REDESIGNATION REQUEST AND MAINTENANCE PLAN FOR THE OHIO PORTION OF THE STEUBENVILLE, OH-WV 1-HOUR SO_2 NONATTAINMENT AREA

Partial Jefferson County, Ohio

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CHAPTER ONE: Introduction

History

The Clean Air Act (CAA), as amended, requires each state with areas failing to meet the 1-hour sulfur dioxide (SO_2) National Ambient Air Quality Standard (NAAQS) to develop State Implementation Plans (SIPs) to expeditiously attain and maintain the standard. The United States Environmental Protection Agency (U.S. EPA) promulgated the revised NAAQS for SO_2 on June 2, 2010. U.S. EPA replaced the 24-hour and annual standards with a new short-term 1-hour standard of 75 parts per billion (ppb). The new 1-hour SO_2 standard was published on June 22, 2010 (75 FR 35520) and became effective on August 23, 2010. The standard is based on the three-year average of the annual 99th percentile of 1-hour daily maximum concentrations.

On August 15, 2013, U.S. EPA published (78 FR 47191) the initial SO_2 nonattainment area designations for the 1-hour SO_2 standard across the country (effective October 4, 2013). Unlike Subpart 2 of the CAA Amendments of 1990 which defined five ozone nonattainment classifications for the areas that exceed the NAAQS based on the severity of the ozone levels, SO_2 nonattainment designations are simply labeled "nonattainment." The CAA Amendments require states with SO_2 nonattainment areas to submit a plan within eighteen months of the effective date of the designations (April 4, 2015) detailing how the SO_2 standard will be attained by October 4, 2018 (referred to as an "attainment demonstration"). However, areas that attain before the required date for submitting a plan may be exempt from certain otherwise applicable requirements.

Section 107(d)(3)(E) of the CAA allows states to request nonattainment areas to be redesignated to attainment provided certain criteria are met. The following are the criteria that must be met in order for an area to be redesignated from nonattainment to attainment:

1. A determination that the area has attained the SO_2 standard. (CAA Section 107(d)(3)(E)(i))
2. An approved SIP for the area under Section 110(k). (CAA Section 107(d)(3)(E)(ii))
3. A determination that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the SIP, federal requirements, and other permanent and enforceable reductions. (CAA Section 107(d)(3)(E)(iii))
4. A fully approved maintenance plan, including a contingency plan, under Section 175A. (CAA Section 107(d)(3)(E)(iv))
5. A determination that all Section 110 and Part D requirements have been met. (CAA Section 107(d)(3)(E)(v))

Each of these criteria is discussed in more detail under Chapter Two with a detailed analysis in subsequent chapters. This document is intended to support Ohio's request that the Ohio portion of the Steubenville OH-WV area be redesignated from nonattainment to attainment for the 1-hour SO_2 standard. This document addresses each of above requirements, and provides additional information to support continued compliance with the 1-hour SO_2 standard.

Geographical Description and Background

The current Steubenville OH-WV nonattainment area is located in eastern Ohio along the Ohio River. Within Ohio, it is comprised of the City of Steubenville and the following townships in Jefferson County: Cross Creek, Warren, Steubenville and Wells. Within West Virginia, it is comprised of the Cross Creek tax district in Brooke County. This area is shown in Figure 1 under Chapter Three.

Portions of the Steubenville OH-WV area were previously subject to nonattainment area rulemakings for the 1971 SO_2 NAAQS. Initial designations were promulgated on March 3, 1978, effective May 2, 1978 (43 FR 8962). However, as a result of public comment, final amended designations were promulgated and effective on October 5, 1978 (43 FR 45993). Within Jefferson County, the Cities of Steubenville and Mingo Junction and the following townships were designated nonattainment: Steubenville, Island Creek, Cross Creek, Knox and Wells. Subsequently, U.S. EPA approved a redesignation request and maintenance plan for this area on August 30, 1999, effective September 29, 1999 (64 FR 47113).

Status of Air Quality

SO_2 complete quality-assured ambient air quality monitoring data for the three (3) years, 2014 through 2016 and 2015 through 2017, demonstrate that the air quality has met the 1-hour SO_2 standard in this nonattainment area. (See Chapter Three) The NAAQS attainment, accompanied by decreases in emission levels discussed in Chapter Four, supports a redesignation to attainment for the Steubenville OH-WV area based on the requirements in Section 107(d)(3)(E) of the CAA as amended.

CHAPTER TWO: Requirements for Redesignation

U.S. EPA has published detailed guidance in a document entitled *Procedures for Processing Requests to Redesignate Areas to Attainment* (redesignation guidance), issued September 4, 1992, to Regional Air Directors. U.S. EPA has also published guidance specific to SO_2 in a document entitled *Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions* (SO_2 nonattainment area SIP guidance), issued April 23, 2014, to Regional Air Division Directors. This redesignation request and maintenance plan is based on the redesignation guidance and SO_2 nonattainment area SIP guidance, supplemented with additional guidance received from U.S. EPA Region 5 staff.

Below is a summary of each redesignation criterion as it applies to the Ohio portion of the Steubenville OH-WV area. The West Virginia Department of Environmental Protection (WVDEP) will prepare and submit their own redesignation request and maintenance plan indicating how they have fulfilled requirements relevant to the West Virginia portion of this nonattainment area. Where germane, Ohio EPA is providing additional information regarding WVDEP's redesignation request and maintenance plan; however, their full request should be consulted regarding all elements.

1. Attainment of the standard (CAA Section 107(d)(3)(E)(i))

There are two components involved in making this demonstration.

The first component relies on ambient air quality data. For SO_2, all available monitoring data in the area should indicate the standard is being met according to 40 CFR 50.17 and 40 CFR Part 50, Appendix T. Analyses should indicate whether any of the monitors located in the nonattainment area are located in the area of maximum concentration.

Demonstration: Chapter Three discusses this requirement in more detail and provides the demonstration.

The second component relies upon supplemental U.S. EPA-approved air quality modeling. Where a monitor(s) is located in the area of maximum concentration, a determination of attainment may be made based on monitoring data alone without the need for additional air quality modeling. When a nonattainment area has no monitors, or monitors are not located in the area of maximum concentration, air quality dispersion modeling is generally needed to estimate SO_2 concentrations in the area. Provided source and emissions characteristics remain consistent, modeling conducted as a part of the attainment demonstration should suffice.

Demonstration: Chapter Three discusses this requirement in more detail (Requirement 4 of 4) and provides the demonstration.

2. Approved SIP for the area under CAA Section 110(k) (CAA Section 107(d)(3)(E)(ii))

The SIP for the nonattainment would need to be fully approved and satisfy all applicable requirements for the area. U.S. EPA approval of SIP elements and redesignation requests may occur simultaneously.

Demonstration: Ohio EPA has submitted all required SIP elements for this area in either previous submittals, or as a part of this submittal. On April 3, 2015, and supplemented on October 13, 2015, Ohio EPA submitted our attainment demonstration SIP for this area. The attainment demonstration SIP satisfied the CAA Section 172 general requirements for areas designated as nonattainment for all NAAQS and the CAA Sections 191 and 192 nonattainment area requirements specific to SO2, with the exception of all necessary federally enforceable limitations. In accordance with U.S. EPA's SO_2 nonattainment area SIP guidance, an approvable attainment demonstration would be an air quality modeling analysis that demonstrates that the emission limits in the plan will suffice to provide for timely attainment of the affected standard. In cases where the necessary emission limits have not previously been made a part of the SIP or have not otherwise become federally enforceable, the plan needs to include the necessary enforceable limits in adopted form suitable for incorporation into the SIP in order for it to be approved by U.S. EPA. In order to meet this requirement for Cardinal Power Plant (Facility ID 0641050002), updated modeling was conducted (Appendix A) and the emission limit was established concurrent with this redesignation request. Effective July 5, 2019, Ohio EPA adopted revisions to Ohio Administrative Code (OAC) Chapter 3745-18 containing a federally-enforceable emission limit for Cardinal Power Plant, specifically, a 30-day rolling average combined SO_2 emission limit of 4,858.75 lb/hr for the coal-fired boiler Units 1, 2 and 3 (B001, B002 and B009) (Appendix B). The October 13, 2015 submittal also included regulations promulgated under OAC Chapter 3745-18, effective October 23, 2015, containing federally enforceable limitations on emissions for subject sources in the Ohio portion of this area. Subsequently, on March 13, 2017 Ohio EPA submitted amended regulations in OAC Chapter 3745-18, effective February 16, 2017, containing updated federally enforceable limitations on emissions for subject sources in the Ohio portion of this area.[1]

3. Permanent and enforceable improvement in air quality (CAA Section 107(d)(3)(E)(iii))

The state must be able to reasonably attribute the improvement in air quality to emission reductions which are permanent and enforceable. The state should estimate the percent reduction achieved from federal measures as well as control measures that have been adopted and implemented by the state.

[1] All three submittals can be found in the table under the heading "Attainment Demonstration" at http://www.epa.ohio.gov/dapc/SIP/so2.aspx

Demonstration: Chapter Four discusses this requirement in more detail (Requirement 4 of 5) and provides the demonstration.

4. Maintenance plans (CAA Section 107(d)(3)(E)(iv))

Section 107(d)(3)(E) stipulates that for an area to be redesignated, U.S. EPA must fully approve a maintenance plan that meets the requirements of Section 175A. The maintenance plan will constitute a SIP revision and must provide for maintenance of the relevant NAAQS in the area for at least ten years after redesignation along with a commitment to review the plan. Section 175A further states that the plan shall contain such additional measures, if any, as may be necessary to ensure such maintenance.

In addition, the maintenance plan shall contain such contingency measures as the Administrator deems necessary to ensure prompt correction of any violation of the NAAQS. At a minimum, the contingency measures must include a requirement that the state will implement all measures contained in the nonattainment SIP prior to redesignation.

Demonstration: States seeking approval of a maintenance plan for a nonattainment area should consider the following provisions:

- attainment inventory (Chapter Four contains the discussion and demonstration);
- maintenance demonstration (Chapter Four contains the discussion and demonstration);
- monitoring network (Chapter Three contains the discussion and demonstration);
- verification of continued attainment (Chapter Four (Requirement 5 of 5) contains the discussion and demonstration); and
- contingency plan (Chapter Six contains the discussion and demonstration).

