



6560-50-P

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 52**

**[EPA-R08-OAR-2018-0109; FRL-9978-72-Region 8]**

**Interstate Transport Prongs 1 and 2 for the 2010 Sulfur Dioxide (SO<sub>2</sub>) Standard for Colorado, Montana, North Dakota, South Dakota and Wyoming**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** The Environmental Protection Agency (EPA) is proposing to approve portions of State Implementation Plan (SIP) submissions from Colorado, Montana, North Dakota, South Dakota and Wyoming addressing the Clean Air Act (CAA or Act) interstate transport SIP requirements for the 2010 Sulfur Dioxide (SO<sub>2</sub>) National Ambient Air Quality Standards (NAAQS). These submissions address the requirement that each SIP contain adequate provisions prohibiting air emissions that will have certain adverse air quality effects in other states. The EPA is proposing to approve portions of these infrastructure SIPs for the aforementioned states as containing adequate provisions to ensure that air emissions in the states will not significantly contribute to nonattainment or interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in any other state.

**DATES:** Comments must be received on or before [insert date 30 days after date of publication in the Federal Register].

**ADDRESSES:** Submit your comments, identified by Docket ID No EPA-R08-OAR-2018-0109 at <http://www.regulations.gov>. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from [www.regulations.gov](http://www.regulations.gov). The EPA may

publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (i.e., on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions and general guidance on making effective comments, please visit <http://www2.epa.gov/dockets/commenting-epa-dockets>.

**FOR FURTHER INFORMATION CONTACT:** Adam Clark, Air Program, U.S. EPA Region 8, (303) 312-7104, [clark.adam@epa.gov](mailto:clark.adam@epa.gov).

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### **I. Background**

On June 2, 2010, the EPA established a new primary 1-hour SO<sub>2</sub> NAAQS of 75 parts per billion (ppb), based on a 3-year average of the annual 99<sup>th</sup> percentile of 1-hour daily maximum concentrations.<sup>1</sup> The CAA requires states to submit, within 3 years after promulgation of a new or revised NAAQS, SIPs meeting the applicable “infrastructure” elements of sections 110(a)(1) and (2). One of these applicable infrastructure elements, CAA section 110(a)(2)(D)(i), requires SIPs to contain “good neighbor” provisions to prohibit certain adverse air quality effects on neighboring states due to interstate transport of pollution.

Section 110(a)(2)(D)(i) includes four distinct components, commonly referred to as “prongs,” that must be addressed in infrastructure SIP submissions. The first two prongs, which are codified in section 110(a)(2)(D)(i)(I), require SIPs to contain adequate provisions that prohibit any source or other type of emissions activity in one state from contributing significantly to nonattainment of the NAAQS in another state (prong 1) and from interfering with maintenance of the NAAQS in another state (prong 2). The third and fourth prongs, which are codified in section 110(a)(2)(D)(i)(II), require SIPs to contain adequate provisions that prohibit emissions activity in one state from interfering with measures required to prevent significant

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<sup>1</sup> 75 FR 35520 (June 22, 2010).

deterioration of air quality in another state (prong 3) or from interfering with measures to protect visibility in another state (prong 4).

In this action, the EPA is proposing to approve the prong 1 and prong 2 portions of infrastructure SIP submissions submitted by: Colorado on July 17, 2013 and February 16, 2018; Montana on July 15, 2013; North Dakota on March 7, 2013; South Dakota on December 20, 2013; and Wyoming on March 6, 2015, as containing adequate provisions to ensure that air emissions in these states will not significantly contribute to nonattainment or interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in any other state. All other applicable infrastructure SIP requirements for these SIP submissions have been addressed in separate rulemakings.

## **II. Relevant Factors to Evaluate 2010 SO<sub>2</sub> Interstate Transport SIPs**

Although SO<sub>2</sub> is emitted from a similar universe of point and nonpoint sources, interstate transport of SO<sub>2</sub> is unlike the transport of fine particulate matter (PM<sub>2.5</sub>) or ozone, in that SO<sub>2</sub> is not a regional pollutant and does not commonly contribute to widespread nonattainment over a large (and often multi-state) area. The transport of SO<sub>2</sub> is more analogous to the transport of lead (Pb) because its physical properties result in localized pollutant impacts very near the emissions source. However, ambient concentrations of SO<sub>2</sub> do not decrease as quickly with distance from the source as Pb because of the physical properties and typical release heights of SO<sub>2</sub>. Emissions of SO<sub>2</sub> travel farther and have wider ranging impacts than emissions of Pb, but do not travel far enough to be treated in a manner similar to ozone or PM<sub>2.5</sub>. The approaches that the EPA has adopted for ozone or PM<sub>2.5</sub> transport are too regionally focused and the approach for Pb transport is too tightly circumscribed to the source. SO<sub>2</sub> transport is therefore a unique case and requires a different approach.

Given the physical properties of SO<sub>2</sub>, the EPA selected the “urban scale” – a spatial scale with dimensions from 4 to 50 kilometers (km) from point sources – given the usefulness of that range in assessing trends in both area-wide air quality and the effectiveness of large-scale pollution control strategies at such point sources.<sup>2</sup> As such, the EPA utilized an assessment up to 50 km from point sources in order to assess trends in area-wide air quality that might impact downwind states.

As discussed in Section III of this proposed action, the EPA first reviewed each state’s analysis to assess how the state evaluated the transport of SO<sub>2</sub> to other states, the types of information used in the analysis and the conclusions drawn by the state. The EPA then conducted a weight of evidence analysis, including review of each state’s submission and other available information, including air quality, emission sources and emission trends within the state and in neighboring states to which it could potentially contribute or interfere.<sup>3</sup>

### **III. States’ Submissions and EPA’s Analysis**

In this section, we provide an overview of each state’s 2010 SO<sub>2</sub> transport analysis, as well as the EPA’s evaluation of prongs 1 and 2 for each state. Table 1, below, shows emission

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<sup>2</sup> For the definition of spatial scales for SO<sub>2</sub>, please see 40 CFR part 58, Appendix D, section 4.4 (“Sulfur Dioxide (SO<sub>2</sub>) Design Criteria”). For further discussion on how the EPA is applying these definitions with respect to interstate transport of SO<sub>2</sub>, *see* the EPA’s proposal on Connecticut’s SO<sub>2</sub> transport SIP. 82 FR 21351, 21352, 21354 (May 8, 2017).

<sup>3</sup> This proposed approval action is based on the information contained in the administrative record for this action, and does not prejudge any other future EPA action that may make other determinations regarding any of the subject state’s air quality status. Any such future actions, such as area designations under any NAAQS, will be based on their own administrative records and the EPA’s analyses of information that becomes available at those times. Future available information may include, and is not limited to, monitoring data and modeling analyses conducted pursuant to the EPA’s SO<sub>2</sub> Data Requirements Rule (80 FR 51052, August 21, 2015) and information submitted to the EPA by states, air agencies, and third party stakeholders such as citizen groups and industry representatives.

trends for the five states addressed in this notice along with their neighboring states. The table will be referenced as part of the EPA’s analysis for each state.<sup>4</sup>

**Table 1. SO<sub>2</sub> Emission Trends**

<b>State</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2016</b>	<b>SO<sub>2</sub> reduction, 2000-2016</b>
<b>Arizona</b>	118,528	90,577	73,075	38,089	68%
<b>Colorado</b>	115,122	80,468	60,459	20,626	82%
<b>Idaho</b>	34,525	35,451	14,774	10,051	70%
<b>Iowa</b>	265,005	222,419	142,738	48,776	81%
<b>Kansas</b>	148,416	199,006	80,267	16,054	89%
<b>Minnesota</b>	148,899	156,468	85,254	34,219	77%
<b>Montana</b>	57,517	42,085	26,869	12,379	78%
<b>Nebraska</b>	86,894	121,785	77,898	40,964	52%
<b>New Mexico</b>	164,631	47,671	23,651	15,529	90%
<b>North Dakota</b>	275,138	159,221	199,322	152,505	44%
<b>Oklahoma</b>	145,862	169,464	136,348	73,006	50%
<b>South Dakota</b>	41,120	28,579	16,202	2,642	93%
<b>Utah</b>	58,040	52,998	29,776	15,226	73%
<b>Wyoming</b>	141,439	122,453	91,022	57,313	59%

A. *Colorado*

1. State’s Analysis

Colorado conducted a weight of evidence analysis to examine whether SO<sub>2</sub> emissions from Colorado adversely affect attainment or maintenance of the 2010 SO<sub>2</sub> NAAQS in downwind states. Colorado evaluated potential air quality impacts on areas outside the State through an assessment of whether SO<sub>2</sub> emissions from sources located within 50 km of Colorado’s borders may have associated interstate transport impacts. Colorado’s analysis included SO<sub>2</sub> emissions information in the State, with specific focus on sources and counties

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<sup>4</sup> This emissions trends information was derived from EPA’s Webpage <https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data>.

located within 50 km of Colorado's borders. Among these sources, Colorado provided an in-depth analysis of the two sources emitting over 100 tons per year (tpy) of SO<sub>2</sub>; the Nucla Generating Station (47 km east of Utah border) and Rawhide Energy Station (15 km south of Wyoming border). Colorado also reviewed meteorological conditions at SO<sub>2</sub> sources within 50 km of the State's border, and the distances from identified SO<sub>2</sub> sources in Colorado to the nearest area that is not attaining the NAAQS or may have trouble maintaining the NAAQS in another state. Finally, Colorado reviewed mobile source emissions data from highway and off-highway vehicles in all of the Colorado counties which border other states. Based on this weight of evidence analysis, Colorado concluded that emissions within the State will not contribute to nonattainment or interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in neighboring states.

## 2. EPA's Prong 1 Evaluation

The EPA proposes to find that Colorado's SIP meets the interstate transport requirements of CAA section 110(a)(2)(D)(i)(I), prong 1 for the 2010 SO<sub>2</sub> NAAQS, as discussed below. We have analyzed the air quality, emission sources and emission trends in Colorado and neighboring states, *i.e.*, Arizona, Kansas, Nebraska, New Mexico, Oklahoma, Utah and Wyoming. Based on that analysis, we propose to find that Colorado will not significantly contribute to nonattainment of the 2010 SO<sub>2</sub> NAAQS in any other state.

We reviewed 2014-2016 SO<sub>2</sub> design value concentrations at monitors with data sufficient to produce valid 1-hour SO<sub>2</sub> design values for Colorado and neighboring states.<sup>5</sup> In Table 2, below, we have included monitoring data from four scenarios: 1) all of the monitor data from

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<sup>5</sup> Data retrieved from EPA's <https://www.epa.gov/air-trends/air-quality-design-values#report>.

Colorado; 2) the monitor with the highest SO<sub>2</sub> level in each neighboring state; 3) the monitor in each neighboring state located closest to the Colorado border; and 4) all monitors in each neighboring state within 50 km of the border.

