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Henry R. Darwin
Director

FEB 22 2013

Mr. Jared Blumenfeld
Regional Administrator
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street, ORA-1
San Francisco, CA 94105

RE: *Arizona State Implementation Plan Revision, Maintenance Plan for the Ajo Sulfur Dioxide Planning Area (1971 NAAQS)*

Dear Mr. Blumenfeld:

Consistent with the provisions of Arizona Revised Statutes Title 49, §§ 49-104, 49-106, and 49-404 (Enclosure 1) and the Code of Federal Regulations Title 40, §§ 51.102-51.104, the Arizona Department of Environmental Quality (ADEQ) hereby adopts and submits to the U.S. Environmental Protection Agency (EPA) the February 2013, *Arizona State Implementation Plan Revision, Maintenance Plan for the Ajo Sulfur Dioxide Planning Area (1971 NAAQS)*, as a revision to the Arizona State Implementation Plan (SIP).

On June 18, 2002, ADEQ submitted to EPA the May 2002, *Ajo Sulfur Dioxide Nonattainment Area, State Implementation and Maintenance Plan* and a request to redesignate the area to attainment. The 2002 SIP summarized the progress of the area in attaining the 1971 primary sulfur dioxide National Ambient Air Quality Standards (NAAQS), demonstrated that all Clean Air Act (CAA) requirements for attainment had been satisfied, and included a maintenance plan to assure continued attainment after redesignation, through 2015. EPA approved the plan and redesignated the area to attainment effective January 2, 2004 (68 FR 62239; November 3, 2003). Clean Air Act Section 175A(a) requires states to demonstrate maintenance of the NAAQS for at least ten years after redesignation to attainment. The effective maintenance period for the Ajo area is 2004 through 2015.

A subsequent SIP revision, under CAA Section 175A(b), is due eight years after redesignation to attainment to provide for maintenance of the NAAQS for an additional ten years after the expiration of the first 10-year maintenance period. The information contained in the enclosed maintenance plan demonstrates that the air quality standards will continue to be maintained from the expiration of the first maintenance period through 2025.

Enclosure 2 contains the SIP Completeness Checklist. Enclosure 3 contains two paper copies and one exact duplicate electronic copy of the February 2013 Maintenance Plan for your review and action. ADEQ requests that EPA approve the February 2013 Maintenance Plan, with the

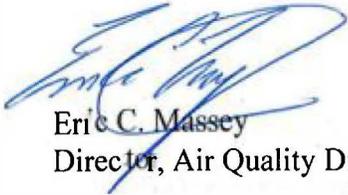
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exception of Appendix C, as a revision to the Arizona SIP. The information in Appendix C is provided to support the Ajo Planning Area emissions inventory and maintenance demonstration and not for approval into the SIP.

If you have any questions, please contact me at (602) 771-2308.

Sincerely,



Eric C. Massey
Director, Air Quality Division

Enclosures (3)

cc: Colleen McKaughan, EPA, w/o enclosures
William Wiley, Maricopa County Air Quality Department, w/o enclosures
Ursula Kramer, Pima County Department of Environmental Quality, w/o enclosures

ENCLOSURE 1

Arizona Revised Statutes §§ 49-104, 49-106, and 49-404

49-104 Powers and duties of the department and director

A. The department shall:

1. Formulate policies, plans and programs to implement this title to protect the environment.
2. Stimulate and encourage all local, state, regional and federal governmental agencies and all private persons and enterprises that have similar and related objectives and purposes, cooperate with those agencies, persons and enterprises and correlate department plans, programs and operations with those of the agencies, persons and enterprises.
3. Conduct research on its own initiative or at the request of the governor, the legislature or state or local agencies pertaining to any department objectives.
4. Provide information and advice on request of any local, state or federal agencies and private persons and business enterprises on matters within the scope of the department.
5. Consult with and make recommendations to the governor and the legislature on all matters concerning department objectives.
6. Promote and coordinate the management of air resources to assure their protection, enhancement and balanced utilization consistent with the environmental policy of this state.
7. Promote and coordinate the protection and enhancement of the quality of water resources consistent with the environmental policy of this state.
8. Encourage industrial, commercial, residential and community development that maximizes environmental benefits and minimizes the effects of less desirable environmental conditions.
9. Assure the preservation and enhancement of natural beauty and man-made scenic qualities.
10. Provide for the prevention and abatement of all water and air pollution including that related to particulates, gases, dust, vapors, noise, radiation, odor, nutrients and heated liquids in accordance with article 3 of this chapter and chapters 2 and 3 of this title.
11. Promote and recommend methods for the recovery, recycling and reuse or, if recycling is not possible, the disposal of solid wastes consistent with sound health, scenic and environmental quality policies. Beginning in 2014, the department shall report annually on its revenues and expenditures relating to the solid and hazardous waste programs overseen or administered by the department.
12. Prevent pollution through the regulation of the storage, handling and transportation of solids, liquids and gases that may cause or contribute to pollution.
13. Promote the restoration and reclamation of degraded or despoiled areas and natural resources.
14. Assist the department of health services in recruiting and training state, local and district health department personnel.
15. Participate in the state civil defense program and develop the necessary organization and facilities to meet wartime or other disasters.
16. Cooperate with the Arizona-Mexico commission in the governor's office and with researchers at universities in this state to collect data and conduct

projects in the United States and Mexico on issues that are within the scope of the department's duties and that relate to quality of life, trade and economic development in this state in a manner that will help the Arizona-Mexico commission to assess and enhance the economic competitiveness of this state and of the Arizona-Mexico region.

17. Unless specifically authorized by the legislature, ensure that state laws, rules, standards, permits, variances and orders are adopted and construed to be consistent with and no more stringent than the corresponding federal law that addresses the same subject matter. This provision shall not be construed to adversely affect standards adopted by an Indian tribe under federal law.

B. The department, through the director, shall:

1. Contract for the services of outside advisers, consultants and aides reasonably necessary or desirable to enable the department to adequately perform its duties.
2. Contract and incur obligations reasonably necessary or desirable within the general scope of department activities and operations to enable the department to adequately perform its duties.
3. Utilize any medium of communication, publication and exhibition when disseminating information, advertising and publicity in any field of its purposes, objectives or duties.
4. Adopt procedural rules that are necessary to implement the authority granted under this title, but that are not inconsistent with other provisions of this title.
5. Contract with other agencies, including laboratories, in furthering any department program.
6. Use monies, facilities or services to provide matching contributions under federal or other programs that further the objectives and programs of the department.
7. Accept gifts, grants, matching monies or direct payments from public or private agencies or private persons and enterprises for department services and publications and to conduct programs that are consistent with the general purposes and objectives of this chapter. Monies received pursuant to this paragraph shall be deposited in the department fund corresponding to the service, publication or program provided.
8. Provide for the examination of any premises if the director has reasonable cause to believe that a violation of any environmental law or rule exists or is being committed on the premises. The director shall give the owner or operator the opportunity for its representative to accompany the director on an examination of those premises. Within forty-five days after the date of the examination, the department shall provide to the owner or operator a copy of any report produced as a result of any examination of the premises.
9. Supervise sanitary engineering facilities and projects in this state, authority for which is vested in the department, and own or lease land on which sanitary engineering facilities are located, and operate the facilities, if the director determines that owning, leasing or operating is necessary for the public health, safety or welfare.

10. Adopt and enforce rules relating to approving design documents for constructing, improving and operating sanitary engineering and other facilities for disposing of solid, liquid or gaseous deleterious matter.

11. Define and prescribe reasonably necessary rules regarding the water supply, sewage disposal and garbage collection and disposal for subdivisions. The rules shall:

(a) Provide for minimum sanitary facilities to be installed in the subdivision and may require that water systems plan for future needs and be of adequate size and capacity to deliver specified minimum quantities of drinking water and to treat all sewage.

(b) Provide that the design documents showing or describing the water supply, sewage disposal and garbage collection facilities be submitted with a fee to the department for review and that no lots in any subdivision be offered for sale before compliance with the standards and rules has been demonstrated by approval of the design documents by the department.

12. Prescribe reasonably necessary measures to prevent pollution of water used in public or semipublic swimming pools and bathing places and to prevent deleterious conditions at such places. The rules shall prescribe minimum standards for the design of and for sanitary conditions at any public or semipublic swimming pool or bathing place and provide for abatement as public nuisances of premises and facilities that do not comply with the minimum standards. The rules shall be developed in cooperation with the director of the department of health services and shall be consistent with the rules adopted by the director of the department of health services pursuant to section 36-136, subsection H, paragraph 10.

13. Prescribe reasonable rules regarding sewage collection, treatment, disposal and reclamation systems to prevent the transmission of sewage borne or insect borne diseases. The rules shall:

(a) Prescribe minimum standards for the design of sewage collection systems and treatment, disposal and reclamation systems and for operating the systems.

(b) Provide for inspecting the premises, systems and installations and for abating as a public nuisance any collection system, process, treatment plant, disposal system or reclamation system that does not comply with the minimum standards.

(c) Require that design documents for all sewage collection systems, sewage collection system extensions, treatment plants, processes, devices, equipment, disposal systems, on-site wastewater treatment facilities and reclamation systems be submitted with a fee for review to the department and may require that the design documents anticipate and provide for future sewage treatment needs.

(d) Require that construction, reconstruction, installation or initiation of any sewage collection system, sewage collection system extension, treatment plant, process, device, equipment, disposal system, on-site wastewater treatment facility or reclamation system conform with applicable requirements.

14. Prescribe reasonably necessary rules regarding excreta storage, handling, treatment, transportation and disposal. The rules shall:

(a) Prescribe minimum standards for human excreta storage, handling, treatment, transportation and disposal and shall provide for inspection of premises, processes and vehicles and for abating as public nuisances any premises, processes or vehicles that do not comply with the minimum standards.

(b) Provide that vehicles transporting human excreta from privies, septic tanks, cesspools and other treatment processes shall be licensed by the department subject to compliance with the rules. The department may require payment of a fee as a condition of licensure. After the effective date of this amendment to this section, the department shall establish by rule a fee as a condition of licensure, including a maximum fee. As part of the rule making process, there must be public notice and comment and a review of the rule by the joint legislative budget committee. After September 30, 2013, the department shall not increase that fee by rule without specific statutory authority for the increase. The fees shall be deposited, pursuant to sections 35-146 and 35-147, in the solid waste fee fund established by section 49-881.

15. Perform the responsibilities of implementing and maintaining a data automation management system to support the reporting requirements of title III of the superfund amendments and reauthorization act of 1986 (P.L. 99-499) and title 26, chapter 2, article 3.

16. Approve remediation levels pursuant to article 4 of this chapter.

17. Establish or revise fees by rule pursuant to the authority granted under title 44, chapter 9, article 8 and chapters 4 and 5 of this title for the department to adequately perform its duties. All fees shall be fairly assessed and impose the least burden and cost to the parties subject to the fees. In establishing or revising fees, the department shall base the fees on:

(a) The direct and indirect costs of the department's relevant duties, including employees salaries and benefits, professional and outside services, equipment, in-state travel and other necessary operational expenses directly related to issuing licenses as defined in title 41, chapter 6 and enforcing the requirements of the applicable regulatory program.

(b) The availability of other funds for the duties performed.

(c) The impact of the fees on the parties subject to the fees.

(d) The fees charged for similar duties performed by the department, other agencies and the private sector.

C. The department may:

1. Charge fees to cover the costs of all permits and inspections it performs to ensure compliance with rules adopted under section 49-203, except that state agencies are exempt from paying the fees. Monies collected pursuant to this subsection shall be deposited, pursuant to sections 35-146 and 35-147, in the water quality fee fund established by section 49-210.

2. Contract with private consultants for the purposes of assisting the department in reviewing applications for licenses, permits or other authorizations to determine whether an applicant meets the criteria for issuance of the license, permit or other authorization. If the department contracts with a consultant under this paragraph, an applicant may request that the department expedite the application review by requesting that the

department use the services of the consultant and by agreeing to pay the department the costs of the consultant's services. Notwithstanding any other law, monies paid by applicants for expedited reviews pursuant to this paragraph are appropriated to the department for use in paying consultants for services.

D. The director may:

1. If the director has reasonable cause to believe that a violation of any environmental law or rule exists or is being committed, inspect any person or property in transit through this state and any vehicle in which the person or property is being transported and detain or disinfect the person, property or vehicle as reasonably necessary to protect the environment if a violation exists.

2. Authorize in writing any qualified officer or employee in the department to perform any act that the director is authorized or required to do by law.

49-106. Statewide application of rules

The rules adopted by the department apply and shall be observed throughout this state, or as provided by their terms, and the appropriate local officer, council or board shall enforce them. This section does not limit the authority of local governing bodies to adopt ordinances and rules within their respective jurisdictions if those ordinances and rules do not conflict with state law and are equal to or more restrictive than the rules of the department, but this section does not grant local governing bodies any authority not otherwise provided by separate state law.

49-404. State implementation plan

A. The director shall maintain a state implementation plan that provides for implementation, maintenance and enforcement of national ambient air quality standards and protection of visibility as required by the clean air act.

B. The director may adopt rules that describe procedures for adoption of revisions to the state implementation plan.

C. The state implementation plan and all revisions adopted before September 30, 1992 remain in effect according to their terms, except to the extent otherwise provided by the clean air act, inconsistent with any provision of the clean air act, or revised by the administrator. No control requirement in effect, or required to be adopted by an order, settlement agreement or plan in effect, before the enactment of the clean air act in any area which is a nonattainment or maintenance area for any air pollutant may be modified after enactment in any manner unless the modification insures equivalent or greater emission reductions of the air pollutant. The director shall evaluate and adopt revisions to the plan in conformity with federal regulations and guidelines promulgated by the administrator for those purposes until the rules required by subsection B are effective.

ENCLOSURE 2

State Implementation Plan Completeness Checklist

STATE IMPLEMENTATION PLAN COMPLETENESS CHECKLIST

Submittal of

Arizona State Implementation Plan Revision, Maintenance Plan for the Ajo Sulfur Dioxide Planning Area (1971 NAAQS), February 2013

40 CFR Part 51, Appendix V, *Criteria for Determining the Completeness of Plan Submissions*, contains the "minimum criteria for determining whether a State Implementation Plan submitted for consideration by EPA is an official submission for purposes of review under §51.103," *Submission of plans, preliminary review of plans*. Appendix V requires the following to be included in plan submissions for review by EPA:

1. **"A formal letter of submittal from the Governor or his designee, requesting EPA approval of the plan or revision thereof (hereafter "the plan")."** [Appendix V, 2.1(a)]

See cover letter.

2. **"Evidence that the State has adopted the plan in the State code or body of regulations; or issued the permit, order, consent agreement (hereafter "document") in final form. That evidence shall include the date of adoption or final issuance as well as the effective date of the plan, if different from the adoption/issuance date."** [Appendix V, 2.1(b)]

See cover letter.

3. **"Evidence that the State has the necessary legal authority under State law to adopt and implement the plan."** [Appendix V, 2.1(c)]

See Enclosure 1.

4. **"A copy of the actual regulation, or document submitted for approval and incorporation by reference into the plan, including indication of the changes made (such as, redline/strikethrough) to the existing approved plan, where applicable ..."** [Appendix V, 2.1(d)]

See Enclosure 3.

5. **"Evidence that the State followed all of the procedural requirements of the State's laws and constitution in conducting and completing the adoption/issuance of the plan."** [Appendix V, 2.1(e)]

See cover letter and Enclosure 3, Appendix E.

6. **"Evidence that public notice was given of the proposed change consistent with procedures approved by EPA, including the date of publication of such notice."** [Appendix V, 2.1(f)]

See Enclosure 3, Appendix E.

7. **"Certification that public hearing(s) were held in accordance with the information provided in the public notice and the State's laws and constitution, if applicable and consistent with the public hearing requirements in 40 CFR 51.102."** [Appendix V, 2.1(g)]

See Enclosure 3, Appendix E.

8. **"Compilation of public comments and the State's response thereto."** [Appendix V, 2.1(h)]

See Enclosure 3, Appendix E.

9. **"Identification of all regulated pollutants affected by the plan."** [Appendix V, 2.2(a)]

Sulfur Dioxide.

10. **"Identification of the locations of affected sources including the EPA attainment/nonattainment designation of the locations and the status of the attainment plan for the affected areas(s)."** [Appendix V, 2.2 (b)]

See Enclosure 3, Chapters 2, 4, and 6.

11. **"Quantification of the changes in plan allowable emissions from the affected sources; estimates of changes in current actual emissions from affected sources or, where appropriate, quantification of changes in actual emissions from affected sources through calculations of the differences between certain baseline levels and allowable emissions anticipated as a result of the revision."** [Appendix V, 2.2(c)]

See Enclosure 3, Chapters 4 and 6.

12. **"The State's demonstration that the national ambient air quality standards, prevention of significant deterioration increments, reasonable further progress demonstration, and visibility, as applicable, are protected if the plan is approved and implemented. For all requests to redesignate an area to attainment for a national primary ambient air quality standard, under section 107 of the Act, a revision must be submitted to provide for the maintenance of the national primary ambient air quality standards for at least 10 years as required by section 175A of the Act."** [Appendix V, 2.2(d)]

See Enclosure 3, Chapters 6 and 7.

13. **"Modeling information required to support the proposed revision, including input data, output data, models used, justification of model selections, ambient monitoring data used, meteorological data used, justification for use of offsite data (where used), modes of models used, assumptions, and other information relevant to the determination of adequacy of the modeling analysis."** [Appendix V, 2.2(e)]

See Enclosure 3, Chapter 6.

14. **"Evidence, where necessary, that emission limitations are based on continuous emission reduction technology."** [Appendix V, 2.2(f)]

Not applicable.

15. **"Evidence that the plan contains emission limitations, work practice standards and recordkeeping/reporting requirements, where necessary, to ensure emission levels."** [Appendix V, 2.2(g)]

Not applicable.

16. **"Compliance/enforcement strategies, including how compliance will be determined in practice."**
[Appendix V, 2.2(h)]

See Enclosure 3, Chapter 7.

17. **"Special economic and technological justifications required by any applicable EPA policies, or an explanation of why such justifications are not necessary."** [Appendix V, 2.2(i)]

No known deviation from EPA policy.

ENCLOSURE 3

Arizona State Implementation Plan Revision

Maintenance Plan for the Ajo Sulfur Dioxide Planning Area (1971 NAAQS)

February 2013



Final

Arizona State Implementation Plan Revision

***Maintenance Plan for the
Ajo Sulfur Dioxide Planning Area
(1971 NAAQS)***

**Air Quality Division
February 2013**

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Final

For a more detailed information please contact us at:

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- Appendix B ***Redesignation of Sulfur Dioxide Nonattainment Areas in the Absence of Monitored Data***, Memorandum, John Seitz, Director, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, October 18, 2000

- Appendix C Overview of Point Source Emissions Limits and Potential to Emit

- C.1 Phelps Dodge New Cornelia Branch Generating Station
- C.2 Gila Bend Regional Landfill
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- C.7 Arizona Public Service Why Substation
- C.8 Minerals Research & Recovery, Inc.
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Appendix D Emission Inventory for the Ajo 24-Hour and Annual Standard SO₂ Maintenance Plan

Appendix E State Implementation Plan Revision Public Comment and Hearing Documentation

- E.1 Notice of Public Hearing
- E.2 Public Hearing Agenda
- E.3 Public Hearing Sign-In Sheet
- E.4 Public Hearing Officer Certification and Transcript
- E.5 Responsiveness Summary

1.0 INTRODUCTION AND SUMMARY

This State Implementation Plan Revision (SIP) demonstrates that the Ajo Sulfur Dioxide (SO₂) Planning Area will continue to meet the 1971 health-based 24-hour average and annual average SO₂ National Ambient Air Quality Standards (NAAQS) for a second maintenance period, through 2025.

As background, areas that do not meet the NAAQS may be designated nonattainment for the respective standard. The Ajo, Arizona, area was designated nonattainment for the annual and 24-hour primary standards in 1978 and initially comprised all of Pima County (43 Federal Register [FR] 8968; March 3, 1978). The boundaries were later revised to five townships centered on the primary copper smelter in Ajo, the only major source of sulfur dioxide emissions in the area (44 FR 21261; April 10, 1979). The Ajo SO₂ Area is located and defined by the following complete townships: T11S, R6W; T11S, R5W; T12S, R6W; T12S, R5W; and T13S, R6W (see Figure 2.1 on page 6 for a map of the area).

On June 18, 2002, the Arizona Department of Environmental Quality (ADEQ) submitted to the U.S. Environmental Protection Agency (EPA) the May 2002, *Ajo Sulfur Dioxide Nonattainment Area, State Implementation and Maintenance Plan* (2002 SIP or maintenance plan) and a request to redesignate the area to attainment. The 2002 SIP summarized the progress of the area in attaining the SO₂ standards, demonstrated that all Clean Air Act (CAA) requirements for attainment had been satisfied, and included a maintenance plan to assure continued attainment after redesignation, through 2015. EPA approved the plan and redesignated the area to attainment effective January 2, 2004 (68 FR 62239; November 3, 2003). Clean Air Act Section 175A(a) requires states to demonstrate maintenance of the NAAQS for at least ten years after redesignation to attainment. The effective maintenance period for the Ajo area is 2004 through 2015, or twelve years.

A subsequent SIP revision, under CAA Section 175A(b), is due eight years after redesignation to attainment to provide for maintenance of the NAAQS for an additional ten years after the expiration of the first 10-year maintenance period. The information contained in this document shows that the air quality standards will continue to be maintained from the expiration of the first maintenance period through 2025.

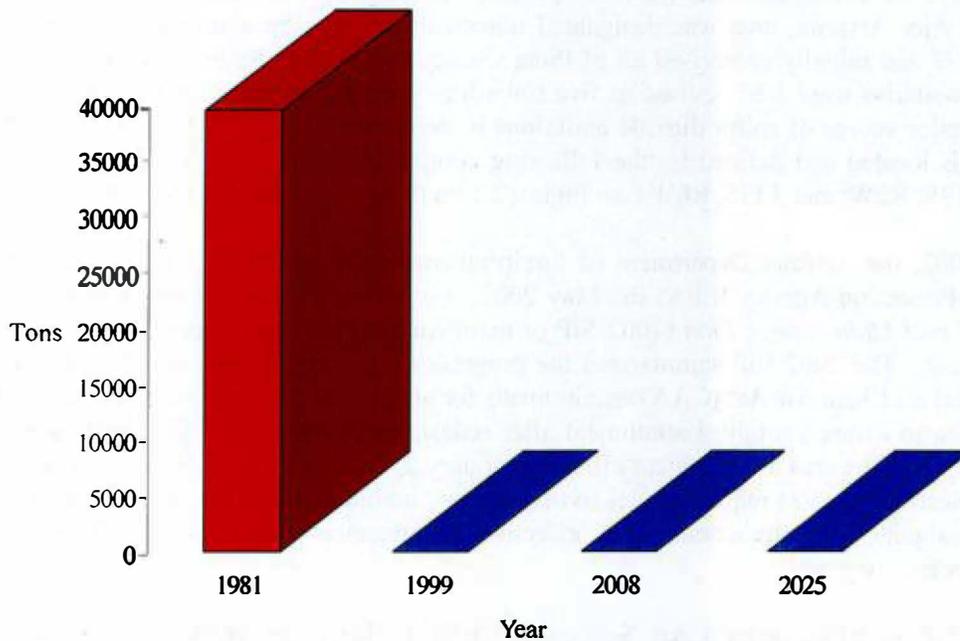
Chapter 2 presents general regulatory requirements for sulfur dioxide planning areas as well as a more detailed history of the Ajo area. Although no ambient monitors are currently operated within the Ajo SO₂ Planning Area, historical information is included in Chapter 3 to provide comparison with emissions levels at a time when ambient exceedances of the NAAQS were occurring.

The relationship between major SO₂ point sources and ambient air quality is relatively well-defined. Emissions inventories in Chapter 4 reveal that, while it was operating, the Phelps Dodge Mining Company's primary copper smelter was the largest point source in the Ajo Nonattainment Area and comprised more than 99 percent of total SO₂ emissions in the area. Available data show that no other point, area or mobile source has generated, or currently generates the same high level of sulfur dioxide emissions in the area as those generated by the Ajo smelter when in operation. The permanent closure of this facility in April 1985 resulted in emissions reductions of more than 40,000 tons per year (tpy).

Figure 1.1 illustrates emissions reductions due to the closure of the smelter and shows that future emissions are expected to remain at or below attainment levels. Year 1981, the last full year of smelter operations, represents actual emissions during the period when recorded violations of the NAAQS were occurring. Year 1999 characterizes post-smelter attainment emissions levels while Year 2008 emissions

are the current base year allowable emissions.¹ The Year 2025 inventory represents emissions projected through the second ten-year maintenance period.

Figure 1.1: Ajo Planning Area SO₂ Emissions



Chapter 5 describes the primary control measures implemented to achieve attainment and maintenance. The measures include implementation of reasonably available control measures (RACM) to reduce emissions sufficient to attain and maintain the SO₂ NAAQS; closure of the smelter was considered to meet RACM requirements. Because the primary source of SO₂ emissions in the Ajo area permanently shut down, measures to ensure continued attainment of the SO₂ NAAQS are state and county permitting requirements. Several national programs that integrate engine and fuel controls for highway vehicles and non-road equipment help ensure emissions reductions for area and mobile sources.

Details of previously performed air quality modeling used to determine the level of emissions sufficient to maintain the NAAQS are contained in Chapter 6. Chapter 7 describes measures designed to ensure continued maintenance of the NAAQS through year 2025 (state and county permitting programs) and makes evident the emission reductions responsible for the air quality improvement and attainment of the NAAQS are both permanent and enforceable. Maintenance of the SO₂ NAAQS in the Ajo area will be tracked through updates to the emissions inventory and permit applications received for SO₂ emitting sources. Also included is a commitment to resume ambient monitoring before any new major SO₂ source begins operation in the area.

The permanent and enforceable control measures and projections of future emissions presented in this document all demonstrate that the Ajo area will continue to maintain the SO₂ air quality standards. With

¹ Point source emissions for 1999, 2008, and 2025 are maximum levels based on potential to emit or permitted allowable emissions. Area and mobile source emissions are estimated actual emissions.

this submittal, ADEQ requests that EPA approve this plan for maintaining the 1971 SO₂ 24-hour and annual NAAQS through 2025 in accordance with CAA Section 175A.

2.0 BACKGROUND

Chapter 2 presents general regulatory requirements for sulfur dioxide planning areas as well as a description and history of the Ajo Planning Area.

2.1 Sulfur Dioxide Air Quality Standards

The federal air quality standards for SO₂ were initially established in 1971 to identify maximum ambient concentrations above which adverse effects on human health and welfare may occur. Accordingly, the SO₂ standards are divided into two types: primary and secondary. The primary standards are based on the protection of public health, and the secondary standard is based on protection of the environment, including protection against damage to animals, vegetation, buildings, and decreased visibility. The original primary and secondary NAAQS for SO₂ were codified in Volume 42 of the Code of Federal Regulations, Part 410 (42 CFR Part 410) on April 30, 1971 (36 FR 81875), and recodified to 40 CFR 50.4 and 50.5 on November 25, 1971 (36 FR 22384).² On May 22, 1996, EPA promulgated several technical changes; however, no changes were made to the level of the standards at that time (61 FR 25566).³ The 1971 primary and secondary SO₂ NAAQS, as modified in 1996, are described in Table 2.1. Arizona has adopted these standards at Arizona Administrative Code (AAC) R18-2-202.

Standard ⁴	Annual	24-Hour	3-Hour
Primary	0.030 ppm (80 µg/m ³)	0.14 ppm (365 µg/m ³)	
Secondary			0.5 ppm (1300 µg/m ³)

On June 22, 2010, the U.S. EPA replaced the existing annual and 24-hour primary SO₂ standards with a new 1-hour SO₂ standard set at a level of 75 parts per billion (ppb) to better protect public health by reducing public exposure to elevated short-term concentrations of SO₂ (75 FR 35520; June 22, 2010). Planning obligations for the 1971 standards, including this renewal of the Ajo maintenance plan, continue until such time as they are subsumed by any new planning and control requirements associated with the new NAAQS.

On August 1, 2011, EPA published a proposal to retain the current sulfur dioxide secondary standard to provide requisite protection for the direct effects on vegetation and ecosystems resulting from exposure to sulfur in the ambient air (76 FR 46084). At the same time, EPA proposed to add a secondary standard identical to the new primary SO₂ 1-hour standard set at 75 ppb. In its notice of final rulemaking EPA retained the current secondary standard but did not set a new secondary standard at the level of the new primary standard (77 FR 20218; April 3, 2012). This plan does not address the new NAAQS for SO₂.

