This document only contains the main text of the Sulfur Dioxide Redesignation Request and Maintenance Plan for the Grant County, New Mexico Nonattainment area. If you would like a copy of any of the Appendices for this document, please contact Gail Cooke at 505-955-8022.

SULFUR DIOXIDE REDESIGNATION REQUEST AND MAINTENANCE PLAN FOR THE GRANT COUNTY, NEW MEXICO NONATTAINMENT AREA

AIR QUALITY BUREAU
NEW MEXICO ENVIRONMENT DEPARTMENT
2044 GALISTEO
SANTA FE, NEW MEXICO 87505

I. EXECUTIVE SUMMARY

At the request of the US Environmental Protection Agency (EPA), an analysis was conducted to redesignate the Air Quality Control Region 012: Grant County, New Mexico sulfur dioxide (SO_2) nonattainment area to attainment/maintenance status and a maintenance plan was prepared. Grant County has been designated nonattainment since 1978 for SO_2. Sulfur dioxide is a criteria pollutant regulated under the Clean Air Act (CAA). Primarily industrial processes and emissions from fossil fuel fired boilers generate SO_2.

The Grant County SO_2 nonattainment area is located within a 3.5 mile (mi) radius and an 8 mi radius for any land above 6470 feet (ft) around the Phelps Dodge Corporation, Hurley Smelter/Concentrator located in Hurley, New Mexico. The designation and classification of the area is based on past violations of the SO_2 National Ambient Air Quality Standard (NAAQS). The exceedances of the SO_2 NAAQS were the result of the Hurley smelter located directly outside of Hurley, New Mexico. The violations caused by the smelter resulted in the area being designated to nonattainment status by EPA.

EPA considers an area to be in attainment for the SO_2 NAAQS if the annual average is equal to or less than 0.03 parts-per-million (ppm) and the 24-hour value of 0.14 ppm and the SO_2 concentration 3-hour value of 0.50 ppm are not exceeded more than once during a calendar year. Grant County has not experienced an exceedance of the SO_2 NAAQS since the mid-1970's. This attainment demonstration is due to permanent and enforceable reductions in SO_2 emissions.

Each redesignation requirement of CAA Section 107(d)(3)(E) is listed in the analysis preformed by the NMED. The redesignation request includes the justification and support for redesignation to attainment of the Grant County nonattainment area. The maintenance plan includes measures to ensure future attainment of the SO_2 NAAQS and a contingency plan in the event that the area does exceed the SO_2 NAAQS in the future.

II. LEGAL SUMMARY

I. Clean Air Act (CAA) Sections 107 (d)(3)(E)
   a. Determination that the nonattainment area has attained the national ambient air quality standard
      i. Grant County has not violated the primary or secondary standard since 1975.
   b. Approval by EPA of the Implementation plan for the area under section 110(k).
      i. EPA approved the SIP revision for Grant County, along with other subsequent submittals, on May 5, 1982 (45 FR 19333).
   c. Improvements in air quality are due to permanent and enforceable reductions in emissions resulting from implementation of the Implementation plan and air pollution control regulations.
      i. The decrease in SO_2 emissions in Grant County can be attributed to the State Implementation Plan revision for the area.
      ii. The State Implementation Plan for the area adopted regulations and placed limits on stack emissions for the 24-hour, 3-hour and annual levels.
      iii. These improvements implemented by the plan are permanent and enforceable reductions.
   d. EPA under section 110 and Part D of the CAA, have approved the Maintenance plan for the area.
      i. The requirements of Section 110 have been satisfied in the State of New Mexico SIP that was approved in 1977, along with other subsequent submittals.
      ii. The requirements of Subpart 1of Part D are addressed in the State of New Mexico's SIP and subsequent submittals, except where either attainment has already been measured, or the requirement will be satisfied in the maintenance plan included with the redesignation request.
      iii. Due to the limited nature of the nonattainment area, a transportation conformity SIP was not required for the area.

II. CAA Section 110 and Part D (See above)
   a. Establishment and implementation of enforceable emission limitations.
   b. Monitoring, compiling and analyzing of ambient air quality data, preconstruction reviews and permitting of new and modified major stationary sources, preconstruction consulting with and providing for the participation of local governments that are affected by the plan.
   c. Assurance that the State has the adequate funds and authority to enforce the SIP and associated regulations.
   d. Permit fees for stationary sources.
   e. Implementation of reasonably available control technologies (RACT) for existing sources.
   f. Reasonable further progress (RFP) towards meeting attainment.

g. The identification and quantification of allowable emissions for new and modified stationary sources.
h. A stationary source-permitting program.
i. Enforceable emission limitations, other control measures, and compliance schedule.
j. Compliance with Section 110 provisions.
k. Contingency measures.