**Table 2. SO<sub>2</sub> Monitor Values in Colorado and Neighboring States**

<b>State/Area</b>	<b>Scenario</b>	<b>Site ID</b>	<b>Distance to Colorado Border (km)*</b>	<b>2014-2016 Design Value (ppb)<sup>6</sup></b>
Arizona/Miami	3	040070009	432	146
Arizona/ Hayden	2	040071001	470	280
Colorado/ Denver	1	080013001	127	18
Colorado/ Denver	1	080310002	138	12
Colorado/ Denver	1	080310026	135	14
Colorado/ Colorado Springs	1	080410015	203	52
Kansas/ Trego County	3	201950001	198	5
Kansas/ Kansas City	2	202090021	640	34
Nebraska/ Omaha	2	310550053	515	59
Nebraska/ Omaha	3	310550019	676	27
New Mexico/ Fruitland	4	350450009	28	3
New Mexico/ Waterflow	2, 3, 4	350451005	22	8
Oklahoma/ Muskogee	2	401010167	618	44
Oklahoma/ Oklahoma City	3	401091037	437	3
Wyoming/ Cheyenne	3, 4	560210100	20	9

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<sup>6</sup> Id.

Wyoming/ Casper	2	560252601	206	25
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\*All distances throughout this notice are approximations.

The EPA reviewed ambient air quality data in Colorado and neighboring states to see whether there were any monitoring sites, particularly near the Colorado border, with elevated SO<sub>2</sub> concentrations that might warrant further investigation with respect to interstate transport of SO<sub>2</sub> from emission sources near any given monitor. As shown, there are no violating design values in Colorado or neighboring states apart from in the Hayden, Arizona and Miami, Arizona areas. In Colorado's analysis, the state reviewed its potential impact on the Hayden and Miami, Arizona 2010 SO<sub>2</sub> nonattainment areas, which are the only areas designated nonattainment in states bordering Colorado. Colorado noted the significant distance between its border and these nonattainment areas, as well as the larger distance between the nonattainment areas to the nearest major SO<sub>2</sub> source in Colorado (Nucla Generating Station – 582 km).

The data presented in Table 2, above, show that Colorado's network of SO<sub>2</sub> monitors with data sufficient to produce valid 1-hour SO<sub>2</sub> design values indicates that monitored 1-hour SO<sub>2</sub> levels in Colorado are between 16% and 69% of the 75 ppb level of the NAAQS. As shown, there are no Colorado monitors located within 50 km of a neighboring state's border. Three monitors in neighboring states are located within 50 km of the Colorado border, and these monitors recorded SO<sub>2</sub> design values ranging between 4% and 12% of the 2010 SO<sub>2</sub> NAAQS. Thus, these air quality data do not, by themselves, indicate any particular location that would warrant further investigation with respect to SO<sub>2</sub> emission sources that might significantly contribute to nonattainment in the neighboring states. However, because the monitoring network is not necessarily designed to find all locations of high SO<sub>2</sub> concentrations, this observation indicates an absence of evidence of impact at these locations but is not sufficient evidence by

itself of an absence of impact at all locations in the neighboring states. We have therefore also conducted a source-oriented analysis.

As noted, the EPA finds that it is appropriate to examine the impacts of emissions from stationary sources in Colorado in distances ranging from 0 km to 50 km from the facility, based on the “urban scale” definition contained in Appendix D to 40 CFR part 58, Section 4.4.

Colorado assessed point sources up to 50 km from state borders to evaluate trends and SO<sub>2</sub> concentrations in area-wide air quality. The list of sources of 100 tpy<sup>7</sup> or more of SO<sub>2</sub> within 50 km from state borders, provided by Colorado, is shown in Table 3 below.

**Table 3. Colorado SO<sub>2</sub> Sources near Neighboring States**

<b>Colorado Source</b>	<b>2016 SO<sub>2</sub> Emissions (tons)*</b>	<b>Distance to Colorado Border (km)</b>	<b>Distance to Nearest Neighboring State SO<sub>2</sub> Source (km)</b>	<b>Neighboring State Source 2016 Emissions (tons)</b>
Nucla Generating Station	439	47	68 (Lisbon Natural Gas Processing Plant – San Juan County, Utah)	499
Rawhide Energy Station	878	15	35 (Frontier Petroleum Refinery – Cheyenne, Wyoming)	311

\* Emissions data throughout this document were obtained using EPA’s Emissions Inventory System (EIS) Gateway.

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<sup>7</sup> Colorado limited its analysis to Colorado sources of SO<sub>2</sub> emitting at least 100 tpy. We agree with Colorado’s choice to limit its analysis in this way, because in the absence of special factors, for example the presence of a nearby larger source or unusual physical factors, Colorado sources emitting less than 100 tpy can appropriately be presumed to not be causing or contributing to SO<sub>2</sub> concentrations above the NAAQS.

Table 3 shows the distance from the sources listed therein to the nearest out-of-state source emitting above 100 tpy of SO<sub>2</sub>, because elevated levels of SO<sub>2</sub>, to which SO<sub>2</sub> emitted in Colorado may have a downwind impact, are most likely to be found near such sources. In the case of the Nucla Generating Station, the distance between this source and the Colorado-Utah state border (47 km) and the nearest major SO<sub>2</sub> source in neighboring state Utah (68 km), indicate that emissions from Colorado are very unlikely to contribute significantly to problems with attainment of the 2010 SO<sub>2</sub> NAAQS in Utah. The EPA notes that Colorado recently revised the Nucla Generating Station NO<sub>x</sub> reasonable progress determination in its regional haze SIP to require the source to shut down before December 31, 2022, and the EPA has proposed approval of this SIP revision. *See* 83 FR 18244 (April 26, 2018).

With regard to the Rawhide Energy Station, because it is located within 50 km of the Frontier Petroleum Refinery in Cheyenne, Wyoming, the EPA has assessed potential SO<sub>2</sub> impacts from the Rawhide Energy Station on the Cheyenne area. First, the EPA reviewed available monitoring data in Cheyenne, Wyoming, 6 km northeast of the Frontier Petroleum Refinery. The 2014-2016 SO<sub>2</sub> design value for this monitor (Site ID 560210100 – See Table 2) was 9 ppb. The maximum 1-hour SO<sub>2</sub> value measured at this monitor from January 1, 2011, (when it began operation) to December 31, 2017, was 31 ppb. A second monitor not listed in Table 2, located 3 km east of the Frontier Petroleum Refinery, recorded 1 year of data in Cheyenne to examine potential population exposure near the refinery.<sup>8</sup> Between March 31, 2016, and April 3, 2017, this monitor recorded a maximum 1-hour SO<sub>2</sub> concentration of 44 ppb, with a

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<sup>8</sup> See Wyoming's 2016 Annual Monitoring Network Plan at pages 50-51: <http://deq.wyoming.gov/aqd/monitoring/resources/annual-network-plans/>.

fourth highest 1-hour daily maximum concentration of 16.7 ppb. All of these monitoring data combined indicate that SO<sub>2</sub> levels in Cheyenne, Wyoming, and therefore near the Frontier Petroleum Refinery, are not likely to exceed the 2010 SO<sub>2</sub> NAAQS or come near the level of a NAAQS exceedance.

The EPA also reviewed the location of sources in neighboring states emitting more than 100 tpy of SO<sub>2</sub> and located within 50 km of the Colorado border (see Table 4). This is because elevated levels of SO<sub>2</sub>, to which SO<sub>2</sub> emitted in Colorado may have a downwind impact, are most likely to be found near such sources. As shown in Table 4, the shortest distance between any pair of these sources is 84 km. Given the localized range of potential 1-hour SO<sub>2</sub> impacts, this indicates that there are no additional locations (apart from Cheyenne) in neighboring states that would warrant further investigation with respect to Colorado SO<sub>2</sub> emission sources that might contribute to problems with attainment of the 2010 SO<sub>2</sub> NAAQS. The Hayden and Miami, Arizona 2010 SO<sub>2</sub> nonattainment areas, which Colorado reviewed as part of its analysis, are over 400 km from the nearest Colorado border and so were not included in Table 4. Colorado asserted that the significant distance between its border and these nonattainment areas indicates that it is highly unlikely that SO<sub>2</sub> emissions generated in Colorado are contributing significantly to either nonattainment area in Arizona, and the EPA agrees with this conclusion.

**Table 4. Neighboring State SO<sub>2</sub> Sources near Colorado\***

<b>Source</b>	<b>2016 SO<sub>2</sub> Emissions (tons)</b>	<b>Distance to Colorado Border (km)</b>	<b>Distance to Nearest Colorado SO<sub>2</sub> Source (km)</b>	<b>Colorado Source 2016 Emissions (tons)</b>
San Juan Generating Station (Waterflow, New	2,913	22	160 (Nucla Generating Station – Nucla, Colorado)	439

Mexico)				
Four Corners Steam Electric Station (Navajo Nation)	4,412	34	172 (Nucla Generating Station – Nucla, Colorado)	439
Bonanza Power Plant (Uintah and Ouray Reservation)	1,305	20	84 (Meeker Gas Plant – Rio Blanco County, Colorado)	210
Resolute Natural Resources Company – Aneth Unit (Navajo Nation)	118	19	124 (Nucla Generating Station – Nucla, Colorado)	439
Clean Harbors Env. Services (Kimball County, Nebraska)	218	17	104 (Pawnee Generating Station - Fort Morgan, Colorado)	1,493

\* We have not included sources that are duplicative of those in Table 3.

In conclusion, for interstate transport prong 1, we reviewed ambient SO<sub>2</sub> monitoring data and SO<sub>2</sub> emission sources both within Colorado and in neighboring states. Based on this analysis, we propose to determine that Colorado will not significantly contribute to nonattainment of the 2010 SO<sub>2</sub> NAAQS in any other state, per the requirements of CAA section 110(a)(2)(D)(i)(I).

### 3. EPA’s Prong 2 Evaluation

In its prong 2 analysis, Colorado reviewed potential SO<sub>2</sub> impacts on the Billings, Montana area, which is currently in “maintenance” status for the 2010 SO<sub>2</sub> NAAQS, noting the large distance between the nearest Colorado border and the Billings area (520 km). The EPA interprets CAA section 110(a)(2)(D)(i)(I) prong 2 to require an evaluation of the potential impact of a state’s emissions on areas that are currently measuring clean data, but that may have issues

maintaining that air quality, rather than only former nonattainment, and thus current maintenance, areas. Therefore, in addition to the analysis presented by Colorado, the EPA has also reviewed additional information on SO<sub>2</sub> air quality and emission trends to evaluate the State's conclusion that Colorado will not interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in downwind states. This evaluation builds on the analysis regarding significant contribution to nonattainment (prong 1). Specifically, because of the low monitored ambient concentrations of SO<sub>2</sub> in Colorado and neighboring states, and the large distances between cross-state SO<sub>2</sub> sources, the EPA is proposing to find that SO<sub>2</sub> levels in neighboring states near the Colorado border do not indicate any inability to maintain the SO<sub>2</sub> NAAQS that could be attributed in part to sources in Colorado.