² The 1971 SO₂ NAAQS originally included a secondary standard at 0.02 ppm in an annual arithmetic mean. In 1973 EPA proposed and then finalized a revocation of the annual mean secondary standard (38 FR 11355; May 7, 1973 and 38 FR 25678; September 14, 1973).

³ Technical changes included stating the standards in parts per million (ppm) to make the SO₂ NAAQS consistent with those for other pollutants. The former standards, stated in micrograms per cubic meter (µg/m³) are included in this document for consistency with historic data collection, reporting, and analyses.

⁴ Violations of the primary and secondary standards are determined as follows: The annual arithmetic mean of measured hourly ambient SO₂ concentrations must not exceed the level of the annual standard in a calendar year. The 24-hour and 3-hour averages of measured concentrations must not exceed the level of the respective standard more than once per calendar year (two exceedances of the standard per year is a violation of that standard).

2.2 Ajo Sulfur Dioxide Planning Area Boundary

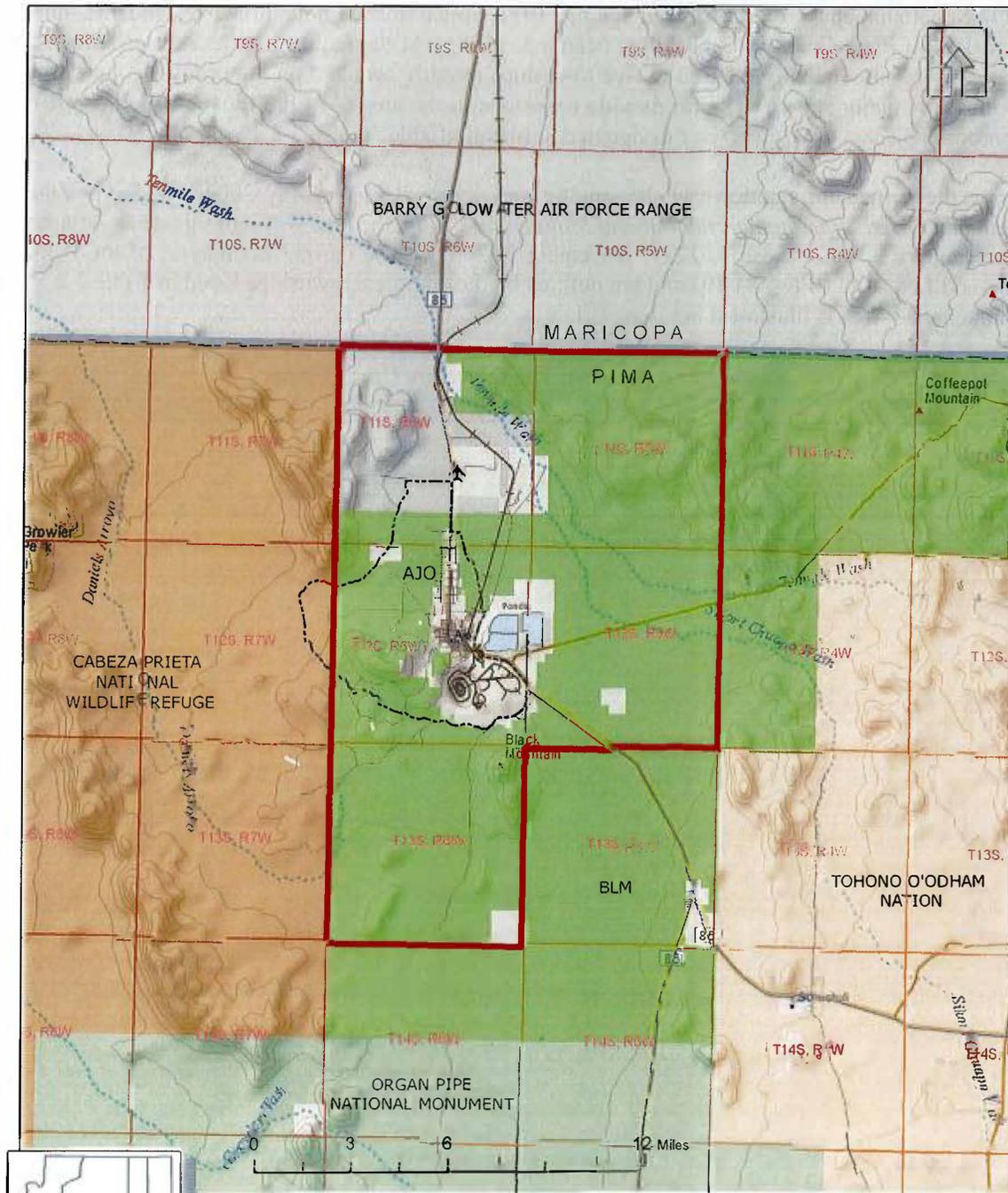
Areas that do not meet the NAAQS may be designated nonattainment for the respective standard. The Ajo SO₂ Nonattainment Area, designated for the 1971 annual and 24-hour primary standards, initially comprised all of Pima County (43 FR 8968; March 3, 1978). At the request of the State of Arizona, the boundaries were subsequently reduced to five townships roughly centered on the primary copper smelter in Ajo, the only major source of sulfur dioxide emissions in the area (44 FR 21261; April 10, 1979). In addition, four adjacent townships were designated as unclassifiable.

Following the permanent shutdown of the smelter and approval of the May 2002, *Ajo Sulfur Dioxide Nonattainment Area State Implementation and Maintenance Plan*, the area was redesignated to attainment effective January 2, 2004 (68 FR 62239; November 3, 2003). The current boundaries of the Planning Area are codified at 40 CFR § 81.303 and are defined by the complete townships listed in Table 2.2.⁵ The Ajo Maintenance Area is illustrated in Figure 2.1.

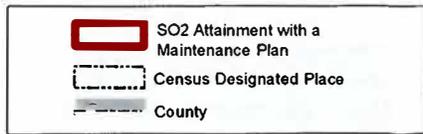
Designated Area	Better Than National Standards
T11S, R6W	X
T11S, R5W	X
T12S, R6W	X
T12S, R5W	X
T13S, R6W	X

⁵ The five townships listed in Table 2.2 were redesignated from "does not meet the primary standards" to "better than national standards" in 2004. An additional township T13S, R5W, originally designated as "cannot be classified," is now listed at 40 CFR 81.303 as "better than national standards." ADEQ assumes redesignation of T13S, R5W from "cannot be classified" to "better than national standards" occurred in error and requests correction of the planning area boundary to the five townships listed in Table 2.2.

Figure 2.1: Ajo Sulfur Dioxide Planning Area



Ajo Sulfur Dioxide Planning Area



October 02, 2012 - Author N. Caroli

2.3 Physical, Demographic, and Economic Description of the Ajo Area

Sections 2.3.1 through 2.3.3 describe the climate and physiography, demographics, and economy of the Ajo area.

2.3.1 Climate and Physiography

Ajo, Arizona, is located in northwestern Pima County approximately 80 miles southwest of Phoenix and 100 miles west of Tucson, the County Seat. Pima County consists predominantly of low desert dissected periodically by areas of mountain terrain. Elevations range from about 1,200 feet to the 9,185-foot peak of Mount Lemmon near Tucson.

As elevations vary, so temperatures vary in Pima County. Ajo, situated within the Sonoran Desert at a relatively low elevation of 1,798 feet, experiences hot summers and generally mild winters. The warmest month of the year is July, when the average daily maximum temperature is 103.2° Fahrenheit (F), and the average daily minimum is 78.4° F. January is the coolest month of the year with an average daily maximum temperature of 64.1° F and an average daily minimum of 49.9° F.

The average annual precipitation in Ajo is 8.95 inches. Rainfall generally occurs in two seasons. The wettest months of the year are August, when summer thunderstorms produce an average of 2.46 inches of rain, and July, when an average 1.36 inches fall. In winter, Pacific storms moving across the Southwest also bring rain with an average of 0.83 inches recorded in December. The months of May and June provide the least precipitation annually, each month producing an average 0.06 inches. During the winter season, the primary wind flow across the area is from the west. In the warmer months, winds shift to a more southerly or southeasterly direction but can be quite variable in speed and direction especially during the summer thunderstorm season.

2.3.2 Population

Population statistics provide information regarding the number of people impacted by changes in air quality in the Ajo area and can also be used as a surrogate for estimating current and future emissions from certain source categories (see Chapter 4).

From a high of more than 7,000 inhabitants in 1960, the population of the Ajo Census Designated Place (CDP) has declined to around 3,000 residents in 2010, according to the U.S. Census.⁶ The most significant reduction occurred between 1980 and 1990 when the population of Ajo decreased by nearly 44 percent, reflecting the waning of mining activities and the shutdown of the Ajo smelter in 1985. Since that time, the area has experienced little growth compared to other cities and towns in the County. A moderate rebound in residents was experienced in the 1990s, but much of this growth was lost in the following decade. By contrast, the population of Pima County as a whole nearly doubled between 1980 and 2010. The majority of population growth, however, occurred outside the Ajo Planning Area in the eastern part of the County, including its largest population centers; Tucson, Oro Valley, and Marana. Decennial census data for Ajo and Pima County are shown in Table 2.3.

⁶ Census Designated Places (CDPs) are delineated for the decennial census. CDPs are places that are not legally incorporated and represent the statistical counterparts of incorporated places.

Place	April 1, 1960	April 1, 1970	April 1, 1980	April 1, 1990	April 1, 2000	April 1, 2010
Ajo CDP	7,049	5,881	5,189	2,919	3,705	3,304
Ajo Decennial Change		-16.6%	-11.8%	-43.7%	26.9%	-10.8%
Pima County	265,660	351,667	531,443	666,957	843,746	980,263
Pima County Decennial Change		32.4%	51.1%	25.5%	26.5%	16.2%

Source: U.S. Bureau of the Census, decennial census counts.

Updated population projections beyond 2010 for the Ajo CDP are not available. The most recent "official" Pima County projections were developed and released in 2006 by the Arizona Department of Economic Security (ADES) in conjunction with the Pima Association of Governments. These projections are now significantly outdated and likely overestimate growth due to an economic recession and decline of construction and the housing market. Additionally, the 2006 ADES projections include estimates for incorporated cities and towns and unincorporated areas of the County as a whole. Individual CDP estimates (such as for Ajo CDP) are not provided. The Arizona Department of Administration (ADOA) currently has responsibility and is working to develop a new projection series based on Census 2010. ADOA is scheduled to release new projections by the end of 2012.⁷

Future population for the Ajo CDP is therefore estimated by linear representation of growth from 1990-2010 and extrapolating the growth rate through 2025 (see Appendix D). Pima County projections are based on the 2006 ADES estimates. Table 2.4 portrays 2010 U.S. Census totals and estimated growth of the Ajo CDP and Pima County in five-year increments from 2010 to 2025. The Ajo area was projected to grow approximately 14 percent by 2025. By comparison, the projected growth of Pima County was near 38 percent.

Year	2010 (Census)	2015	2020	2025
Ajo CDP	3,304	3,575	3,670	3,765
Pima County	980,263	1,175,967	1,271,912	1,360,157

Source: ADES and ADEQ.

2.3.3 Economy

Ajo was one of several early settlements in Arizona in which mining and copper smelting were of prominent importance. Originally, ores from Ajo were shipped to smelters in Wales, and later, to a Phelps Dodge Corporation smelter in Douglas, Arizona, before Phelps Dodge began smelting operations in Ajo in 1950. For several decades, more than 1,000 persons were employed by Phelps Dodge at Ajo, until the closure of its facilities in 1985. The economic viability of this area is currently enhanced by natural scenic attractions, a casino, and other amenities. The only major highway in the Ajo area is Arizona State Route 85 which connects Ajo with U.S. Interstate 8 to the north and allows the area to serve as a gateway for tourists to Mexico, Organ Pipe Cactus National Monument, Cabeza Prieta National Wildlife Refuge, and the Tohono O'odham Indian Reservation to the south.

According to ADOA, the Ajo CDP labor force increased by more than 88 percent in the previous decade, from 755 in 1990 to 1421 in 2010. Although population grew at a slower rate over the same period, labor force growth in the Ajo CDP may be attributed to additional employers in the local economy and an

⁷ Executive order 2011-04.

increase in persons actively seeking work. Employment is mainly in the commercial, service, and tourism sectors. Unemployment rose from 6.9 percent in 1990 to 16.1 percent in 2010, with the sharpest increase occurring between 2005 and 2010, likely due to the recent economic recession. Table 2.5 shows a selected time series of civilian labor force statistics.

Employment Statistic (Annual Average)	1990	1995	2000	2005	2010
Labor Force	755	939	1129	1216	1421
Number Unemployed	52	45	79	101	229
Unemployment Rate	6.9%	4.8%	7.0%	8.3%	16.1%

Source: Average annual labor force data, Arizona Department of Administration, Local Area Unemployment Statistics, updated December 15, 2011.

2.4 Ajo Regulatory Background

The relationship between major SO₂ point sources and ambient air quality is relatively well-defined. Emissions inventories demonstrate that, while it was operating, the Phelps Dodge Mining Company's Ajo Incorporated primary copper smelter was the largest point source in the Ajo Nonattainment Area and comprised more than 99 percent of total SO₂ emissions in the area (see Chapter 4).⁸ Data show that no other point, area, or mobile sources have contributed in the past or currently contribute to the same levels of SO₂ emissions as those attributed to the smelter.

As required by the Clean Air Act, Arizona submitted a State Implementation Plan for all major sources in the State in 1972. The portion of the SIP pertaining to attainment and maintenance of the NAAQS for SO₂ did not sufficiently define emissions limitations or require permanent control of emissions for existing copper smelters and was, therefore, disapproved on July 27, 1972 (37 FR 15081). On the same date, EPA proposed revised regulations for control of sulfur oxides emitted by all existing smelters in Arizona (37 FR 15096). These regulations were never finalized due to issues regarding the adequacy of the ambient air quality data used to develop the limits. EPA subsequently established an SO₂ monitoring network around each smelter in the State to gather air quality data from June 1973 through October 1974 upon which to base emissions limitations.

EPA and State efforts to develop comprehensive emissions limits continued through the 1970s. In 1977, the State developed rules for the use of Supplementary Control Systems (SCS), whereby, utilizing ambient monitoring data, Arizona smelters could intermittently curtail operations and emissions to prevent a violation of the SO₂ NAAQS. EPA disapproved this approach and required installation and continuous operation of permanent SO₂ emissions controls adequate to ensure attainment of the NAAQS. Consequently, on January 4, 1978, EPA published final emissions limits for Arizona smelters based on the 1973-1974 air quality data and the use of a proportional rollback model (43 FR 755). These regulations specified maximum emissions rates and compliance test methods for each of seven Arizona smelters. The 1977 Clean Air Act Amendments, however, modified smelter control requirements to allow the temporary use of SCS while ultimate SO₂ emission limits were developed and also allowed certain smelters additional time for emissions control technology to be installed. In response to this action, Arizona began development of new regulations and on September 20, 1979, submitted *Ultimate*

⁸ The Phelps Dodge mining, smelting and generator facilities that were located in Ajo, Arizona, were also collectively referred to as the Phelps Dodge "New Cornelia Branch."

Sulfur Dioxide Emission Limits for Arizona Copper Smelters as a proposed revision to the Arizona SIP.⁹

The new regulations were developed using a “Multi-Point Rollback (MPR)” technique. The use of MPR to establish emissions limits in rule addressed the problem of inherently variable SO₂ emissions from smelting operations and variable meteorological conditions, which define ambient concentrations, by correlating the frequency of short-term emissions at various levels with the probability of violating the ambient air quality standards. This technique “rolled back” a yearly emissions profile to a level protective of the standards. The new regulations, which established stack emission limits for smelters, also set requirements for analyzing the impact of fugitive SO₂ emissions on ambient air quality. The rule required all existing primary copper smelters in Arizona to implement control technology sufficient to comply with the new stack limits as well as any fugitive emissions controls necessary to assure attainment and maintenance of the NAAQS.

On November 30, 1981, EPA proposed conditional approval of Arizona’s Multipoint Rollback SIP revision (46 FR 58098). On June 3, 1982, Arizona submitted revisions to correct the conditional approval. EPA formally approved Arizona’s MPR rules as a component of the SIP on January 14, 1983 (48 FR 1717). Arizona’s SIP revisions were designed to meet the requirements of CAA §§ 110 (state implementation plans) and 123 (smelter stack heights) as amended in 1977 and replaced EPA’s January 4, 1978, SO₂ control regulations applicable to Arizona copper smelters. To complete the Arizona SO₂ SIP, EPA required that Arizona submit necessary fugitive emissions control strategies and regulations for existing smelters by August 1, 1984.

The MPR rules included copper smelter performance standards for each existing primary copper smelter and identified January 14, 1986, as the general compliance date. Due to violations of the previous emissions regulations, the Ajo smelter was subject to consent decree requirements and an earlier compliance date.¹⁰ Delayed Compliance Orders, issued in 1982, required the Ajo smelter to bring its air emissions into compliance with SO₂ SIP emission limitations by December 31, 1985, to avoid federal enforcement actions. On March 4, 1982, Phelps Dodge responded, requesting an 18-month delay in its Delayed Compliance Order dates for its Ajo copper smelter due to financial concerns. EPA denied the request. On April 17, 1982, the Ajo smelter temporarily ceased copper smelting activities, recommencing operations on May 15, 1984, before permanently deactivating on April 4, 1985.

Dismantlement of the Ajo facility began in 1995 and was complete by February 1996. On October 15, 1997, the Arizona Department of Environmental Quality verified that the Phelps Dodge Ajo smelter was closed and dismantled.¹¹ Additionally, all ambient air quality monitoring was discontinued at the time of

⁹ Site specific emissions limits were promulgated at Arizona Administrative Rules and Regulations (AARR) R9-3-515, later revised and recodified as Arizona Administrative Code (AAC) R18-2-715, Standards of Performance for Existing Primary Copper Smelters; Site-specific Requirements, R18-2-715.01, Standards of Performance for Existing Primary Copper Smelters; Compliance and Monitoring, and R18-2-715.02, Standards of Performance for Existing Primary Copper Smelters; Fugitive Emissions.

¹⁰ Emission regulations violated were defined in Arizona’s 1979 applicable SIP and in 40 CFR § 52.125(d) and 40 CFR § 52.126(b). After issuance of notices of violation to Phelps Dodge for violations of emission regulations at the Ajo smelter, EPA and Phelps Dodge had negotiated and agreed to issuance of Delayed Compliance/Innovative Technology Orders (DCO/ITOs), under CAA § 113(d)(4) (46 FR 49604, 1981). EPA issued final Orders on January 12, 1982 (47 FR 1293). EPA amended the 1981 DCO/ITO issued Phelps Dodge July 23, 1984; notice of the amended consent decree appeared in 49 FR 24090. The amendments to the consent decree terminated the Innovative Technology Order for the Ajo smelter, revoking an earlier mandate to install an oxygen plant and convert the reverberatory furnace at the Ajo smelter to oxygen fuel/oxygen sprinkle smelting, since those measures were not required to comply with the new MPR emission limits. Accordingly, EPA shortened the SO₂ compliance deadline for the Ajo smelter from December 31, 1985, to July 1, 1984.

¹¹ See the 2002 *Ajo Sulfur Dioxide Nonattainment Area, State Implementation and Maintenance Plan*, Section 1.2

the shutdown.

On June 18, 2002, ADEQ submitted to EPA the *Ajo Sulfur Dioxide Nonattainment Area, State Implementation and Maintenance Plan* and a request to redesignate the area to attainment. Clean Air Act Section 175A(a) requires that maintenance of the NAAQS be demonstrated for at least ten years after redesignation to attainment. The SIP contained demonstrations that the Ajo area had attained and would continue to maintain the 1971 SO₂ NAAQS through 2015. The SIP also included a commitment to submit a SIP revision in the year 2013 time frame to ensure maintenance of the NAAQS in the redesignated area for a second maintenance period as required by CAA Section 175A(b). EPA approved the plan under CAA Sections 110 and 175A and redesignated the area to attainment for the primary SO₂ NAAQS effective January 2, 2004 (68 FR 62239; November 3, 2003).

This document demonstrates continued attainment of the 1971 primary SO₂ NAAQS for a second maintenance period through 2025.

2.5 General SIP Approach - Regulatory Requirements and Guidance

In November 1990, the United States Congress enacted a series of amendments to the Clean Air Act. One of the primary effects of the revision was to expand and clarify the planning provisions for those areas not meeting the National Ambient Air Quality Standards. The CAA, as amended, authorizes comprehensive federal and state programs to provide for attainment and maintenance of the NAAQS. Section 2.5.1 outlines relevant Clean Air Act requirements for SO₂ maintenance areas. In addition, EPA has published guidance documents to further clarify environmental regulations relating to maintenance of the NAAQS and to assist in developing approaches for implementing those regulations. Section 2.5.2 summarizes applicable EPA guidance.

2.5.1 Clean Air Act Requirements

In general, Clean Air Act, Title I, Part A, and Title I, Part D, Subparts 1 and 5 contain the nonattainment and maintenance requirements for SO₂ planning areas. Part D, Subpart 1, Section 175A provides the general framework for maintenance plans as summarized below.

CAA § 175A(a). Plan Revision

Under Section 175A(a) maintenance plans must provide for maintenance of the primary ambient air quality standards for at least 10 years after redesignation, including any additional control measures as may be necessary to ensure such maintenance.

CAA § 175A(b). Subsequent Plan Revisions

Eight years after redesignation of any area as an attainment area, CAA Section 175(A)(b) requires the state to submit an additional revision of the applicable state implementation plan for maintaining the national primary ambient air quality standard for 10 years after the expiration of the first 10-year maintenance period.

CAA § 175A(c). Nonattainment Requirements Applicable Pending plan Approval

Under Section 175A(c), pending EPA approval of a SIP revision and request for redesignation of a nonattainment area to attainment, applicable nonattainment area

and Appendix A.

requirements shall remain in full force and effect concerning that area.

CAA § 175A(d). Contingency Provisions

Section 175A(d) requires maintenance plans to contain any necessary contingency provisions to assure prompt correction of a violation of the NAAQS that occurs after redesignation to attainment. The contingency measures must include a requirement that the state will implement all control measures contained in the SIP for the area prior to redesignation.

2.5.2 EPA Guidance

Applicable guidance for demonstrating maintenance of the NAAQS includes the following EPA memoranda:

The September 4, 1992, Memorandum, *Procedures for Processing Requests to Redesignate Areas to Attainment*, John Calcagni, Director, Air Quality Management Division, U.S. Environmental Protection Agency (see Appendix A), recommends several core provisions for states to consider when developing maintenance plans. These provisions include:

- 1) An **attainment emissions inventory** to identify the level of emissions sufficient to attain the NAAQS,
- 2) A **maintenance demonstration** that either shows that future emissions will not exceed the level of the attainment inventory or includes a modeling analysis to show that the future mix of sources will not cause a violation of the NAAQS,
- 3) Continued operation of an appropriate air quality **monitoring network** to verify the attainment status of an area,
- 4) **Verification of continued attainment** through tracking changes in the emissions inventory, or other methods, as well as assurance that the state has the legal authority necessary to implement and enforce all measures used to attain and maintain the NAAQS, and
- 5) A **Contingency Plan** designed to promptly correct any violation of the NAAQS after redesignation of the area to attainment.

EPA's historic redesignation policy has called for eight quarters of clean ambient air quality data as a prerequisite for redesignation of an area to attainment. The October 18, 2000, Memorandum, *Redesignation of Sulfur Dioxide Nonattainment Areas in the Absence of Monitored Data*, from John Seitz, Director of the Office of Air Quality Planning and Standards (see Appendix B), was developed to provide guidance on redesignating SO₂ areas to attainment where an area's historic violations were caused by major point sources of SO₂ emissions that are no longer in operation and where SO₂ monitors were removed immediately following the shutdown of the emissions sources, and therefore lack sufficient air quality data demonstrating attainment of the standard.

The guidance provides an approach for demonstrating attainment and maintenance of the air quality standards and also exempts these areas from requirements for continued ambient monitoring. Four

separate elements for demonstrating maintenance of the SO₂ NAAQS are outlined:

- 1) **Emissions inventories** representing actual emissions when violations occurred, current emissions, and emissions projected to the 10th year after redesignation;
- 2) **Dispersion modeling** analysis of all point sources in, and within 50 kilometers (km) of, the nonattainment area boundary showing that no NAAQS violations occur or can be projected for the next 10 years anywhere within the nonattainment area, and that the shutdown source or sources were the dominant cause of the high concentrations in the past;
- 3) Evidence that if the shutdown source or sources resume operation they will be considered new sources and be required to obtain a permit under the **Prevention of Significant Deterioration** program, and
- 4) A **commitment to resume monitoring** before any major SO_x source commences operation.

These elements are included in subsequent chapters.

2.6 Conformity Provisions

CAA Section 176(c)(1)(A) requires SIPs to contain information regarding the State's compliance with conformity requirements.

Transportation Conformity

As stated in 40 CFR § 93.153(b), "Conformity determinations for federal actions related to transportation plans, programs and projects developed, funded, or approved under title 23 U.S.C. or the Federal Transit Act (40 U.S.C. § 1601 *et seq.*) must meet the procedures and criteria of 40 CFR Part 51, subpart T, in lieu of the procedures set forth in this subpart." Title 40 CFR § 93.102(b) waives transportation conformity for SO₂ nonattainment and maintenance areas.

General Conformity

General conformity for the Ajo, Pima County area must still be addressed to assure SO₂ emissions from any federal actions or plans do not exceed the rates outlined in 40 CFR § 93.153(b) (see 58 FR 63253; November 30, 1993). Criteria for making determinations and provisions for general conformity are located in R18-2-1438 of the Arizona Administrative Code. There are no known federal plans or actions affecting air quality currently in the Ajo area nor are any foreseen through the year 2025. ADEQ commits to review and comment, as appropriate, on any federal agency draft general conformity determination it receives pursuant to 40 CFR § 93.155 for activities planned for this air quality planning area.

3.0 AIR QUALITY MONITORING

Although no ambient monitors are currently operated within the Ajo SO₂ Planning Area, historical information is provided in this section as background and to provide comparison with emissions levels at a time when ambient exceedances of the NAAQS were occurring.

Ambient monitoring networks for air quality are established to sample pollution in a variety of representative settings, to assess health and welfare impacts and to assist in determining air pollution sources. Monitoring sites are combined into networks operated by a number of government agencies and regulated companies. Each network is comprised of one or more monitoring sites, whose data are statistically analyzed and compared to the NAAQS.

Protocols for SO₂ monitoring were established by EPA in the following sections of the Code of Federal Regulations:

1. 40 CFR Part 50, Appendix A, Reference Method for the Determination of Sulfur Dioxide in the Atmosphere;
2. 40 CFR Part 53, Subpart B, Procedures for Testing Performance Characteristics of Automated Methods for SO₂, CO, O₃, and NO₂; and
3. 40 CFR Part 58, Subpart A, B, and C, Ambient Air Quality Surveillance.