III. CAA Section 175A
a. The State will submit a request under section 107(d) for redesignation for a nonattainment area.
    i. Included with the maintenance plan is a request from the State of New Mexico that the EPA redesignate the Air Quality Control Region 012: Grant County, New Mexico nonattainment area to attainment status for the primary 24-hour standard of the SO_2 NAAQS.
b. Eight years after an area has been redesignated the maintenance plan will be revised for ten years after the initial ten year time period for the original plan.
    i. To allow for EPA's review of the redesignation request and the State's rulemaking review process, the maintenance plan end date will be 2015. The revision date for the Plan will be 2013.
c. The area will remain nonattainment until EPA has approved the maintenance plan.
    i. The State of New Mexico will continue to enforce the State Implementation plan for the nonattainment area until EPA has approved the redesignation request and maintenance plan for the area.
d. A contingency plan is required to assure that any violation that occurs after an area has been redesignated will be corrected.
    i. The contingency plan for the Grant County nonattainment area provides that the NMED will maintain a comprehensive program to identify sources of violation of the SO_2 NAAQS within the maintenance area and to undertake aggressive follow up measures for compliance and enforcement.

IV. 40 CFR Parts 53 and 58
a. Ambient air monitoring reference and equivalent methods
    i. The $S0_2$ monitoring network for the Grant County nonattainment area is in accordance.
b. Ambient air quality surveillance
    i. The $S0_2$ monitoring network for the Grant County nonattainment area is in accordance.

V. 20.2.41 New Mexico Administrative Code (NMAC) -- Nonferrous Smelters-Sulfur
a. Requirements and standards for nonferrous smelters to minimize sulfur emissions.
    i. Included in the Grant County SIP submittal in 1979.

VI. 20.2.3 NMAC -- Ambient Air Quality Standards
a. Ambient air quality standards for the areas of New Mexico under the state's jurisdiction.

i. Adopted in 1970 and then revised in 1981 to include State Standards for the maximum concentration of SO_2 in the Grant County nonattainment area

III. TABLE OF CONTENTS

APPENDICES

III. INTRODUCTION

In 1978, the US Environmental Protection Agency (EPA) designated Air Quality Control Region 012: Grant County, New Mexico as nonattainment for violating the National Ambient Air Quality Standard (NAAQS) for sulfur dioxide (SO_2). The Clean Air Act (CAA) requires all areas of the United States to attain and maintain the NAAQS. If an area does not attain and maintain the NAAQS and violations occur, the area will be designated nonattainment by EPA for the particular NAAQS that has been violated. Once an area has been designated nonattainment it must show at least three consecutive years of clean data and provide EPA with a maintenance plan and a redesignation request to be eligible for redesignation to attainment/maintenance of the standard. A maintenance plan must meet the requirements of CAA Section 175A, including a demonstration that the area will maintain the NAAQS for a period of at least ten years following redesignation to attainment of the standard by EPA. The plan must also contain a contingency measure that would be implemented in the event that a violation of the standard occurs during the maintenance period.

Sulfur dioxide is a colorless gas with a pungent odor that is highly soluble in water. Sulfur dioxide belongs to the family of gases called sulfur oxides (SOx). These gases are formed when fuel containing sulfur, mostly coal and oil, is burned, and during metal smelting. Sulfur dioxide and nitrogen oxides are the major precursors of acid rain. The major health concerns associated with exposure to high concentrations of SO_2 include effects on breathing, respiratory illness, alterations in pulmonary defenses, and aggravation of existing cardiovascular disease. Children, the elderly, and people with asthma, cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most susceptible to adverse health effects associated with exposure to SO_2.

The requirements of a redesignation request are located in CAA Sections 107 (d)(3)(E). These sections define what is required of a nonattainment area to be reclassified as attainment/maintenance status. If the conditions listed below are met, EPA can redesignate an area to attainment/maintenance status.

1. Attainment of the Standard

EPA must determine that the nonattainment area has attained the NAAQS for SO_2.

2. State Implementation Plan

The State Implementation Plan (SIP) for the attainment of the SO_2 standard for the area must be fully approved by the EPA.

3. Improvement in Air Quality due to Permanent and Enforceable Emissions Reductions

The area must demonstrate that the improvement in air quality is due to permanent and enforceable reductions in emissions of SO_2.

4. CAA Section 110 and Part D Requirements

EPA must determine that the area has met all the requirements of CAA Section 110 and Part D.

5. Maintenance Plan

The State must have a maintenance plan, including a contingency plan, for the nonattainment area that meets the requirements of CAA Section 175A, and is fully approved by EPA.

IV. REDESIGNATION REQUEST

The State of New Mexico Environment Department (NMED), Air Quality Bureau (AQB) requests that the EPA redesignate the Air Quality Control Region 012: Grant County, New Mexico nonattainment area to attainment status for the primary 24-hour standard of the SO_2 NAAQS. The area was designated nonattainment by EPA in 1978.