As shown in Table 1, the statewide SO<sub>2</sub> emissions from Colorado and neighboring states have decreased substantially over time, per our review of the EPA's emissions trends data.<sup>9</sup> From 2000 to 2016, total statewide SO<sub>2</sub> emissions decreased by the following proportions: Arizona (68% decrease), Colorado (82% decrease), Kansas (89% decrease), Nebraska (52% decrease), New Mexico (90% decrease), Utah (73% decrease) and Wyoming (59% decrease). This trend of decreasing SO<sub>2</sub> emissions does not by itself demonstrate that areas in Colorado and neighboring states will not have issues maintaining the 2010 SO<sub>2</sub> NAAQS. However, as a piece of this weight of evidence analysis for prong 2, it provides further indication (when considered alongside low monitor values in neighboring states) that such maintenance issues are unlikely. This is because the geographic scope of these reductions and their large sizes strongly suggest that they are not

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<sup>9</sup> Additional emissions trends data are available at: <https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data>.

transient effects from reversible causes, and thus these reductions suggest that there is very low likelihood that a strong upward trend in emissions will occur that might cause areas presently in attainment to violate the NAAQS.

As noted in Colorado's submission, any future large sources of SO<sub>2</sub> emissions will be addressed by Colorado's SIP-approved Prevention of Significant Deterioration (PSD) program.<sup>10</sup> Future minor sources of SO<sub>2</sub> emissions will be addressed by Colorado's SIP-approved minor new source review permit program.<sup>11</sup> The permitting regulations contained within these programs should help ensure that ambient concentrations of SO<sub>2</sub> in neighboring states are not exceeded as a result of new facility construction or modification occurring in Colorado.

In conclusion, for interstate transport prong 2, we reviewed additional information about emission trends, as well as the technical information considered for interstate transport prong 1. We find that the combination of low ambient concentrations of SO<sub>2</sub> in Colorado and neighboring states, the large distances between cross-state SO<sub>2</sub> sources, the downward trend in SO<sub>2</sub> emissions from Colorado and neighboring states, and state measures that prevent new facility construction or modification in Colorado from causing SO<sub>2</sub> exceedances in downwind states, indicates no interference with maintenance of the 2010 SO<sub>2</sub> NAAQS from Colorado. Accordingly, we propose to determine that Colorado SO<sub>2</sub> emission sources will not interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in any other state, per the requirements of CAA section 110(a)(2)(D)(i)(I).

## *B. Montana*

### 1. State's Analysis

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<sup>10</sup> See EPA's final action of the PSD portions of Colorado's SIP, at 82 FR 39030, August 17, 2017.

<sup>11</sup> *Id.*

Montana relied on existing programs to assert that SO<sub>2</sub> emissions from Montana will not adversely affect attainment or maintenance of the 2010 SO<sub>2</sub> NAAQS in downwind states.

Montana noted that sources within the State are subject to new source review and Montana Air Quality Permit (MAQP) requirements, as well as applicable Maximum Achievable Control Technology (MACT) and New Source Performance Standards (NSPS), and asserted that these requirements along with additional portions of Montana's SIP prevent sources within the State from contributing to nonattainment or interfering with maintenance of the 2010 SO<sub>2</sub> NAAQS in neighboring states.

## 2. EPA's Prong 1 Evaluation

The EPA proposes to find that Montana's SIP meets the interstate transport requirements of CAA section 110(a)(2)(D)(i)(I), prong 1 for the 2010 SO<sub>2</sub> NAAQS, as discussed below. We have analyzed the air quality, emission sources and emission trends in Montana and neighboring states, *i.e.*, Idaho, North Dakota, South Dakota and Wyoming. Based on that analysis, we propose to find that Montana will not significantly contribute to nonattainment of the 2010 SO<sub>2</sub> NAAQS in any other state.

We reviewed 2014-2016 SO<sub>2</sub> design value concentrations at monitors with data sufficient to produce valid 1-hour SO<sub>2</sub> design values for Montana and neighboring states.<sup>12</sup> In Table 5, below, we have included monitoring data from four scenarios: 1) all of the monitor data from Montana; 2) the monitor with the highest SO<sub>2</sub> level in each neighboring state; 3) the monitor in

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<sup>12</sup> Data retrieved from EPA's <https://www.epa.gov/air-trends/air-quality-design-values#report>.

each neighboring state located closest to the Montana border; and 4) all monitors in each neighboring state within 50 km of the border.

**Table 5. SO<sub>2</sub> Monitor Values in Montana and Neighboring States**

<b>State/Area</b>	<b>Scenario</b>	<b>Site ID</b>	<b>Distance to Montana Border (km)</b>	<b>2014-2016 Design Value (ppb)</b>
Idaho/ Pocatello	2, 3	160050004	162	39
Montana/ Helena	1	300490004	178	2
Montana/ Richland County	1	300830001	33	7
Montana/ Billings	1	301110066	87	53
North Dakota/ Dickinson	4	380070002	50	5
North Dakota/ Burke County	2	380130004	120	23
North Dakota/ McKenzie County	4	380530104	5	6
North Dakota/ McKenzie County	4	380530111	2	7
South Dakota/ Sioux Falls	2	460990008	608	6
South Dakota/ Rapid City	3	461030020	118	4
Wyoming/ Gillette	3	560050857	80	21
Wyoming/ Casper	2	560252601	236	25

The EPA reviewed ambient air quality data in Montana and neighboring states to see whether there were any monitoring sites, particularly near the Montana border, with elevated SO<sub>2</sub> concentrations that might warrant further investigation with respect to interstate transport of SO<sub>2</sub> from emission sources near any given monitor. The data presented in Table 5, above, show that Montana's network of SO<sub>2</sub> monitors with data sufficient to produce valid 1-hour SO<sub>2</sub> design values indicates that monitored 1-hour SO<sub>2</sub> levels in Montana are between 2% and 70% of the 75 ppb level of the NAAQS. There is one Montana monitor located within 50 km of a neighboring

state's border, and this monitor indicates a design value at 9% of the NAAQS. Three monitors in neighboring states are located within 50 km of the Montana border, and these monitors recorded SO<sub>2</sub> design values ranging between 6% and 9% of the 2010 SO<sub>2</sub> NAAQS. Thus, these air quality data do not, by themselves, indicate any particular location that would warrant further investigation with respect to SO<sub>2</sub> emission sources that might significantly contribute to nonattainment in the neighboring states. However, because the monitoring network is not necessarily designed to find all locations of high SO<sub>2</sub> concentrations, this observation indicates an absence of evidence of impact at these locations but is not sufficient evidence by itself of an absence of impact at all locations in the neighboring states. We have therefore also conducted a source-oriented analysis.

As noted, the EPA finds that it is appropriate to examine the impacts of emissions from stationary sources in Montana in distances ranging from 0 km to 50 km from the facility, based on the "urban scale" definition contained in Appendix D to 40 CFR part 58, Section 4.4. Therefore, we assessed point sources up to 50 km from state borders to evaluate trends and SO<sub>2</sub> concentrations in area-wide air quality, and determined that there are no such sources in Montana. The CHS Laurel Refinery, located 74 km north of the Wyoming border, is the Montana point source closest to another state's border. The large distances between Montana sources and the nearest neighboring state provide further evidence to support a conclusion that emissions from Montana will not contribute to problems with attainment of the 2010 SO<sub>2</sub> NAAQS in downwind states.

The EPA also reviewed the location of sources in neighboring states emitting more than 100 tpy<sup>13</sup> of SO<sub>2</sub> and located within 50 km of the Montana border (see Table 6). This is because elevated levels of SO<sub>2</sub>, to which SO<sub>2</sub> emitted in Montana may have a downwind impact, are most likely to be found near such sources. As shown in Table 6, the shortest distance between any pair of these sources is 75 km. This indicates that there are no locations in neighboring states that would warrant further investigation with respect to Montana SO<sub>2</sub> emission sources that might contribute to problems with attainment of the 2010 SO<sub>2</sub> NAAQS.

**Table 6. Neighboring State SO<sub>2</sub> Sources near Montana**

<b>Source</b>	<b>2016 SO<sub>2</sub> Emissions (tons)</b>	<b>Distance to Montana Border (km)</b>	<b>Distance to Nearest Montana SO<sub>2</sub> Source (km)</b>	<b>Montana Source 2016 Emissions (tons)</b>
Colony East and West Plants (Crook County, Wyoming)	106	15	223 (Colstrip Station - Colstrip, Montana)	1,335
Elk Basin Gas Plant (Park County, Wyoming)	641	2	75 (CHS Laurel Refinery – Laurel, Montana)	272

In conclusion, for interstate transport prong 1, we reviewed ambient SO<sub>2</sub> monitoring data and SO<sub>2</sub> emission sources within Montana and in neighboring states. Based on this analysis, we

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<sup>13</sup> We have limited our analysis to Montana sources of SO<sub>2</sub> emitting at least 100 tpy, because in the absence of special factors, for example the presence of a nearby larger source or unusual physical factors, Montana sources emitting less than 100 tpy can appropriately be presumed to not be causing or contributing to SO<sub>2</sub> concentrations above the NAAQS.

propose to determine that Montana will not significantly contribute to nonattainment of the 2010 SO<sub>2</sub> NAAQS in any other state, per the requirements of CAA section 110(a)(2)(D)(i)(I).

### 3. EPA's Prong 2 Evaluation

The EPA has reviewed available information on SO<sub>2</sub> air quality and emission trends to evaluate the state's conclusion that Montana will not interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in downwind states. The EPA notes that Montana's analysis does not independently address whether the SIP contains adequate provisions prohibiting emissions that will interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in any other state. In remanding the Clean Air Interstate Rule (CAIR) to the EPA in *North Carolina v. EPA*, the D.C. Circuit explained that the regulating authority must give the "interfere with maintenance" clause of section 110(a)(2)(D)(i)(I) "independent significance" by evaluating the impact of upwind state emissions on downwind areas that, while currently in attainment, are at risk of future nonattainment, considering historic variability.<sup>14</sup> While Montana did not evaluate the potential impact of its emissions on areas that are currently measuring clean data, but that may have issues maintaining that air quality, the EPA has incorporated additional information into our evaluation of Montana's submission. This evaluation builds on the analysis regarding significant contribution to nonattainment (prong 1). Specifically, because of the low monitored ambient concentrations of SO<sub>2</sub> in Montana and neighboring states, and the large distances between cross-state SO<sub>2</sub> sources, the EPA is proposing to find that SO<sub>2</sub> levels in neighboring states near the Montana border do

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<sup>14</sup> 531 F.3d 896, 910–11 (D.C. Cir. 2008) (holding that the EPA must give "independent significance" to each prong of CAA section 110(a)(2)(D)(i)(I)).

not indicate any inability to maintain the SO<sub>2</sub> NAAQS that could be attributed in part to sources in Montana.

As shown in Table 1, the statewide SO<sub>2</sub> emissions from Montana and neighboring states have decreased substantially over time, per our review of the EPA's emissions trends data.<sup>15</sup> From 2000 to 2016, total statewide SO<sub>2</sub> emissions decreased by the following proportions: Idaho (70% decrease), Montana (78% decrease), North Dakota (44% decrease), South Dakota (93% decrease) and Wyoming (59% decrease). This trend of decreasing SO<sub>2</sub> emissions does not by itself demonstrate that areas in Montana and neighboring states will not have issues maintaining the 2010 SO<sub>2</sub> NAAQS. However, as a piece of this weight of evidence analysis for prong 2, it provides further indication (when considered alongside low monitor values in neighboring states) that such maintenance issues are unlikely. This is because the geographic scope of these reductions and their large sizes strongly suggest that they are not transient effects from reversible causes, and thus these reductions suggest that there is very low likelihood that a strong upward trend in emissions will occur that might cause areas presently in attainment to violate the NAAQS.