3.1 Ajo SO₂ Monitoring Network

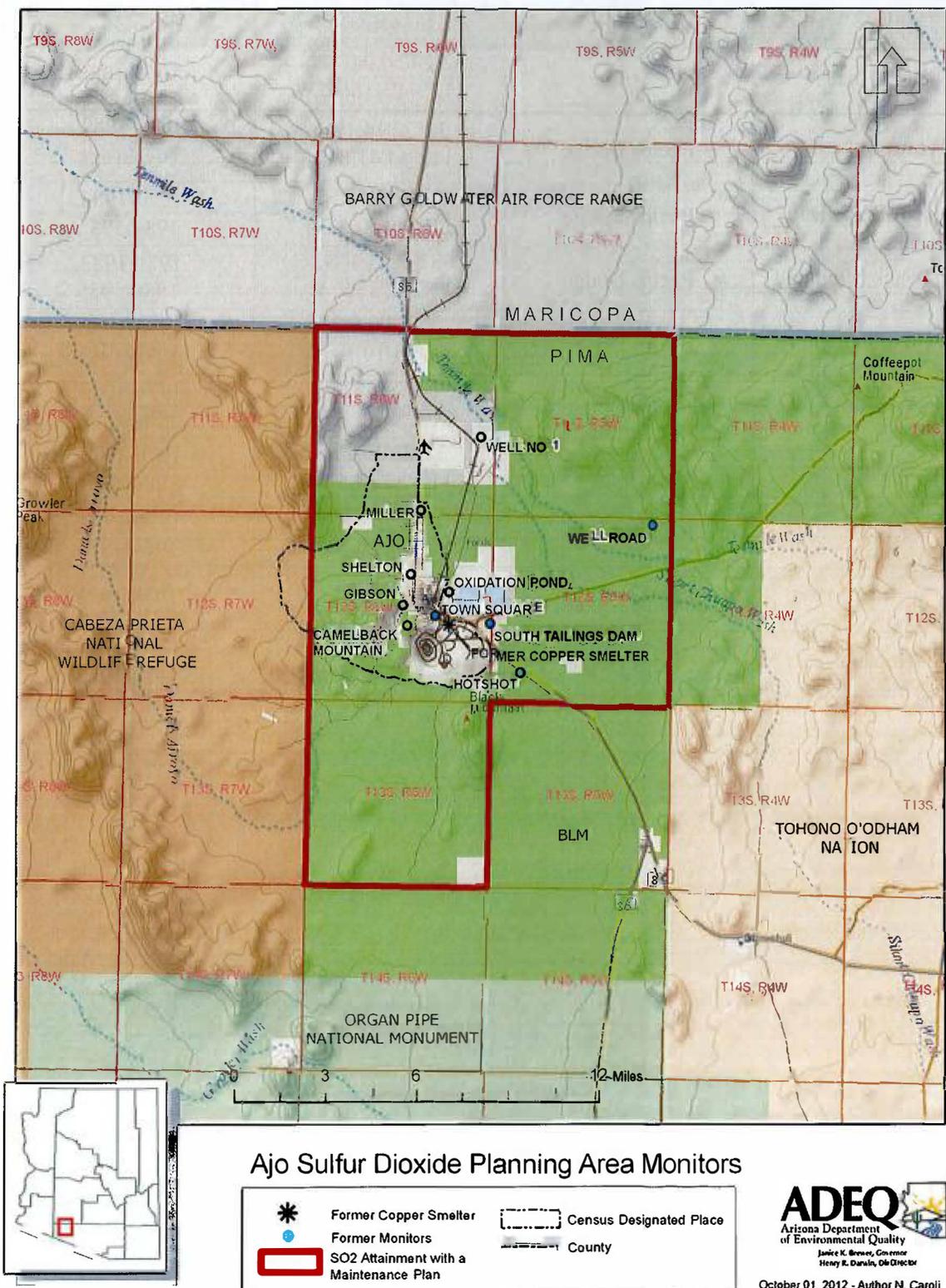
Over a period of years, an extensive monitoring network was developed in the Ajo area with sufficient spatial and temporal coverage to comprehensively evaluate the ambient impact of smelter emissions. As early as June 23, 1969, the Arizona State Department of Health, Environmental Health Services, Division of Air Pollution Control, established a coulometric monitor at the Arizona Department of Transportation (ADOT), "Well Road," Ajo site. In 1979, the Division of Environmental Health Services, Bureau of Air Quality Control, replaced its coulometric monitor with a fluorescent monitor at the ADOT site.¹²

Phelps Dodge began ambient SO₂ air quality monitoring at its Ajo smelter facility in 1974 when coulometric monitoring units were established at four locations. Historic ambient SO₂ monitoring sites and periods of operation are provided in Table 3.1. Figure 3.1 illustrates historic monitor locations and their proximity to the Ajo smelter.

¹² Arizona State Department of Health, Environmental Health Services, Division of Air Pollution Control, *Sulfur Dioxide Monitoring Network Study*, 1969. Coulometric Beckman instruments Model 906 Sulfur Dioxide Analyzers and Bristol Model 760 Dynamaster Strip Chart Recorders were placed at designated sites throughout Arizona in 1969 for the detection of SO₂. The earliest Ajo ambient air sampling site, at 600 North 2nd Avenue in Ajo, tested data from March 19, 1969 until April 15, 1969, until the activation of the Well Road, ADOT site.

Table 3.1: Ambient SO₂ Monitoring Network			
Monitor Site	Operator	Location (latitude, longitude)	Period of Operation
'Well Road'	State	32°24'56.0478"N, 112°44'5.1864"W	1969-1985
'Town Square'	Phelps Dodge	32°22'16.1"N, 112°51'41.8"W	1974-1982, 1984-1985
'South Tailings Dam'	Phelps Dodge	32°22'4.8"N, 112°49'50.2"W	1974-1982, 1984-1985
'Camelback Mountain'	Phelps Dodge	32°22'3.4"N, 112°52'33.9"W	1974-1982, 1984-1985
'Oxidation Pond'	Phelps Dodge	32°23'0.8"N, 112°51'10.19"W	1974-1982, 1984-1985
'Gibson'	Phelps Dodge	32°22'38"N, 112°52'43.8"W	1976-1982, 1984-1985
'Shelton'	Phelps Dodge	32°23'30.1"N, 112°52'28.8"W	1976-1982, 1984-1985
'Miller'	Phelps Dodge	32°25'18.5"N, 112°52'10.8"W	1976-1982, 1984-1985
'Well No. 1'	Phelps Dodge	32°27'22"N, 112°50'10.8"W	1976-1978
'Hotshot'	Phelps Dodge	32°20'47.8"N, 112°48'42.5"W	1978-1982, 1984-1985

Figure 3.1 Ajo Sulfur Dioxide Planning Area Monitors



On April 17, 1982, the Ajo facility temporarily ceased copper smelting activities, recommencing operations on May 15, 1984, before permanently deactivating, April 4, 1985. Following the permanent shutdown of smelting operations all facility and State operated monitors were removed.

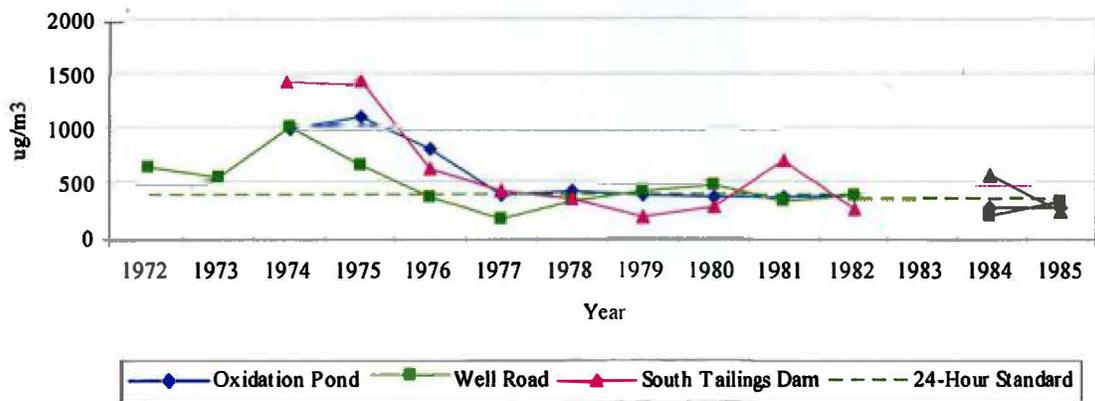
From 1986-2012 and continuing, no ambient SO₂ monitors are operating in the Ajo area. Due to the shutdown of the primary SO₂ point source and resultant termination of the monitoring network, redesignation of this area was completed according to Director John Seitz's October 18, 2000, Memorandum, *Redesignation of Sulfur Dioxide Nonattainment Areas in the Absence of Monitored Data* (see Appendix B). As outlined in the guidance, redesignation did not require eight current consecutive quarters (two years) of quality-assured, violation-free data. The policy also exempts the Ajo area from maintenance plan requirements for continued monitoring within the area.

3.2 Historical Air Quality Data

Since monitoring of the Ajo Phelps Dodge facility began, the highest number of recorded exceedances in any single year occurred in 1974. A review of the SO₂ monitoring data in the nonattainment area, which data are provided in the 2002 SIP, Appendix D, verifies that: 1) the last recorded violation of either the 24-hour or annual SO₂ NAAQS in the Ajo nonattainment area occurred in 1984, and 2) during the network's history, annual average SO₂ levels were generally one-half of the 1971 NAAQS (0.030 ppm or 80 µg/m³).¹³

Implementation of control measures and subsequent emissions reductions at the Ajo copper smelter are generally reflected in reduced ambient SO₂ concentrations beginning in the mid-1970s.¹⁴ Measured maximum concentrations at selected monitoring sites are presented in Figures 3.2 and 3.3 for the period 1972 through 1985.

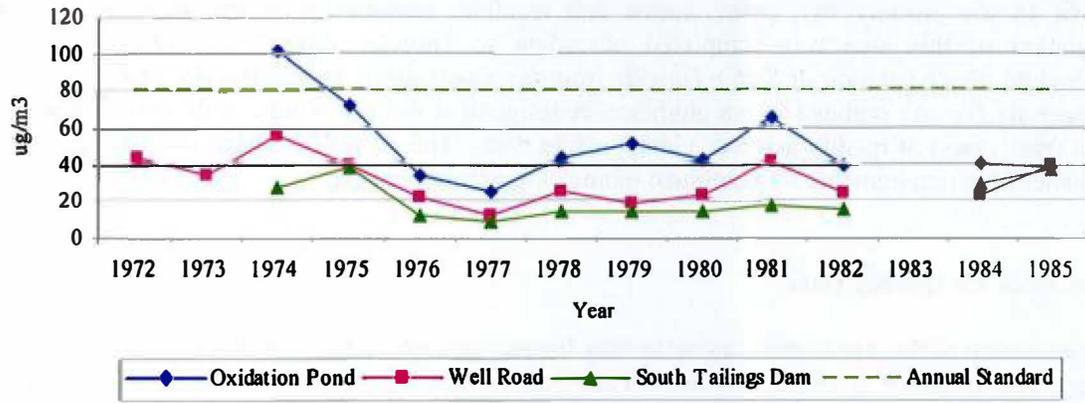
Figure 3.2: Ajo Planning Area Maximum 24-Hour SO₂ Concentrations



¹³ See Arizona Department of Health Services, Bureau of Air Quality Control annual reports 1970 through 1985, EPA Air Quality System annual summary reports, and Appendix D of the 2002 Sip.

¹⁴ See Chapter 2 of the 2002 SIP.

Figure 3.3: Ajo Planning Area Annual Average SO₂ Concentrations



4.0 EMISSIONS INVENTORIES AND PROJECTIONS TO 2025

As noted in Section 2.5.2, the October 18, 2000, guidance memorandum, *Redesignation of Sulfur Dioxide Nonattainment Areas in the Absence of Monitored Data*, lists three inventories that should be included in the maintenance plan: an emissions inventory representing actual emissions when violations occurred; an inventory representing current and allowable (or potential) emissions; and an inventory that projects allowable (or potential) emissions to the tenth year after redesignation. The guidance further advises that "the inventories should display emissions from each point source of SO₂, with explanations of significant emissions changes, including source shutdowns." In addition to the inclusive (point, area, and mobile) Ajo Planning Area inventories, emissions from all SO₂ point sources within a 50 kilometer range of the Planning Area should also be quantified. The following inventories were included in the 2002 maintenance plan.

- **Year 1981 Inventory.** This inventory characterizes emissions at a time when the Ajo smelter was still operating and monitored violations of the NAAQS were occurring. (see also Section 3.2, Historical Air Quality Data)
- **Year 1999 Inventory.** The 1999 inventory was the "current" inventory included in the 2002 maintenance plan and represents emissions after the closure of the Ajo smelter.
- **Modeled "Attainment Inventory" (Year "2015" Projected Inventory).** The 2002 plan projected total emissions for the Planning Area and point source emissions within 50 km of the Planning Area through the first maintenance period, or 2015. A modeling analysis of point sources based on projected 2015 emissions levels demonstrated no air quality violations would occur. Projected area and mobile source emissions for the same period were negligible; therefore, this inventory essentially becomes the "attainment" inventory for the Ajo area.

Because this SIP revision demonstrates continued attainment of the NAAQS for a second maintenance period through 2025, in addition to the historical inventories listed above, which are included in Section 4.1 for context, updates to current and projected emissions are provided in Sections 4.2 and 4.3 as follows.

- **Year 2008 Inventory.** The 2008 inventory is the updated "current" inventory and is used for comparison to the modeled attainment inventory.
- **Year 2025 Inventory.** The 2002 plan projected emissions for the first maintenance period, through 2015. This document includes inventory projections of total emissions for the Planning Area and 50 km point source emissions through the second maintenance period or 2025. The projected 2025 inventory is compared to the previously modeled "attainment" inventory (2015 projected inventory included in the 2002 SIP). Continued maintenance of the NAAQS through the second maintenance period is demonstrated, in part, by a showing that future emissions of SO₂ are not expected to exceed the level of the attainment inventory.

4.1 Emissions Inventories Included in the 2002 Maintenance Plan

Sections 4.1.1 through 4.1.3 describe historical emissions sources and rates for the Ajo Planning Area.

4.1.1 Point Sources

During its operation and until its closure April 4, 1985, the Ajo primary copper smelter was the only major SO₂ point source in the area. Smelting and refining of copper ore at Ajo's primary copper smelter operations produced copper anode for further refining and sale to customers. The majority of this facility's emissions were from reverberatory furnace and converter operations. The Ajo smelter's last full operating years, prior to closure, were 1980 and 1981. In 1980, the Ajo smelter's annual SO₂ emissions were 33,102 tons; in 1981, annual emissions were 39,596 tons.

Estimated emissions for year 1999 characterize the level and types of sources in the Ajo area following the permanent closure of the copper smelter. This "post-smelter" inventory indicates that only one point source, the New Cornelia Branch Electric Generating Station, was located within the Ajo Planning Area and one permitted but unconstructed source, the Gila Bend Regional Landfill, was identified within the 50 km buffer area. Emissions for these facilities were projected through year 2015 to account for any growth in allowable or potential emissions that might occur during the first maintenance period. Both sources were the subject of a dispersion modeling analysis based on maximum projected emissions that demonstrated the area would continue to attain the primary SO₂ NAAQS through 2015 (see Chapter 6). Maximum modeled point source emissions in combination with maximum projected area and mobile source emissions (see Section 4.1.2 below) are considered the "attainment inventory" for the Ajo area or the level of emissions sufficient to attain and maintain the NAAQS.

Historic actual and allowable or potential emissions for 1981, 1999, and the projected (and modeled) "attainment inventory" for the Ajo Planning Area and 50 km buffer are summarized in Tables 4.1 and 4.2.¹⁵ Source locations are illustrated in Figure 4.1 in Section 4.2 below. Further information on facility type, emitting units and rates, emissions control equipment, and permitted emissions limits are more fully described in the 2002 SIP and summarized in Appendix C of this document (1999 sources).

¹⁵ Potential to emit or PTE is defined at 40 CFR Sections 52.21(b)(4), 51.165(a)(1)(iii), and 51.166(b)(4) as the "maximum capacity of a stationary source to emit a pollutant under its physical and operational design."

Source Name	Averaging Period	1981 (actual emissions)	1999 (actual emissions)	1999 (PTE/ Allowable)	“Attainment Inventory”
Ajo Copper Smelter	24-Hour ¹⁶	125.70	-	-	-
	Annual	39,596.0	-	-	-
Phelps Dodge New Cornelia Branch Generating Station ¹⁷	24-Hour	-	0.0	0.13	0.17
	Annual	-	0.0	49.2	60.6
Total	24-Hour	125.70	0.0	0.13	0.17
	Annual	39,596.0	0.0	49.2	60.6

Source Name	Averaging Period	1981 (actual emissions)	1999 (actual emissions)	1999 (PTE/ Allowable)	“Attainment Inventory”
Gila Bend Regional Landfill	24-Hour	-	0.0	0.07	0.08
	Annual	-	0.0	24.1	29.7

4.1.2 Area and Mobile Sources

Area and mobile source emissions estimates for the Ajo Planning Area were derived from EPA’s National Emissions Inventory (NEI) and National Emissions Trends for Pima County based on the assumption that emissions from these source categories are proportionate to population levels. According to Arizona Department of Economic Security data, the Ajo SO₂ Planning Area population was approximately 0.4 percent of the Pima County population. This percentage was used to estimate the Planning Area portion of countywide area and mobile source emissions. The Ajo CDP population center is considered representative of the SO₂ Planning Area as the remainder of the region has a very low population density with low to moderate traffic levels and minimal commercial or industrial development.¹⁸ Detailed information on population levels and the methodology used to calculate area and mobile source emissions are contained in the 2002 SIP, Appendix C.

Historical emissions inventories demonstrate that no significant area or mobile SO₂ sources existed in the Ajo Planning Area either prior to or following the closure of the Ajo smelter in 1985. Estimates for the 1980s and 1990s show area and mobile source emissions trending downward and ranged from approximately 20 to 13 tons per year. Area and mobile sources combined were generally less than 0.1 percent of total emissions during the period of smelter operations. Calculated maximum emissions during the first maintenance period (the projected 2015 "attainment inventory") were based on expected

¹⁶ The 24-hour inventory is based on 315 operating days for 1981.

¹⁷ The New Cornelia Branch generators did not operate in 1999.

¹⁸ Although a small portion the boundary of the Ajo CDP extends outside the Ajo SO₂ Planning Area, according to the 2010 U.S. Census all of the population resides within the Planning Area.

population growth. Table 4.3 contains a summary of area and mobile source emissions for 1981, 1999, and the projected "attainment inventory."

Source Type	Averaging Period	1981	1999	1999 (PTE/ Allowable)	"Attainment Inventory"
Area and Mobile	24-Hour ¹⁹	0.055	0.036	n/a	0.041
	Annual	20	13	n/a	15

4.1.3 Emissions Totals for All Sources

Table 4.4 presents available point, area, and mobile source emissions for the Ajo Planning Area from 1981 through the first maintenance period. Table 4.5 shows point source emissions within 50 km of the Ajo Planning Area.

Source Type	Averaging Period	1981 (actual emissions)	1999 (actual emissions)	1999 (PTE/ Allowable)	"Attainment Inventory"
Point	24-Hour	125.70	0.0	0.13	0.17
	Annual	39,596.0	0.0	49.2	60.6
Area and Mobile	24-Hour	0.055	0.036	n/a	0.041
	Annual	20	13	n/a	15
Total	24-Hour	125.76	0.036	>0.13	0.211
	Annual	39,616.0	13	>49.2	75.6

Source Type	Averaging Period	1981 (actual emissions)	1999 (actual emissions)	1999 (PTE/ Allowable)	"Attainment Inventory"
Point	24-Hour	-	0.0	0.07	0.08
	Annual	-	0.0	24.1	29.7

¹⁹ 24-hour inventories are averages based on a 365 day distribution of emissions from these sources.

4.2 2008 Emissions Inventory

The 2008 inventory is the updated "current" inventory and is used for comparison to the modeled "attainment inventory" (see Section 4.1). National Emissions Inventory and local agency records were used to update emissions information for the area.²⁰ Although in some cases more current point source data is available, year 2008 was selected for consistency with the most recently available NEI data from which area and mobile source information was obtained.

4.2.1 Point Sources

Two permitted point sources are currently located within the Ajo Planning Area and four sources are located within the 50 km buffer.²¹

All sources identified in the 1981 and 1999 inventories have either closed or have never been built (see Section 4.1.1 above). The Phelps Dodge copper smelter was permanently closed in 1985; the Gila Bend Regional Landfill was never built and the permit terminated on August 28, 2002; the New Cornelia Branch Generating Station shut down and the permit was terminated by the facility on August 22, 2007.

Appendix C provides an overview of current facility types, emitting equipment, permitted emission limits, operating rates, and emission calculation methods. Emissions summaries for operating sources are presented in Tables 4.6 and 4.7. Summaries include actual emissions where available and maximum emissions allowed by permit. For comparison, both the current source (2008 inventory) locations as well as the closed or unconstructed facility locations identified in previous inventories (see Section 4.1.1) are illustrated in Figure 4.1.

Source Name	Averaging Period	Actual Emissions	PTE/Allowable
Freeport-McMoRan Corporation Childs Well Field Emergency Generator ²²	24-Hour	n/a	0.012
	Annual	n/a	0.240
Minerals Research and Recovery, Inc. [natural gas beta burner] ²³	24-Hour	n/a	<0.001
	Annual	n/a	0.134
Total	24-Hour	n/a	<0.013
	Annual	n/a	0.374

²⁰ Point source information was received from the Maricopa County Air Quality Department and Pima County Department of Environmental Quality annual emissions inventory data.

²¹ According to the Comisión de Ecología y Desarrollo Sustentable del Estado de Sonora, no permitted sources are operating within the portion of the 50 km buffer area located in Mexico. Examination of point sources in the Ajo Planning Area showed that the Ajo Municipal Airport does not contain equipment significant enough to require a permit.

²² Recent actual annual emissions for this source are currently not available.

²³ Annualized actual emissions from the last two years of natural gas use (for the period ending June 2011) total 0.00355 tpy. This source is not required to maintain an emissions inventory.

Table 4.7: Point Source SO₂ Emissions within the 50 Km Buffer Area – 2008 (tons)			
Source Name	Averaging Period	Actual Emissions	PTE/Allowable
Arizona Public Service (APS) Why Substation Emergency Generator	24-Hour	n/a	0.221
	Annual²⁴	n/a	4.61
Doubletree Paper Mill	24-Hour²⁵	0.001	0.004
	Annual	0.453	1.32
Gila Bend Air Force Aux Field	24-Hour²⁶	<0.001	0.007
	Annual	0.090	1.44
Paloma Gin	24-Hour²⁷	<0.001	<0.001
	Annual	<0.001	0.018
Total	24-Hour	n/a	<0.233
	Annual	n/a	7.388

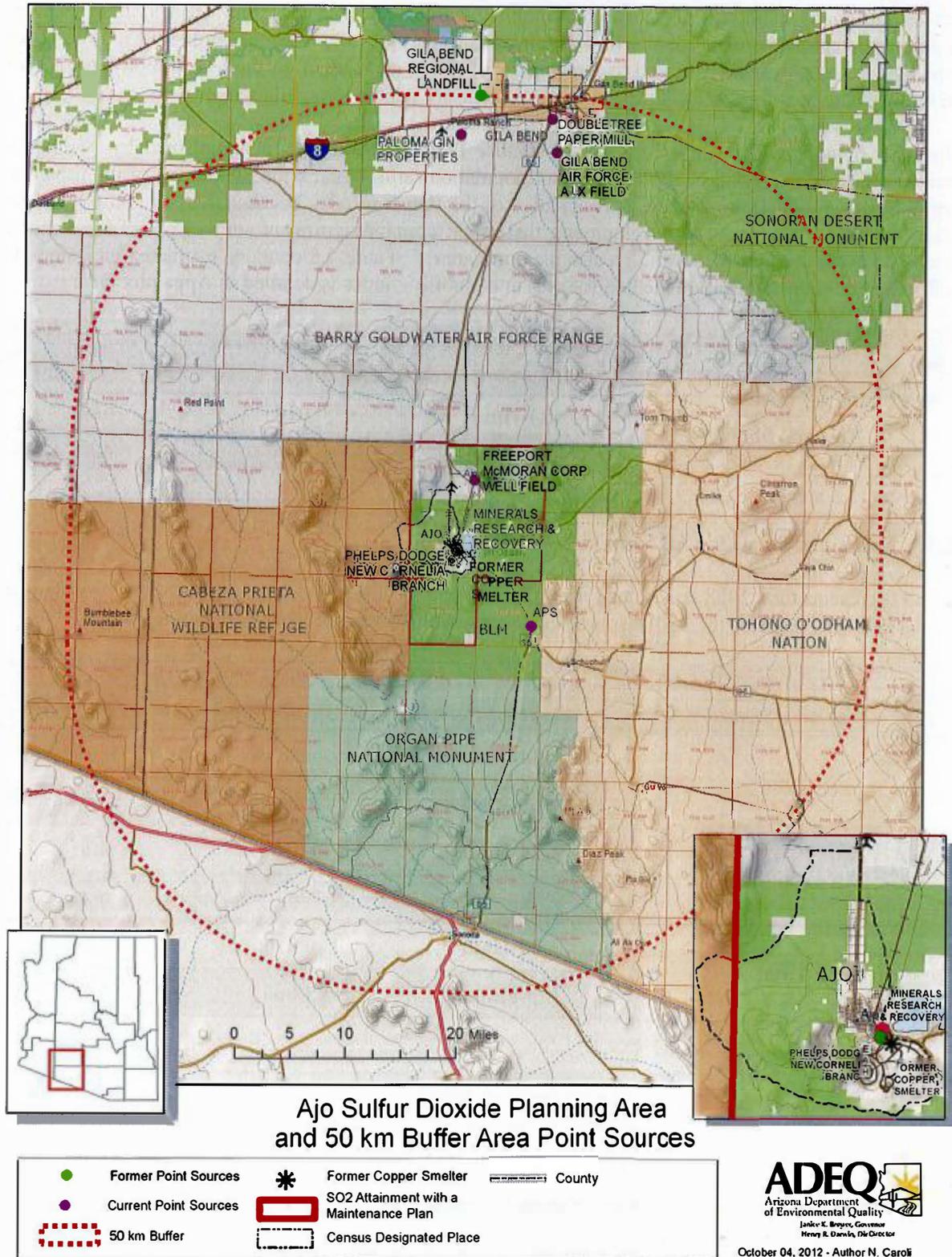
²⁴ Actual annualized emissions from 08-07-2008 through 06-15-2011 total 0.17 tpy.

²⁵ 24-hour inventories are averages based on a 365 day distribution of emissions from these sources.

²⁶ 24-hour inventories are averages based on a 365 day distribution of emissions from these sources.

²⁷ 24-hour inventories are averages based on a 183 day distribution of emissions from these seasonal sources.

Figure 4.1 Ajo Sulfur Dioxide Planning Area and 50 km Buffer Area Point Sources



4.2.2 Area and Mobile Sources

Current emissions estimates for area and mobile sources are derived from EPA's 2008 National Emissions Inventory.²⁸ Consistent with previous analyses, most Pima County area and mobile source emissions are proportionately scaled to the smaller planning area based on the assumption that the type and rates of activities for these source categories are closely related to population levels.

Allocation of county-level emissions to the smaller Planning Area was accomplished by scaling the County emissions to an Ajo CDP/Pima County population ratio. Again, the population of the urbanized portion of the Ajo CDP is assumed representative of the Planning Area because there are no other urban areas, commercial or industrial development, that might contain significant sources of area and mobile source emissions located within the greater planning area.²⁹ Table 4.8 contains estimated emissions for 2008. The emissions estimation method for area and mobile sources is detailed in Appendix D.

Source Type	Averaging Period	Actual Emissions	PTE/Allowable
Area and Mobile	24-Hour ³⁰	0.016	n/a
	Annual	5.666	n/a

4.2.3 Emissions Totals for All Sources

Table 4.9 presents total 2008 emissions for point, area, and mobile source categories for the Ajo Planning Area. Table 4.10 presents total point source emissions within 50 km of the Ajo Planning Area.

Source Type	Averaging Period	Actual Emissions	PTE/Allowable
Point	24-Hour	n/a	<0.013
	Annual	n/a	0.374
Area and Mobile	24-Hour	0.016	n/a
	Annual	5.666	n/a
Total	24-Hour	>0.016	>0.013
	Annual	>5.666	>0.374

²⁸ EPA's 2008 National Emission Inventory, Version 1.5 (released May 16, 2011) was the most recent available data at the time of drafting.

²⁹ Only one major highway, Arizona State Route 85 is within this planning area, and moderate traffic levels are estimated to continue consistent with past vehicle miles traveled data.

³⁰ 24-hour inventories are averages based on a 365 day distribution of emissions from these sources.

Source Type	Averaging Period	Actual Emissions	PTE/Allowable
Point	24-Hour	>0.0012	<0.233
	Annual	>0.54327	7.388

4.3 Emissions Projections

Sections 4.3.1 through 4.3.3 contain point, area, and mobile source emissions projected through the year 2025.

4.3.1 Point Source Projections

Arizona does not anticipate any substantial increase in existing point source emissions between 2008 and 2025 for the Planning Area. Should any growth occur due to construction of additional SO₂ point sources, the ADEQ, Maricopa County Air Quality Department, and Pima County Department of Environmental Quality permit programs limit all emissions as part of the construction of new point sources or the upgrading of existing sources. With the permanent closure of the Ajo smelter, no major point sources exist in the Planning Area or within 50 km of its boundary.

Historic peak operating rates or other pertinent information upon which to estimate growth are not available for all the existing minor sources; therefore, emissions projections are conservatively based on potential to emit, and point source emissions are assumed to remain constant at maximum permitted levels. Estimated maximum emissions for the second maintenance period, through 2025, total 0.374 tons per year for the Ajo Planning Area and 7.388 tons per year within the 50 km buffer area (see Tables 4.6 and 4.7 above, and Appendices C and D).

