REQUEST FOR REDESIGNATION OF EAST HELENA SO_2 NONATTAINMENT AREA
&
EAST HELENA ATTAINMENT AREA MAINTENANCE PLAN

Photo Courtesy of Lisa Kunkel, Helena Independent Record

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Developed By:
The Montana Department of Environmental Quality
Air Quality Bureau

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ACRONYMS

ASARCO	American Smelting and Refining Company
American Chemet	American Chemet Corporation
Ash Grove	Ash Grove Cement Company
CAA	Federal Clean Air Act
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
FR	Federal Register
GEP	good engineering practice
km	kilometer(s)
LLP	Limited Liability Partnership
MAAQS	Montana Ambient Air Quality Standard(s)
MAQP	Montana Air Quality Permit
NAA	Nonattainment area
NAAQS	National Ambient Air Quality Standard(s)
NAD27	North American Datum 1927
NAD83	North American Datum 1983
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
$PM_{2.5}$	particulate matter of 2.5 microns or less
PSD	Prevention of Significant Deterioration
ppb	parts per billion
ppm	parts per million
RACM	reasonably available control measures
RFP	reasonable further progress
SIP	State Implementation Plan
SO_2	sulfur dioxide
TIP	transportation improvement programs
tpy	tons per year
UTM	Universal Transverse Mercator
$\mu g/m^3$	micrograms per cubic meter

REQUEST FOR REDESIGNATION OF THE EAST HELENA SO_2 NONATTAINMENT AREA AND APPROVAL OF A MAINTENANCE PLAN

1.0 INTRODUCTION

In 1971, the United States Environmental Protection Agency (EPA) promulgated new primary and secondary sulfur dioxide (SO_2) National Ambient Air Quality Standards (NAAQS), 36 Federal Register (FR) 8187 (April 30, 1971). The primary standards were set at 0.14 parts per million (ppm), averaged over a 24-hour period, not to be exceeded more than once per year, and 0.03 ppm annual arithmetic mean. The secondary standards were set at 0.5 ppm averaged over a period of 3-hours, not to be exceeded more than once per year, and 0.02 ppm annual arithmetic mean.

On March 3, 1978 (43 FR 8962), the EPA designated an area in East Helena, Montana, as nonattainment for the 1971 24-hour primary SO_2 NAAQS based on historical ambient monitoring data showing violations; at the same time, East Helena was also designated as nonattainment for the 3-hour secondary SO_2 NAAQS. One nonattainment area (NAA) was established and centered on the American Smelting and Refining Company, LLC (ASARCO) lead smelter, the only major permitted industrial source of SO_2 emissions in the NAA.

The Montana Department of Environmental Quality (DEQ) requests redesignation of the East Helena NAA to 'attainment' according to the provisions of section 107(d)(3)(E) of the Federal Clean Air Act (CAA) and providing for maintenance of the SO_2 NAAQS according to the applicable provisions of section 175A of the CAA.

1.1 Background

There were three main industrial sources in or near the East Helena SO_2 NAA when it was first designated nonattainment in 1978: ASARCO, American Chemet Corporation (American Chemet), and Ash Grove Cement Company (Ash Grove).

The first industrial source in the area was a lead smelter owned and operated by the Helena and Livingston Lead Smelting Company. In 1898, ASARCO purchased the ten-year-old smelter. The smelter site was situated on 160 acres along Prickly Pear Creek. The small town of East Helena flourished around the smelter. The smelter operated for over 100 years until it was shut down on April 4, 2001.

At the time of ASARCO's shutdown, the facility held two air quality permits: a Montana Air Quality Permit (MAQP) #2557-12 and Title V operating permit #OP2557-04. The MAQP #2557-12 had no expiration date while #OP2557-04 was to expire on April 5, 2007.

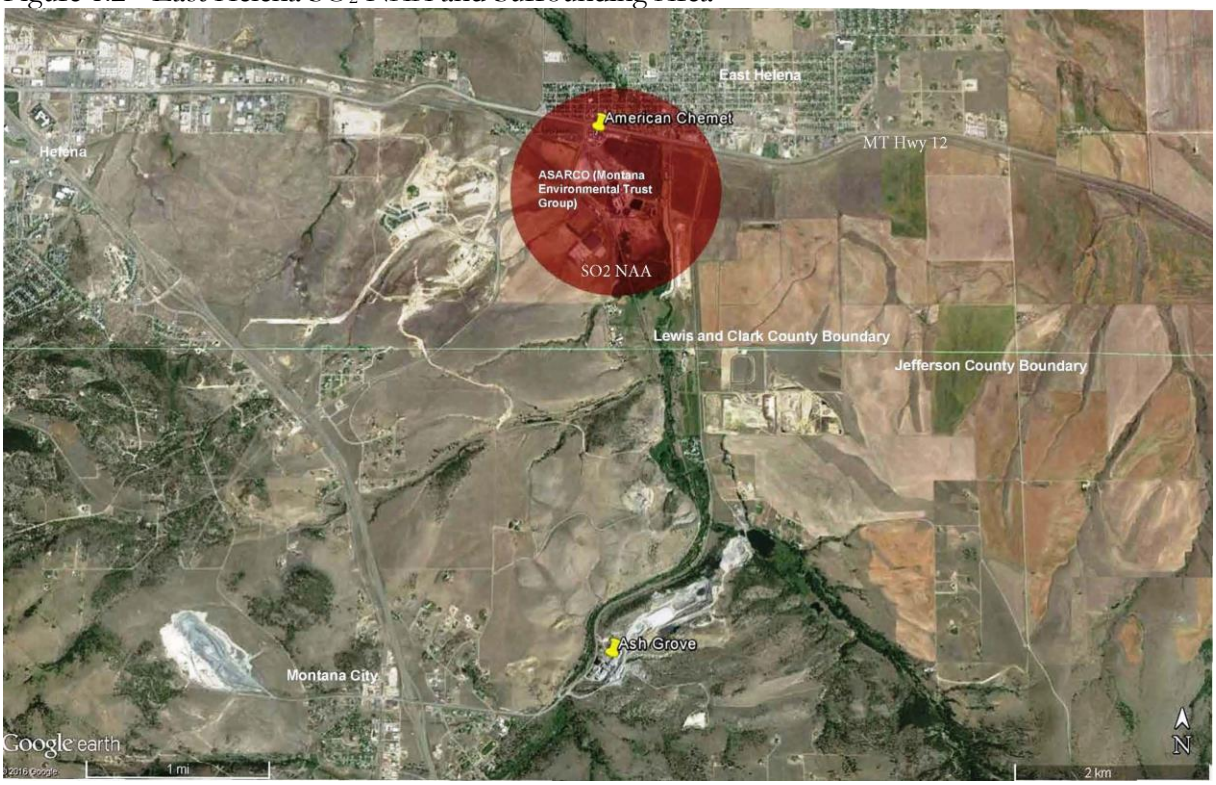
The three large stacks of the smelter were razed in August 2009, following the dismantling of much of the smelter facility. All that remains at the old ASARCO site today is the large slag pile, which has been deemed to be inert, and water treatment ponds. All buildings, equipment, and associated emission points have physically been destroyed and removed from the smelting facility. Through bankruptcy proceedings in 2009, the property was transferred to the Montana Environmental Trust Group, LLC. On December 9, 2009, the DEQ received a letter from Baker Botts, LLP, notifying the DEQ that in addition to the proposed transfer of various permits to the Montana Environmental Trust Group, LLC, ASARCO requested revocation of MAQP #2557-12, the final air quality permit held by ASARCO.