5. Section 110 and Part D requirements (CAA Section 107(d)(3)(E)(v))

For purposes of redesignation, a state must meet all requirements of Section 110 and Part D that were applicable prior to submittal of the complete redesignation request but not those that come due after submittal of the redesignation request.

a. Section 110(a) requirements

Section 110(a) of Title I of the CAA contains the general requirements for a SIP. Section 110(a)(1) generally directs states to submit a SIP that provides for implementation, maintenance, and enforcement of the air quality standards to the U.S. EPA after reasonable notice and public hearing. Section 110(a)(2) provides that the infrastructure SIP submitted by a state must have been adopted by the state after reasonable public notice and hearing, and that, among other things, it must

include enforceable emission limits and other control measures[2], means or techniques necessary to meet the requirements of the CAA; provide for establishment and operation of appropriate devices, methods, systems and procedures necessary to monitor ambient air quality; provide for implementation of a source permit program to regulate the modification and construction of any stationary source within the areas covered by the plan; include provisions for the implementation of Part C, prevention of significant deterioration (PSD) and Part D, new source review (NSR) permit programs; include criteria for stationary source emission control measures, monitoring, and reporting; include provisions for air quality modeling; and provide for public and local agency participation in planning and emission control rule development.

Demonstration: In Ohio's June 7, 2013 infrastructure SIP submission, Ohio verified that the state fulfills the requirements of Section 110(a)(1) and Section 110(a)(2) of the CAA with respect to the 2010 SO_2 NAAQS. Ohio's June 7, 2013 infrastructure SIP for the 2010 1-hour SO_2 standard contains SIP approved Ohio Administrative Code Chapter 3745-18, through which SO_2 emissions are directly regulated.

Section 110(a)(2)(D) also requires state plans to prohibit emissions from within the state which contribute significantly to nonattainment or maintenance areas in any other state, or which interfere with programs under Part C to prevent significant deterioration of air quality or to achieve reasonable progress toward the national visibility goal for Federal class I areas (national parks and wilderness areas).

In order to assist states in addressing their obligations regarding regionally transported pollution, U.S. EPA finalized the Clean Air Interstate Rule (CAIR) and then the Cross State Air Pollution Rule (CSAPR) to reduce SO_2 and NO_x emissions from large electric generating units (EGU). Ohio has met the requirements of the federal CAIR to reduce NO_x and SO_2 emissions contributing to downwind states. On February 1, 2008, U.S. EPA approved Ohio's CAIR program, which can be found in Ohio Administrative Code (OAC) Chapter 3745-109[3]. On July 6, 2011, U.S. EPA finalized a replacement to the CAIR program, the CSAPR. CSAPR assisted, and will further assist, states in addressing their obligations regarding regionally transported pollution by providing reductions in NO_x and SO_2 emissions beginning in 2015 and 2017[4].

[2] Other than nonattainment emission limits and measures which are a part of nonattainment area plans and subject to the timing requirements of Section 172 of the CAA.
[3] Note, Ohio EPA rescinded our CAIR rules effective January 29, 2018 as compliance is now required under the CSAPR Federal Implementation Plan.
[4] Timeline for implementation of CSAPR was adjusted from 2012 and 2014 to 2015 and 2017. (79 FR 71663)

b. Part D requirements

Subpart 1 of Part D consists of general requirements applicable to all areas which are designated nonattainment based on a violation of the NAAQS. Subpart 5 of Part D consists of more specific requirements applicable to SO_2[5].

i. Section 172(c) requirements

This Section contains general requirements for nonattainment plans. The requirements for reasonable further progress (RFP), identification of certain emissions increases, and other measures needed for attainment will not apply for redesignations because they only have meaning for areas not attaining the standard. The requirements for an emission inventory will be satisfied by the inventory requirements of the maintenance plan.

Demonstration: The emission inventory is discussed in Chapter Four and the maintenance plan is discussed below. The requirements of the Part D NSR program will be replaced by the PSD program once the area has been redesignated. The PSD program is discussed in Chapter Five (Requirement 5 of 6). The demonstrations are provided in these locations.

ii. Conformity

The state must work with U.S. EPA to show that its SIP provisions are consistent with the Section 176(c)(4) conformity requirements. The redesignation request should include conformity procedures, if the state already has these procedures in place. If a state does not have conformity procedures in place at the time that it submits a redesignation request, the state must commit to follow U.S. EPA's conformity regulation upon issuance, as applicable.

Demonstration: Ohio EPA meets all of U.S. EPA's conformity procedures. Ohio EPA commits to following the general conformity requirements of 40 CFR 93.150 to 93.165. On August 20, 2014, Ohio EPA submitted signed Memorandums of Understanding (MOUs) to U.S. EPA establishing transportation conformity procedures for inclusion in Ohio's SIP. U.S. EPA issued a direct final rulemaking approving the MOUs on March 2, 2015 (80 FR 11133) with an effective date of May 1, 2015.

As described in the SO_2 nonattainment area SIP guidance, due to the relatively small, and decreasing, amounts of sulfur in gasoline and on-road diesel fuel, the U.S. EPA's transportation conformity rules provide that they

[5] Subpart 5 of Part D identifies requirements related only to plan submission deadlines and attainment dates. SIP submittal and attainment dates are discussed in the introduction of this submittal.

do not apply to SO_2 unless transportation conformity budgets exist for other reasons, such as that SO_2 is found to be a significant contributor to a $PM_{2.5}$ nonattainment problem, or if the SIP has established an approved or adequate budget for such emissions as part of the RFP, attainment or maintenance strategy. Neither of these circumstances applies here. As discussed in Ohio EPA's April 16, 2012[6] redesignation request and maintenance plan for the Steubenville-Weirton OH-WV area under the 1997 $PM_{2.5}$ standard and the May 25, 2012[7] redesignation request and maintenance plan for the Steubenville-Weirton OH-WV area under the 2006 $PM_{2.5}$ standard, mobile SO_2 was found to be an insignificant contributor to the $PM_{2.5}$ nonattainment problem. All of Jefferson County, OH and all of Brooke County, WV were included in those historical nonattainment areas and no SO_2 budgets exist for these counties. As discussed above, portions of the 2010 Steubenville OH-WV SO_2 nonattainment area were also designated as nonattainment under the 1971 SO_2 standard. However, no SO_2 budgets exist for Jefferson County, OH or Brooke County, WV under the older SO_2 standard. Therefore, mobile source SO_2 emission budgets are not required for this area.

[6] http://www.epa.ohio.gov/portals/27/SIP/Attain/PM2_5/Steubenville-Weirton_PM25_annual_redesignation_FINAL.pdf
[7] http://www.epa.ohio.gov/portals/27/SIP/Attain/PM2_5_24hr/Steubenville-Wierton_PM25_24-hr_redesig_Final.pdf

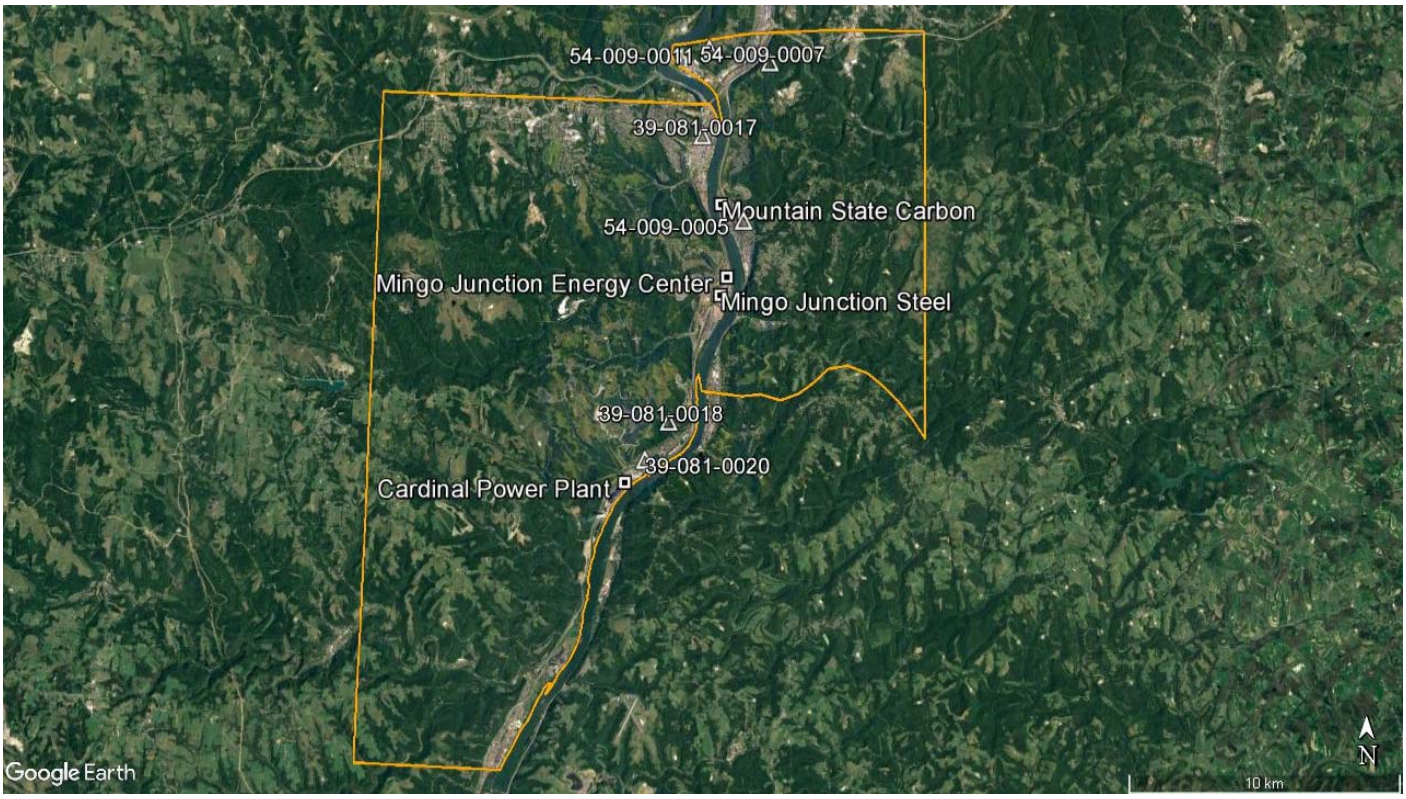
CHAPTER THREE: SO_2 Monitoring

CAA Section 107(d)(3)(E)(i)

Requirement 1 of 4: A demonstration that the NAAQS for 1-hour SO_2, as published in 40 CFR 50.17, has been attained.

There are six monitors measuring SO_2 concentrations in this nonattainment area. The monitors are operated by Ohio EPA's Southeast District Office (one monitor), the Cardinal Power Plant (two monitors)[8], and WVDEP (three monitors). The location of the monitoring sites for this nonattainment area are shown in Figure 1.

