to the comment by adding language at 326 IAC 7-4-15(e) requiring the source to notify IDEM when switching from one set of limits to the other. For any switch from the 1-hour limits to the 30-day average limits, IDEM's final rule requires compliance with the 1-hour limit until the first 30-day average emission rate is calculated so that there is no gap in compliance. EPA agrees that this change in the rulemaking ensures clear compliance requirements and establishes the 30-day average limit (when applicable) in a manner (consistently requiring a reduced level of emissions) that provides the full protection against violations recommended in EPA's guidance.

Sierra Club expressed concerns about the Duke Energy facility in Gibson County ("Gibson"), commenting that Indiana should have modeled Gibson explicitly. Indiana responded that emissions reductions from the sources located within Pike and Daviess County nonattainment area were the most responsible for bringing the area into attainment. Other SO_2 sources in surrounding counties are accounted for within the representative

1-hour SO_2 background concentration. EPA notes that the criterion recommended in appendix W of 40 CFR 51 for sources to be modeled explicitly are those nearby sources that are not adequately represented by ambient monitoring data, such as sources that cause a significant concentration gradient in the vicinity of the area of interest. Gibson is about 46 kilometers southwest of the Southwest Indiana nonattainment area. At this distance, concentration gradients may be presumed to be quite small, and the impacts of Gibson may reasonably be considered accounted for in the background concentration for the Southwest Indiana nonattainment area. Thus, EPA agrees with Indiana's conclusion that any impact from Gibson on the Southwest Indiana nonattainment area is appropriately captured in the background concentration for the Southwest Indiana nonattainment area, such that explicit modeling of this facility is unnecessary.

In a related comment, Sierra Club commented that Indiana needed to impose SO_2 limits on the Duke Energy facility in order to ensure that the Southwest Indiana nonattainment area (Daviess and Pike counties) attained the standard. Indiana's attainment demonstration for the Southwest Indiana nonattainment area did not depend on emission limits for Gibson. Appendix W specifies the recommended consideration of emission limits for sources that are required to be explicitly modeled in the attainment demonstration. Sources such as Gibson that are accounted for as

part of the monitored background concentration need not be modeled explicitly (as noted above) and in particular need not be considered on the basis of allowable emissions. That is, Appendix W advises consideration of distant sources such as Gibson on the basis of available monitoring data, irrespective of any limits on Gibson emissions that may apply. Indiana's modeling analysis, in accordance with appendix W, demonstrates that the Southwest Indiana nonattainment area can be expected to attain the standard without regard to whether emission limits for Gibson are established. Thus, Indiana's SIP submission is approvable without limits for Gibson.

Also, several utility groups commented that Indiana should use a compliance date of October 1, 2017, which would allow for twelve months of data to demonstrate attainment of the standard prior to the October 2018 attainment deadline. Indiana chose instead to adopt its proposed compliance date of January 1, 2017. This compliance date was recommended in the 2014 EPA Guidance because monitoring site data are certified annually on a calendar year, not a 12-month time span, so compliance by January 1, 2017 is recommended to provide for a calendar year of data for later informing whether timely attainment has occurred. EPA supports the decision made by Indiana to require compliance with the new limits by January 1, 2017.

G. Summary of Results

The final dispersion modeling results submitted by Indiana show design values, as provided in Table 2 below, that are less than 75 ppb. Therefore, Indiana's modeling analysis demonstrates attainment of the 2010 SO_2 NAAQS for the Indianapolis, Southwest Indiana, and Terre Haute areas. EPA believes that Indiana's modeling appropriately reflects allowable emissions in these areas, including, for sources subject to 30-day average limits, the 1-hour emission rates that upon appropriate adjustment correspond to the 30-day average limits that Indiana has adopted. EPA has reviewed Indiana's attainment demonstrations, agrees with Indiana's submitted results, and proposes to determine that the enforceable measures in Indiana's plans provide for attainment of the 2010 primary SO_2 NAAQS in the Indianapolis, Southwest Indiana, and Terre Haute nonattainment areas.

Table 2. 1-Hour SO_2 Dispersion Modeling Results

Area Name	Indianapolis	Southwest Indiana	Terre Haute
Modeled Concentration (ppb)	64.4	64.9	63.8
Background Concentration (ppb)	8.6	9.9	8.8
Total Concentration (ppb)	73	74.8	72.6

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).

Indiana provided a comprehensive, accurate, and current inventory of SO_2 emissions for Marion (Indianapolis), Daviess and Pike (Southwest Indiana), and Vigo counties (Terre Haute). The following source categories were included: electric-generating units (EGUs), non-EGUs (point), non-point (area), non-road, and on-road sources of SO_2 and are summarized in Table 3. Indiana uploads point source emissions to the National Emissions Inventory (NEI) annually. For the 2011 base year inventory, emissions from EGU and non-EGUs are actual reported emissions. Data for airport, area, non-road, and on-road emissions were compiled from the EPA Emissions Modeling Clearinghouse (SO_2 NAAQS

Emissions Modeling platform 2007/2007v5) for the 2008 NEI and the 2018 projected inventory year. Data were interpolated between 2008 and 2014 to determine the airport, area, non-road, and on-road emissions 2011 inventory and between 2014-2020 for 2018. As noted above, these inventories addressed sources within each nonattainment county and can be found in appendix H of the submitted attainment demonstration. Indiana also provided modeling inputs that include a listing of the individual sources with sufficient proximity to and impact on the nonattainment areas to warrant being explicitly included in the modeling analysis.