ASARCO's only industrial neighbor in the NAA is American Chemet. It lies along the northern border of the ASARCO property and manufactures copper and zinc products. American Chemet began construction of its facility in the late 1940's and continues to operate today. Although American Chemet holds a stationary source permit (MAQP #1993-19), it was never considered a significant contributing source of emissions to the SO_2 nonattainment status. Figure 1.1 shows the proximity of ASARCO (now Montana Environmental Trust Group, LLC) and America Chemet with adjacent property boundaries.

Figure 1.1 - Aerial Photograph of the American Chemet and ASARCO Facilities before Demolition

The third industrial facility near the NAA, is Ash Grove, a Portland cement facility which is in northern Jefferson County, about 3 km, south of the ASARCO property. The Ash Grove facility began production in 1964 and operates under MAQP #2005-13 and Title V operating permit #OP2005-09. Figure 1.2 shows an aerial overview of East Helena and the surrounding area including the Ash Grove facility.

Figure 1.2 - East Helena SO_2 NAA and Surrounding Area



As shown in Figure 1.2, the ASARCO smelter was in East Helena, which is situated along the southern border of Lewis and Clark County in Montana. The southern border of the City of East Helena is adjacent to the northern boundary of Jefferson County. Jefferson County is about 2.5 km (1.5 miles) south of East Helena's city center and about a quarter mile south of the NAA boundary.

Ambient air quality monitoring conducted by ASARCO in the early 1970s, revealed exceedances of the SO_2 NAAQS in the East Helena area. In 1975, EPA approved Montana's revised state implementation plan (SIP) (40 FR 43216), which required controls on SO_2 sources at ASARCO. The revised SIP limited sinter plant SO_2 emissions by 75 percent annually. ASARCO installed a double contact sulfuric acid plant to achieve the required sinter plant emission reduction and modified several stacks in 1977. Although, SO_2 concentrations in the rural areas around East Helena decreased dramatically after controlling the sinter plant SO_2 emissions and modifying several stacks, the monitors in nearby Kennedy Park still recorded violations.

Because of monitored violations and the 1977 CAA amendments, EPA designated the East Helena area as nonattainment for the 1971 primary 24-hour SO_2 NAAQS and the secondary 3-hour SO_2 NAAQS (43 FR 8962).

In 1978, and again in 1980, field tracer studies were conducted to determine what constituted good engineering practice (GEP) stack heights. GEP stack heights are defined in section 123 of the CAA as "the height necessary to ensure that emissions from the stack do not result in excessive concentrations of any air pollutant in the immediate vicinity of the source because of atmospheric downwash, eddies or wakes which may be created by the source itself, nearby structures or nearby terrain obstacles." In 1982, ASARCO built a taller stack for the blast furnace baghouse and it dispersed the emissions over a wider area and dramatically reduced the frequency of high SO_2 concentrations which had occurred relatively close to the facility at ground level. From 1974 through 1982, the DEQ operated three SO_2 ambient monitoring sites as co-located monitors to

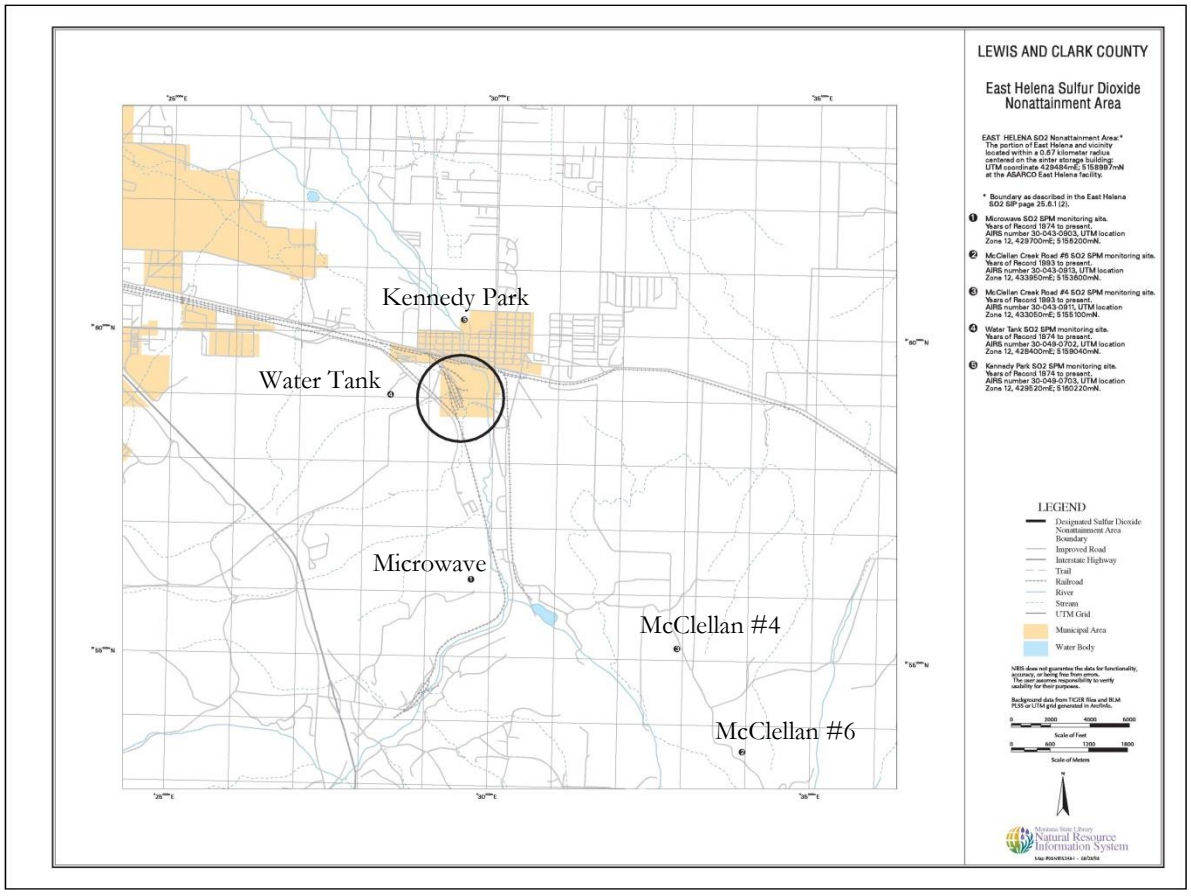
three of ASARCO's six SO_2 ambient monitoring sites. After construction of the double contact acid plant in 1977 and the taller blast furnace baghouse stack in 1982, the ambient concentrations of SO_2 dropped dramatically. Since the SO_2 impacts were significantly reduced by these projects, the DEQ discontinued its co-located monitoring in 1982.