As noted in Montana's submission, any future large sources of SO<sub>2</sub> emissions will be addressed by Montana's SIP-approved PSD program.<sup>16</sup> Future minor sources of SO<sub>2</sub> emissions will be addressed by Montana's SIP-approved minor new source review permit program.<sup>17</sup> The permitting regulations contained within these programs should help ensure that ambient

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<sup>15</sup> Additional emissions trends data are available at: <https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data>.

<sup>16</sup> See EPA's final action of the PSD portions of Montana's SIP, at 81 FR 23180, April 20, 2016.

<sup>17</sup> Id.

concentrations of SO<sub>2</sub> in neighboring states are not exceeded as a result of new facility construction or modification occurring in Montana.

In conclusion, for interstate transport prong 2, the EPA has incorporated additional information into our evaluation of Montana's submission, which did not include an independent analysis of prong 2. In doing so, we have reviewed information about emission trends, as well as the technical information considered for our interstate transport prong 1 analysis. We find that the combination of low ambient concentrations of SO<sub>2</sub> in Montana and neighboring states, the large distances between cross-state SO<sub>2</sub> sources, the downward trend in SO<sub>2</sub> emissions from Montana and surrounding states, and state measures that prevent new facility construction or modification in Montana from causing SO<sub>2</sub> exceedances in downwind states, indicates no interference with maintenance of the 2010 SO<sub>2</sub> NAAQS from Montana. Accordingly, we propose to determine that Montana SO<sub>2</sub> emission sources will not interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in any other state, per the requirements of CAA section 110(a)(2)(D)(i)(I).

### *C. North Dakota*

#### 1. State's Analysis

North Dakota conducted a weight of evidence analysis to examine whether SO<sub>2</sub> emissions from North Dakota adversely affect attainment or maintenance of the 2010 SO<sub>2</sub> NAAQS in downwind states. North Dakota cited the large distance between the State's SO<sub>2</sub> sources and the nearest SO<sub>2</sub> nonattainment and maintenance areas in downwind states, as well as the very low SO<sub>2</sub> values at intervening monitors. North Dakota also noted that SO<sub>2</sub> emissions within the State have been steadily decreasing over time, specifically noting a 35% point-source emissions decrease between 2002 and 2011. With regard to the interference with maintenance

requirement, North Dakota discussed the low monitored ambient concentrations of SO<sub>2</sub> in neighboring states in the period up to and including 2011. Based on this weight of evidence analysis, North Dakota concluded that emissions within the State will not contribute to nonattainment or interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in neighboring states.

## 2. EPA's Prong 1 Evaluation

The EPA proposes to find that North Dakota's SIP meets the interstate transport requirements of CAA section 110(a)(2)(D)(i)(I), prong 1 for the 2010 SO<sub>2</sub> NAAQS, as discussed below. We have analyzed the air quality, emission sources, and emission trends in North Dakota and neighboring states, *i.e.*, Minnesota, Montana and South Dakota. Based on that analysis, we propose to find that North Dakota will not significantly contribute to nonattainment of the 2010 SO<sub>2</sub> NAAQS in any other state.

To date, the only area in a state bordering North Dakota that has been designated nonattainment for the 2010 SO<sub>2</sub> NAAQS is Billings, Montana. The EPA designated the portion of Billings surrounding the PPL Corette Power Plant based on a 2009-2011 monitored design value, concluding that this source was the key contributor to the NAAQS violations during that period. *See* 78 FR 47191 (August 5, 2013). Following the permanent closure of the PPL Corette Plant in March 2015, which was accompanied by a significant decrease in monitored SO<sub>2</sub> values (which indicated attainment) in the nonattainment area, the EPA redesignated the former Billings 2010 SO<sub>2</sub> nonattainment area to attainment. *See* 81 FR 28718 (May 10, 2016). As shown in Table 7, below, the Billings, Montana area is located a large distance (343 km) from the North Dakota border, and recent monitoring data in the Billings area do not approach the 2010 SO<sub>2</sub>

NAAQS. For these reasons, the EPA is proposing to find that emissions from North Dakota will not contribute significantly to nonattainment in the Billings, Montana area.

As noted, North Dakota also referred to ambient monitor values in its transport analysis. We reviewed these, as well as the more recent 2014-2016 SO<sub>2</sub> design value concentrations at monitors with data sufficient to produce valid 1-hour SO<sub>2</sub> design values for North Dakota and neighboring states.<sup>18</sup> In Table 7, below, we have included monitoring data from four scenarios: 1) all of the monitor data from North Dakota; 2) the monitor with the highest SO<sub>2</sub> level in each neighboring state; 3) the monitor in each neighboring state located closest to the North Dakota border; and 4) all monitors in each neighboring state within 50 km of the border.

**Table 7. SO<sub>2</sub> Monitor Values in North Dakota and Neighboring States**

<b>State/Area</b>	<b>Scenario</b>	<b>Site ID</b>	<b>Distance to North Dakota Border (km)</b>	<b>2014-2016 Design Value (ppb)<sup>19</sup></b>
Minnesota/ Minneapolis-St. Paul	2	270370020	306	12
Minnesota/ Minneapolis-St. Paul	3	270530954	278	5
Montana/ Richland County	3, 4	300830001	33	7
Montana/ Billings	2	301110066	343	53
North Dakota/ Dickinson	1	380070002	50	5
North Dakota/ Burke County	1	380130004	121	23
North Dakota/ Bismarck	1	380150003	99	15
North Dakota/ Fargo	1	380171004	4	2

<sup>18</sup> Data retrieved from EPA's <https://www.epa.gov/air-trends/air-quality-design-values#report>.

<sup>19</sup> Id.

North Dakota/ Dunn County	1	380250003	115	5
North Dakota/ McKenzie County	1	380530002	55	6
North Dakota/ McKenzie County	1	380530104	5	6
North Dakota/ McKenzie County	1	380530111	2	7
North Dakota/ Mercer County	1	380570004	150	22
North Dakota/ Mercer County	1	380570118	159	22
North Dakota/ Mercer County	1	380570124	160	16
North Dakota/ Oliver County	1	380650002	139	10
South Dakota/ Sioux Falls	2	460990008	265	6
South Dakota/ Rapid City	3	461030020	205	4

The EPA reviewed ambient air quality data in North Dakota and neighboring states to see whether there were any monitoring sites, particularly near the North Dakota border, with elevated SO<sub>2</sub> concentrations that might warrant further investigation with respect to interstate transport of SO<sub>2</sub> from emission sources near any given monitor. The data presented in Table 7, above, show that North Dakota's network of SO<sub>2</sub> monitors with data sufficient to produce valid 1-hour SO<sub>2</sub> design values indicates that monitored 1-hour SO<sub>2</sub> levels in North Dakota are between 2% and 31% of the 75 ppb level of the NAAQS. There are four North Dakota monitors located within 50 km of a neighboring state's border, and these monitors indicate design values between 2% to 9% of the NAAQS. Two SO<sub>2</sub> monitors have recently been installed in North

Dakota to assist the state and the EPA in designating portions of North Dakota by 2020.<sup>20</sup> These are source oriented monitors, and both the monitors and the source they are characterizing (the Tioga Gas Plant) are located over 80 km from the North Dakota border. There is one monitor in a neighboring state located within 50 km of the North Dakota border, and this monitor recorded an SO<sub>2</sub> design value of 9% of the 2010 SO<sub>2</sub> NAAQS. Thus, these air quality data do not, by themselves, indicate any particular location that would warrant further investigation with respect to SO<sub>2</sub> emission sources that might significantly contribute to nonattainment in the neighboring states. However, because the monitoring network is not necessarily designed to find all locations of high SO<sub>2</sub> concentrations, this observation indicates an absence of evidence of impact at these locations but is not sufficient evidence by itself of an absence of impact at all locations in the neighboring states. We have therefore also conducted a source-oriented analysis.

As noted, the EPA finds that it is appropriate to examine the impacts of emissions from stationary sources in North Dakota in distances ranging from 0 km to 50 km from the facility, based on the “urban scale” definition contained in Appendix D to 40 CFR part 58, Section 4.4. Therefore, we assessed North Dakota sources of 100 tpy<sup>21</sup> or more of SO<sub>2</sub> up to 50 km from neighboring state borders to evaluate trends and SO<sub>2</sub> concentrations in area-wide air quality in Table 8 below.

### **Table 8. North Dakota SO<sub>2</sub> Sources near Neighboring States**

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<sup>20</sup> See TSD: Final Round 3 Area Designations for the 2010 1-Hour SO<sub>2</sub> Primary National Ambient Air Quality Standard for North Dakota, in <http://www.regulations.gov>, document ID EPA-HQ-OAR-2017-0003-0600.

<sup>21</sup> We have limited our analysis to North Dakota sources of SO<sub>2</sub> emitting at least 100 tpy, because in the absence of special factors, for example the presence of a nearby larger source or unusual physical factors, North Dakota sources emitting less than 100 tpy can appropriately be presumed to not be causing or contributing to SO<sub>2</sub> concentrations above the NAAQS.

<b>North Dakota Source</b>	<b>2016 SO<sub>2</sub> Emissions (tons)</b>	<b>Distance to North Dakota Border (km)</b>	<b>Distance to Nearest Neighboring State SO<sub>2</sub> Source (km)</b>	<b>Neighboring State Source 2016 Emissions (tons)</b>
Drayton Sugar Mill	330	2	75 (American Crystal Sugar – East Grand Forks, Minnesota)	1,005
Hillsboro Sugar Mill	439	15	49 (American Crystal Sugar – Crookston, Minnesota)	875
University of North Dakota Heating Plant (Grand Forks)	411	2	4 (American Crystal Sugar – East Grand Forks, Minnesota)	1,005
North Dakota State University Heating Plant (Fargo)	123	2	4.5 km (American Crystal Sugar – Moorhead, Minnesota)	373
Wahpeton Sugar Mill	227	1	44 km (Hoot Lake Plant – Fergus Falls, Minnesota)	940
Wahpeton Wet Corn Mill	135	1	47 km (Hoot Lake Plant – Fergus Falls, Minnesota)	940

As shown, there are six North Dakota sources within 50 kilometers of a cross-state source, and each neighboring state source is located in the State of Minnesota. The EPA has therefore assessed potential SO<sub>2</sub> impacts from North Dakota on each of the four Minnesota areas with SO<sub>2</sub> sources near the North Dakota border, specifically the Crookston, East Grand Forks, Moorhead and Fergus Falls, Minnesota areas.

