

Technical Support Document:

Chapter 23

Intended Round 3 Area Designations for the 2010 1-Hour SO₂ Primary National Ambient Air Quality Standard for Montana

1. Summary

Pursuant to section 107(d) of the Clean Air Act (CAA), the U.S. Environmental Protection Agency (the EPA, we, or us) must designate areas as either “nonattainment,” “attainment,” or “unclassifiable” for the 2010 1-hour sulfur dioxide (SO₂) primary national ambient air quality standard (NAAQS) (2010 SO₂ NAAQS). The CAA defines a nonattainment area as an area that does not meet the NAAQS or that contributes to a nearby area that does not meet the NAAQS. An attainment area is defined by the CAA as any area that meets the NAAQS and does not contribute to a nearby area that does not meet the NAAQS. Unclassifiable areas are defined by the CAA as those that cannot be classified on the basis of available information as meeting or not meeting the NAAQS. In this action, the EPA has defined a nonattainment area as an area that the EPA has determined violates the 2010 SO₂ NAAQS or contributes to a violation in a nearby area, based on the most recent 3 years of air quality monitoring data, appropriate dispersion modeling analysis, and any other relevant information. An unclassifiable/attainment area is defined by the EPA as an area that either: (1) based on available information including (but not limited to) appropriate modeling analyses and/or monitoring data, the EPA has determined (i) meets the 2010 SO₂ NAAQS, and (ii) does not contribute to ambient air quality in a nearby area that does not meet the NAAQS; or (2) was not required to be characterized under 40 CFR 51.1203(c) or (d) and the EPA does not have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the area may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS¹. An unclassifiable area is defined by the EPA as an area that either: (1) was required to be characterized by the state under 40 CFR 51.1203(c) or (d), has not been previously designated, and on the basis of available information cannot be classified as either: (i) meeting or not meeting the 2010 SO₂ NAAQS, or (ii) contributing or not contributing to ambient air quality in a nearby area that does not meet the NAAQS; or (2) was not required to be characterized under 40 CFR 51.1203(c) or (d) and the EPA does have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the area may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS.

This technical support document (TSD) addresses designations for all remaining undesignated areas in Montana for the 2010 SO₂ NAAQS. In previous final actions, the EPA has issued

¹ The term “attainment area” is not used in this document because the EPA uses that term only to refer to a previous nonattainment area that has been redesignated to attainment as a result of the EPA’s approval of a state-submitted maintenance plan.

designations for the 2010 SO₂ NAAQS for selected areas of the country.² The EPA is under a December 31, 2017, deadline to designate the areas addressed in this TSD as required by the U.S. District Court for the Northern District of California.³ We are referring to the set of designations being finalized by the December 31, 2017, deadline as “Round 3” of the designations process for the 2010 SO₂ NAAQS. After the Round 3 designations are completed, the only remaining undesignated areas will be those where a state installed and began timely operation of a new SO₂ monitoring network meeting EPA specifications referenced in EPA’s SO₂ Data Requirements Rule (DRR). (80 FR 51052). The EPA is required to designate those remaining undesignated areas by December 31, 2020.

Montana submitted its first recommendation regarding designations for the 2010 1-hour SO₂ NAAQS on May 27, 2011, in which the state recommended attainment for every county aside from Yellowstone, where the state recommended unclassifiable. The state submitted updated air quality analysis and updated recommendations (again requesting attainment for all counties) on December 28, 2016. In our intended designations, we have considered all the submissions from the state, except where a recommendation in a later submission regarding a particular area indicates that it replaces an earlier recommendation for that area we have considered the recommendation in the later submission.

For the areas in Montana that are part of the Round 3 designations process, Table 1 identifies the EPA’s intended designations and the counties or portions of counties to which they would apply. It also lists Montana’s current recommendations. The EPA’s final designation for these areas will be based on an assessment and characterization of air quality through ambient air quality data, air dispersion modeling, other evidence and supporting information, or a combination of the above.

Table 1. Summary of the EPA’s Intended Designations and the Designation Recommendations by Montana

Area/County	Montana’s Recommended Area Definition	Montana’s Recommended Designation	EPA’s Intended Area Definition	EPA’s Intended Designation
Rosebud County	Rosebud County	Attainment	Rosebud County, and the portion of the Northern Cheyenne Reservation located in Big Horn County.	Unclassifiable/Attainment

² A total of 94 areas throughout the U.S. were previously designated in actions published on August 5, 2013 (78 FR 47191), July 12, 2016 (81 FR 45039), and December 13, 2016 (81 FR 89870).

³ *Sierra Club v. McCarthy*, No. 3-13-cv-3953 (SI) (N.D. Cal. Mar. 2, 2015).

Area/County	Montana's Recommended Area Definition	Montana's Recommended Designation	EPA's Intended Area Definition	EPA's Intended Designation
Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, McCone, Madison, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Silver Bow, Stillwater, Sweet Grass, Teton, Toole, Treasure,	Full County	Attainment	Full County (with the exception of Big Horn County and Yellowstone County as described in the next column).	Unclassifiable/Attainment (with the exception of the portion of Big Horn County containing the Northern Cheyenne Reservation and the portion of Yellowstone County redesignated May 10, 2016 (see 81 FR 28718)).

Area/County	Montana's Recommended Area Definition	Montana's Recommended Designation	EPA's Intended Area Definition	EPA's Intended Designation
Valley, Wheatland, Wibaux, and Yellowstone Counties.				

* The EPA intends to designate the remaining undesignated counties (or portions of counties) in Montana as “unclassifiable/attainment” as these areas were not required to be characterized by the state under the DRR and the EPA does not have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the areas may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS. These areas that we intend to designate as unclassifiable/attainment (those to which this row of this table is applicable) are identified more specifically in section 4 of this TSD.

2. General Approach and Schedule

Updated designations guidance documents were issued by the EPA through a July 22, 2016, memorandum and a March 20, 2015, memorandum from Stephen D. Page, Director, U.S. EPA, Office of Air Quality Planning and Standards, to Air Division Directors, U.S. EPA Regions I-X. These memoranda supersede earlier designation guidance for the 2010 SO₂ NAAQS, issued on March 24, 2011, and identify factors that the EPA intends to evaluate in determining whether areas are in violation of the 2010 SO₂ NAAQS. The documents also contain the factors that the EPA intends to evaluate in determining the boundaries for designated areas. These factors include: 1) air quality characterization via ambient monitoring or dispersion modeling results; 2) emissions-related data; 3) meteorology; 4) geography and topography; and 5) jurisdictional boundaries.

To assist states and other interested parties in their efforts to characterize air quality through air dispersion modeling for sources that emit SO₂, the EPA released its most recent version of a draft document titled, “SO₂ NAAQS Designations Modeling Technical Assistance Document” (Modeling TAD) in August 2016.⁴

Readers of this chapter of this TSD should refer to the additional general information for the EPA’s Round 3 area designations in Chapter 1 (Background and History of the Intended Round 3

² <https://www.epa.gov/sites/production/files/2016-06/documents/so2modelingtad.pdf>. In addition to this TAD on modeling, the EPA also has released a technical assistance document addressing SO₂ monitoring network design, to advise states that have elected to install and begin operation of a new SO₂ monitoring network. See Draft SO₂ NAAQS Designations Source-Oriented Monitoring Technical Assistance Document, February 2016, <https://www.epa.gov/sites/production/files/2016-06/documents/so2monitoringtad.pdf>.

Area Designations for the 2010 1-Hour SO₂ Primary National Ambient Air Quality Standard) and Chapter 2 (Intended Round 3 Area Designations for the 2010 1-Hour SO₂ Primary National Ambient Air Quality Standard for States with Sources Not Required to be Characterized).

As specified by the March 2, 2015, court order, the EPA is required to designate by December 31, 2017, all “remaining undesignated areas in which, by January 1, 2017, states have not installed and begun operating a new SO₂ monitoring network meeting EPA specifications referenced in EPA’s” SO₂ DRR. The EPA will therefore designate by December 31, 2017, areas of the country that are not, pursuant to the DRR, timely operating EPA-approved and valid monitoring networks. The areas to be designated by December 31, 2017, include the areas associated with one source in Montana meeting DRR emissions criteria that states have chosen to be characterized using air dispersion modeling, and all other areas not specifically required to be characterized by the DRR.

Because many of the intended designations have been informed by available modeling analyses, this preliminary TSD is structured based on the availability of such modeling information. There is a section for each county for which modeling information is available. The remaining to-be-designated counties are then addressed together in section 4.

The EPA does not plan to revise this TSD after consideration of state and public comment on our intended designation. A separate TSD will be prepared as necessary to document how we have addressed such comments in the final designations.

The following are definitions of important terms used in this document:

- 1) 2010 SO₂ NAAQS – The primary NAAQS for SO₂ promulgated in 2010. This NAAQS is 75 ppb, based on the 3-year average of the 99th percentile of the annual distribution of daily maximum 1-hour average concentrations. See 40 CFR 50.17.
- 2) Design Value - a statistic computed according to the data handling procedures of the NAAQS (in 40 CFR part 50 Appendix T) that, by comparison to the level of the NAAQS, indicates whether the area is violating the NAAQS.
- 3) Designated nonattainment area – an area that, based on available information including (but not limited to) appropriate modeling analyses and/or monitoring data, the EPA has determined either: (1) does not meet the 2010 SO₂ NAAQS, or (2) contributes to ambient air quality in a nearby area that does not meet the NAAQS.
- 4) Designated unclassifiable/attainment area – an area that either: (1) based on available information including (but not limited to) appropriate modeling analyses and/or monitoring data, the EPA has determined (i) meets the 2010 SO₂ NAAQS, and (ii) does not contribute to ambient air quality in a nearby area that does not meet the NAAQS; or (2) was not required to be characterized under 40 CFR 51.1203(c) or (d) and the EPA does not have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the area may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS.
- 5) Designated unclassifiable area – an area that either: (1) was required to be characterized by the state under 40 CFR 51.1203(c) or (d), has not been previously designated, and on the basis of available information cannot be classified as either: (i) meeting or not meeting the 2010 SO₂ NAAQS, or (ii) contributing or not contributing to ambient air quality in a nearby area that does not meet the NAAQS; or (2) was not required to be

characterized under 40 CFR 51.1203(c) or (d) and the EPA does have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the area may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS.

- 6) Modeled violation – a violation of the SO₂ NAAQS demonstrated by air dispersion modeling.
- 7) Recommended attainment area – an area that a state, territory, or tribe has recommended that the EPA designate as attainment.
- 8) Recommended nonattainment area – an area that a state, territory, or tribe has recommended that the EPA designate as nonattainment.
- 9) Recommended unclassifiable area – an area that a state, territory, or tribe has recommended that the EPA designate as unclassifiable.
- 10) Recommended unclassifiable/attainment area – an area that a state, territory, or tribe has recommended that the EPA designate as unclassifiable/attainment.
- 11) Violating monitor – an ambient air monitor meeting 40 CFR parts 50, 53, and 58 requirements whose valid design value exceeds 75 ppb, based on data analysis conducted in accordance with Appendix T of 40 CFR part 50.
- 12) We, our, and us – these refer to the EPA.