4.3.2 Area and Mobile Source Projections

ADEQ projects that SO₂ emissions from area and mobile sources will grow proportionately with the population of the Planning Area. Appendix D describes the source category emissions and derivation of mobile and area source emissions estimates for the Ajo area in greater detail. Table 4.11 presents projected area and mobile source emissions through 2025.

Source Type		2008	2010	2015	2020	2025
Area and Mobile	24-Hour	0.016	0.016	0.016	0.016	0.016
	Annual	5.666	5.685	5.713	5.742	5.770

4.3.3 Emissions Projections for All Sources

Table 4.12 contains point, area, and mobile source emissions projections for the Ajo Planning Area in five year increments through 2025. Table 4.13 presents projected emissions for point sources within the 50 km buffer area. Total sulfur dioxide emissions in 2025 are estimated to be less than 0.1 percent of 1981

planning area emissions, a period in which the Ajo smelter was operating full time. Current (2008) and future (2025) estimates demonstrate that SO₂ emissions from all sources will not exceed the level of the attainment inventory of 75.6 tons in the Planning Area and 29.7 tons within the 50 km buffer area.

Table 4.12: Total SO₂ Emissions Projections for the Ajo Planning Area (tons)³¹

Source Type		2008	2010	2015	2020	2025
Point	24-Hour	<0.013	<0.013	<0.013	<0.013	<0.013
	Annual	0.374	0.374	0.374	0.374	0.374
Area and Mobile	24-Hour	0.016	0.016	0.016	0.016	0.016
	Annual	5.666	5.685	5.713	5.742	5.770
Total	24-Hour	<0.029	<0.029	<0.029	<0.029	<0.029
	Annual	6.040	6.059	6.087	6.116	6.144

Table 4.13: Total Point Source SO₂ Emissions Projections within the 50 Km Buffer Area (tons)³²

Source Type		2008	2010	2015	2020	2025
Point	24-Hour	<0.233	<0.233	<0.233	<0.233	<0.233
	Annual	7.388	7.388	7.388	7.388	7.388

³¹ Point source emissions are based on potential to emit. Area and mobile source totals are estimated actual emissions.

³² Point source emissions are based on potential to emit.

5.0 CONTROL MEASURES

Sections 5.1 and 5.2 describe sulfur dioxide emission control measures for sources within the Ajo Planning Area and point sources located within 50 km of the Planning Area.

5.1 Point Sources

Nonattainment area plans are required to provide for the implementation of all reasonably available control measures including reductions in emissions from existing sources in the area that may be obtained through reasonably available control technology (RACT). RACT is the emissions control level for sources located in SO₂ nonattainment areas. RACT is determined, in part, by the technological and economic feasibility of the control for the specific source and is generally defined for SO₂ as control technology which will achieve the NAAQS within statutory timeframes.³³ Maintenance plans should ensure that the level of control that allowed the area to reach attainment will continue in the future.

Ajo Copper Smelter

As previously noted, copper smelting operations at the Ajo facility were the single greatest source of SO₂ emissions in the area. No other SO₂ emitting sources of this magnitude have historically operated or currently operate in the Ajo area. Permanent shutdown of the smelter in 1985 reduced total emissions in the Planning Area to less than 0.1 percent of pre-closure levels.

Implementation of new emissions control technologies at the smelter in the 1970s, including a complete acid plant, helped reduce emissions from a high of 140,160 tons in 1972 to 51,100 tons in 1979.³⁴ In 1981, the smelter's last full year of operations, annual emissions were an estimated 39,596 tons.³⁵ The permitted SO₂ emissions limit in 1981 was 178 tons per day (64,970 tpy), assuming an operating year of 365 days.³⁶ SO₂ emission limitation provisions in AAC R9-3-515 (renumbered to AAC R18-2-715 in 1993) became effective July 1, 1984, and established an emission limit of 38,982 tpy (8,900 pounds/hour) for stack emissions only.³⁷ The permanent closure of this facility in April 1985 provided emissions reductions of more than 40,000 tons per year. Closure of the smelter was considered to meet RACM requirements.

Figure 5.1 illustrates sulfur dioxide emissions levels for the Ajo smelter from 1972 through its closure in 1985.

³³ U.S. EPA, Office of Air and Radiation, Office of Air Quality Planning and Standards, *SO₂ Guideline Document*, February 1994.

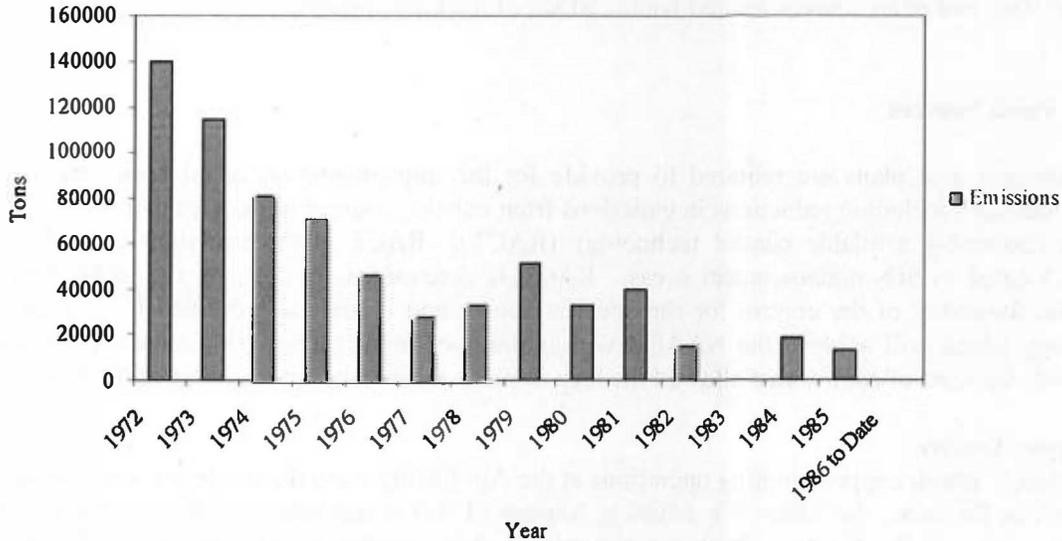
³⁴ See the 2002 SIP, Chapter 2, for a description of implemented technologies.

³⁵ The Ajo smelter's last full operating years were 1980 and 1981. The smelter temporarily ceased operations in April 1982 and remained inactive throughout 1983. Operations resumed in May 1984 before the facility permanently closed in April 1985.

³⁶ See Chapters 1 and 2, and Appendix C of the 2002 SIP for a more complete regulatory history of the Ajo area.

³⁷ Control provisions governing the Ajo smelter's fugitive SO₂ emissions had been set forth in the federal DCO/ITO (47 FR 1293; 1982), and applied from January 12, 1982, until its closure on December 31, 1984.

Figure 5.1: Ajo Smelter Sulfur Dioxide Emissions



Existing Point Sources

Two existing point sources are located in the Ajo Planning Area and four within the 50 km buffer area (see the 2008 point source inventory in Chapter 4, Section 4.2.1). Permits limit combined emissions to 0.374 tons per year for Planning Area sources and less than 7.4 tons per year for buffer area sources; less than one percent of 1981 base year emissions.

Closure of the smelter and absence of new major sources ensures continued maintenance of the 1971 SO₂ NAAQS.

5.2 Area and Mobile Sources

Total area and mobile source emissions for 2008 are estimated at 5.66 tons. Several EPA programs are related to the sulfur content of fuels. These programs integrate engine and fuel controls for emissions reductions in highway vehicles and non-road equipment. Due to these national programs, future sulfur emissions are likely to be lower than those projected in Chapter 4 of this document. The programs are as follows:

- 1) Tier 2 Vehicle and Gasoline Sulfur Program for passenger vehicles,
- 2) Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements for highway trucks and buses, and
- 3) Clean Air Nonroad Diesel Rule for nonroad diesel equipment.

EPA's Tier 2 program, begun in 2004, implements more stringent emissions standards for the reduction of oxides of nitrogen emissions from all passenger cars and light trucks. To meet the new emission standards the program incorporates gasoline requirements that substantially reduce sulfur levels in gasoline. Sulfur in fuel impairs the effectiveness of vehicle emission control systems and by removing most of the sulfur from gasoline, new emission controls work longer and more efficiently. As a result, the

standards reduce the average national sulfur content of gasoline by up to 90 percent.

The 2007 Heavy-Duty Engine and Vehicle standards and Highway Diesel Fuel Sulfur Control program established new oxides of nitrogen and particulate matter emissions standards for heavy-duty highway engines and vehicles. The standards are based on high-efficiency catalytic exhaust emission control technologies. Because emissions control devices are damaged by sulfur, associated regulations reduce the sulfur in highway diesel fuel by 97 percent.

The Clean Air Nonroad Diesel Rule established new oxides of nitrogen and particulate matter emission standards that are applicable to diesel engines used in construction, agricultural, industrial, and other equipment. To prevent damage to emissions control systems, the regulations also require a reduction in sulfur levels in nonroad diesel fuel from the current approximately 3,000 parts per million to 15 parts per million when fully implemented. Fuel sulfur reductions are being phased in over a number of years beginning in 2007.

6.0 MODELING DEMONSTRATION

The following information summarizes the modeling results contained in the *Technical Support Document for Notice of Final Rulemaking on Sulfur Dioxide (SO₂) Redesignation Request and Maintenance Plan for Ajo, Arizona*, U.S. EPA, September, 2003, and compares point source emissions information as they existed at the beginning of the first maintenance period with the location and level of currently permitted sources.

Historic violations of the SO₂ NAAQS were caused by one major point source, the Phelps Dodge Mining Company Ajo copper smelter, which permanently ceased operation in 1985. Ambient SO₂ monitoring in the Ajo area was also discontinued in 1985 following closure of the smelter. Accordingly, attainment and maintenance of the NAAQS for the 2002 redesignation request was demonstrated in part through the use of air quality dispersion modeling of existing point sources. The modeling demonstration was performed by EPA per the October 18, 2000, guidance, *Redesignation of Sulfur Dioxide Nonattainment Areas in the Absence of Monitored Data* (see Appendix B). The analysis showed that the improvement in air quality was due to permanent and enforceable measures and was sufficient to maintain the air quality standards in the Ajo area through at least 2015.

At the time of EPA's analysis for the 2002 SIP, one minor point source was identified in the Ajo nonattainment area and one other was located within 50 km of the nonattainment area boundary (see Chapter 4, Section 4.1.1). The Phelps Dodge New Cornelia Branch Generating Station and Gila Bend Regional Landfill were modeled at maximum projected emission rates expected during the first maintenance period (from redesignation through year 2015).³⁸ EPA concluded "Taken together, the modeling showed if both sources burn low sulfur fuel, the area will be under 10 percent (model showed 6.6 percent) of the National Ambient Air Quality Standards (NAAQS)." Additionally, "Arizona rules allow the use of high sulfur fuel in generators such as the ones at the Ajo Phelps Dodge generating station in certain circumstances when low sulfur fuel is not available. However, the applicable SIP rules also limit the sulfur content of high sulfur fuel. Even if Phelps Dodge burned high sulfur fuel, the area would remain about 66 percent of the NAAQS, since the high sulfur fuel would contain approximately ten times the sulfur of low sulfur fuel and would likely be burned for limited periods of time. Therefore, this modeling relies on extremely conservative assumptions that are unlikely to occur. According to the SIP submittal, the generators typically burn a mixture of 5 percent diesel fuel and 95 percent natural gas. EPA finds that the ambient SO₂ projection requirement for redesignations and maintenance plans is met by the submittal. Since the existing source, the Phelps Dodge generator, is not causing NAAQS exceedances now, we can conclude the closed smelter was the likely source of the past violations." The results of the modeling analysis demonstrated that the greater than 99 percent reduction in point source emissions due to the closure of the smelter corresponds to an approximately 95 percent reduction in 24-hour average ambient SO₂ concentrations.³⁹

Since the time of the modeling analysis, the Phelps Dodge Generating Station has shut down. The Gila Bend Regional Landfill was never constructed and the permit was allowed to expire. Currently two permitted sources operate in the Ajo Planning Area, and four sources operate in the 50 km buffer area.

³⁸ Area and mobile source emissions in the planning area were not modeled. Estimates were 20 tons in 1981, less than 0.1 percent of total emissions. Emissions from this source category have decreased and are projected to remain below 6 tons per year through 2025.

³⁹ In 1981 and 1984 (a partial operating year) smelter emissions totaled 39,596 tons and 18,732 tons respectively (see Appendix C of the 2002 SIP). The South Tailings Dam monitor recorded a 24-hour concentration of 681 µg/m³ in 1981 and 593 µg/m³ in 1984. The maximum modeled 24-hour concentration for the first maintenance period was 24 µg/m³ (smelter emissions totaled 0.0 tons through the period).

Although the mix of point sources has changed, the types of emitting equipment (generators and other fuel burning equipment) and emissions characteristics for current point sources remain similar to those that were modeled for the 2002 SIP. The locations of most existing sources, however, are generally more distant from the Planning Area and permitted potential emissions have decreased considerably. Maximum emissions for current sources are 0.6 percent of the previously modeled "attainment inventory" sources within the Planning Area, and approximately 25 percent within the buffer area.⁴⁰ For comparison, both the current sources (emissions and locations) as well as the closed (or unconstructed) facilities are described in Tables 6.1 and 6.2 and illustrated in Figure 6.1. Details of the types of emitting equipment and calculated emissions rates for the previously modeled sources and current existing sources are contained in the 2002 SIP and in Appendix C of this submittal.

In conclusion, 2025 projections (based on PTE/maximum allowable emissions) show that low levels of point source emissions are expected to persist through the second maintenance period. State and local permitting programs will protect the attainment status of the area for any future sources that may operate nearby. Because of the types of sources identified in the current emissions inventory, their locations, and magnitude of emissions, any additional modeling for the second maintenance period would likely result in ambient concentrations substantially below the 2003 analysis levels and less than 10 percent of the NAAQS. The information provided supports the reasonable conclusion that additional modeling is not necessary at this time.

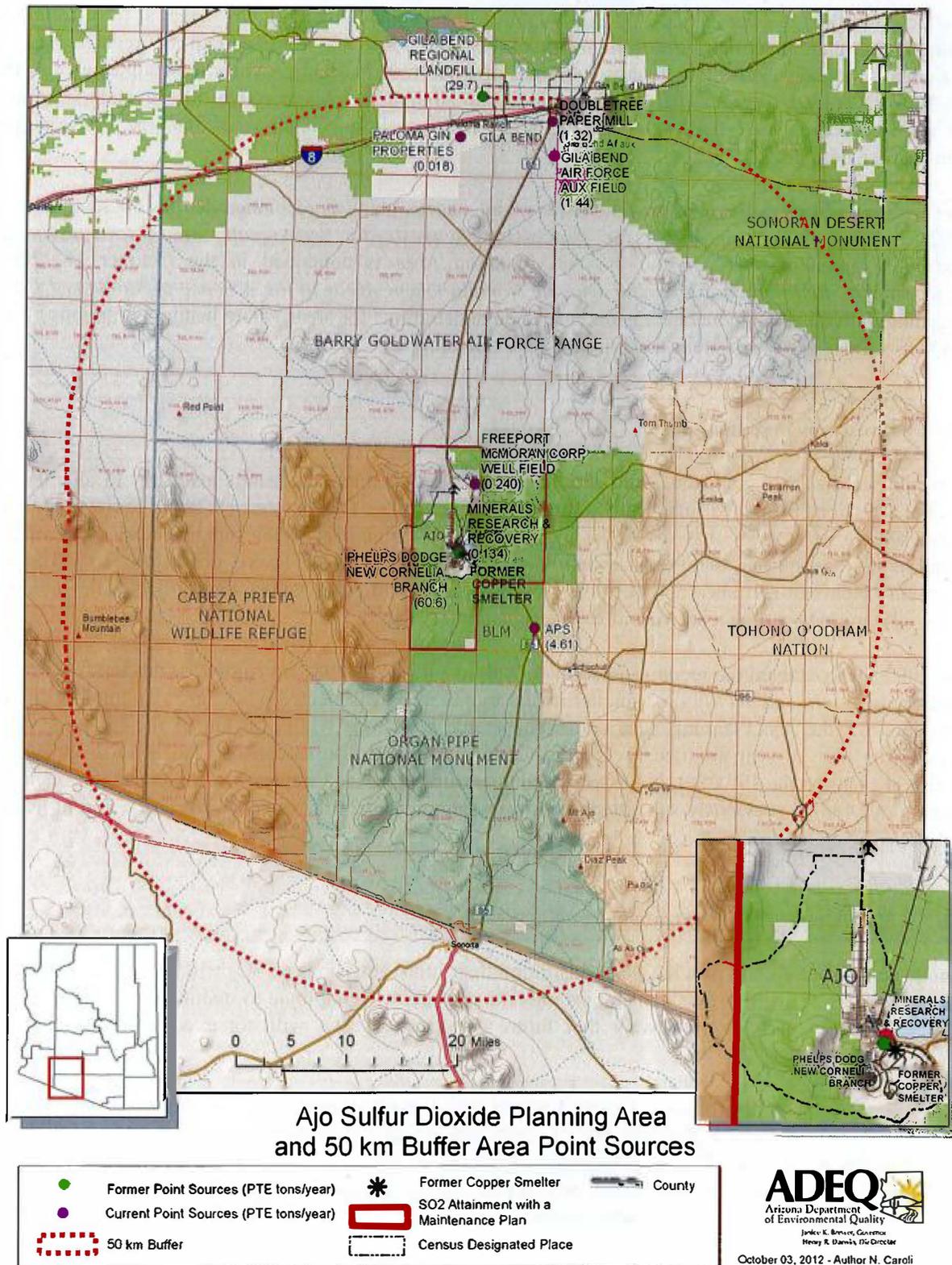
Table 6.1: Comparison of Modeled and Current Allowable Point Source SO₂ Emissions for the Ajo Planning Area (tons)				
Source	Current Source	Averaging Period	Modeled Emissions ("Attainment Inventory")	PTE/ Allowable Emissions (2008 Inventory Sources)
Ajo Planning Area				
Phelps Dodge New Cornelia Branch Generating Station	No	24-Hour	0.17	-
		Annual	60.6	-
Freeport-McMoRan Corporation Childs Well Field Emergency Generator	Yes	24-Hour	-	0.012
		Annual	-	0.240
Minerals Research and Recovery, Inc.	Yes	24-Hour	-	<0.001
		Annual	-	0.134
Total Emissions		24-Hour	0.17	<0.013
		Annual	60.6	0.374

⁴⁰ Current source (2008) potential emissions were calculated for the highest fuel sulfur content allowed (see Appendix C).

Table 6.2: Comparison of Modeled and Current Allowable Point Source SO₂ Emissions within the 50 Km Buffer Area (tons)

Source	Current Source	Averaging Period	Modeled Emissions ("Attainment Inventory")	PTE/ Allowable Emissions (2008 Inventory Sources)
50 Km Buffer Area				
Gila Bend Regional Landfill	No	24-Hour	0.08	-
		Annual	29.7	-
Arizona Public Service (APS) Why Substation Emergency Generator	Yes	24-Hour	-	0.221
		Annual	-	4.61
Doubletree Paper Mill	Yes	24-Hour	-	0.004
		Annual	-	1.32
Gila Bend Air Force AUX Field	Yes	24-Hour	-	0.007
		Annual	-	1.44
Paloma Gin	Yes	24-Hour	-	<0.001
		Annual	-	0.018
Total Emissions		24-Hour	0.08	<0.233
		Annual	29.7	7.388

Figure 6.1 Comparison of Modeled and Current Point Sources



7.0 MAINTENANCE PLAN

Section 107(d)(3) of the Clean Air Act requires that nonattainment areas have a fully-approved maintenance plan meeting the requirements of Section 175A before they can be redesignated to attainment. Section 175A also requires submittal of a SIP revision that provides for maintenance of the NAAQS for at least 10 years after the redesignation to attainment. A subsequent SIP revision providing for maintenance of the NAAQS for an additional 10 years is due eight years into the first ten-year maintenance period.

This Chapter addresses the core provisions for maintenance plans as recommended in the September 4, 1992, Memorandum, *Procedures for Processing Requests to Redesignate Areas to Attainment*. Additional guidance applicable to the Ajo Planning Area is contained in the October 18, 2000, Memorandum, *Redesignation of Sulfur Dioxide Nonattainment Areas in the Absence of Monitored Data*, regarding individual components of maintenance demonstrations for areas where historic violations of the NAAQS were caused by sources that are no longer operating.

7.1 Emissions Inventories

According to the 1992 guidance, states should develop an attainment emissions inventory to identify the level of emissions in an area sufficient to attain a given NAAQS. The October 18, 2000, "Seitz guidance" outlines three inventories that should be included in the maintenance plan: an inventory representing actual emissions during the period when violations of the NAAQS were occurring; an inventory representing current and allowable (or potential) emissions; and an inventory that projects allowable (or potential) emissions to the tenth year after redesignation.

The 2002 SIP contained the recommended historical inventories; a 1981 inventory for the last full year of smelter operations and a 1999 post-smelter inventory; as well as projected point, area, and mobile source emissions for the Ajo Planning Area and point source emissions within 50 km of the Planning Area through the first 10-year maintenance period (2015). The SIP also established the level of emissions sufficient to attain the 1971 SO₂ NAAQS ("attainment inventory"). Chapter 4 of this document includes a summary of these previously submitted inventories, an updated 2008 "current" inventory, and projected emissions through 2025.

7.2 Maintenance Demonstration

Maintenance plans should provide a demonstration that future emissions of SO₂ will not cause a violation of the NAAQS. This SIP revision demonstrates the Ajo area will continue to maintain the 1971 primary SO₂ NAAQS, in part, by a showing that future emissions of SO₂ will not exceed the level of the attainment inventory.

The attainment inventory for the Ajo area was identified in Chapters 4 and 6 as the maximum level of emissions expected through the first maintenance period that demonstrate continued attainment of the NAAQS. For the Ajo SO₂ Planning Area the attainment inventory is comprised of modeled point source emissions and maximum projected area and mobile source emissions. For the 50 km buffer area the inventory includes modeled point source emissions.

Figure 7.1 compares the level of the "attainment inventory" to the maximum expected level of point, area, and mobile source emissions in the Ajo SO₂ Planning Area for a second maintenance period, through

2025. Similarly, Figure 7.2 compares the level of the "attainment inventory" to the level of maximum expected point source emissions in the 50 km buffer area for the same period. Current (2008) and future (2025) emissions from all sources do not exceed the level of the attainment inventory, and in fact, are estimated to remain well below attainment period levels.

Figure 7.1: Ajo Planning Area Sulfur Dioxide Emissions Projections

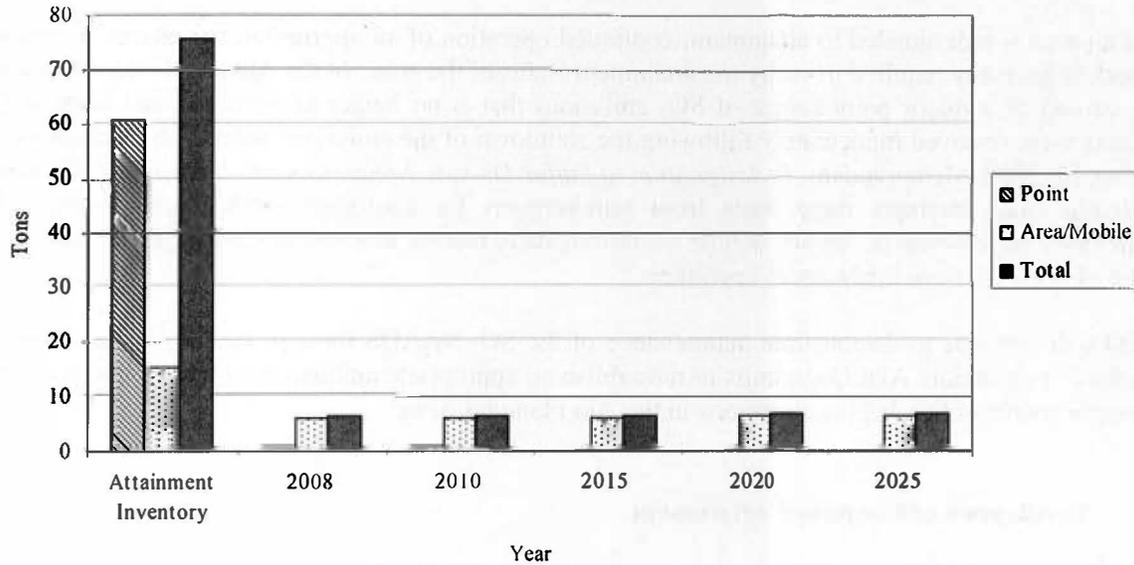
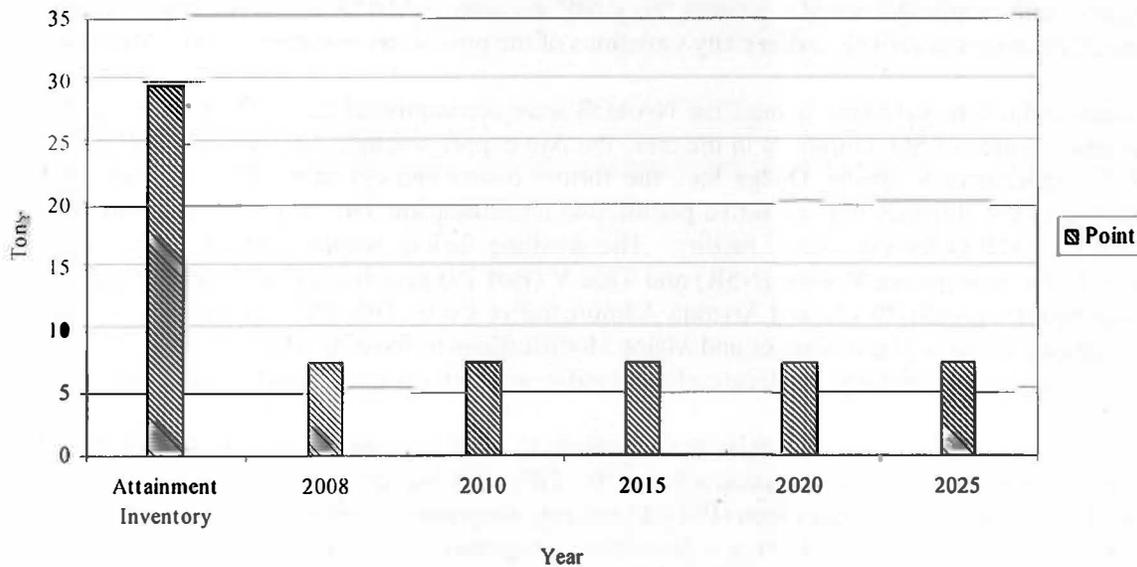


Figure 7.2: Ajo 50 Km Buffer Area Sulfur Dioxide Emissions Projections



Because the attainment emissions inventories for the Planning Area and 50 km buffer demonstrate a stringent level of protection of ambient air quality (see Chapter 6), the permanent and enforceable emissions reductions due to the closure of the Ajo smelter are greater than needed to attain and maintain the NAAQS. Therefore, the area is expected to continue to exhibit a substantial margin of safety that is protective of the 1971 SO₂ NAAQS.

7.3 Ambient Monitoring

Once an area is redesignated to attainment, continued operation of an appropriate air quality monitoring network is generally required to verify the attainment status of the area. In the Ajo area historic violations were caused by a major point source of SO₂ emissions that is no longer in operation and ambient SO₂ monitors were removed immediately following the shutdown of the emissions source. In such cases, the October 18, 2000, Memorandum, *Redesignation of Sulfur Dioxide Nonattainment Areas in the Absence of Monitored Data*, exempts these areas from requirements for continued ambient monitoring. The maintenance plan, however, should include commitments to resume ambient monitoring before any major source of SO₂ emissions commences operations.

ADEQ will continue to demonstrate maintenance of the SO₂ NAAQS through updates to the emissions inventory. In addition, ADEQ commits to reestablish an appropriate ambient monitoring network before any major source of SO₂ begins operations in the Ajo Planning Area.

7.4 Verification of Continued Attainment

The state is required to provide assurance that it has the legal authority necessary to implement and enforce all necessary measures used to attain and maintain the NAAQS and include an indication of how it will track the progress of the maintenance plan.