With regard to the Grand Forks, North Dakota, and East Grand Forks, Minnesota combined metropolitan area, the EPA does not have monitoring or modeling data to indicate transport from Grand Forks, North Dakota, to East Grand Forks, Minnesota. On the contrary, wind roses for three local meteorological stations indicate prevailing winds to be north-south oriented as opposed to west-east that would be conducive to interstate transport.<sup>22</sup> On this basis, the EPA is proposing to determine that emissions from Grand Forks, North Dakota, will not contribute significantly to nonattainment in East Grand Forks, Minnesota.<sup>23</sup>

With regard to the Crookston, Minnesota area, the EPA finds the distance between the Hillsboro Sugar Mill and Crookston (49 km) makes it very unlikely that SO<sub>2</sub> emissions from the Hillsboro Sugar Mill could interact with SO<sub>2</sub> emissions from Crookston American Crystal Sugar in such a way as to contribute significantly to nonattainment in the Crookston area.

With regard to the Moorhead, Minnesota, and Fargo, North Dakota, combined metropolitan area, the EPA reviewed available monitoring data. There is one SO<sub>2</sub> monitor (Site ID 380171004 - See Table 7) in the area, on the North Dakota side of the border, located 6.5 km northwest of the North Dakota State University Heating Plant, and 9.5 km northwest of the Moorhead American Crystal Sugar Mill. As shown, this monitor recorded a design value of 2 ppb from 2014-2016. Although this monitor is not sited to determine maximum impacts from either the Moorhead American Crystal Sugar Mill or the North Dakota State University Heating

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<sup>22</sup> This wind rose data are available in a memo to the docket for this action, which can be found on <http://www.regulations.gov>.

<sup>23</sup> The EPA is aware that the University of North Dakota has announced plans to replace its heating plant, though this change is not yet federally enforceable (See <http://news.prairiepublic.org/post/und-replace-its-steam-plant-wont-be-asking-state-appropriation>). The EPA also notes that any changes to the current facility and construction of a new facility must go through the state's EPA-approved New Source Review program.

Plant, it does indicate that SO<sub>2</sub> levels are very low (2.6% of the NAAQS) in parts of the Fargo-Moorhead combined metropolitan area. Additionally, wind roses for a local meteorological station indicates prevailing winds to be north-south oriented as opposed to west-east that would be conducive to interstate transport.<sup>24</sup> For these reasons, in addition to the relatively low level of SO<sub>2</sub> emissions from the North Dakota State University Heating Plant, the EPA is proposing to determine that emissions from the North Dakota State University Heating Plant will not contribute significantly to nonattainment in Moorhead, Minnesota.

Finally, with regard to the Fergus Falls, Minnesota area, air quality modeling submitted to the EPA by the State of Minnesota for the Hoot Lake Plant indicates that the highest predicted 99<sup>th</sup> percentile daily maximum 1-hour concentration within the modeling domain is 55.8 ppb.<sup>25</sup> For this reason, the Fergus Falls area does not warrant further investigation with regard to potential significant contribution to nonattainment from North Dakota. Additionally, in our analysis of Minnesota's modeling in the context of designations for the 2010 SO<sub>2</sub> NAAQS, the EPA noted that the Wahpeton facilities' "modeled impact at that distance to the Hoot Lake area would be minimal and it's expected their impact would be represented by the background

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<sup>24</sup> This wind rose data are available in a memo to the docket for this action, which can be found on <http://www.regulations.gov>.

<sup>25</sup> See TSD: Intended Round 3 Area Designations for the 2010 1-Hour SO<sub>2</sub> Primary National Ambient Air Quality Standard for Minnesota, in <http://www.regulations.gov>, document ID EPA-HQ-OAR-2017-0003-0057. This information was not changed for the final version of the designation, as shown at document ID EPA-HQ-OAR-2017-0003-0618.

concentration.”<sup>26</sup> The EPA continues to support this conclusion with respect to an interstate transport analysis for section 110(a)(2)(D)(i)(I).<sup>27</sup>

In conclusion, for interstate transport prong 1, we reviewed ambient SO<sub>2</sub> monitoring data and SO<sub>2</sub> emission sources both within North Dakota and in neighboring states. Based on this analysis, we propose to determine that North Dakota will not significantly contribute to nonattainment of the 2010 SO<sub>2</sub> NAAQS in any other state, per the requirements of CAA section 110(a)(2)(D)(i)(I).

### 3. EPA’s Prong 2 Evaluation

In its prong 2 analysis, North Dakota reviewed potential SO<sub>2</sub> impacts on the Minneapolis-St. Paul, Minnesota area, which is currently in “maintenance” status for the 1971 SO<sub>2</sub> NAAQS, noting the large distance between the North Dakota border and the Minneapolis-St. Paul area (255 km), as well as NAAQS-attaining monitoring data in eastern North Dakota and in Minneapolis-St. Paul. The EPA interprets CAA section 110(a)(2)(D)(i)(I) prong 2 to require an evaluation of the potential impact of a state’s emissions on areas that are currently measuring clean data, but that may have issues maintaining that air quality, rather than only former nonattainment, and thus current maintenance, areas. North Dakota also performed a prong 2 analysis based on the EPA’s interpretation, noting that monitors located near North Dakota in neighboring states showed very low levels of SO<sub>2</sub>, indicating they should not be considered to

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<sup>26</sup> Id.

<sup>27</sup> While the air quality modeling discussed here used by the EPA to support its final designation of the Fergus Falls area is also supportive of the Agency’s analysis of North Dakota’s 2010 SO<sub>2</sub> transport SIP, the designation itself or the use of this modeling in the specific context of that designation is not being re-opened through this separate proposed action.

have maintenance issues for this NAAQS. The EPA has reviewed North Dakota's analysis and other available information on SO<sub>2</sub> air quality and emission trends to evaluate the State's conclusion that North Dakota will not interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in downwind states. This evaluation builds on the analysis regarding significant contribution to nonattainment (prong 1). Specifically, because of the low monitored ambient concentrations of SO<sub>2</sub> in North Dakota and neighboring states and our conclusions from our qualitative analysis of the identified sources of SO<sub>2</sub> emissions, the EPA is proposing to find that SO<sub>2</sub> levels in neighboring states near the North Dakota border do not indicate any inability to maintain the SO<sub>2</sub> NAAQS that could be attributed in part to sources in North Dakota.

As shown in Table 1, the statewide SO<sub>2</sub> emissions from North Dakota and neighboring states have decreased substantially over time, per our review of the EPA's emissions trends data.<sup>28</sup> From 2000 to 2016, total statewide SO<sub>2</sub> emissions decreased by the following proportions: Minnesota (77% decrease), Montana (78% decrease), North Dakota (44% decrease) and South Dakota (93% decrease). This trend of decreasing SO<sub>2</sub> emissions does not by itself demonstrate that areas in North Dakota and neighboring states will not have issues maintaining the 2010 SO<sub>2</sub> NAAQS. However, as a piece of this weight of evidence analysis for prong 2, it provides further indication (when considered alongside low monitor values in neighboring states) that such maintenance issues are unlikely. This is because the geographic scope of these reductions and their large sizes strongly suggest that they are not transient effects from reversible causes, and thus these reductions suggest that there is very low likelihood that a strong upward

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<sup>28</sup> Additional emissions trends data are available at: <https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data>.

trend in emissions will occur that might cause areas presently in attainment to violate the NAAQS.

As noted in North Dakota's submission, any future large sources of SO<sub>2</sub> emissions will be addressed by North Dakota's SIP-approved PSD program.<sup>29</sup> Future minor sources of SO<sub>2</sub> emissions will be addressed by North Dakota's SIP-approved minor new source review permit program.<sup>30</sup> The permitting regulations contained within these programs should help ensure that ambient concentrations of SO<sub>2</sub> in neighboring states are not exceeded as a result of new facility construction or modification occurring in North Dakota.

In conclusion, for interstate transport prong 2, we reviewed additional information about emission trends, as well as the technical information considered for interstate transport prong 1. We find that the combination of low ambient concentrations of SO<sub>2</sub> in North Dakota and neighboring states, our conclusions from our qualitative analysis of the identified sources of SO<sub>2</sub> emissions, the downward trend in SO<sub>2</sub> emissions from North Dakota and surrounding states, and state measures that prevent new facility construction or modification in North Dakota from causing SO<sub>2</sub> exceedances in downwind states, indicates no interference with maintenance of the 2010 SO<sub>2</sub> NAAQS from North Dakota. Accordingly, we propose to determine that North Dakota SO<sub>2</sub> emission sources will not interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in any other state, per the requirements of CAA section 110(a)(2)(D)(i)(I).

#### *D. South Dakota*

##### 1. State's Analysis

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<sup>29</sup> See EPA's final action of the PSD portions of North Dakota's SIP, at 82 FR 46681, October 6, 2017.

<sup>30</sup> *Id.*

South Dakota conducted a weight of evidence analysis to examine whether SO<sub>2</sub> emissions from South Dakota adversely affect attainment or maintenance of the 2010 SO<sub>2</sub> NAAQS in downwind states. South Dakota provided an inventory of each SO<sub>2</sub> source located in a county that borders another state, including the emissions for each source. South Dakota provided information on SO<sub>2</sub> reductions for the larger SO<sub>2</sub> sources in this inventory, noting that the State's largest SO<sub>2</sub> emissions source (Big Stone I) installed pollution controls between 2012 and 2015 to reduce SO<sub>2</sub> emissions at the facility by 80%. South Dakota also discussed how the State's second highest emitter (Ben French facility) shut down in 2012, and that the combination of reductions from these two facilities would result in a 75% reduction in SO<sub>2</sub> emissions throughout South Dakota from 2011 to 2016. South Dakota noted the large distance between the State and the nearest nonattainment areas in downwind states. South Dakota also considered the predominant northwesterly wind direction in the State, asserting that this made it very unlikely that South Dakota sources could impact SO<sub>2</sub> nonattainment in states to its west. Finally, South Dakota noted that its permitting programs would prevent new or modified sources from impacting nonattainment and maintenance areas in downwind states going forward. Based on this weight of evidence analysis, South Dakota concluded that emissions within the State will not contribute to nonattainment or interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in neighboring states.

## 2. EPA's Prong 1 Evaluation

The EPA proposes to find that South Dakota's SIP meets the interstate transport requirements of CAA section 110(a)(2)(D)(i)(I), prong 1 for the 2010 SO<sub>2</sub> NAAQS, as discussed below. We have analyzed the air quality, emission sources and emission trends in South Dakota

and neighboring states, *i.e.*, Iowa, Minnesota, Montana, Nebraska, North Dakota and Wyoming. Based on that analysis, we propose to find that South Dakota will not significantly contribute to nonattainment of the 2010 SO<sub>2</sub> NAAQS in any other state.

We reviewed 2014-2016 SO<sub>2</sub> design value concentrations at monitors with data sufficient to produce valid 1-hour SO<sub>2</sub> design values for South Dakota and neighboring states.<sup>31</sup> In Table 9, below, we have included monitoring data from four scenarios: 1) all of the monitor data from South Dakota; 2) the monitor with the highest SO<sub>2</sub> level in each neighboring state; 3) the monitor in each neighboring state located closest to the South Dakota border; and 4) all monitors in each neighboring state within 50 km of the border.

