west virginia department of environmental protection

Attainment Demonstration for the 1-hour National Ambient Air Quality Standard for Sulfur Dioxide (SO_2) State Implementation Plan for the West Virginia Portion of the Steubenville-Weirton, OH-WV Nonattainment Area, Comprising the Cross Creek Tax District of Brooke County

PROPOSED
December 2015

West Virginia Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

Promoting a healthy environment.

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Acronyms and Abbreviations

BTU	British thermal unit
CAA	Clean Air Act
CFR	Code of Federal Regulations
CMV	Commercial marine vessel
COG	Coke oven gas
CSR	Code of State Rules
DAQ	WVDEP Division of Air Quality
DEP	West Virginia Department of Environmental Protection
EGU	electric generating unit
EPA	U.S. Environmental Protection Agency
FGD	Flue Gas Desulfurization
FR	Federal Register
FRM	Federal reference method
lb	pound
MMBtu	million British thermal units
MMBtu/hr	million BTUs per hour
MSC	Mountain State Carbon, LLC
NAA	Nonattainment area
NAAQS	National Ambient Air Quality Standard
NSR	New Source Review
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
PPM	Parts per million
PSD	Prevention of Significant Deterioration
RACM	reasonably available control measure
RACT	reasonably available control technology
RFP	Reasonable further progress
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_X	sulfur oxides
TPY	tons per year
WV	West Virginia
WVDAQ	West Virginia Division of Air Quality

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1.0. INTRODUCTION

The Steubenville-Weirton, OH-WV 1-hour SO_2 nonattainment area is a multi-state nonattainment area, comprised of the Cross Creek Tax District of Brooke County, West Virginia, and Jefferson County, Ohio (partial) including the Cross Creek, Steubenville, Warren and Wells Townships and Steubenville City. The area was designated as nonattainment with the 2010 1-hour sulfur dioxide (SO_2) National Ambient Air Quality Standard (NAAQS) in the August 5, 2013 EPA Federal Register [78 FR 47191], effective October 4, 2013.

1.1. Request

The State of West Virginia is requesting that the United States Environmental Protection Agency (EPA) approve this attainment demonstration with a projected attainment date of October4, 2018 as a revision to the state implementation plan (SIP). Including the 2011 base year inventory required under 172(c)(3).

1.2. Definition of Sulfur Dioxide

Sulfur dioxide (SO_2) is one of a group of highly reactive gasses known as "oxides of sulfur." The largest sources of SO_2 emissions are from fossil fuel combustion at power plants and other industrial facilities. Smaller sources of SO_2 emissions include industrial processes such as extracting metal from ore, and the burning of high sulfur containing fuels by locomotives, large ships, and non-road equipment. SO_2 is linked with a number of adverse effects on the respiratory system.

1.3. Health and Environmental Effects

Current scientific evidence links short-term exposures to SO_2, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects including bronchoconstriction and increased asthma symptoms. These effects are particularly important for asthmatics at elevated ventilation rates (e.g., while exercising or playing.)

Studies also show a connection between short-term exposure and increased visits to emergency departments and hospital admissions for respiratory illnesses, particularly in at-risk populations including children, the elderly, and asthmatics.

EPA's National Ambient Air Quality Standard for SO_2 is designed to protect against exposure to the entire group of sulfur oxides. SO_2 is the component of greatest concern and is used as the indicator for the larger group of gaseous sulfur oxides (SO_x). Other gaseous sulfur oxides (e.g. SO_3) are found in the atmosphere at concentrations much lower than SO_2.

Emissions that lead to high concentrations of SO_2 generally also lead to the formation of other SO_x. Control measures that reduce SO_2 can generally be expected to reduce people's exposures to all gaseous SO_x. This may have the important co-benefit of reducing the formation of fine sulfate particles, which pose significant public health threats.

SO_x can react with other compounds in the atmosphere to form small particles. These particles penetrate deeply into sensitive parts of the lungs and can cause or worsen respiratory disease, such as emphysema and bronchitis, and can aggravate existing heart disease, leading to increased hospital admissions and premature death. EPA's NAAQS for particulate matter (PM) are designed to provide protection against these health effects.

1.4. The SO_2 NAAQS

The Clean Air Act (CAA) requires EPA to set National Ambient Air Quality Standards (NAAQS) for six criteria pollutants, including sulfur dioxide. The CAA established two types of national air quality standards for SO_2. Primary standards are set to protect public health, including the health of "sensitive" populations, such as asthmatics, children and the elderly. Secondary standards are set to protect public welfare, including protection against visibility impairment, damage to animals, crops, vegetation and buildings.

The nation's air quality standards for SO_2 were first established in 1971 [36 FR 8186]. EPA set a 24-hour primary standard at 140 ppb and a primary annual average standard at 30 ppb (to protect health). EPA also set a 3-hour average secondary standard at 500 ppb and an annual average standard of 20 ppb (to protect the public welfare). In 1973 EPA reviewed the SO_2 NAAQS and retained the secondary 3-hour standard, without revision, and revoked the secondary annual standard [38 FR 25678]. In 1996, EPA reviewed the SO_2 NAAQS and chose not to revise the standards [61 FR 25566]. In 2010, EPA revised the primary SO_2 NAAQS by establishing a new 1-hour standard at a level of 75 parts per billion (ppb) [75 FR 35520]. EPA revoked the two existing primary standards (24-hour and annual standards) because they would not provide additional public health protection given a 1-hour standard at 75 ppb.

2.0. AIR MONITORING DATA

The Ambient Air Monitoring network in the Steubenville-Weirton, OH-WV nonattainment areas consists of three monitoring locations in Brooke County, WV and one site in Jefferson County, OH, each one having SO_2 monitoring instrumentation. The three West Virginia sites are Mahan Lane, McKims Ridge, and Marland Heights. A fourth site is located in Steubenville, OH. Each of these sites has been monitoring SO_2 for some time prior to 2007 to date. The data from these locations has been certified and uploaded to USEPA's AQS website.

Air quality measurements used in this analysis were performed in accordance with appropriate regulations and guidance documents including adherence to USEPA quality assurance requirements. Monitoring procedures were determined in accordance with 40 CFR Parts 53 and 58.

2.1. SO_2 Monitoring Network Design Values

The 1-hour SO_2 standard is met at an ambient air 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 referred to as the "design value" for the site. For the data to be deemed complete, a minimum of 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).

Table 2.1. shows the 1-hr SO_2 design values in ppb for the included monitoring sites and illustrates that concentration gradients are present in the area of monitors which is consistent with the nature of SO_2.

Table 2.1. Brooke County 1-hr SO_2 Design Values in ppb

Monitor	Tax District	ID	Design Value					
			2007-09	2008-10	2009-11	2010-12	2011-13	2012-14
Mahan Lane	Cross Creek	54-009-0005	127	127	119	115	88	51
McKims Ridge	Cross Creek	54-009-0007	129	103	83	79	59	45
Marland Heights	Cross Creek	54-009-0011	157	148	174	165	138	76
Logan Street	Steubenville	39-081-0017	129	116	109	111	81	53

Appendix A contains the Air Monitoring Data from AQS.

Figure 2.1.a.

