2018 Regional SO_2 Emissions and Milestone Report

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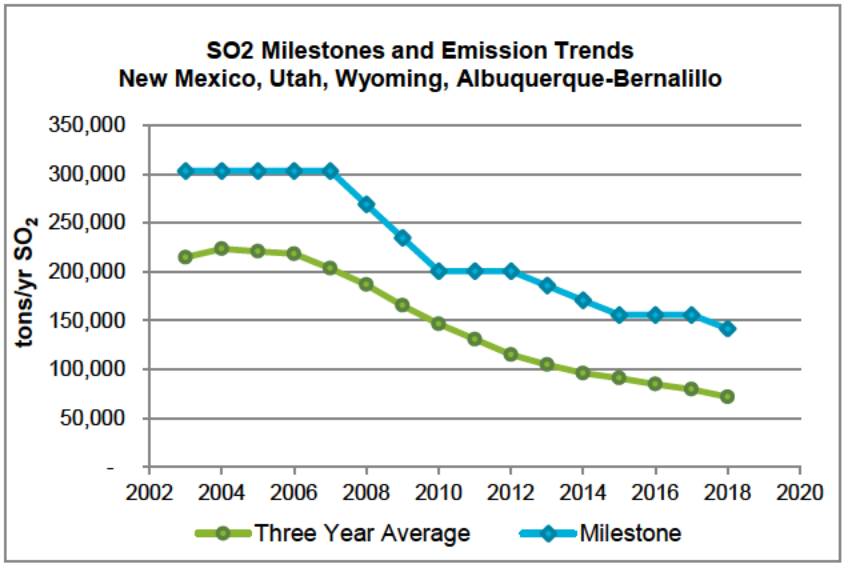
2018 Regional SO_2 Emissions and Milestone Report

Executive Summary

Under Section 309 of the Federal Regional Haze Rule, nine western states, and tribes within those states, have the option of submitting plans to reduce regional haze emissions that impair visibility at 16 Class I areas on the Colorado Plateau. Five states – Arizona, New Mexico, Oregon, Utah, and Wyoming – and Albuquerque-Bernalillo County initially exercised this option by submitting plans to the Environmental Protection Agency (EPA) by December 31, 2003. Oregon elected to cease participation in the program in 2006 and Arizona elected to cease participation in 2010. The tribes were not subject to the deadline and still can opt into the program at any time. Under the Section 309 plans, the three participating states and Albuquerque-Bernalillo County have tracked the emissions of the applicable stationary sources as part of the pre-trigger portion of the SO_2 Milestone and Backstop Trading Program. The Western Regional Air Partnership (WRAP) is assisting these states and county with the implementation and management of the regional emission reduction program. As used in this document, "Section 309 states" means the states of New Mexico, Utah, and Wyoming and Albuquerque-Bernalillo County. (For CAA purposes, this report treats Albuquerque-Bernalillo County as a state because it has authority under federal and state law to administer the CAA separately from the rest of New Mexico).

As part of this program, the Section 309 states must submit an annual Regional Sulfur Dioxide (SO_2) Emissions and Milestone Report that compares emissions to milestones. A milestone is a maximum level of annual emissions for a given year. The states submitted the first report in 2004 for the calendar year 2003. Over the course of the program, the states have consistently stayed below the milestones.



From 2003 to 2017 states compared the milestone to a three year average of SO_2 emissions as required by the states' SIPs. The states' SIPs require them to compare the final 2018 regional milestone to 2018 emissions rather than the three-year average. The regional milestone for 2018 is 141,849 tons. In this document the states report the 2018 adjusted emissions as required by Section 309 of the CAA. We compared the adjusted 2018 emissions to the 2018 milestone to determine whether the states met the milestone. The adjustments to reported

emissions were required to allow the basis of current emission estimates to be comparable to the emissions monitoring or calculation method used in the most recent base year inventory.

As presented in Table ES-1, the Section 309 states reported 62,754 tons of SO_2 emissions for the calendar year 2018. The total emissions increased to 71,994 of SO_2 after making adjustments to account for changes in monitoring, calculation methods, and enforcement actions. The adjustments result in an additional 9,241 tons of SO_2 emissions.

Based on this adjusted annual emissions estimate, the Section 309 states determined that emissions in 2018 were below the regional SO_2 milestone for 2018. The states' Section 309 plans contain provisions to adjust the milestones to account for enforcement actions (to reduce the milestones where an enforcement action identified that emissions in the baseline period were greater than allowable emissions). Based on emissions data received from the states and plan requirements regarding adjustments to the milestones, no enforcement action adjustment is required.

The plans also require that the annual report identify, first, changes in the total number of sources from year to year and, second, significant changes in a source's emissions from year to year. The significant emission changes from 2017 to 2018 are included in Section 6 of this report. A list of facilities added to, or removed from, the list of subject sources in the original base year inventories is included in Appendix B.

Table ES-1
Overview of 2018 Regional Milestones and Emissions for Section 309 Participating States

2018 Sulfur Dioxide Milestones	
Regional 2018 Milestone*	141,849 tons
Adjusted 2018 Milestone	141,849 tons
2018 Sulfur Dioxide Emissions	
Reported 2018 Emissions	62,754 tons
Adjustments**	
Emission Monitoring, Calculation Methods, and Enforcement Actions	9,241 tons
Adjusted 2018 Emissions (rounded number)	71,994 tons
Comparison of Emissions to Milestone	
2018 Adjusted Emissions	71,994 tons
Adjusted Three-State 2018 Milestone	141,849 tons
Difference (Negative Value = Emissions < Milestone)	-69,854 tons
2018 Emissions as Percent of 2018 Milestone	51%

* See the Regional Milestones section of each state's 309 plan.

** See the Annual Emissions Report section of each state's 309 plan.

2018 Regional SO_2 Emissions and Milestone Report

1.0 Introduction

1.1 Background

Under Section 309 of the Federal Regional Haze Rule (40 CFR Part 51), nine western states, and the tribes within those states, have the option of submitting State Implementation Plans (SIPs) to reduce regional haze emissions that impair visibility at 16 Class I areas on the Colorado Plateau. Five states — Arizona, New Mexico, Oregon, Utah, and Wyoming — and Albuquerque-Bernalillo County exercised this option by submitting SIPs to the EPA by December 1, 2003. In October 2006, when EPA modified Section 309, Oregon elected to cease participation in the SO_2 Milestone and Backstop Trading Program by not resubmitting a Section 309 SIP. In 2010, Arizona elected to cease participation in the program. The tribes were not subject to this deadline and still can opt into the program at any time.

Under the Section 309 SIPs, these three states and one local air agency have been tracking emissions under the pre-trigger requirements of the SO_2 Milestone and Backstop Trading Program since 2003. The Western Regional Air Partnership (WRAP) is assisting these states with the implementation and management of this regional emission reduction program.

Under the milestone phase of the program, Section 309 states have established annual SO_2 emissions targets (from 2003 to 2018). These voluntary emissions reduction targets represent reasonable progress in reducing emissions that contribute to regional haze. If the participating sources fail to meet the milestones through this voluntary program, then the states will trigger the backstop trading program and implement a regulatory emissions cap for the states, allocate emissions allowances (or credits) to the affected sources based on the emissions cap, and require the sources to hold sufficient allowances to cover their emissions each year.

This report is the sixteenth annual report for the milestone phase of this program. The report provides background on regional haze and the Section 309 program, the milestones established under the program, and the emissions reported for 2018. Based on the first fifteen years, the voluntary milestone phase of the program is meeting its reasonable progress targets, and emissions are well below the target levels.

What is Regional Haze?

Regional haze is air pollution that is transported long distances and reduces visibility in national parks and wilderness areas across the country. Over the years, this haze has reduced the visual range from 145 kilometers (90 miles) to 24 – 50 kilometers (15 – 31 miles) in the East, and from 225 kilometers (140 miles) to 56 – 145 kilometers (35 – 90 miles) in the West. The pollutants that create this haze are sulfates, nitrates, organic carbon, elemental carbon, and soil dust. Human-caused haze sources include industry, motor vehicles, agricultural and forestry burning, and windblown dust from roads and farming practices.

What U.S. EPA Requirements Apply?

In 1999, the EPA issued regulations to address regional haze in 156 national parks and wilderness areas across the country. EPA published these regulations in the Federal Register on

July 1, 1999 (64 FR 35714). The goal of the Regional Haze Rule (RHR) is to eliminate human-caused visibility impairment in national parks and wilderness areas across the country. It contains strategies to improve visibility over the next six decades, and requires states to adopt implementation plans.

The EPA's RHR provides two paths to address regional haze. One is 40 CFR 51.308 (Section 308), and requires most states to develop long-term strategies out to the year 2064. States must show that these strategies make "reasonable progress" in improving visibility in Class I areas inside the state and in neighboring jurisdictions. The other is 40 CFR 51.309 (Section 309), and is an option for nine states — Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Utah, and Wyoming — and the 211 tribes located within these states to adopt regional haze strategies for the period from 2003 to 2018. These strategies are based on recommendations from the Grand Canyon Visibility Transport Commission (GCVTC) for protecting the 16 Class I areas on the Colorado Plateau. Adopting these strategies constitutes reasonable progress until 2018. These nine western states and tribes can also use the same strategies to protect the other Class I areas within their own jurisdictions.

The EPA revised the RHR on July 6, 2005 (70 FR 39104), and again on October 13, 2006 (71 FR 60612) in response to two legal challenges. The October 13, 2006 revisions modified Section 309 to provide a methodology consistent with the Court's decision for evaluating the equivalence of alternatives to Best Available Retrofit Technology (BART), such as the alternative Section 309 strategy based on the GCVTC recommendations.

How Have the WRAP States Responded to EPA Requirements?

Of the nine states, and tribes within those states, that have the option under Section 309 of participating in a regional strategy to reduce SO_2 emissions, five states originally submitted Section 309 SIPs to EPA. These states were Arizona, New Mexico, Oregon, Utah, and Wyoming. In addition, Albuquerque-Bernalillo County also submitted a Section 309 SIP. Due to legal challenges, EPA did not approve the initial SIP submittals. EPA did, however, fully approve the regional milestone and backstop trading program in 2012.

Oregon and Arizona have opted out of submitting a revised Section 309 SIP under the modified RHR, which leaves three participating states and Albuquerque-Bernalillo County. To date, no tribes have opted to participate under Section 309, and the other four states of the original nine opted to submit SIPs under Section 308 of the RHR.

The following summarizes SO_2 related elements of the Section 309 process for the participating Section 309 states:

1. Section 309(d)(4)(i) requires SO_2 milestones in the SIP and includes provisions for making adjustments to these milestones, if necessary. The milestones must provide for steady and continuing emission reductions through 2018 and greater reasonable progress than BART.