3. Technical Analysis for the Rosebud County Area

3.1. Introduction

The EPA must designate the Rosebud County, Montana, area by December 31, 2017, because the area has not been previously designated and Montana has not installed and begun timely operation of a new, approved SO₂ monitoring network to characterize air quality in the vicinity of any source in Rosebud County.

3.2. Air Quality Monitoring Data for the Rosebud County Area

This factor considers the SO₂ air quality monitoring data in the area of Rosebud County. The state did not include any monitoring data from Rosebud County in its TSD. There is some recent monitoring data in Rosebud County. Specifically, there were three monitors (AQS ID 300870762, 300870760, and 300870761) located in the Northern Cheyenne Reservation, each of which ceased operation after 2013 and which were located at least 23 km south of the Colstrip Facility. The maximum design value from all of these monitors was 13 ppb, well below the 2010 SO₂ NAAQS.

3.3. Air Quality Modeling Analysis for the Rosebud County Area Addressing Colstrip Power Plant

3.3.1. Introduction

This section 3.3 presents all the available air quality modeling information for a portion of Rosebud County that includes Colstrip Power Plant. (This portion of Rosebud County will often be referred to as “the Colstrip area” within this section 3.3.) This area contains the following SO₂ sources around which Montana is required by the DRR to characterize SO₂ air quality, or alternatively to establish an SO₂ emissions limitation of less than 2,000 tons per year:

- The Colstrip Power Plant facility emits 2,000 tons or more annually. Specifically, Colstrip emitted 10,110 tons of SO₂ in 2014. This source meets the DRR criteria and thus is on the SO₂ DRR Source list, and Montana has chosen to characterize it via modeling.
- The Rosebud Power Plant is not on the SO₂ DRR Source list, and it emitted 1,088 tons of SO₂ in 2014. However, the state included this source in its modeling analysis because it is located 11 km north of the Colstrip facility.

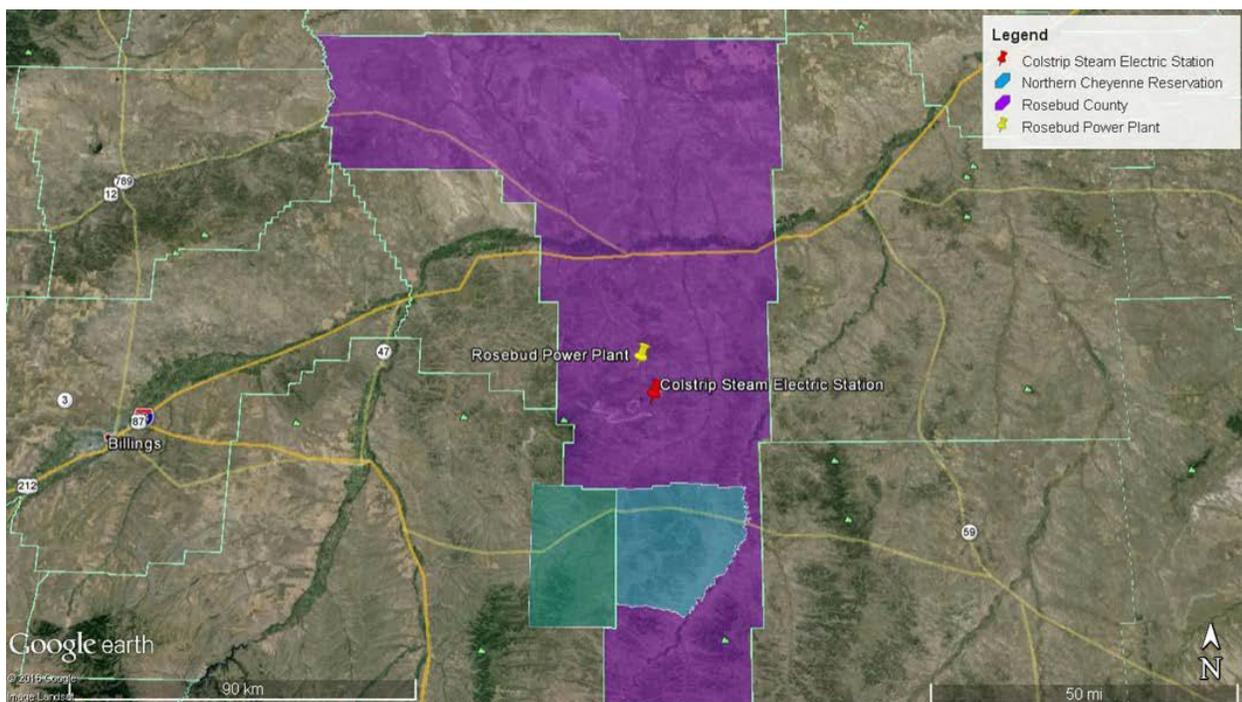
In its submission, Montana recommended that an area that includes the area surrounding the Colstrip Power Plant be designated as attainment based in part on an assessment and characterization of air quality impacts from this facility as well as nearby Rosebud Power Plant. This assessment and characterization was performed using air dispersion modeling software, i.e., AERMOD, analyzing actual emissions. After careful review of the state’s assessment, supporting documentation, and all available data, the EPA intends to modify the state’s recommendation

and designate the area as unclassifiable/attainment. Our reasoning for this conclusion is explained in a later section of this TSD, after all the available information is presented.

The area that the state has assessed via air quality modeling is located in central Rosebud County, Montana. As seen in Figure 1 below, the Colstrip facility is located in the town of Colstrip in central Rosebud County, north of the Northern Cheyenne Reservation. Also included in the figure are other nearby emitters of SO₂. Specifically, Rosebud Power Plant, located about 11 km north of Colstrip.

Also included in the figure is the State's recommended area for the attainment designation. The EPA's intended unclassifiable/attainment designation boundary for the Rosebud County area is not shown in this figure, but is shown in a figure in the section below that summarizes our intended designation.

Figure 1. Map of the Rosebud County Area Addressing Colstrip Station and Rosebud Power Plant



The discussion and analysis that follows below will reference the Modeling TAD and the factors for evaluation contained in the EPA's July 22, 2016, guidance and March 20, 2015, guidance, as appropriate.

For this area, the EPA received and considered one assessment from the state.

3.3.2. Modeling Analysis Provided by the State

The Montana Department of Environmental Quality (MDEQ) provided an air quality modeling assessment for the Colstrip Steam Electric Station in Rosebud County, Montana (MT). The

Colstrip Steam Electric Station is located in the town of Colstrip within Rosebud County, MT, in the southeast corner of Montana. The facility is located approximately 144 kilometers (km) to the east of Billings, MT, and approximately 80 km to the southwest of Miles City, MT.

3.3.2.1. Model Selection and Modeling Components

The EPA's Modeling TAD notes that for area designations under the 2010 SO₂ NAAQS, the AERMOD modeling system should be used, unless use of an alternative model can be justified. The AERMOD modeling system contains the following components:

- AERMOD: the dispersion model
- AERMAP: the terrain processor for AERMOD
- AERMET: the meteorological data processor for AERMOD
- BPIPPRM: the building input processor
- AERMINUTE: a pre-processor to AERMET incorporating 1-minute automated surface observation system (ASOS) wind data
- AERSURFACE: the surface characteristics processor for AERMET
- AERSCREEN: a screening version of AERMOD

. The state used AERMOD version 15181, the most up-to-date version at the time of submittal, using all regulatory default options. AERMOD version 16216r has since become the regulatory model version. There were no updates from 15181 to 16216r that would significantly affect the concentrations predicted here. A discussion of the state's approach to the individual components is provided in the corresponding discussion that follows, as appropriate.

3.3.2.2. Modeling Parameter: Rural or Urban Dispersion

For any dispersion modeling exercise, the "urban" or "rural" determination of a source is important in determining the boundary layer characteristics that affect the model's prediction of downwind concentrations. For SO₂ modeling, the urban/rural determination is important because AERMOD invokes a 4-hour half-life for urban SO₂ sources. Section 6.3 of the Modeling TAD details the procedures used to determine if a source is urban or rural based on land use or population density.

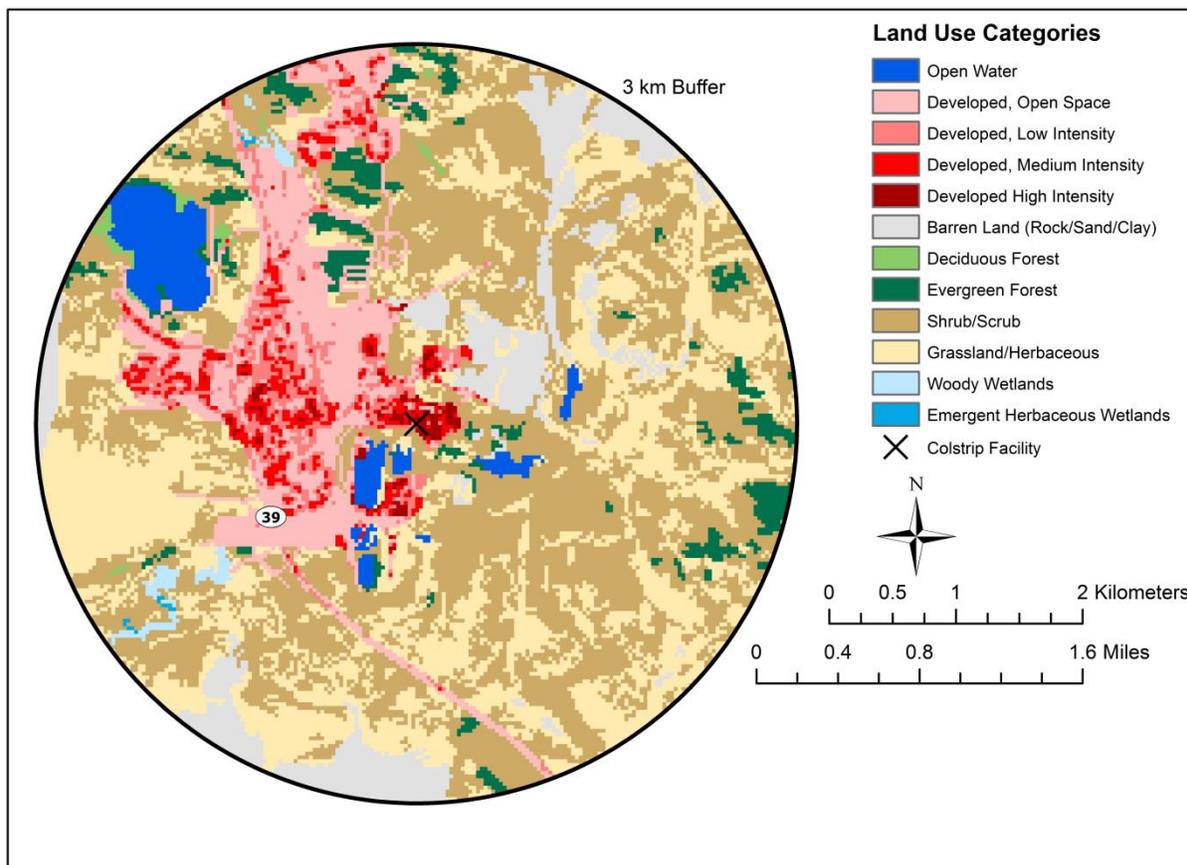
Rosebud County is a high plains area with terrain gently decreasing from west to east to a low point of 762 meters (m) at the Yellowstone River. Within 30 km to the south of Colstrip, the terrain rises to over 1,219 m in the Northern Cheyenne Indian Reservation (NCIR). The Colstrip Energy Limited Partnership (CELP) operates the Rosebud Power Plant approximately 11 km north of the Colstrip facility. Figure 2 shows the terrain between Colstrip and Rosebud is generally flat, as both facilities are located within a creek valley. The Colstrip facility is located in an area with less than 60 m change in elevation within a few kilometers of the facility. The elevation in the vicinity of the facility is roughly 975 m above sea level. Roughly 24 km to the west of the facility the terrain increases in elevation to 988 m.