ADEQ anticipates no relaxation of any implemented control measures used to attain and maintain the ambient air quality standards. ADEQ commits to submit to EPA Region IX any changes to rules or emission limits applicable to SO₂ sources as a SIP revision. ADEQ also commits to maintain the necessary resources to actively enforce any violations of the provisions contained in this submittal.

Emissions reductions sufficient to meet the NAAQS were accomplished due to the permanent closure of the primary source of SO₂ emissions in the area, the Ajo copper smelter. Freeport-McMoRan Copper & Gold Inc. (successor to Phelps Dodge Inc., the former owner and operator of the defunct Ajo copper smelter) does not currently hold an active permit, and no subsequent Title V permit application has been submitted to ADEQ for this closed facility. The smelting facility *cannot rebuild* and reopen without submittal of a New Source Review (NSR) and Title V (Part 70) permit application according to Arizona Revised Statutes (ARS) 49-426 and Arizona Administrative Code, Title 18, Chapter 2, Article 4, Permit Requirements for New Major Sources and Major Modifications to Existing Major Sources. The emission reductions achieved following the closure of this facility are both permanent and enforceable.

Further, *any* new major sources or major modifications to existing point sources of SO₂ are subject to the new source permitting procedures contained in AAC Title 18, Chapter 2, Article 4, specifically, ADEQ's Prevention of Significant Deterioration (PSD) Permitting Program contained in AAC R18-2-406 (or those of Maricopa County's or Pima County's permitting programs). These regulations were established to preserve the air quality in areas where ambient concentrations are below the NAAQS and require stationary sources to undergo preconstruction review, utilizing Best Available Control Technology

(BACT), before the facility is constructed, modified, or reconstructed.

In general, state and county permitting programs for major and minor sources are contained in: Arizona Administrative Code Title 18, Chapter 2, Articles 3 and 4; Maricopa County Air Pollution Control Regulations, Regulation II; and Pima County Code of Ordinances, Title 17.⁴¹

Maintenance of the SO₂ NAAQS in the Ajo area will be tracked through updates to the emissions inventory and permit applications received for SO₂ emitting sources. Any permitted sources are subject to the monitoring, reporting, and certification procedures contained in AAC R18-2-306 and AAC R18-2-309 respectively (or similar County rules). ADEQ has authority pursuant to ARS § 49-101 *et seq.* to monitor and ensure source compliance with all applicable rules and permit conditions for sources in its jurisdiction. The Maricopa County Air Quality Department and Pima County Department of Environmental Quality have authority for sources under their jurisdiction under ARS § 49-402.

7.5 Contingency Plan

Contingency plans should contain measures to promptly correct any violation of the NAAQS that occurs after redesignation. According to the 1992 guidance *Procedures for Processing Requests to Redesignate Areas to Attainment*, the contingency plan must require, at a minimum, implementation of all measures contained in the Part D nonattainment plan for the area prior to redesignation.

The only threat to the 1971 SO₂ NAAQS in this Planning Area would be from new sources. Because the primary source of SO₂ emissions in the Ajo area permanently closed, measures to ensure continued attainment of the SO₂ NAAQS are PSD and permitting requirements. As noted in Section 7.4, any new major source proposing to operate in the Ajo area is subject to the provisions of AAC R18-2-406, "Permit Requirements for Sources Located in Attainment and Unclassified Areas." These programs address New Source Review and PSD requirements applicable to SO₂ sources.⁴² Under the PSD program stationary sources are required to undergo preconstruction review before the facility is constructed, modified, or reconstructed and to apply BACT. If a new source is not a major source it is required to obtain a permit under minor source permitting rules at AAC R18-2-Article 3. The Maricopa County Air Quality Department and Pima County Department of Environmental Quality have similar authority for sources under their jurisdiction.⁴³

7.6 Conclusion

The Ajo Planning Area continues to meet the 1971 24-hour and annual primary SO₂ NAAQS. This submittal demonstrates that all of the essential regulatory elements have been met and the Ajo area will

⁴¹ Both the Maricopa County Air Quality Department and the Pima County Department of Environmental Quality currently implement the Federal PSD program in 40 CFR § 52.21 for all regulated NSR pollutants, in accordance with delegation agreements with EPA. ADEQ implements a SIP approved PSD program for all regulated NSR pollutants except for PM₁₀ and green house gases (GHGs). For PM₁₀ and GHGs, ADEQ implements the Federal PSD program in 40 CFR § 52.21 pursuant to delegation agreements with EPA. A proposed State Implementation Plan revision was submitted to EPA on April 10, 2012, to bring the Arizona SIP for areas under the jurisdiction of ADEQ into compliance with the NSR and PSD requirements of CAA Section 110(a)(2)(C) and 40 C.F.R. Part 51, Subpart I, with the exception of the requirements pertaining to GHGs.

⁴² AAC R-18-2-403 and R18-2-406 were adopted effective November 15, 1993. New Source Review standards are defined in 40 CFR § 51.307, Prevention of Significant Deterioration standards, in 40 CFR § 51.166.

⁴³ See Footnote 41.

maintain the 1971 primary SO₂ NAAQS for an additional ten years, through year 2025. Maintenance of the NAAQS is demonstrated by the closure of the only significant source of SO₂ emissions in the area, existing limits and controls on the remaining stationary sources, and the requirement to impose PSD requirements on any new sources. ADEQ requests that EPA approve this demonstration of maintenance through year 2025.

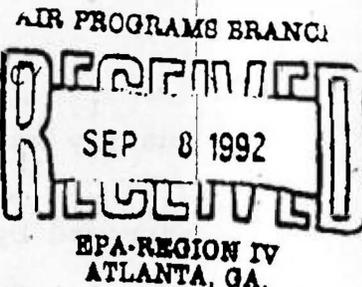
Appendix A

Procedures for Processing Requests to Redesignate Areas to Attainment,
Memorandum, John Calcagni, Director, Air Quality Management Division,
U.S. Environmental Protection Agency,
September 4, 1992



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

4 SEP 1992



MEMORANDUM

SUBJECT: Procedures for Processing Requests to Redesignate Areas to Attainment

FROM: John Calcagni, Director, Air Quality Management Division (MD-15)

TO: Director, Air, Pesticides and Toxics Management Division, Regions I and IV
Director, Air and Waste Management Division, Region II
Director, Air, Radiation and Toxics Division, Region III
Director, Air and Radiation Division, Region V
Director, Air, Pesticides and Toxics Division, Region VI
Director, Air and Toxics Division, Regions VII, VIII, IX, and X

Purpose

The Office of Air Quality Planning and Standards (OAQPS) expects that a number of redesignation requests will be submitted in the near future. Thus, Regions will need to have guidance on the applicable procedures for handling these requests, including maintenance plan provisions. This memorandum, therefore, consolidates the Environmental Protection Agency's (EPA's) guidance regarding the processing of requests for redesignation of nonattainment areas to attainment for ozone (O₃), carbon monoxide (CO), particulate matter (PM-10), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and lead (Pb). Regions should use this guidance as a general framework for drafting Federal Register notices pertaining to redesignation requests. Special concerns for areas seeking redesignation from unclassifiable to attainment will be addressed on a case-by-case basis.

Background

Section 107(d)(3)(E) of the Clean Air Act, as amended, states that an area can be redesignated to attainment if the following conditions are met:

1. The EPA has determined that the national ambient air quality standards (NAAQS) have been attained.
2. The applicable implementation plan has been fully approved by EPA under section 110(k).
3. The EPA has determined that the improvement in air quality is due to permanent and enforceable reductions in emissions.
4. The State has met all applicable requirements for the area under section 110 and Part D.
5. The EPA has fully approved a maintenance plan, including a contingency plan, for the area under section 175A.

Each of these criteria is discussed in more detail in the following paragraphs. Particular attention is given to maintenance plan provisions at the end of this document since maintenance plans constitute a new requirement under the amended Clean Air Act. Exceptions to the guidance will be considered on a case-by-case basis.

1. Attainment of the Standard

The State must show that the area is attaining the applicable NAAQS. There are two components involved in making this demonstration which should be considered interdependently. The first component relies upon ambient air quality data. The data that are used to demonstrate attainment should be the product of ambient monitoring that is representative of the area of highest concentration. These monitors should remain at the same location for the duration of the monitoring period required for demonstrating attainment. The data should be collected and quality-assured in accordance with 40 CFR 58 and recorded in the Aerometric Information Retrieval System (AIRS) in order for it to be available to the public for review. For purposes of redesignation, the Regional Office should verify that the integrity of the air quality monitoring network has been preserved.

For PM-10, an area may be considered attaining the NAAQS if the number of expected exceedances per year, according to 40 CFR 50.6, is less than or equal to 1.0. For O₃, the area must show that the average annual number of expected exceedances, according to 40 CFR 50.9, is less than or equal to 1.0 based on data from all monitoring sites in the area or its affected downwind environs. In making this showing, both PM-10 and O₃ must rely on 3 complete, consecutive calendar years of quality-assured air quality monitoring data, collected in accordance with 40 CFR 50, Appendices H and K. For CO, an area may be considered attaining the NAAQS if there are no violations, as determined in accordance

with 40 CFR 50.8, based on 2 complete, consecutive calendar years of quality-assured monitoring data. For SO₂, according to 40 CFR 50.4, an area must show no more than one exceedance annually and for Pb, according to section 50.12, an area may show no exceedances on a quarterly basis.

The second component relies upon supplemental EPA-approved air quality modeling. No such supplemental modeling is required for O₃ nonattainment areas seeking redesignation. Modeling may be necessary to determine the representativeness of the monitored data. For pollutants such as SO₂ and CO, a small number of monitors typically is not representative of areawide air quality or areas of highest concentration. When dealing with SO₂, Pb, PM-10 (except for a limited number of initial moderate nonattainment areas), and CO (except moderate areas with design values of 12.7 parts per million or lower at the time of passage of the Clean Air Act Amendments of 1990), dispersion modeling will generally be necessary to evaluate comprehensively sources' impacts and to determine the areas of expected high concentrations based upon current conditions. Areas which were designated nonattainment based on modeling will generally not be redesignated to attainment unless an acceptable modeling analysis indicates attainment. Regions should consult with OAQPS for further guidance addressing the need for modeling in specific circumstances.

2. State Implementation Plan (SIP) Approval

The SIP for the area must be fully approved under section 110(k),¹ and must satisfy all requirements that apply to the area. It should be noted that approval action on SIP elements and the redesignation request may occur simultaneously. An area cannot be redesignated if a required element of its plan is the subject of a disapproval; a finding of failure to submit or to implement the SIP; or partial, conditional, or limited approval. However, this does not mean that earlier issues with regard to the SIP will be reopened. Regions should not reconsider those things that have already been approved and for which the Clean Air Act Amendments did not alter what is required. In contrast, to the extent the Amendments add a requirement or alter an existing requirement so that it adds something more, Regions should consider those issues. In addition, requests from areas known to be affected by dispersion techniques which are inconsistent with EPA guidance will continue to be considered unapprovable under section 110 and will not qualify for redesignation.

¹Section 110(k) contains the requirements for EPA action on plan submissions. It addresses completeness, deadlines, full and partial approval, conditional approval, and disapproval.

3. Permanent and Enforceable Improvement in Air Quality

The State must be able to reasonably attribute the improvement in air quality to emission reductions which are permanent and enforceable.² Attainment resulting from temporary reductions in emission rates (e.g., reduced production or shutdown due to temporary adverse economic conditions) or unusually favorable meteorology would not qualify as an air quality improvement due to permanent and enforceable emission reductions.

In making this showing, the State should estimate the percent reduction (from the year that was used to determine the design value for designation and classification) achieved from Federal measures such as the Federal Motor Vehicle Control Program and fuel volatility rules as well as control measures that have been adopted and implemented by the State. This estimate should consider emission rates, production capacities, and other related information to clearly show that the air quality improvements are the result of implemented controls. The analysis should assume that sources are operating at permitted levels (or historic peak levels) unless evidence is presented that such an assumption is unrealistic.

4. Section 110 and Part D Requirements

For the purposes of redesignation, a State must meet all requirements of section 110 and Part D that were applicable prior to submittal of the complete redesignation request. When evaluating a redesignation request, Regions should not consider whether the State has met requirements that come due under the Act after submittal of a complete redesignation request.³

²This is consistent with EPA's existing policy on redesignations as stated in an April 21, 1983 memorandum titled "Section 107 Designation Policy Summary." This memorandum states that in order for an area to be redesignated to attainment, the State must show that "actual enforceable emission reductions are responsible for the recent air quality improvement." This element of the policy retains its validity under the amended Act pursuant to section 193. [Note: other aspects of the April 21, 1983 memorandum have since been superseded by subsequent memorandums; interested parties should consult with OAQPS before relying on these aspects, e.g. those relating to required years of air quality data.]

³Under section 175A(c), however, the requirements of Part D remain in force and effect for the area until such time as it is redesignated. Upon redesignation to attainment, the requirements that became due under section 175A(c) after submittal of the complete redesignation request would no longer be applicable.

However, any requirements that came due prior to submittal of the redesignation request must be fully approved into the plan at or before the time EPA redesignates the area.

To avoid confusion concerning what requirements will be applicable for purposes of redesignation, Regions should encourage States to work closely with the appropriate Regional Office early in the process. This will help to ensure that a redesignation request submitted by the State has a high likelihood of being approved by EPA. Regions should advise States of the practical planning consequences if EPA disapproves the redesignation request or if the request is invalidated because of violations recorded during EPA's review. Under such circumstances, EPA does not have the discretion to adjust schedules for implementing SIP requirements. As a result, an area may risk sanctions and/or Federal implementation plan implementation that could result from failure to meet SIP submittal or implementation requirements.

a. Section 110 Requirements

Section 110(a)(2) contains general requirements for nonattainment plans. Most of the provisions of this section are the same as those contained in the pre-amended Act. We will provide guidance on these requirements as needed.⁴

b. Part D Requirements

Part D consists of general requirements applicable to all areas which are designated nonattainment based on a violation of the NAAQS. The general requirements are followed by a series of subparts specific to each pollutant. The general requirements appear in subpart 1. The requirements relating to O₃, CO, PM-10, SO₂, NO₂, and Pb appear in subparts 2 through 5. In those instances where an area is subject to both the general nonattainment provisions in subpart 1 as well as one of the pollutant-specific subparts, the general provisions may be subsumed within, or superseded by, the more specific requirements of subparts 2 through 5.

If an area was not classified under section 181 for O₃, or section 186 for CO, then that area is only subject to the provisions of subpart 1, "Nonattainment Areas in General." In addition to relevant provisions in subpart 1, an O₃ and CO area, which is classified, must meet all applicable requirements in subpart 2, "Additional Provisions for Ozone Nonattainment Areas," and subpart 3, "Additional Provisions for Carbon Monoxide

⁴General guidance regarding the requirements for SIP's may be found in the "General Preamble to Title I of the 1990 Clean Air Act Amendments," 57 FR 13498 (April 16, 1992).

Nonattainment Areas," respectively, before the area may be redesignated to attainment. All PM-10 nonattainment areas (whether classified as moderate or serious) must similarly meet the applicable general provisions of subpart 1 and the specific PM-10 provisions in subpart 4, "Additional Provisions for Particulate Matter Nonattainment Areas." Likewise, SO₂, NO₂, and Pb nonattainment areas are subject to the applicable general nonattainment provisions in subpart 1 as well as the more specific requirements in subpart 5, "Additional Provisions for Areas Designated Nonattainment for Sulfur Oxides, Nitrogen Dioxide, and Lead."

i. Section 172(c) Requirements

This section contains general requirements for nonattainment plans. A thorough discussion of these requirements may be found in the General Preamble to Title I [57 FR 13498 (April 16, 1992)]. The EPA anticipates that areas will already have met most or all of these requirements to the extent that they are not superseded by more specific Part D requirements. The requirements for reasonable further progress, identification of certain emissions increases, and other measures needed for attainment will not apply for redesignations because they only have meaning for areas not attaining the standard. The requirements for an emission inventory will be satisfied by the inventory requirements of the maintenance plan. The requirements of the Part D new source review program will be replaced by the prevention of significant deterioration (PSD) program once the area has been redesignated. However, in order to ensure that the PSD program will become fully effective immediately upon redesignation, either the State must be delegated the Federal PSD program or the State must make any needed modifications to its rules to have the approved PSD program apply to the affected area upon redesignation.

ii. Conformity

The State must work with EPA to show that its SIP provisions are consistent with section 176(c)(4) conformity requirements. The redesignation request should include conformity procedures, if the State already has these procedures in place. Additionally, we currently interpret the conformity requirement to apply to attainment areas. However, EPA has not yet issued its conformity regulations specifying what areas are subject to the conformity requirement. Therefore, if a State does not have conformity procedures in place at the time that it submits a redesignation request, the State must commit to follow EPA's conformity regulation upon issuance, as applicable. If the State submits the redesignation request subsequent to EPA's issuance of the conformity regulations, and the conformity requirement became applicable to the area prior to submission,

the State must adopt the applicable conformity requirements before EPA can redesignate the area.

5. Maintenance Plans

Section 107(d)(3)(E) of the amended Act stipulates that for an area to be redesignated, EPA must fully approve a maintenance plan which meets the requirements of section 175A. A State may submit both the redesignation request and the maintenance plan at the same time and rulemaking on both may proceed on a parallel track. Maintenance plans may, of course, be submitted and approved by EPA before a redesignation is requested. However, according to section 175A(c), pending approval of the maintenance plan and redesignation request, all applicable nonattainment area requirements shall remain in place.

Section 175A defines the general framework of a maintenance plan. The maintenance plan will constitute a SIP revision and must provide for maintenance of the relevant NAAQS in the area for at least 10 years after redesignation. Section 175A further states that the plan shall contain such additional measures, if any, as may be necessary to ensure such maintenance. Because the Act requires a demonstration of maintenance for 10 years after an area is redesignated (not 10 years after submittal of a redesignation request), the State should plan for some lead time for EPA action on the request. In other words, the maintenance demonstration should project maintenance for 10 years, beginning from a date which factors in the time necessary for EPA review and approval action on the redesignation request. In determining the amount of lead time to allow, States should consider that section 107(d)(3)(D) grants the Administrator up to 18 months from receipt of a complete submittal to process a redesignation request. The statute also requires the State to submit a revision of the SIP 8 years after the original redesignation request is approved to provide for maintenance of the NAAQS for an additional 10 years following the first 10-year period [see section 175A(b)].

In addition, the maintenance plan shall contain such contingency measures as the Administrator deems necessary to ensure prompt correction of any violation of the NAAQS [see section 175A(d)]. The Act provides that, at a minimum, the contingency measures must include a requirement that the State will implement all measures contained in the nonattainment SIP prior to redesignation. Failure to maintain the NAAQS and triggering of the contingency plan will not necessitate a revision of the SIP unless required by the Administrator, as stated in section 175A(d).

The following is a list of core provisions that we anticipate will be necessary to ensure maintenance of the relevant NAAQS in an area seeking redesignation from

nonattainment to attainment. We therefore recommend that States seeking redesignation of a nonattainment area consider these provisions. However, any final EPA determination regarding the adequacy of a maintenance plan will be made following review of the plan submittal in light of the particular circumstances facing the area proposed for redesignation and based on all relevant information available at the time.

a. Attainment Inventory

The State should develop an attainment emissions inventory to identify the level of emissions in the area which is sufficient to attain the NAAQS.⁵ This inventory should be consistent with EPA's most recent guidance on emission inventories for nonattainment areas available at the time and should include the emissions during the time period associated with the monitoring data showing attainment.⁶

Source size thresholds are 100 tons/year for SO₂, NO₂, and PM-10 areas, and 5 tons/year for Pb based upon 40 CFR 51.100(k) and 51.322, as well as established practice for AIRS data. The source size threshold for serious PM-10 areas is 70 tons/year

⁵Where the State has made an adequate demonstration that air quality has improved as a result of the SIP (as discussed previously), the attainment inventory will generally be the actual inventory at the time the area attained the standard.

⁶The EPA's current guidance on the preparation of emission inventories for O₃ and CO nonattainment areas is contained in the following documents: "Procedures for the Preparation of Emission Inventories for Carbon Monoxide and Precursors of Ozone: Volume I" (EPA-450/4-91-016), "Procedures for the Preparation of Emission Inventories for Carbon Monoxide and Precursors of Ozone: Volume II" (EPA-450/4-91-014), "Emission Inventory Requirements for Ozone State Implementation Plans" (EPA-450/4-91-010), "Emission Inventory Requirements for Carbon Monoxide Implementation Plans" (EPA-450/4-91-011), "Guideline for Regulatory Application of the Urban Airshed Model" (EPA-450/4-91-013), "Procedures for Emission Inventory Preparation: Volume IV, Mobile Sources" (EPA-450/4-81-026d), and "Procedures for Preparing Emission Inventory Projections" (EPA-450/4-91-019). The EPA does not currently have specific guidance on attainment emissions inventories for SO₂. In lieu thereof, States are referred to the guidance on emissions data to be used as input to modeling demonstrations, contained in Table 9.1 of EPA's "Guideline on Air Quality Models (Revised)" (EPA-450/2-78-027R), July 1987, which is generally applicable to all criteria pollutants. Emission inventory procedures and requirements documents are currently being prepared by OAQPS for PM-10 and Pb; these documents are due for release by summer 1992.

according to Clean Air Act section 189(b)(3). However, the inventory should include sources below these size thresholds if these smaller sources were included in the SIP attainment demonstration. Where sources below the 100, 70, and 5 tons/year-size thresholds (e.g., areas with smaller source size definitions) are subject to a State's minor source permit program, these sources need only be addressed in the aggregate to the extent that they result in areawide growth.

For O₃ nonattainment areas, the inventory should be based on actual "typical summer day" emissions of O₃ precursors (volatile organic compounds and nitrogen oxides) during the attainment year. This will generally correspond to one of the periodic inventories required for nonattainment areas to reconcile milestones. For CO nonattainment areas, the inventory should be based on actual "typical CO season day" emissions for the attainment year. This will generally correspond to one of the periodic inventories required for nonattainment areas.

b. Maintenance Demonstration

A State may generally demonstrate maintenance of the NAAQS by either showing that future emissions of a pollutant or its precursors will not exceed the level of the attainment inventory, or by modeling to show that the future mix of sources and emission rates will not cause a violation of the NAAQS. Under the Clean Air Act, many areas are required to submit modeled attainment demonstrations to show that proposed reductions in emissions will be sufficient to attain the applicable NAAQS. For these areas, the maintenance demonstration should be based upon the same level of modeling. In areas where no such modeling was required, the State should be able to rely on the attainment inventory approach. In both instances, the demonstration should be for a period of 10 years following the redesignation.

Where modeling is relied upon to demonstrate maintenance, each plan should contain a summary of the air quality concentrations expected to result from application of the control strategy. In the process, the plan should identify and describe the dispersion model or other air quality model used to project ambient concentrations (see 40 CFR 51.46).

In either case, to satisfy the demonstration requirement the State should project emissions for the 10-year period following redesignation, either for the purpose of showing that emissions will not increase over the attainment inventory or for conducting modeling.⁷ The projected inventory should consider future growth, including population and industry, should be consistent

⁷Guidance for projecting emissions may be found in the emissions inventory guidance cited in footnote 6.

with the attainment inventory, and should document data inputs and assumptions. All elements of the demonstration (e.g., emission projections, new source growth, and modeling) should be consistent with current EPA modeling guidance.⁸ For O₃ and CO, the projected emissions should reflect the expected actual emissions based on enforceable emission rates and typical production rates.

For CO, a State should address the areawide component of the maintenance demonstration either by showing that future CO emissions will not increase or by conducting areawide modeling. Preferably, the State should carry out hot-spot modeling that is consistent with the Guideline on Air Quality Models (Revised), in order to demonstrate maintenance of the NAAQS. In particular, if the nonattainment problem is related to a pattern of hot-spots then hot-spot modeling should generally be conducted. However, hot-spot modeling is not automatically required. For example, if the nonattainment problem was related solely to stationary point sources, or if highway improvements have been implemented and the associated emission reductions and travel characteristics can be qualitatively documented, then hot-spot modeling is not required. In such cases, adequate documentation as well as the concurrence of Headquarters is needed.

Any assumptions concerning emission rates must reflect permanent, enforceable measures. In other words, a State generally cannot take credit in the maintenance demonstration for reductions unless there are regulations in place requiring those reductions or the reductions are otherwise shown to be permanent. Therefore, the State will be expected to maintain its implemented control strategy despite redesignation to attainment, unless such measures are shown to be unnecessary for maintenance or are replaced with measures that achieve equivalent reductions (see additional discussion under "Contingency Plan"). Emission reductions from source shutdowns can be considered permanent and enforceable to the extent that those shutdowns have been reflected in the SIP and all applicable permits have been modified accordingly.

Modeling used to demonstrate attainment may be relied upon in the maintenance demonstration where the modeling conforms to current EPA guidance and where the State has projected no significant changes in the modeling inputs during the intervening time. Where the original attainment demonstration may no longer be relied upon, States will be expected to remodel using current

⁸The EPA-approved modeling guidance may be found in the following documents: "Guideline on Air Quality Models (Revised)," OAQPS, RTP, NC (EPA-450/2-78-027R), July 1986; and "PM-10 SIP Development Guideline," OAQPS, RTP, NC (EPA-450/2-86-001), June 1987.

EPA referenced techniques.⁹ This may be necessary where, for example, there has been a change in emissions or a change in the siting of new sources or modifications such that air quality may no longer be accurately represented by the existing modeling.

c. Monitoring Network

Once an area has been redesignated, the State should continue to operate an appropriate air quality monitoring network, in accordance with 40 CFR Part 58, to verify the attainment status of the area. The maintenance plan should contain provisions for continued operation of air quality monitors that will provide such verification. In cases where measured mobile source parameters (e.g., vehicle miles traveled congestion) have changed over time, the State may also need to perform a saturation monitoring study to determine the need for, and location of, additional permanent monitors.

d. Verification of Continued Attainment

Each State should ensure that it has the legal authority to implement and enforce all measures necessary to attain and to maintain the NAAQS. Sections 110(a)(2)(B) and (F) of the Clean Air Act, as amended, and regulations promulgated at 40 CFR 51.110(k), suggest that one such measure is the acquisition of ambient and source emission data to demonstrate attainment and maintenance.

Regardless of whether the maintenance demonstration is based on a showing that future emission inventories will not exceed the attainment inventory or on modeling, the State submittal should indicate how the State will track the progress of the maintenance plan. This is necessary due to the fact that the emission projections made for the maintenance demonstration depend on assumptions of point and area source growth.

One option for tracking the progress of the maintenance demonstration, provided here as an example, would be for the State to periodically update the emissions inventory. In this case, the maintenance plan should specify the frequency of any planned inventory updates. Such an update could be based, in part, on the annual AIRS update and could indicate new source growth and other changes from the attainment inventory (e.g., changes in vehicle miles travelled or in traffic patterns). As an alternative to a complete update of the inventory, the State may choose to do a comprehensive review of the factors that were used in developing the attainment inventory to show no significant change. If this review does show a significant change, the State should then perform an update of the inventory.

⁹See references for modeling guidance cited in footnote 8.

Where the demonstration is based on modeling, an option for tracking progress would be for the State to periodically (typically every 3 years) reevaluate the modeling assumptions and input data. In any event, the State should monitor the indicators for triggering contingency measures (as discussed below).

e. Contingency Plan

Section 175A of the Act also requires that a maintenance plan include contingency provisions, as necessary, to promptly correct any violation of the NAAQS that occurs after redesignation of the area. These contingency measures are distinguished from those generally required for nonattainment areas under section 172(c)(9) and those specifically required for O₃ and CO nonattainment areas under sections 182(c)(9) and 187(a)(3), respectively. For the purposes of section 175A, a State is not required to have fully adopted contingency measures that will take effect without further action by the State in order for the maintenance plan to be approved. However, the contingency plan is considered to be an enforceable part of the SIP and should ensure that the contingency measures are adopted expeditiously once they are triggered. The plan should clearly identify the measures to be adopted, a schedule and procedure for adoption and implementation, and a specific time limit for action by the State. As a necessary part of the plan, the State should also identify specific indicators, or triggers, which will be used to determine when the contingency measures need to be implemented.

Where the maintenance demonstration is based on the inventory, the State may, for example, identify an "action level" of emissions as the indicator. If later inventory updates show that the inventory has exceeded the action level, the State would take the necessary steps to implement the contingency measures. The indicators would allow a State to take early action to address potential violations of the NAAQS before they occur. By taking early action, States may be able to prevent any actual violations of the NAAQS and, therefore, eliminate the need on the part of EPA to redesignate an area to nonattainment.