**Table 9. SO<sub>2</sub> Monitor Values in South Dakota and Neighboring States**

State/Area	Scenario	Site ID	Distance from South Dakota Border (km)	2014-2016 Design Value (ppb) <sup>32</sup>
Iowa/ Muscatine	2	191390020	462	113
Iowa/ Sioux City	3, 4	191930020	19	9
Minnesota/ Minneapolis-St. Paul	2	270370020	270	12
Minnesota/ Minneapolis-St. Paul	3	270530954	250	5
Montana/ Richland County	3	300830001	210	7
Montana/ Billings	2	301110066	343	53
Nebraska/ Omaha	2	310550053	136	59
Nebraska/ Omaha	3	310550019	676	27
North Dakota/ Burke County	2	380130004	300	23

<sup>31</sup> Data retrieved from EPA's <https://www.epa.gov/air-trends/air-quality-design-values#report>.

<sup>32</sup> Id.

North Dakota/ Bismarck	3	380150003	99	15
South Dakota/ Jackson County	1	460710001	83	3
South Dakota/ Sioux Falls	1	460990008	10	6
South Dakota/ Rapid City	1	461030020	62	4
South Dakota/ Sioux City	1	461270001	6	4
Wyoming/ Casper	2	560252601	178	25
Wyoming/ Weston County	3, 4	560450800	12	3

The EPA reviewed ambient air quality data in South Dakota and neighboring states to determine whether there were any monitoring sites, particularly near the South Dakota border, with elevated SO<sub>2</sub> concentrations that might warrant further investigation with respect to interstate transport of SO<sub>2</sub> from emission sources near any given monitor. As shown, there are no violating design values in South Dakota or neighboring states apart from the Muscatine, Iowa area. In South Dakota's analysis, the State reviewed its potential impact on the Muscatine, Iowa 2010 SO<sub>2</sub> nonattainment area. South Dakota asserted that the significant distance between its nearest border and the Muscatine area (shown in Table 9), as well as the low emissions in southeastern South Dakota indicated no SO<sub>2</sub> impacts to the Muscatine SO<sub>2</sub> nonattainment area. The EPA agrees with South Dakota's analysis and conclusion with regard to the Muscatine, Iowa area. The EPA notes that during the 2014-2016 period, substantial reductions in SO<sub>2</sub> emissions occurred within the Muscatine SO<sub>2</sub> nonattainment area.<sup>33</sup> For this reason, the last exceedance of

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<sup>33</sup> See TSD: Final Round 3 Area Designations for the 2010 1-Hour SO<sub>2</sub> Primary National Ambient Air Quality Standard for Iowa, in <http://www.regulations.gov>, document ID EPA-HQ-OAR-2017-0003-0616.

the 2010 SO<sub>2</sub> NAAQS at the violating monitor listed in Table 9 (site ID 191390020) occurred in June 2015.<sup>34</sup>

South Dakota also analyzed potential impacts to the Billings, Montana area, which was still in nonattainment status at the time of South Dakota's submission. As noted in the section of this notice about North Dakota, the EPA redesignated the former Billings 2010 SO<sub>2</sub> nonattainment area to attainment following the permanent closure of the PPL Corette Plant. *See* 81 FR 28718 (May 10, 2016). As noted by South Dakota, the Billings, Montana area is located a very large distance (343 km) from the nearest South Dakota border, and is upwind rather than downwind of South Dakota. Table 9 also shows that recent monitoring data in the Billings area do not approach the 2010 SO<sub>2</sub> NAAQS. For these reasons, the EPA agrees with South Dakota's conclusion that the emissions from South Dakota will not contribute significantly to nonattainment in the Billings, Montana area.

The data presented in Table 9, above, show that South Dakota's network of SO<sub>2</sub> monitors with data sufficient to produce valid 1-hour SO<sub>2</sub> design values indicates that monitored 1-hour SO<sub>2</sub> levels in South Dakota are between 4% and 8% of the 75 ppb level of the NAAQS. There are two South Dakota monitors located within 50 km of a neighboring state's border, and these monitors indicate design values between 5% and 8% of the NAAQS. There are two monitors in neighboring states located within 50 km of the South Dakota border, and these monitors recorded SO<sub>2</sub> design values between 4% and 12% of the 2010 SO<sub>2</sub> NAAQS. Thus, these air quality data do not, by themselves, indicate any particular location that would warrant further investigation

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<sup>34</sup> Data retrieved from EPA's <https://www.epa.gov/outdoor-air-quality-data>.

with respect to SO<sub>2</sub> emission sources that might significantly contribute to nonattainment in the neighboring states. However, because the monitoring network is not necessarily designed to find all locations of high SO<sub>2</sub> concentrations, this observation indicates an absence of evidence of impact at these locations but is not sufficient evidence by itself of an absence of impact at all locations in the neighboring states. We have therefore also conducted a source-oriented analysis.

As noted, the EPA finds that it is appropriate to examine the impacts of emissions from stationary sources in South Dakota in distances ranging from 0 km to 50 km from the facility, based on the “urban scale” definition contained in Appendix D to 40 CFR part 58, Section 4.4. Therefore, we assessed point sources up to 50 km from state borders to evaluate trends and SO<sub>2</sub> concentrations in area-wide air quality. The list of such sources with greater than 100 tpy<sup>35</sup> of SO<sub>2</sub> within 50 km from state borders is provided in Table 10, below.

**Table 10. SO<sub>2</sub> Sources near the South Dakota Border**

<b>Source</b>	<b>2016 SO<sub>2</sub> Emissions (tons)</b>	<b>Distance to South Dakota Border (km)</b>	<b>Distance to Nearest Cross-State SO<sub>2</sub> Source (km)</b>	<b>Cross-State Source 2016 Emissions (tons)</b>
Big Stone Power Plant (Grant County, South Dakota)	827	4	113 (Wahpeton Sugar Mill – Richland County, North Dakota)	227
Colony East and West Plant (Crook County, Wyoming)	106	8	111 (GCC Dacotah – Rapid City, South Dakota)	304

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<sup>35</sup> We have limited our analysis to South Dakota sources of SO<sub>2</sub> emitting at least 100 tpy, because in the absence of special factors, for example the presence of a nearby larger source or unusual physical factors, South Dakota sources emitting less than 100 tpy can appropriately be presumed to not be causing or contributing to SO<sub>2</sub> concentrations above the NAAQS.

With regard to potential cross-state impacts from the Big Stone Power Plant, air quality modeling submitted to the EPA by South Dakota indicates that the highest predicted 99<sup>th</sup> percentile daily maximum 1-hour concentration within the modeling domain surrounding the power plant is 57.88 ppb.<sup>36</sup> This predicted maximum concentration, which includes an estimate of the background concentration, indicates that this source alone could not cause nonattainment in South Dakota or any other state. Together with the distance between Big Stone and the nearest cross-state source (113 km), this indicates that the Big Stone Power Plant will not significantly contribute to nonattainment in any other state. The EPA continues to support this conclusion with respect to an interstate transport analysis for section 110(a)(2)(D)(i)(I).<sup>37</sup>

The EPA also reviewed the location of sources in neighboring states emitting more than 100 tpy of SO<sub>2</sub> and located within 50 km of the South Dakota border. This is because elevated levels of SO<sub>2</sub>, to which SO<sub>2</sub> emitted in South Dakota may have a downwind impact, are most likely to be found near such sources. As shown in Table 10, the only source within this distance of the South Dakota border is the Colony East and West Plant. The shortest distance between this source and the nearest source in South Dakota, the GCC Dacotah facility, is 111 km. This makes it very unlikely that SO<sub>2</sub> emissions from the GCC Dacotah facility could interact with SO<sub>2</sub>

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<sup>36</sup> See TSD: Final Area Designations for the 2010 SO<sub>2</sub> Primary National Ambient Air Quality Standard for South Dakota, in <http://www.regulations.gov>, document ID EPA-HQ-OAR-2014-0464-0359.

<sup>37</sup> While the air quality modeling discussed here used by the EPA to support its final designation of the Grant County, South Dakota area is also supportive of the Agency's analysis of South Dakota's 2010 SO<sub>2</sub> transport SIP, the designation itself or the use of this modeling in the specific context of that designation is not being re-opened through this separate proposed action.

emissions from the Colony East and West Plants in such a way as to contribute significantly to nonattainment in the Crook County, Wyoming area.

In conclusion, for interstate transport prong 1, we reviewed ambient SO<sub>2</sub> monitoring data and SO<sub>2</sub> emission sources within South Dakota and in neighboring states. Based on this analysis, we propose to determine that South Dakota will not significantly contribute to nonattainment of the 2010 SO<sub>2</sub> NAAQS in any other state, per the requirements of CAA section 110(a)(2)(D)(i)(I).

### 3. EPA's Prong 2 Evaluation

The EPA has reviewed available information on SO<sub>2</sub> air quality and emission trends to evaluate the state's conclusion that South Dakota will not interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in downwind states. The EPA notes that South Dakota's analysis does not independently address whether the SIP contains adequate provisions prohibiting emissions that will interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in any other state. As noted, the "interfere with maintenance" clause of section 110(a)(2)(D)(i)(I) must be given "independent significance" by evaluating the impact of upwind state emissions on downwind areas that, while currently in attainment, are at risk of future nonattainment, considering historic variability.<sup>38</sup> While South Dakota did not evaluate the potential impact of its emissions on areas that are currently measuring clean data, but that may have issues maintaining that air quality, the EPA has incorporated additional information into our evaluation of South Dakota's submission. This evaluation builds on the analysis regarding significant contribution to nonattainment (prong 1). Specifically, because of the low monitored ambient concentrations of SO<sub>2</sub> in South Dakota and

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<sup>38</sup> 531 F.3d 896, 910–11 (D.C. Cir. 2008) (holding that the EPA must give "independent significance" to each prong of CAA section 110(a)(2)(D)(i)(I)).

neighboring states, and the large distances between cross-state SO<sub>2</sub> sources, the EPA is proposing to find that SO<sub>2</sub> levels in neighboring states near the South Dakota border do not indicate any inability to maintain the SO<sub>2</sub> NAAQS that could be attributed in part to sources in South Dakota.

As shown in Table 1, the statewide SO<sub>2</sub> emissions from South Dakota and neighboring states have decreased substantially over time, per our review of the EPA's emissions trends data.<sup>39</sup> From 2000 to 2016, total statewide SO<sub>2</sub> emissions decreased by the following proportions: Iowa (81% decrease), Minnesota (77% decrease), Montana (78% decrease), Nebraska (52% decrease), North Dakota (44% decrease), South Dakota (93% decrease) and Wyoming (59% decrease). This trend of decreasing SO<sub>2</sub> emissions does not by itself demonstrate that areas in South Dakota and neighboring states will not have issues maintaining the 2010 SO<sub>2</sub> NAAQS. However, as a piece of this weight of evidence analysis for prong 2, it provides further indication (when considered alongside low monitor values in neighboring states) that such maintenance issues are unlikely. This is because the geographic scope of these reductions and their large sizes strongly suggest that they are not transient effects from reversible causes, and thus these reductions suggest that there is very low likelihood that a strong upward trend in emissions will occur that might cause areas presently in attainment to violate the NAAQS.

As noted in South Dakota's submission, any future large sources of SO<sub>2</sub> emissions will be addressed by South Dakota's SIP-approved PSD program.<sup>40</sup> Future minor sources of SO<sub>2</sub>

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<sup>39</sup> Additional emissions trends data are available at: <https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data>.