2. Section 309(d)(4)(iii) requires monitoring and reporting of stationary source SO_2 emissions in order to ensure the SO_2 milestones are met. The SIP must commit to reporting to the WRAP as well as to EPA.

3. Section 309(d)(4)(iv) requires that a SIP contain criteria and procedures for activating the trading program within five years if an annual milestone is exceeded. A Section 309 SIP must also provide for assessments of the state's progress in 2013 and 2018.

This report responds to Item 2, above, and provides the annual report that compares the 2018 emissions against the milestones for the states and city that have submitted Section 309 SIPs to EPA.

What Elements Must the Regional SO_2 Emissions and Milestone Report Contain?

To facilitate compliance with the Section 309 SIPs, the WRAP has committed to compiling a regional report on emissions for each year. In accordance with the SIPs, the WRAP will compile the individual state emission reports into a summary report that includes:

1. Reported regional SO_2 emissions (tons/year).
2. Adjustments to account for:
   - Changes in emissions monitoring or calculation methods; or
   - Enforcement actions or settlement agreements as a result of enforcement actions.
3. As applicable, average adjusted emissions for the last three years (which are compared to the regional milestone). Per requirements in the Section 309 SIPs, only 2018 emissions are used in the report.

How Is Compliance with the SO_2 Milestone Determined?

While the WRAP assists with the preparation of this report, each Section 309 state reviews the information in the report and proposes a draft determination that the regional SO_2 milestone is either met or exceeded for that year. Each state submits the draft determination for public review and comment, in accordance with its SIP, during the first part of 2020, culminating in a final report sent to EPA by March 31, 2020.

1.2 Report Organization

This report presents the regional SO_2 emissions and milestone information required by the 309 SIPs for the Section 309 states. The report is divided into the following sections, including two appendices:

- Reported SO_2 Emissions in 2018;
- Emissions Adjustments Related to Monitoring Methodology or Enforcement Actions;
- 2018 Adjusted Emissions;
- Enforcement Milestone Adjustments;
- Quality Assurance (Including Source Change Information);
- Milestone Determination;
- Appendix A -- Facility Emissions and Emissions Adjustments; and
- Appendix B -- Changes to SO_2 Emissions and Milestone Source Inventory.

2.0 Reported SO_2 Emissions in 2018

The Section 309 SIPs require all stationary sources with reported emissions of 100 tons or more per year in the year 2000, or any subsequent year, to report annual SO_2 emissions.

Table 1 summarizes the annual reported emissions from applicable sources in each state. The 2018 reported SO_2 emissions for each applicable source are in Appendix A, Table A-1.

Table 1. Reported 2018 SO2 Emissions by State

State	Reported 2018 SO_2 Emissions (tons/year)
Albuquerque-Bernalillo	126
New Mexico	7,979
Utah	9,411
Wyoming	45,238
TOTAL	62,754

3.0 Emissions Adjustments Related to Monitoring Methodology or Enforcement Actions

The annual emissions reports for each state include proposed emissions adjustments to ensure consistent comparison of emissions to the milestone. Each state adjusted the reported emissions levels so that they are comparable to the levels that would result if the state used the same emissions monitoring or calculation method used in the base year inventory (2006). The net impact throughout the region, because of adjustments related to the monitoring methodology, is an increase of 1,236 tons from the reported 2018 emissions.

Utah adjusted the emissions from the Carbon Power Plant due to an enforcement action. As part of Utah's BART alternative for NO_x, they required that the Carbon Power Plant shut down. Though there is an actual emissions reduction of 8,005 tons of SO_2 per year, the Utah Air Quality Board approved a Commitment SIP stating that the emissions reductions from the closure will not be counted for both the SO_2 Milestone program and the BART alternative controls. Therefore, an additional 8,005 tons of SO_2 are included in the calculations for this milestone report. Table 2 summarizes the emissions adjustments made for changes in monitoring methodology or enforcement actions.

Table 2. Adjustments for Changes in Monitoring Methodology or Enforcement Actions

State	Source	Reported 2018 SO_2 Emissions (tons)	Adjusted 2018 SO_2 Emissions (tons)	Monitoring Methodology Adjustment (tons)	Enforcement Action Adjustment (tons)	Description
ABQ	GCC Rio Grande Inc. - Portland Cement Manufacturer	126	33	93	--	Increase in the reported 2018 SO2 emissions was based on actual stack test results and are more accurate in estimating SO2 emissions compared to 2006 emissions calculation methodology. In 2015 old baghouses were replaced with new state of the art baghouses and a new stack was added. Old 2006 calculation methodology was based on emissions testing by taking physical measurements inside the old baghouses where emissions were vented through the baghouses' mono-vents. In 2006 there was no stack to conduct emissions testing.
UT	Chevron Products Co. -- Salt Lake Refinery	47	857	810	--	Increase in Adjusted SO2 Emissions is due to a correction in the calculation of Adjusted SO2 Emissions. The previous formula used to calculate SO2 included flow meters and engineering judgment etc. The current formula for calculating now incorporates CEM data.
UT	Big West Oil Company - Flying J Refinery	65	211	146	--	Now using CEM data
UT	Holcim-Devil's Slide Plant	91	464	373	--	Facility changed emissions calculation methodology from stack tests to CEM.
UT	PacifiCorp -- Carbon Power Plant	0	8,005	--	8,005	An Utah Enforceable Commitment SIP resolves that SO_2 emissions reductions from the closure of the Carbon plant will not be counted as part of achieving the SO_2 Milestone and as part of the Alternative to BART SIP for NOx.

4.0 2018 Adjusted Emissions

The SIPs require multi-year averaging of emissions from 2004 to 2017 for the milestone comparison. From 2005 to 2017, states compare a three-year average (which includes the reporting year and the two previous years) with the milestone. For this milestone report the SIPs require a comparison of 2018 emissions with the 2018 milestone. The adjusted emissions for 2018 are 71,994. The following report sections describe the adjusted milestone determination.

5.0 Enforcement Milestone Adjustments

The SIPs require that each state report on proposed milestone adjustments due to enforcement actions, which affect baseline year emissions. The purpose of this adjustment is to remove emissions that occurred above the allowable level in the baseline year from the baseline and the annual milestones. The enforcement milestone adjustments require an EPA-approved SIP revision before taking effect. There were no proposed enforcement action related milestone adjustments reported for 2018.

6.0 Quality Assurance

The states provided 2018 emissions data based on their state emissions inventories. States used additional quality assurance (QA) procedures for this report to supplement the normal QA procedures the states follow for their emissions inventories. First, each state submitted a source change report, and second, the states compared their inventory data for utility sources against 40 CFR Part 75 Acid Rain Program monitoring data.

6.1 Source Change Report

The SIPs require that this annual SO_2 emissions and milestone report include a description of source changes or exceptions report to identify the following:

- Any new sources that were not contained in the previous calendar year's emissions report, and an explanation of why the sources are now included in the program.
- Identification of any sources that were included in the previous year's report and are no longer included in the program, and an explanation of why this change has occurred.
- An explanation for emissions variations at any applicable source that exceeds ± 20% from the previous year.

Table 3 provides explanations for the emissions variations from applicable sources from 2017 – 2018 that are greater than 20%. Plants with variations greater than 20%, but reported emissions of less than 20 tons in both 2017 and 2018, are not included in Table 3. Information on these plants is provided in Appendix A.

Appendix B provides a list of all sources added or removed from the program inventory in this and previous reporting years. Albuquerque-Bernalillo County added one source to this 2018 report.

Table 3. Sources with an Emissions Change of > ±20% from the Previous Year

State	County FIPS	State Facility Identifier	Plant Name	Reported 2017 SO_2 Emissions (tons)	Reported 2018 SO_2 Emissions (tons)	% Change	Description Change > ±20% 2017 to 2018
NM	15	350150011	DCP Midstream/Artesia Gas Plant	9	124	1328%	At Artesia plant, we have Acid Gas Injection Well (AGI) that all of compressed acid gas (high H2S/High CO2) coming off of Amine unit is injected into. Whenever plant encounters unexpected malfunction event with the AGI system, the plant has to route the acid gas to the acid gas flare while the issue with AGI system is addressed. (H2S content of acid gas completely oxidizes to SO2 when combusted)
NM	25	350250044	DCP Midstream/Eunice Gas Plant [Old name: GPM GAS EUNICE GAS PLANT]	1,385	1,767	28%	The 28% increase in SO2 emission for 2018 at Eunice Gas Plant, in comparison to 2017, is due to higher amount of H2S/overall volume processed at the facility. Also, based on the H2S content of the inlet gas to the plant and sulfur recovery efficiency of the SRU unit, the amount of sulfur content that remains in Tail Gas routed to TGI varies. And as explained in Artesia email, sulfur (H2S) oxidizes to SO2 emission when burned (whether through a flare or an incinerator). In conclusion, SO2 emission variability can be impacted by multiple factors but in the case of 2017 vs 2018, biggest contributing factor was sulfur content/volume processed at the facility (increase in operation).
NM	25	350250035	DCP Midstream/Linam Ranch Gas Plant [Old name: GPM GAS/LINAM RANCH GAS PLANT]	393	114	-71%	DCP implemented several projects in 2017 to achieve emission reductions and improved reliability. DCP worked with 3rd party power company to install dedicated electrical line to the Linam gas plant and a separate electrical line to the AGI site. This project nearly eliminated plant upsets associated with 3rd party power interruptions. Installed suction control valves on the inlet to the AGI compressors, improving reliability. Rewired all instrumentation and controls for AGI compressors.
NM	15	350150008	OXY USA WTP Limited Partnership - Indian Basin Gas Plant [Old Name - Marathon Oil/Indian Basin Gas Plant]	16	28	78%	The Plant's total SO2 emissions increased from 15.78 tons in 2017 to 28.10 tons in 2018. This was mainly due to a scheduled maintenance performed on the acid gas compressor in May, 2018 which accounted for 16.37 tons of SO2.
NM	45	350450902	Public Service Co of New Mexico/San Juan Generating Station	4,535	1,247	-73%	The primary reason for the decrease is that two of the four units were permanently shut down at the end of 2017.In 2018, only two units remained in service and consequently, the tons of SO2 emitted and reported were significantly less than in 2017.
NM	25	350250008	Regency Field Services/Jal #3 [Old Name Southern Union Gas] /Jal #3	207	1,444	597%	I did a review on the flaring events for 2017 and 2018. It looks like in early 2018 (January, March, and May) we had 9 major flaring events that lasted for several days each (the largest event lasting for 8 days), resulting in a large amount of SO2 emissions.