Other indicators to consider include monitored or modeled violations of the NAAQS (due to the inadequacy of monitoring data in some situations). It is important to note that air quality data in excess of the NAAQS will not automatically necessitate a revision of the SIP where implementation of contingency measures is adequate to address the cause of the violation. The need for a SIP revision is subject to the Administrator's discretion.

The EPA will review what constitutes a contingency plan on a case-by-case basis. At a minimum, it must require that the State will implement all measures contained in the Part D nonattainment

plan for the area prior to redesignation [see section 175A(d)]. This language suggests that a State may submit a SIP revision at the time of its redesignation request to remove or reduce the stringency of control measures. Such a revision can be approved by EPA if it provides for compensating equivalent reductions. A demonstration that measures are equivalent would have to include appropriate modeling or an adequate justification. Alternatively, a State might be able to demonstrate (through EPA-approved modeling) that the measures are not necessary for maintenance of the standard. In either case, the contingency plan would have to provide for implementation of any measures that were reduced or removed after redesignation of the area.

Summary

As stated previously, this memorandum consolidates EPA's redesignation and maintenance plan guidance and Regions should rely upon it as a general framework in drafting Federal Register notices. It is strongly suggested that the Regional Offices share this document with the appropriate States. This should give the States a better understanding of what is expected from a redesignation request and maintenance plan under existing policy. Any necessary changes to existing Agency policy will be made through our action on specific redesignation requests and the review of section 175A maintenance plans for these particular areas, both of which are subject to notice and comment rulemaking procedures. Thus, in applying this memorandum to specific circumstances in a rulemaking, Regions should consider the applicability of the underlying policies to the particular facts and to comments submitted by any person. If your staff members have questions which require clarification, they may contact Sharon Reinders at (919) 541-5284 for O₃- and CO-related issues, and Eric Ginsburg at (919) 541-0877 for SO₂-, PM-10-, and Pb-related issues.

cc: Chief, Air Branch, Regions I-X
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Appendix B

Redesignation of Sulfur Dioxide Nonattainment Areas in the Absence of Monitored Data,
Memorandum, John Seitz, Director, Office of Air Quality Planning and Standards,
U.S. Environmental Protection Agency,
October 18, 2000

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

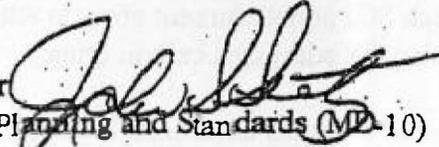
AIR DIVISION
U.S. EPA, REGION 9

OCT 18

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: Redesignation of Sulfur Dioxide Nonattainment Areas in the Absence of Monitored Data

FROM: John S. Seitz, Director 
Office of Air Quality Planning and Standards (MD-10)

TO: Regional Office Air Division Directors

The purpose of this memorandum is to provide guidance on redesignating sulfur dioxide (SO₂) nonattainment areas to attainment, in cases where the areas' historic violations were caused by major point sources of sulfur oxide (SO_x) emissions that are no longer in operation. States in some cases have, with our approval, removed SO₂ monitors from these areas immediately following the shutdown of the SO_x emissions sources. In these cases, states face the prospect of continued nonattainment designations for areas where there is no reasonable basis for assuming that SO₂ violations persist.

This guidance provides an approach for redesignating these areas to attainment in the absence of monitoring data and for exempting these areas from the maintenance plan requirements for continued monitoring within the areas. In addition, this policy describes how attainment and continued maintenance should be demonstrated and how sources currently shut down should be treated if they resume operations. Therefore, this policy amends portions of previous redesignation policies, including "Procedures for Processing Requests to Redesignate Areas to Attainment," memo from John Caicagni, AQMD Director, dated 9/4/92; "Section 107 Designation Policy Summary," memo from Sheldon Meyers, OAQPS Director, dated 4/21/83, pertaining to ambient air quality data showing attainment and maintenance of the SO₂ National Ambient Air Quality Standards (NAAQS); and "Attainment Determination Policy for Sulfur Dioxide Nonattainment Areas," memo from Sally L. Shaver, AQSSD Director, dated 1/26/95. All other provisions of the previous redesignation policies still apply, including provisions relating to contingency measures.

The Environmental Protection Agency's (EPA) historic redesignation policy for SO₂ has called for 8 quarters of clean ambient air quality data for redesignation to attainment. Although EPA has allowed as few as 4 quarters of ambient data if an acceptable modeling analysis has been performed.¹ Areas that lack SO₂ monitors cannot meet even the requirement for 4 quarters of clean data. However, EPA believes that it is not a reasonable use of limited monitoring resources to reestablish monitors in order to collect at least 4 quarters of data in areas where violations of the SO₂ NAAQS were caused by sources that no longer operate.

Despite the absence of clean air quality data, EPA believes that it may approve a State's request to redesignate such SO₂ nonattainment areas to attainment provided that the State submits a maintenance plan that addresses certain criteria.

First, the plan should include 3 emissions inventories:

- (a) An inventory representing actual emissions during the period when there were violations of the SO₂ NAAQS;
- (b) An inventory representing current actual and allowable emissions (or potential emissions, if there is no allowable emissions level); and
- (c) An inventory projecting allowable emissions (or potential emissions, if there is no allowable emissions level) to the 10th year after redesignation.

The inventories should display emissions from each point source of SO_x, with explanations of significant emissions changes, including source shutdowns.² The inventories should include SO_x emissions from all SO_x point sources in, and within a 50 kilometer range of, the nonattainment area boundary. Again, if there is no allowable emissions level, potential emissions should be used.

Second, the maintenance plan should include a dispersion modeling analysis of all SO_x point sources in, and within 50 kilometers of, the nonattainment area boundaries using the emissions inventories described above and the techniques and data prescribed in 40 CFR 51 Appendix W. The modeling analysis should show that:

¹See the Meyers memo referenced above. Both the Meyers and Calcagni memos recognize that for SO₂ nonattainment areas monitoring data alone may not be sufficient for redesignating areas to attainment; dispersion modeling may be needed.

²The inventories should include other sources if they were included in the attainment demonstration.

- (a) No SO₂ NAAQS violations presently occur or can be projected to occur during the next 10 years anywhere within the nonattainment area; and,
- (b) Point sources, which have since shut down, were the dominant sources contributing to high SO₂ concentrations in the airshed.

Third, the maintenance plan should include evidence that if the SO_x point source that caused the SO₂ NAAQS violations in the past resumes operation, it would be considered a "new" source. Thus the maintenance plan should show that if this "new" SO_x source would be a major source, it should obtain a permit conforming to applicable requirements of the Prevention of Significant Deterioration program before resuming operations; or if it would not be a major source, it should obtain a minor source permit under the State's SIP-approved minor source permitting rules in effect at the time it obtains a permit, before it may resume operation. The maintenance plan should provide that before such a permit is issued, the dispersion model should be re-run, using the same meteorological data base, to determine whether re-starting the source would interfere with maintenance, and should provide that the permit will not be issued if the model indicates that re-starting the source would interfere with maintenance.

Fourth, the maintenance plan should include commitments to resume ambient monitoring before any major source of SO_x emissions commences operation.

This policy applies only to SO₂ nonattainment areas because violations in such areas are generally dominated by relatively few point sources (such as copper smelters or power plants) and have insignificant area and mobile source emission contributions. As a result, there is a direct association between the point sources' emissions and ambient SO₂ concentrations. Dispersion modeling will assure that SO₂ NAAQS violations are no longer occurring and would not be expected to recur in the future.

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. Any final decisions by EPA regarding a particular SO₂ maintenance plan will only be made in the context of a rulemaking action regarding that maintenance plan based upon the applicable statutory and regulatory provisions, which do contain legally binding requirements. Therefore, interested parties, including States, are free to raise questions and objections about the appropriateness of this guidance or the application of this guidance to a particular situation; EPA will consider whether or not the recommendations in the guidance are appropriate in that situation. The EPA welcomes public comments on this document at any time and will consider those comments in any future revision of this guidance document, which may occur without public notice.

I urge Regions to coordinate closely with OAQPS' Air Quality Standards and Strategies Division in determining whether SO2 redesignation requests may be subject to this policy and to ensure that states' submissions adequately address this and the previous policies' criteria for redesignating SO2 nonattainment areas to attainment.

cc: Lydia Wegman, AQSSD
David Mobley, EMAD
Joe Paisie, IPST
Rich Ossias, OGC.

SO2 Redesignation Policy Memo

Policy Purpose: To amend existing requirements for redesignating SO2 NAAs to attainment, in order to allow for redesignations where:

- (1) past violations were due to emissions from a single source;
- (2) the single source has shut down;
- (3) all monitors have been removed.

Policy Approach: Maintenance plan must include:

- (1) **emissions inventories** representing (a) actual emissions when violations occurred; (b) current emissions; and (c) emissions projected to the 10th year after redesignation.
- (2) **dispersion modeling** showing (a) no NAAQS violations occur or can be projected for the next 10 years; and (b) the shutdown sources were the dominant cause of high concentrations in the past.
- (3) evidence that if the shutdown sources resume operation they will be considered new sources and required to obtain a **PSD permit**
- (4) **commitments to resume monitoring** before any major SOx source commences operation.

Policy Application: Restricted to SO2 NAAs because SO2 violations are frequently caused by a few point sources

Policy Benefits: Allows redesignation of several SO2 NAAs to attainment, without requiring collection of ambient data

Appendix C

Overview of Point Source Emissions Limits and Potential to Emit

C.1 Phelps Dodge New Cornelia Branch Generating Station

C.2 Gila Bend Regional Landfill

C.3 Doubletree Paper Mills LLC

C.4 Paloma Gin Properties LLC

C.5 Gila Bend Air Force Aux Field

C.6 Freeport-McMoRan Corporation Childs Well Field

C.7 Arizona Public Service Why Substation

C.8 Minerals Research & Recovery, Inc.

C.9 List of Abbreviations

Appendix C.1: Phelps Dodge New Cornelia Branch Generating Station (Permitted since 1994 [ADEQ permit number M190416P1-99]; permit transferred to the Pima County Department of Environmental Quality in May 1999 and terminated on August 22, 2007.)

(This information is provided to support the Ajo Planning Area emissions inventory and maintenance demonstration and not for approval into the SIP.)

The Phelps Dodge New Cornelia electricity generation facility operated four diesel and dual fuel fired 4,200 horsepower Nordburg Engines. Maximum allowable sulfur dioxide (SO₂) emissions, based on sole use of diesel fuel, was 49.2 tons per year; 12.3 tons per generator, the generators operating concurrently, using purely diesel fuel, for the full number of allowable annual operating hours, 8,772. The facility normally operated one generator at a time; using a combination of diesel and natural gas fuel (the generators typically burned a mixture of 5 percent diesel fuel and 95 percent natural gas).

Annual operating hours for the station were 8,772, to accommodate the extra time consumed in switching from one operating generator to another; both generators operating concurrently until synchronized.*

Emission Limits/Potential to Emit, Operating Rates, and Emissions Calculation Method

SO ₂ Emitting Equipment	Fuel	Capacity	Quantity	Operating Hours	SO ₂ Emission Factor	SO ₂ Emissions**		
						lbs/day	lbs/yr	tons/yr
Generators	Diesel	4,200 hp	4	8,772 (total)		269.59		49.2
Facility Total						269.59		49.2

* Engines were limited to no more than an aggregate of 2,180 hours per rolling 52-consecutive week period.

** Projected year 2015 facility emissions were modeled for the 2002 Ajo SO₂ maintenance plan at the rate of 332.05 pounds per day and 60.6 tons per year.

Appendix C.2: Gila Bend Regional Landfill (Permitted May 4, 1998 [Maricopa County Air Quality Department Permit Number V97003]; permit terminated August 28, 2002.)

(This information is provided to support the Ajo Planning Area emissions inventory and maintenance demonstration and not for approval into the SIP.)

This proposed regional municipal solid waste landfill was permitted but never constructed. The proposed facility would have had a capacity of 75 million cubic yards of waste and was expected to accept waste for approximately 30 years. The permit was terminated by the permittee following the submission of the 2002 Ajo SO₂ maintenance plan.

Proposed emitting equipment included installation of two enclosed methane flares for burning of landfill gas. At full build out, the permit limited SO₂ emissions to 132 pounds per day and 24.1 tons per year.

Emission Limits/Potential to Emit, Operating Rates, and Emissions Calculation Method

SO ₂ Emitting Equipment	Fuel	Capacity	Quantity	Operating Hours	SO ₂ Emission Factor*	SO ₂ Emissions**		
						lbs/day	lbs/yr	tons/yr
Enclosed Methane Flares	Methane (pilot, other landfill gasses)	2,260 SCFM	2	8760	0.018 lbs/MMBtu	132	48,180	24.1
Facility Total						132	48,180	24.1

* Assumes a maximum total uncontrolled methane generation rate of 2.95×10^9 ft³ and a collection efficiency of 90%.

** Projected year 2015 facility emissions were modeled for the 2002 Ajo SO₂ maintenance plan at the rate of 163.1 pounds per day and 29.7 tons per year.

Appendix C.3: Doubletree Paper Mills LLC (Maricopa County Air Quality Department Permit Number 070013)

(This information is provided to support the Ajo Planning Area emissions inventory and maintenance demonstration and not for approval into the SIP.)

Doubletree Paper Mills, L.L.C. operates a sanitary paper product manufacturing facility in Gila Bend, Arizona, where tissue paper is produced from raw wood pulp material. SO₂ emitting equipment includes a natural-gas fired boiler and two natural-gas fired dryers. The Doubletree Paper Mill is a low contributor to ambient SO₂ levels. The permit requires the use of low sulfur natural gas, butane, or propane for boilers and dryers and limits emissions from all existing fuel burning equipment to 7 pounds per day and 1.3 tons per year.

Emission Limits/Potential to Emit, Operating Rates, and Emissions Calculation Method

SO ₂ Emitting Equipment	Fuel	Capacity	Quantity	Operating Hours	SO ₂ Emission Factor	SO ₂ Emissions		
						lbs/day	lbs/yr	tons/yr
Boiler	Natural Gas	48.2 MMBtu/hr	1	8760	0.006 lbs/MMBtu	6.941	2533.392	1.26670
Dryers	Natural Gas	11 MMBtu/hr	2	8760	0.0006 lbs/MMBtu	0.317	115.632	0.05782
Facility Total						7.258	2649.024	1.32

Appendix C.4: Paloma Gin Properties LLC (Maricopa County Air Quality Department Permit Number 970207)

(This information is provided to support the Ajo Planning Area emissions inventory and maintenance demonstration and not for approval into the SIP.)

This seasonal facility is a cotton gin-ginning operation located in Gila Bend, AZ. Paloma Gin Properties utilizes natural-gas fired equipment in the cotton ginning process. The cotton gin is a very low contributor to ambient SO₂ levels with potential to emit from all existing permitted equipment limited to less than one ton per year.

Emission Limits/Potential to Emit, Operating Rates, and Emissions Calculation Method

SO ₂ Emitting Equipment	Fuel	Capacity	Quantity	Operating Hours	SO ₂ Emission Factor	SO ₂ Emissions		
						lbs/day	lbs/yr	tons/yr
Heater	Natural Gas	8 MMBtu/hr	1	24 hrs/day, 183 days/yr	0.6 lbs/MMft ³	0.115	21.082	0.01054
Heater	Natural Gas	3 MMBtu/hr	1		0.6 lbs/MMft ³	0.043	7.906	0.00395
Heater - Lint Humidifier	Natural Gas	2 MMBtu/hr	1		0.6 lbs/MMft ³	0.029	5.270	0.00264
Heater - Lint Slider	Natural Gas	1 MMBtu/hr	1		0.6 lbs/MMft ³	0.014	2.635	0.00132
Facility Total						0.20	36.893	0.018

Appendix C.5: Gila Bend Air Force Aux Field (Maricopa County Air Quality Department Permit Number 020213)

(This information is provided to support the Ajo Planning Area emissions inventory and maintenance demonstration and not for approval into the SIP.)

Gila Bend Air Force Aux Field is a United States Air Force auxiliary airfield used as a training facility and as a hub for operations and maintenance on the Barry M. Goldwater Air Force Range complex. The airfield, located approximately three miles south of the central business district of Gila Bend, Maricopa County, Arizona, also serves as an emergency landing facility by Luke Air Force Base aircraft and units from other nearby bases using the Barry M. Goldwater Range.

Listed SO₂ emitting equipment includes two propane-fired boilers, two diesel-fired boilers, along with numerous diesel-fired emergency generators. The diesel fuel used is limited to only low-sulfur diesel. Each emergency generator is limited to no more than 500 hours of operation per year. Compliance with the fuel sulfur limit is established by maintaining fuel certification records. The listed boilers are limited to 12 hours per day of operation.

Emission Limits/Potential to Emit, Operating Rates, and Emissions Calculation Method

SO ₂ Emitting Equipment	Fuel	Capacity	Quantity	Operating Hours	SO ₂ Emission Factor	SO ₂ Emissions		
						lbs/day	lbs/yr	tons/yr
Boiler	Diesel	300,000 Btu/hr	1	12 hrs/day, 365 days/yr	57.600 lbs/1,000 gal	2.291	836.314	0.41816
Boiler	Propane	0.49 MMBtu/hr	1		0.600 lbs/MMft ³	0.007	2.575	0.00129
Boiler	Propane	1.46 MMBtu/hr	1		0.600 lbs/MMft ³	0.021	7.674	0.00384
Boiler	Diesel	100,000 Btu/hr	1		57.600 lbs/1,000 gal	0.764	278.771	0.13939
Generator	Diesel	80.5 hp	7	2.9 hrs/day, 500 hrs/yr	0.00205 lbs/hp-hr	3.350	577.588	0.28879
Generator	Diesel	207.9 hp	1		0.00205 lbs/hp-hr	1.236	213.098	0.10655
Generator	Diesel	134.1 hp	1		0.00205 lbs/hp-hr	0.797	137.453	0.06873
Generator	Diesel	167.6 hp	2		0.00205 lbs/hp-hr	1.993	343.580	0.17179
Generator	Diesel	107.3 hp	1		0.00205 lbs/hp-hr	0.638	109.983	0.05499
Generator	Diesel	40.2 hp	6		0.00205 lbs/hp-hr	1.434	247.230	0.12362
Generator	Diesel	16.1 hp	2		0.00205 lbs/hp-hr	0.191	33.005	0.01650
Generator	Diesel	20.1 hp	3		0.00205 lbs/hp-hr	0.358	61.808	0.03090
Generator	Diesel	33.5 hp	1		0.00205 lbs/hp-hr	0.199	34.338	0.01717
Facility Total						13.28	2883.417	1.44

Appendix C.6: Freeport-McMoRan Corporation Childs Well Field (Pima County Department of Environmental Quality Permit Number 6120)

(This information is provided to support the Ajo Planning Area emissions inventory and maintenance demonstration and not for approval into the SIP.)

The Freeport-McMoRan Corporation operates the Childs Well Field facility which pumps and delivers groundwater directly to customers and to two other water systems serving the Ajo area.

SO₂ emitting equipment includes an emergency generator subject to the post model 2007 new source performance standard (NSPS) low sulfur fuel requirements. The 100 allowable hours of operation in permit are limited to maintenance testing and readiness checks. There is no limit on hours of operation during true emergencies and potential to emit is estimated based on 500 hours of operation.

Emission Limits/Potential to Emit, Operating Rates, and Emissions Calculation Method

SO ₂ Emitting Equipment	Fuel	Capacity	Quantity	Operating Hours	SO ₂ Emission Factor	SO ₂ Emissions		
						lbs/day	lbs/yr	tons/yr
Generator	Diesel	469 hp	1	500	0.00205 lbs/hp-hr	23.075	480.720	0.24036
Facility Total						23.075		0.240

Appendix C.7: Arizona Public Service Why Substation (Pima County Department of Environmental Quality Permit Number 3320)

(This information is provided to support the Ajo Planning Area emissions inventory and maintenance demonstration and not for approval into the SIP.)

Arizona Public Service, as part of its electrical generation, transmission, and distribution system, operates the Why, Arizona, substation where transmission voltages are reduced and split between several distribution feeder circuits and then carried through power lines to the end user.

The substation's 500 allowable hours of operation for its emergency generator is limited to maintenance testing and readiness checks. There is no limit on hours of operation during true emergencies and potential to emit is estimated based on 500 hours of operation.

Emission Limits/Potential to Emit, Operating Rates, and Emissions Calculation Method

SO ₂ Emitting Equipment	Fuel	Capacity	Quantity	Operating Hours	SO ₂ Emission Factor	SO ₂ Emissions		
						lbs/day	lbs/yr	tons/yr
Generator	Diesel	2847.5 hp	1	500	0.006 lbs/hp-hr	442.296	9214.500	4.60725
Facility Total						442.296		4.60725

Appendix C.8: Minerals Research & Recovery, Inc. (Pima County Department of Environmental Quality Permit Number 3783)

(This information is provided to support the Ajo Planning Area emissions inventory and maintenance demonstration and not for approval into the SIP.)

Minerals Research & Recovery manufactures abrasives and roofing granules from air-cooled copper smelter slag at their Ajo facility. SO₂ emitting equipment is listed as a natural gas Beta Burner. This facility is a very low contributor to ambient SO₂ levels with potential to emit from all existing permitted equipment limited to less than one ton per year.

Emission Limits/Potential to Emit, Operating Rates, and Emissions Calculation Method

SO ₂ Emitting Equipment	Fuel	Capacity	Quantity	Operating Hours	SO ₂ Emission Factor	SO ₂ Emissions		
						lbs/day	lbs/yr	tons/yr
Beta Burner	Natural Gas	50800 SCFH	1	8760	0.600 lbs/MMft ³	0.744	271.560	0.13400
Facility Total						0.744		0.134

Appendix C.9: List of Abbreviations

Name	Abbreviation
British thermal unit	Btu
gallon	gal
horsepower	hp
horsepower-hour	hp-hr
hour	hr
million British thermal units	MMBtu
million cubic feet	MMft ³
pounds	lbs
standard cubic feet per hour	SCFH
standard cubic feet per minute	SCFM
year	yr

Appendix D

**Emission Inventory for the Ajo 24-Hour and Annual Standard
SO₂ Maintenance Plan**

**Emission Inventory for the Ajo
24-Hour and Annual Standard
SO₂ Maintenance Plan**

**Air Quality Division
October 2012**

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1.0. AIR QUALITY & EMISSIONS INVENTORY

1.1. Emission Inventory for the SO₂ 24-hour and Annual Standard

The following sections in this Technical Support Document (TSD) provide a discussion of the methodology used to update the emissions inventory for the Ajo area from identified contributing source categories and a presentation of the derived inventory.

1.2. Emissions Inventory – Methodology

The emissions inventory is used to determine the factors used in this growth analysis.

The source categories used in the emissions inventory are the same as previously identified in the 2002 Ajo SO₂ SIP. These categories include:

- Non-road Mobile (exhaust) sources
- On-roads Mobile (exhaust) sources
- Industrial (point) sources
- Area (non-point) sources

Updates were made to the 2002 Ajo SO₂ State Implementation Plan (SIP) for the following emission categories: construction, mobile sources, and industrial sources. Construction emission data was updated using 2008 National Emission Inventory (NEI) data. Mobile emission data was updated using 2008 National Emission Inventory (NEI) data. Lastly, Pima and Maricopa County Environmental Services provided updated industrial point source emission data.

It was decided to use 2008 National Emission Inventory (NEI) data since it was more widely available and accepted by EPA. The methodology used to determine contribution of the various sources is largely the same as conducted in 2002 Bullhead City SIP (BHC, 2002)

1.2.1. Population Estimation Methodology

For the Non-Road Mobile Activities category, ADEQ used the top down methodology using the 2008 NEI inventory for Pima County. The county-wide emissions reported in the 2008 NEI, the most recent EPA certified emissions data available, were adjusted to the Ajo area using the population ratio of the Town of Ajo to that of Pima County as a metric for scaling county level emissions to the Ajo area (using the 2008, population estimates below). Population for Pima County was estimated by the Arizona Department of Administration (DOA) as 984,032 for the year of 2008 based on year 2000 and 2010 Census Bureau datasets (DOA, 2011). The population of the Town of Ajo was adjusted through interpolation for year 2008 since data for this year was unavailable and to stay concise with the emission inventory year. The population was interpolated to 2008 from Table 1.0 below. The year 2008 is 8/10 the way between the years 2000 and 2010 and thus 8/10 or 80% of the population increase from 2000 to 2010 was added to the 2000 population to estimate the 2008 population.

Population interpolation

2008 Population = 2000 Population + (8/10) * (2010 Population - 2000 Population)
Population for the Town of Ajo in 2010 was 3,304 and 3,705 for year 2000

$$\begin{aligned} 3,705 + 8/10 * (3,304 - 3,705) &= \\ 3,705 + 0.8 * -401 &= \\ 3,705 + (-320.8) &= 3384.2 \end{aligned}$$

Therefore the interpolated population for the Town of Ajo in 2008 is 3384.

Population adjustments

2008 Ajo Area Population = 3,384
2008 Pima County Population = 984,032

Therefore the Population Adjustment Ratio = 2008 Ajo Area Population / 2008 Pima County Population, or

$$3,384 / 984,032 = 0.0034 \text{ (or 0.34\%)}$$

Population Adjustment Ratio = 0.34 %

Table 1.0: Decennial Census Population* of Ajo Census Designated Place (CDP) and Pima County for the years 1960-2010						
Place	1960	1970	1980	1990	2000	2010
Ajo CDP	7,049	5,881	5,189	2,919	3,705	3,304
Ajo Decennial Change		-16.6%	-11.8%	-43.7%	26.9%	-10.8%
Pima County	265,660	351,667	531,443	666,957	843,746	980,263
Pima County Decennial Change		32.4%	51.1%	25.5%	26.5%	16.2%

*Source: U.S. Bureau of the Census, decennial census counts.

1.2.2. Non-Road Mobile Activities

For the Non-Road Mobile Activities category, ADEQ used the top down methodology using the 2008 NEI inventory for Pima County. The county-wide emissions reported in the 2008 NEI, the most recent EPA certified emissions data available, were adjusted to the Ajo area using the population ratio of the Town of Ajo to that of Pima County as a metric for scaling county level emissions to the Ajo area using the 2008, population estimates shown in section 1.2.1.

Non-Road Mobile Emissions Calculations

The 2008 NEI reported a total of 76.29 tons of SO₂ per year from off-highway vehicle activities in Pima County (see Table 2.0) during 2008. Based on the population scaling ratio, SO₂ emissions from Non-road mobile sources in the Ajo SO₂ Non-Attainment Area were estimated to be 0.26 tons per year (0.34% of 76.29 tons per year).

***Table 2.0 Non-Road Mobile SO₂ Emissions for Pima County and Ajo**

** SCC CODE				Tons per year (Pima Co.)	Adjusted Ratio	***Tons per year (Ajo)
2270xxxxxx	Mobile Sources	Off-highway Vehicles	Diesel	73.33	0.34%	0.25
2265xxxxxx	Mobile Sources	Off-highway Vehicles	Gasoline, 4-stroke	2.96	0.34%	0.01
22xxxxxxx	Mobile Sources	Off-highway Vehicles	TOTAL	76.29	0.34%	0.26

*Data downloaded on 3-28-2011

**SCC: Source Classification Code

***Tons per Year (TPY) for Ajo was calculated by multiplying TPY (Pima County) by the Population Adjustment Ratio of 0.34%.

1.2.3. On-Road Mobile Activities

For the On-Road Mobile Activities category, ADEQ again used the top down methodology using the 2008 NEI inventory for Pima County. The county-wide emissions reported in the 2008 NEI, the most recent EPA certified emissions data available, were adjusted to the Ajo Area using the population ratio of the Town of Ajo to that of Pima County as a metric for scaling county level emissions to the Ajo Area using the 2008, population estimates shown in section 1.2.1.

On-Road Mobile Emissions Calculations

The 2008 NEI reported a total of 132.67 tons of SO₂ per year from highway (on-road) vehicle activities in Pima County (see Table 3.0) during 2008. Based on the population scaling ratio, SO₂ emissions from on-road mobile sources in the Ajo SO₂ Non-Attainment Area were estimated to be 0.45 tons per (0.34 % of 132.67 tons per year).