Figure 1 - Map of the Steubenville OH-WV nonattainment area and monitor locations



In accordance with 40 CFR Part 50, Appendix T, three complete years of monitoring data are required to demonstrate attainment at a monitoring site. The 1-hour SO_2 standard is

[8] Two additional monitors are a part of the Cardinal Power Plant monitoring network. One monitor is sited in West Virginia and is designated a NAAQS monitor (39-009-6000) but is outside of the nonattainment area boundaries. The second monitor is sited within the fenceline of Cardinal's substantial property and is therefore not designated a NAAQS monitor. All of Cardinal's monitors are QA/QC'd by Ohio EPA and operate under an approved Quality Assurance Project Plan meeting U.S. EPA regulatory requirements (see Ohio EPA's approved air monitoring network plan at http://epa.ohio.gov/dapc/ams/amsmain.aspx#126983982-air-monitoring-plan).

met at an ambient air quality monitoring site when the three-year average of the annual 99th percentile of 1-hour daily maximum concentrations is less than or equal to 75 ppb. The three-year average of the annual 99th percentile of 1-hour daily maximum concentrations is also called the site's "design value." To be complete, at least 75 percent of the days in each quarter of each of the three consecutive years must have at least one reported hourly value. Hourly SO_2 data are reported to U.S. EPA's Air Quality System (AQS). While calculating design values, one decimal place must be carried in the computations, with final values rounded to the nearest 1 ppb. Decimals 0.5 or greater are rounded up, and those less than 0.5 are rounded down. Values at or below 75 ppb meet the standard. Values greater than 75 ppb exceed the standard. An area is in compliance with the 1-hour SO_2 standard only if every monitoring site in the area meets the NAAQS. The air quality design value for the area is the highest design value among all sites in the area.

Demonstration: The most current, highest three-year average of the annual 99th percentile of 1-hour daily maximum concentrations, based on data from the monitoring sites in the area, is 38 ppb. A listing of the design value for 2014 through 2017 is shown in Table 1.

Table 1 - Monitoring data for the Steubenville OH-WV area for 2014 – 2017

Site	County	Year (ppb)				Average 2014-2016 (ppb)	Average 2015-2017 (ppb)
		2014	2015	2016	2017		
54-009-0005	Brooke, WV	33	49	33	28	38	37
54-009-0007	Brooke, WV	32	26	39	23	32	29
54-009-0011	Brooke, WV	48	35	49	27	44	37
39-081-0017	Jefferson, OH	30	29	27	18	29	25
39-081-0018	Jefferson, OH	38	50	31	34	40	38
39-081-0020	Jefferson, OH	24	23	20	13	22	19
	Less than 75% capture in at least one quarter						

Source: U.S. EPA Air Quality System (AQS); http://www.epa.gov/ttn/airs/airsaqs/index.htm

Requirement 2 of 4: Ambient monitoring data quality assured in accordance with 40 CFR 58.10, recorded in the AQS database, and available for public view.

Demonstration: Ohio EPA and WVDEP have quality assured all data shown in Appendix C in accordance with 40 CFR 58.10 and all other federal requirements. Ohio EPA and WVDEP have recorded the data in the AQS database and, therefore, the data are available to the public.

Requirement 3 of 4: A commitment that once redesignated, the state will continue to operate an appropriate monitoring network to verify the maintenance of the attainment status.

Demonstration: Ohio EPA commits to continue monitoring SO_2 levels at the Ohio sites, including those sites operated by Cardinal Power Plant, indicated in Figure 1 and Table 1. Ohio EPA will consult with U.S. EPA Region 5 prior to making changes to the existing monitoring network, should changes become necessary in the future. Ohio EPA will continue to quality assure the monitoring data to meet the requirements of 40 CFR 58 and all other federal requirements. WVDEP has made similar commitments regarding the monitors located in West Virginia as a part of their redesignation request and maintenance plan.

Requirement 4 of 4: Supplemental U.S. EPA-approved air quality modeling.

Where a monitor is located in the area of maximum concentration, a determination of attainment may be made based on monitoring data alone without the need for additional air quality modeling. When a nonattainment area has no monitors, or monitors not located in the area of maximum concentration, air quality dispersion modeling is *generally* needed to estimate SO_2 concentrations in the area. Provided source and emissions characteristics remain consistent, modeling conducted as a part of the attainment demonstration should suffice.

Demonstration: Ohio EPA prepared supplemental air quality modeling and submitted that modeling for approval as a part of Ohio's April 3, 2015 attainment demonstration SIP. Subsequently, WVDEP prepared supplemental air quality modeling and submitted that modeling for approval as a part of West Virginia's attainment demonstration SIP. Subsequent to that, U.S. EPA prepared supplemental air quality modeling to test the sensitivity of varying stack characteristics at Cardinal Power Plant. Lastly, Ohio EPA prepared updated supplemental air quality modeling as a part of this submittal and to support the final emissions limitation and attainment strategy adopted by Ohio EPA. Ohio EPA is requesting this updated supplemental air quality modeling replace the air quality modeling submitted as a part of Ohio's April 3, 2015 attainment demonstration SIP. The modeling efforts described above are discussed in more detail below.

Historical Supplemental Air Quality Modeling and Analyses:

Within the Steubenville OH-WV area there is one source categorized as an electric generating unit (EGU), Cardinal Power Plant, located in Ohio. There are no EGUs in the West Virginia portion of the area. There are four non-EGU sources in the Ohio portion and eight in the West Virginia portion. Cardinal Power Plant's 2011 emissions were 25,122.42 tons; however, it should be noted that by the beginning of 2012 Cardinal began operating a flue gas desulfurization (FGD) control device on their last remaining uncontrolled boiler thereby reducing future emissions significantly. Those 2011 emissions from Cardinal

accounted for 96% of SO_2 emissions in this area. Non-EGU emissions from both Ohio and West Virginia were 953.44 tons with the most significant source being Mountain State Carbon (WV) with 696.79 tons. Ultimately, Cardinal Power Plant (OH), Mountain State Carbon (WV), JSW Steel USA Ohio (the former Wheeling Pittsburgh Steel Plant, referred to as Mingo Junction Steel Works in the WVDEP attainment demonstration, hereinafter referred to as JSW Steel) (OH) and Mingo Junction Energy Center (OH) were selected for analysis. Their combined 2011 emissions accounted for 99% of the SO_2 emissions in the area. Therefore, Ohio EPA's attainment/control strategy analysis included these four sources.

As a part of Ohio's attainment demonstration SIP, Ohio EPA performed extensive modeling and weight-of-evidence analyses to determine if controls were necessary to provide for attainment of the 2010 SO_2 standard and ensure maintenance, once the standard was attained. These analyses demonstrated attainment of the standard and are discussed in greater detail in Appendix K of the attainment demonstration SIP (Appendix D).

Based on this analysis, Ohio submitted a SIP to U.S. EPA on April 3, 2015. Ohio EPA indicated in that submittal that federally enforceable emission limits for Ohio sources commensurate with the modeling and necessary to provide for attainment would be provided in a subsequent submittal after Ohio completes its rulemaking. Ohio promulgated regulations to address Ohio's final attainment strategy for the northern Ohio sources in Ohio EPA's SO_2 regulations under OAC Chapter 3745-18 and submitted these as part of the supplement to the attainment demonstration SIP submittal (Appendix M of the October 13, 2015 supplement to the attainment demonstration SIP). The following requirements were established:

JSW Steel:

- Reheat furnaces 2 to 4 (OEPA source numbers P006 to P008); a maximum of 1.0 pounds of sulfur dioxide per hour.
- Electric arc furnace number 1 (OEPA source number P913); a maximum of 105.0 pounds of sulfur dioxide per hour.
- Ladle metallurgical furnace to the electric arc furnace (OEPA source number P914); a maximum of 14.0 pounds of sulfur dioxide per hour.

Mingo Junction Energy Center:

- Units number 1 to 4 (OEPA source numbers B001 to B004) to exceed a maximum of 0.0028 pounds of SO^2 per MMBtu actual heat input from each boiler.

Ohio EPA did not establish emission limits for Cardinal Power Plant during the above rulemaking. In Ohio's attainment demonstration SIP, Ohio EPA modeled Cardinal Power Plant emissions as a high load scenario to determine the worst-case impact Cardinal Power Plant emissions would have on the ability to attain and maintain the 2010 SO_2 standard given the final strategy Ohio EPA identified for the northern sources.

Furthermore, Ohio used a hybrid approach to simulate the release of emissions for Cardinal's Unit 3 and Ohio EPA understand U.S. EPA considers this an alternative modeling approach that would require justification pursuant to the requirements of Section 3.2.2 of Appendix W, the Guideline on Air Quality Models. Therefore, Ohio is no longer pursuing this approach, Ohio no longer seeks consideration of that modeling, and Ohio intends for U.S. EPA to rely on the modeling presented in the Section below titled "Current Supplemental Air Quality Modeling and Analyses" instead.

The federally enforceable emission limit established for Mingo Junction Energy Center was more stringent than the critical value identified in Ohio's modeling analysis submitted on April 3, 2015. This was based on new developments that occurred since the April 3, 2015 submittal related to Mountain State Carbon. Historically, Mountain State Carbon supplied coke oven gas (COG) (and sometimes desulfurized COG) to both the former Wheeling Pittsburgh Steel Plant (now JSW Steel) and Mingo Junction Energy Center. The COG was burned at either the boiler(s) at Mingo Junction Energy Center or in the reheat furnaces at the former Wheeling Pittsburgh Steel Plant. However, as a part of an agreement between Mountain State Carbon, Ohio EPA and WVDEP, Mountain State Carbon was to disconnect the COG pipeline (completed on August 5, 2016) ensuring COG would no longer be burned at either facility. In addition, both facilities historically had the option to burn blast furnace gas from the former Wheeling Pittsburgh Steel Plant. The blast furnace was permanently shut down and dismantled years ago. Therefore, blast furnace gas can no longer be burned at either facility.

As part of Ohio's rulemaking for the northern Ohio sources, a compliance schedule was incorporated that provided for compliance no later than January 1, 2017.

Additionally, WVDEP entered into a consent decree (CO-SIP-C-2017-9) with Mountain State Carbon requiring permanent and enforceable emission reductions in SO_2. Details on those reductions required can be found in WVDEP's attainment plan submitted on April 25, 2016. WVDEP's modeling submitted with their attainment plan (Appendix E) included minor adjustments to the SO_2 emissions for Mingo Junction Energy Center and Mountain State Carbon when compared to those emissions modeled by Ohio EPA in our attainment demonstration SIP. This was as a result of the disconnection of the COG pipeline discussed above and as a result of the emission reductions required under the consent decree, which was finalized after Ohio EPA submitted our attainment demonstration SIP. Emissions for the other sources, including Cardinal Power Plant, were modeled by WVDEP consistent with Ohio EPA. However, WVDEP did use varying stack characteristics for Cardinal Power Plant when compared to Ohio EPA's modeling.