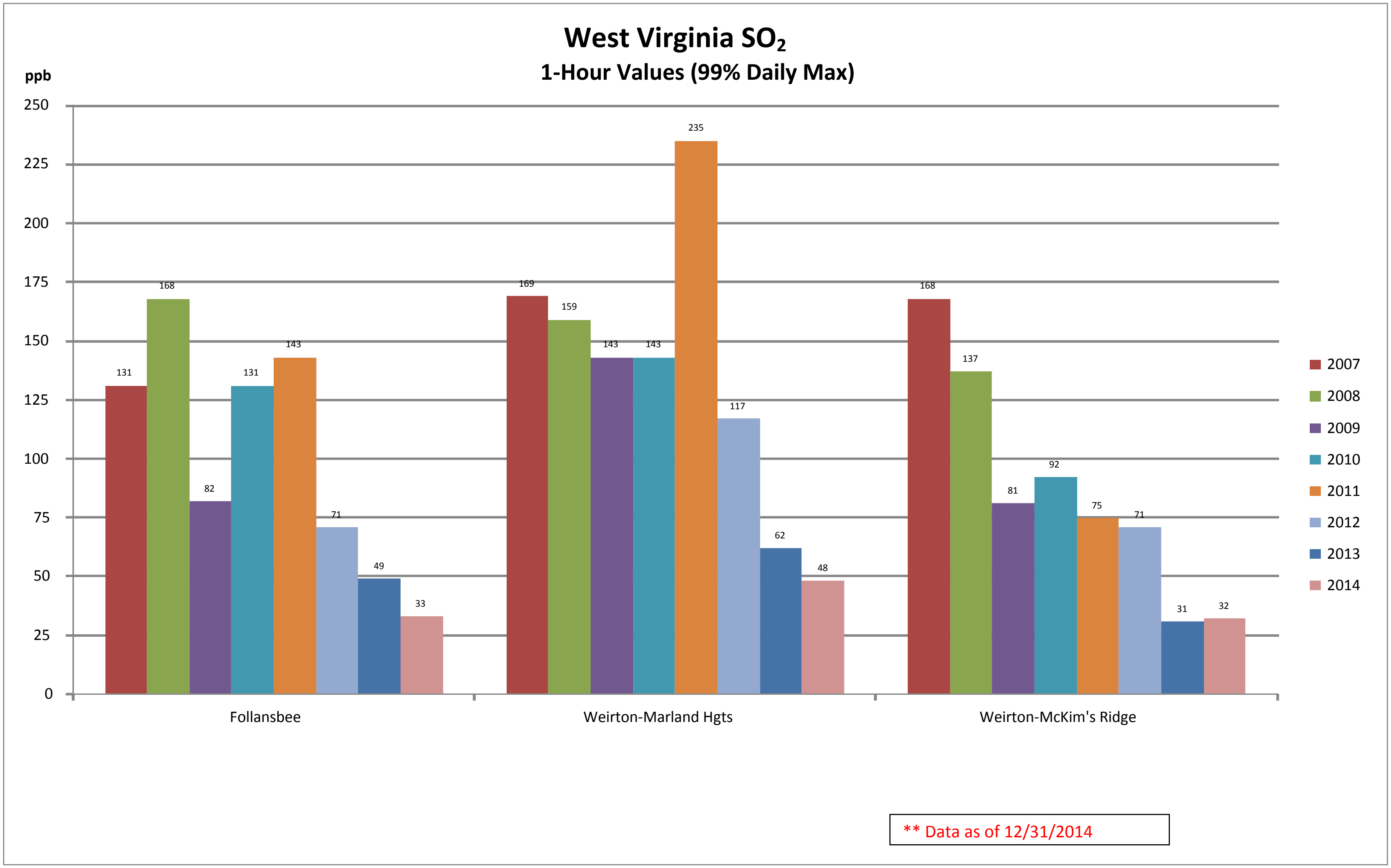
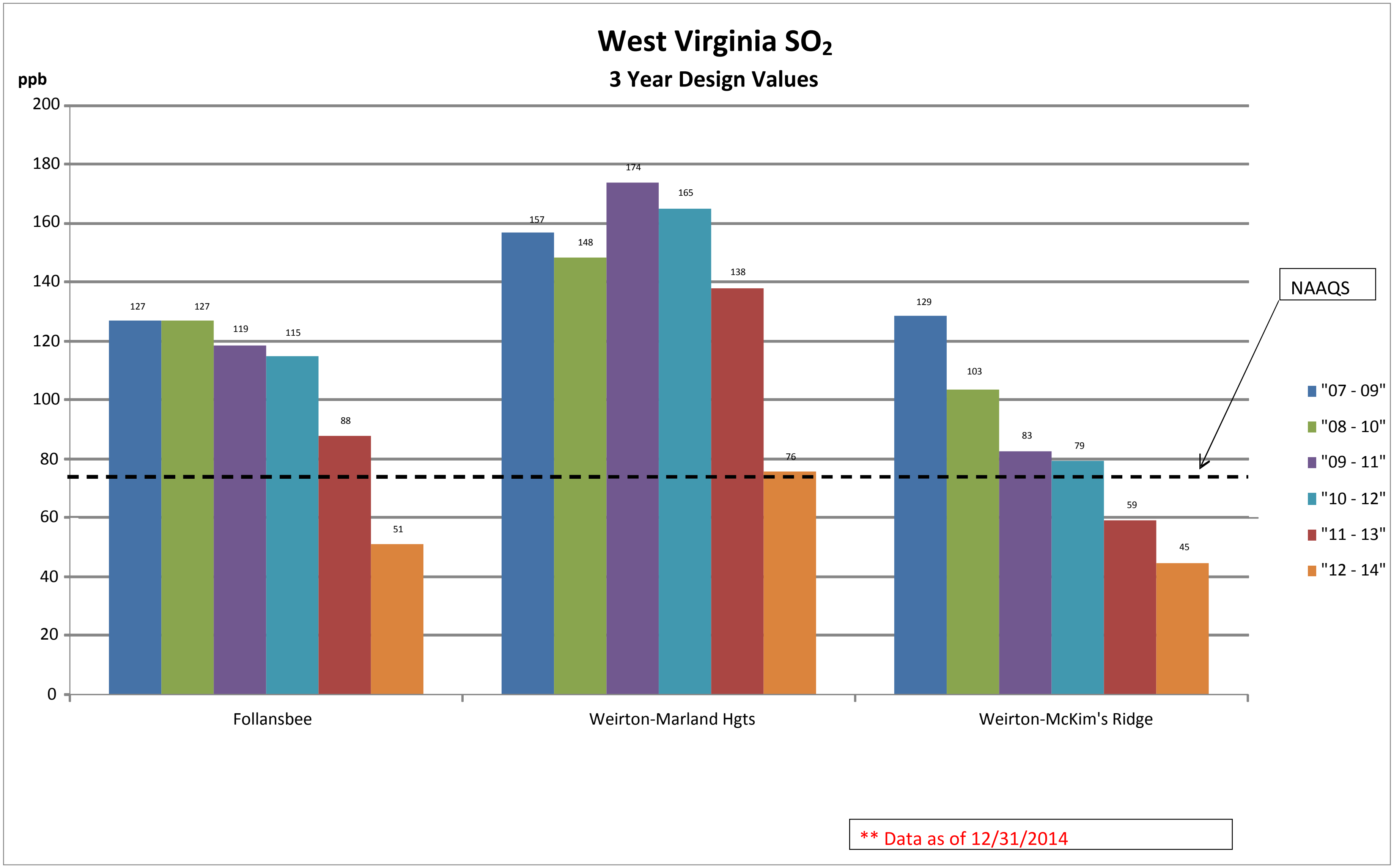

West Virginia SO_2
1-Hour Values (99% Daily Max)
ppb
250
225
200
175
150
125
100
75
50
25
0
131
168
82
131
143
71
49
33
169
159
143
143
235
117
62
48
168
137
81
92
75
71
31
32
Follansbee
Weirton-Marland Hgts
Weirton-McKim's Ridge
2007
2008
2009
2010
2011
2012
2013
2014
** Data as of 12/31/2014