Figure 2. Aerial view of the Colstrip facility surrounding area.



For the purpose of performing the modeling for the area of analysis, the State determined that it was most appropriate to run the model in rural mode. The site location was classified as rural using the land use procedure specified in Appendix W. The 2011 National Land Cover Database (NLCD) layer was clipped to a 3-km ring around the Colstrip facility. The percent of land classified as developed within this radius was less than 2 percent. By the definition in Appendix W, land that contains less than 50 percent of developed land use categories should be considered rural. Figure 3 shows the land cover within a 3-km radius of the Colstrip facility. The EPA agrees for the reasons articulated by the state that it was consistent with the TAD for the land use classification.

Figure 3. 2011 Land Use Categories for Rural Designations.



3.3.2.3. Modeling Parameter: Area of Analysis (Receptor Grid)

The TAD recommends that the first step towards characterization of air quality in the area around a source or group of sources is to determine the extent of the area of analysis and the spacing of the receptor grid. Considerations presented in the Modeling TAD include but are not limited to: the location of the SO₂ emission sources or facilities considered for modeling; the extent of concentration gradients due to the influence of nearby sources; and sufficient receptor coverage and density to adequately capture and resolve the model predicted maximum SO₂ concentrations.

The source of SO₂ emissions subject to the DRR in this area is described in the introduction to this section. For the Rosebud County area, the state has included one other emitter of SO₂ within 12 km of the Colstrip facility. The facility included was the Rosebud Power Plant. Additional information about the Rosebud Power Plant is below. The state determined that this was the appropriate distance to adequately characterize air quality through modeling to include the potential extent of any SO₂ NAAQS exceedances or violations in the area of analysis and any potential impact on SO₂ air quality from other sources in nearby areas. No other sources beyond

12 km were determined by the state to have the potential to cause concentration gradient impacts within the area of analysis.

A Cartesian modeling receptor array was established to capture the 99th percentiles of the maximum daily one-hour average SO₂ impacts from Colstrip. The receptor grid is a relatively dense receptor array with the following spacing beyond the fence line:

- 50 m spacing along fence line to at least 1 km from the fence line;
- 100 m spacing between 1 and 2 km from the fence line; and
- 250 m spacing between 2 and at least 10 km from the fence line.

No receptors were located within the facility fence line. Figure 4 shows the near-field receptor array and Figure 5 shows the far-field receptor array. Colstrip consists of the main generating facility and two evaporation ponds, one about 3.2 km northwest of the main plant site and one about 4.8 km southeast of the main plant site. Access to these areas is controlled at all times. The evaporation pond areas are fenced, signed as private property with no trespassing allowed, and patrolled routinely (at least twice per day) by plant security personnel. All access roads are controlled with lockable gates. At the main plant, access is by Talen-issued badge only and all visitors must sign in at the Security Guard Shack. The plant is fenced, signed as private property with no trespassing allowed, and patrolled routinely (at least twice per day) by plant security personnel. All access roads are controlled with lockable gates. Receptors were also placed over the Rosebud Power Plant. A total of 19,382 receptors were used for the modeling.

Figure 4. Colstrip Near-Field Receptor Array.

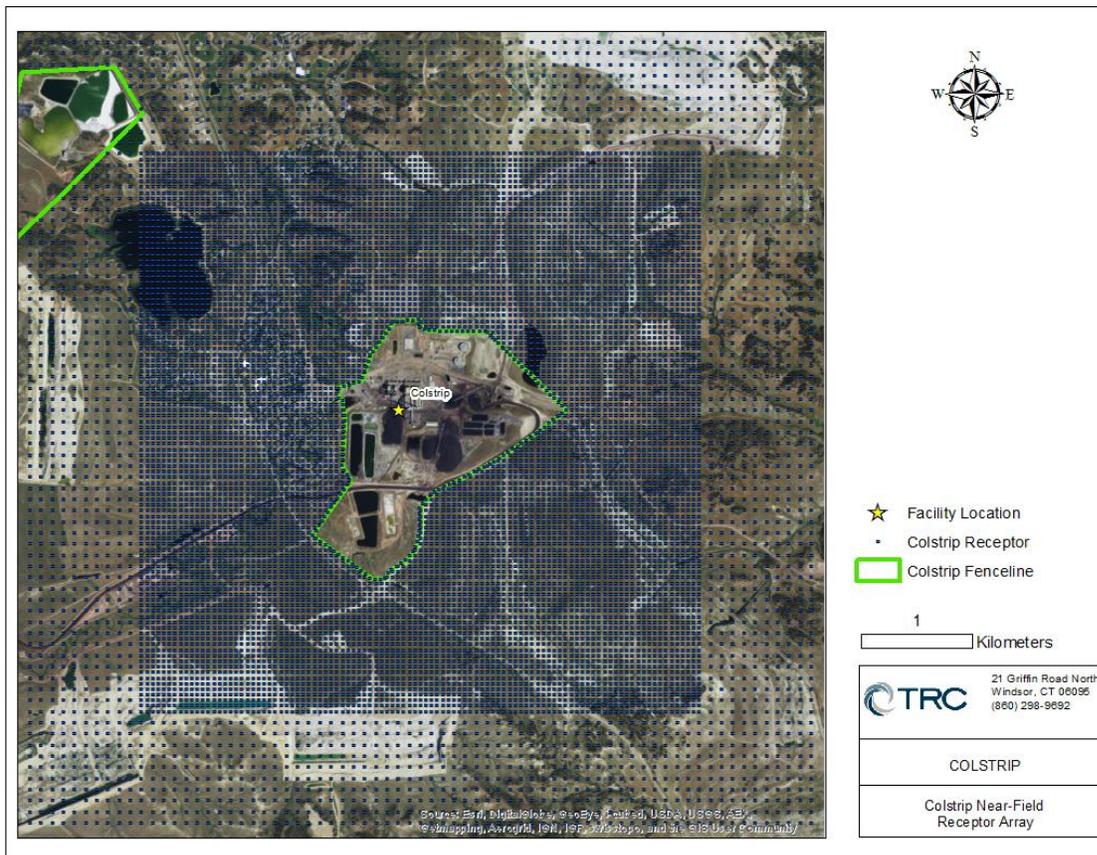
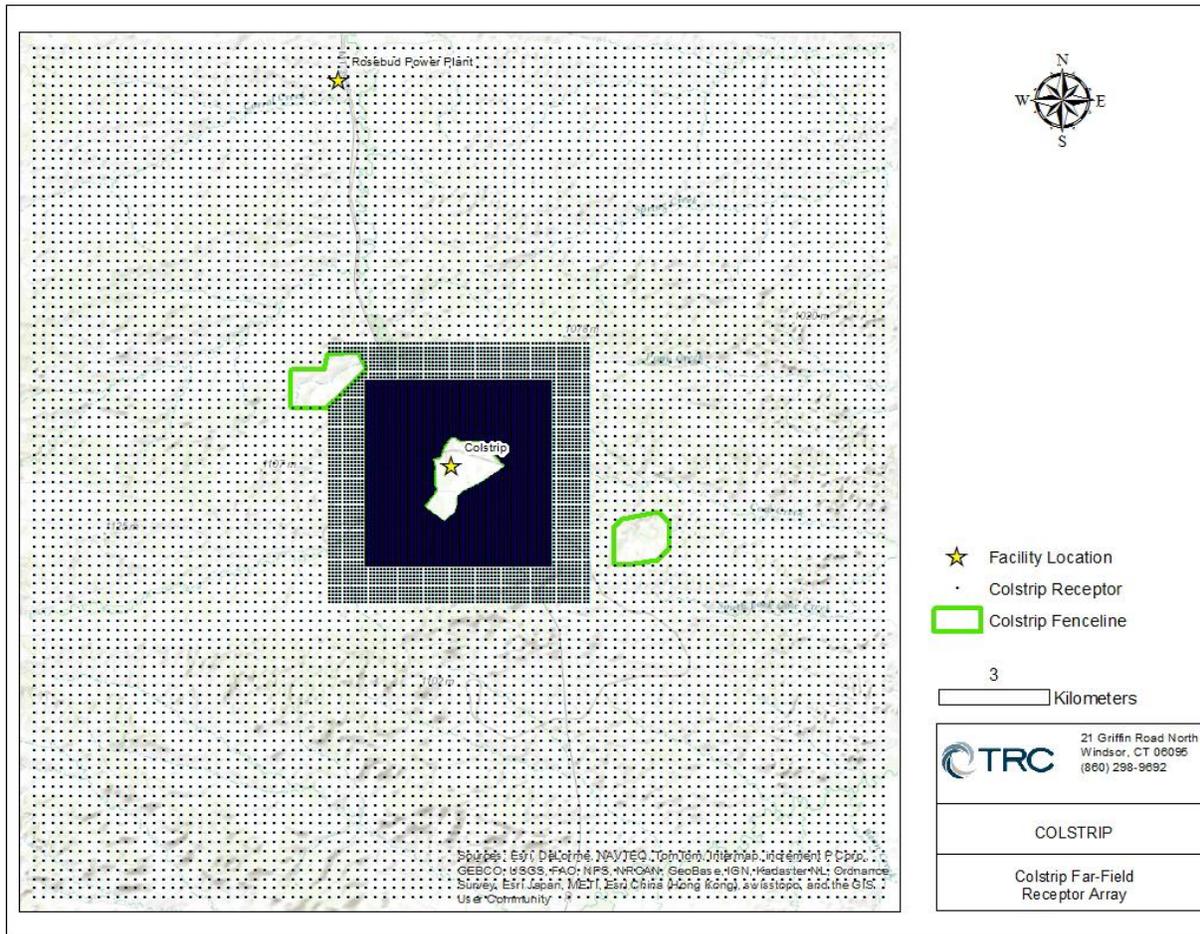


Figure 5. Colstrip Far-Field Receptor Array.



Consistent with the Modeling TAD, the State placed receptors for the purposes of this designation effort in locations that would be considered ambient air relative to each modeled facility, including other facilities' property. EPA agrees for the reasons articulated by the state that it was consistent with the TAD that the locations and coverage of receptors used in the State's air quality modeling assessment.

3.3.2.4. Modeling Parameter: Source Characterization

Section 6 of the Modeling TAD offers recommendations on source characterization including source types, use of accurate stack parameters, inclusion of building dimensions for building downwash (if warranted), and the use of actual stack heights with actual emissions or following GEP policy with allowable emissions.