State	County FIPS	State Facility Identifier	Plant Name	Reported 2017 SO_2 Emissions (tons)	Reported 2018 SO_2 Emissions (tons)	% Change	Description Change > ±20% 2017 to 2018
NM	25	350250061	Versado Gas Processors, LLC / Monument Plant[Old name(s):TARGA MIDSTREAM SERVICES LP, WARREN PETROLEUM/MONUMENT PLANT]	1,007	406	-60%	In August of 2016, the Monument facility experienced an AGI well failure. As a result of the well failure, a new well had to be permitted and drilled. On August 8, 2016, the AGI well was shut down at Monument. A new well was permitted and drilled. On March 23, 2017, the new well was complete, with all equipment back in service, and injection began. During this time period, acid gas was flared continually to achieve maximum destruction efficiency from the flare. Therefore, from 2017 to 2018, a decrease in flared emissions contr buted to an overall decrease in SO2 emissions at Monument.
NM	25	350250063	Versado Gas Processors, LLC/Saunders Plant [Old name(s): TARGA MIDSTREAM SERVICES, LP,WARREN PETROLEUM/SAUNDERS PLANT]	568	256	-55%	From 2017 to 2018, a decrease in emissions from the thermal incinerator contr buted to an overall decrease in SO2 emissions at the Saunders facility. The SO2 emissions decreased following a shutdown to replace the catalyst in the Sulfur Recovery Unit which resulted in higher SO2 recoveries.
NM	31	350310032	Tri-State Gen & Transmission/Escalante Station	729	880	21%	There was an economic shutdown in 2017 that started in the middle of March and coming back online in early June. That is why there is a significant increase in 2018 compared to 2017.
NM	45	350450247	CCI San Juan, LLC /San Juan River Gas Plant	272	425	56%	The SO2 increases were related more to the feed gas composition than to feed gas quantity. The plant began to process a new type of feed gas with higher CO2 concentrations compared to typical historical feed gas compositions. The higher CO2 concentrations in the feed gas contributed to the increased rate of acid gas flaring in 2017.This situation was resolved just prior to November 2018 and emissions have declined in late 2018 and 2019.
NM	25	350250113	ConocoPhillips-Midland Office / East Vacuum Liquid Recovery and CO2 Plant	38	21	-45%	In 2017, ConocoPhillips commissioned an additional process Train (2) at the plant, and to sustain process reliability completed a maintenance turn-around. Flaring was required in 2017 to complete the commissioning and turn around when the plant was taken off line. Since completion of these efforts, the plant has experience over 90% process reliability with associated flared gas and SO2 reductions.
UT	11	10119	Chevron Products Co. -- Salt Lake Refinery	32	47	45%	From 2017 to 2018 Western Canadian Select crude input increased from 10% to 14% This crude contains more sulfur than other crudes processed.
UT	11	10122	Big West Oil Company - Flying J Refinery	33	65	97%	Increase in SO2 emissions is due to aligning emissions calculations with the RATA methodology which source believes to be more conservative.

State	County FIPS	State Facility Identifier	Plant Name	Reported 2017 SO_2 Emissions (tons)	Reported 2018 SO_2 Emissions (tons)	% Change	Description Change > ±20% 2017 to 2018
UT	27	10313	Graymont Western US Inc. -- Cricket Mountain Plant	18	26	44%	The emission factor for 2017 was 2.0 lb/hr for SO2, while the 2018 SO2 emission factor was 5.3 lb/hr. Given that the SO2 emissions are largely fuel driven, it appears that sulfur in their coal increased during 2018 (Kiln 4 saw similar increases in the SO2 emission factor, also supporting that the sulfur in coal was higher in 2018).
UT	29	10007	Holcim-Devil's Slide Plant	196	91	-54%	Decrease in SO2 emissions which appears to be due to an decrease in the CEM value. In 2018, the plant did not use Pet Coke as a fuel. Use of one primary fuel in the fuel mix allows for better burnability of the fuel mix which most I kely led to lower SO2 emissions for the year.
UT	11	10123	Holly Refining and Marketing Co. -- Phillips Refinery	44	18	-59%	SO2 values decreased due to lower CEMS values in 2018 as opposed to 2017.This was due to a reduced sulfur concentration in our fuel gas as measured by a continuous emission monitor (CEM).
UT	35	10572	Kennecott Utah Copper Corp. -- Power Plant/Lab/Tailings Impoundment	1,036	-	-100%	The UPP SOx emissions are lower in 2018 because the facility was operated in a care & maintenance mode while other power supply options were investigated for their impacts to facility costs. Care & maintenance operations do not require the use of coal as a fuel source, thus SO2 emissions were less than years with normal power supply operations.
UT	35	10335	Tesoro West Coast -- Salt Lake City Refinery	499	43	-91%	Decrease in SO2 emissions due to installation of Wet Gas Scrubber at the beginning of calendar year 2018.
WY	31	1	Basin Electric -- Laramie River Station	6,522	8,670	33%	Change in Calculation Method
WY	5	281	Black Hills Corporation - Wygen III	281	361	29%	Data Substituted form Acid Rain Program
WY	13	28	Burlington Resources -- Lost Cabin Gas Plant	1,209	1,632	35%	Higher emissions due to increased flare use caused by unplanned grid outages and then installation of a new incinerator
WY	41	9	Chevron USA -- Carter Creek Gas Plant	55	145	164%	The 2018 SO2 emissions reflect a 163.81% increase due to a Plant Turnaround occurring in 2018 compared to the emissions in 2017
WY	37	48	Tronox Alkali Wymoing Corporation -- Green River Sodium Products (Westvaco facility)	1,456	2,328	60%	Change due to increase in operation outs and higher average sulfur content coal
WY	23	1	Exxon Mobil Corporation -- Labarge Black Canyon Facility	25	19	-25%	Fewer equipment malfunctions compared to 2017
WY	23	13	Exxon Mobil Corporation -- Shute Creek	1,582	474	-70%	Multiple processes upsets in 2017 caused by extreme weather condition and unavoidable equipment malfunctions resulting in flaring form AGI and increased SO2

State	County FIPS	State Facility Identifier	Plant Name	Reported 2017 SO_2 Emissions (tons)	Reported 2018 SO_2 Emissions (tons)	% Change	Description Change > ±20% 2017 to 2018
WY	21	1	Holly Frontier Oil & Refining Company -- Cheyenne Refinery	250	306	22%	Higher emissions from Sulfur Incinerator upset events, higher emissions from coker upsets
WY	29	7	Marathon Oil Co -- Oregon Basin Gas Plant	227	303	34%	Higher Emissions due to turnaround being complete
WY	29	0010	Marathon Oil Co -- Oregon Basin Wellfield	49	222	349%	Higher Emissions due to turnaround being complete
WY	37	8	Merit Energy Company - Brady Gas Plant (formerly Anadarko E&P Co LP)	0	23	230900%	Increase due to flare use
WY	29		Merit Energy Company - Shoshone Unit Battery	18	-		Facility is does not have Chapter 14 requirements and was sending in data voluntarily. New owner has not decided to keep doing this
WY	29		Merit Energy Company - Frannie Unit Battery No 1	4	-		Facility is does not have Chapter 14 requirements and was sending in data voluntarily. New owner has not decided to keep doing this
WY	29		Merit Energy Company - Cody Battery	11	-		Facility is does not have Chapter 14 requirements and was sending in data voluntarily. New owner has not decided to keep doing this
WY	29		Merit Energy Company - Frannie 2 Battery	0	-		Facility is does not have Chapter 14 requirements and was sending in data voluntarily. New owner has not decided to keep doing this
WY	1	2	Mountain Cement Company -- Laramie Plant	162	128	-21%	Lower Kiln operating hours
WY	37	1002	Pacificorp -- Jim Bridger Plant	10,264	8,156	-21%	Reduction Caused by drop in operating hours
WY	7	1	Sinclair Oil Company -- Sinclair Refinery	77	148	91%	New Boiler Started up
WY	37	5	Solvay Chemicals -- Soda Ash Plant (Green River Facility)	33	70	115%	Change due to varying effectiveness of wet scrubbers in unit# 19
WY	1	5	University of Wyoming - Heat Plant	53	35	-34%	Lower Sulfur Coal Used
WY	56043	397	Washakie Midstream Services - Worland Gas Plant (WMS)	71	30	-57%	Less compressor maintenance needed because there were less equipment malfunctions and repairs needed.
WY	45	1	Wyoming Refining -- Newcastle Refinery	14	4	-69%	Decrease due to removal of emission units and a decrease in flaring events.

6.2 Part 75 Data

Federal Acid Rain Program emissions monitoring data (required by 40 CFR Part 75) were used to check reported power plant emissions.

Sources in the region subject to Part 75 emitted 65% of the region's reported emissions in 2018. We compared Acid Rain Program power plant emission data from EPA's Data and Maps website to plant totals reported by each state. The SIPs require the use of Part 75 methods for Part 75 sources. The reported emissions matched EPA's emission data with the exception of four sources. The sources whose reported emissions did not match EPA's data are in Table 4.

Table 4. Reported facility emissions that do not match information in the Acid Rain Database

State	Facility Name	Facility ID (ORISPL)	Year	2018 Acid Rain Database Emissions (tons SO2)	2018 Reported Emissions (tons SO2)
WY	Laramie River	6204	2018	6,436	8,670
WY	Naughton	4162	2018	4,141	4,143
WY	Neil Simpson II	7504	2018	403	402
WY	Wygen II	56319	2018	1,030	260

7.0 Milestone Determination

The Section 309 regional 2018 milestone is 141,849 tons SO_2. The 2018 adjusted emissions are 71,994 tons SO_2; therefore, the participating states have met the 141,849 tons SO_2 milestone.

8.0 Public Comments

New Mexico, Albuquerque-Bernalillo, Utah, and Wyoming each published a draft of this report for public review and comment. The draft was also available on the WRAP website. During the public comment periods, New Mexico, Utah, and Wyoming received no comments. Albuquerque-Bernalillo did receive comments which are summarized in Appendix C.