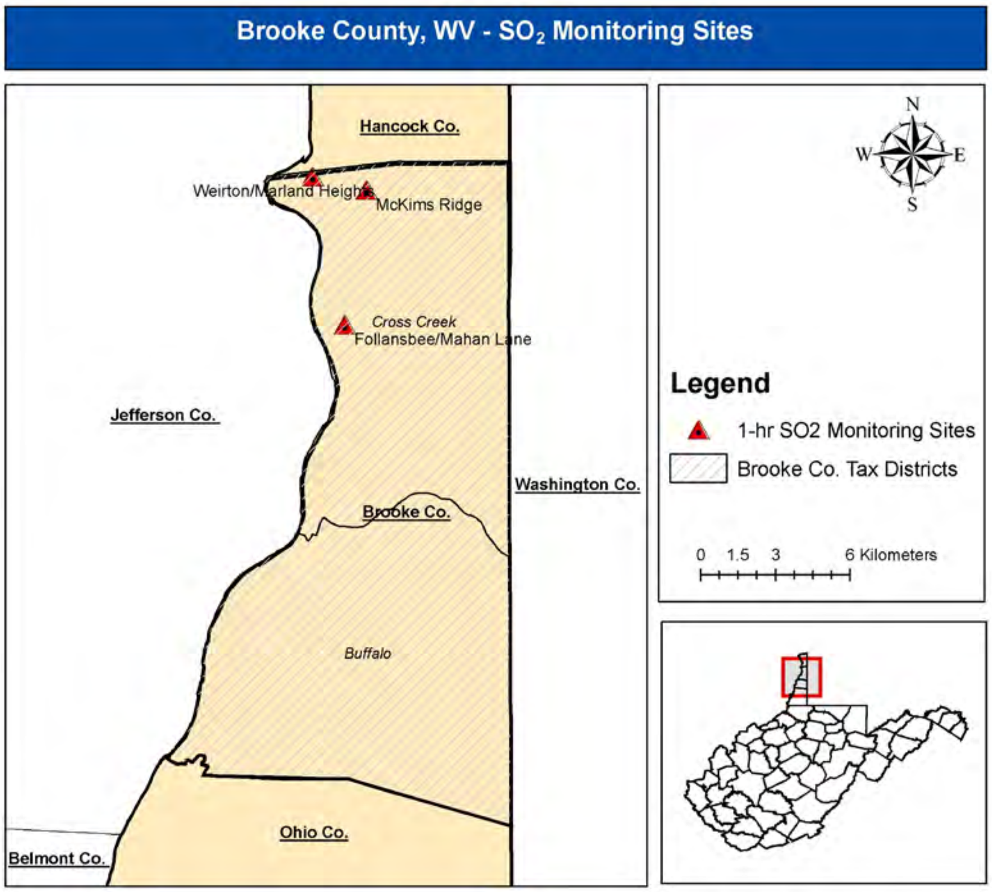
Figure 2.1.b.


West Virginia SO_2
3 Year Design Values
ppb
200
180
160
140
120
100
80
60
40
20
0
127
127
119
115
88
51
157
148
174
165
138
76
129
103
83
79
59
45
NAAQS
"07 - 09"
"08 - 10"
"09 - 11"
"10 - 12"
"11 - 13"
"12 - 14"
Follansbee
Weirton-Marland Hgts
Weirton-McKim's Ridge
** Data as of 12/31/2014

2.2. Monitoring Sites

Air monitoring data is an important factor in designating nonattainment areas. Figure 2.2. shows the locations of the 1-hr SO_2 monitors located in Brooke County, WV. All three monitors are located within the northern portion of the Cross Creek Tax District of Brooke County.

Figure 2.2. Map of West Virginia SO_2 Monitoring Sites



2.3. Emission Sources

Significant emissions in an area indicate the potential for the area to contribute to observed violations of the NAAQS. There are only three significant sources of SO2 in the Steubenville-Weirton area: Mountain State Carbon (MSC) in WV, and Cardinal Power Station and RG Steel Wheeling in Ohio. Figure 2.3. shows the significant sources of SO_2 in Brooke County, WV and Jefferson County, OH. All West Virginia sources are located in the Cross Creek Tax District of Brooke County.

Figure 2.3. Map of SO_2 Emission Sources in Brooke County, WV and Jefferson County, OH

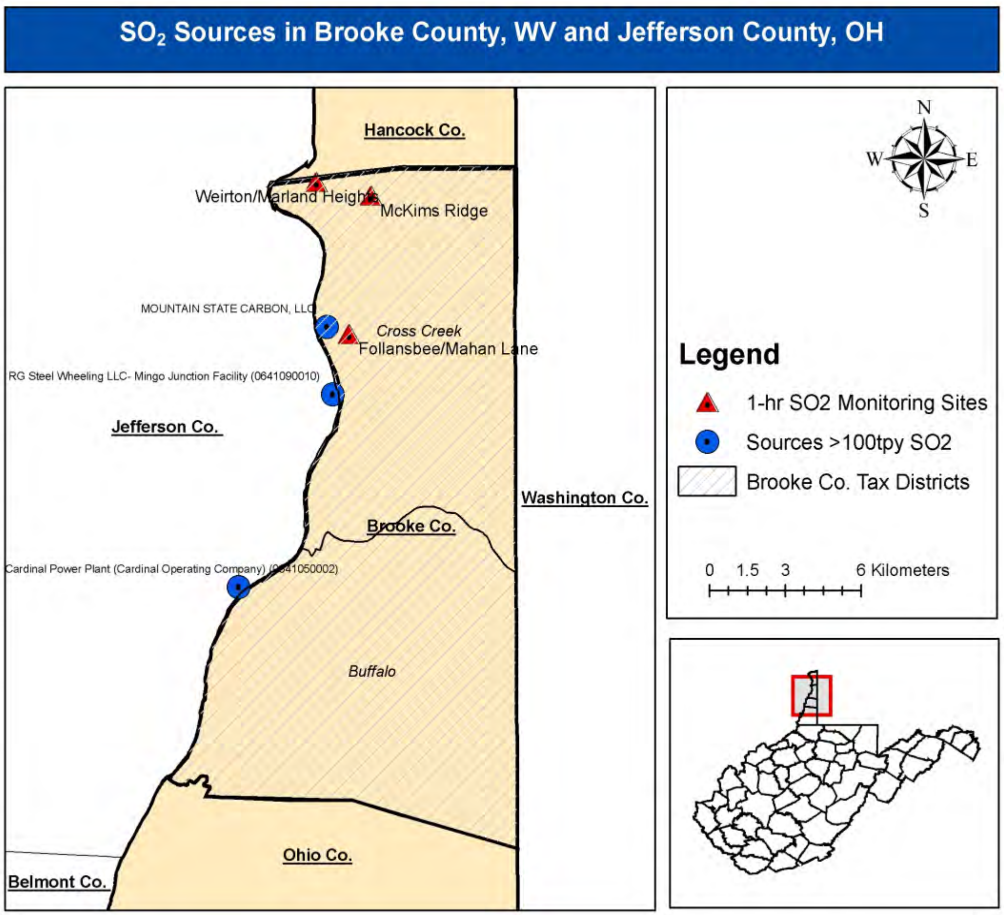


Table 2.2. shows 2008 and 2011 emissions levels and related information for these sources.

Table 2.2. SO_2 Emissions in Brooke County, WV and Jefferson County, OH

County	Tax District (WV) or Twp. (OH)	Facility Name	Coordinates (lat, long)	2008 SO_2 (tpy)	2011 SO_2 (tpy)	EGU SO_2 Controls
Brooke, WV	Cross Creek	Mountain State Carbon, LLC	40.34361, -80.60667	731	697	N/A
Jefferson, OH	Steubenville	R.G. Steel-Wheeling Mingo Junction	40.31974, -80.6042	700	0	N/A
Jefferson, OH	Wells	Cardinal Power	40.2522, -80.6468	33,317	25,122	FGD

3.0. CLEAN AIR ACT REQUIREMENTS

Section 172 of the Clean Air Act addresses the general requirements for areas designated as nonattainment for any NAAQS pollutant.

Section 172(c) Nonattainment Plan Provisions

As per "Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions" (April 2014).

(1) Accurate emissions inventory of current emissions

(2) New source review (NSR) permit program

(3) Attainment Demonstration using an EPA approved air quality dispersion model

(4) Reasonable Further Progress (RFP)

(5) Implementation of RACM including RACT

(6) Contingency measures

3.1. Emission Inventory

Section 172(c)(3) of the Clean Air Act (CAA) requires that nonattainment plan provisions include a comprehensive, accurate base-year inventory of actual emissions (see Appendix B) from all sources of SO_2 in the nonattainment area. The attainment inventory is the model inventory included within the SIP Demonstration package. This inventory is based upon allowable emissions, which are enforceable via permits, regulations, and/or consent orders.

Designation of the area as nonattainment was based on data for the period 2009-2011. Data from 2011 is representative of the operations of the facilities that caused or contributed to the monitored violations leading to the area being designated as nonattainment with the 2010 1-hour sulfur dioxide (SO_2) National Ambient Air Quality Standard (NAAQS).

The Cross Creek Tax district in Brooke County was the only portion of the county designated nonattainment, however the emission inventory data are for the entire county. Although the point source data includes the emissions for all point sources in the county, it should be noted that all the significant point sources are located in the Cross Creek Tax district.

The following table provides a summary comparison of the 2011 SO_2 emissions, by source sector, for Brooke County (FIPS 54009).