Ohio's sources (Mingo Junction Energy Center, JSW Steel and Cardinal Power Plant) are in compliance with the current federally enforceable emission limits. Mountain State Carbon in West Virginia is also in compliance with the current enforceable emission limits and the consent decree to the best of Ohio's knowledge.

Subsequent to the October 13, 2015 supplement to the attainment demonstration SIP submittal with finalized supporting regulations, Ohio EPA submitted another supplement to the attainment demonstration SIP on March 13, 2017. This submittal included amendments to Ohio EPA's regulations incorporating emission limits equivalent to limitations in Cardinal Power Plant's federally enforceable permits which were more stringent than the emission limits established in Ohio's first SO_2 SIP established under the 1971 SO_2 standard and included the removal of a provision from the older SIP allowing two exceedances to be used in a 30-day compliance determination. However, this level of emission limits was not set based on supplemental air quality modeling used to demonstrate attainment, and maintenance, of the 2010 SO_2 standard.

Based upon both the Ohio EPA and WVDEP modeling discussed above, U.S. EPA conducted additional supplementary modeling analyses using the same emissions rates as those modeled by WVDEP that contained the most current emission limits for all sources except Cardinal Power Plant (Appendix G). For Cardinal Power Plant, U.S. EPA modeled the same high load scenario emission rate that both Ohio EPA and WVDEP had modeled. However, U.S. EPA's analyses assessed the impact of alternative treatments for the release of emissions from the stacks at Cardinal Power Plant (compared to the characteristics modeled by Ohio EPA and WVDEP) and assessed the impact of expressing the various stack limits as a combined facility-wide limit. Ultimately, all three sets of analyses conducted by Ohio EPA, WVDEP and U.S. EPA identified attainment and maintenance of the 2010 SO_2 standard would be achieved at those modeled emission rates regardless of the stack characteristics assumed for Cardinal Power Plant and when converting the unit specific limits into a facility-wide limit. In addition, U.S. EPA's analyses also included an analysis of emissions data from the Cardinal Power Plant to estimate the degree of adjustment that would be needed to obtain a 30-day average limit that could be comparably stringent to the 1-hour facility-wide limit obtained from the high load scenario modeled by U.S. EPA.

Current Supplemental Air Quality Modeling and Analyses:

For SO_2, U.S. EPA requires federally enforceable emission limits demonstrated to assure continued attainment as a prerequisite for attainment plan approval and redesignation. As noted above, no prior SIP submittal by Ohio EPA incorporated federally enforceable emission limits consistent with modeled attainment demonstration rates for Cardinal Power Plant and therefore, Ohio's SIP did not fully provide for continued attainment. In order to meet this requirement for Cardinal Power Plant (Facility ID 0641050002), additional, more current, supplemental air quality modeling and analyses were conducted and an emission limit was established concurrent with this redesignation request. Effective July 5, 2019, Ohio EPA adopted revisions to OAC Chapter 3745-18 containing a federally-enforceable, 30-day rolling average combined SO_2 emission limit of 4,858.75 lb/hr for the coal-fired boiler Units 1, 2 and 3 (B001, B002 and B009) (Appendix B).

The emission limit for Cardinal Power Plant was derived from updated supplemental air quality modeling conducted by Ohio EPA (Appendix A) to determine the final SO_2

attainment rate (critical value) that will provide for attainment and maintenance when modeled along with the enforceable emission rates for other sources in the area already established by Ohio EPA and WVDEP as a part of the prior analyses and submittals discussed above. These prior enforceable emission rates were consistent with the rates contained in the modeling conducted by WVDEP as part of their attainment demonstration (Appendix E)[9] and the supplemental modeling conducted by U.S. EPA (Appendix G). Ohio EPA performed modeling analyses to support this final attainment rate (critical value) as follows (and described in more detail in Appendix A):

- Ohio EPA reanalyzed the background concentration determined previously by Ohio EPA and WVDEP based on more current emission sources and using more current air quality data. The background concentration used in the historical modeling discussed above was based upon 2007-2009 air quality data. As discussed in the SO_2 nonattainment area SIP guidance, U.S. EPA suggests developing background concentrations using monitored design values for the latest 3-year period, regardless of the years of meteorological data used in the modeling. In addition, since the historical modeling discussed above was conducted, Ohio EPA began operating a background monitor nearby as a part of a preconstruction permitting project. The 2016-2018 design value of 5 ppb from this monitor is representative of background for this area.
- Ohio EPA compared the modeling conducted by WVDEP and U.S. EPA using Cardinal Power Plant's high load scenario emissions rates and determined the U.S. EPA modeling was controlling in that the sensitivity analyses performed to ensure a facility-wide limit would continue to provide for attainment and maintenance showed the most significant impacts. Specifically, U.S. EPA modeled three scenarios that include: 1) the high load scenario emissions apportioned to each of Cardinal Power Plant's three units (Unit 1, Unit 2 and Unit 3), 2) the sum of all those emissions apportioned to a combined Unit 1 and Unit 2 stack[10], and 3) the sum of all those emissions apportioned to the Unit 3 stack. It was found that the most significant impacts occurred with the scenario of the sum of all emissions apportioned to a combined Unit 1 and Unit 2 stack.
- Using the modeling conducted by U.S. EPA, Ohio EPA performed modeling to determine an SO_2 attainment rate (critical value) for the controlling scenario of the sum of all emissions apportioned to a combined Unit 1 and Unit 2 stack at Cardinal Power Plant. All other sources were modeled at the final Ohio EPA and WVDEP emission rates. Other than adjusting the background concentration consistent with more current data, all other parameters and characteristics of the modeling remained consistent with U.S. EPA's.

[9] WVDEP used an alternative modeling approach using a combination of the Buoyant Line and Point Source model (BLP) and the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) to represent fugitive emissions from the four coke oven batteries at Mountain State Carbon. This alternative modeling approach received concurrence from U.S. EPA's Model Clearinghouse on October 26, 2018. On March 11, 2019, U.S. EPA Region 5 requested concurrence from the Model Clearinghouse on the use of this same approach to characterizing emissions from Mountain State Carbon in Ohio's updated supplemental modeling. The Model Clearinghouse concurred on March 14, 2019 (Appendix F).

[10] U.S. EPA's TSD contained in Appendix G provides justification for this plume merging.

- Ohio conducted additional modeling to assure that a plant-wide Cardinal Power Plant emission limit is justified, i.e. that the limit provides for attainment under the full range of permissible distributions of emissions among the stacks at Cardinal Power Plant. This modeling used U.S. EPA's source characterizations at Cardinal Power Plant and the SO_2 attainment rate (critical value) identified by Ohio EPA in the above step. This modeling demonstrated that attainment and maintenance of the 2010 SO_2 standard would be achieved at the SO2 attainment rate (critical value) when converting the unit specific limits into a facility-wide limit. Again, other than adjusting the background concentration consistent with more current data, all other parameters and characteristics of the modeling remained consistent.
- Lastly, Ohio EPA applied the same adjustment factor established in U.S. EPA's analysis of emissions data from the Cardinal Power Plant to estimate the degree of adjustment that would be needed to obtain a 30-day average limit that could be comparably stringent to the 1-hour facility-wide limit obtained from the final attainment rate modeling scenario conducted by Ohio EPA.

Ohio EPA's updated supplemental air quality modeling demonstrates the final control strategies at all four sources (as shown in Table 2) will provide for attainment and maintenance of the standard. The final design value modeled for this area at these emissions rates is 73.44 ppb. Ohio EPA also ensured this final control strategy would not interfere with attainment and maintenance of the standard outside the boundaries of the nonattainment area, given the complex terrain in the area.

Based on this updated modeling, a critical emission value of 6,942.18 lb/hr combined for the three coal-fired boilers was identified. A combined limitation is appropriate in this case because emissions from the three units should be largely interchangeable at the location of Cardinal's more significant impact near Mountain State Carbon (approximately 12-13 miles to the north). Informed by an analysis of 2013-2017 CAMD Data, the hourly emission limit was converted to a 30-day rolling average limit of 4,858.75 lb/hr[11]. The 30-day limit, derived in accordance with the procedures outlined in U.S. EPA's April 23, 2014 SO_2 nonattainment area SIP guidance, is considered to be of comparable stringency to the 1-hour limit at the critical emission value.

[11] Adjustment factor of 70.0% was calculated based on combined emissions from units 1, 2 and 3, with corrections to select instances of Part 75 substitutions which were skewing the calculation.

Table 2 - Steubenville OH-WV Modeled Attainment Rates and SO_2 Emission Limits

Facility	Source ID	WV/U.S. EPA Modeled Rate (lb/hr)	Final Ohio EPA Modeled Rate (lb/hr)	SO_2 Limit (lb/hr unless noted otherwise)
Mingo Junction Energy Center	Unit 1	0.5	0.5	0.0028 lb/mmBTU[12]
	Unit 2	0.5	0.5	0.0028 lb/mmBTU[12]
	Unit 3	0.5	0.5	0.0028 lb/mmBTU[12]
	Unit 4	0.5	0.5	0.0028 lb/mmBTU[12]
JSW Steel USA Ohio[13]	Reheat Furnace 2	1	1	1
	Reheat Furnace 3	1	1	1
	Reheat Furnace 4	1	1	1
	LMF	14.0	14.0	14.0
	EAF	105.0	105.0	105
Mountain State Carbon[14]	Battery 1 Fugitives	3.5	3.5	N/A
	Battery 2 Fugitives	3.5	3.5	N/A
	Battery 3 Fugitives	3.5	3.5	N/A
	Battery 8 Fugitives	16.1	16.1	N/A
	Battery 1-2-3 Pushing	10.48[15]	10.48	10.48
	Battery 8 Pushing Scrubber	15.7	15.7	15.72
	Acid Stack	6.0	6.0	6.0
	Boiler 10	90.0	90.0	85.7 (24-hour average)[16]
	Boiler 6			
	Boiler 7			
	Boiler 9			
	COG Flare	139.8	139.8	7.1 MMCF/day[17]
	Battery 1 Stack	22.9	22.9	21.4 (24-hour average)[16]
	Battery 2 Stack	22.9	22.9	21.4 (24-hour average)[16]
	Battery 3 Stack	25.7	25.7	24.5 (24-hour average)[16]
	Battery 8 Stack	122.1	122.1	115.4 (24-hour average)[16]
Cardinal	Unit 1	2621.0	6,942.18	4,858.75 lb/hr (30-day rolling average)[18]
	Unit 2	2121.7		
	Unit 3	1259.9		

[12] Equivalent to modeled rate.
[13] former Wheeling Pittsburgh Steel Plant (referred to as Mingo Junction Steel Works in WV Attainment Demonstration).
[14] Modeled emission rates and SO_2 Limits for Mountain State Carbon representative of emissions during desulfurization plant operation. During maintenance outages, the Consent Order establishes applicable requirements including, but not limited to, a limit on the sulfur content of the coal and reduced operations.
[15] WVDEP identified a discrepancy between modeled emission rates identified in the WVDEP Attainment Demonstration (Appendix E, Table A-5) and actual modeled rates for these units. The data in this table represents actual modeled rates as confirmed by WVDEP.
[16] Equivalent 24-hour limits based on adjustment factor computed in accordance with U.S. EPA's April 23, 2014 SO_2 nonattainment area SIP guidance, as described in WVDEP Attainment Demonstration Modeling, Averaging Period Analysis (see Appendix E).
[17] Current permit limit. Modeled rate is higher due to potential future increased limit to 24 MMCF/day.
[18] 30-day rolling average was derived from critical emission rate value of 6,942.18 lb/hr (modeled emission rate for all three boilers combined), based on adjustment factor computed in accordance with U.S. EPA's April 23, 2014 SO_2 nonattainment area SIP guidance (see Appendix G).