In April 1991, the EPA notified the DEQ of insufficiencies in the East Helena SO_2 control plan and required Montana to submit a revised plan by May 1992. According to the EPA, the revised plan was required by the federal CAA of 1990 and because the GEP stack height analysis was inadequate. In 1992, dispersion modeling was performed as part of the SIP revision and the modeling results predicted high ambient SO_2 levels in the nearby elevated terrain to the south in Jefferson County. As a result, the ambient SO_2 monitoring network was enhanced by the addition of eight new monitoring sites, totaling 13 sites in the spring of 1993. EPA approved this reconfigured network as adequate to show attainment and maintenance of the NAAQS for SO_2 (60 FR 5313). As identified in Figure 1.3, the five sites remaining in the ASARCO SO_2 monitoring network were:

- Microwave (30-043-0903),
- Water Tank (30-049-0702),
- Kennedy Park (30-049-0703),
- McClellan #4 (30-043-0911), and
- McClellan #6 (30-043-0913).

On June 30, 1997, monitoring was discontinued at eight of the thirteen SO_2 sites.

Figure 1.3 - East Helena SO_2 NAA and Five SO_2 Ambient Monitoring Sites that Operated Until May 2001



On January 27, 1995 (60 FR 5313), EPA approved the revisions to the *Lewis and Clark County Air Pollution Control Plan* (Control Plan). This 1995-approved Control Plan was for the 1971 primary SO_2 NAAQS. The Control Plan did not adequately address the 3-hour secondary SO_2 NAAQS. The DEQ was revising the East Helena SO_2 control plan for the 3-hour secondary standard when ASARCO suspended smelter operations for an "indeterminate" period in April 2001. The DEQ did not resume work on the Control Plan for the 3-hour secondary standard because ASARCO never resumed operations in East Helena. The ASARCO facility was identified as the only major source of SO_2 emissions causing or contributing to the 1971 SO_2 NAAQS violations in the Control Plan. The DEQ's Request for Redesignation (Section 2.0) and associated Maintenance Plan (Section 3.0) focus on this factor to demonstrate current and ongoing compliance with the SO_2 NAAQS in the area.

1.2 East Helena Sulfur Dioxide Nonattainment Area Geographical Boundaries

The East Helena SO_2 NAA is in southern Lewis and Clark County. The NAA is defined as a circle with a radius of 0.67 km (0.43 miles) centered at the previously existing sinter storage building within the old ASARCO facility, as defined in the East Helena SO_2 SIP page 25.6.1(2). This building was located at Universal Transverse Mercator (UTM) North American Datum 1927 (NAD27) Zone 12, 429484 mE, 5158997 mN (mE and mN denotes meters Easting and meters Northing, respectively). This coordinate is equivalent to 429422.9 mE, 5159208.8 mN, UTM North American Datum 1983 (NAD83) Zone 12.

As shown above in Figure 1.2, the NAA encompasses a portion of the City of East Helena, which mainly includes the industrial portion of the city and a segment of the city along Montana Highway 12. The two nearest communities to the NAA are Helena, whose eastern most city limit is near the western edge of the NAA and Montana City, which is situated about 5 km (3 miles) south of the NAA.

2.0 REQUEST FOR EAST HELENA NONATTAINMENT AREA REDESIGNATION TO ATTAINMENT

Sections 107, 110, and Part D of the CAA establish the requirements that must be met before a NAA can be considered for redesignation to attainment. Guidance from the September 4, 1992 Calcagni Memo for *Procedures for Processing Requests to Redesignate Areas to Attainment* and applicable provisions of the CAA, provide the basis for redesignation and maintenance of the 1971 SO_2 NAAQS within the East Helena NAA.

Section 107(d)(3)(E) of the CAA lists the specific requirements for an area to be redesignated to attainment, which include:

- A determination that the area has attained the SO_2 NAAQS standard;
- An approved SIP for the area under Section 110(k) of the CAA;
- A determination that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the SIP and other federal requirements;
- A fully-approved maintenance plan under Section 175A of the CAA; and
- A determination that all Section 110 and Part D requirements of the CAA have been met.

The October 18, 2000 Seitz Memo for *Redesignation of Sulfur Dioxide Nonattainment Areas in the Absence of Monitored Data* was reviewed and found to not be appropriate for aspects this analysis. The memo states "The Environmental Protection Agency's (EPA) historic redesignation policy for SO_2 has called for 8 quarters of clean ambient air quality for redesignation to attainment…. However, EPA believes that is not a reasonable use of limited monitoring resources to reestablish monitors in order to collect at least 4 quarters data in areas where violations of the SO_2 NAAQS were caused by sources that no longer operate." This is not the case with the East Helena SO2 NAA. As will be shown in the analysis in the document, this area has more than 60 quarters of monitoring data, from multiple sites, showing compliance with both the 24-hour primary and 3-hour secondary standards. This monitoring took place while the identified sole source of the SO_2 Violations was still operating. This analysis provides the appropriate demonstration using traditionally approved methodologies to show attainment of the standard and continued maintenance of the standard. The Seitz Memo goes on to state "This guidance memorandum does not impose binding, enforceable requirements on any party, and may not apply to a particular situation based upon the circumstances. The EPA retains the discretion to adopt approaches to addressing maintenance plan provisions that differ from this guidance where appropriate." The East Helena SO_2 NAA is an area that does not fit into the circumstances outlined within this document. As will be shown within this document, this redesignation request and maintenance plan employs the appropriate discretion in addressing maintenance plan provisions that differ from the guidance in the Seitz Memo.

This section of the document addresses each of these requirements and demonstrates that the area has attained and will maintain compliance with the 1971 SO_2 NAAQS.

2.1 CAA §107(d)(3)(E)(i) - Determination that the Area Has Attained the SO_2 Standards

The five ambient monitoring sites shown in Figure 1.3, collected the majority of SO_2 data and were the sites most recently operated in and near East Helena. Of these sites, the Microwave, Water Tank, and Kennedy Park monitoring sites had 24-hour SO_2 data from 1983-2001, and the McClellan #4 and McClellan #6 monitoring sites had data from 1993-2001. Monitoring was discontinued in 2001, the same year the ASARCO facility ceased production. Results of this monitoring are shown in Figures 2.1 and 2.2 for the high second high 24-hour and 3-hour averages, respectively. As shown in these figures, the high second high 24-hour and 3-hour SO_2 monitoring results have remained below the 1971 NAAQS standards from 1986 through 2001. The last six years of 24-hour monitoring data show no secondary high value of more than half of the 24-hour standard. The last 12 years of 3-hour monitoring data show all secondary highs near or below half of the 3-hour standard. Data capture for all sites listed were good for the 1986 through 2000 time frame with completeness well above 75%. Only two shortfalls were noted; first, Microwave Hill (30-043-0903) missed a single quarter in 1994 -- annual percentage was 60%. Second in 1992 all sites were down the first through third quarters – annual completeness was below 25%. Post 1993, all QA/QC audits are complete in the AQS database.