Source Sector	**2011 SO_2 (tons)**
Events (Fires)	0
Marine, Air Rail (MAR)	2
Nonpoint (Area)	154
Nonroad	0
Onroad	2
Point EGU	0
Point nonEGU	730
Brooke County Total	**888**

The 2011 emissions inventory data provided here was based on U.S. EPA's 2011 Modeling Platform which was in turn based on EPA's National Emissions Inventory (NEI) version 2. NEI v2 2011 emissions were prepared largely by EPA and their contractors and the West Virginia Division of Air Quality (WV DAQ) accepted them. However, all of the point source 2011 emissions and certain area source categories were prepared by DAQ staff.

3.1.a. Fires

There are two types of fires contained in the 2011 NEI v2: prescribed forest burning and wildfires. Although the NEI contained both fire types in other counties, there were no prescribed burns or wildfires in Brooke County in 2011. The base year fires inventory was developed by U.S. EPA and the estimates were accepted by the DAQ.

3.1.b. Nonpoint (Area)

Area source emissions inventories address human activities that are too small to calculate individually but that can be significant collectively. Area source activities examples include residential wood burning in fireplaces, agricultural pesticide application, and auto body repair shops. In contrast to point sources, area source emissions are calculated at the county level.

An anomaly in the Brooke County Area Source emissions was noted and investigated. SO_2 from industrial coal combustion (Source Classification Code [SCC] 2102002000) accounted for 118 of the 154 ton sector total, which is an excessively high value. Various attempts to investigate possible sources of error, including a review of every DAQ permit that has ever been issued in Brooke County to determine if some coal boilers there might not have Title V permits (DAQ collects emissions inventories only from Title V sources), provided no explanation. No coal-fired boilers have ever been permitted in Brooke County. As a last resort, DAQ staff recreated the estimate using the Energy Information Administration (EIA) tons of industrial coal burned state-wide in 2011, subtracted coal burned statewide by point sources, and allocated the balance to the county level using 2011 County Business Patterns employee data. The result was very close to the number contained in the 2011 NEI v2. Although WV DAQ is fairly confident that all of the industrial coal combustion in the county was already captured in the Point Source inventory, the effort to redistribute the 118 tons to the other 54 counties in the 2011 NEI area source inventory outweighs any benefits.

A significant new category, the Oil and Gas Exploration and Production sector, was included for the first time in the 2011 NEI. With extensive collaboration and support provided from OAQPS' Emissions Inventory and Analysis Group (EIAG) staff, DAQ used EPA's Oil and Gas Tool to correct emissions from 24 process types. Using the updated data, there were about 13 tons of SO_2 from this portion of the area source inventory of the 154 tons of SO_2 contained in the total Brooke County area source inventory.

3.1.c. Marine, Air, Rail (MAR)

Although these categories fall under the Nonroad sector discussed below, they are estimated separately outside of the Nonroad Model. Almost all of the SO_2 came from Commercial Marine Vessels (CMVs); less than a tenth of a ton came from Rail (diesel locomotives). Aircraft emissions are captured in the Point nonEGU inventory. The 2011 NEI v2 estimates were prepared by EPA and accepted by WV.

3.1.d. Nonroad

Nonroad sources, as the name implies, are mobile sources that operate off-road. Examples include construction equipment such as bulldozers and cranes, tractors, aircraft, marine vessels, and locomotives. Except for the air, rail and commercial marine vessel categories, EPA uses their Nonroad Model to prepare emissions estimates for this sector. Total SO_2 emissions calculated by the Nonroad Model were less than a ton. All of the nonroad emissions estimates were prepared by EPA and DAQ accepted them.

3.1.e. Onroad

Onroad sources include all vehicles that are designed to operate on roadways. They include automobiles, trucks, buses, and motorcycles. EPA prepared these emissions estimates using their MOVES 2010 model and DAQ accepted them. For the purposes of this demonstration onroad emissions are considered insignificant.

3.1.f. Point EGU and nonEGU

Point sources are those sources of air pollutants that, in contrast to area sources, are large enough to calculate emissions on a facility-by-facility basis. Electricity Generating Units (EGUs) are typically the largest source of emissions and their emissions are frequently broken out from the remainder of nonEGU point source categories. There are no EGUs in Brooke County. The 2011 point source data contained in this attainment demonstration was collected by DAQ, quality assured, and reported to U.S. EPA via its EIS Gateway.

By far the most significant source of SO_2 in Brooke County was from four industrial boilers burning coke oven gas (SCC 10200707).

3.1.g. Transportation Conformity

Transportation Conformity is required under Clean Air Act (CAA) to ensure that federally supported highway and transit project activities are consistent with (conform to) the purpose of a state air quality implementation plan. Conformity to the purpose of the SIP means that transportation activities will not cause or contribute to new air quality violations, worsen existing violations, or delay timely attainment of the relevant national ambient air quality standards (NAAQS) or required interim milestones. EPA's transportation conformity rule establishes the criteria and procedures for determining whether transportation activities conform to the SIP. Conformity applies to transportation activities in nonattainment and maintenance areas for transportation-related pollutants.

EPA's "Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions – April 2014" specifically addresses SO_2 emissions in relation to the Transportation Conformity rules stating that these rules do not apply to SO_2 unless either the EPA Regional Administrator or the director of the state agency has found that transportation-related emissions of SO_2 as a precursor are a significant contributor to a $PM_{2.5}$ nonattainment problem. The EPA Regional Administrator or West Virginia's Director have not found transportation-related SO_2 emissions problems associated with the Brooke County, West Virginia area.

Additionally, as presented in our proposed State Implementation Plan Attainment Demonstration, 2011 onroad mobile source SO_2 emissions for Brooke County alone represent two (2) tons of the total 888 tons emitted. Therefore, onroad SO_2 emissions are less than 0.25 percent of the total emissions and are not a significant contributor to any $PM_{2.5}$ nonattainment problem in Brooke County.

Table 3.1. Current Baseline: Summary of Allowable Emission Rates of SO_2 from Mountain State Carbon Sources included in SIP Modeling

Sources	**SO_2 Allowable Emission Rate (lb/hr)**	**Enforceability**
Battery 1 Combustion	22.86	Title V Permit Section 3.1.26. 45CSR10-5.1 **WV 45CSR10** (50 grains/100 DSCF) **68 FR 33002 (06/05/2003)**
Battery 2 Combustion	22.86	
Battery 3 Combustion	25.71	
Battery 8 Combustion	117.41	
Battery Boiler 6 and Battery Boiler 7 (combined stack)	49.5	45CSR13, R13-2591, 4.1.4 Title V Permit Section 5.1.17.(6) (combined stack for Boiler 6 and 7) **WV 45CSR13, 79 FR 42211 (07/21/2014)**
Battery Boiler 9	27.00	45CSR13, R13-2591, 4.1.2. and 4.1.3 Title V Permit Section 5.1.16.(6) **WV 45CSR13, 79 FR 42211 (07/21/2014)**
Battery Boiler 10	27.00	45CSR13, R13-2591, 4.12 and 4.1.3 Title V Permit Section 5.1.16.(6) **WV 45CSR13, 79 FR 42211 (07/21/2014)**
Battery COG Flare	39.80	45CSR13, R13-1939, A.1., B.1. Title V Permit Section 8.1.5 **WV 45CSR13, 79 FR 42211 (07/21/2014)**
Battery 1-2-3 Push Baghouse	10.48	45CSR13, R13-1939, A.23., B.1. Title V Permit Section 4.1.32. **WV 45CSR13, 79 FR 42211 (07/21/2014)**
Battery 8 Push Scrubber	15.72	45CSR13, R13-1939, A.24., B.1. Title V Permit Section 4.1.33 **WV 45CSR13, 79 FR 42211 (07/21/2014)**
Battery Acid Plant Tail Gas	12.46	Permit Determination PD05-090 **WV 45CSR13, 79 FR 42211 (07/21/2014)**
Battery 1 Fugitives	1.90	45CSR13, R13-2591, 4.1.2.(1E) AP-42 Emission Factors w/battery throughputs from 2007 production year. PM10 SIP Modeling strategy for Coke battery fugitives. **WV 45CSR13, 79 FR 42211 (07/21/2014)**
Battery 2 Fugitives	1.90	
Battery 3 Fugitives	2.04	
Battery 8 Fugitives	1.98	45CSR13, R13-2591, 4.1.11 AP-42 Emission Factors w/battery throughputs from 2007 production year. PM10 SIP Modeling strategy for Coke battery fugitives. **WV 45CSR13, 79 FR 42211 (07/21/2014)**

3.2. New source review (NSR) permit program

CAA Section 172(c)(5) requires a permit program consistent with the requirements of Section 173. On June 13, 1984, West Virginia requested that EPA approve rule 45CSR14 "Permits for the Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration" (PSD) as a revision to the state implementation plan. EPA approved PSD SIP revisions in 1986 [51 FR 12517], 1993 [58 FR 34526], 1996 [61 FR 54734], 2012 [77 FR 63736] and 2015 [80 FR 36483]. West Virginia's 2015 fully-adopted rule 45CSR14 was submitted to EPA as a revision to the SIP on June 3, 2015, thereby enabling EPA to fully approve recent amendments to the PSD program into the SIP.