Appendix A

Table A-1
2018 Reported and Adjusted Emissions for Sources Subject to Section 309 -- Regional Haze Rule

State	County FIPS	State Facility Identifier	ORIS	Plant Name	Plant SIC	Plant NAICS	Reported 2018 SO_2 Emissions (tons)	Adjusted 2018 SO_2 Emissions (tons)	2018 General New Monitoring Calculation Method Adjustment (tons)
ABQ	1	3500100008		GCC Rio Grande Inc. - Portland Cement Manufacturer	3241	327310	126	33	93
NM	15	350150024		Agave Energy Co./Agave Dagger Draw Gas Plant	1311	21112	36.57	36.57	
NM	15	350150002		Frontier Field Services /Empire Abo Plant [Old name: Arco Permian/Empire Abo Plant; BP America Production]	1321	21113	76.9	76.9	
NM	15	350150011		DCP Midstream/Artesia Gas Plant	1321	211112	124.40	124.40	
NM	25	350250044		DCP Midstream/Eunice Gas Plant [Old name: GPM GAS EUNICE GAS PLANT]	1321	21113	1,767	1,767	
NM	25	350250035		DCP Midstream/Linam Ranch Gas Plant [Old name: GPM GAS/LINAM RANCH GAS PLANT]	1321	21113	114	114	
NM	15	350150138		Duke -- Magnum/Pan Energy -- Burton Flats	1321	211112	0	0	
NM	15	350150285		Duke Energy/Dagger Draw Gas Plant	1321	211112	0	0	
NM	25	350250060		VERSADO GAS PROCESSORS, LP/Eunice Gas Plant [Old name: WARREN PETROLEUM/EUNICE GAS PLANT]	1321	21113	76	76	
NM	25	350250004		Frontier Field Services/Maljamar Gas Plant	1321	21113	94	94	
NM	31	350310008		Western Refining Southwest Inc-Gallup Refinery {Old names: Western Refinery/Ciniza Refinery (Gallup) and GIANT REFINING/CINIZA]	2911	236220	52	52	

State	County FIPS	State Facility Identifier	ORIS	Plant Name	Plant SIC	Plant NAICS	Reported 2018 SO_2 Emissions (tons)	Adjusted 2018 SO_2 Emissions (tons)	2018 General New Monitoring Calculation Method Adjustment (tons)
NM	25	350250007		Davis Gas Processing/Denton Plant	1311	21113	740	740	
NM	15	350150008		OXY USA WTP Limited Partnership - Indian Basin Gas Plant [Old Name -Marathon Oil/Indian Basin Gas Plant]	1321	211112	28	28	
NM	15	350150010		Navajo Refining Co/Artesia Refinery	2911	32411	51	51	
NM	45	350450902	2451	Public Service Co of New Mexico/San Juan Generating Station	4911	221112	1,247	1,247	
NM	7	350070001		Raton Pub. Service/Raton Power Plant	4911	221112	0	0	
NM	25	350250008		Regency Field Services/Jal #3 [Old Name Southern Union Gas] /Jal #3	1321	21113	1,444	1,444	
NM	25	350250051		Versado Gas Processors, LP/Eunice South Gas Plant	1321	211112	0	0	
NM	25	350250061		Versado Gas Processors, LLC / Monument Plant[Old name(s):TARGA MIDSTREAM SERVICES LP, WARREN PETROLEUM/MONUMENT PLANT]	1321	21113	406	406	
NM	25	350250063		Versado Gas Processors, LLC/Saunders Plant [Old name(s): TARGA MIDSTREAM SERVICES, LP,WARREN PETROLEUM/SAUNDERS PLANT]	1321	21113	256	256	
NM	31	350310032	87	Tri-State Gen & Transmission/Escalante Station	4911	221112	880	880	
NM	45	350450247		CCI San Juan, LLC /San Juan River Gas Plant	1321	21113	425	425	
NM	45	350450023		Western Refining Southwest Inc./Bloomfield Products Terminal [Old name: GIANT INDUSTRIES/BLOOMFIELD REF]	2911	42471	0.15	0.15	
NM	25	350250075		ConocoPhillips-Midland Office / MCA Tank Battery No. 2	1311	21113	140	140	
NM	25	350250113		ConocoPhillips-Midland Office / East Vacuum Liquid Recovery and CO2 Plant	1311	21112	21	21	
UT	49	10790		Brigham Young University -- Main Campus	8221	611310	0	0	

State	County FIPS	State Facility Identifier	ORIS	Plant Name	Plant SIC	Plant NAICS	Reported 2018 SO_2 Emissions (tons)	Adjusted 2018 SO_2 Emissions (tons)	2018 General New Monitoring Calculation Method Adjustment (tons)
UT	11	10119		Chevron Products Co. -- Salt Lake Refinery	2911	324110	47	857	810
UT	11	10122		Big West Oil Company - Flying J Refinery	2911	324110	65	211	146
UT	27	10313		Graymont Western US Inc. -- Cricket Mountain Plant	1422	212312	26	26	
UT	29	10007		Holcim-Devil's Slide Plant	3241	327310	91	464	373
UT	11	10123		Holly Refining and Marketing Co. -- Phillips Refinery	2911	324110	18	18	
UT	27	10327	6481	Intermountain Power Service Corporation -- Intermountain Generation Station	4911	221112	2,485	2,485	
UT	35	10572		Kennecott Utah Copper Corp. -- Power Plant/Lab/Tailings Impoundment	1021	212234	0	0	
UT	35	10346		Kennecott Utah Copper Corp. -- Smelter & Refinery	3331	331411	689	689	
UT	27	10311		Materion Natural resources - Delta Mill (was Brush Resources)	1099	212299	0	0	
UT	7	10081	3644	PacifiCorp -- Carbon Power Plant	4911	221112	0	8,005	8,005
UT	15	10237	6165	PacifiCorp -- Hunter Power Plant	4911	221112	3,133	3,133	
UT	15	10238	8069	PacifiCorp -- Huntington Power Plant	4911	221112	2,202	2,202	
UT	37	10034		Paradox Midstream, LLC (was CCI Paradox Midstream LLC and Patara Midstream LLC and EnCana Oil & Gas (USA) Incorporated and Tom Brown Incorporated) - Lisbon Natural Gas Processing Plant	2911	211111	0	0	
UT	7	10096		Sunnyside Cogeneration Associates -- Sunnyside Cogeneration Facility	4911	221112	472	472	
UT	35	10335		Tesoro West Coast -- Salt Lake City Refinery	2911	324110	43	43	
UT	43	10676		Utelite Corporation -- Shale processing	3295	212399	140	140	

State	County FIPS	State Facility Identifier	ORIS	Plant Name	Plant SIC	Plant NAICS	Reported 2018 SO_2 Emissions (tons)	Adjusted 2018 SO_2 Emissions (tons)	2018 General New Monitoring Calculation Method Adjustment (tons)
WY	11	2		American Colloid Mineral Co -- Colony East & West Plants	1459	212325	99	99	
WY	5	45	56609	Basin Electric -- Dry Fork Station	4911	22112	923	923	
WY	31	1	6204	Basin Electric -- Laramie River Station	4911	221112	8,670	8,670	
WY	3	12		Big Horn Gas Proc -- Big Horn/Byron Gas Plant	1311	22121	0	0	
WY	5	2	4150	Black Hills Corporation - Neil Simpson I	4911	22112	0	0	
WY	5	63	7504	Black Hills Corporation - Neil Simpson II	4911	22112	402	402	
WY	45	5	4151	Black Hills Corporation - Osage Plant	4911	22112	0	0	
WY	5	146	55479	Black Hills Corporation - Wygen 1	4911	22112	430	430	
WY	5	281	56596	Black Hills Corporation - Wygen III	4911	221112	361	361	
WY	13	0009		Burlington Resources -- Bighorn Wells	1300	21111	0	0	
WY	13	28		Burlington Resources -- Lost Cabin Gas Plant	1311	211111	1,632	1,632	
WY	41	9		Chevron USA -- Carter Creek Gas Plant	1311	211111	145	145	
WY	37	0177		Chevron USA -- Table Rock Field	1300	21111	0	0	
WY	37	14		Chevron USA -- Table Rock Gas Plant (Formerly Anadarko E&P Co LP)	1321	211111	0	0	
WY	41	0008		Chevron USA -- Whitney Canyon/Carter Creek Wellfield	1300	21111	0	0	
WY	5	225	56319	Cheyenne Light Fuel and Power Company – Wygen II	4911	22112	260	260	
WY	37	48		Tronox Alkali Wymoing Corporation -- Green River Sodium Products (Westvaco facility)	2812	327999	2,328	2,328	

State	County FIPS	State Facility Identifier	ORIS	Plant Name	Plant SIC	Plant NAICS	Reported 2018 SO_2 Emissions (tons)	Adjusted 2018 SO_2 Emissions (tons)	2018 General New Monitoring Calculation Method Adjustment (tons)
WY	13	0007		Devon Energy Production Co., L.P. -- Beaver Creek Gas Field	1300	21111	0	0	
WY	13	8		Devon Gas Services, L.P. -- Beaver Creek Gas Plant	1311	211111	0	0	
WY	23	1		Exxon Mobil Corporation -- Labarge Black Canyon Facility	1300	21111	19	19	
WY	23	13		Exxon Mobil Corporation -- Shute Creek	1311	211111	474	474	
WY	43	3		Hiland Partners, LLC -- Hiland Gas Plant	1321	48621	0	0	
WY	21	1		Holly Frontier Oil & Refining Company -- Cheyenne Refinery	2911	32411	306	306	
WY	29	7		Marathon Oil Co -- Oregon Basin Gas Plant	1321	211112	303	303	
WY	29	0010		Marathon Oil Co -- Oregon Basin Wellfield	1300	21111	222	222	
WY	37	8		Merit Energy Company - Brady Gas Plant (formerly Anadarko E&P Co LP)	1321	211112	23	23	
WY	29			Merit Energy Company - Shoshone Unit Battery		211112	-	-	
WY	29			Merit Energy Company - Frannie Unit Battery No 1		211112	-	-	
WY	29			Merit Energy Company - Cody Battery		211112	-	-	
WY	29			Merit Energy Company - Frannie 2 Battery		211112	-	-	
WY	41	0002		Merit Energy Company -- Whitney Canyon WellField	1300	21111	-	-	
WY	41	12		Merit Energy Company -- Whitney Facility	1311	211111	1	1	
WY	1	2		Mountain Cement Company -- Laramie Plant	3241	23571	128	128	
WY	37	3		P4 Production, L.L.C. -- Rock Springs Coal Calcining Plant	3312	331111	743.1	743.1	

State	County FIPS	State Facility Identifier	ORIS	Plant Name	Plant SIC	Plant NAICS	Reported 2018 SO_2 Emissions (tons)	Adjusted 2018 SO_2 Emissions (tons)	2018 General New Monitoring Calculation Method Adjustment (tons)
WY	9	1	4158	Pacificorp - Dave Johnston Plant	4911	221112	6,983	6,983	
WY	37	1002	8066	Pacificorp -- Jim Bridger Plant	4911	221112	8,156	8,156	
WY	23	4	4162	Pacificorp -- Naughton Plant	4911	221112	4,143	4,143	
WY	5	46	6101	Pacificorp -- Wyodak Plant	4911	221112	2,163	2,163	
WY	37	22		Simplot Phosphates LLC -- Rock Springs Plant	2874	325312	1,159	1,159	
WY	7	1		Sinclair Oil Company -- Sinclair Refinery	2911	32411	148	148	
WY	25	5		Sinclair Wyoming Refining Company -- Casper Refinery	2911	32411	164	164	
WY	37	5		Solvay Chemicals -- Soda Ash Plant (Green River Facility)	1474	325181	70	70	
WY	37	2		TATA Chemicals (Soda Ash Partners)-- Green River Plant (formerly General Chemical)	1474	327999	3,917	3,917	
WY	15	1		The Western Sugar Cooperative -- Torrington Plant	2063	311313	7	7	
WY	37	49		Tronox Alkali Wyoming Corporation -- Granger Soda Ash Plant	1474	212391	218	218	
WY	1	5		University of Wyoming - Heat Plant	8221	61131	35	35	
WY	29	12		Vanguard Operating, LLC -- Elk Basin Gas Plant	1311	211111	572	572	
WY	56043	397		Washakie Midstream Services - Worland Gas Plant (WMS)	1321	211112	30	30	
WY	45	1		Wyoming Refining -- Newcastle Refinery	2911	32411	4	4	