Colstrip has four tangential coal-fired units (Units 1-4, EU001-EU004) as well as a building heating boiler (EU006) and emergency generators (EU010). Units 1 and 2 are 333 megawatt (MW) sub-bituminous coal-fired boilers with a name plate fuel input of 3,419.5 million British thermal units per hour (MMBtu/hr) each, as reported by Talen. Units 3 and 4 are 805 MW sub-

bituminous coal fired boilers with a name plate fuel input of 8,000 MMBtu/hr each, as reported by Talen.

In accordance with the Modeling TAD, three years of actual emissions data for the 2012 to 2014 calendar years were used to conduct the SO₂ designation modeling for Rosebud County. Actual stack temperatures and velocities were also used in the modeling from the valid CEMS data. The stack parameters that were used in modeling for Colstrip are provided in Table 3.

CELP operates the Rosebud Power Plant about 11 km north of the Colstrip facility. Rosebud is not an “applicable source” under the DRR since the facility emissions were below the 2,000 tpy applicability threshold during the 2014 calendar year (1,088 tpy of SO₂ in 2014). Rosebud has a single circulating fluidized bed coal-fired boiler (EU006) with a nameplate capacity of 41.5 MW per Rosebud’s Title V permit. This facility is designed to burn low-Btu waste coal from nearby mining operations. Sulfur dioxide emissions are controlled by limestone injection into a fluidized bed. The boiler has a permitted SO₂ emission limit of 72.32 grams per second and a required stack height of 60.96 m per Rosebud’s Title V permit. Due to the close proximity of the Rosebud and Colstrip power plants, the Rosebud Power Plant (EU006) was included as a nearby source in this modeling demonstration. Actual emissions, stack temperatures, and stack velocities were provided by CELP. The stack parameters that were used in modeling for Rosebud are provided in Table 3.

The plant structures, buildings, and tanks were included for AERMOD downwash calculations using BPIPPRM. A total of 41 structures were included in the modeling.

Table 3. Stack Parameters for Colstrip Steam Electric Station and Rosebud Power Plant.

Stack ID Number	NAD83 Zone 13 UTM Coordinates		Stack Height	Base Elevation	Stack Diameter	Exit Velocity	Exit Temperature
	Easting [km]	Northing [km]	m	m	m	m/s	K
Colstrip							
Unit 1	374.7065	5082.327	152.4	988	5.03	varies	varies
Unit 2	374.7749	5082.326	152.4	988	5.03	varies	varies
Unit 3	374.8787	5082.221	210.9	988	7.32	varies	varies
Unit 4	374.9696	5082.218	210.9	988	7.32	varies	varies
Rosebud							
Unit 1	371.7687	5092.6564	60.96	952.16	2.51	varies	varies

NAD83 = North American Datum 1983; UTM = Universal Transverse Mercator; m/s = meters per second; K = Kelvin degrees.

The State characterized these sources within the area of analysis in accordance with the best practices outlined in the Modeling TAD. Specifically, the State used actual stack heights in conjunction with actual emissions. The State also adequately characterized the sources’ building layout and location, as well as the stack parameters (e.g., exit temperature, exit velocity, location, and diameter). Where appropriate, the AERMOD component BPIPPRM was used to assist in addressing building downwash. EPA agrees for the reasons articulated by the state that it was consistent with the TAD for the characterization of the sources.

3.3.2.5. Modeling Parameter: Emissions

The EPA's Modeling TAD notes that for the purpose of modeling to characterize air quality for use in designations, the recommended approach is to use the most recent 3 years of actual emissions data and concurrent meteorological data. However, the TAD also indicates that it would be acceptable to use allowable emissions in the form of the most recently permitted (referred to as PTE or allowable) emissions rate that is federally enforceable and effective.

The EPA believes that continuous emissions monitoring systems (CEMS) data provide acceptable historical emissions information, when they are available. These data are available for many electric generating units. In the absence of CEMS data, the EPA's Modeling TAD highly encourages the use of AERMOD's hourly varying emissions keyword HOUREMIS, or through the use of AERMOD's variable emissions factors keyword EMISFACT. When choosing one of these methods, the EPA recommends using detailed throughput, operating schedules, and emissions information from the impacted source(s).

In certain instances, states and other interested parties may find that it is more advantageous or simpler to use PTE rates as part of their modeling runs. For example, where a facility has recently adopted a new federally enforceable emissions limit or implemented other federally enforceable mechanisms and control technologies to limit SO₂ emissions to a level that indicates compliance with the NAAQS the state may choose to model PTE rates. These new limits or conditions may be used in the application of AERMOD for the purposes of modeling for designations, even if the source has not been subject to these limits for the entirety of the most recent 3 calendar years. In these cases, the Modeling TAD notes that a state should be able to find the necessary emissions information for designations-related modeling in the existing SO₂ emissions inventories used for permitting or SIP planning demonstrations. In the event that these short-term emissions are not readily available, they may be calculated using the methodology in Table 8-1 of Appendix W to 40 CFR Part 51 titled, "Guideline on Air Quality Models."

As previously noted, the state included Colstrip Station and one other emitter of SO₂ within 11 km in the area of analysis. The state has chosen to model these facilities using actual emissions. The facilities in the state's modeling analysis and their associated annual actual SO₂ emissions between 2012 and 2014 are summarized below.

For Colstrip Station and Rosebud Power Plant, the state provided annual actual SO₂ emissions between 2012 and 2014. This information is summarized in Table 4. A description of how the state obtained hourly emission rates is given below this table. The EPA has also added emissions information from 2015 and 2016 which show that the 2012-2014 emissions data used in Montana's modeling analysis are slightly higher compared to more recent years, which indicates that the analysis based on 2012-2014 emissions may be considered conservative in the sense of marginally overestimating current SO₂ ambient concentrations.⁵

⁵ <https://ampd.epa.gov/ampd/>.

Table 4. Actual SO₂ Emissions Between 2012 – 2014 from Facilities in the Rosebud County Area

Facility Name	SO ₂ Emissions (tpy)				
	2012	2013	2014	2015	2016
Colstrip Station	9,204.30	12,476.59	10,222.13	9,651.89	8,726.18
Rosebud Power Plant	1,155.11	1,190.77	1,088.49	1,195	1,337
Total Emissions from All Modeled Facilities in the State's Area of Analysis	10,359.41	13,667.36	11,310.62	10,846.89	10,063.18

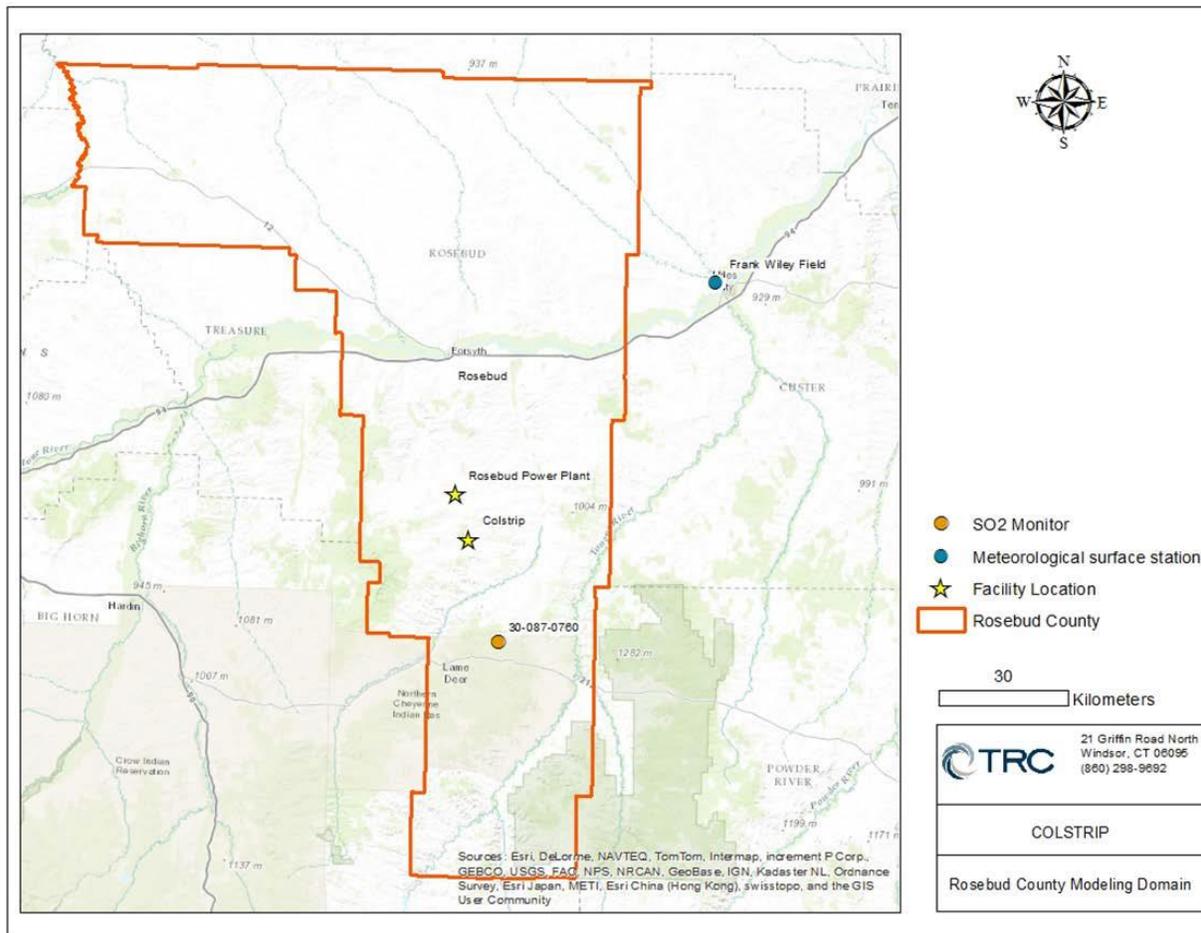
For both sources, the actual hourly emissions data were obtained from CEMs for 2012-2014, while the 2015-2016 data were obtained by the EPA from the Air Markets Program Data website to provide a comparison of the emissions modeled with those in more recent years.

3.3.2.6. Modeling Parameter: Meteorology and Surface Characteristics

As noted in the Modeling TAD, the most recent 3 years of meteorological data (concurrent with the most recent 3 years of emissions data) should be used in designations efforts. The selection of data should be based on spatial and climatological (temporal) representativeness. The representativeness of the data is determined based on: 1) the proximity of the meteorological monitoring site to the area under consideration, 2) the complexity of terrain, 3) the exposure of the meteorological site, and 4) the period of time during which data are collected. Sources of meteorological data include National Weather Service (NWS) stations, site-specific or onsite data, and other sources such as universities, Federal Aviation Administration (FAA), and military stations.

On-site meteorological data were not available at the Colstrip facility, so three years (2012-2014) of recent available NWS data were used in the modeling analysis. The Miles City Frank Wiley Field Airport surface station (Weather Bureau Army Navy (WBAN): 24037) and the Glasgow International Airport upper air station (WBAN: 94008) were selected as the closest representative stations. The Miles City NWS monitor is about 80 km to the northeast of Colstrip with similar terrain and is influenced by similar eastern Montana weather patterns. The Glasgow NWS monitor is about 250 km to the north of Colstrip with similar terrain and is influenced by similar eastern Montana weather patterns. Figure 6 presents the location of the NWS station relative to the area of analysis. This figure was provided in the state's analysis.