West Virginia has also implemented as part of its SIP since 1972, 45CSR13 "Permits for Construction, Modification, or Relocation of Stationary Sources of Air Pollutants, and Procedures for Registration and Evaluation" requiring construction/modification permits for all regulated emission sources. EPA approved the most recent revisions to 45CSR13 as a SIP revision effective August 20, 2014 [79 FR 42212].

On April 29, 1983, West Virginia requested that EPA approve rule 45CSR19 "Requirements for Pre-Construction Review, Determination of Emission Offsets for Proposed New or Modified Stationary Sources of Air Pollutants and Bubble Concept for Intrasource Pollutants" for permitting of major sources and modifications in designated nonattainment areas pursuant to Clean Air Act requirements. EPA approved this rule as part of the SIP effective August 1, 1985 [50 FR 27247], and approved the most recent revisions to the rule on June 25, 2015 [80 FR 29972]. Therefore, West Virginia has a nonattainment NSR program which has been approved by USEPA.

Presently any major sources wishing to construct or make a major modification within the WV portion of the nonattainment area are required to obtain a NSR Permit through State Regulation 45CSR19. Subsequent to redesignation of the area to attainment any source wishing to construct or modify will be required to obtain a PSD Permit through State Regulation 45CSR14. An engineering evaluation and analysis of information pertaining to the source will be performed prior to issuance of any permit. The PSD program would require that a modeling demonstration be performed to ensure ongoing NAAQS compliance. These along with requirements of the minor source permit program covered under State Regulation 45CSR13 assure the maintenance of the NAAQS.

3.3. Attainment Demonstration

An attainment demonstration consists of (a) analyses that estimate whether selected emissions reductions will result in ambient concentrations that meet the NAAQS, and (b) an identified set of control measures which will result in the required emissions reductions. The necessary emission reductions for both of these attainment demonstration components may be determined by relying on results obtained with air quality models.

As part of this SIP, a modeling-based demonstration using the USEPA approved air quality dispersion model AERMOD, was performed showing attainment of the primary 1-hour SO_2 NAAQS Standard. Modeling results submitted indicate future NAAQS maintenance of the area. No modifications to existing facilities or new installations have been made that detrimentally affect the modeling results. The State of West Virginia is confident that the current air quality regulations are sufficient to ensure and maintain NAAQS for 1-hour SO_2 in the area. The Model Run is attached in Appendix D.

3.4. Reasonable Further Progress (RFP)

As EPA noted on page 40 of their April 23, 2014, Memorandum "Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions" from Stephen D. Page:

> Section 171(1) of the CAA defines RFP as "such annual incremental reductions in emissions of the relevant air pollutant as are required by this part (part D) or may reasonably be required by the EPA for the purpose of ensuring attainment of the applicable NAAQS by the applicable attainment date." As the EPA has previously explained, this definition is most appropriate for pollutants that are emitted by numerous and diverse sources, where the relationship between any individual source and the overall air quality is not explicitly quantified, and where emission reductions necessary to attain the NAAQS are inventory-wide. We have also previously explained that the definition is generally less pertinent to pollutants like SO_2 that usually have a limited number of sources affecting areas of air quality which are relatively well defined, and emissions control measures for such sources result in swift and dramatic improvements in air quality. That is, for SO_2 there is usually a single "step" between pre-control nonattainment and post-control attainment. Therefore, for SO_2 with its discernible relationship between emissions and air quality, and significant and immediate air quality improvements, we explained in the General Preamble that RFP is best construed as "adherence to an ambitious compliance schedule." See 74 FR 13547, April 16, 1992. This means that the air agency needs to ensure that affected sources implement appropriate control measures as expeditiously as practicable in order to ensure attainment of the standard by the applicable attainment date. We believe this guidance continues to be appropriate for the implementation of the 2010 SO_2 NAAQS.

The primary sources of SO_2 in the West Virginia portion of the Steubenville, OH-WV 1-hour SO_2 Nonattainment Area consist of steel manufacturing and coke processing facilities located in or adjacent to the area. Within these specified industries SO_2 is emitted from various point and area sources. Modeling indicates that these sources are the major contributors to ambient SO_2 levels in the area. Decline in the steel industry along with downsizing of production workforce has contributed to lower emissions from sources in the area.

Enforceable control measures adopted by the West Virginia and Ohio SIP's have directly led to the improvement of the nonattainment area. Permanent and enforceable reductions through Consent Order CO-SIP-C-2015-14 along with permits listed in table 3.1, and facility shutdowns/fuel switching in the Ohio portion of the area, have substantially lowered ambient SO_2 levels.

Mobile sources on public roadways were not a significant contributor to the nonattainment status of the area. The decline in the steel industry along with declining population in the area indicates a decrease in mobile source emissions. Also a decline in vehicle emissions is expected as new "clean" vehicles replace "dirty" vehicles as required by USEPA (Tier 2) Motor Vehicle Emission Standards and Gasoline Sulfur Control Requirements.

The modeled demonstration inventory was developed using the maximum allowable emission limits for the sources. Therefore, temporary reduced production rates and potentially favorable meteorology have not been factors in the attainment demonstration.

The Brooke, Hancock, & Jefferson County Transportation Plan Study, "2025 Transportation Plan Update" indicates a shift in employment from manufacturing to commercial business. Manufacturing is predicted to decrease by 12.60% while commercial is predicted to increase by 20.60% from the year 1994 through the year 2025. The declining steel industry and ancillary industries in the area indicate a continued decrease in Sulfur Dioxide emissions from stationary sources.

A projected 3.69% decrease in population for the years (1990 - 2025), along with a 1.89% decrease in occupied households for the years (1994-2025), in the local metropolitan area as indicated in the Brooke, Hancock, & Jefferson County Transportation Plan Study, "2025 Transportation Plan Update" indicates that no new growth is anticipated to impact emissions in the area. The continual decline in population in addition to the decline in the number of occupied households indicates a decline in emissions caused by household heating along with personal motor vehicle emission sources.

EPA has stated in the SO_2 Guidance Document that the RFP concept is less applicable to SO_2, as SO_2 is a localized pollutant with limited sources.

3.5. Implementation of RACM including RACT

Section 172(c)(1) of the CAA requires that SIPs for nonattainment areas "provide for the 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 reasonably available control technology [RACT]) and shall provide for attainment of the national primary ambient air quality standards." As EPA has interpreted section 172(c)(1), a state must "consider all potentially available measures to determine whether they are reasonably available for implementation in the area, and whether they would advance the area's attainment date." *See* Approval & Promulgation of Air Quality Implementation Plans, 66 FR 586 at 607 (Jan. 3, 2001); *see also Sierra Club v. EPA*, 294 F.3d 155, 162–63 (D.C. Cir. 2002).

EPA has defined RACT as: "the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility." (44 FR 53762; September 17, 1979.) *See* Memorandum from Roger Strelow titled, "Guidance for Determining Acceptability of SIP Regulations in Non-Attainment Areas." (December 9, 1976); *see also* ''State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990," 57 FR 13498 (April 16, 1992). RACT requirements are specifically intended to impose emission controls for purposes of attainment and maintenance of the NAAQS within a specific nonattainment area. EPA has interpreted the terms RACT and RACM as being the level of emissions control that is necessary to provide for expeditious attainment of the NAAQS within a nonattainment area. *See, e.g.* Proposed Rule, 79 FR 32894. Courts have upheld this interpretation of the statute with respect to nonattainment SIPs. *See NRDC v. EPA*, 571 F.3d 1245, 1252-53 (D.C. Cir. 2009).