Appendix B

Table B-1
Sources Added to the SO_2 Emissions and Milestone Report Inventory

State	County FIP Code	State Facility ID	Facility Name	Report Year of Change
UT	043	10676	Utelite Corporation -- Shale processing	2003
WY	011	0002	American Colloid Mineral Company -- East Colony	2003
WY	011	0003	American Colloid Mineral Company -- West Colony	2003
WY	037	0014	Chevron USA (previously owned by Anadarko E&P Company LP) -- Table Rock Gas Plant	2003
WY	005	0146	Black Hills Corporation -- Wygen 1	2003
WY	041	0002	BP America Production Company -- Whitney Canyon Well Field	2003
WY	013	0009	Burlington Resources -- Bighorn Wells	2003
WY	037	0177	Chevron USA -- Table Rock Field	2003
WY	041	0008	Chevron USA -- Whitney Canyon/Carter Creek Well field	2003
WY	013	0008	Devon Energy Corp. -- Beaver Creek Gas Plant	2003
WY	035	0001	Exxon Mobil Corporation -- Labarge Black Canyon Facility (also identified as Black Canyon Dehy Facility)	2003
WY	013	0007	Devon Energy Corp. -- Beaver Creek Gas Field	2004
WY	005	0225	Cheyenne Light, Fuel and Power (a subsidiary of Black Hills Corporation) -- Wygen II	2008
WY	005	0281	Black Hills Corporation – Wygen III	2010
WY	005	0045	Basin Electric – Dry Fork Station	2011
NM	025	350250075	ConocoPhillips-Midland Office / MCA Tank Battery No. 2	2013
NM	025	350250113	ConocoPhillips-Midland Office / East Vacuum Liquid Recovery and CO2 Plant	2013
ABQ* NM	001	3500100008	GCC Rio Grande Inc. - Portland Cement Manufacturer	2018

* ABQ NM means Albuquerque-Bernalillo County.

Table B-2
Sources Removed from the SO2 Emissions and Milestone Report Inventory

State	County FIP Code	State Facility ID	Facility Name	1998 Baseline Emissions (tons/year)	Reason for Change	Report Year of Change
WY	043	0001	Western Sugar Company -- Worland	154	Emissions did not meet 100 TPY program criteria.	2003
WY	017	0006	KCS Mountain Resources -- Golden Eagle	942	Emissions did not meet 100 TPY program criteria.	2003
WY	003	0017	KCS Mountain Resources -- Ainsworth	845	Closed since 2000.	2003
WY	017	0002	Marathon Oil -- Mill Iron	260	Emissions did not meet 100 TPY program criteria.	2003
UT	049	10796	Geneva Steel -- Steel Manufacturing Facility	881	Plant is shut down and disassembled.	2004
WY	023	0001	Astaris Production -- Coking Plant	1,454	Plant is permanently shut down and dismantled.	2004
ABQ* NM	001	00008	GCC Rio Grande Cement	1,103	Not subject to program after baseline revisions.**	2008
ABQ NM	001	00145	Southside Water Reclamation Plant	120	Not subject to program after baseline revisions.**	2008
NM	023	350230003	Phelps Dodge Hidalgo Smelter	16,000	Facility is permanently closed.	2008
NM	017	350170001	Phelps Dodge Hurley Smelter/Concentrator	22,000	Facility is permanently closed.	2008
WY	003	00012	Big Horn Gas Processing – Bighorn/Byron Gas Plant	605	Facility is permanently closed and dismantled.	2011

* ABQ NM means Albuquerque-Bernalillo County.

** 1998 baseline emissions were based on the facilities' potential to emit (PTE), and not actual emissions. Actual annual emissions have always been below 100 tons. Once the year 2006 baseline became effective, these facilities were removed from the inventory.

Appendix C

Comments received at meeting of the Albuquerque - Bernalillo County Air Quality Control Board Wednesday, February 12, 2020 Responses of the city of Albuquerque Environmental Health Report

As required by the regional haze state implementation plan element for Albuquerque - Bernalillo County ("Regional Haze SIP"), the February 12, 2020 meeting of the Air Quality Control Board ("Air Board" or "Board") provided an opportunity for public comment on the draft 2018 Regional SO_2 Emissions and Milestone Report ("2018 Milestone Report" or "Report"). Ed Merta, staff member for the City of Albuquerque Environmental Health Department ("EHD"), delivered an oral summary of the draft 2018 Milestone Report.

Under the Regional Haze SIP, the Air Board must review and approve a final version of the 2018 Milestone Report at a subsequent meeting.

The Regional Haze SIP procedures for public notice and comment have been followed for the 2018 Milestone Report. On January 15, 2020, EHD published legal notice in the *Albuquerque Journal*, print and electronic editions, of the availability of the Report for public comment. On the same day, EHD distributed electronic notice to the email list-serve of the Air Board. Also on the same day, EHD posted notice of the public comment opportunity on web pages for EHD and the Air Board. EHD received comments at the February 12, 2020 Air Board meeting, which were delivered orally by members of the Board, the attorney for the Board, and by community member Marla Painter. During the public comment, EHD received no comments (written or oral) other than those delivered orally at the Air Board meeting. Public comment closed on February 17, 2020.

The substance of the comments received at the aforementioned Air Board meeting appears below, followed by responses from EHD.

Questions concerning SO_2 emissions from sources throughout Albuquerque - Bernalillo County

Commenters made the following points.

- Comments expressed concern that sources located throughout Albuquerque - Bernalillo County may be emitting greater levels of SO_2 than are being reported to EHD. Thus, the emissions from such sources in 2018 or in prior years may actually have been at or above 100 tons of SO_2 per year per source.

- Comments suggested that sources throughout the city/county area may not have been using the most accurate method of estimating emissions in 2018 or in prior years.

- In light of the above points, commenters wondered whether EHD might have to consider proposing revisions to the SO_2 milestones or to the SO_2 emissions reported in 2018 or in prior years.

Questions concerning SO_2 emissions from the GCC Rio Grande, Inc. facility ("GCC") in Tijeras, New Mexico

Comments expressed concern that reported SO_2 emissions at GCC increased from 2017 to 2018 (from 29 tons reported for 2017 to 126 tons reported for 2018). Comments during the meeting made the following points.

- Comments requested an explanation of (1) the change in emission estimation methods at GCC from 2017 to 2018 and (2) the related changes to the physical makeup of the facility in 2015 (installation of new baghouse and stack).

- Comments suggested that GCC's emissions may have been underreported or otherwise not adequately characterized prior to 2018, including prior to physical changes at the facility that installed a new baghouse and stack.

- Comments and discussion suggested that GCC's emissions in years prior to 2018 would have been shown to remain constant at levels the same or similar to 2018, i.e. over 100 tons, if the 2018 stack test method had been used in earlier years. The comments suggested that this constant level of emissions was not adequately captured in the emissions inventory process.

- Comments suggested that GCC's reported emissions in prior years might need to be revised, because in the view of commenters a more accurate emission estimation technique should have been used.

- One comment indicated that, in light of a more accurate emission estimation technique not being used for GCC in prior years, the annual milestones themselves in the SO_2 milestone program (rather than simply the emission reports) may need to be revised.

EHD's general responses to comments

EHD will begin with an overview of general topics necessary to understand the 2018 Milestone Report. That information will lay necessary groundwork for addressing specific comments received at the February 12, 2020 Air Board meeting.

Criteria for evaluating the 2018 Milestone Report

The Regional Haze State Implementation Plan for Albuquerque - Bernalillo County provides for the Air Board to review and consider approval of the final 2018 Milestone Report. In making this decision, the Board must ask whether reliable evidence exists that region-wide SO_2 emissions in the participating jurisdictions (New Mexico, including Albuquerque-Bernalillo County, Utah, and Wyoming) have exceeded the 2018 regional milestone of 141,849 tons per year. That is the sole criteria for evaluating the report.

According to the draft 2018 Milestone Report presented at the February 12, 2020 Air Board meeting, adjusted regional emissions for 2018 were 71,994 tons for all jurisdictions combined. The milestone is 141,849 tons per year. The adjusted total regional emissions are below the milestone by 69,894 tons. There is no basis to conclude that such a large amount of emissions from applicable sources has not been counted. Emissions inventory reports for the participating jurisdictions, including Albuquerque - Bernalillo County, may be refined over time, as EHD will discuss below. However, as the subsequent discussion will show, such refinement could not plausibly reveal an additional 69,894 tons to reach or exceed the milestone of 141,849 tons. Therefore, EHD respectfully requests that the Air Board approve the final Report.

EHD proposes to address Air Board concerns about overall emission inventories from individual facilities in a separate emissions inventory presentation at a later meeting of the Board. EHD understands the Board's concerns about individual facilities and shares the Board's desire to make sure that methods and results of emission inventory reports for each facility are as reliable as possible. EHD is constantly working to improve both emissions inventory reporting and general oversight of particular facilities. EHD is committed to a full, open, and productive dialogue with the Board about how emissions from facilities are reported and regulated. To contribute to that dialogue, the remainder of EHD's response to comments here will provide background information about SO_2 emissions inventory reports for Albuquerque and Bernalillo County.

Understanding emissions inventories

An emissions inventory tries to quantify how much is being emitted by sources of air contaminants in a jurisdiction. But this inventory is not like the inventory a retail store might conduct, which is, in principle, able to make a precise count of how many goods occupy shelf space in the store at a given time. Air contaminants emitted from a source, whether a smoke stack or a car tailpipe, can't be counted with absolute, perfect accuracy, any more than the amount or concentration of smoke coming from a cigarette can be quantified with certainty. The gas or particles of the contaminant are constantly in motion and attempts to capture the exact amount at any given time will necessarily provide different measurements.

The emissions inventory process must accept this physical reality. Rather than seek a perfect number, emissions inventories develop ***estimates*** of the amount of contaminants coming from sources, based on methods that, according to experience and judgment, are reliable and appropriate for the source's circumstances. For example, cars produce vast amounts of air contaminants, but measuring the exact amount of contaminants coming from the exhaust pipe of every single car is impossible. Instead, air quality agencies estimate car emissions with computer models, based on estimates of the number of cars in an area, the number of miles they travel and the makeup of the fleet.