Figure 2.1 – East Helena High Second High 24-hour Monitored SO_2 Concentrations

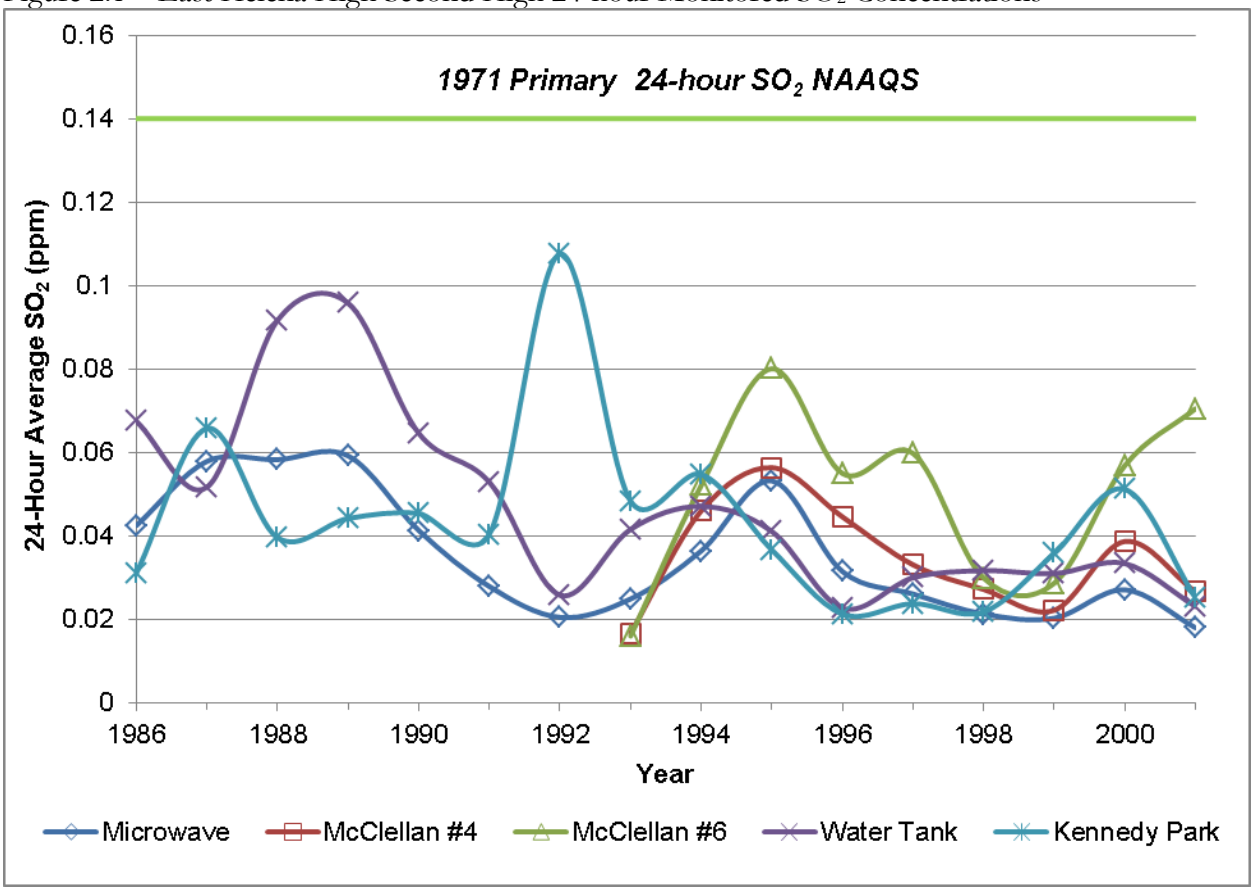
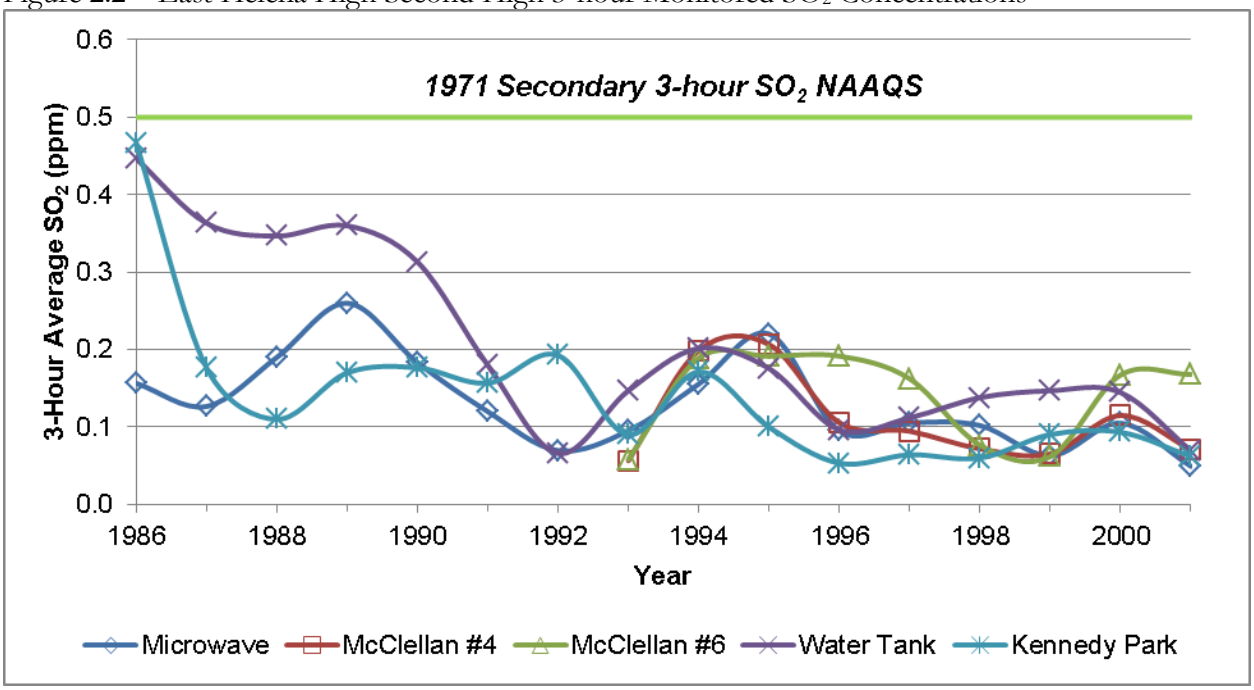
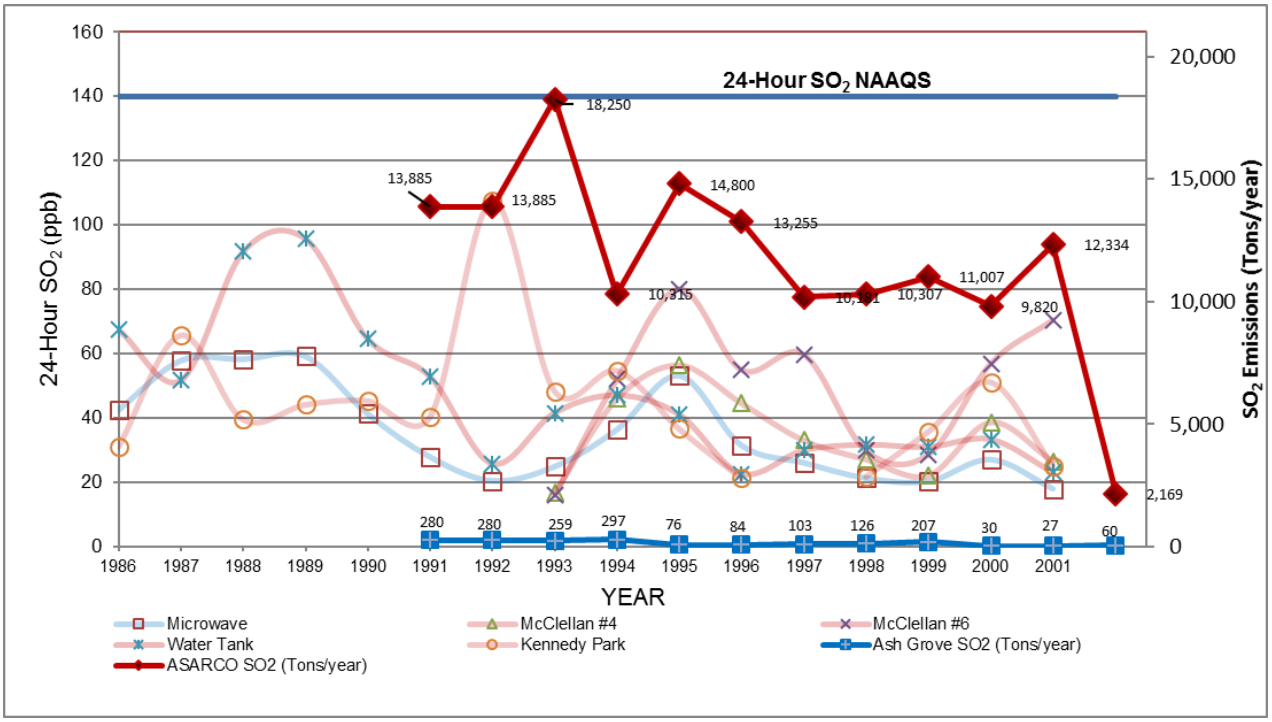