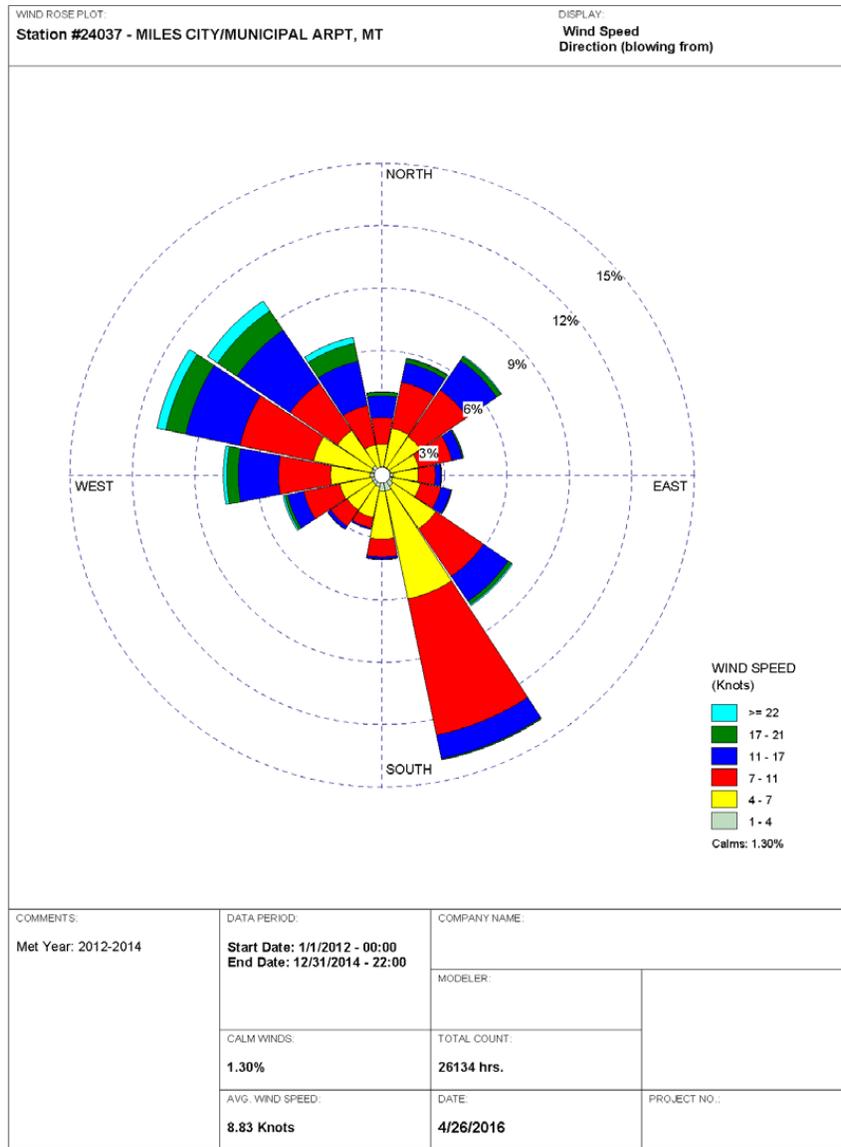
Figure 6. Rosebud County with Facilities and Monitoring Locations.



Hourly surface meteorological data records are read by AERMET, and include all the necessary elements for data processing. However, wind data taken at hourly intervals may not always portray wind conditions for the entire hour, which can be variable in nature. Hourly wind data may also be overly prone to indicate calm conditions, which are not modeled by AERMOD. In order to better represent actual wind conditions at the meteorological tower, one-minute ASOS (Automated Surface Observing System) wind data from the Miles City station were processed using AERMINUTE (version 15272) into hourly data for input into AERMET (15181). These data were subsequently integrated into the AERMET processing to produce final hourly wind records of AERMOD-ready meteorological data that better estimate actual hourly average conditions and that are less prone to over-report calm wind conditions. This allows AERMOD to apply more hours of meteorology to modeled inputs, and therefore produce a more complete set of concentration estimates. As a guard against excessively high concentrations that could be produced by AERMOD in very light wind conditions, the state set a minimum threshold of 0.5 meters per second in processing meteorological data for use in AERMOD. In setting this threshold, no wind speeds lower than this value would be used for determining concentrations. This threshold was specifically applied to the 1-minute wind data.

A surface wind rose for the entire 3-year period proposed for the modeling time period is shown in Figure 7. The wind rose shows that the dominant wind directions are from the south-southeast (about 15 percent of the time) and northwest (about 10 percent of the time). The average wind speed is about 8.83 knots, where calm winds are about 1.3 percent of the time.

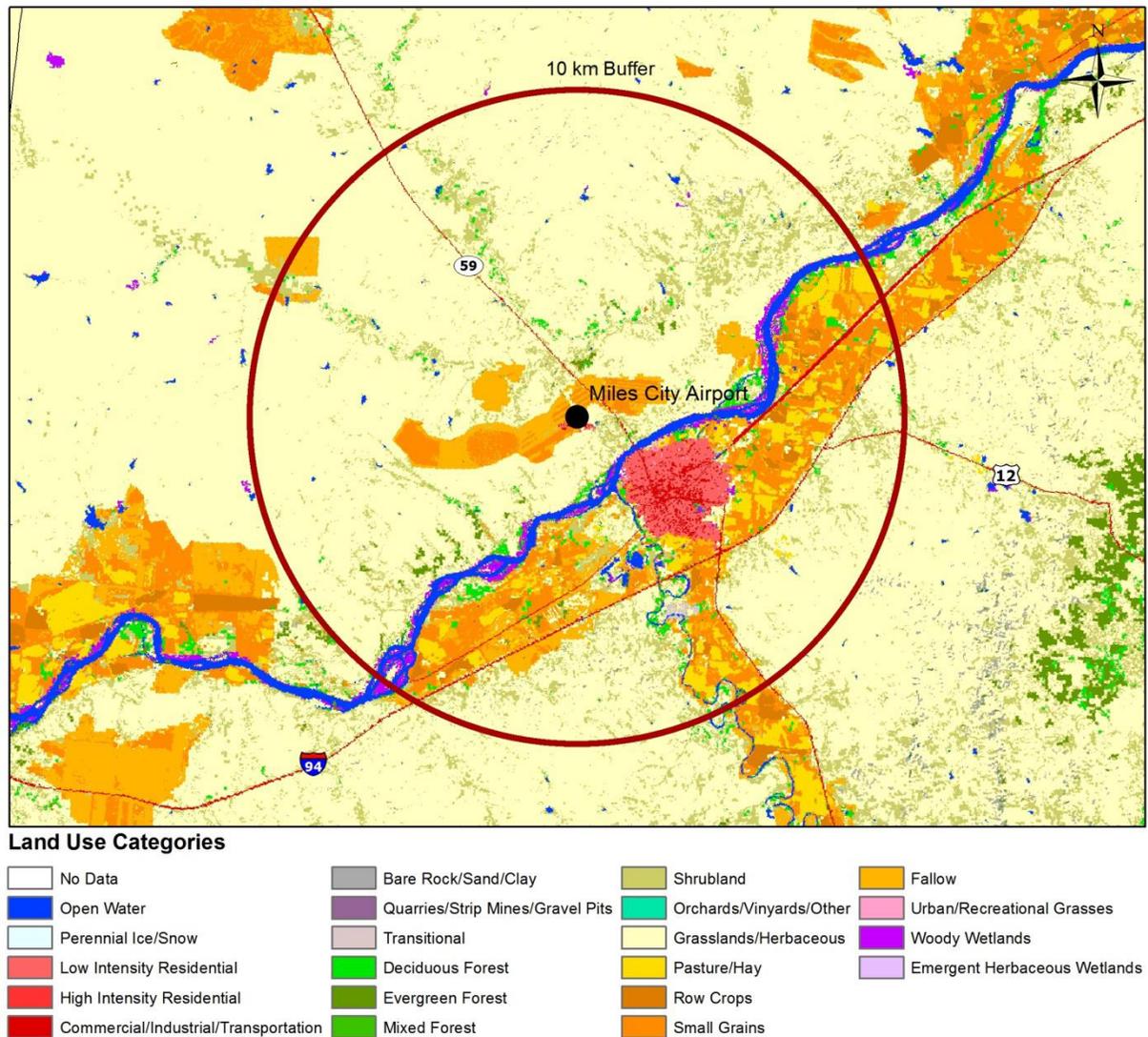
Figure 7. Wind Rose for Miles City Frank Wiley Field, MT, 2012-2014.



AERSURFACE (version 13016) was used to calculate the surface characteristics values, including albedo, Bowen ratio, and surface roughness length, at the surface meteorological observing site for input into AERMET. The 1992 National Land Cover Dataset (NLCD92) file

for input into AERSURFACE was downloaded from the United States Geological Society (USGS) website. Figure 8 shows the 1992 NLCD Land Use for the monitoring site.

Figure 8. 1992 NLCD Land Use, Miles City, MT.



The State estimated values in 30 degree sectors, equating to 12 spatial sectors out to a 1 km radius around the monitoring site for surface roughness. The Bowen ratio and albedo were determined based on the average characteristics over a 10 by 10 km square, centered on the monitoring site. The surface parameters were determined on a monthly basis using default season assignments.

Annual precipitation data between 1987 and 2014 from the NWS at the Mile City Airport were tabulated and percentiles (30th, 50th and 70th) were calculated to characterize the surface moisture conditions. If the annual precipitation was below the 30th percentile, the year was characterized as “dry”. If annual precipitation was above the 70th percentile, the year was categorized as “wet”

otherwise, the classification was “average.” Table 5 and Table 6 outline the percentiles used to characterize the surface moisture conditions.

Table 5. Summary of Precipitation Data for Miles City, MT, 1987-2014

Variable	Precipitation [inches]
Minimum	5.27
30 th Percentile	10.44
Average	12.60
70 th Percentile	14.30
Maximum	19.94

Table 6. Annual Total Precipitation for Miles City, MT, 1987-2014.

Year	Annual Precipitation [inches]	AERSURFACE Designation
2012	6.16	Dry
2013	17.11	Wet
2014	13.29	Average

The output meteorological data created by the AERMET processor is suitable for being applied with AERMOD input files for AERMOD modeling runs. The state followed the methodology and settings presented in Appendix W and the Modeling TAD in the processing of the raw meteorological data into an AERMOD-ready format, and used AERSURFACE to best represent surface characteristics. The EPA agrees for the reasons articulated by the state that it was consistent with the TAD where the meteorological data are representative of meteorological conditions within the area of analysis.