The situation is similar with stationary sources, such as industrial facilities. Each emission report from each facility is an estimate. No facility can produce an exact number quantifying its emissions. Instead, air quality regulatory agencies require facilities to use methods known to produce results that are reliable within an acceptable range for the purpose at hand. Different purposes might require different estimation methods. A variety of such estimation methods have

developed in the decades since Congress adopted the modern version of the Clean Air Act in 1970. Each of them is acceptable for regulatory purposes. Deciding to use one or the other is a matter of technical judgment, dependent on circumstances.

It is important to understand that different emissions estimation methods will inevitably produce varying results. This variation is a recognized feature of the long-standing emission inventory framework in use by EPA, states, and localities under the Clean Air Act. Annual emissions estimated for a facility using one acceptable method will vary from emissions estimated using a different acceptable method. This variable range of results is a normal feature of the emissions inventory process. Thus, using a different estimation method in a later year, and obtaining results varying from a prior year, is not automatically an indication of improper behavior by a facility providing an emission estimate.

An analogy may be helpful, drawn from everyday experience, in hopes of making technical material with potential ramifications for human health and the environment more accessible. Consider a jar of jelly beans. Suppose we are told we must determine the number of beans without removing them from the jar. Thus, we can't pull all the beans out, put them on a table, and simply count them with perfect accuracy. Instead, we'll have to find an acceptable method to estimate the number. Some methods will be better than others. The method chosen must account for things like variation in the size of beans, the varying amount of space between the beans, and their tendency to settle over time. No estimation method will result in the one, true answer to how many beans are in the jar. But that doesn't mean it's impossible to estimate the number and get reasonably close for the purpose. The key is to select the estimation method that can yield a “close enough” number under the circumstances. Air quality emissions inventories are like this. Despite their limitations, the Clean Air Act has required compiling such inventories and has used them as a sound basis for regulatory development for decades. They are an important tool that EHD relies on for important decisions.

Preparing stationary source emission inventory estimates

Emissions inventory estimates for stationary sources consist of two components: an activity factor and an emission factor. The activity factor consists of data about the rate of production at the facility. The emissions factor quantifies the rate at which production activity causes emissions of a contaminant, in this case SO_2. A facility should know its activity factor with a reasonable degree of precision.

Emissions factors are based on various methods of estimating the contaminants coming from certain equipment over short periods of time. Some of these methods use emission rates assigned to types of equipment used at different industries by the U.S. Environmental Protection Agency ("EPA"), based on scientific and engineering studies. These numbers are not specific to an individual piece of equipment at a facility but instead are representative of emissions typically expected from such equipment. Others methods of estimating emissions factors involve directly sampling emissions from the stack of a piece of equipment at a facility over a short period of time, such as a few hours, i.e., stack testing. Generally, stack testing is more capable than generic emission rates of developing emissions factors tailored to a facility's circumstances. However, it is not always feasible at a particular facility.

When reporting emissions to an air quality regulatory agency, a facility multiplies its activity factors by its estimated emission factors to get a final estimate of annual emissions. Again, different methods for arriving at both activity factors and emissions factors may be available. There is not a single method of obtaining the activity and emissions factors that will be acceptable for all facilities.
In sum, the annual emission from a facility is estimated and is never an exact number. Instead, the goal of emission inventory reporting is to arrive at data that, while subject to uncertainty, is nevertheless sufficiently reliable to be useful for regulatory purposes.

EHD's responses to comments concerning SO_2 emissions from sources throughout Albuquerque - Bernalillo County other than GCC

Overview: SO_2 emissions in Albuquerque and Bernalillo County

EHD is confident that SO_2 emissions in city and county boundaries are not sufficient to cause an exceedance of the regional SO_2 milestone for 2018 or for any prior year. Further, EHD is confident that the emissions inventory process and overall regulatory framework are sufficient to:

- identify facilities with the *potential* to emit 100 tons or more of SO_2;
- estimate the emissions actually coming from those facilities, and inspect their operations for evidence of non-compliance with regulatory obligations.

EHD cannot provide an absolute guarantee that no source in Bernalillo County ever has or will emit 100 tons or more of SO_2 (other than GCC). As mentioned earlier, the use of differing emissions estimation methods, which produce variable results, is a natural feature of the emission inventory process. Absolute certainty is impossible in any scientific or engineering process, including the emissions estimation process. EHD can, however, state that a regulatory framework exists that can and does identify sources that are not meeting the obligations of their permits or of local regulations and ordinances or of state statutes.

EHD's confidence in the SO_2 regulatory framework rests on the following foundations.

1) Absence of local industrial activities that produce large amounts of SO_2

EPA establishes the national regulatory requirements for SO_2. It does so not only in relation to the Regional Haze rule that requires the 2018 SO_2 Milestone Report, but also for the National Ambient Air Quality Standards, which protect public health and the environment, as well as the Acid Rain program, which addresses ecosystem damage due to acidic rainfall ultimately traceable to emissions (including SO_2 emissions) from human activities.

In establishing this regulatory framework, EPA has identified the types of facilities that are capable of emitting large amounts of SO_2 -- on the order of thousands or tens of thousands of tons. By far the largest such type of facility is that of coal fired power plants. In the 2014 National Emissions Inventory ("NEI"), estimated SO_2 emissions from these plants were approximately two

times greater than estimated SO_2 emissions from all other categories combined. Coal fired power plants in the 2014 NEI emitted an estimated 3,224,087 tons; all other categories combined emitted 1,578,786. The source category with the second largest estimated emissions, at 656,901 tons, was industrial fuel combustion. This category includes copper smelters, kraft pulp mills, iron and steel mill plants, sulfuric acid plants, petroleum refineries, Portland cement plants and chemical processing plants. This information can be found in EPA's 2017 Integrated Science Assessment for sulfur oxides, available at https://www.epa.gov/isa/integrated-science-assessment-isa-sulfur-oxides-health-criteria.

Albuquerque and Bernalillo County have only one of the above types of facilities: a Portland cement plant. That is the GCC plant previously discussed which reported 126 tons of SO_2 in 2018. As far as the other facility types, EHD is confident that Albuquerque-Bernalillo County does not have any major sources that are copper smelters, kraft pulp mills, iron and steel mill plants, sulfuric acid plants, petroleum refineries, or chemical processing plants. Such facilities, capable of emitting larger amounts of SO_2, are large facilities that are obvious—they are not easy to miss.

The 126 tons of estimated 2018 SO_2 emissions from GCC can be placed in perspective by looking at examples of estimated emissions from coal fired electric power plants. These facilities, which are responsible for more nationwide SO_2 emissions than all other categories combined, had the following estimated SO_2 emissions in the 2018 Milestone Report (see Table A-1 in the Report).

Laramie River Station, Wyoming ..... 8,670 tons
Jim Bridger Plant, Wyoming ..... 8,156 tons
Dave Johnston Plant, Wyoming ..... 6,983 tons
Naughton Plant, Wyoming ..... 4,143 tons
Hunter Power Plant, Utah ..... 3,133 tons
Intermountain Generation Station, Utah ..... 2,485 tons
Huntington Power Plant, Utah ..... 2,202 tons
Wyodak Plant, Wyoming ..... 2,163 tons
Rock Springs Plant, Wyoming ..... 1,159 tons

Coal fired electric power plants beyond the states subject to the 2018 SO_2 Milestone Report provide further perspective. Emission reports compiled by the Western Regional Air Partnership for Regional Haze planning include the following estimated emissions for 2014.

Big Brown Steam Electric Station, Texas ..... 57,460 tons
Martin Lake Electrical Station, Texas ..... 53,660 tons
WA Parish Electrical Generating Station, Texas ..... 43,981 tons
Ameren Missouri Labadie Plant, Missouri ..... 33,091 tons

By comparison, the 126 tons of estimated emissions from the GCC facility in Tijeras, New Mexico are minimal. Whether GCC's emissions were 126 or even 1260 tons per year would not make any difference to whether the SO_2 milestone is exceeded.

Thus, other than GCC, neither Albuquerque nor Bernalillo County contains the type of facilities that would be expected to emit large amounts of SO_2, in amounts that could conceivably cause an exceedance of the 2018 regional SO_2 milestone.

2) Identification and assessment of city/county stationary sources of SO_2

For purposes of the 2018 Milestone report, two key questions arise when assessing SO_2 emissions in Albuquerque - Bernalillo County.

- How many sources could reasonably emit 100 tons per year or more of SO_2?
- What were the estimated 2018 SO_2 emissions from these sources?

Once these questions are answered, EHD must make a technical judgment about what information to report to the Western Regional Air Partnership ("WRAP") for the 2018 Milestone Report. That information must reliably report all facilities estimated to emit 100 tons per year of SO_2 in 2018.

Albuquerque and Bernalillo County have only two facilities with air quality permits that allow emissions of 100 tons or more per year of SO_2 and are thus categorized as "major" sources of this contaminant. These two facilities, the level of emissions allowed by their permit, and their estimated 2018 emissions are shown below.

Facility	SO_2 emissions allowed	2018 estimated emissions
GCC Rio Grande, Inc. (cement manufacturing)	1417.8 tons	126 tons
Albuquerque - Bernalillo County Water Utility Authority, Southside Water Reclamation Facility (water treatment plant)	124.9 tons	2 tons

These are the only two facilities in the city/county area that are legally permitted to emit 100 tons per year of SO_2 or more. To prepare this response, EHD requested and received an analysis from the Water Authority about its SO_2 emissions. That report explains how the 2 tons per year was determined. That report is available on request. Additional information about GCC will be discussed in this response to comments. Beyond these two facilities, EHD is not aware of any other source in Albuquerque and Bernalillo County that has the capability to emit more than 100 tons per year of SO_2 and none are permitted to do so.

For context, Table C-1 below provides 2018 estimated SO_2 emissions for additional facilities in Albuquerque - Bernalillo County. In regulatory parlance, they are known as either "major sources" or "synthetic minor" sources. These terms mean they have the capability to emit larger amounts of one or more regulated air contaminants, in most cases other than SO_2. The facilities listed below are permitted to emit only small amounts of SO_2 compared to an extremely large source such as a coal fired power plant. EPA requires these sources to report their emissions inventory annually.