Figure 2.2 – East Helena High Second High 3-hour Monitored SO_2 Concentrations



Because of the historic regulatory SO_2 emissions control requirements for ASARCO, the monitoring results demonstrate that the 24-hour primary and 3-hour secondary NAAQS standards were met over the last 15 years of ASARCO operation. Upon shutdown of the ASARCO facility, the industrial SO_2 emissions released within the NAA fell from a potential 18,733 tons per year (tpy) as permitted in ASARCO's MAQP to less than 0.09 tpy as permitted for American Chemet. This is greater than a 99.999 percent reduction in potential SO_2 emissions within the NAA. Given this dramatic reduction of SO_2 emissions, the ambient impacts were expected to fall to near background levels. Based on the significant reduction in emissions since the designation of the NAA area and the supporting monitoring data showing no exceedances of the 1971 primary and secondary SO_2 standards, it has been demonstrated that the East Helena SO_2 NAA has attained compliance with these standards since 1986. Figure 2.3 below compares the annual SO_2 emissions from ASARCO within the NAA and Ash Grove outside of the NAA with the monitored values. This figure clearly shows that while Ash Grove is a major source of SO_2 emission in the area it was unmistakably insignificant compared to the ASARCO emissions. While the monitored SO_2 concentrations appear to somewhat track with ASARCO emissions they do not appear to correlate with Ash Grove whatsoever. Despite ASARCO's significant SO_2 emissions, all the monitors were well below the standard. There is no question that the area will maintain the standard with the facility gone.

Figure 2.3 – East Helena Second High 24-hour Monitored SO_2 Concentrations Compared to Major SO_2 Emissions in and near the NAA



2.2 CAA §107(d)(3)(E)(ii) - Approved implementation plan for the area under Section 110(k)

The East Helena area implementation plan was approved by EPA on January 27, 1995 (60 FR 5313), with an update on November 25, 2002 (67 FR 70554), which clarified that the 1995 implementation plan was to supersede all previous control plans. The 1995 implementation plan demonstrated through modeling of actual emissions, that the East Helena SO_2 NAA would attain the 24-hour primary SO_2 NAAQS by November 15, 1995. Only emissions from the ASARCO facility were addressed in the implementation plan because it was the only facility with significant contributions. In EPA's approval of the 1995 implementation plan, it was clarified that a separate 3-hour secondary SO_2 NAAQS implementation plan would be forthcoming.

The DEQ was working on development of the NAA implementation plan for the 3-hour secondary SO_2 NAAQS when ASARCO ceased operations in 2001. It no longer became necessary to complete this implementation plan since the only source of SO_2 emissions under consideration for controls was no longer emitting SO_2; therefore, the 3-hour secondary SO_2 NAAQS implementation plan was never finalized. An implementation plan for the 3-hour secondary SO_2 standard is not necessary for the East Helena NAA because the sole industrial source responsible for the NAA SO_2 impacts has shut down, revoked its air quality permit (see Appendix A), and has been dismantled and removed from the property.

The Montana SIP has a fully approved implementation plan under 110(k) of the CAA.

2.3 CAA §107(d)(3)(E)(iii) - Determination that the Improvement in Air Quality is Due to Permanent and Enforceable Reductions in Emissions Resulting from Implementation of the SIP and Other Federal Requirements

SIP Provisions

According to the requirements of section 107(d)(1)(A)(i) and 107(d)(1)(B)(i) and (ii) of the CAA, in establishing the final NAA boundary (see Section 1.2 above) EPA determined that the ASARCO facility was the only major facility located within the East Helena NAA (60 FR 5313). Although American Chemet was in the NAA, it was not classified as a major facility or a significant contributor to the NAA. Therefore, no emission control requirements for American Chemet were established in the 1995 Control Plan. Ash Grove is located outside the NAA and did not have any emission control requirements established in the Control Plan.

The 1995 Control Plan stated that ASARCO and Ash Grove's 1991 SO_2 emissions were 18,031.7 tpy and less than 280 tpy, respectively (60 FR 5313). American Chemet was not mentioned in the 1995 Control Plan; because the facility's SO_2 impact was not significant.

In 2001, ASARCO discontinued its smelting operation and by 2009, formally ended their operations by removing the industrial equipment and buildings, felling the remaining three large stacks, letting their Title V operating permit #OP2557-04 expire in 2007, and formally revoking their MAQP #2557-12 in 2009 (see Appendix A). Also in 2009, the ASARCO smelter property ownership was transferred to the Montana Environmental Trust Group, LLC, leaving American Chemet as the only permitted facility in the East Helena NAA.

The significant reductions of SO_2 emission resulting from ASARCO's closure is a permanent enforceable reduction of SO_2 emissions. Any new facility or modification of an existing facility, in or near East Helena, that will emit SO_2 will be required to submit a permit application demonstrating they will not significantly impact the air quality. This demonstrates that the improvement in air quality in the East Helena NAA is due to permanent and federally enforceable reductions in SO_2 emissions which complies with CAA §107(d)(3)(E)(iii).