Any state containing a nonattainment area for a NAAQS is required by the Clean Air Act (CAA) to develop a SIP meeting the requirements of Title I, part D, subparts 1 and 5 of the CAA. Section 172(c) of the CAA requires that the SIP contain provisions that shall provide for the implementation of all reasonably available control measures 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 reasonably available control technology) ...". It also requires an attainment demonstration showing that the affected area will meet the standard by the statutory attainment date. 42 U.S. Code § 7514a(a) specifies "Implementation plans required under section 7514(a) of this title shall provide for attainment of the relevant primary standard as expeditiously as practicable but no later than 5 years from the date of the nonattainment designation." For the Steubenville-Weirton OH-WV nonattainment area, this means an attainment date of no later than October 2018. EPA guidance also clearly states that "EPA expects attainment plans to require sources to comply with the requirements of the attainment strategy at least 1 calendar year before the attainment date. Thus, for areas that were designated with an effective date of October 2013, with an attainment deadline that is as expeditiously as practicable, but no later than October 2018, the EPA would expect states to require sources to begin complying with the attainment strategy in the SIP no later than January 1, 2017." Accordingly, any control strategy determined to meet RACT must be installed and operating no later than January 1, 2017.

RACT is defined in 40 CFR Part 51.100 (o) as "devices, systems, process modifications, or other apparatus or techniques that are reasonably available taking into account:

(1) The necessity of imposing such controls in order to attain and maintain a national ambient air quality standard;

(2) The social, environmental, and economic impact of such controls"

Therefore, any control plan that is sufficient to attain and maintain the NAAQs meets this definition of RACT. DAQ has reviewed Mountain State Carbon's RACT analysis and determined the suite of controls outlined below meet RACT.

The main source of SO_2 from the facility is the combustion of coke oven gas (COG). Sulfur is introduced into the process in the coal supply. In the heated coke oven batteries the sulfur is released as part of the off gas as hydrogen sulfide (H_2S). Because this off gas has such a high BTU content Mountain State Carbon uses it as a fuel source for their boilers and oven firing systems. This combustion of the H_2S containing COG results in emissions of SO_2 from the boilers, coke oven batteries and the flare.

The amount of SO_2 emissions from these combustion sources are driven almost exclusively by the amount of H_2S in the COG. Therefore, for the coke oven batteries and the COG fired boilers, Mountain State Carbon has proposed a RACT limit of 50 grains of H_2S per 100 dry standard cubic feet (dscf) of COG during normal operations. (Appendix C contains MSC's SO_2 RACT Proposal for Coke Oven Batteries, Boilers and Engines.) This reduced H_2S concentration is achieved by the use of an existing desulfurization process at Mountain State Carbons by-product plant. The facility uses an ammonia wash technology for the dissolution of H_2S with ammonia to reduce the sulfur content of the COG prior to combustion.

For up to 20 days each year, Mountain State Carbon has to take this desulfurization system off line to inspect and repair the system. During these outages, achieving a H_2S concentration of 50 grains per dry dcsf in the COG is not possible. Additionally, due to the nature of coke batteries, they cannot temporarily shut down. Therefore, during outages Mountain State Carbon has proposed limiting the sulfur content of the coal to no greater than 1.25% and reducing operations to 63 ovens per day as RACT.

MSC has also committed to merging Boiler 9 and Boiler 10 exhaust into the existing Boilers 6/7 stack in order to increase SO_2 dispersion.

Mountain State Carbon also employs two engines at the facility. One engine is a 600 horsepower (hp) emergency generator and the other is a 527 hp emergency air compressor. Both of these engines fire diesel fuel which contains sulfur. During combustion of diesel fuel the vast majority of this sulfur is emitted as SO_2. For these units Mountain State Carbon has proposed using ultra low sulfur diesel (15 ppm max) as fuel in order to meet the RACT requirements. This results in emissions of SO_2 of 0.1 pounds per hour from each engine.

Mountain State Carbon also utilizes one 85 MMbtu/hr natural gas fired boiler and several other natural gas combustion sources rated at less than 10 MMbtu/hr. The small amount of sulfur in natural gas is mostly converted to SO_2 during combustion. Pipeline quality natural gas is inherently very low in sulfur. Therefore, Mountain State Carbon has committed in the attached Consent Order to the exclusive use of pipeline quality natural gas in these units which is considered to meet RACT.

Modeling demonstrates that implementation of these controls will result in compliance with the 1-hour SO_2 NAAQS.

4.0. MODELING

A dispersion modeling analysis was performed to demonstrate attainment with the 1-hr SO_2 NAAQS. A stakeholder workgroup consisting of representatives of WV DEP, Ohio EPA, AK Steel/Mountain State Carbon and their consultant (Trinity Consultants), and American Electric Power (AEP) had many discussions over many months to help inform an appropriate modeling strategy consistent with applicable guidance. AK Steel/Mountain State Carbon performed the modeling analysis for this SIP in accordance with the final strategy as reviewed and approved by WV DEP. This section contains a summary of these modeling efforts with the full modeling analysis details contained in Appendix C.

4.1. Source Inventory

The sources identified to be explicitly modeled are the Mountain State Carbon facility in Follansbee, WV, the Mingo Junction Energy Center, the former Wheeling Pittsburgh Mingo Junction Steel Plant ("Mingo Junction Steel Works"), and the AEP Cardinal Power Plant. The Mingo Junction Steel Works and Mingo Junction Energy Center sources are situated approximately one mile south-southwest of MSC on the opposite side of the Ohio River. The Cardinal Power Plant is located approximately six and a half miles south-southwest of MSC, also on the opposite side of the Ohio River.

MSC owns and operates a metallurgical coke production facility in Follansbee, WV Follansbee Plant Operations at the Follansbee Plant include four (4) by-product recovery coke production batteries, four (4) boilers fired with coke oven gas (COG) generated in the batteries, an excess COG flare, and other miscellaneous combustion sources. Being situated in the Steubenville-Weirton, OH-WV 1-hour SO_2 nonattainment area, the Follansbee Plant is to be included in the dispersion modeling compliance demonstration as part of the SO_2 SIP submittal to U.S. EPA.

The Mingo Junction Energy Center consists of four boilers permitted to burn desulfurized COG in addition to natural gas and clean blast furnace gas. The source of blast furnace gas has since been removed and it is MSC's intent to no longer provide desulfurized COG to the boilers. This will be federally enforceable in Consent Order CO-SIP-C-2015-14 included as part of this SIP submittal. As such, the only remaining, potentially viable fuel for these boilers is natural gas. Thereby, the Mingo Junction Energy Center has been included in the model with emissions associated with this fuel option (0.5 pound per hour per boiler in accordance with Ohio EPA's planned SIP). Any significant SO_2 emissions associated with this site in the future will require the appropriate Ohio EPA pre-construction permitting. Note that the Mingo Junction Energy Center is situated within the Mingo Junction Steel Works property boundary.

The Mingo Junction Steel Works consists of the following emissions units: one (1) electric arc furnace (EAF); one (1) ladle metallurgy furnace (LMF); and three (3) reheat furnaces.

Ohio EPA's SIP submittal included a compliance modeling demonstration that maintained the EAF and LMF at existing permit limits. However, the reheat furnaces are required to switch to natural gas.

AEP's Cardinal Power Plant was shown by Ohio EPA to have a negligible model predicted impact in the northern portions of the nonattainment area at times when the model predicted the largest concentrations resulting from the sources in the north (i.e., MSC and the Mingo Junction sources). Nonetheless, this analysis conservatively included Cardinal Power Plant emissions, as quantified by Ohio EPA in their SIP submittal.

4.2. Source Characterization

Characterization of each source of emissions is necessary for the dispersion modeling to be performed. The AERMOD Model provides for emission sources to be represented as point, area, or volume sources where stacks are generally characterized as point sources and fugitive emissions as an area or volume source depending on the specifics of the release in terms of areal coverage, inside or outside a building, vertical extent, etc. Sources in this modeling analysis are modeled as point sources, with exceptions noted as follows.