Table C-1: Major and synthetic minor source SO_2 estimated missions for 2018*

Facility	Total estimated 2018 SO_2 emissions (tons)**	SO_2 emissions limit in permit (tons)**
GCC Rio Grande	125.75	1417.80
Osuna Asphalt Concrete Plant	16.50	36.30
UNM Main Campus	12.03	31.42
Albuquerque Bernalillo County Water Utility Authority Southside Reclamation Plant	2.34	124.90
Cerro Colorado Landfill	2.08	6.75
PNM Rio Bravo Generating Station	0.88	69.00
American Gypsum Company	0.86	1.20
PNM Reeves Generating Station	0.80	6.00
Kirtland Air Force Base	0.50	4.31
Black Rock LLC	0.19	1.62
General Mills Operations LLC	0.04	0.43
Albuquerque Products Terminal - Phillips 66	0.01	0.13
Bimbo Bakeries USA Inc.	0.01	0.05
Cintas Corp.	< 0.01	0.04
Materion Corporation	< 0.01	7.53
CRE-MED/Kinesio	< 0.01	< 0.01
Sandia Marble	< 0.01	< 0.01
Interchange Hot Mix Asphalt Plant	< 0.01	32.30
USC Bag Manufacturing	< 0.01	0.01
TOTALS	**162.00**	**1739.81**

* Major and synthetic minor sources with zero reported SO_2 emissions do not appear on this table.

** Emissions data have been rounded to nearest hundredth. Thus, totals at bottom are not exact sum of numbers above them.

Table C-1 demonstrates that even if all of these sources were emitting SO_2 at their permitted levels, the SO_2 milestone for 2018 would not be exceeded. The total actual SO_2 emissions listed in the table were about 162 tons, which is a miniscule fraction of the amount that would be necessary to exceed the 2018 milestone of 141,849 tons. Adjusted 2018 regional emissions were 71,994 tons.

Similarly, the information above is sufficient basis for concluding that no facility other than GCC Rio Grande had estimated emissions of 100 tons or more of SO_2 and thus should have been included in the 2018 Milestone Report. No other facilities in Table C-1 are authorized to emit SO_2 at a level approaching 100 tons or more. This means that the other facilities on the list are extremely unlikely to emit SO_2 in such an amount, by the nature of their physical operations. With the exception of GCC Rio Grande, no facility on this list came close to reporting estimated emissions of 100 tons or more.

For any of these facilities to emit amounts exceeding the 100 ton threshold, the facility would likely have to undergo a major physical modification undetected. For example, the facility would have to install a coal-burning heat source at the facility without EHD's knowledge. Coal burning for electricity generation, as pointed out earlier, is the largest potential source of SO_2 emissions. No such facility exists in Albuquerque - Bernalillo County. GCC Rio Grande uses coal to generate heat for cement manufacturing, but this process doesn't produce SO_2 on the same massive scale as would be the case with a coal-fired electric power plant. EHD has no basis to conclude that an unauthorized modification for coal burning or for any other SO_2-intensive activity has occurred at any facility in Albuquerque - Bernalillo County.

3) Ambient air quality monitor data regarding SO_2

Monitored amounts of SO_2 in the air are low for Albuquerque - Bernalillo County compared to the EPA standard for protection of human health. That standard is 75 parts per billion, calculated by an EPA-specified method. 2018 monitored SO_2 levels in the city/county area by the health standard calculation method were 5 parts per billion, or 6.7 percent of the EPA public health standard. This low amount provides additional confidence that the low emissions estimated for 2018, as seen in Table EHD 1, are reliable. If emissions were in reality much higher than the estimates in Table EHD 1, we would expect to see higher monitored levels of SO_2 in the air.

4) Continuing inspection of city/county facilities

EHD's Enforcement and Compliance Division conducts regular on-site inspections of the facilities in Table EHD 1. The inspections check for, among other things, compliance with the SO_2 emission limits noted in the table and proper maintenance of required emissions control equipment. EHD also responds as needed to complaints or information from the public about any facility. Based on inspection experience, EHD has no basis to conclude that substantial unaccounted for emissions of SO_2 exist locally that could cause an exceedance of the 2018 SO_2 regional emissions milestone of 141,849 tons.

Conclusion

In sum, multiple factors provide confidence that the 2018 milestone has not been exceeded. These factors are the limited emissions capability of local SO_2 sources, the low estimated emissions of those sources, low monitored SO_2 levels in the air, review of emissions inventories, and continuing inspection reports.

Comments expressed concern that sources located throughout Albuquerque - Bernalillo County may be emitting greater levels of SO_2 than are being reported to EHD. Thus, the emissions from such sources in 2018 or in prior years may actually have been at or above 100 tons of SO_2 per year.

As discussed above, EHD is confident that its emissions reports are reliable, are based on methodologies that meet emissions inventory requirements, and adequately account for SO_2 emissions for regulatory purposes. Information specific to the GCC facility is presented later in EHD's response.

Comments suggested that sources throughout the city/county area may not have been using the most accurate method of estimating emissions in 2018 or in prior years.
As discussed above, emissions data is necessarily based on estimation methods judged useful for regulatory purposes, rather than perfect accuracy. Nevertheless, EHD strives to assure that emissions estimation methods for each source are as appropriate as possible for the circumstances. EHD's emissions inventory process is regulated by EPA.

In light of the above points, commenters wondered whether EHD might have to consider proposing revisions to the SO_2 milestones or to the SO_2 emissions reported in 2018 or in prior years.

As discussed above, EHD believes that the nature of the SO_2 source population makes extremely large SO_2 emissions in this jurisdiction implausible. Thus, EHD has no reason to believe that emissions inventory estimates for 2018 or any prior year would have shown exceedance of the regional milestone, whether for 2018 or earlier. As shown in the 2018 Milestone Report, regional emissions have been substantially below the milestone since the inception of the program. As noted in the 2018 Milestone Report, an adjustment to the annual milestones to which emissions estimates are compared can be considered only in the event of an enforcement action that calls into questions reported emissions for the 2006 baseline year of the program. No such enforcement action exists.

EHD's responses to comments concerning SO_2 emissions from the GCC Rio Grande, Inc. facility ("GCC") in Tijeras, New Mexico

The following information addresses comments specifically about SO_2 emissions from GCC.

Comments requested an explanation of (1) the change in emission estimation methods at GCC from 2017 to 2018 and (2) the related changes to the physical makeup of the facility in 2015 (installation of new baghouse and stack).

Many questions and comments from the Air Board at the February 12, 2020 focused on the 2018 emissions inventory report of the GCC facility in Tijeras, New Mexico. GCC used a different method to estimate its emission in 2018 than it did in 2017 or in previous years. In EHD's technical judgment, the two different methods were both acceptable for emissions inventory purposes. Because GCC used acceptable methods, EHD concludes that GCC did not underreport its emissions or otherwise act inappropriately. Additional details about the two inventory reporting methods used by GCC are as follows.

For its 2018 SO_2 emission inventory report to EHD, GCC used an emission factor estimation method known as a "stack test." A "stack" is a long, vertical tube attached to a facility which channels emissions in a concentrated stream, so that they emerge at a higher altitude above the ground than would otherwise be the case. This ejection from a stack into the air currents at higher altitude promotes greater dispersal of contaminants. Figure C-1 is a picture of the stack at GCC.

Figure C-1: GCC stack. A stack test is performed by inserting equipment through a "port" located at one of the circular observation decks visible on the stack.

A stack test entails direct sampling of SO_2 passing through the stack over short periods of time (such as one hour). GCC averages together the amount of SO_2 measured across multiple stack tests. GCC then uses this result to generate an emissions factor that appropriately characterizes the rate at which GCC's cement production processes emit SO_2. GCC multiplies the emissions factor by an activities factor to estimate annual emissions from the stack. EHD judges this method to be acceptable for emissions inventory purposes.

It is important to understand that a stack test at GCC's cement manufacturing facility can generate much different results each time a test is conducted. This is not a flaw in the test method. Instead it is caused by the nature of the physical processes inside the facility's equipment. The GCC facility burns coal in a structure known as a "kiln" to produce extreme heat needed for cement manufacturing. This process produces SO_2 amounts that fluctuate from minute to minute and hour to hour. This fluctuation results from changes in, for example, content of sulfur and other substances in the coal; oxygen levels inside the kiln; carbon monoxide inside the kiln; and temperature in the kiln. Over time, SO_2 levels will remain below a certain ceiling because of the inherent nature of the kiln. It isn't the case that the SO_2 emissions can simply climb without limit. However, below the ceiling the amount of SO_2 emitted goes up or down over time. It does not remain constant. Because of this variability, GCC conducts multiple tests (the permit requires averaging the results of three tests for stack testing) for an hour each time in order to capture a range of outcomes. Averaging the results together is a way to get a reasonable estimate of SO_2 emissions.

Some of the discussion at the February 12, 2020 Air Board meeting suggested that GCC's emissions might have been constant over time prior to 2018, perhaps at a level above 100 tons or more. However, actual SO_2 emissions from GCC's stack vary from hour to hour, due to the inherent nature of the kiln. Thus, stack test results will necessarily produce SO_2 emission estimates that vary within a range rather than remaining constant. Thus, we can't say that estimated SO_2 levels at GCC prior to 2018 would have remained constant over time even if a stack test had been used as the estimation method.

The method used by GCC to obtain an emissions factor prior to 2018 was not a stack test but instead an acceptable alternative. GCC first developed this alternative in 2003 and 2004 because at that time the facility did not have a stack (instead it emitted contaminants through a vented baghouse). Thus, stack tests were not physically possible. EHD will refer to this earlier method as the "alternative method." Instead of a stack test, which samples a concentrated emissions stream inside a confined, tube-shaped space, the alternative method sampled diffuse SO_2 gas in a large, open space within a portion of the GCC facility. This space was the interior of a "baghouse," which is a large structure for trapping contaminants prior to entering the exterior atmosphere. The baghouse structure that was used by GCC was designed to capture particulate matter from the cement manufacturing process using an array of filters or “bags”. After the particulate matter was filtered, the emissions were then discharged into the atmosphere through a series of vents located near the roof of the baghouse. This baghouse has since been replaced by a newer one. Figure C-2, below, shows the interior of the former baghouse during the time GCC was using the alternative method for estimating emissions factors. Figure C-3, below, shows the exterior of the former baghouse. It should be noted that the baghouse is not used to control SO_2 emissions.

Figure C-2: former GCC baghouse, interior. A GCC employee pushed a cart loaded with emissions sampling equipment through this space to gather data for emissions calculations.

Figure C-3: former GCC baghouse, exterior

In the period 2003 to 2004, a GCC technician sampled the SO_2 concentration inside the baghouse a total of three times. The technician did so by pushing a cart loaded with measuring equipment through the baghouse. Based on each sample of the SO_2 gas diffusing through the interior, GCC estimated the rate at which production processes were emitting SO_2. GCC averaged the amount of the three samples together to obtain a final emission factor. Extrapolating from a sample to an emission factor was more difficult than with a stack test because the samples were not from a concentrated, confined SO_2 stream. Instead, inside the bag house, the SO_2 gas was more scattered. Thus, more analysis was required to estimate how the production activity at the facility eventually resulted in the observed SO_2 concentrations. However, GCC did perform the analysis and arrived at a final emission factor. It used that factor in emissions inventory reporting to EHD for emission that occurred in the years 2004 to 2017, with no further sampling of SO_2 inside the baghouse. No further sampling was needed because the data obtained in 2003 and 2004 continued to be representative of the facility's SO_2 emissions characteristics in the years afterward.