CHAPTER FOUR: Emission Inventory

CAA Section 107(d)(3)(E)(iii)

U.S. EPA's redesignation guidance requires the submittal of a comprehensive inventory of SO_2 emissions representative of the year when the area achieves attainment of the 1-hour SO_2 air quality standard. Ohio also must demonstrate that the improvement in air quality between the year that violations occurred and the year that attainment was achieved is based on permanent and enforceable emission reductions. Other emission inventory related requirements include a projection of the emission inventory to a year at least 10 years following redesignation; a demonstration that the projected level of emissions is sufficient to maintain the 1-hour SO_2 standard; and a commitment to provide future updates of the inventory to enable tracking of emission levels during the 10-year maintenance period.

Requirement 1 of 4: A comprehensive emission inventory of SO_2 completed for the base year and a projection of the emission inventory to a year at least 10 years following redesignation.

Periodic inventories, which include emissions from all sectors - mobile, area, non-road, and point sources - are prepared 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 OH-WV area. The 2011 inventory is used as the base year for the purpose of this submittal and coincides with the base year inventory submitted to U.S. EPA to fulfill all emission inventory requirements under the 2010 SO_2 standard.

For the attainment year, 2014 was selected since it corresponds to one of the years in the design values showing attainment (2014 – 2016 and 2015 – 2017). The 2014 attainment year also corresponds to the year where the permanent and enforceable improvement in air quality leading to attainment occurred due to Cardinal's installation of the FGD for its only remaining uncontrolled unit (operating beginning in 2012), ceasing of operations at Mingo Junction Energy Center (last operated in 2012) and the enforceable emission reduction measures at Mountain State Carbon (discussed in greater detail in WVDEP's redesignation request and maintenance plan).

Ohio EPA selected the year 2030 as the maintenance year for this redesignation request. This document contains projected emission inventories for 2023 (interim year) and 2030.

The information below describes the procedures Ohio EPA used to generate the 2011 base year inventory, 2014 attainment inventory and future year emission projections.

For each of West Virginia's sectors, Ohio EPA used WVDEP data as contained in the WVDEP's redesignation request and maintenance plan with the following exceptions:

- WVDEP provided Ohio EPA with 2014 point source data (EGUs and non-EGUs) from their State & Local Emissions Inventory System (SLEIS) (Appendix H).
- Ohio EPA assumed 2014 non-road, other and on-road emissions were the same as 2016 emissions as contained in WVDEP's redesignation request and maintenance plan.

For each of Ohio's sector as follows:

- Non-road, other and on-road 2014 emissions were collected from the 2014NEIv1 data available on U.S. EPA's National Emissions Inventory website[19].
- 2014 actual point emissions (for EGUs and non-EGUs) were derived from state inventory databases (e.g., Ohio's Emission Inventory System (EIS) database which serves as the basis for the NEI).
- Non-road, point source (EGUs and non-EGUs), other and on-road emissions were collected from the data available on U.S. EPA's Air Emissions Modeling website[20]. Using Emissions Modeling platform 2011v6.3, data were collected for the 2011 National Emissions Inventory (NEI) year and the 2017, 2023 and 2028 U.S. EPA-projected inventories. Therefore, 2011 point emissions are actual reported emissions from the 2011 NEI.
    - Specific versions of the 2011v6.3 platform used were 2011el, 2017ek, 2023el and 2028el. Differences between the ek and el platforms are not expected to be significant in the Steubenville OH-WV area as updated emissions were primarily for California, Mexico and Canada[21].
- Using the above datasets:
    - Adjustments were made to 2011 EGU emissions. U.S. EPA included Mingo Junction Energy Center in the EGU sector and Ohio EPA moved this source to the non-EGU sector. U.S. EPA reported Cardinal Power Plant emissions as 25,121.83 tons while Ohio EPA's EIS identified 25,122.42 tons. Ohio's data was used.
    - Adjustment was made to the 2011 non-EGU emissions. U.S. EPA reported Mingo Junction Energy Center emissions as 222.46 tons while Ohio EPA's EIS identified 222.48 tons. Ohio's data was used.
    - Adjustment was made to 2023 and 2028 emissions for the non-EGU sector. In the 2023el and 2028el, U.S. EPA projected emissions from all non-EGU facilities (including Mingo Junction Energy Center) to gradually decrease from 2011 levels: However, all four of the non-EGU sources in this area have ceased operations with the two largest non-EGUs, Mingo Junction Energy Center last operating in 2012 and the former Wheeling Pittsburg Steel Plant, now JSW Steel, last operating in 2009[22]. For Mingo Junction Energy Center, non-EGU emissions were kept at 2014 levels for 2023 and 2030. Even if Mingo Junction

[19] https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data
[20] https://www.epa.gov/air-emissions-modeling/2011-version-63-platform
[21] https://www.epa.gov/sites/production/files/2017-11/documents/2011v6.3_2028_update_emismod_tsd_oct2017.pdf (see p. 5)
[22] Minimal emissions have been reported for some facilities due to ancillary activities at roadways or for space heating of remaining structures. All significant SO2 operations have ceased.

Energy Center were to resume operation, any SO_2 emissions would be minimal due to the restriction on types of gas that could be burned. As the former Wheeling Pittsburg Steel Plant, now JSW Steel, is planning to resume operations of the electric arc furnace (EAF), average 2005-2008[23] historical emissions for the EAF (P013) and the ladle metallurgical furnace (LMF, P014) were added back in to the 2023 and 2030 projections. Historical emissions from the reheat furnaces were considered as they will no longer be burning coke oven gas or blast furnace gas. There are no other remaining SO_2 sources at JSW Steel.

- Adjustment was made to 2023 and 2028 emissions for the EGU sector. After Mingo Junction Energy Center was moved to the non-EGU sector, only Cardinal Power Plant remained in the area. In the 2023el and 2028el, U.S. EPA projected emissions to decline by 25% between 2011 and 2023 and 7% between 2023 and 2028. In actuality, after the final FGD was installed on the remaining coal fired boiler, emissions have declined by 62% on average from 2012 to 2016. Were Ohio EPA to assume U.S. EPA's 2023 and 2028 projections were accurate that would increase the post FGD average emissions by 49% and 45%, respectively. This is unrealistic. Cardinal Power Plant's 2012 to 2016 emissions have remained steady as can be seen from Figure 2 under Requirement 2 of 4 below. Although Ohio EPA finalized a federally-enforceable emission limit to Cardinal Power Plant which affected allowable emissions, Ohio EPA does not anticipate any change to actual emissions. Therefore, Ohio EPA assumed 2023 and 2030 emissions would remain consistent with the average 2012 to 2016 post-FGD emissions.
- 2030 emissions for non-road, other and on-road sectors were assumed equivalent to those from the 2028 U.S. EPA-projected emissions (2028el), after the above adjustments were made.

- County-wide non-road, other and on-road emissions were adjusted to city and township level emissions using population ratios and VMT ratios consistent with those used in the attainment demonstration SIP[24]. For non-road and other emissions, the county-wide emissions were adjusted to township level emissions for partial nonattainment areas using a population ratio based on population in each township compared to the entire county during 2011. For on-road emissions, the county-wide emissions were adjusted to township level based on the Vehicles Miles Traveled (VMT) ratio of each township to the entire county. In this case, the ratio developed from projected 2011 VMT was used as it was slightly higher, and therefore more conservative, than 2018 VMT.
- Biogenic emissions are not included in these summaries.

[23] EAF and LMF operated from 2004 to 2009. Partial years (2004 and 2009) were not included in the average annual emissions.
[24] http://epa.ohio.gov/portals/27/SIP/SO2/B1_10SO2Att_Inventory.pdf

Demonstration: Sectors included in Table 3, 4 and 5 are: Electrical Generating Unit (EGU-Point); Non-Electrical Generating Unit (Non-EGU); Non-road Mobile (Non-road); Other (Area); and On-road Mobile (On-road).

Table 3 - Ohio portion SO_2 emission inventory totals for base year 2011, attainment 2014, and projected 2023 and 2030 (tpy)

Sector	2011 Base	2014 Attainment	2023 Interim	2030 Maintenance	Safety Margin
EGU Point	25,122.42	10,660.65	9,602.02	9,602.02	1,058.63
Non-EGU	223.44	0.02	198.03	198.03	-198.01
Non-road	0.29	0.23	0.14	0.15	0.08
Other	62.13	57.76	56.67	56.35	1.41
On-road	3.52	3.46	1.38	1.32	2.14
TOTAL	25,411.80	10,722.12	9,858.24	9,857.87	864.25

Table 4 – West Virginia portion SO_2 emission inventory totals for base year 2011, attainment 2014, and projected 2023 and 2030 (tpy)

Sector	2011 Base	2014 Attainment	2023 Interim	2030 Maintenance	Safety Margin
EGU Point	0.00	0.00	0.00	0.00	0.00
Non-EGU	730.00	466.99	382.00	381.00	85.99
Non-road	0.02	0.01	0.01	0.01	0.00
Other	145.02	144.69	143.00	142.43	2.26
On-road	2.07	2.02	0.79	0.74	1.28
TOTAL	877.11	613.71	525.8	524.18	89.53

Table 5 – Combined Steubenville OH-WV SO_2 emission inventory totals for base year 2011, attainment 2014, and projected 2023 and 2030 (tpy)

	2011 Base	2014 Attainment	2023 Interim	2030 Maintenance	Safety Margin
Ohio Portion	25,411.80	10,722.12	9,858.24	9,857.87	864.25
West Virginia Portion	877.11	613.71	525.8	524.18	89.53
COMBINED TOTAL	26,288.91	11,335.83	10,384.04	10,382.05	953.78

As part of the redesignation request and maintenance plan, motor vehicle emission budgets must be established unless it is determined mobile sources are insignificant contributors for a specific pollutant. As discussed under Section 5.b.ii of Chapter Two, mobile SO_2 emissions are considered an insignificant contributor under the 2010 SO_2 NAAQS for this area.