<sup>40</sup> See EPA's final action of the PSD portions of South Dakota's SIP, at 82 FR 38832, August 16, 2017.

emissions will be addressed by South Dakota's SIP-approved minor new source review permit program.<sup>41</sup> The permitting regulations contained within these programs should help ensure that ambient concentrations of SO<sub>2</sub> in neighboring states are not exceeded as a result of new facility construction or modification occurring in South Dakota.

In conclusion, for interstate transport prong 2, the EPA has incorporated additional information into our evaluation of South Dakota's submission, which did not include an independent analysis of prong 2. In doing so, we have reviewed additional information about emission trends, as well as the technical information considered for interstate transport prong 1. We find that the combination of low ambient concentrations of SO<sub>2</sub> in South Dakota and neighboring states, the large distances between cross-state SO<sub>2</sub> sources, the downward trend in SO<sub>2</sub> emissions from South Dakota and surrounding states, and state measures that prevent new facility construction or modification in South Dakota from causing SO<sub>2</sub> exceedances in downwind states, indicates no interference with maintenance of the 2010 SO<sub>2</sub> NAAQS from South Dakota. Accordingly, we propose to determine that South Dakota SO<sub>2</sub> emission sources will not interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in any other state, per the requirements of CAA section 110(a)(2)(D)(i)(I).

#### *E. Wyoming*

##### 1. State's Analysis

Wyoming conducted a weight of evidence analysis to examine whether SO<sub>2</sub> emissions from Wyoming adversely affect attainment or maintenance of the 2010 SO<sub>2</sub> NAAQS in downwind states. Wyoming primarily reviewed the potential impact of emissions from Wyoming

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<sup>41</sup> Id.

on the Billings, Montana 2010 SO<sub>2</sub> maintenance area, which was designated as nonattainment at the time of Wyoming's submittal, because Montana was the only state bordering Wyoming that contained a nonattainment or maintenance area for this NAAQS. Wyoming reviewed wind rose data from northeast Wyoming, the location in Wyoming with the nearest significant SO<sub>2</sub> sources to the Billings area. Based on a review of this information, Wyoming concluded that winds in northeast Wyoming were predominantly from the north and west, and therefore made transport to Billings very unlikely. Wyoming also asserted that SO<sub>2</sub> sources within Wyoming were all located much further than 50 km from the Billings area. Finally, Wyoming noted that no neighboring state apart from Montana contained a 2010 SO<sub>2</sub> nonattainment area. Based on this weight of evidence analysis, Wyoming concluded that emissions within the State will not contribute to nonattainment or interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in neighboring states.

## 2. EPA's Prong 1 Evaluation

The EPA proposes to find that Wyoming's SIP meets the interstate transport requirements of CAA section 110(a)(2)(D)(i)(I), prong 1 for the 2010 SO<sub>2</sub> NAAQS, as discussed below. We have analyzed the air quality, emission sources and emission trends in Wyoming and neighboring states, *i.e.*, Colorado, Idaho, Montana, Nebraska, South Dakota and Utah.<sup>42</sup> Based

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<sup>42</sup> The EPA also analyzed potential Wyoming SO<sub>2</sub> transport to the Wind River Reservation in Wyoming. The Northern Arapaho and Eastern Shoshone Tribes have been approved by the EPA for treatment in a similar manner as a state (TAS) status for CAA Section 126 (78 FR 76829, December 19, 2013). The Tribes' TAS application for Section 126 demonstrates an interest in how their air quality is impacted by Wyoming sources outside of the Reservation. We determined that the only source above 100 tpy of SO<sub>2</sub> within 50 km of the Wind River Reservation, the Lost Cabin Gas Plant, is located over 40 km downwind (see wind rose data in the docket for this action) from the Reservation. The area around this source contains a source-oriented monitor (Site ID 560130003) indicating a fourth highest 1-hour daily maximum below the 2010 SO<sub>2</sub> NAAQS in its first year of operation. Therefore, the available

on that analysis, we propose to find that Wyoming will not significantly contribute to nonattainment of the 2010 SO<sub>2</sub> NAAQS in any other state.

Wyoming focused its analysis on potential impacts to the Billings, Montana area, which was still in nonattainment status at the time of Wyoming's submission. As noted, the EPA redesignated the former Billings 2010 SO<sub>2</sub> nonattainment area to attainment following the permanent closure of the PPL Corette Plant. *See* 81 FR 28718 (May 10, 2016). As asserted by Wyoming and shown in Table 11, the Billings, Montana area is located a large distance (87 km) from the Wyoming border. Further, the wind roses provided by Wyoming indicate that meteorology does not favor transport from Wyoming sources to the Billings area. Table 11 also shows that recent monitoring data in the Billings area do not approach the 2010 SO<sub>2</sub> NAAQS. For these reasons, the EPA agrees with Wyoming's conclusion that emissions from Wyoming will not contribute significantly to nonattainment in the Billings, Montana area.

We reviewed 2014-2016 SO<sub>2</sub> design value concentrations at monitors with data sufficient to produce valid 1-hour SO<sub>2</sub> design values for Wyoming and neighboring states.<sup>43</sup> In Table 11, below, we have included monitoring data from four scenarios: 1) all of the monitor data from Wyoming; 2) the monitor with the highest SO<sub>2</sub> level in each neighboring state; 3) the monitor in each neighboring state located closest to the Wyoming border; and 4) all monitors in each neighboring state within 50 km of the Wyoming border.

**Table 11. SO<sub>2</sub> Monitor Values in Wyoming and Neighboring States**

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information indicates that emissions from Wyoming will not contribute significantly to nonattainment or interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS at the Wind River Reservation.

<sup>43</sup> Data retrieved from EPA's <https://www.epa.gov/air-trends/air-quality-design-values#report>.

<b>State/Area</b>	<b>Scenario</b>	<b>Site ID</b>	<b>Distance to Wyoming Border (km)</b>	<b>2014-2016 Design Value (ppb)<sup>44</sup></b>
Colorado/ Denver	3	080013001	127	18
Colorado/ Colorado Springs	2	080410015	240	52
Idaho/ Pocatello	2	160050004	120	39
Idaho/ Caribou County	3, 4	160290031	45	26
Montana/ Billings	2, 3	301110066	87	53
Nebraska/ Omaha	3	310550019	676	27
Nebraska/ Omaha	2	310550053	679	59
South Dakota/ Sioux Falls	2	460990008	593	6
South Dakota/ Rapid City	3	461030020	62	4
Wyoming/ Gillette	1	560050857	80	21
Wyoming/ Cheyenne	1	560210100	20	9
Wyoming/ Casper	1	560252601	178	25
Wyoming/ Rock Springs	1	560370300	83	21
Wyoming/ Weston County	1	560450800	12	3

The EPA reviewed ambient air quality data in Wyoming and neighboring states to see whether there were any monitoring sites, particularly near the Wyoming border, with elevated SO<sub>2</sub> concentrations that might warrant further investigation with respect to interstate transport of SO<sub>2</sub> from emission sources near any given monitor. The data presented in Table 11, above, show that Wyoming's network of SO<sub>2</sub> monitors with data sufficient to produce valid 1-hour SO<sub>2</sub> design values indicates that monitored 1-hour SO<sub>2</sub> levels in Wyoming are between 4% and 33% of the 75 ppb level of the NAAQS. There are two Wyoming monitors located within 50 km of

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<sup>44</sup> Id.

the state's border, and these monitors indicate design values between 4% and 12% of the NAAQS. Seven SO<sub>2</sub> monitors have recently been installed in Wyoming to assist the State and the EPA in designating portions of Wyoming by 2020.<sup>45</sup> These are source oriented monitors, and none of these monitors or the sources they are characterizing are located within 50 km of the Wyoming border. There is one monitor in a neighboring state located within 50 km of the Wyoming border, and this monitor recorded an SO<sub>2</sub> design value of 35% of the 2010 SO<sub>2</sub> NAAQS. Thus, these air quality data do not, by themselves, indicate any particular location that would warrant further investigation with respect to SO<sub>2</sub> emission sources that might significantly contribute to nonattainment in the neighboring states. However, because the monitoring network is not necessarily designed to find all locations of high SO<sub>2</sub> concentrations, this observation indicates an absence of evidence of impact at these locations but is not sufficient evidence by itself of an absence of impact at all locations in the neighboring states. We have therefore also conducted a source-oriented analysis.

As noted, the EPA finds that it is appropriate to examine the impacts of emissions from stationary sources in Wyoming in distances ranging from 0 km to 50 km from the facility, based on the "urban scale" definition contained in Appendix D to 40 CFR part 58, Section 4.4. Therefore, we assessed point sources up to 50 km from state borders to evaluate trends and SO<sub>2</sub> concentrations in area-wide air quality. The list of sources of greater than 100 tpy<sup>46</sup> of SO<sub>2</sub> within 50 km from state borders is provided in Table 12 below.

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<sup>45</sup> See TSD: Final Round 3 Area Designations for the 2010 1-Hour SO<sub>2</sub> Primary National Ambient Air Quality Standard for Wyoming, in <http://www.regulations.gov>, document ID EPA-HQ-OAR-2017-0003-0608.

<sup>46</sup> We have limited our analysis to Wyoming sources of SO<sub>2</sub> emitting at least 100 tpy, because in the absence of special factors, for example the presence of a nearby larger source or unusual physical factors, Wyoming sources

**Table 12. Wyoming SO<sub>2</sub> Sources near Neighboring States**

<b>Wyoming Source</b>	<b>2016 Annual SO<sub>2</sub> Emissions (tons)</b>	<b>Distance to Wyoming Border (km)</b>	<b>Distance to Nearest Neighboring State SO<sub>2</sub> Source (km)</b>	<b>Neighboring State Source 2016 Emissions (tons)</b>
Carter Creek Gas Plant	130	11	76 (Devils Slide Plant, Holcim – Morgan County, Utah)	187
Frontier Petroleum Refinery	311	14	35 (Rawhide Energy Station – Larimer County, Colorado)	879
Naughton Power Plant	4,069.7	37	110 (Devils Slide Plant, Holcim – Morgan County, Utah)	187
Laramie Cement Plant	165	30	67 (Rawhide Energy Station, Larimer County, Colorado)	879
Colony East and West Plants	106	8	111 km (GCC Dacotah – Rapid City, South Dakota)	304
Elk Basin Gas Plant	641	2	75 km (CHS Laurel Refinery – Laurel, Montana)	272

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emitting less than 100 tpy can appropriately be presumed to not be causing or contributing to SO<sub>2</sub> concentrations above the NAAQS.

With regard to the Frontier Petroleum Refinery in Cheyenne, the EPA has assessed potential SO<sub>2</sub> impacts from this source on the area near the Rawhide Energy Station, in Larimer County, Colorado.