Table 3. 2011 Actual Emissions Inventory

	Marion (Indianapolis) (tpy)	Daviess (Southwest Indiana) (tpy)	Pike (Southwest Indiana) (tpy)	Vigo (Terre Haute) (tpy)
EGU	18,998.02	0	34,728.99	55,782.42
Point	4,582.46	8.39	2.74	102.79
Area	193.21	55.63	13.60	32.51
Non-road	125.37	1.23	1.38	9.42
On-road	121.88	3.14	1.85	13.72

By providing a comprehensive, accurate, and current inventory of SO_2 emissions for Marion, Pike, Daviess, and Vigo counties, Indiana has met the emission inventory requirement of CAA section 172(c)(3) for the Indianapolis, Southwest Indiana, and Terre Haute areas. This inventory represents emissions in 2011, a time when the areas were violating the standard. While section 172(c)(3) does not have a formal requirement for an

attainment year inventory, the state did include allowable attainment year emissions in its modeling analysis.

B. RACM/RACT

In its submission, Indiana discusses its rationale for concluding that the nonattainment plans meet the RACM/RACT requirements in accordance with EPA guidance. For most criteria pollutants, RACT is control technology as needed to meet the NAAQS that is reasonably available considering technological and economic feasibility. However, Indiana cites EPA guidance that the definition of RACT for SO_2 is, simply, "that control technology which is necessary to achieve the NAAQS (40 CFR 51.1 00(o))". Indiana in fact requires the control technology that modeling shows to be necessary to ensure attainment of the SO_2 NAAQS by the applicable attainment date.

Additionally, the Indiana submission includes limits for the individual units in the nonattainment areas. The limits are established in the attainment demonstration, and made permanent and enforceable in SIP rule 326 IAC 7, Sulfur Dioxide Rules.

Indiana has determined that these measures suffice to provide for timely attainment. EPA concurs and proposes to conclude that the state has satisfied the requirements in sections 172(c)(1) and (6) to adopt and submit all RACT/RACM and emission limitations and control measures as needed to attain the standards as expeditiously as practicable.

C. New Source Review (NSR)

EPA approved Indiana's nonattainment new source review rules on October 7, 1994 (94 FR 24838). These rules provide for appropriate new source review for SO_2 sources undergoing construction or major modification in the Indianapolis, Southwest Indiana, and Terre Haute without need for modification of the approved rules. Therefore, EPA concludes that this requirement has already been met for these areas.

D. RFP

Indiana's adopted rules in 326 IAC 7 require that control measures be implemented no later than January 1, 2017. Indiana has concluded that this plan requires that affected sources implement appropriate control measures as expeditiously as practicable in order to ensure attainment of the standard by the applicable attainment date. Indiana concludes that this plan therefore provides for RFP in accordance with the approach to RFP described in EPA's guidance. EPA concurs and proposes to conclude that the plan provides for RFP.

E. Contingency Measures

In its November 15, 2017 clarification memo, Indiana explained its rationale for concluding that the plans met the requirement for contingency measures in accordance with EPA guidance. Specifically, Indiana relies on EPA's guidance, noting the special circumstances that apply to SO_2 (as discussed

above), and explaining on that basis why the contingency requirement in CAA section 172(c)(9) is met for SO_2 by having a comprehensive program to identify sources of violations of the SO_2 NAAQS and to undertake an aggressive follow-up for compliance and enforcement of applicable emissions limitations. Indiana stated that it has such an enforcement program as codified in Indiana Code Title 13, Articles 14 and 15, identifying violators and taking prompt, appropriate enforcement action. On this basis, EPA concludes that Indiana's nonattainment plans satisfy contingency measure requirements for the Indianapolis, Southwest Indiana, and Terre Haute nonattainment areas.

Indiana's rules also provide for additional contingency measures as necessary, following a review of any air quality problems that become identified and following a review of options for mitigating the problems that arise. However, Indiana is not relying on these provisions to satisfy the requirements for contingency measures.

VI. EPA's Proposed Action

EPA is proposing to approve Indiana's SIP submission, which the state submitted to EPA on October 2, 2015, for attaining the 2010 1-hour SO_2 NAAQS for the Indianapolis, Southwest Indiana, and Terre Haute areas.

These SO_2 nonattainment plans include Indiana's attainment demonstration for the Indianapolis, Southwest Indiana, and Terre

Haute SO_2 nonattainment areas. These nonattainment plans also address requirements for emission inventories, RACT/RACM, RFP, and contingency measures. Indiana has previously addressed requirements regarding nonattainment area NSR. EPA has determined that Indiana's SO_2 nonattainment plans for Indianapolis, Southwest Indiana, and Terre Haute meet the applicable requirements of CAA sections 110, 172, 191, and 192. EPA is taking no action at this time on Indiana's submittal with respect to Morgan County.

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

VII. Incorporation by Reference

In this rule, EPA is proposing to include in a final EPA rule regulatory text that includes incorporation by reference. In accordance with requirements of 1 CFR 51.5, EPA is proposing to incorporate by reference Indiana Administrative Code, Title 326, Article 7, "Compliance date" (326 IAC 7-1.1-3), "Reporting requirements; methods to determine compliance" (7-2-1), "Marion County sulfur dioxide emission limitations" (7-4-2.1), "Vigo County sulfur dioxide emission limitations" (7-4-3.1), and "Pike County sulfur dioxide emission limitations" (7-4-15), effective January 1, 2107. EPA has made, and will continue to make, these documents generally available through www.regulations.gov, and

at the EPA Region 5 Office. (Please contact the person identified in the "For Further Information Contact" section of this preamble 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 Act 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);
- 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 SIP 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, Intergovernmental relations, Reporting and recordkeeping requirements, Sulfur oxides.

Dated: August 2, 2018.

Cathy Stepp,

Regional Administrator, Region 5.

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