Requirement 2 of 4: A demonstration that the projected level of emissions is sufficient to maintain the SO_2 standard.

Maintenance is demonstrated either by showing that future emissions of SO_2 will not exceed the level of the attainment inventory at levels that could cause a violation of the NAAQS, or by modeling to show that the future mix of sources and emission rates will not cause a violation of the NAAQS.

A maintenance demonstration should also include a listing of all SO_2 control measures being implemented in the area by sector (See Chapter Five).

Demonstration: As discussed under Requirement 4 of 4 in Chapter Three, a modeling analysis of the future mix of sources and control measures was conducted as a part of this submittal and that analysis demonstrated attainment would be achieved and maintained.

In addition to the modeling analysis, emission trends are an important gauge for continued compliance with the SO_2 standard. Therefore, to meet this requirement, Ohio EPA also performed an initial comparison of the inventories for the base year and maintenance years identified in Requirement 1 of 4 of this Chapter. Maintenance is demonstrated when the future-year (2030) projected emission totals are below the 2014 attainment year totals.

Table 6 – Steubenville OH-WV area comparison of 2014 attainment year and 2023 and 2030 projected emission estimates (tpy)

	2014 Attainment	2023 Interim	2023 Projected Decrease	2030 Maintenance	2030 Projected Decrease
SO_2	11,335.83	10,384.04	951.79	10,382.05	953.78

As shown in the Table 6 above, SO_2 emissions in the nonattainment area are projected to decrease by just over 950 tpy in both 2023 and 2030 from 2014 attainment levels. This drop in emissions from the attainment year in conjunction with the fact that the entire nonattainment area's total emissions will be approximately 10,380 tpy after the attainment year demonstrates maintenance.

Requirement 3 of 4: A demonstration that improvement in air quality between the year violations occurred and the year attainment was achieved is based on permanent and enforceable emission reductions and not on temporary adverse economic conditions or unusually favorable meteorology.

Permanent and enforceable reductions should be a result of emission limitations in the SIP. In making this showing, sufficient quantitative information about emission reductions should be provided to demonstrate the improvement in air quality is attributed to permanent and enforceable measures.

Demonstration: Permanent and enforceable reductions of SO_2 emissions have contributed to the attainment of the 1-hour SO_2 standard in this area.

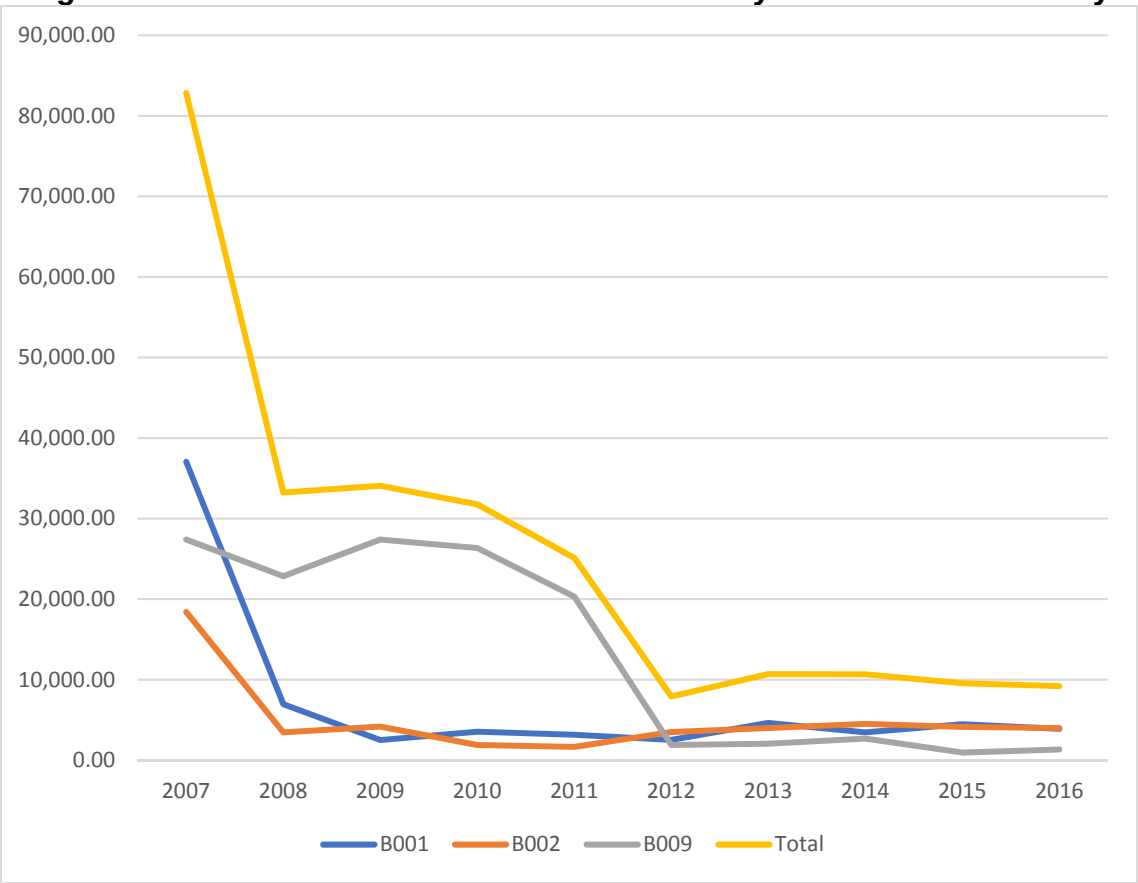
As demonstrated in Table 7 below, permanent and enforceable reductions were realized in this area due to the installation of an FGD at the last remaining coal-fired boiler at Cardinal Power Plant in the fall of 2011, which the recent revisions to OAC Chapter 3745-18 referenced above makes permanent and enforceable. Significant reductions at Mingo Junction Energy Center and other non-EGUs also occurred due to ceasing operations. Although unexpected, if Mingo Junction Energy Center were to operate again, emissions would not be able to increase to 2011 levels due to the restriction eliminating the burning of COG and blast furnace gas at this facility as a result of Ohio's attainment demonstration SIP. Although JSW Steel is planning to resume operations, only the EAF and LMF can operate at previous levels, and commensurate with the SIP limits, due to the discontinuation of coke oven gas and blast furnace gas as fuel options. In addition, WVDEP entered into a consent decree with Mountain State Carbon requiring permanent and enforceable emission reductions in SO_2. Details on those reductions required can be found in WVDEP's redesignation request and maintenance plan.

Table 7 – Steubenville OH-WV area comparison of 2011 base year and 2014 attainment year EGU and non-EGU reductions

SO_2	**2011**	**2014**
Cardinal Power Plant	25,122.42	10,660.65
Mingo Junction Energy Center	222.48	0.00
Mountain State Carbon	696.79	366.72

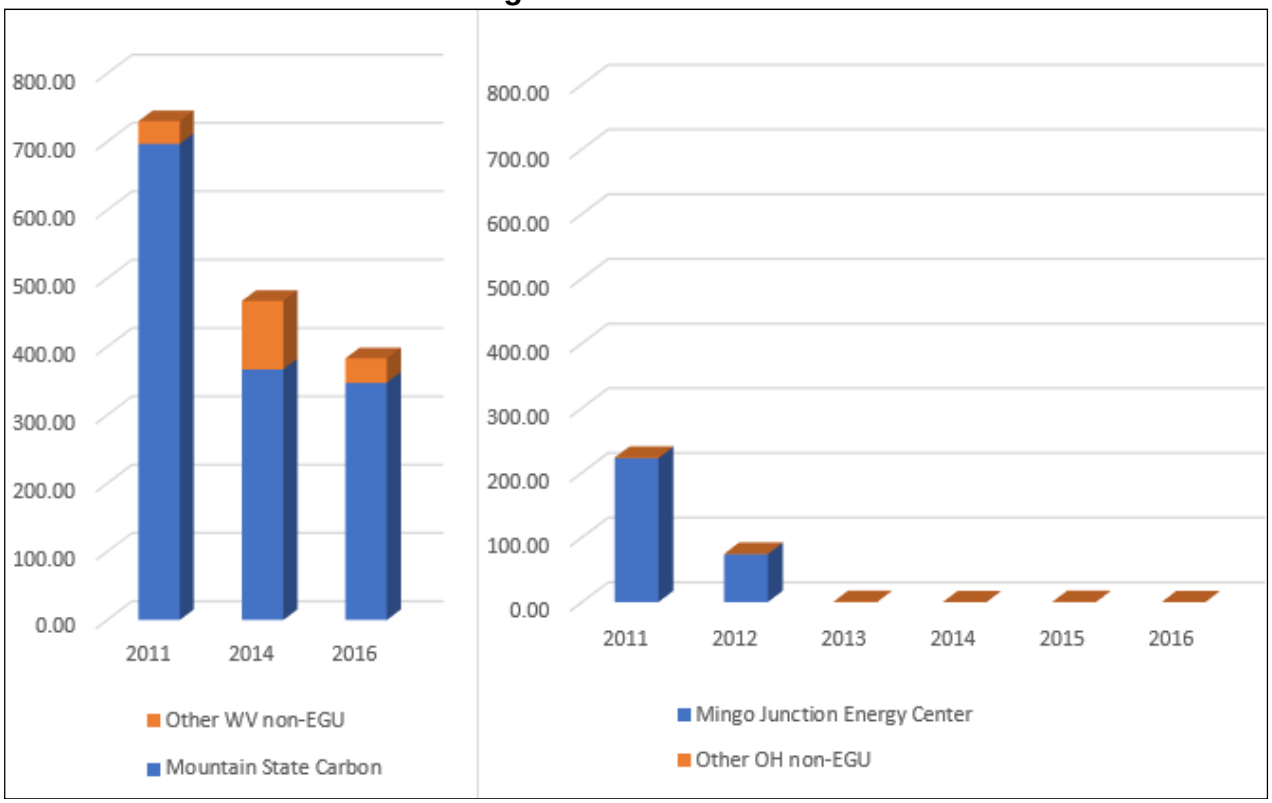
The Cardinal Power Plant is comprised of three coal-fired boilers: B001, B002 and B009 are capable of 5,275 MMBtu/hr, 5,275 MMBtu/hr, and 5,975 MMBtu/hr, respectively. All are equipped with state-of-the-art FGD systems for reducing SO_2 emissions. B001, B002 and B009 FGDs came on line in spring of 2008, winter of 2007, and fall of 2011, respectively. Emissions have remained steady for each unit, and the entire facility, since all FGDs were online (2012 to present). Emissions of SO_2, by unit and for the entire facility (including insignificant emissions units), from 2007 through 2016 can be seen in Figure 2 below. As noted previously, Ohio EPA finalized a federally-enforceable emission limit to Cardinal Power Plant effective July 5, 2019 (Appendix B), which assures that these reductions are permanent and enforceable.