2.4 CAA §107(d)(3)(E)(iv) - Fully Approved Maintenance Plan Under CAA Section 175A

This request for redesignation is being submitted concurrently with a Maintenance Plan, as allowed under EPA's April 23, 2014, *Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions* (see page 65, Section VIII(E)) (https://www.epa.gov/sites/production/files/2016-06/documents/20140423guidance_nonattainment_sip.pdf). Section 3.0 of this document addresses the necessary Maintenance Plan elements. With EPA's concurrence, the area will have a fully approved Maintenance Plan providing for continued attainment of the SO_2 NAAQS for 10 years.

2.5 CAA §107(d)(3)(E)(v) - Determination that the Department Has Met all Requirements Applicable to the Area Under Section 110 and Part D of the CAA

Prior to redesignation, a State containing a NAA must demonstrate compliance with all requirements applicable to the area under Section 110 and Part D of the Act. This means the state must meet all requirements that applied to the area prior to, and at the time of, the submission of a complete request for redesignation to attainment.

CAA Section 110

Section 110(a) of the CAA contains the general requirements for a SIP. Only Section 110 requirements that are linked with an area's designation are the relevant measures to consider in evaluating a redesignation request. Further, the DEQ believes that the other Section 110 elements that are not connected with nonattainment plan submissions and not linked with an area's attainment status are also not applicable requirements for purposes of redesignation, as a state remains subject to these requirements after an area is redesignated to attainment. The requirements of CAA Section 110(a)(2) that are statewide requirements and that are not linked to the SO_2 nonattainment status of the East Helena NAA are therefore not applicable requirements for purposes of review of the DEQ's redesignation request.

The EPA has previously approved provisions of Montana's SIP that address Section 110 requirements, including provisions addressing SO_2. The EPA approved the first East Helena SIP on November 20, 1980 (45 FR 76685), which addressed the continued violations of the NAAQS by replacing three individual 110-foot stacks with a single 425-foot stack and establishing emission limits. The SIP was revised and approved by the EPA on May 1, 1984 (49 FR 18482), providing for a catalyst screening procedure at ASARCO's acid plant. A final SIP revision was approved by the EPA on January 27, 1995 (60 FR 5313), which limited SO_2 emissions from ASARCO's lead smelting operations. The 1995 SIP revisions addressed the 24-hour primary SO_2 NAAQS and demonstrated compliance with the requirements "applicable to the area" under CAA Section 110. CAA Section 110(a)(2) contains the general requirements or infrastructure elements necessary for EPA approval of the SIP. These requirements include, but are not limited to, submittal of a SIP that has been adopted by the state after reasonable notice and public hearing. The approved SIP described above met these requirements.

Although a SIP revision to address the 3-hour secondary SO_2 NAAQS has not been submitted or approved by the EPA, it is no longer necessary or appropriate to prepare such a SIP revision because the major source impacting the East Helena SO_2 NAA no longer exists.

Part D, Plan Requirements for Nonattainment Areas (CAA section 171, et seq.)

CAA Part D contains requirements applicable to all areas designated nonattainment. SO_2 NAAs must meet the general provisions of Subpart 1 and the specific SO_2 provisions in Subpart 5. The Maintenance Plan (see Section 3.0) associated with this request for redesignation of the East Helena NAA is a SIP revision for an area designated as a NAA and the Maintenance Plan shall meet the applicable requirements of Part D of the CAA.

CAA Section 172

These provisions contain the general requirements to be included in SIP revisions for NAAs. These include attainment demonstrations, reasonably available control measures (RACM), reasonable further progress (RFP), inventory data, and permitting requirements.

Submittal of a comprehensive SO_2 emissions inventory is required by 40 CFR 51.1008 to meet the requirements of Section 172(c)(3) of the CAA. The East Helena NAA SO_2 emissions inventory, which also serves as the attainment year inventory, is being submitted as part of the Maintenance Plan (Section 3.0), and therefore, is submitted concurrently with this request for redesignation.

CAA Section 173

These provisions outline the requirements related to permitting of air pollution sources in NAAs. Stationary sources of air pollution are subject to the applicable regulations of the ARM, Title 17, Chapter 8. These regulations include:

- Standards of Performance for New Stationary Sources (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAPs) promulgated by EPA (ARM 17.8.102);
- Permit, Construction, and Operation of Air Contaminant Sources (ARM, Title 17, Chapter 8, Subchapter 7);
- Prevention of Significant Deterioration of Air Quality (ARM, Title 17, Chapter 8, Subchapter 8);
- Permit Requirements for Major Stationary Sources or Major Modifications Locating Within Nonattainment Areas (ARM, Title 17, Chapter 8, Subchapter 9);
- Preconstruction Permit Requirements for Major Stationary Sources or Major Modifications Locating Within Attainment or Unclassified Areas (ARM, Title 17, Chapter 8, Subchapter 10); and
- Annual Emission Statements and required emissions reporting (ARM 17.8.505).

These requirements were adopted to implement the federally mandated requirements in Sections 110, 172, 173 and 182(a) of the CAA. EPA has approved these regulations as SIP revisions, as indicated in Table 2.1, below.

Table 2.1 - State of Montana Federally Approved Air Quality Rules

State Rule(s)	Federal Action	Action Reference
ARM 17.8.101 et seq.	approved	60 FR 36715
ARM 17.8.701 et seq.	approved	60 FR 36715
ARM 17.8.801 et seq.	approved	60 FR 36715
ARM 17.8.901 et seq.	approved	60 FR 36715
ARM 17.8.1001 et seq.	approved	60 FR 36715

CAA Section 176(c)

These provisions prohibit federal financing of projects or activities that do not conform to an approved SIP. The DEQ adopted and incorporated EPA's general conformity rule (40 CFR Part 93), on June 13, 2004, at ARM 17.8.1302. The general conformity regulation describes procedures to determine if federally-financed, non-transportation projects are in conformity with air quality plans.

EPA and the U.S. Department of Transportation have issued regulations regarding criteria and procedures for demonstrating and assuring conformity of transportation improvement programs, long range plans, and individual transportation projects with the requirements of the CAA and the SIP for the specific NAA. According to EPA's April 23, 2014, "Guidance for 1-hour SO_2 Nonattainment Area SIP Submissions" (https://www.epa.gov/sites/production/files/2016-06/documents/20140423guidance_nonattainment_sip.pdf) transportation conformity rules do not apply to SO_2 NAAs unless the administrator or state agency has determined that transportation-related emissions of SO_2, as a precursor, are a significant contributor to a particulate matter of 2.5 microns or less ($PM_{2.5}$) nonattainment problem or if the SIP has established an approved or adequate budget for such emissions as part of the attainment or maintenance strategy. In this case, neither the administrator nor the state agency has determined that transportation-related emissions of SO_2 are significant as a precursor to $PM_{2.5}$.