3.3.2.7. Modeling Parameter: Geography, Topography (Mountain Ranges or Other Air Basin Boundaries) and Terrain

As illustrated above, Rosebud County is a high plains area with terrain gently decreasing from west to east. The terrain between Colstrip and Rosebud is generally flat, as both facilities are located within a creek valley. To account for these terrain changes, the AERMAP terrain program (version 11103) was used to specify terrain elevations for all the receptors. The source of the elevation data incorporated into the model is from the USGS National Elevation Database. The EPA agrees for the reasons articulated by the state that it was consistent with the TAD for defining the terrain.

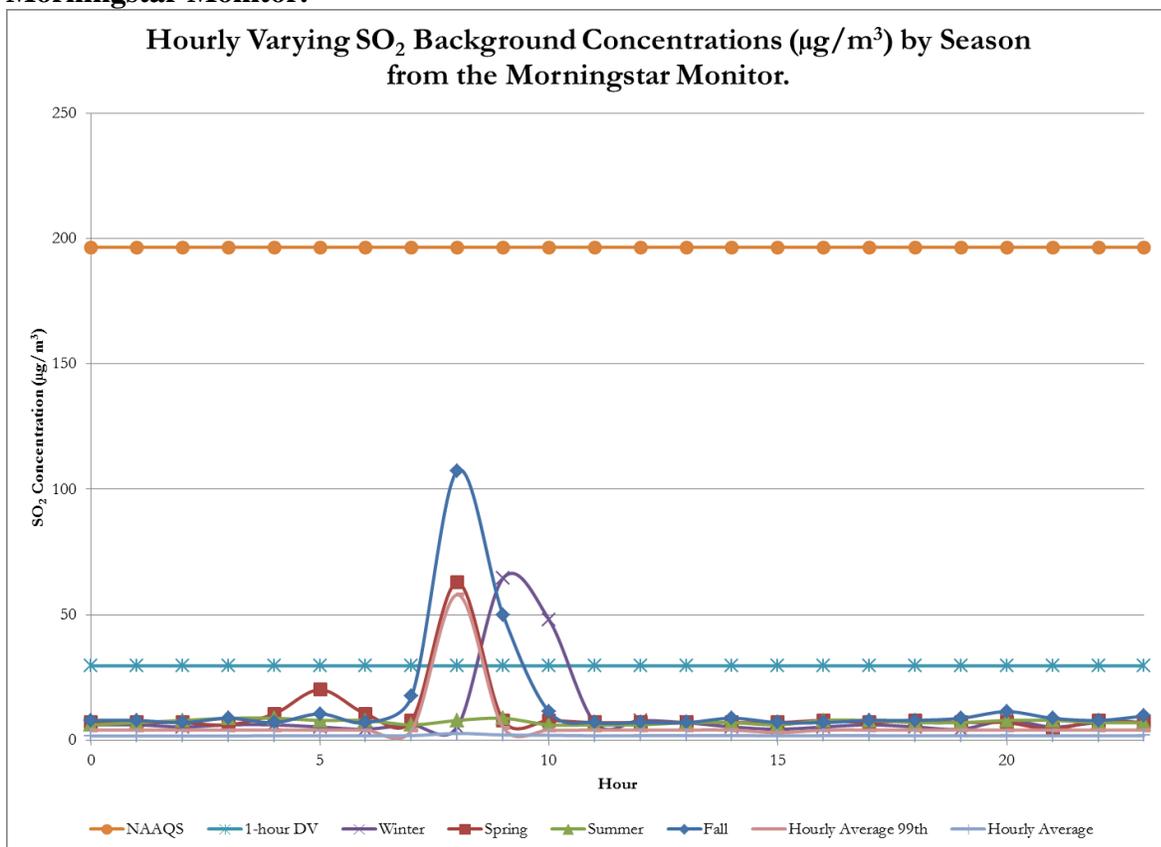
3.3.2.8. Modeling Parameter: Background Concentrations of SO₂

The Modeling TAD offers two mechanisms for characterizing background concentrations of SO₂ that are ultimately added to the modeled design values: 1) a “tier 1” approach, based on a monitored design value, or 2) a temporally varying “tier 2” approach, based on the 99th percentile monitored concentrations by hour of day and season or month. For this area of analysis, the state utilized the tier 2 approach, where the background concentrations for this area of analysis were determined by the state to vary seasonally.

Sulfur dioxide background data from the NCIR Morningstar monitor (Site ID 30-087-0760) were used to determine the appropriate one-hour background concentrations to add to the model

predicted concentrations. The location of the Morningstar monitor relative to Colstrip and Rosebud facilities is shown in Figure 6 above. The daily one-hour maximum SO₂ concentrations for 2012 and 2013 were available through the EPA AirData Website for the Morningstar monitor, but data were not available for 2014. The 2014 hourly SO₂ monitor data was acquired directly from the Northern Cheyenne Department of Environmental Protection and Natural Resources. A 90-degree wedge centered on a 335-degree wind direction was removed to exclude data from the Colstrip facility. All three years of data were reformatted and the 99th percentile daily one-hour maximum SO₂ concentration was calculated for each season based on guidance in the Modeling TAD. The same seasons that were used in AERSURFACE were used in this analysis (Winter = December – February; Spring = March – May; Summer = June – August; and Fall = September - November). The 2012-2014 three-year average hourly seasonal design value (DV), which is the three-year average of the 99th percentile daily one-hour maximum SO₂ concentrations within each season for each hour, was used in AERMOD using the BACKGRND command in the AERMOD Source pathway. Figure 9 shows the seasonal and hourly background values in micrograms per cubic meter (µg/m³), the NAAQS (196.5 µg/m³), and other relevant information.

Figure 9. Hourly Varying SO₂ Background Concentrations (µg/m³) by Season from the Morningstar Monitor.



The EPA agrees for the reasons articulated by the state that it was consistent with the TAD for determining the background concentration.

3.3.2.9. Summary of Modeling Inputs and Results

The AERMOD modeling input parameters for the Rosebud County area of analysis are summarized below in Table 7.

Table 7: Summary of AERMOD Modeling Input Parameters for the Area of Analysis for the Rosebud County Area

Input Parameter	Value
AERMOD Version	15181 (regulatory default)
Dispersion Characteristics	Rural
Modeled Sources	2
Modeled Stacks	5
Modeled Structures	41
Modeled Fencelines	1
Total receptors	19,382
Emissions Type	Actual
Emissions Years	2012-2014
Meteorology Years	2012-2014
NWS Station for Surface Meteorology	Miles City Airport, MT
NWS Station Upper Air Meteorology	Glasgow, MT
NWS Station for Calculating Surface Characteristics	Miles City, MT
Methodology for Calculating Background SO ₂ Concentration	Tier 2 Morningstar monitor (Site ID 30-087-0760) and Northern Cheyenne Department of Environmental Protection and Natural Resources between 2012 and 2014.
Calculated Background SO ₂ Concentration	4.36 to 107.37 µg/m ³

The results presented below in Table 8 show the magnitude and geographic location of the highest predicted modeled concentration based on the input parameters.

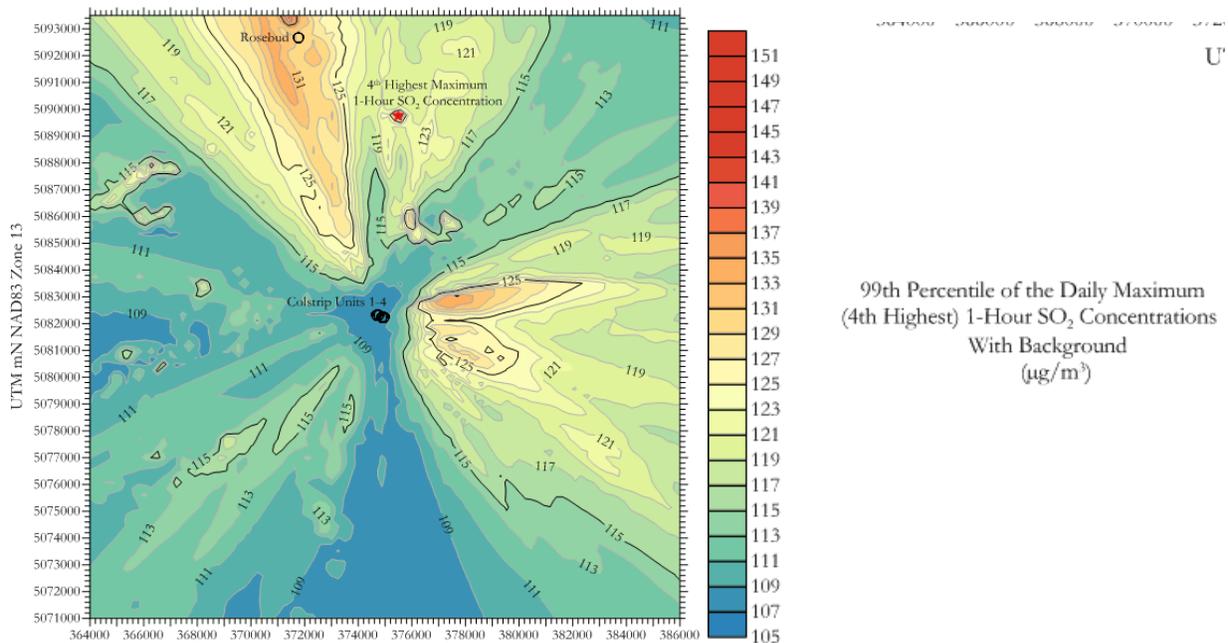
Table 8. Maximum Predicted 99th Percentile Daily Maximum 1-Hour SO₂ Concentration Averaged Over Three Years for the Area of Analysis for the Rosebud County Area

Averaging Period	Data Period	Receptor Location [UTM zone XX, if applicable]		99 th percentile daily maximum 1-hour SO ₂ Concentration (µg/m ³)	
		UTM/Latitude	UTM/Longitude	Modeled concentration (including background)	NAAQS Level
99th Percentile 1-Hour Average	2012 - 2014	375500.00	5089750.00	151.7	196.4*

*Equivalent to the 2010 SO₂ NAAQS of 75 ppb using a 2.619 µg/m³ conversion factor

The state’s modeling indicates that the highest predicted 99th percentile daily maximum 1-hour concentration within the chosen modeling domain is 151.7 µg/m³, equivalent to 57.9 ppb. This modeled concentration included the background concentration of SO₂, and is based on actual emissions from the facility. Figure 10 below was included as part of the state’s recommendation, and indicates that the predicted value occurred about 7.5 km north of the Colstrip facility.

Figure 10: Predicted 99th Percentile Daily Maximum 1-Hour SO₂ Concentrations Averaged Over Three Years for the Area of Analysis for the Rosebud County Area



The modeling submitted by the state does not indicate that the 1-hour SO₂ NAAQS is violated at the receptor with the highest modeled concentration, or that the area contributes to air quality in a nearby area that does not meet the NAAQS.