Figure 2: Cardinal Power Plant SO_2 emissions by unit and entire facility



Mingo Junction Energy Center is comprised of four boilers capable of burning natural gas/blast furnace gas/COG: B001, B002, B003 and B004 each capable of 180 MMBtu/hr. Although this facility remains permitted to operate, it has not operated since 2012 and Ohio EPA has been unsuccessful in locating current ownership. Ohio EPA does not anticipate the need for, or desire for, this facility to operate in the future. However, as a result of Ohio's attainment demonstration SIP, these units are restricted to an emission limit of 0.0028 pounds of SO_2 per MMBtu actual heat input from each boiler. The fact that COG is no longer available due to Mountain State Carbon's agreement resulting in disconnection of the COG pipeline, that the former Wheeling Pittsburg Steel (now JSW Steel) permanently dismantled their blast furnace, and that such a restriction on emissions is now in the SIP, these units will only be able to burn natural gas if they were to operate in the future. Emissions of SO_2 from 2011 through 2016 can be seen in Figure 3 below. Figure 3 also displays emissions of SO_2 for all other Ohio non-EGUs, Mountain State Carbon in West Virginia and all other non-EGUs in West Virginia.

Figure 3: Mingo Junction Energy Center, Mountain State Carbon, and all other Ohio and West Virginia non-EGU SO_2 emissions



Inventories of SO_2 emissions for Ohio and West Virginia EGU and non-EGU sources can be found in Appendix H.

In addition to the above, emissions of SO_2 are limited by new source performance standards (NSPS) under Sections 111 and 129 of the CAA; and the national emission standards for hazardous air pollutants (NESHAP) under Section 112 of the CAA. Several recent U.S. EPA air quality regulations on EGUs and other large sources (such as various types of boilers and incinerators) have the potential to significantly reduce SO_2 emissions further, for example, the Mercury and Air Toxics Standards (MATS). Under MATS, EGUs meeting specific criteria may choose to demonstrate compliance with alternative SO_2 emission limits in lieu of demonstrating compliance with HCl emission limits. Also, Title IV of the CAA, CAIR, CSAPR and federal consent decrees required the reduction of SO_2 emissions from EGUs throughout the nation and will continue to achieve further reductions. U.S. EPA notes that for facilities subject to the previously listed MACT and regional interstate transport rules (such as CAIR and CSAPR), additional control measures may not be necessary to demonstrate compliance with the 1-hour SO_2 NAAQS.

In addition to permanent and enforceable reductions for point sources, several regulations have led, and will continue to lead, to further reductions of SO_2 from other sectors. Examples include the application of tighter federal standards on non-road diesel vehicles

(Clean Air Non-road Diesel Rule), requirements to reduce the sulfur content of various motor fuels including low-sulfur diesel fuel standards phased in from 2004 through 2007 for larger on-road vehicles (Highway Heavy Duty Engines Rule), and the application of tighter federal standards on new vehicles.

Requirement 4 of 4: Provisions for future annual updates of the inventory to enable tracking of the emission levels, including an annual emission statement from major sources.

Demonstration: In Ohio, major point sources in all counties are required to submit air emissions information annually, in accordance with U.S. EPA's Consolidated Emissions Reporting Rule (CERR). Ohio EPA prepares a new periodic inventory for all SO_2 emission sectors every three years. These SO_2 inventories will be prepared for future years as necessary to comply with the inventory reporting requirements established in the CFR. Emissions information will be compared to the 2011 base year and the 2030 projected maintenance year inventories to assess emission trends, as necessary, and to assure continued compliance with the 1-hour SO_2 standard.

CHAPTER FIVE: Control Measures and Regulations

CAA Section 107(d)(3)(E)(ii), 107(d)(3)(iii), and 107(d)(3)(E)(v)

Requirement 1 of 6: Section 172(c)(1) of the 1990 Clean Air Act Amendments requires states with nonattainment areas to implement RACM and RACT.

Section 172(c)(1) requires states with nonattainment areas to submit a SIP providing for implementation of all Reasonably Available Control Measures (RACM) as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of Reasonable Available Control Technology (RACT)). The SO_2 nonattainment area SIP guidance also provides that to the extent that U.S. EPA has promulgated national and regional rules that will require significant SO_2 emission reductions in the period after areas are designated as nonattainment, "expeditious attainment" may in many cases mean that attainment will be possible earlier than the attainment date.

Demonstration: RACM and RACT requirements are established as part of the attainment demonstration SIPs. Ohio EPA performed a RACM/RACT analysis for this area and submitted the demonstration with our attainment demonstration SIP.

The SO_2 nonattainment area SIP guidance also provides that to the extent that U.S. EPA has promulgated national and regional rules that will require significant SO_2 emission reductions in the period after areas are designated as nonattainment, "expeditious attainment" may in many cases mean that attainment will be possible earlier than the attainment date. The SO_2 nonattainment area SIP guidance references programs such as the MATS for EGUs and MACT standards for industrial, commercial and institutional (ICI) boilers. U.S. EPA acknowledges that the control strategies sources may use to comply with these federal programs may also provide for significant SO_2 emission reductions and additional control measures may not be necessary to meet the requirements under the SO_2 standard.

Ohio EPA analyzed RACM/RACT for the three major sources in the Ohio portion of the Steubenville OH-WV nonattainment areas that emitted at least 99% of Ohio's portion of the nonattainment area's SO_2 emissions. Ohio EPA determined that no additional RACM/RACT requirements are needed beyond those already established in OAC Chapter 3475-18; those that will be required under federal measures such as the MATS or MACT that provide for equivalent or better control than RACM/RACT; or those reductions that will be required as a part of Ohio's attainment/control strategy discussed under Chapter 7 of the attainment demonstration SIP and are equivalent to or more stringent than RACM/RACT. Below is a discussion for the Ohio portion of the Steubenville OH-WV area supporting this finding and demonstrating RACM/RACT is met.

Three sources are located in the Ohio portion of this area: AEP Cardinal Power Plant, JSW Steel and the Mingo Junction Energy Center.

AEP Cardinal Power Plant (Facility ID 0641050002) is a well control (FGD) coal burning power plant already meeting current RACT/RACM requirements (FGD level control). Ohio EPA's finalization of a federally-enforceable emission limit to Cardinal Power Plant effective July 5, 2019 (Appendix B) assures that this source will continue to implement this level of control.

At the time of the RACT/RACM analysis, the JSW Steel was undergoing a purchase agreement in hopes of resuming operations of the remaining Electric Arc Furnace (EAF) that processes (melts) scrap steel. The facility is in the process of resuming operation of the EAF. Current emission control equipment employed for the EAF consists of a baghouse for the control of PM emissions. Potential SO_2 emission controls include wet scrubbing, spray dryer absorption and dry sorbent injection. However, these emission control technologies are not technically feasible for EAF operations for various reasons. In addition, the RACT BACT Clearing House (RBLC) did not identify any EAF that employs add-on SO_2 emission controls.

To date, recommended 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, resumption of the EAF at JSW Steel would meet current RACT/RACM requirements. It should also be noted that the EAF employs the CONSTEEL technology which is considered one of the most environmentally friendly and energy efficient EAF processes.

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. The LMF is permitted at 14 lbs/hr SO_2 and additional controls were not needed as a part of Ohio's attainment/control strategy portion of the SIP. The three reheat furnaces were previously each permitted at 1213 lbs/hr SO_2 and as part of the attainment/control strategy they were reduced to 1 lb/hr each. Additional RACT/RACM was not necessary for these units.

The Mingo Junction Energy Center is comprised of four 180 MMBtu/hr boilers capable of burning a combination of natural gas, blast furnace gas or COG, and two of the units can also burn desulfurized COG. As discussed previously, Mountain State Carbon disconnected the pipeline providing COG or desulfurized COG to this facility in the future. Because the blast furnace at JSW Steel was permanently shut down and dismantled, this gas will also not be supplied. Therefore, the only form of gas that may be burned in the future is natural gas.

Regardless, as part of BACT requirements, these four units were required to install a water injection system on the boilers by March 1, 2011 to control emissions. Permitted limits allowed 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 attainment/control strategy portion of Ohio's SIP, emissions from each of the four units was limited to 0.0028 pounds of SO_2 per MMBtu actual heat input (below the critical value). Additional RACT/RACM to control SO_2 emissions was not necessary for these sources.

In addition, in 1979, 1987 and 1996, Ohio promulgated rules requiring reasonably available controls measures for SO_2 from stationary sources.

Statewide RACT rules have been applied to all new sources locating in Ohio since that time. RACT requirements are incorporated into permits along with monitoring, recordkeeping, and reporting necessary to ensure ongoing compliance. Ohio EPA also has an active enforcement program to address violations discovered by field office staff. The Ohio RACT rules for SO_2 are found in OAC Chapter 3745-18[25].

In addition, Ohio EPA promulgated and implemented CAIR (OAC Chapter 3745-109[26]) over the past six years. Emissions from EGUs make up a significant contribution to Ohio's inventory. Beginning in 2009, Ohio implemented CAIR which provided for significant reductions in SO_2. Beginning in 2015, the more restrictive CSAPR was implemented and more significant reductions in SO_2 were realized.

Requirement 2 of 6: Section 172(c)(2) of the 1990 CAA Amendments requires attainment demonstration SIPs for nonattainment areas to show RFP.

Section 171(1) defines RFP as "such annual incremental reductions in emissions of the relevant air pollutant as are required by this part (part D) or may reasonable be required by the EPA for the purposes of ensuring attainment of the applicable NAAQS by the applicable attainment date." The SO_2 nonattainment area SIP guidance explains that this definition is most appropriate for pollutants emitted by numerous and diverse sources where inventory-wide reductions are often needed to attain a standard. Furthermore, the definition is generally less pertinent to pollutants like SO_2 that usually have a limited number of sources affecting areas and where emissions controls for such sources result in swift and dramatic improvement in air quality. Therefore, U.S. EPA explained that RFP is best construed as "adherence to an ambitious compliance schedule."

Demonstration: RFP requirements are established as part of the attainment demonstration SIPs. Ohio EPA set an ambitious compliance deadline for compliance with requirements by January 1, 2017, approximately 20 months after the attainment demonstration SIP was submitted and 21 months prior to the required attainment date. As can be seen by the emissions trends for the area, early reductions occurred prior to the compliance deadline. Therefore, the requirement for an ambitious compliance schedule has been met.

[25] http://www.epa.ohio.gov/dapc/regs/3745_18.aspx
[26] http://www.epa.ohio.gov/dapc/regs/3745_109.aspx

Requirement 3 of 6: Section 172(c)(3) requires states to submit a comprehensive inventory of actual emissions.