Subpart 5, Additional Provisions for Areas Designated Nonattainment for Sulfur Oxides, Nitrogen Dioxide, or Lead:

East Helena has an approved Control Plan as required by CAA section 191(a) for the 24-hour primary SO_2 NAAQS. This Control Plan controlled SO_2 emissions from only ASARCO because it was the only source causing significant SO_2 emission impacts in East Helena's NAA. The DEQ was working on a secondary Control Plan for the 3-hour secondary SO_2 NAAQS when the ASARCO smelter ceased operations. As stated above, this secondary Control Plan was never completed since ASARCO was no longer a source of SO_2 emissions. With the closure of the ASARCO facility the need for a secondary Control Plan became unnecessary.

Therefore, the DEQ has met the requirements of Subpart 5 of the CAA. Further, as required under section 191(b) of the CAA, the DEQ has a fully-approved NSR (New Source Review), Prevention of Significant Deterioration (PSD), and Part D permitting programs (60 FR 36715).

2.6 Redesignation Request

DEQ requests redesignation of the East Helena 24-hour and 3-hour SO_2 NAAs to attainment. The criteria applicable to redesignation are addressed in Section 2.0 of this document above. Concurrent with the request for redesignation, the DEQ is providing for maintenance of the SO_2 NAAQS according to the applicable provisions of section 175A of the CAA (Section 3.0).

3.0 EAST HELENA NONATTAINMENT AREA SO_2 MAINTENANCE PLAN

On March 3, 1978, a portion of Lewis and Clark County was designated nonattainment for the 1971 24-hour primary SO_2 NAAQS and the 1971 3-hour secondary SO_2 NAAQS. Based on quality assured monitoring data collected at SO_2 monitors around the area from 1986 through 2001, the East Helena NAA was shown to have attained compliance with the 1971 24-hour primary and 3-hour secondary SO_2 NAAQS. Additionally, ASARCO was identified as the only source responsible for SO_2 emissions causing the NAA designation. ASARCO discontinued operation in 2001, and eventually let its air quality permits expire or be revoked, removing any threat of exceeding the 1971 SO_2 NAAQS.

Section 2.0 of this document includes the DEQ's formal request for redesignation according to the requirements of section 107(d)(3)(E) of the CAA. For the East Helena NAA to be formally redesignated to attainment, the DEQ must submit, and the EPA must approve, a SIP revision providing for maintenance of the SO_2 NAAQS within the affected area for at least 10 years after redesignation. This Maintenance Plan has been developed in support of the DEQ's request for redesignation according to EPA's April 23, 2014, "Guidance for 1-hour SO_2 Nonattainment Area SIP Submissions," (https://www.epa.gov/sites/production/files/2016-06/documents/20140423guidance_nonattainment_sip.pdf) additional guidance received from EPA's Region 8 Air Quality Planning Unit, and the requirements of section 175A of the CAA.

This Maintenance Plan addresses the following elements:

- Attainment Inventory,
- Maintenance Demonstration,
- Monitoring Network,
- Verification of Continued Attainment, and
- Contingency Plan.

3.1 Attainment Inventory

According to the requirements of section 107(d)(1)(A)(i) and 107(d)(1)(B)(i) and (ii) of the CAA, in establishing the final NAA boundary EPA determined that ASARCO was the only facility causing or contributing to the SO_2 NAAQS violation within the East Helena NAA. Therefore, the only source of SO_2 emissions addressed in East Helena's implementation plan was the ASARCO facility. In the Control Plan (60 FR 5313), ASARCO's potential SO_2 emissions in 1991 were approximately 18,000 tpy of SO_2. The Control Plan also noted Ash Grove, located south of the NAA, had actual emissions of approximately 280 tpy. Although American Chemet lies within the NAA, its emissions were not of concern because they were less than 0.1 tpy and are considered to simply be part of the background SO_2 value. At the time, the Control Plan was approved in 1995, there were annual SO_2 emissions of 18,280.1 tpy between the three sources in the region.

Table 3.1 lists the actual SO_2 emissions from the three industrial sources in or near the East Helena NAA from 2000 through 2016. This data represents the previous 17 years of available data from industrial activity and includes the last full year of ASARCO operation in 2000. The last complete year of operation, the lead smelter had 12,334 tpy of SO_2 emissions, less than 70 percent of ASARCO's emissions used in the approved 1995 Control Plan that demonstrated compliance with the 24-hour primary SO_2 NAAQS. Since 2002, the only permitted SO_2 emissions, within the NAA, are 0.09 tpy from American Chemet, although their actual emissions have not been greater than 0.04

tpy (80 pounds/year) since 2000. The closure of ASARCO represents more than a 99.999 percent reduction of SO_2 emissions in the NAA. This is a clear and acceptable demonstration that the NAA is in attainment. The actual emissions most recently reported by American Chemet and Ash Grove total 158.02 tpy of SO_2, well below the 18,280.1 tpy potential emissions in the 1995 Control Plan.

Table 3.1 - SO_2 Actual[1] Emissions from 2000 through 2016 (tpy)

Standard	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Ash Grove	27	60	235	236	244	245	226	1,218	1,178	668	758	397	350	450	362	198	158
ASARCO	12,334	2,169	0	0	0	0	0	0	0	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]	NA[2]
American Chemet	0.03	0.03	0.03	0.03	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02

[1]Based on the Annual Emission Inventory Data collected by Montana's Department of Environmental Quality.
[2]NA - not applicable, because ASARCO no longer was permited for emissions.

Projected SO_2 emissions from American Chemet and Ash Grove for the next 10 years are shown in Table 3.2.

Table 3.2 – Estimated Maximum Allowed SO_2 Emissions from 2017 through 2026 (tpy)

Standard	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Ash Grove[1]	386	386	386	386	386	386	386	386	386	386
American Chemet[2]	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09

[1] Based on Ash Grove's current permitted emission limit using its wet kiln and 385,400 tons clinker per year from the Initial Title V application and MAQP #2005-13.
[2] Based on continuous operation of American Chemet's facility in Table IV.A of MAQP #1993-19.

The annual potential to emit from Ash Grove and American Chemet represent less than 3 percent of the approved Control Plan emissions. The current allowed emissions inside the NAA are less than 0.01 percent of those in the approved Control Plan. Based on these projected emissions, it is demonstrated that the East Helena NAA will continue to remain in compliance with the 1971 SO_2 primary and secondary standards because of the significant reduction of SO_2 emissions from the approved Control Plan.

3.2 Maintenance Demonstration

According to the July 27, 1995 approved SIP (60 FR 5313), ASARCO was the only facility causing or contributing to the monitored SO_2 NAAQS violation. As previously described, ASARCO stopped operations of the smelter in April 2001 and by 2009 had completely dismantled the smelter facility. ASARCO allowed its Title V operating permit #OP2557-04 to expire on April 5, 2007, and ASARCO requested that its MAQP #2557-12 be revoked on December 9, 2009 (see Appendix A) when it transferred ownership of the property to the Montana Environmental Trust Group LLC. Without a valid permit, no major source of SO_2 emissions is allowed on the old ASARCO property.