3.3.2.10. *The EPA's Assessment of the Modeling Information Provided by the State*

The state's approach to conducting the dispersion modeling for the EPA's 1-hour SO₂ designations appears to align with the TAD. The state has also provided sufficient information to the EPA to determine that the modeling assessment is sufficient for supporting designation decisions. While the state used AERMOD version 15181, the state elected to use the regulatory default options (i.e., ADJ_U* was not used in the modeling) which should not significantly impact the predicted SO₂ concentrations. The State also used data collected between 2012 and 2014, which are not the most recent years. However, the EPA supports the data used for the modeling assessment because it was the most complete data at the time the modeling was conducted, and the use of more recent data is not anticipated to cause significant differences in the model results. Further, the actual emissions data from the 2012-2014 period is slightly higher compared to the most recent 2015 and 2016 emissions totals (see Table 4, above). Finally, the EPA notes that the emissions collected by CEMS at the Colstrip Plant are slightly lower than those found in the EPA's Air Markets Program Data website.⁶ As shown in the table, emissions are trending downward so modeled design values should follow suit.

As of May 2017, the EPA has not received any modeling assessments from a 3rd party.

3.4. Emissions and Emissions-Related Data, Meteorology, Geography, and Topography for the Rosebud County Area

These factors have been incorporated into the air quality modeling efforts and results discussed above. The EPA is giving consideration to these factors by considering whether they were properly incorporated and by considering the air quality concentrations predicted by the modeling.

⁶ <https://ampd.epa.gov/ampd/>.

3.5. Jurisdictional Boundaries in the Rosebud County Area

Existing jurisdictional boundaries are considered for the purpose of informing the EPA's designation action for an area. Our goal is to base designations on clearly defined legal boundaries, and to have these boundaries align with existing administrative boundaries when reasonable.

As noted, the state recommended attainment for the whole of Rosebud County, which does not have point sources of SO₂ other than the two modeled in this analysis, according to the 2014 National Emissions Inventory. As shown in Figure 11, below, the Northern Cheyenne Reservation is located partially in Rosebud County, and partially in Big Horn County. The Northern Cheyenne Reservation does not contain any point sources of SO₂, according to the 2014 National Emissions Inventory.

3.6. The EPA's Assessment of the Available Information for the Rosebud County Area

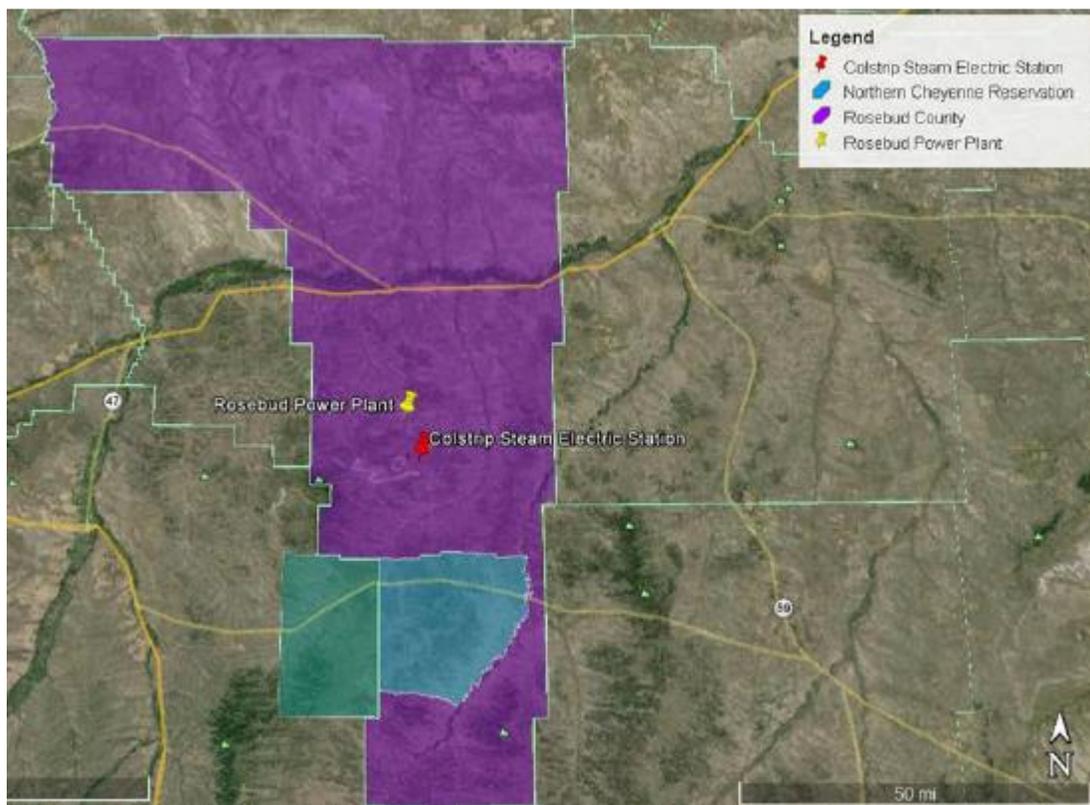
The EPA believes that our intended unclassifiable/attainment area, bounded by the borders of Rosebud County and the borders of the Northern Cheyenne Reservation in Big Horn County, will have clearly defined legal boundaries, and we intend to find these boundaries to be a suitable basis for defining our intended unclassifiable/attainment area.

3.7. Summary of Our Intended Designation for the Rosebud County Area

After careful evaluation of the state's recommendation and supporting information, as well as all available relevant information, the EPA intends to designate Rosebud County and the Northern Cheyenne Reservation as unclassifiable/attainment as the area meets the 2010 SO₂ NAAQS, and does not contribute to ambient air quality in a nearby area that does not meet the NAAQS. There are no nearby nonattainment areas. Specifically, the boundaries are comprised of Rosebud County and the borders of the Northern Cheyenne Reservation in Big Horn County.

Figure 11 shows the boundary of this intended designated area.

Figure 11. Boundary of the Intended Rosebud County Unclassifiable/Attainment Area



At this time, our intended designations for the state only apply to this area and the other areas presented in this technical support document.

4. Technical Analysis for All Other Counties in Montana

4.1. Introduction

The state has not installed and begun timely operation of a new, approved SO₂ monitoring network meeting EPA specifications referenced in EPA's SO₂ DRR, for any sources of SO₂ emissions in the counties and portions of counties identified in Table 9. Accordingly, the EPA must designate these counties by December 31, 2017. At this time, there are no air quality modeling results available to the EPA for these counties and portions of counties. In addition, there is no air quality monitoring data that indicate any violation of the 1-hour SO₂ NAAQS. The EPA is designating the counties and portions of counties in Table 9 in the state as "unclassifiable/attainment" since these counties were not required to be characterized under 40 CFR 51.1203(c) or (d) and EPA does not have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the area may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS.

Table 9. Counties and Portions of Counties that the EPA Intends to Designate Unclassifiable/Attainment

County or Partial County (p)	Montana's Recommended Area Definition	Montana's Recommended Designation	EPA's Intended Area Definition	EPA's Intended Designation
Beaverhead	Full County	Attainment	Full County	Unclassifiable/Attainment
Big Horn (p)	Full County	Attainment	Full County ¹	Unclassifiable/Attainment
Blaine ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Broadwater	Full County	Attainment	Full County	Unclassifiable/Attainment
Carbon ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Carter	Full County	Attainment	Full County	Unclassifiable/Attainment
Cascade	Full County	Attainment	Full County	Unclassifiable/Attainment
Chouteau ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Custer	Full County	Attainment	Full County	Unclassifiable/Attainment
Daniels ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Dawson	Full County	Attainment	Full County	Unclassifiable/Attainment
Deer Lodge	Full County	Attainment	Full County	Unclassifiable/Attainment
Fallon	Full County	Attainment	Full County	Unclassifiable/Attainment
Fergus	Full County	Attainment	Full County	Unclassifiable/Attainment
Flathead	Full County	Attainment	Full County	Unclassifiable/Attainment
Gallatin	Full County	Attainment	Full County	Unclassifiable/Attainment
Garfield	Full County	Attainment	Full County	Unclassifiable/Attainment
Glacier ²	Full County	Attainment	Full County	Unclassifiable/Attainment

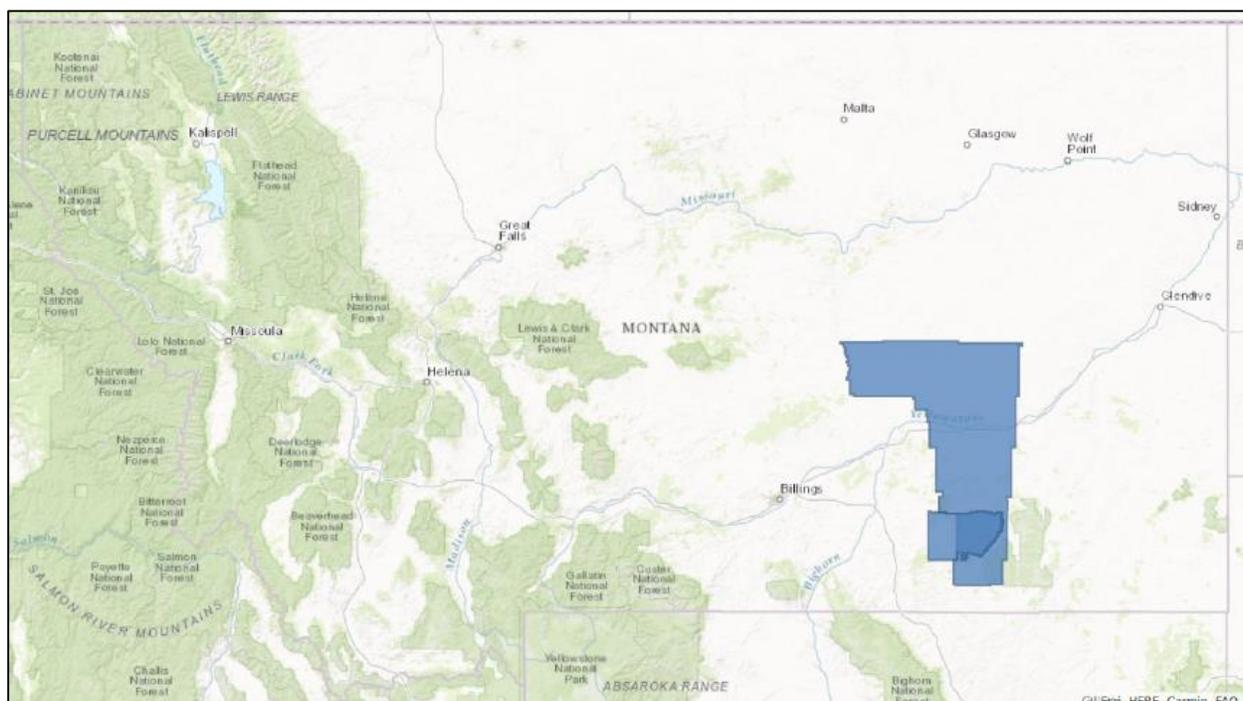
County or Partial County (p)	Montana's Recommended Area Definition	Montana's Recommended Designation	EPA's Intended Area Definition	EPA's Intended Designation
Golden Valley	Full County	Attainment	Full County	Unclassifiable/Attainment
Granite	Full County	Attainment	Full County	Unclassifiable/Attainment
Hill ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Jefferson	Full County	Attainment	Full County	Unclassifiable/Attainment
Judith Basin	Full County	Attainment	Full County	Unclassifiable/Attainment
Lake ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Lewis and Clark	Full County	Attainment	Full County	Unclassifiable/Attainment
Liberty	Full County	Attainment	Full County	Unclassifiable/Attainment
Lincoln	Full County	Attainment	Full County	Unclassifiable/Attainment
Madison	Full County	Attainment	Full County	Unclassifiable/Attainment
McCone ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Meagher	Full County	Attainment	Full County	Unclassifiable/Attainment
Mineral	Full County	Attainment	Full County	Unclassifiable/Attainment
Missoula ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Musselshell	Full County	Attainment	Full County	Unclassifiable/Attainment
Park	Full County	Attainment	Full County	Unclassifiable/Attainment
Petroleum	Full County	Attainment	Full County	Unclassifiable/Attainment
Phillips ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Pondera ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Powder River	Full County	Attainment	Full County	Unclassifiable/Attainment
Powell	Full County	Attainment	Full County	Unclassifiable/Attainment