In EHD's technical judgment, the use of this emission factor based on an alternative method was appropriate based on established science and engineering principles. Other methods available in the period after 2003 would have used an emission factor representing typical cement manufacturing facilities in general, rather than this facility in particular. The GCC facility was built in 1958 and is thus much different in its configuration and operations than many other facilities in the industry. Because of the GCC facility's unique situation, an emission factor for a typical facility would be less satisfactory than one tailored for GCC's particular circumstances. Such a tailored emissions factor is what GCC developed in 2003 and 2004. GCC's use of this factor was not inappropriate, as comments suggested at the February 12, 2020 Air Board meeting. Rather, GCC used the best method available to characterize emissions at this facility, based on facility-specific information. The fact that a different, improved method was used for emissions inventory reporting in 2018 does not make the method used in 2017 or prior years inappropriate.

Finally, EHD wishes to clarify the timing of when stack tests began at GCC. GCC installed its stack, along with a new baghouse, in 2015. The facility's permit did not require stack tests to begin until late 2016. As required by its permit, GCC reported stack test data for 2016 and 2017 to EHD's Enforcement and Compliance Division, which handles onsite inspection of facilities. These stack tests were not "emissions inventory reports" in the sense used to this point in EHD's discussion. Instead, they were a "compliance test," a separate process used by the Enforcement and Compliance Division to verify that GCC's hourly emissions are within the levels specified in its permit.

Annual emissions inventory reports go to a different division within EHD.* For emissions that occurred in 2016 and 2017, GCC's annual emissions inventory reports estimated 29 tons of SO_2 emissions in both years. These reports were based on GCC's continued use of the alternative method of estimating emissions, rather than stack testing used in reporting to the Enforcement and Compliance Division. In 2016, GCC's permit didn't require the use of stack testing until too late in the year, in GCC's view, for the data to be representative of plant operations. To provide representative data, GCC decided to use the alternative method for its 2016 emissions inventory report. For 2017, GCC had stack test data representative of plant operations, However, GCC inadvertently used the alternative method instead when filing its emissions inventory report. Nothing in GCC's permit required it to do otherwise in 2016 and 2017.

Thus, for these two years GCC reported two different sets of emissions data based on two different methods to two different divisions of EHD. Each data set was acceptable for its purpose at the time and did not violate any regulatory requirement. The two different divisions in EHD were unaware of the use of two different emissions estimate methods at the time. In 2019, GCC and EHD discussed correcting GCC's 2016 and 2017 emissions inventory reports to reflect the stack test data. By that time, the EPA deadline for a correction had passed.

* The division that handles annual emissions inventory reports is the Vehicle Pollution Management Division. For historical reasons, staff within this division handle annual emission inventory reports not only for vehicles but also for stationary sources such as GCC.

GCC reported all its available data -- both sets -- to EHD as required by its permit and regulations. Thus, GCC did not withhold data. EHD concludes that GCC did not underreport its 2016 or 2017 emissions, fail to report them, or otherwise act inappropriately.

However, EHD recognizes that the use of consistent emissions estimating methods is preferable. EHD has communicated this to GCC and confirmed that the stack test method alone will be used for all of its emissions estimation purposes in the future. EHD has also begun internal discussions on process changes to ensure that in the future permit conditions for facilities will better provide for consistency in estimation methods. EHD is committed to improving its operations and communicating with the Air Board about that process.

As part of that process of improvement, and in response to comments at the February 12, 2020 Air Board meeting, EHD has further reviewed GCC's emissions data. EHD asked GCC for data on what its SO_2 emissions inventory reports for 2016 and 2017 would have been if GCC had used the stack test data that it reported separately for its compliance tests. EHD now has that data, which is presented below.

2016 estimated SO_2 emissions:	76 tons
2017 estimated SO_2 emissions:	354 tons

The 2017 data indicate that GCC's SO_2 emissions should have been included in the 2017 Milestone Report, because those emissions were 100 tons or more. They were not included. While GCC's submittal of data obtained using the alternative method was acceptable for purposes of the 2017 emissions inventory report, EHD recognizes that the stack test method would have been preferable for purposes of the 2017 Milestone Report. In the interest of transparency, EHD is presenting the 354 ton estimate here in this response to comments, which will be included in the final 2018 Milestone Report filed with EPA. EHD will work with the Western Regional Air Partnership ("WRAP"), which compiles the report each year, to ensure that future editions of the report contain a notation that the 2017 Milestone Report should have reflected 354 tons of SO_2 emissions for GCC.

The 2017 Milestone Report, however, will stand without revision. The use of 354 tons for GCC, rather than 29 tons, would not have affected compliance of the three states with the 2017 regional SO_2 emissions milestone. As explained earlier, GCC is one of only two facilities (the other being the Water Utility's Southside Reclamation Plant) in the city/county area permitted to emit one hundred or more tons per year of SO_2. EHD is not aware of any other local facilities capable of emitting SO_2 in such an amount. Given the relative scarcity of such sources locally, it is implausible that these sources could cause an exceedance of the annual milestones.

Table C-2, below, compares GCC's emissions data to, first, regional emissions for New Mexico (including Albuquerque - Bernalillo County), Utah, and Wyoming and (2) the regional emissions milestones for 2016, 2017, and 2018. Because the total regional emissions would have remained significantly below the milestones regardless of the emissions estimate method used for GCC, no revision of the 2017 Milestone Report is necessary. The same reasoning and conclusion apply to the 2016 Milestone Report.

Table C-2: comparison of GCC emissions data to regional emissions and milestones

	2016	2017	2018
GCC emissions estimate, alternative method	29 tons	29 tons	33 tons
GCC emissions estimate, stack test method	76 tons	354 tons	126 tons
Adjusted regional SO_2 estimated emissions	90,591 tons (average of 2014-16)	79,709 tons (average of 2015-17)	71,994 tons (2018 only)
Regional SO_2 milestone	155,940 tons	155,940 tons	141,849 tons

Comments suggested that GCC's emissions may have been underreported or otherwise not adequately characterized prior to 2018, including prior to physical changes at the facility that installed a new baghouse and stack.

As explained above, EHD concludes that GCC did not underreport or otherwise inadequately characterize its emissions prior to 2018.

Comments and discussion suggested that GCC's emissions in years prior to 2018 would have been shown to remain constant at levels the same or similar to 2018, i.e. over 100 tons, if the 2018 stack test method had been used in earlier years. The comments suggested that this constant level of emissions was not adequately captured in the emissions inventory process.

As mentioned earlier, SO_2 emissions at the kiln GCC uses to produce cement are variable over time, not constant, due to nature of the kiln's operations. Stack tests to estimate the emissions reflect this variability. Figure C-4, below, illustrates the variability. This figure provides GCC data derived from stack tests for 2016, 2017, and 2018. In each year, GCC performed three 1-hour stack test runs, as required by its permit, and then averaged the result together. This final average is expressed as an emissions factor in pounds of SO_2 per ton of "clinker" produced. Clinker is a type of raw material produced during the manufacturing process that eventually is turned into cement.

Figure C-4: GCC stack test data for 2016-2018

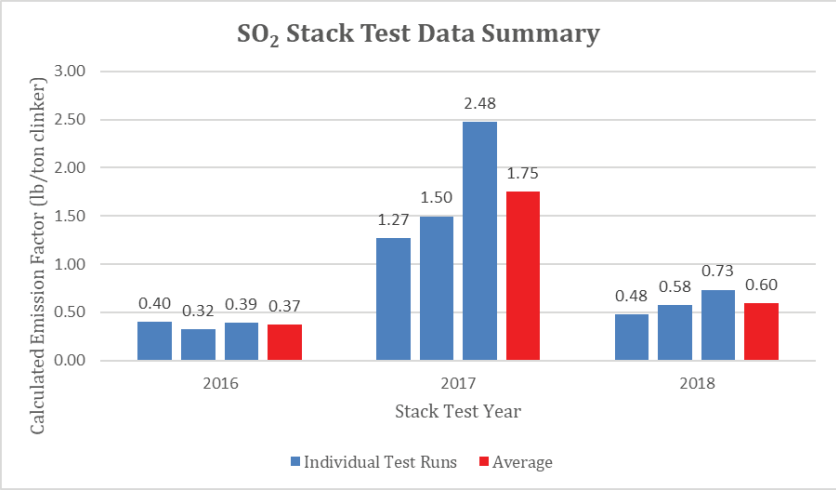


Figure C-4 shows that the emission factor derived from stack testing data varies from test to test and year to year. In light of this variability, it isn't accurate to say that GCC's estimated emissions would have remained constant prior to 2018 if a stack test had been used for emissions inventory reports.

In addition, EHD reiterates that in 2015 and in prior years, conducting stack tests at GCC was physically impossible because no stack existed. GCC could only begin stack testing in late 2016.

Comments suggested that GCC's reported emissions in prior years might need to be revised, because in the view of commenters a more accurate emission estimation technique should have been used.

As EHD has explained, GCC used the most appropriate emissions inventory estimation method available from emissions inventory reports for 2004 up until stack tests began at the facility in 2016. Further context for GCC's emissions data for 2016 and 2017 is provided above.

One comment indicated that, in light of a more accurate emission estimation technique not being used for GCC in prior years, the annual milestones themselves in the SO_2 milestone program (rather than simply the emission reports) may need to be revised.

As explained above, GCC has continually used emissions estimation techniques that were acceptable for specific purposes at the time. Further context regarding GCC's emissions data for 2016 and 2017 is provided above.

In addition, adjustment of the milestone occurs only under particular circumstances. The Regional Haze State Implementation Plans for the participating jurisdictions in the milestone program, including Albuquerque - Bernalillo County, provide that an adjustment to the milestones requires the existence of an enforcement action against a facility for regulatory violations that affect emissions for the 2006 baseline year of the milestone program. In that event, adjusting the milestones may be considered but is not automatic. Depending on the facts of a violation leading to an enforcement action, adjusting the milestones for 2006 and subsequent years might be necessary to retroactively account for underreported emissions that would have triggered the backstop emissions trading program. Based on the facts, the participating jurisdictions would make a collective determination of whether such an adjustment was necessary.

As explained earlier, GCC's use of acceptable emissions estimation methods in 2018 and prior years did not violate its permit conditions. EHD has communicated to GCC that in the future it should use the stack test method consistently for emissions estimation and reporting.

Finally, since EPA adopted the Regional Haze rule in 1999 to protect visibility at mandatory Federal Class I areas, monitor equipment at those areas shows a general trend of long-term reduction in visibility impairment due to anthropogenic air contaminants. The Regional Haze program is working as intended, producing cleaner air and improved visibility. EHD respectfully requests that the Air Board approve the 2018 SO_2 Milestone Report.