***Table 3.0 On-Road Mobile SO₂ Emissions for Pima County and Ajo**

SCC CODE				Tons per year (Pima Co.)	Adjusted Ratio	**Tons per year (Ajo)
2201xxxxxx	Mobile Sources	Highway Vehicles	Gasoline	104.57	0.34%	0.36
2230xxxxxx	Mobile Sources	Highway Vehicles	Diesel	28.10	0.34%	0.10
22xxxxxxx	Mobile Sources	Highway Vehicles	TOTAL	132.67	0.34%	0.45

* Data was downloaded on 3-28-2011

** Tons per Year (TPY) for Ajo was calculated by multiplying TPY (Pima County) by the Adjusted Population Ratio of 0.34%.

1.2.4. Area (Non-Point) Activities

For the Area (Non-Point) Activities category, ADEQ again used the top down methodology using the 2008 NEI inventory for Pima County. The county-wide emissions reported in the 2008 NEI, the most recent EPA certified emissions data available, were adjusted to the Ajo Area using the population ratio of the Town of Ajo to that of Pima County as a metric for scaling county level emissions to the Ajo Area using the 2008, population estimates shown in section 1.2.1.

Area (Non-Point) Emissions Calculations

The 2008 NEI reported a total of 1363.14 tons of SO₂ per year from Area (Non-Point) Source activities in Pima County (see Table 4.0) during 2008. Based on the population adjustment ratio of 0.34%, SO₂ emissions from Area (Non-Point) Sources in the Ajo SO₂ Non-Attainment Area were estimated to be 4.6 tons per year.

***Table 4.0 Area (Non-Point) SO₂ Emissions for Pima County and Ajo**

SCC CODE				Tons per year (Pima Co.)	Adjusted Ratio	Tons per year (Ajo)
2102004xxx	Stationary Source Fuel Combustion	Industrial	Distillate Oil	645.30	0.34%	2.19
2102002xxx	Stationary Source Fuel Combustion	Industrial	Bituminous/ Sub- bituminous Coal	568.20	0.34%	1.93
2103004xxx	Stationary Source Fuel	Commercial/ Institutional	Distillate Oil	104.57	0.34%	0.36
2102005xxx	Stationary Source Fuel Combustion	Industrial	Residual Oil	34.14	0.34%	0.12
2601020xxx	Waste Disposal, Treatment, and Recovery,	Commercial/ Institutional	On-Site Incineration	8.04	0.34%	0.03
2104006xxx	Stationary Source Fuel Combustion	Commercial/ Institutional	Natural Gas	2.89	0.34%	0.01
Total				1363.14		4.63

* Source: 2008 National Emission Inventory (NEI) (Data was downloaded on 3-28-2011).

1.2.5. Industrial (Point) Sources

SO₂ point sources data were assembled for a 50-km buffer area around the Ajo SO₂ Maintenance Area. This area includes portions of Pima and Maricopa Counties in the United States, and a small region in the state of Sonora across the U.S.-Mexico border. Sources in the two U.S. counties were provided by the Pima County Department of Environmental Quality and Maricopa County Air Quality Department.

There were six identified point sources in 2011 in the 50-km buffer region (Map 1). Two of the point sources are within the Ajo SO₂ Maintenance Area and the remaining four are within the 50-km Buffer, but outside Ajo SO₂ Maintenance Area. Actual emissions and potential to emit total are shown in Tables 5.0 and 5.1 in tons per year (tpy), respectively.

Based on Table 5.0 the Actual Emissions for point sources within the Ajo SO₂ Maintenance Area for Freeport-McMoRan Corporation's emergency generator and for Minerals Research & Recovery Incorporation's natural gas beta burner for this inventory period was unavailable. Therefore to be conservative in our approach we alternatively used the PTE in our emission estimation.

***Table 5.0 SO₂ Point Sources within Ajo SO₂ Maintenance Area**

Source	Latitude	Longitude	Actual Emissions (tpy)	Potential to Emit (tpy)
Freeport-McMoRan Corporation Childs Well Field (Emergency Generator)	32.4580	-112.8364	N/A	0.240
Minerals Research & Recovery, Inc.(Nat Gas Beta Burner)	32.3727	-112.8583	N/A	0.134
Total Emissions Inside Ajo SO₂ Maintenance Area			N/A	0.374

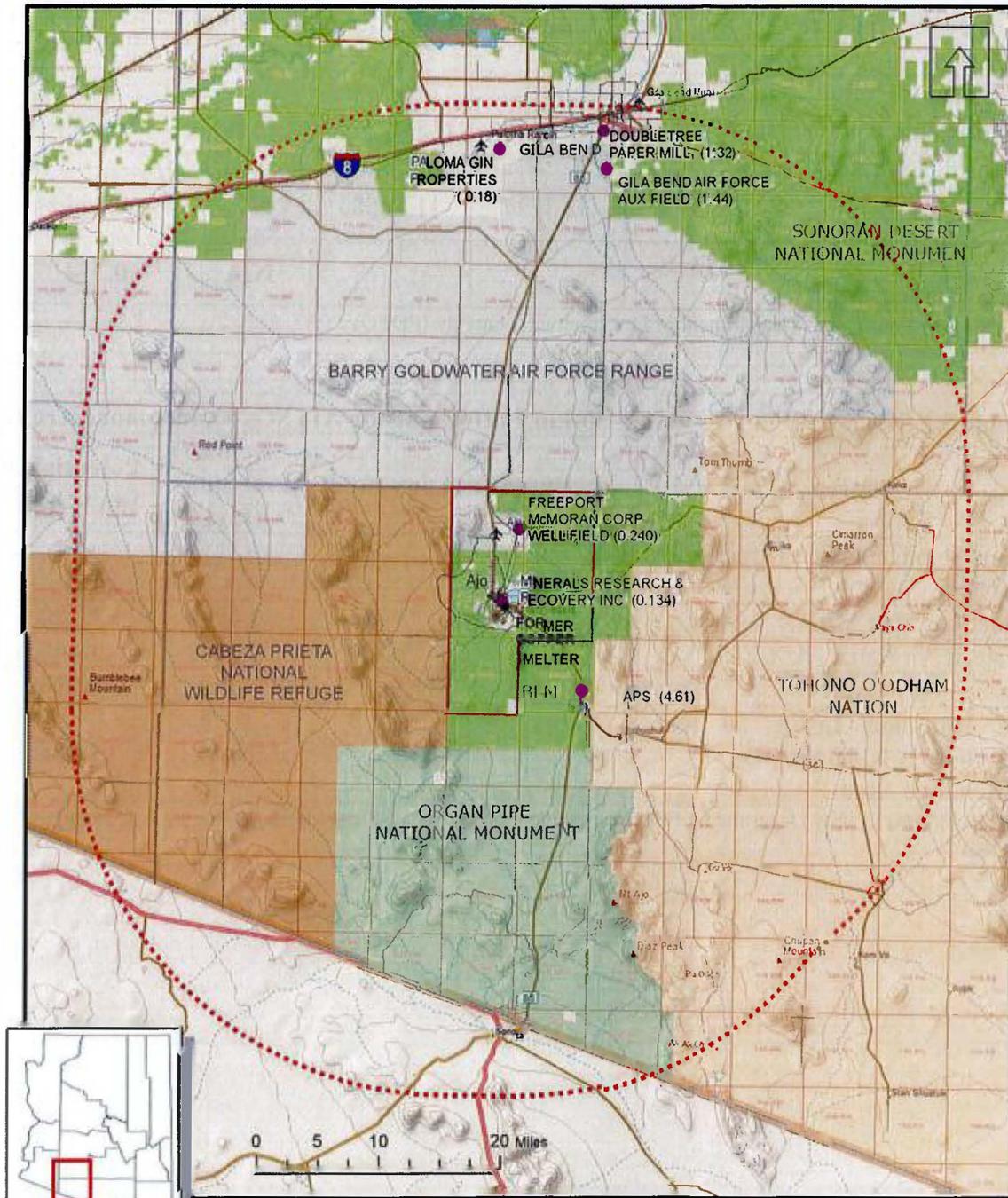
*Data Source: Pima County Department of Environmental Quality (PDEQ)

***Table 5.1 SO₂ Point Sources within 50-km Buffer, outside Ajo SO₂ Maintenance Area**

Source	Latitude	Longitude	Actual Emissions (tpy)	Potential to Emit (tpy)
Arizona Public Service (Emergency Generator)	32.2739	112.7406	N/A	4.610
Doubletree Paper Mill	32.9272	-112.7286	0.453	1.320
Gila Bend Air Force AUX Field	32.8841	-112.7205	0.090	1.440
Paloma Gin Properties	32.9045	-112.8707	0.001	0.018
Total Emission Inside 50 Km. Buffer but Outside Ajo SO₂ Maintenance Area			N/A	7.388

*Data Source: Pima County Department of Environmental Quality (PDEQ) and Maricopa County Air Quality Department

Map 1 - Ajo SO₂ Planning Area and 50 Kilometer Buffer Area Point Sources



Ajo Sulfur Dioxide Planning Area and 50 km Buffer Area Point Sources



October 03, 2012 - Author N. Caroli

2.0 AJO SO₂ EMISSIONS INVENTORY FOR POINT, AREA AND MOBILE SOURCES FOR THE BASE YEAR 2008

Summary of Estimated Emissions

Table 6.0 provides both annual and daily emissions estimates for the Ajo SO₂ SIP Maintenance Area calculated from the previously identified source categories.

Table 6.0 Ajo SO₂ Maintenance Area – 2008 Baseline Emission Estimates

Source Category	SO ₂ Emissions (tons per year)		Ajo Maintenance Area SO ₂ Emissions *(tons per day)	Percent of total SO ₂ Emissions in Ajo Maintenance Area
	Pima	Ajo		
On-Road Vehicle Sources	132.67	0.482	0.0013	8%
Non-Road Vehicle Sources	76.29	0.277	0.0008	5%
Industrial (Point) Sources		**0.374	0.0010	7%
Area (Non-point) Sources	1363.14	4.907	0.0134	81%
Total	N/A	6.040	0.0165	100%

* Tons per Year/365

**Potential to Emit (PTE) was used in this calculation based on justification stated in Section 1.2.5

3.0. PROJECTED SO₂ EMISSIONS INVENTORY FOR POINT, AREA AND MOBILE SOURCES THROUGH 2025

Projecting future SO₂ emissions requires taking into account economic growth, emissions control measures, capital turnover, fuel switching, technological change, and other activities that may impact emissions. As part of the 2006 NAAQS Regulatory Impact Analysis (RIA) from the Environmental Protection Agency (EPA) reviewed historical trends of in National Emissions Inventory (NEI) SO₂ emissions data for non-Electric Generating Units non-(EGU) for the following SIC sectors: Chemical and Allied Products; Petroleum Refining and Related Products, Paper and Allied Products and Primary Metal Industries. EPA also compared forecasted 2002 non-EGU SO₂ emissions to NEI data. The review concluded that SO₂ emissions were overestimated by as much as 75 percent. EPA believes that although the impacts of economic growth and emissions control measures are fairly well understood, there are still many uncertainties related to accurately gauging the effects of capital, fuel and technology in SO₂ emissions production.

The inventory was grown from the 2008 baseline inventory by using the projected population growth in the following increments: 2008, 2010, 2015, 2020, and 2025. The only areas of the inventory which could be reasonably associated with population growth

are Area (non-point) Sources, On-Road Vehicle Sources and Non-Road Vehicle Sources. The Point Sources within the 50 km buffet, both inside (see Table 5) and outside (see Table 5.1) the Maintenance Area are assumed to remain constant through 2025.

Prior to 2000 the population was on a drastic decline based on the closing of the Smelter. This is shown in Figure 1.0. Figures 2.0 and 2.1 show the only available population data for Ajo since 1990 when there appears to be a slow recovery. Representing population growth linearly, the slope of the curve estimates an increase of 19 persons per year from an initial population estimate of 3100 persons in 1990 ($19/3100 = 0.006$ or 0.6% per year).

Figure 1.0 Ajo Population from 1960 to 2010

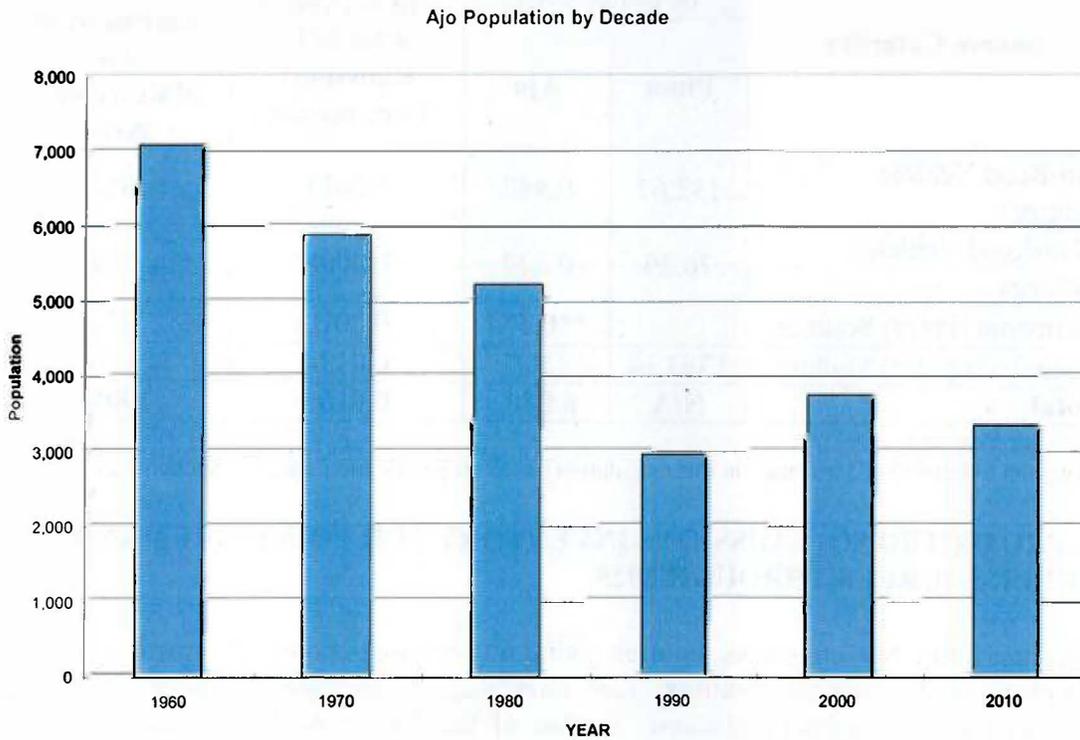


Figure 2.0. Ajo Population from 1990 to 2010

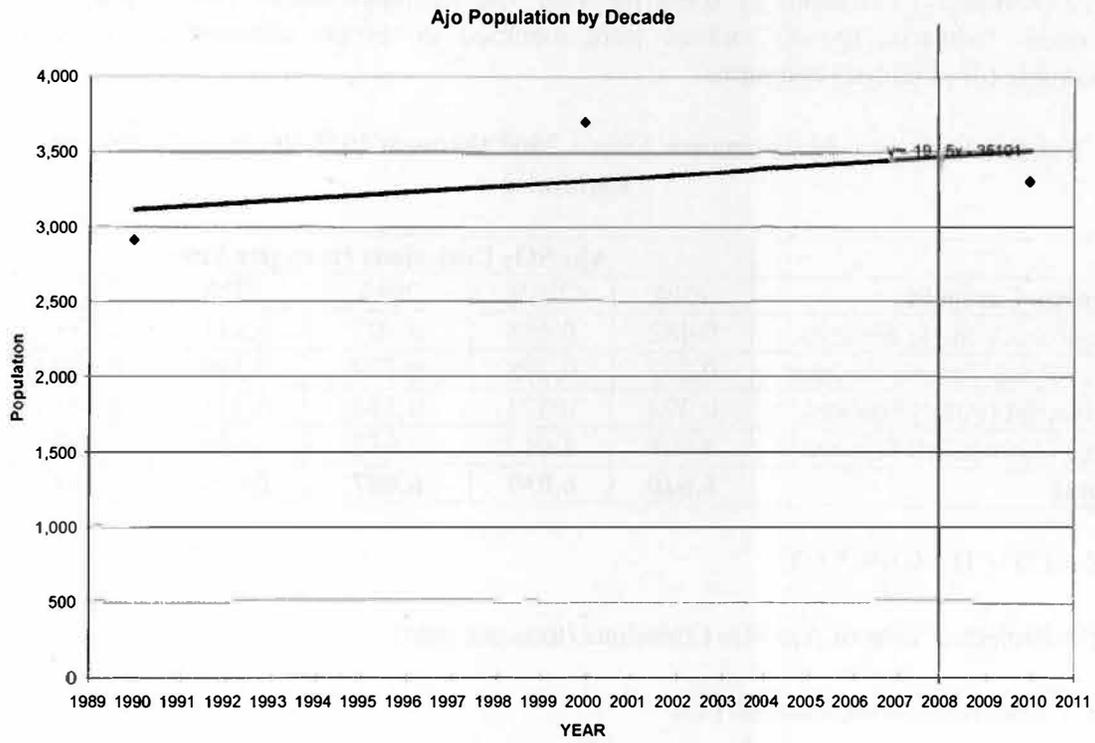
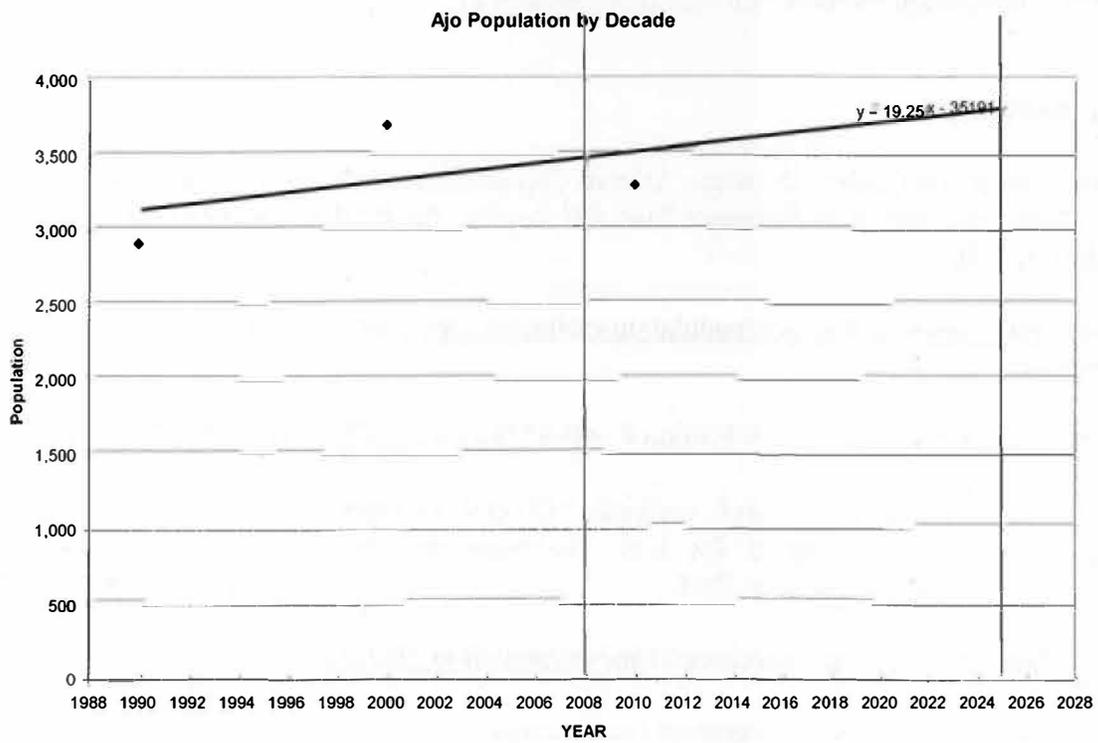


Figure 2.1. Ajo Population Projected from 1990 to 2025



The Projection of the Emission Inventory from 2008 to 2025 was performed by increasing each category: On-road Vehicle Emissions, Non-road Vehicle Emissions, and Area (non-point) emissions by 0.6% per year, the estimated annual rate of population increase. Industrial (point) sources were assumed to remain constant at maximum allowable (or potential) emissions.

Table 6.1 Ajo SO₂ Maintenance Area – 2008 through 2025 Projected Emission Estimates

Source Category	Ajo SO ₂ Emissions (tons per year)				
	2008	2010	2015	2020	2025
On-Road Vehicle Sources	0.482	0.488	0.502	0.517	0.533
Non-Road Vehicle Sources	0.277	0.278	0.279	0.280	0.280
Industrial (Point) Sources	0.374	0.374	0.374	0.374	0.374
Area (Non-point) Sources	4.907	4.919	4.932	4.945	4.957
Total	6.040	6.059	6.087	6.116	6.144

$$PY = CY + D * 0.6\% * CY$$

PY = Projected Year of Ajo SO₂ Emissions (tons per year)

CY = Emissions of the Current Year

D = Difference between the Estimated Year (EY) and the Current Year (CY)

0.6% = Population Increase of 0.6% (from Section 2)

3.1. References:

BHC, 2002: Air Quality Division, Arizona Department of Environmental Quality “Ajo Moderate Area PM10 Maintenance Plan and Request for Re-designation to Attainment”, February 2002

DOA: <http://www.azstats.gov/population-estimates.aspx>, “Intercensal Estimates, 2000-2009 .xls “

AP-42: AP-42 Volume I, Fifth Edition 4. AP-42 Sections 13.2.1.1 through 13.2.1.15

MRI, 1988: Midwest Research Institute, “Control of Open Fugitive Dust Sources,” Kansas City, MO, prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC, September 1988.

EPA: http://www.epa.gov/ttn/oarpg/t1/memoranda/lmp_final.pdf, “Lmp_final.pdf“

U.S. Bureau of the Census, decennial census count

Appendix E

State Implementation Plan Revision Public Comment and Hearing Documentation

E.1 Notice of Public Hearing

E.2 Public Hearing Agenda

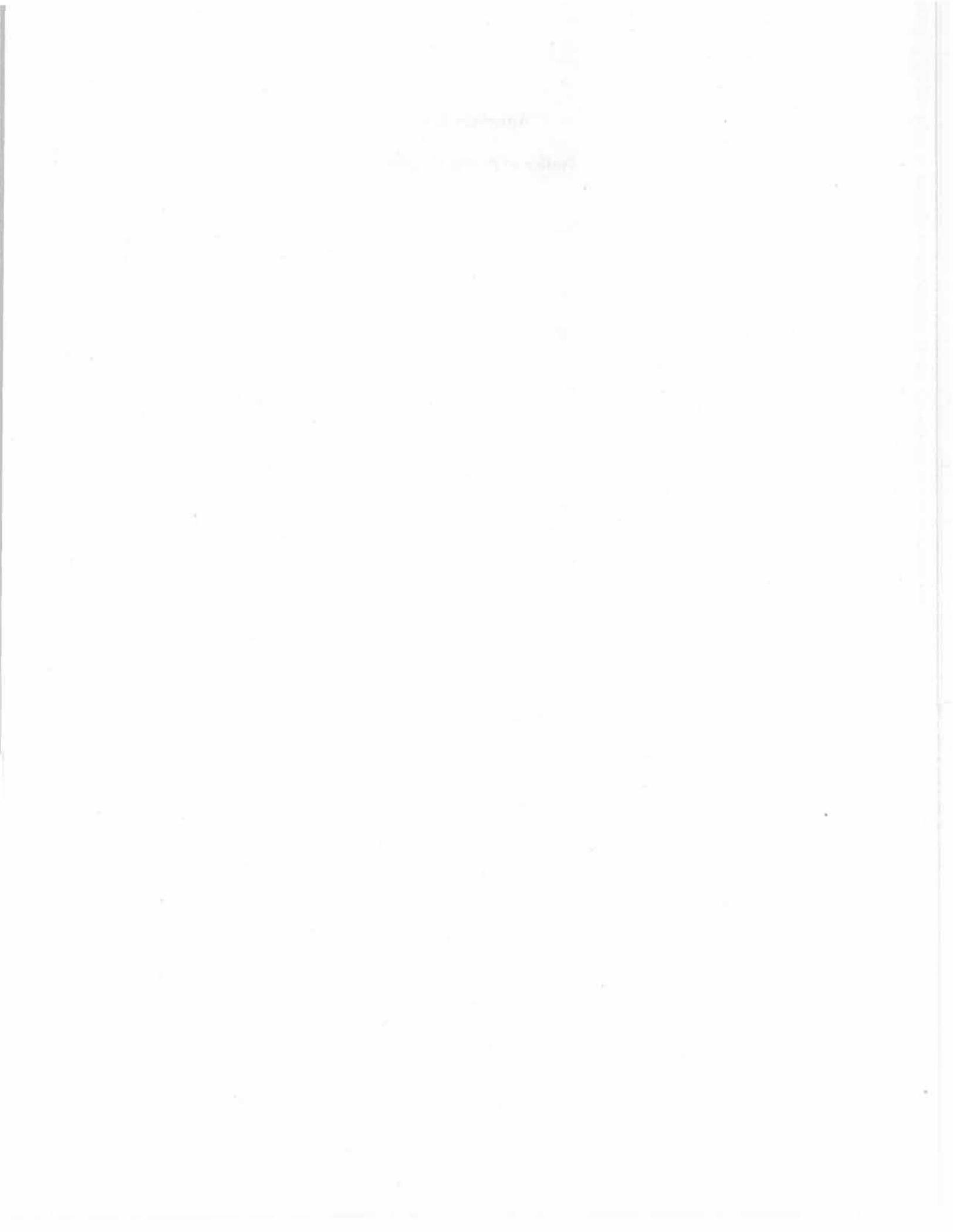
E.3 Public Hearing Sign-In Sheet

E.4 Public Hearing Officer Certification and Transcript

E.5 Responsiveness Summary

Appendix E.1

Notice of Public Hearing



Ajo Copper News

Hollister David, Publisher
Gabrielle David, Editor
Michelle Pacheco, Office Manager

P. O. Box 39 • Ajo, Arizona 85321
Phone (520) 387-7688
FAX (520) 387-7505

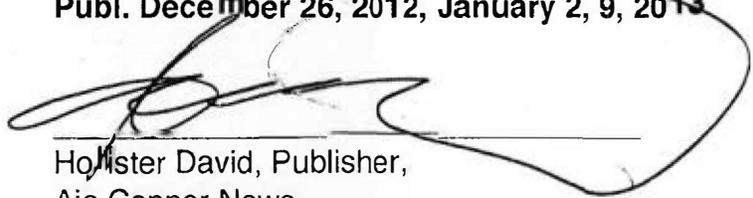
STATE OF ARIZONA)
) ss.
COUNTY OF PIMA)

Hollister David deposes and says that he is the publisher of the *Ajo Copper News*, a weekly newspaper of general circulation and established character, published weekly at Ajo, Pima County, Arizona, and that

PUBLIC NOTICE. ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ), PUBLIC HEARING ON THE PROPOSED ARIZONA STATE IMPLEMENTATION PLAN RIVISON, MAINTENANCE PLAN FOR THE AJOS SULFUR DIOXIDE PLANNING AREA (1971 NAAQS), DECEMBER 2012

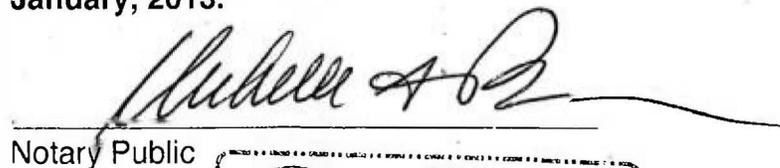
a correct copy of which is attached to this affidavit, was published in the said *Ajo Copper News* every week in the newspaper proper and not in a supplement for

Publ. December 26, 2012, January 2, 9, 2013

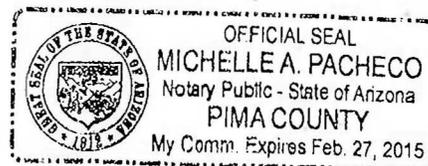


Hollister David, Publisher,
Ajo Copper News

Sworn to and subscribed before me, a Notary Public in and for the County of Pima, Arizona, this 9 day of January, 2013.