County or Partial County (p)	Montana's Recommended Area Definition	Montana's Recommended Designation	EPA's Intended Area Definition	EPA's Intended Designation
Prairie	Full County	Attainment	Full County	Unclassifiable/Attainment
Ravalli	Full County	Attainment	Full County	Unclassifiable/Attainment
Richland	Full County	Attainment	Full County	Unclassifiable/Attainment
Roosevelt ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Sanders ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Sheridan ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Silver Bow	Full County	Attainment	Full County	Unclassifiable/Attainment
Stillwater	Full County	Attainment	Full County	Unclassifiable/Attainment
Sweet Grass	Full County	Attainment	Full County	Unclassifiable/Attainment
Teton	Full County	Attainment	Full County	Unclassifiable/Attainment
Toole	Full County	Attainment	Full County	Unclassifiable/Attainment
Treasure ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Valley ²	Full County	Attainment	Full County	Unclassifiable/Attainment
Wheatland	Full County	Attainment	Full County	Unclassifiable/Attainment
Wibaux	Full County	Attainment	Full County	Unclassifiable/Attainment
Yellowstone ² (p)	Full County	Unclassifiable	Full County ³	Unclassifiable/Attainment

1. With the exception of the portion of Big Horn County which includes the Northern Cheyenne Reservation.
2. Includes areas of Indian country located in the county.
3. With the exception of the portion of Yellowstone County that has already been redesignated from nonattainment to attainment (See 81 FR 28718, May 10, 2016).

Table 9 also summarizes Montana’s recommendations for these areas. Specifically, the State recommended that the entirety of the listed counties be designated as either unclassifiable or attainment, depending on the county, based on the monitoring data available and the lack of SO₂ sources in many counties across the state. After careful review of the state’s assessment, supporting documentation, and all available data, the EPA intends to designate each of these areas as unclassifiable/attainment. Figure 12 shows the locations of these areas within Montana, which is made up of all areas not shown in blue.

Figure 12. The EPA’s Intended Unclassifiable Designations for Counties in Montana

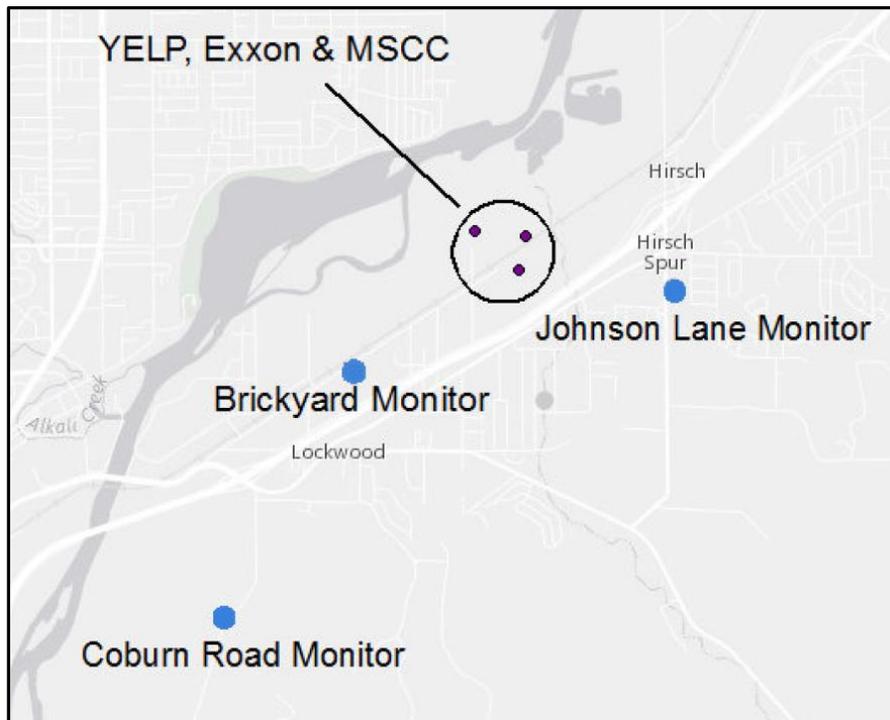


Previously designated areas will remain unchanged.

4.2. Air Quality Monitoring Data for the Billings, Montana Area

There are multiple sources of SO₂ located in Billings, Montana, in the Yellowstone County area. Notably, three sources are located in close proximity of one another; Montana Sulfur Chemical Company (MSCC), ExxonMobil Refinery, and Yellowstone Energy Limited Partnership (YELP). None of these sources emits greater than 2,000 tons of SO₂ annually, and so they were not determined to be subject to the DRR. Though the area did not require characterization per the DRR, the EPA has reviewed the available ambient monitoring data in the area to see if any violations of 2010 SO₂ NAAQS have been identified through such monitoring.

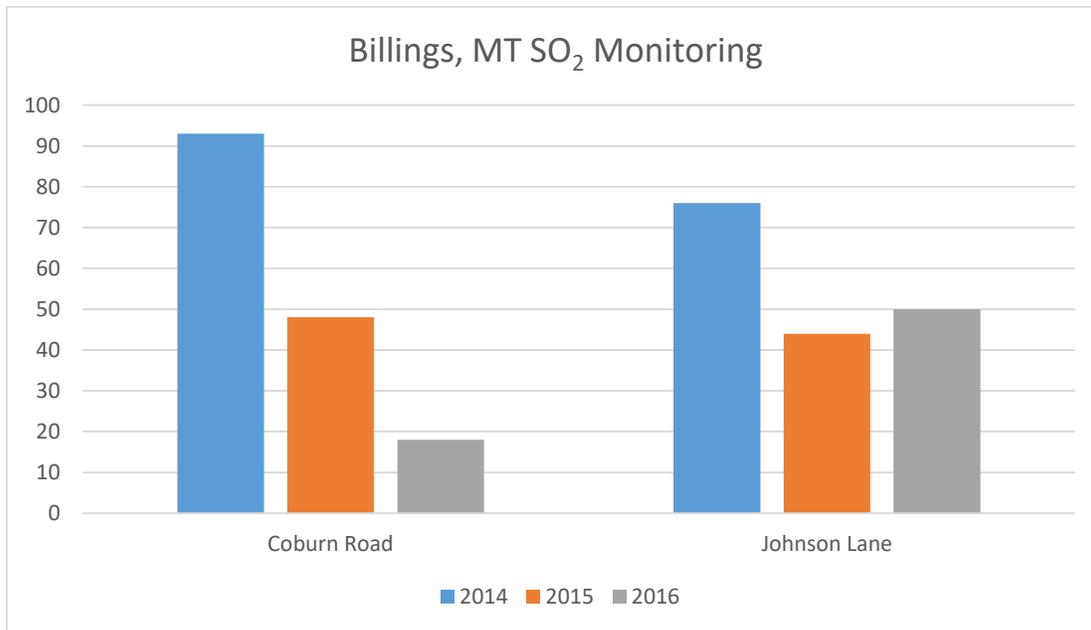
Figure 13. Sources and Monitors in Yellowstone County



As shown in Figure 13, three ambient monitors are located in close proximity to the Billings sources. The EPA notes that these monitors have not been shown to be located in the area of maximum concentration. Only the Coburn Road and Johnson Lane monitors are currently operating (the Brickyard monitor stopped operation in 2015). The last available 99th percentile value for the Brickyard monitor was collected from 2012-2014, and that value was 40 ppb. Only the Coburn Road monitor is an AQS monitor (site ID 301110066), while the Johnson Lane monitor is a source-oriented monitor required by the Yellowstone Electric Limited Partnership (YELP) permit.

The Coburn Road Monitor had violated the NAAQS based on a 2009-2011 design value. A single source, the PPL Corette power plant, was found to be the cause of the violation in a nonattainment area designation finalized August 5, 2013 (78 FR 47191). The PPL Corette facility was permanently shutdown on April 10, 2015, and subsequently dismantled. The EPA approved the redesignation of the Billings 2010 SO₂ nonattainment area to attainment on May 10, 2016 (81 FR 28718). As shown in Figure 14 below, the SO₂ monitor values at the two currently operating monitors have decreased significantly since the PPL Corrette facility ceased operation in early 2015. The 3-year design value for the Coburn Road monitor is 53, and the Johnson Lane 3-year design value is 56.6. These data were available to EPA for consideration in the designations process. However, EPA does not have information indicating this data is in an area of maximum concentration, so this data cannot be used as the basis for designation.

Figure 14. Billings SO₂ Monitoring



4.3. Air Quality Monitoring Data for the Rest of Montana

AQS monitors located in Lewis and Clark County (AQS ID 300490004) and Richland County (AQS ID 300830001) have sufficient valid data for 2013-2015, and these data indicate that there was no violation of the 2010 SO₂ NAAQS at these monitoring sites in that period.⁷ These data were available to EPA for consideration in the designations process. However, EPA does not have information indicating this data is in an area of maximum concentration, so this data cannot be used as the basis for designation.

⁷ <https://www.epa.gov/air-trends/air-quality-design-values>.

4.4. Jurisdictional Boundaries for All Other Counties in Montana

Existing jurisdictional boundaries are considered for the purpose of informing the EPA's designation action for these counties. Our goal is to base designations on clearly defined legal boundaries, and to have these boundaries align with existing administrative boundaries when reasonable. As noted, the State recommended a full county designation of attainment or unclassifiable for each county in Montana.

4.5. The EPA's Assessment of the Available Information for All Other Counties in Montana

After careful evaluation of the state's recommendation and supporting information, as well as all available relevant information, the EPA intends to designate the areas in the above Table 9 as unclassifiable/attainment for the 2010 SO₂ NAAQS. This is because these counties were not required to be characterized under 40 CFR 51.1203(c) or (d) and EPA does not have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the area may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS.

Our intended unclassifiable/attainment areas, bounded by county borders for those counties listed in Table 9, will have clearly defined legal boundaries, and we intend to find these boundaries to be a suitable basis for defining our intended unclassifiable/attainment area.

4.6. Summary of Our Intended Designation for All Other Counties in Montana

After careful evaluation of the state's recommendation and supporting information, as well as all available relevant information, the EPA intends to designate all other counties in Montana (see Section 4.2, above) as unclassifiable/attainment for the 2010 SO₂ NAAQS. Specifically, the boundaries are comprised of the borders of these counties. There will be no remaining undesignated areas in the state for this NAAQS following the finalization of the intended designations described in this document.