The EPA reviewed available monitoring data in Cheyenne, Wyoming. One monitor is located 6 km northeast of the Frontier Petroleum Refinery (Site ID 560210100 - See Table 11), and recorded a 2014-2016 SO<sub>2</sub> design value of 9 ppb. The maximum 1-hour SO<sub>2</sub> value measured at this monitor from January 1, 2011 (when it began operation) to December 31, 2017, was 31 ppb. A second monitor not listed in Table 11, located 3 km east of the Frontier Petroleum Refinery, recorded 1 year of data in Cheyenne to examine potential population exposure near the Frontier Petroleum Refinery.<sup>47</sup> Between March 31, 2016 and April 3, 2017, this monitor recorded a maximum SO<sub>2</sub> concentration of 44 ppb, with a fourth highest 1-hour daily maximum concentration of 16.7 ppb. Although these monitoring data do not provide information as to the air quality near the Rawhide Generating Station, they do indicate that SO<sub>2</sub> levels are low near the Frontier Petroleum Refinery, and decrease even more at 6 km from the source. We anticipate emissions will continue to decrease as distance increases, resulting in very little SO<sub>2</sub> impact from the Frontier Petroleum Refinery at the Colorado border (14 km), and even less near the Rawhide Generating Station (35 km). This, in combination with the relatively low level of emissions from the refinery (See Table 12), leads the EPA to conclude that SO<sub>2</sub> transport at significant levels between Cheyenne, Wyoming and Larimer County, Colorado, is very unlikely.

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<sup>47</sup> See Wyoming's 2016 Annual Monitoring Network Plan at pages 50-51: <http://deq.wyoming.gov/aqd/monitoring/resources/annual-network-plans/>.

With regard to the Elk Basin Gas Plant, the EPA does not have information at this time suggesting that the State of Montana is impacted by emissions from Elk Basin Gas Plant or other emissions activity originating in Wyoming in violation of section 110(a)(2)(D)(i)(I). Therefore, we do not have evidence that demonstrates that emissions from this source will significantly contribute to nonattainment of the 2010 SO<sub>2</sub> NAAQS.

With regard to potential cross-state impacts from the Naughton Power Plant, air quality modeling submitted to the EPA by Wyoming indicates that the highest predicted 99<sup>th</sup> percentile daily maximum 1-hour concentration within the modeling domain surrounding the power plant is 56.3 ppb.<sup>48</sup> This predicted maximum concentration, which includes an estimate of the background concentration, indicates that this source alone could not cause nonattainment in Wyoming or any other state. Together with the distance between Naughton and the nearest cross-state source (110 km), this indicates that the Naughton Power Plant will not significantly contribute to nonattainment in any other state. The EPA continues to support this conclusion with respect to an interstate transport analysis for section 110(a)(2)(D)(i)(I).<sup>49</sup>

For the other sources listed in Table 12, the low levels of emissions and large distances between Wyoming sources within 50 km of a state border and the nearest SO<sub>2</sub> source in a

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<sup>48</sup> See TSD: Final Round 3 Area Designations for the 2010 1-Hour SO<sub>2</sub> Primary National Ambient Air Quality Standard for Wyoming, in <http://www.regulations.gov>, document ID EPA-HQ-OAR-2017-0003-0608, and TSD: Intended Round 3 Area Designations for the 2010 1-Hour SO<sub>2</sub> Primary National Ambient Air Quality Standard for Wyoming, at EPA-HQ-OAR-2017-0003-0033.

<sup>49</sup> While the air quality modeling discussed here used by the EPA to support its final designation of the Lincoln County, Wyoming area is also supportive of the Agency's analysis of Wyoming's 2010 SO<sub>2</sub> transport SIP, the designation itself or the use of this modeling in the specific context of that designation is not being re-opened through this separate proposed action.

neighboring state provide further evidence to support a conclusion that emissions from Wyoming will not contribute to problems with attainment of the 2010 SO<sub>2</sub> NAAQS in downwind states.

**Table 13. Neighboring State SO<sub>2</sub> Sources near Wyoming\***

<b>Source</b>	<b>2016 SO<sub>2</sub> Emissions (tons)</b>	<b>Distance to Wyoming Border (km)</b>	<b>Distance to Nearest Wyoming SO<sub>2</sub> Source (km)</b>	<b>Wyoming Source 2016 Emissions (tons)</b>
Clean Harbors Env. Services (Kimball County, Nebraska)	218	33	95 (Frontier Petroleum Refinery)	311
P4 Production Chemical Plant (Soda Springs, Idaho)	478	45	132 (Naughton Generating Station)	4,069
Nu-West Industries Fertilizer Plant (Conda, Idaho)	364	40	134 (Naughton Generating Station)	4,069

\* We have not included sources that are duplicative of those in Table 12.

The EPA also reviewed the location of sources in neighboring states emitting more than 100 tpy of SO<sub>2</sub> and located within 50 km of the Wyoming border (see Table 13). This is because elevated levels of SO<sub>2</sub>, to which SO<sub>2</sub> emitted in Wyoming may have a downwind impact, are most likely to be found near such sources. As shown in Table 13, the shortest distance between any pair of these sources is within 95 km. This indicates that there are no additional locations in neighboring states that would warrant further investigation with respect to Wyoming SO<sub>2</sub> emission sources that might contribute to problems with attainment of the 2010 SO<sub>2</sub> NAAQS.

In conclusion, for interstate transport prong 1, we reviewed ambient SO<sub>2</sub> monitoring data and SO<sub>2</sub> emission sources both within Wyoming and in neighboring states. Based on this

analysis, we propose to determine that Wyoming will not significantly contribute to nonattainment of the 2010 SO<sub>2</sub> NAAQS in any other state, per the requirements of CAA section 110(a)(2)(D)(i)(I).

### 3. EPA's Prong 2 Evaluation

The EPA has reviewed the analysis presented by Wyoming and additional information on SO<sub>2</sub> air quality and emission trends to evaluate the State's conclusion that Wyoming will not interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in downwind states. The EPA notes that Wyoming's analysis does not independently address whether the SIP contains adequate provisions prohibiting emissions that will interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in any other state. As noted, the "interfere with maintenance" clause of section 110(a)(2)(D)(i)(I) must be given "independent significance" by evaluating the impact of upwind state emissions on downwind areas that, while currently in attainment, are at risk of future nonattainment, considering historic variability.<sup>50</sup> While Wyoming did not evaluate the potential impact of its emissions on areas that are currently measuring clean data, but that may have issues maintaining that air quality, the EPA has incorporated additional information into our evaluation of Wyoming's submission. This evaluation builds on the analysis regarding significant contribution to nonattainment (prong 1). Specifically, because of the low monitored ambient concentrations of SO<sub>2</sub> in Wyoming and neighboring states and the large distances between cross-state SO<sub>2</sub> sources, the EPA is proposing to find that SO<sub>2</sub> levels in neighboring states near the Wyoming border do not indicate an inability to maintain the SO<sub>2</sub> NAAQS.

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<sup>50</sup> 531 F.3d 896, 910–11 (D.C. Cir. 2008) (holding that the EPA must give "independent significance" to each prong of CAA section 110(a)(2)(D)(i)(I)).

As shown in Table 1, the statewide SO<sub>2</sub> emissions from Wyoming and neighboring states have decreased substantially over time, per our review of the EPA's emissions trends data.<sup>51</sup> From 2000 to 2016, total statewide SO<sub>2</sub> emissions decreased by the following proportions: Colorado (82% decrease), Idaho (70% decrease), Montana (78% decrease), Nebraska (52% decrease), South Dakota (93% decrease), Utah (73% decrease) and Wyoming (59% decrease). This trend of decreasing SO<sub>2</sub> emissions does not by itself demonstrate that areas in Wyoming and neighboring states will not have issues maintaining the 2010 SO<sub>2</sub> NAAQS. However, as a piece of this weight of evidence analysis for prong 2, it provides further indication (when considered alongside low monitor values in neighboring states) that such maintenance issues are unlikely. This is because the geographic scope of these reductions and their large sizes strongly suggest that they are not transient effects from reversible causes, and thus these reductions suggest that there is very low likelihood that a strong upward trend in emissions will occur that might cause areas presently in attainment to violate the NAAQS.

As noted in Wyoming's submission, any future large sources of SO<sub>2</sub> emissions will be addressed by Wyoming's SIP-approved PSD program.<sup>52</sup> Future minor sources of SO<sub>2</sub> emissions will be addressed by Wyoming's SIP-approved minor new source review permit program.<sup>53</sup> The permitting regulations contained within these programs should help ensure that ambient concentrations of SO<sub>2</sub> in neighboring states are not exceeded as a result of new facility construction or modification occurring in Wyoming.

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<sup>51</sup> Additional emissions trends data are available at: <https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data>.

<sup>52</sup> See EPA's final action of the PSD portions of Wyoming's SIP, at 82 FR 18992, April 25, 2017.

<sup>53</sup> Id.

In conclusion, for interstate transport prong 2, the EPA has incorporated additional information into our evaluation of Wyoming's submission, which did not include an independent analysis of prong 2. In doing so, we reviewed information about emission trends, as well as the technical information considered for interstate transport prong 1. We find that the combination of low ambient concentrations of SO<sub>2</sub> in Wyoming and neighboring states, the large distances between cross-state SO<sub>2</sub> sources, the downward trend in SO<sub>2</sub> emissions from Wyoming and surrounding states, and state measures that prevent new facility construction or modification in Wyoming from causing SO<sub>2</sub> exceedances in downwind states, indicates no interference with maintenance of the 2010 SO<sub>2</sub> NAAQS from Wyoming. Accordingly, we propose to determine that Wyoming SO<sub>2</sub> emission sources will not interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in any other state, per the requirements of CAA section 110(a)(2)(D)(i)(I).

#### **IV. Proposed Action**

The EPA is proposing to approve the following submittals as meeting the interstate transport requirements of CAA section 110(a)(2)(D)(i)(I) for the 2010 SO<sub>2</sub> NAAQS: Colorado's July 17, 2013 and February 16, 2018 submittals; Montana's July 15, 2013 submittal; North Dakota's March 7, 2013 submittal; South Dakota's December 20, 2013; and Wyoming's March 6, 2015 submittal. The EPA is proposing this approval based on our review of the information and analysis provided by each state, as well as additional relevant information, which indicates that in-state air emissions will not contribute significantly to nonattainment or interfere with maintenance of the 2010 SO<sub>2</sub> NAAQS in any other state. This action is being taken under section 110 of the CAA.

#### **V. Statutory and Executive Order Reviews**

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

- are not significant regulatory actions subject to review by the Office of Management and Budget under Executive Orders 12866 (58 FR 51735, October 4, 1993) and 13563 (76 FR 3821, January 21, 2011);
- are not Executive Order 13771 (82 FR 9339, February 2, 2017) regulatory actions because SIP approvals are exempted under Executive Order 12866;
- do not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
- are certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);
- do not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Public Law 104-4);
- do not have federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- are not economically significant regulatory actions based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);

- are not significant regulatory actions subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- are not subject to requirements of Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because this action does not involve technical standards; and
- do not provide the EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).

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

#### **List of Subjects in 40 CFR Part 52**

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Particulate Matter, Reporting and recordkeeping requirements, Sulfur dioxide, Volatile organic compounds.

**Authority:** 42 U.S.C. 7401 *et seq.*

Dated: May 29, 2018.

Douglas Benevento,  
Regional Administrator,  
Region 8.

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