Section 172(c)(3) requires states to submit a comprehensive inventory of actual emissions in the area, including the requirement for periodic revisions as determined necessary. 40 CFR 51.1008 requires such inventory to be submitted within three years of designation and requires a baseline emission inventory for a suitable year to be used for attainment planning.

The SO_2 nonattainment area SIP guidance provides the SO_2 inventory requirements for attainment demonstration SIPs.

The inventory should also include an attainment year inventory with projected emissions for all SO_2 sources. The inventory should also include the best available information on current enforceable SO_2 emission rates (allowable or permitted rates) for the SO_2 sources located in the nonattainment area.

Demonstration: Ohio EPA submitted its 2011 base year inventory and 2018 future year inventory as a part of its attainment demonstration SIP.

Ohio also updates its inventory in accordance with U.S. EPA's CERR rule (i.e. emissions statements). Ohio EPA submitted its emissions statement SIP on March 18, 1994 which was approved by U.S. EPA on October 13, 1995 (59 FR 51863). As discussed in Chapter Four (Requirement 4 of 4), Ohio EPA submits, and commits to submit, emission inventories (statements) every three years.

Requirement 4 of 6: Evidence that control measures required in past SO_2 SIP revisions have been fully implemented.

Demonstration: In addition to the historic RACM and RACT requirements for SO_2, Ohio has fully implemented the OAC Chapter 3745-18 regulations and CAIR/CSAPR requirements.

On March 10, 2004, the U.S. EPA promulgated the CAIR. Beginning in 2009, U.S. EPA's CAIR rule requires EGUs in 28 eastern states and the District of Columbia to significantly reduce emissions of NO_x and SO_2. Ohio submitted a CAIR SIP which was approved by U.S. EPA on February 1, 2007. Revisions to the CAIR SIP were again submitted on July 15, 2009. The revised CAIR SIP was approved as a direct final action on September 25, 2009 (74 FR 48857). CAIR was replaced by the more stringent CSAPR requirements beginning in 2015.

OAC Chapter 3745-18[27] is Ohio's SIP approved rules for the regulation of SO_2. This set of rules contains general requirements for the entire state along with facility specific requirements for significant emitters of SO_2. Specifically, OAC rule 3745-18-47 regulates emissions from Jefferson County.

Requirements are incorporated into permits along with monitoring, recordkeeping, and reporting necessary to ensure ongoing compliance. Ohio EPA also has an active enforcement program to address violations discovered by field office staff.

Requirement 5 of 6: Acceptable provisions to provide for new source review.

Demonstration: Ohio has a longstanding and fully implemented NSR program. This is addressed in OAC Chapter 3745-31[28]. The Chapter includes provisions for the PSD permitting program in OAC rules 3745-31-01 to 3745-31-20. Ohio's PSD program was conditionally approved on October 10, 2001 (66 FR 51570) and received final approval on January 22, 2003 (68 FR 2909) by U.S. EPA as part of the SIP. The latest revisions to OAC Chapter 3745-31 were approved into Ohio's SIP on February 20, 2013 (78 FR 11748).

Any facility that is not listed in the 2011 emission inventory, or for the closing of which credit was taken in demonstrating attainment, will not be allowed to construct, reopen, modify, or reconstruct without meeting all applicable NSR requirements. Once the area is redesignated, Ohio EPA will implement NSR through the PSD program.

Requirement 6 of 6: Assure that all existing control measures will remain in effect after redesignation unless the state demonstrates through modeling that the standard can be maintained without one or more control measures.

Demonstration: Ohio commits to maintaining the aforementioned control measures after redesignation. Ohio hereby commits that any changes to its rules or emission limits applicable to SO_2 as required for maintenance of the 1-hour SO_2 standard in the Ohio portion of the Steubenville OH-WV area, will be submitted to U.S. EPA for approval as a SIP revision.

Ohio, through Ohio EPA's Legal office and the Ohio Attorney General's office, has the legal authority and necessary resources to actively enforce any violations of its rules or permit provisions. After redesignation, it intends to continue enforcing all rules that relate to the emission of SO_2 precursors in the Steubenville OH-WV area.

[27] http://www.epa.ohio.gov/dapc/regs/3745_18.aspx
[28] http://www.epa.ohio.gov/dapc/regs/3745_31.aspx

CHAPTER SIX: Contingency Measures

CAA Section 107(d)(3)(E)(v)

Requirement 1 of 4: A commitment to submit a revised plan eight years after redesignation.

Demonstration: Ohio hereby commits to review its maintenance plan eight years after redesignation, as required by Section 175A of the CAA.

Requirement 2 of 4: A commitment to expeditiously enact and implement additional contingency control measures in response to exceeding specified predetermined levels (triggers) or in the event that future violations of the ambient standard occur.

Section 175A(d) requires contingency provisions to promptly correct any violation of the SO_2 NAAQS that occur after redesignation. Unlike Section 172(c)(9), Section 175A does not explicitly require contingency measures take effect without further action by the state. Rather the maintenance plan should ensure contingency measures are adopted and implemented as expeditiously as practicable once they are triggered. The plan should clearly identify the measures to be adopted, provide a schedule and associated procedures for adoption and implementation, and provide a specific time limit for action.

The *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990* (April 16, 1992, 57 FR 13498) and the SO_2 nonattainment area SIP guidance (page 41 to 42) provides further discussion on contingency measures specifically for SO_2. In many cases, attainment revolves around compliance of a single source, or small set of sources, with emission limits shown to provide for attainment. In those cases, U.S. EPA interprets contingency measures to mean the state has 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. (57 FR 13547)

Demonstration: Ohio EPA has an active enforcement program to address violations and Ohio EPA 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. Ohio hereby commits to adopt and expeditiously implement necessary corrective actions in the event of a violation.

In the event adoption of any additional control measures is necessary, they are subject to Ohio's administrative and legal process. This process will include publication of notices, an opportunity for public hearing, and other measures required by Ohio law for rulemaking.

If a new measure/control is already promulgated and scheduled to be implemented at the federal or state level, and that measure/control is determined to be sufficient to address a violation of the SO_2 NAAQS, additional local measures may be unnecessary. Furthermore, Ohio will submit to U.S. EPA an analysis to demonstrate the proposed measures are adequate to return the area to attainment.

Requirement 3 of 4: A list of potential contingency measures that would be implemented in such an event.

Demonstration: Potential measures could include tighter SO_2 emissions offsets for new and modified major sources or additional SO_2 RACT for affected sources in the area.

Ohio hereby commits to adopt and expeditiously implement necessary corrective actions in the following circumstances:

Warning Level Response:
A warning level response shall be prompted whenever the annual average 99th percentile maximum daily 1-hour SO_2 concentration of 79 ppb or greater occurs in a single calendar year within the maintenance area. A warning level response will consist of a study to determine whether the SO_2 value indicates a trend toward higher SO_2 values or whether emissions appear to be increasing. The study will evaluate whether the trend, if any, is likely to continue and, if so, the control measures necessary to reverse the trend taking into consideration ease and timing for implementation as well as economic and social considerations. Implementation of necessary controls in response to a warning level response trigger will take place as expeditiously as possible, but in no event later than 12 months from the conclusion of the most recent calendar year.

Action Level Response:
An action level response shall be prompted whenever a two-year average of the 99th percentile maximum daily 1-hour SO_2 concentrations greater than 75 ppb occurs within the maintenance area. A violation of the standard (the three-year average of the 99th percentile maximum daily 1-hour value SO_2 concentration of greater than 75 ppb) shall also prompt an action level response. In the event that the action level is triggered and is not found to be due to an exceptional event, malfunction, or noncompliance with a permit condition or rule requirement, Ohio EPA in conjunction with the metropolitan planning organization or regional council of governments, will determine additional control measures needed to assure future attainment of the NAAQS for 1-hour SO_2. In this case, measures that can be implemented in a short time will be selected in order to be in place within 18 months from the close of the calendar year that prompted the action level. Ohio EPA will also consider the timing of an action level trigger and determine if additional, significant new regulations not currently included as part of the maintenance provisions will be implemented in a timely manner and will constitute our response.

Contingency measures to be considered will be selected from a comprehensive list of measures deemed appropriate and effective at the time the selection is made. The selection of measures will be based on cost-effectiveness, emission reduction potential, economic and social considerations or other factors that Ohio EPA deems appropriate. Ohio EPA will solicit input from all interested and affected persons in the maintenance area prior to selecting appropriate contingency measures.

No contingency measure shall be implemented without providing the opportunity for full public participation during which the relative costs and benefits of individual measures, at the time they are under consideration, can be fully evaluated.

Requirement 4 of 4: A list of SO_2, sources potentially subject to future additional control requirements.

Demonstration: Potentially subject sources include Cardinal Power Plant, Mingo Junction Energy Center, the JSW Steel or any other new source that may locate or expand in the area in the future.

Conclusion: Ohio has met the contingency measure requirement by having an aggressive enforcement program that identifies and mitigates any SO_2 emissions that exceed limits shown to provide for attainment, in accordance with U.S. EPA guidance that indicates that contingency measure requirements may be met in this manner. Nevertheless, Ohio provides additional protection against violations by establishing a warning level and an action level, described above, and committing to take action to identify and implement mitigation measures as appropriate should concentrations at or above these levels occur.

CHAPTER SEVEN: Public Participation

Ohio published notification for a public comment period, including a public hearing, concerning the draft redesignation petition and maintenance plan in a widely distributed county publication on March 25, 2019.

The public comment period closed on April 29, 2019. The public hearing was held on April 29, 2019. Appendix I includes a copy of the public notice, the transcript from the public hearing, and a response to comments document.

CHAPTER EIGHT: Conclusions

The Steubenville OH-WV SO_2 nonattainment area has attained the 2010 1-hour NAAQS for SO_2 and complied with the applicable provisions of the 1990 Amendments to the CAA regarding redesignations of SO_2 nonattainment areas. Documentation to that effect is contained herein. Ohio EPA has prepared a redesignation request and maintenance plan that meet the requirements of Section 110(a)(1) of the 1990 CAA.

Based on this presentation, the Steubenville OH-WV 1-hour SO_2 nonattainment area meets the requirements for redesignation under the CAA and U.S. EPA guidance. Ohio has performed an analysis that shows the air quality improvements are due to permanent and enforceable measures. Furthermore, because the remaining significant sources are subject to federally enforceable requirements that provide for attainment, continued compliance (maintenance) with the standard with an increasing margin of safety is ensured.

The State of Ohio hereby requests that the Steubenville OH-WV 1-hour SO_2 nonattainment area be redesignated to attainment simultaneously with U.S. EPA approval of the maintenance plan provisions contained herein.

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