The DEQ has long-standing, SIP-approved major NSR and minor source permitting programs (ARM Title 17, Chapter 8, Subchapters 7, 8, 9, and 10). These administrative rules include provisions for PSD, approved in 60 FR 36715. In conjunction with all SIP-approved requirements of the DEQ's SIP-approved PSD permitting program, the Source Impact Analysis (ARM 17.8.820), requires "(1) The owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reductions (including secondary emissions), *would not cause or contribute to air pollution in violation of any national ambient air quality standard in any air quality control region or any applicable maximum allowable increase over the baseline concentration in any area*." (Emphasis added.)

Further, in conjunction with all SIP-approved requirements of the DEQ's SIP-approved minor source permitting program, ARM 17.8.749, Conditions For Issuance or Denial of Permit, requires "(3) A Montana air quality permit may not be issued for a new or modified facility or emitting unit unless the applicant demonstrates that the facility or emitting unit can be expected to operate in compliance with the Clean Air Act of Montana and rules adopted under that Act, the Federal Clean Air Act and rules promulgated under that Act (as incorporated by reference in ARM 17.8.767), and any applicable requirement contained in the Montana State Implementation Plan (as incorporated by reference in ARM 17.8.767), *and that it will not cause or contribute to a violation of any Montana or national ambient air quality standard*." (Emphasis added.)

The DEQ will continue to implement its SIP-approved major and minor source permitting programs in the East Helena maintenance area to ensure that any new or modified (or reopened) industrial source of SO_2 emissions will not cause or contribute to a subsequent SO_2 NAAQS violation in the area. Further, any appropriate changes to the ARM will be submitted to U.S. EPA for approval as a SIP revision.

3.3 Monitoring Network

ASARCO operated several SO_2 monitors within the East Helena NAA. At times, the DEQ had co-located monitors in the East Helena NAA. With the closure of the only source causing or contributing to the 1971 SO_2 NAAQS violations, all monitoring was discontinued. Although monitoring commonly occurs during and after a NAA is redesignated, there is no justifiable reason to resume monitoring in East Helena following redesignation of the NAA because the only source recognized as impacting the NAA is not just shut down, but the smelter facility and its associated stacks have been destroyed and removed from the plant site, and the permits for air quality emissions are no longer valid. Therefore, no ambient monitoring is proposed to demonstrate compliance with the SO_2 NAAQS in this monitoring plan.

As previously stated, any new source locating within the NAA must show that it does not cause or contribute to a violation of the NAAQS. If a major source of SO_2 locates within the former NAA and the source modeling indicates that the SO_2 impacts are greater than 75 percent of the NAAQS including background, the source will be required to install appropriate SO_2 monitoring for a period of no less than 3 years to assure that the NAAQS are adequately protected within the NAA.

3.4 Verification of Continued Attainment

Although the DEQ is not proposing to monitor for compliance, it has demonstrated compliance based on monitoring between 1986 and 2001 while ASARCO was in operation and no applicable SO_2 NAAQS were exceeded. The DEQ has also demonstrated continued attainment with the projected emissions which will be below values emitted during the monitored years of 1986 through

2001. The NAA has an SO_2 emission potential of less than 99.99 percent than the 1995 Control Plan emissions and the only source the Control Plan identified as causing the violations is completely gone. This unique situation clearly indicate there will be continued attainment in the East Helena NAA. Maintenance of the SO_2 NAAQS in the East Helena area will be tracked through updates to the emissions inventory and permit applications received for SO_2 emitting sources.

3.5 Contingency Plan

As required by Section 175A(b) of the CAA, the DEQ will submit to EPA, eight years after redesignation, a revision of this Maintenance Plan. This revision will contain the DEQ's plan for maintaining the 1971 24-hours and 3-hour SO_2 NAAQS for 10 years beyond the first 10-year maintenance period following redesignation.

Since there are no sources of SO_2 emissions remaining in the NAA from the original 1995 Control Plan and ambient monitoring was discontinued in East Helena when ASARCO shutdown, the contingency plan will focus on new sources or modifications of existing permitted sources.

As discussed in Section 3.2 of this document, any new source planning to locate within the maintenance area or existing source proposing a significant increase in SO_2 emissions would be subject to Montana's SIP-approved major NSR and minor source permitting programs promulgated under ARM Title 17, Chapter 8, Subchapters 7, 8, 9, and 10. These permitting programs require a demonstration of NAAQS compliance prior to construction and operation of the source.

4.0 PUBLIC PARTICIPATION

According to the applicable requirements of 40 CFR 51.102, Public Hearings, the DEQ must provide the affected public with notice, opportunity for comment, and the opportunity to request a hearing regarding the DEQ's request for redesignation and associated Maintenance Plan for the East Helena SO_2 NAA.

On June 8, 2018, the DEQ issued 30-day public notice meeting all of the above referenced public participation criteria. Also, a public hearing was held on DATE, during the public notice period, which concluded on DATE. No public comments were received during the public comment period or at the hearing. A transcript of the DATE public hearing is included in Appendix C for reference.

Or

On DATE, 2018, the DEQ issued 30-day public notice meeting all the above referenced public participation criteria. Also, a public hearing was held on DATE, during the public notice period, which concluded on DATE. Public comments were received during the public notice period. These comments and the DEQ's responses as well as a transcript of the DATE public hearing are included in Appendix B for reference.

5.0 CONCLUSION

The East Helena NAA has attained the 1971 24-hour primary SO_2 NAAQS and the 3-hour secondary SO_2 NAAQS for more than 30 years. This is demonstrated by the monitoring data from 1986 through 2001 which shows compliance with the standards during the last 16 years of ASARCO's operation. Actual emissions from 2000 through 2016 were much less than those identified in the 1995 Control Plan, while the 10 year projected emissions, although greater than

some year's actual emissions, are less than 3 percent of the emissions from the 1995 Control Plan and ensure compliance with the SO_2 NAAQS.

Further, the DEQ has demonstrated compliance with all applicable provisions of the CAA for the redesignation and maintenance of the 1971 24-hour and 3-hour SO_2 NAAQS in the East Helena NAA. Documentation to that effect is contained herein.

Therefore, the DEQ requests formal redesignation of the East Helena SO_2 NAA to attainment (Section 2.0) concurrent with EPA approval of the associated Maintenance Plan (Section 3.0) ensuring ongoing SO_2 NAAQS compliance in the area. The DEQ also requests that the 1971 SO_2 NAAQS be revoked for East Helena as the area is in compliance with the standard.

6.0 REFERENCES

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EPA, 2017. *EPA Comments on AERMOD Modeling Protocol for Redesignation of East Helena, MT, 1971 24-hour SO2 NAAQS Nonattainment Area to Maintenance/Attainment*, January 19, 2017.

EPA, *Sulfur Dioxide Pollution, What are the harmful effects of SO_2?* https://www.epa.gov/so2-pollution/sulfur-dioxide-basics#effects

State of Montana, 2015. Department of Environmental Quality Air Resources Management Bureau. *2015 Air Monitoring Network Assessment*, July 2015.

APPENDIX A

Letters from Baker Botts, LLP, Requesting Revocation of MAQP #2557-12 and DEQ Revoking MAQP #2557-12

APPENDIX B

Transcript of Public Hearing, Comments and the DEQ's Response