4.3. Characterization of MSC Coke Battery Fugitive Emissions

The treatment of the fugitive emissions associated with the MSC batteries poses a unique consideration for this modeling analysis. Specifically, the fugitive emissions originate at points all along each battery and as such the most appropriate characterization in the AERMOD model is a volume source. However volume source parameterization does not directly account for the thermal, buoyant momentum associated with hot releases such as the battery fugitive emissions. As such, the Buoyant Line and Point Source (BLP) dispersion model was used in this modeling analysis to provide more reasonable release parameters for input to AERMOD for the coke battery sources. The BLP dispersion model was developed by Environmental Research and Technology Inc. (ERT) to address the unique transport, including the unique plume rise, and diffusion of emissions from buoyant line sources (e.g., coke battery). BLP is a preferred/recommended model for representing buoyant line sources per the *Guideline.*[1] BLP can simulate dispersion from line sources either using a single day of user supplied meteorological data or a full year of data prepared using the preprocessing utilities PCRAMMET or MPRM.

4.4. MSC Emissions during Desulfurization Plant Outage

The MSC desulfurization plant requires routine planned maintenance in order to continue normal operation throughout the remainder of the year. Maintenance is accomplished by shutting down the desulfurization plant operations for a period of 10 days on average throughout a planned outage timeframe. During this period, the desulfurization plant will be unable to control the SO_2 emissions from MSC emission units.

Due to the unavailability of the desulfurization plant, emissions during the outage period will be different from those during normal operation in the modeling analysis; however the emission calculation methodology is identical save for the control device reduction efficiency. To account for these temporally changing emissions during planned outages, hourly emission files were generated and utilized in the modeling analysis.

[1] EPA's *Guideline on Air Quality Models,* 40 CFR Part 51, Appendix W (Revised, November 9, 2005)

As mentioned, there are periods of time during each year when the plant's primary control system, the desulfurization plant, is non-operable. To address these desulfurization plant outages, an analysis was performed based on the three modeled years which included emissions from both normal operations and outage periods. The modeling analysis considered two (2) ten day outage periods for each modeled year; one during April and one during November; and in doing so contemplates that the outage events occur during meteorologically desirable periods to ensure that ground level concentrations are minimized.

4.5. Model Selection

Dispersion models predict pollutant concentrations downwind of a source by simulating the evolution of the pollutant plume over time and space given data inputs that include the quantity of emissions and the initial exhaust release conditions (e.g., velocity, flow rate, and temperature). The EPA-recommended AERMOD Model (Version 14134) was used for this analysis. AERMOD is a refined, steady-state (both emissions and meteorology over a one hour time step), multiple source, dispersion model that was promulgated by U.S. EPA in December 2005 as the preferred model to use for industrial sources in this type of air quality analysis.[2] Following procedures outlined in the *Guideline on Air Quality Models*, the AERMOD modeling was performed using the regulatory default options in all cases.

In coordination with the use of AERMOD, the BLP model, which is the preferred/recommended model for representing buoyant line sources, was utilized to assist with the characterization of coke battery fugitive emissions included in the hourly emissions files. This approach is consistent with historic modeling of the Mountain State Carbon facility such as that performed in support of 2007 PM_{10} SIP modeling and current SO_2 SIP modeling efforts conducted by Ohio EPA for the nonattainment area. Specifically, BLP was executed to inform AERMOD of the release height parameters for the volume sources modeled to represent the coke battery fugitives. This is necessary since AERMOD's volume source parameterization does not directly account for the thermal, buoyant momentum associated with hot releases such as the coke battery fugitive emissions. EPA has recognized this need through the inclusion of the buoyant line source type as a "Beta" test option in AERMOD. The hybrid approach used in this modeling analysis achieves the same goal through the use of preferred models.

4.6. Meteorological Data

To perform the transport and dispersion modeling analysis in AERMOD, the procurement and pre-processing of meteorological data is required. The AERMET program (Version 14134) is the companion program to AERMOD that generates both a surface file and vertical profile file of meteorological observations and turbulence parameters pertinent to the use of AERMOD. AERMET meteorological data are refined for a particular analysis based on the choice of micrometeorological parameters that are linked to the land use and land cover (LULC) around the particular meteorological site. By incorporating measured surface and upper air

[2] 40 CFR 51, Appendix W–*Guideline on Air Quality Models*, Appendix A.1– AMS/EPA Regulatory Model (AERMOD).

station National Weather Service (NWS) observation data to AERMET, a complete set of model-ready meteorological data is created.

AERMET processing is performed in a 3-stage system. The first stage reads and performs quality assurance/quality control (QA/QC) on the raw NWS surface and upper air data files. The second stage synchronizes the observation times and merges the surface and upper air files. The third stage incorporates user-specified micrometeorological parameters (albedo, Bowen Ratio, and surface roughness) with the observed meteorological data and computes specific atmospheric variables for use in the AERMOD Model. These variables are used to characterize the state of the atmosphere and its related turbulence and transport characteristics, including wind speed, wind direction, convective velocity, friction velocity, Monin-Obukhov Length, convective and mechanical mixing heights, etc. Meteorological input files for this modeling analysis were developed by using the most current version of the AERMET program (Version 14134).

On-site measurements from a tower and SODAR located near MSC's Follansbee, WV facility formed the basis for the surface data processing and were provided by Mountain State Carbon. The tower collects temperature, wind and solar radiation measurements at levels ranging from 2 meters (m) to 50 m above ground level. As discussed in the AERMET User's Guide Addendum, AERMET preferentially utilizes the on-site measurements wherever available. If all of the on-site measurements are missing for a given hour, AERMET then looks for surface observations from a user-specified NWS/FAA surface station location; Pittsburgh, PA (WBAN ID: 94823) in this case. Per the guidance, surface stations with 1-minute ASOS wind data are preferred for this process to alleviate numerous calm and/or variable wind observations present in the routine hourly observations. In the absence of on-site wind data for a given hour, the routine processed ASOS hourly observations from the surface station are then utilized.

To complete the surface data processing, the formatted on-site tower data file along with the 1-minute ASOS data and hourly surface data from Pittsburgh, PA were utilized. The 1-minute ASOS data from Pittsburgh were then processed through AERMINUTE. In order for AERMINUTE to interpret observations from ice-free wind sensors, an installation date of July 28, 2009 was included in the AERMINUTE processing.

Once the AERMINUTE processing was completed, the Stage 1 AERMET processing was performed for the on-site and hourly surface data observations. Stage 2 processing was then completed to assimilate the 1-minute ASOS data and merge all of the records together.

Upper air radiosonde data from the same data period (1/1/2007-12/31/2009) taken from the Pittsburgh, PA radiosonde site were input during the Stage 1 AERMET processing and then the merge step in Stage 2 of AERMET.

4.7. Receptor Grids

The receptors utilized for the dispersion modeling analysis are identical to those utilized by the Ohio EPA to evaluate SO_2 impacts in the prescribed area. The following nested grids were used:

Fence Line Grid: "Fence line" grid consisting of evenly-spaced receptors 25 meters apart placed along the main property boundary of each facility.

Fine Cartesian Grid: A "fine" grid containing 50-meter spaced receptors extending approximately 1 km from the fence lines of the MSC, Mingo Junction, and AEP facilities.
Medium Cartesian Grid: A "medium" grid containing 100-meter spaced receptors extending from 1 km to 2.5 km from the facility fence lines, exclusive of receptors on the fine grid.

Coarse Cartesian Grid: A "coarse grid" containing 250-meter spaced receptors extending from 2.5 km to 5 km from facility fence lines, exclusive of receptors on the fine and medium grids.

Very Coarse Cartesian Grid: A "very coarse grid" containing 500-meter spaced receptors extending from 5 km up to 12 km from facility fence lines, exclusive of receptors on the fine, medium, and coarse grids.