Notary Public



PUBLIC NOTICE
ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ), PUBLIC HEARING ON THE PROPOSED ARIZONA STATE IMPLEMENTATION PLAN RIVISON, MAINTENANCE PLAN FOR THE AJOS SULFUR DIOXIDE PLANNING AREA (1971 NAAQS), DECEMBER 2012.
ADEQ will hold a public hearing to receive comments on a proposed revision to the Arizona State Implementation Plan (SIP) for the Ajo sulfur dioxide planning area. The purpose of the revision is to demonstrate how the area will continue to meet the 24-hour and annual sulfur dioxide national ambient air quality standards (NAAQS) through 2025. The demonstration will be submitted to the U.S. Environmental Protection Agency (EPA) to revise the SIP required by the Clean Air Act.
ADEQ is soliciting comments on the proposed revision and will hold a public hearing on February 7, 2013, at 2:00 p.m. at the Salazar-Ajo Branch of the Pima County Public Library, 33 Plaza Street, Ajo, Arizona 85321. All interested parties will be given an opportunity at the public hearing to submit relevant comments, data, and views on the proposal orally and in writing. Written comments may also be submitted throughout the comment period but must be postmarked or received at ADEQ by 5 p.m. on February 7, 2013. Any comments received will be responded to and forwarded to EPA with the final SIP revision.
Written comments should be addressed, faxed, or e-mailed to: Bruce Friedl, Air Quality SIP Section, Arizona Department of Environmental Quality, 1110 W. Washington St., Mail Code 3415A-3, Phoenix, AZ 85007. FAX: (602) 771-2366. E-Mail: bruce.friedl@adeq.state.az.us
Copies of the proposal are available for review beginning December 26, 2012, Monday through Friday, between 8:30 a.m. and 4:30 p.m., at the ADEQ Records Center, First Floor, 1110 W. Washington Street, Phoenix, Arizona 85007, (602) 771-4712; and at the Pima County Public Library, Salazar-Ajo Branch, 33 Plaza Street, Ajo, Arizona 85321, (520) 387-6075. The proposal can also be viewed online at <http://www.azdeq.gov/air/plan/index.html> by selecting Air Quality Public Notices, Meetings, and Hearings.
Persons with a disability may request reasonable accommodations by contacting Linda Morrison at (602) 771-4793 or 1-800-234-5677 ext. 771-4793. This document is available in alternative formats by contacting ADEQ TDD phone number at (602) 771-4829.
Publ. Dec. 26, 2012, Jan. 2, 2013
ADEQ - Ajo Sulfur Dioxide 121226: GD

Appendix E.2

Public Hearing Agenda



Public Hearing Agenda

AIR QUALITY DIVISION

PUBLIC HEARING ON A PROPOSED ARIZONA STATE IMPLEMENTATION PLAN (SIP) REVISION

MAINTENANCE PLAN FOR THE AJO SULFUR DIOXIDE PLANNING AREA (1971 NAAQS)

PLEASE NOTE THE MEETING LOCATION AND TIME:

**Salazar-Ajo Branch of the Pima County Public Library
33 Plaza Street, Ajo, Arizona
Thursday, February 7, 2013, 2:00 p.m.**

Pursuant to 40 CFR § 51.102 notice is hereby given that the above referenced meeting is open to the public.

1. Welcome and Introductions
2. Purposes of the Oral Proceeding
3. Procedure for Making Public Comment
4. Brief Overview of the proposed SIP revision
5. Question and Answer Period
6. Oral Comment Period
7. Adjournment of Oral Proceeding

Copies of the proposal are available for review at the ADEQ Records Center, First Floor, 1110 W. Washington Street, Phoenix, Arizona 85007, (602) 771-4712; and at the Pima County Public Library, Salazar-Ajo Branch, 33 Plaza Street, Ajo, Arizona 85321, (520) 387-6075. The proposal can also be viewed online at <http://www.azdeq.gov/environ/air/plan/index.html> by selecting Air Quality - Public Notices, Meetings, and Hearings. For additional information regarding the hearing please call Bruce Friedl, ADEQ Air Quality Division, at (602) 771-2259 or 1-800-234-5677, Ext. 771-2259.

Persons with a disability may request reasonable accommodations by contacting Linda Morrison at (602) 771-4793 or 1-800-234-5677 Ext. 771-4793. This document is available in alternative formats by contacting ADEQ TDD phone number at (602) 771-4829.

Appendix E.3

Public Hearing Sign-In Sheet



Air Quality Division Sign-In Sheet

Please Sign In

SUBJECT Ajo Sulfur Dioxide Maintenance Plan DATE 2/7/2013
Public Hearing

	<u>NAME</u>	<u>ORGANIZATION</u>	<u>PHONE</u>	<u>FAX</u>	<u>E-MAIL</u>
1.	<u>PAT SANDERSON</u>		<u>387-7011</u>		
2.	<u>Lil Jones</u>		<u>387-5928</u>		<u>liljones@TTT.co.</u>
3.	<u>Bill Elzoth</u>		<u>387-6682</u>	<u>230 E. 4th AVE</u>	<u>Ajo 8582</u>
4.	<u>Lynette Lang</u>			<u>776 W. Cholla</u>	<u>85337</u>
5.					
6.					
7.					

Appendix E.4

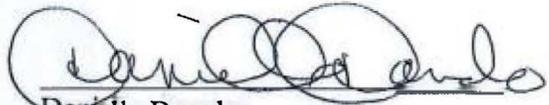
Public Hearing Officer Certification and Transcript

Air Quality Division

Public Hearing Presiding Officer Certification

I, Danielle Dancho, the designated Presiding Officer, do hereby certify that the public hearing held by the Arizona Department of Environmental Quality on the December 2012, *Proposed Arizona State Implementation Plan Revision, Maintenance Plan for the Ajo Sulfur Dioxide Planning Area (1971 NAAQS)*, was conducted on February 7, 2013, at the Salazar-Ajo Branch of the Pima County Public Library, 33 Plaza Street, Ajo, Arizona, in accordance with public notice requirements by publication in the *Ajo Copper News* and other locations beginning December 26, 2012. Furthermore, I do hereby certify that the public hearing was recorded from the opening of the public record through concluding remarks and adjournment, and the transcript provided contains a full, true, and correct record of the above-referenced public hearing.

Dated this 13 day of February.



Danielle Dancho

State of Arizona)
) ss.
County of Maricopa)

Subscribed and sworn to before me on this 13 day of February 2013.



Notary Public

My commission expires: 04/02/2016



1918

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1 ARIZONA AIR QUALITY STATE IMPLEMENTATION PLAN REVISION

2
3 Maintenance Plan for the
4 Ajo Sulfur Dioxide Planning Area (1971 NAAQS)

5
6 Oral Proceeding

7
8 February 7, 2013
9

10 Ms. Danielle Dancho: Good afternoon, thank you for coming. I now open this hearing on a
11 proposed state implementation plan, or SIP, revision for the Ajo Sulfur Dioxide Maintenance
12 Area.

13
14 It is now Thursday, February 7, 2013, and the time is 2:08 p.m. The location is the Salazar-
15 Ajo Branch of the Pima County Public Library, 33 Plaza Street, Ajo, Arizona. My name is
16 Danielle Dancho and I have been appointed by the Director of the Arizona Department of
17 Environmental Quality, ADEQ, to preside at this proceeding.

18
19 The purposes of this proceeding are to provide the public an opportunity to:

- 20 (1) hear about the substance of the proposed SIP revision,
21 (2) ask questions regarding the proposal, and
22 (3) present oral argument, data, and views regarding the proposal in the form of comments on
23 the record.

24
25 Representing the Department is Bruce Friedl of the State Implementation Plan Unit.

26
27 Public notice appeared in the *Ajo Copper News* and on ADEQ's website. Copies of the
28 December 2012 proposal titled, Arizona State Implementation Plan Revision, Maintenance
29 Plan for the Ajo Sulfur Dioxide Planning Area (1971 NAAQS), were made available at the

1 ADEQ Phoenix office and at the Salazar-Ajo Branch of the Pima County Public Library
2 beginning December 26, 2012.

3
4 The procedure for making a public comment on the record is straightforward. If you wish to
5 comment, you will need to fill out a speaker slip, which is available at the sign-in table right
6 over here, and give it to me. Using speaker slips allows everyone an opportunity to be heard
7 and allows us to match the name on the official record with the comments. You may also
8 submit written comments to me today. Please note, the comment period for the proposal
9 ends today, February 7, 2013. All written comments must be postmarked if sent via U.S.
10 mail or received if sent via e-mail at ADEQ by February 7, 2013. Written comments can be
11 mailed to Bruce Friedl, Air Quality Planning Section, Arizona Department of Environmental
12 Quality, 1110 W. Washington Street, Mail Code 3415A-3, Phoenix, Arizona 85007 or
13 friedl.bruce@azdeq.gov. Comments may also be faxed to (602) 771-2366.

14
15 Comments made during the formal comment period are required by law to be considered by
16 the Department when preparing the final state implementation plan. This is done through the
17 preparation of a responsiveness summary in which the Department responds in writing to
18 written and oral comments made during the formal comment period.

19
20 The agenda for this hearing is simple. First, we will present a brief overview of the proposed
21 revision to the SIP.

22
23 Second, I will conduct a question and answer period. The purpose of the question and
24 answer period is to provide information that may help you in making comments on the
25 proposed revision.

26
27 Thirdly, I will conduct an oral comment period. At that time, I will begin to call speakers in
28 the order that I have received speaker slips.

1 Please be aware that any comments you make at today's hearing that you want the
2 Department to formally consider must be given either in writing or on the record during the
3 oral comment period of this proceeding.

4
5 At this time, Bruce Friedl will give a brief overview of the proposal:

6
7 * * * * *

8
9 Bruce Friedl: This State Implementation Plan Revision demonstrates that the Ajo Sulfur
10 Dioxide, or SO₂, Planning Area will continue to meet the 1971 health-based 24-hour average
11 and annual average SO₂ National Ambient Air Quality Standards, or NAAQS, for a second
12 maintenance period, through the year 2025.

13
14 As background, areas that do not meet the NAAQS may be designated nonattainment for the
15 respective standard. The Ajo, Arizona, area was designated nonattainment for the annual and
16 24-hour primary SO₂ standards in 1978 and initially comprised all of Pima County. The
17 boundaries were later revised to five townships centered on the primary copper smelter in
18 Ajo, the only major source of sulfur dioxide emissions in the area.

19
20 On June 18, 2002, the Arizona Department of Environmental Quality submitted to the U.S.
21 Environmental Protection Agency, EPA, the May 2002, *Ajo Sulfur Dioxide Nonattainment*
22 *Area, State Implementation and Maintenance Plan* and a request to redesignate the area to
23 attainment. The 2002 SIP summarized the progress of the area in attaining the SO₂ standards
24 through closure of the smelter, demonstrated that all Clean Air Act requirements for
25 attainment had been satisfied, and included a maintenance plan to assure continued
26 attainment after redesignation, through the year 2015. EPA approved the plan and
27 redesignated the area to attainment effective January 2, 2004.

28
29 Clean Air Act Section 175A(a) requires states to demonstrate maintenance of the NAAQS
30 for at least ten years after redesignation to attainment. The effective maintenance period for

1 the Ajo area is 2004 through 2015, or twelve years. A subsequent SIP revision, under Clean
2 Air Act Section 175A(b), is due eight years after redesignation to attainment to provide for
3 maintenance of the NAAQS for an additional ten years after the expiration of the first 10-
4 year maintenance period.

5

6 This proposed SIP revision describes the measures designed to ensure continued maintenance
7 of the standards through year 2025 (state and county permitting programs) and makes evident
8 the emissions reductions responsible for the air quality improvement and attainment of the
9 standards are both permanent and enforceable. Maintenance of the SO₂ standards in the Ajo
10 area will be tracked through updates to the emissions inventory and permit applications
11 received for SO₂ emitting sources. Also included in the proposed SIP revision is a
12 commitment to resume ambient monitoring before any new major SO₂ source begins
13 operations in the area.

14

15 ADEQ is requesting that EPA approve this plan for maintaining the 1971 SO₂ 24-hour and
16 annual NAAQS through 2025 in accordance with Clean Air Act Section 175A.

17

18 The area's history and current maintenance plan demonstration are more fully described in
19 the proposed SIP revision.

20

21

* * * * *

22

23 Ms. Dancho: This concludes the explanation portion of this proceeding on the proposed
24 revision to the state implementation plan.

25

26 Are there any questions before we move to the oral comment period?

27

28 Yes?

29

30 Mr. Bill Eltzroth: Yes, please. Do you monitor this spot often?

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Mr. Friedl: The monitors, there are monitors set up to record sulfur dioxide levels, you know, in the air around the area, generally when there are sources that are emitting SO₂. And those were removed following the closure of the smelter. So what we are doing in this plan is if any major source, something that emits a lot of sulfur dioxide, would apply for a permit and receive a permit to operate here, we would set up those monitors again to make sure that the area stays clean and below the air quality standards based on health. Does that answer?

Mr. Eltzroth: That answers my question. Thank you.

Mr. Friedl: Okay. Sure.

Ms. Dancho: Are there any other questions?

Woman: What does too much sulfur dioxide do to you?

Mr. Friedl: Oh boy!

Ms. Dancho: That's a good question.

Woman: That doesn't sound good.

Ms. Dancho: Yeah.

Mr. Friedl: No. Well, it's actually, I apologize. It's been a while since

Woman: Yeah, that would be my question. Why now? Is there something pending or it's just pro forma, or just your regular procedural review kind of thing?

1 Mr. Friedl: Yeah, sulfur dioxide in the air can cause primarily respiratory problems,
2 especially with people with asthma or COPD or things like that. It impacts how many times
3 maybe people have to go to the emergency room, and all this plan does is, initially when you
4 are not attaining the standard, you have to develop a plan to show how you would reach the
5 air quality standards. And once you have done that and are redesignated to attaining the
6 standard, you have to show that you are going to stay there for at least 20 years. So we did a
7 10-year plan to show that we were going to stay there. That's about to expire. So we've done
8 another plan for basically the next 20 years, or 10 years, sorry.

9

10 Woman: To your knowledge, there is no big project on the horizon that is likely to be
11 coming in imminently and polluting our air?

12

13 Mr. Friedl: No, not to our knowledge.

14

15 Ms. Dancho: Not to our knowledge.

16

17 Mr. Friedl: And if somebody would want to come and locate in the area and they were a
18 major emitting source, they would have to apply for a permit.

19

20 Woman: Right.

21

22 Mr. Friedl: And in the permitting process, they would assess the impacts on the air.

23

24 Ms. Dancho: And they have to do a public hearing process for the permit as well.

25

26 Woman: To comply with the standards.

27

28 Ms. Dancho: Right.

29

1 **Woman:** Then they are not going to be able to get underway and then raise the issue. They
2 have to comply before they become operational, I assume.

3

4 **Mr. Friedl:** The first maintenance plan emissions were a tiny fraction of when the smelter
5 was here, and in this maintenance plan, they are even lower.

6

7 **Woman:** Right. Good!

8

9 **Ms. Dancho:** Right.

10

11 **Mr. Eltzroth:** But we are standard or below nationally speaking?

12

13 **Mr. Friedl:** Yes!

14

15 **Ms. Dancho:** Right.

16

17 **Mr. Eltzroth:** That's good news.

18

19 **Mr. Friedl:** Yes, it is.

20

21 **Woman:** We like our air as it is.

22

23 **Mr. Eltzroth:** I do have another question, if I may?

24

25 **Ms. Dancho:** Sure.

26

27 **Mr. Eltzroth:** Are you folks at all concerned with particulate in the air?

28

29 **Ms. Dancho:** Yes.

30

1 Mr. Friedl: Yes, we are.

2

3 Ms. Dancho: This plan doesn't deal with particulate matter. It is just dealing with sulfur
4 dioxide.

5

6 Mr. Eltzroth: Just the one?

7

8 Ms. Dancho: Just the one pollutant. Right.

9

10 Mr. Friedl: The area, I believe, particulate matter is not my usual area, but I believe the area
11 is still technically not attaining the standard. But I think it's only on paper. Don't quote me
12 on that.

13

14 Woman: I don't know what maybe he is specifically referring to, but when the winds really
15 kick up

16

17 Ms. Dancho: Right.

18

19 Woman: We all go, we have a name for it, you all tell me, it's a long name, but I'd say, you
20 know, you've got something in your throat, you're impacted by it, and everyone comes down
21 with it, maybe not like flu, but they don't feel so good when the winds are blowing.

22

23 Ms. Dancho: Right.

24

25 Woman: And we think it's kicking up particulate, and we don't know what's in it and
26 whatever. And that goes on. That goes on in December.

27

28 Mr. Friedl: That is actually being dealt with in a separate process. It would be, it's a
29 completely different plan that deals only

30

1 **Woman:** But somebody is dealing with that?

2

3 **Mr. Friedl:** It's in process, I believe.

4

5 **Ms. Dancho:** We do have monitors up in

6

7 **Mr. Friedl:** Yes, in, there's a particulate matter monitor located right in this area.

8

9 **Ms. Dancho:** Right.

10

11 **Woman:** Okay, good.

12

13 **Ms. Dancho:** So

14

15 **Mr. Eltzroth:** If I might elucidate on this, and this is true, when I came here, as I mentioned
16 in ninety one, I selected a place which is located on east forth avenue. It's on this side of the
17 railroad track, or on the other side of the railroad track, if you will, down in the foggy bottom
18 as I call it. But anyway, there was a green belt there. There is this little arroyo that runs down
19 there. I am in the second house from the arroyo. It was a green belt. I could not see the
20 tailings from my house. And then finally they went through and chopped a lot of them down
21 and so forth, and it created an avenue for this to happen.

22

23 **Mr. Friedl:** Okay.

24

25 **Mr. Eltzroth:** But also during the months of June, July, August, when we get into what is
26 called the monsoon season, it really doesn't rain a lot of times, but we do have winds that
27 prevail from the southeast. And if you look at your map, the 85 goes through a gap down
28 southeast of here, and the winds come up through there. And just on that side is a company
29 called Mineral Research. They are doing a tremendous job in grinding up this heavy metallic
30 stuff from the mining, the big mounds and mounds of it. They are able to use it for many

1 good purposes. But their grinding process has minimized that stuff to fine dust. And a lot of
2 times, if you drive there, you will see it. It is just permeating the whole area.

3
4 Mr. Friedl: Okay.

5
6 Mr. Eltzroth: And the winds that come up pick up this dust and they bring this over to our
7 place. My back porch has just been inundated with that. I mean it's that thick. I have
8 complained. I have gone to our Tucson office. There were no federal regs on this at all. So
9 they came up with a reg, 25 miles per hour winds and so forth. Well, as you probably are
10 aware, whenever a storm approaches, there is always wind that comes before it and kicks up
11 the dust. So not only were we covered with this stuff, this very, very fine black, black, stuff,
12 they closed our swimming pool, which is over in Bud Walker Park for at least two days while
13 we cleaned this up one time.

14
15 Woman: What time was that it happened?

16
17 Mr. Eltzroth: Oh, I can't remember.

18
19 Woman: Summer, a couple of summers ago?

20
21 Another Woman: Quite a few summers ago.

22
23 Mr. Eltzroth: Yeah. So, I complained like bitter and several of us did. We went to Tucson
24 and complained there. I don't, I think a couple of people came over and sat in their car and
25 watched for this, but at that time it was calm, so they didn't see any uprising.

26
27 Mr. Friedl: Right, right.

28
29 Mr. Eltzroth: So they went back and it was, "Ah, everything's okay. It's no problem."
30

1 Mr. Friedl: Okay.

2

3 Mr. Eltzroth: But what this lady said is so true. It's very, it's very unhealthy. Medically
4 speaking, it's very unhealthy. So if there is any hope since the new boy came on block, it's
5 improved quite a bit. I don't know what they've done, whether they are still grinding there or
6 not, or just shipping it out. But you will see these huge white bags on a semi that they ship
7 out. It's good to get rid of it!

8

9 Woman: (Undecipherable)

10

11 Mr. Eltzroth: And it's for a good use. But we are paying the price for this.

12

13 Mr. Friedl: Yeah.

14

15 Mr. Eltzroth: And it's not healthy.

16

17 Another Woman: You need to move over to our part of town (Undecipherable) downwind
18 from it.

19

20 Another Woman: It's a slag heap. When you talk about where we are living (laughing).

21

22 Mr. Eltzroth: Yeah.

23

24 Woman: We don't want our tailings (laughing). We haven't put up a sign yet to say "Scenic
25 Spot", but it could come next.

26

27 Mr. Eltzroth: So if you can pass that on, that is my testimony, and I would appreciate it.

28

29 Woman: And you can get proof at the health center in December or probably in the summer
30 when everyone's like

1

2 **Mr. Eltzroth: Yeah.**

3

4 **Woman: You know, like we've worked in the mines ourselves. You get that feeling.**

5

6 **Mr. Eltzroth: Yeah.**

7

8 **Woman: We can sympathize with them.**

9

10 **Another Woman: You know, when you say (Undecipherable).**

11

12 **Woman: But these folks are not here for particulate (laughing).**

13

14 **Another Woman: I know it.**

15

16 **Mr. Friedl: No, but it**

17

18 **Woman: (Undecipherable)**

19

20 **Woman: When you say everyone, you are not including the whole town, I hope?**

21

22 **Mr. Friedl: Pardon?**

23

24 **Woman: I just said when she said everyone; I just hope she is not referring to the whole town.**

25

26

27 **Another Woman: No, of course not. Everyone is not pouring into the health center,**
28 **obviously. We know that. We know that it is a problem.**

29

1 **Woman:** We know that (laughing). But there is a respiratory thing in the desert, depending
2 on the individual.

3

4 **Another Woman:** When the wind picks up, some people are affected and some aren't. I
5 guess that the longer you live here, the less affected you are until it's too late.

6

7 **Mr. Friedl:** If, if you, go ahead.

8

9 **Ms. Dancho:** Did you have a comment?

10

11 **Woman:** You said that once the mine was closed, you removed the, whatever you call it,
12 monitoring thingy wingy.

13

14 **Mr. Friedl:** For sulfur dioxide.

15

16 **Woman:** Yeah, yeah.

17

18 **Mr. Friedl:** But there is a particulate matter monitor.

19

20 **Woman:** Well, I am not worried about particulate; I am talking about sulfur dioxide right
21 now.

22

23 **Mr. Friedl:** Yeah.

24

25 **Woman:** Well, how do you know that there is no problem with the sulfur dioxide if the
26 monitor is gone, because, I mean, there is still the open mine, and there is still all the tailings
27 and everything else, something could be coming from there.

28

29 **Mr. Friedl:** In the first attainment demonstration and maintenance plan, EPA did, it's called
30 dispersion modeling. They looked at all the SO₂ emitting sources in the area, and they

1 plugged it into a model, and the model, the meteorology stuff goes into it, winds and all that,
2 and it does an analysis. Usually they are a fairly close estimation of how close you are to the
3 air quality standard. And it showed that the area is substantially under. I can't remember the
4 exact numbers, but sulfur dioxide emissions dropped something like 99.5 percent. And it
5 stays at that level or below that level.

6
7 Woman: So is there any agency or something that does a periodically check the air quality
8 once in a while?

9
10 Mr. Friedl: We, we look in this plan. What we did was, since they ran the model that showed
11 the area was attaining the sulfur dioxide standard, you know, mathematically, because
12 emissions are low compared to what they used to be, we looked at the emissions inventory
13 now, and at the current existing sources that are there, and showed that they are even lower
14 than when they modeled it. And so we looked at those sources and projected those through
15 2025 and estimated that their emissions will remain at that low level. If another source wants
16 to come in called a major source, they would have to, like Danielle was explaining, they
17 would have to apply for a permit.

18
19 Woman: Yeah, I understand all that.

20
21 Mr. Friedl: And as part of the permit, they would have to do an evaluation of what their
22 impact would be, and they would have to show that the area would continue to stay under the
23 health standards. So.

24
25 Woman: Ok.

26
27 Ms. Dancho: Right.

28
29 Woman: I am curious about one thing.

30

1 Ms. Dancho: Wait, before you go on. Since we are having a lot of questions, can you guys
2 state your name before you ask your question?

3

4 Woman: Oh sure.

5

6 Mr. Friedl: And, and before we leave, if you could write your name, that would be great.

7

8 Ms. Dancho: Yes.

9

10 Woman: My name is Lynette Lang, and I own property on West Cholla (undecipherable) but
11 I pay taxes (undecipherable).

12

13 Ms. Dancho: Okay. Okay. (undecipherable) No, but when we type up the record

14

15 Woman: Well, I know (undecipherable)

16

17 Mr. Friedl: I forgot about that.

18

19 Ms. Dancho: Yeah, we need to have a name before

20

21 Woman: You don't want to know why I know all about this stuff.

22

23 Ms. Dancho: (Laughing)

24

25 Woman: Right, ok. I am on your side. The, I am curious about, I think it's The Star, Tucson,
26 but it seems to be, it's not just here, maybe even nationwide, but some of the newspapers
27 used to have that little graph that shows air quality. And then I would see a little thing that
28 says we are not going to carry air quality any more, whichever newspaper. I am not
29 remembering which exact newspaper.

30

1 Mr. Eltzroth: The Phoenix paper.

2

3 Woman: Was it? The Phoenix paper, Republic. Ok, I'll take that. But, and I thought well
4 either it's very, very good, or why? Cause, you know, we just like it.

5

6 Mr. Eltzroth: (Undecipherable) That's what I am telling you.

7

8 Woman: You know, it will tell you, maybe for people with asthma, maybe the sophisticated
9 ones, you know, stay indoors. I mean, I lived in Boston, stay indoors. You have this and you
10 have that. But I thought it was good to have in the paper. I didn't dwell on it, but you see
11 what the smog effect is and now it's disappeared. Or it's disappearing or whatever it is, and
12 it's not going to be carried. And I, you know, why? You fooled me, who cares?

13

14 Ms. Dancho: We do have something like that on our website. I know we do an Air Quality
15 forecast for the week.

16

17 Woman: (Undecipherable) I was just curious.

18

19 Mr. Friedl: (Undecipherable) We have it, for Phoenix.

20

21 Ms. Dancho: Yeah, I know we do for Phoenix.

22

23 Woman: Uh hum.

24

25 Mr. Friedl: And we have it for, I should know this.

26

27 Ms. Dancho: Yeah. (Undecipherable)

28

29 Woman: (Undecipherable) we get a little hint.

30

1 Ms. Dancho: I am not sure why they don't

2

3 Woman: (Undecipherable) go in Tucson or Phoenix

4

5 Ms. Dancho: Carry that any more.

6

7 Mr. Friedl: Well, our website does.

8

9 Ms. Dancho: Our website does, we have

10

11 Mr. Friedl: But as far as the newspaper, I don't know.

12

13 Woman: Yeah, this was right along with their weather things, and their temperature

14

15 Mr. Friedl: Yeah. I've seen it.

16

17 Woman: And the moon. And they would have a little.

18

19 Ms. Dancho: I am not sure.

20

21 Woman: Yeah.

22

23 Mr. Friedl: Have you contacted them?

24

25 Woman: I was just curious about

26

27 Ms. Dancho: Ok. You may want to

28

29 Woman: The Republic.

30

1 Ms. Dancho: You may want to contact them and ask.

2

3 Woman: I was just curious as to why loose that?

4

5 Ms. Dancho: Yeah.

6

7 Mr. Friedl: Yeah.

8

9 Woman: Yeah.

10

11 Ms. Dancho: I don't know. Sorry. Any other questions that we haven't answered? Ok.

12

13

14

15 This concludes the question and answer period of this proceeding on the proposed state
16 implementation plan revision.

17

18

* * * * *

19

20 I now open this proceeding for oral comments.

21

22 Anybody, I didn't receive any speaker slips. Did anybody want to make an oral comment?

23 Okay.

24

25 Seeing no speaker slips, this concludes the oral comment period of this proceeding.

26

27

* * * * *

28

1 If you have not already submitted written comments, you may submit them to me at this time.

2 Again, the public comment period for this proposed revision to the state implementation
3 plan ends today, February 7, 2013.

4

5 Thank you for attending.

6

7 The time is now 2:32 p.m. I now close this oral proceeding.

Appendix E.5

Responsiveness Summary

RESPONSIVENESS SUMMARY

to

Testimony Taken at Oral Proceeding and Written Comments Received on *Addendum to the Arizona State Implementation Plan Revision, Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance Program Requirements in Area A*

The oral proceeding on the December 2012, *Proposed Arizona State Implementation Plan Revision, Maintenance Plan for the Ajo Sulfur Dioxide Planning Area (1971 NAAQS)*, was held on Thursday, February 7, 2013, at 2:08 p.m., at the Salazar-Ajo Branch of the Pima County Public Library, 33 Plaza Street, Ajo, Arizona. The public comment period began on December 26, 2012, and closed on Thursday, February 7, 2013. The Arizona Department of Environmental Quality (ADEQ) received no verbal or written comments on the proposed State Implementation Plan Revision.

No changes were made in response to public comments received, however, during its final review of the proposed State Implementation Plan Revision, ADEQ made minor corrections for clarity, grammar and formatting.