4.8. Ambient Background Concentration

The SIP modeling analysis incorporated a background concentration of 8.1 ppb SO_2 (approximately 21.17 $\mu g/m^3$)[3] into the AERMOD results contained in this report. This concentration was determined after consideration of design values from the SO_2 monitors nearest the MSC facility (e.g. 618 Logan Street in Steubenville, OH and Mahan Lane in Follansbee, WV).[4] The Ohio EPA further describes the background selection process in their SIP Appendix E modeling protocol.[5] Note that the Ohio EPA SIP submittal effectively concludes that AEP's Cardinal Plant contributions are incorporated into the background for the areas surrounding Mingo Junction and MSC. Nonetheless, this modeling analysis conservatively considers AEP's Cardinal Plant as a separate modeled source. (The proposed SO_2 Attainment SIP for Ohio is contained in Appendix G.)

4.9. Discussion of Results

As described above, this modeling analysis addresses SO_2 emissions from the Mountain State Carbon facility (both the normal operations and the limited duration planned maintenance outage periods) in Follansbee, WV, the Mingo Junction Energy Center, the former Wheeling Pittsburgh Mingo Junction Steel Plant ("Mingo Junction Steel Works"), and the AEP Cardinal Power Plant. For the 1-hr SO_2 NAAQS, the modeling constraint is related to time periods of planned MSC maintenance outages which imply that normal operating modes result in compliance with this NAAQS by even greater compliance margins. The results from this

[3] *Ohio EPA's Information for 2010 SO_2 Attainment Demonstration Appendix K, Dispersion Modeling and Weight-of-Evidence Analysis for Steubenville, OH-WV, 2010 SO_2 NAAQS Nonattainment Area* (April 3, 2015).
[4] *Ohio EPA's State of Ohio Nonattainment Area State Implementation Plan Appendix A, Nonattainment Area AQS SO_2 Monitoring Data Retrievals.*
[5] *Ohio EPA's State of Ohio Nonattainment Area State Implementation Plan Appendix E, Modeling Protocol: Dispersion Modeling to Demonstrate Attainment of the 2010 SO_2 NAAQS.*

analysis are displayed in Table 1. As shown in the table, the model predicts concentrations below the NAAQS when considering this scenario.

Table 1. 1-Hour Average SO_2 Modeling Results

Source Group	Years	Maximum Model Output including background	UTM East	UTM North	NAAQS Standard
Total	2007 -2009	195.9	532115.0	4468809.0	196
MSC	2007 -2009	193.0	532115.0	4468809.0	196
Ohio Sources	2007 -2009	133.2	530897.0	4457677.0	196

A detailed modeling analysis report can be found in Appendix D-1.

"Averaging Period Analysis for SO_2 Emission Limitations" by Trinity Consultants can be found in Appendix D-2

5.0. CONTROL STRATEGY

As per the attached Consent Order (CO-SIP-C-2015-14), the company is combining #9 Boiler Stack and #10 Boiler Stack exhaust gas stream into the #6 and #7 existing Combined Boiler Stack. Also the COG Pipeline leading to the Mingo Junction Energy Center is to be permanently physically disconnected in addition to not allowing any COG to leave the plant proper.

COG Combustion Sources	SO_2 in (lb/hr) as a daily average
#1 Battery (P001-4)	21.4
#2 Battery (P002-4)	21.4
#3 Battery (P003-4)	24.5
#8 Battery (P004-4)	115.4
Combined Boilers #6, #7, #9, #10 (P017, P018, S1, S5)	85.7

During maintenance outages the company will limit sulfur content of the coal to no greater than 1.25% and reduce operations. The Acid Plant Tail Gas stack is to be limited to 6 lb/hr of SO_2. Additional stack testing of sources along with maintenance outage details can be found in the attached Consent Order.

Source	SO_2 in (lbs/hr.) as a daily average
Acid Plant Tail Gas Scrubber (P021-19)	6.0

The compliance monitoring strategy for the company consists of installing, operating and maintaining flow monitors to record the quantity of COG combusted at each COG combustion source. The company is also required to continuously monitor the concentration of H_2S in the COG stream. These output of these parametric monitoring devices will be collected and maintained in a data acquisition and monitoring system in order for a lbs/hr SO_2 emission rate to be calculated to assess compliance with the individual source limits.

Section II.1.a of the Mountain State Carbon Consent Order establishes limits that apply at all times, except during maintenance outages. Section II.4 of the MSC Consent Order establishes requirements that apply during a different mode of operation - maintenance outages - which are necessary for the maintenance, repair and replacement of the coke oven gas (COG) H_2S scrubber, acid plant and ancillary equipment for the continued desulfurization of the facility's COG.

The attached Consent Order applies to Mountain State Carbon coke production facility use and maintenance of the H_2S scrubber. Maintenance outages are not startup or shutdown, but a normal mode of operation. Coke production is a continuous process, in which scrubber maintenance is periodically required. It is technically infeasible to operate the scrubber during maintenance. The Consent Order limits the number of days per year and the number of hours per maintenance outage. In addition the Consent Order requires modeling of each maintenance outage and an SO_2 mitigation plan for all planned outages. The Consent Order requires the employment of reasonable controls and process measures to reduce SO_2 emissions during unplanned outages. The Consent Order also includes recordkeeping and reporting requirements.

Enforceable Consent Order CO-SIP-C-2015-14 can be found in Appendix D.

6.0. CONTINGENCY MEASURES

Section 172(c)(9) of the Clean Air Act requires that nonattainment plan provisions provide for the implementation of specific measures to be undertaken if the area fails to attain the revised SO_2 NAAQS by the attainment date of October 4, 2018. In the "General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990," published on April 16, 1992 at 57 FR 13498, EPA expressly discussed contingency measures for SO_2. This guidance states that in many cases attainment revolves around compliance of a single source or small set of sources with emission limits shown to provide for attainment. This guidance concludes that in such cases, "EPA interprets 'contingency measures' to mean that the state agency 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."

Thorough compliance and enforcement inspections, monthly parametric monitoring data review, and quarterly record reviews along with cyclical stack testing constitute an aggressive compliance assurance plan. Non-compliance may lead to an immediate notice of violation and drafting of an enforceable consent order.

The State of West Virginia air monitoring section operates a comprehensive program to identify violations of the SO_2 NAAQS. The state has the authority to implement and enforce all emission limitations and control measures adopted in this SIP.

6.1. Section 110(a)(2) Requirements

Section 110(a)(2) specifies the substantive elements that state SIP submissions need to address for EPA approval and includes requirements for: emissions limits and control measures, ambient air quality monitoring, enforcement of Clean Air Act permitting programs, adequate personnel and funding, adequate authorities, stationary source monitoring, consultations with government officials, public notifications, PSD and visibility protection, modeling/data, permitting fees, and participation by affected local entities.

The applicable requirements of Section 110 are satisfied by the West Virginia Infrastructure SIP (Effective 11/17/2014, 79 FR 62022) containing or referencing provisions that satisfy the requirements of section 110(a)(2), as applicable, for purposes of implementing the new or revised SO_2 NAAQS.

7.0. VERIFICATION OF CONTINUED ATTAINMENT

The State of West Virginia's current air quality regulations are sufficient to ensure and maintain NAAQS for Sulfur Dioxide in the area. The state of West Virginia will continue to monitor SO_2 in the Steubenville-Weirton, OH-WV area to verify continued attainment with NAAQS for SO_2. Air quality measurements will continue to be performed in accordance with appropriate regulations and guidance documents along with USEPA quality assurance requirements. Monitoring procedures will be determined in accordance with 40 CFR Parts 53 and 58 along with the USEPA SO_2 Designations Source-Oriented Monitoring Technical Assistance Document dated May 2013. The State will review monitored ambient SO_2 data annually, review local monitored meteorological data, and assess compliance of local targeted facilities to verify continued attainment of the area. The state will review annual emission inventory for the West Virginia portion of the Steubenville-Weirton, OH-WV area at a minimum of once every three years.

8.0. PUBLIC PARTICIPATION

In order to give notice of this proposed SIP revision, a Class 1 Legal Advertisement was placed in the Wheeling Intelligencer on December 4, 2015 and noticed in the State Register on December 4, 2015.

A Public Hearing will be held on January 4, 2016 at WVDEP Northern Panhandle Regional Office located at 131A Peninsula Street Wheeling, West Virginia.

Appendix F contains the public participation documentation.

9.0. CONCLUSION

The State of West Virginia requests that the United States Environmental Protection Agency act in a timely manner to approve this attainment demonstration for the West Virginia portion of the Steubenville, OH-WV nonattainment area, with an attainment date of October 4, 2018, as a revision to the state implementation plan.