REQUIRED COMPONENTS OF A REDESIGNATION REQUEST

1. Attainment of the SO_2 NAAQS
2. State Implementation Plan Approval
3. Improvement in Air Quality Due to Permanent and Enforceable Emissions Reductions
4. CAA Section 110 and Part D Requirements
5. Approved Maintenance Plan

1. Attainment of the SO_2 NAAQS

An area is considered by EPA to be in attainment of the SO_2 NAAQS provided that the primary and secondary standards are not violated within the last three years. The primary standards for SO_2 are the one-year average of 0.03 parts per million (ppm) and the 24-hour average of 0.14 ppm (40 CFR Part 50.4). The secondary standard is a 3-hour concentration of 0.5 ppm (40 CFR Part 50.5). The one-year average cannot be exceeded. The 24-hour and the 3-hour standards are not to be exceeded more than once a year. Grant County has not violated the primary or secondary standard since 1975.

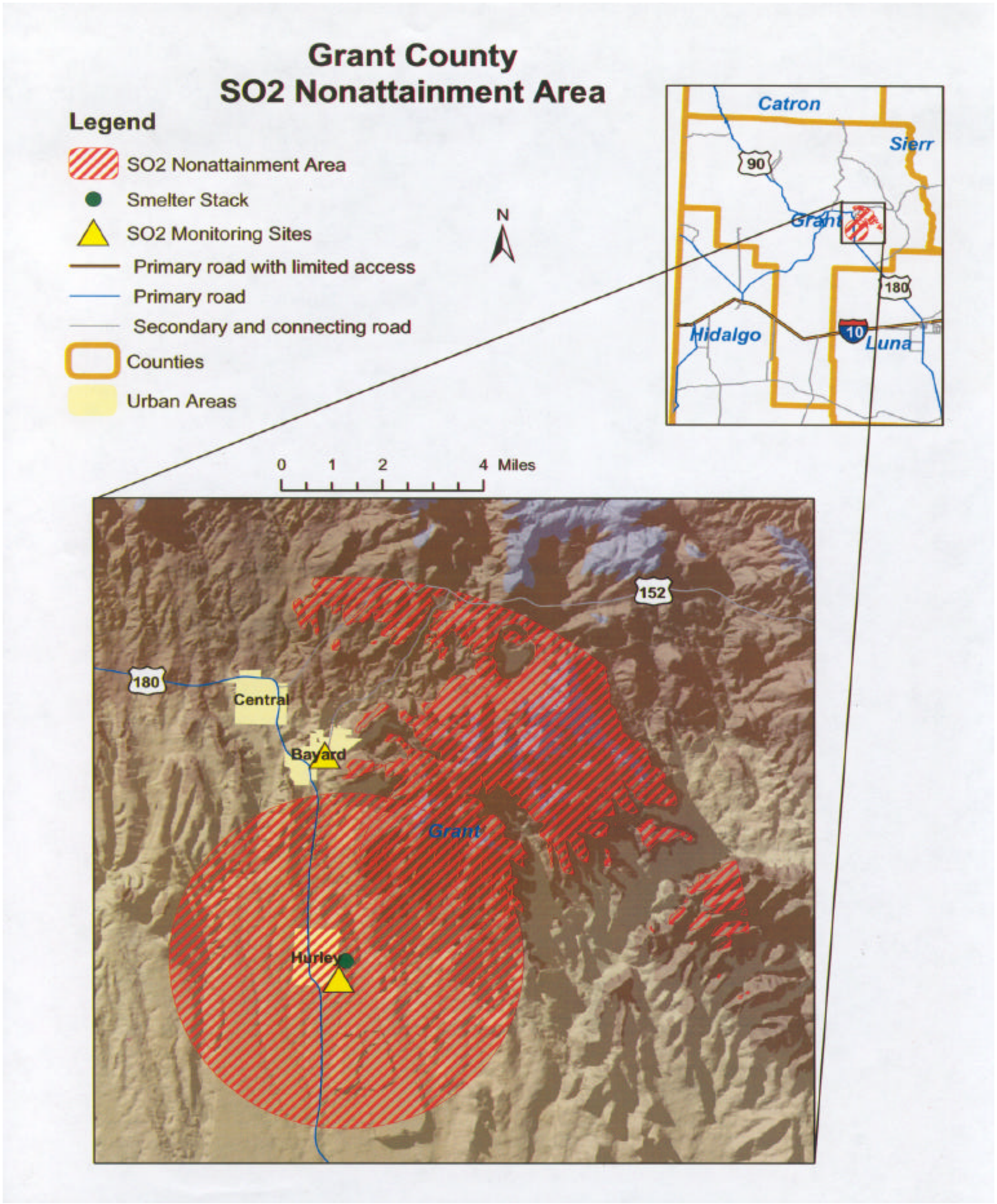
A. Monitored Attainment

The 3.5 mile (mi) radius surrounding the Hurley Smelter and any land above 6470 feet (ft) within an 8 mi radius around the smelter was designated by EPA in 1978 as nonattainment for the primary standard for SO_2. Over the last thirty years the state has operated four SO_2 monitors. See Table 1. The two monitors currently operated by the state meet the requirements of 40 CFR Parts 53 and 58. The monitor presently located in Hurley has been placed in the area of highest concentration for SO_2 within the nonattainment area. Two additional SO_2 monitors were also established within Grant County by private entities for SO_2 related studies.

Table 1
Grant County, NM SO_2 Monitors

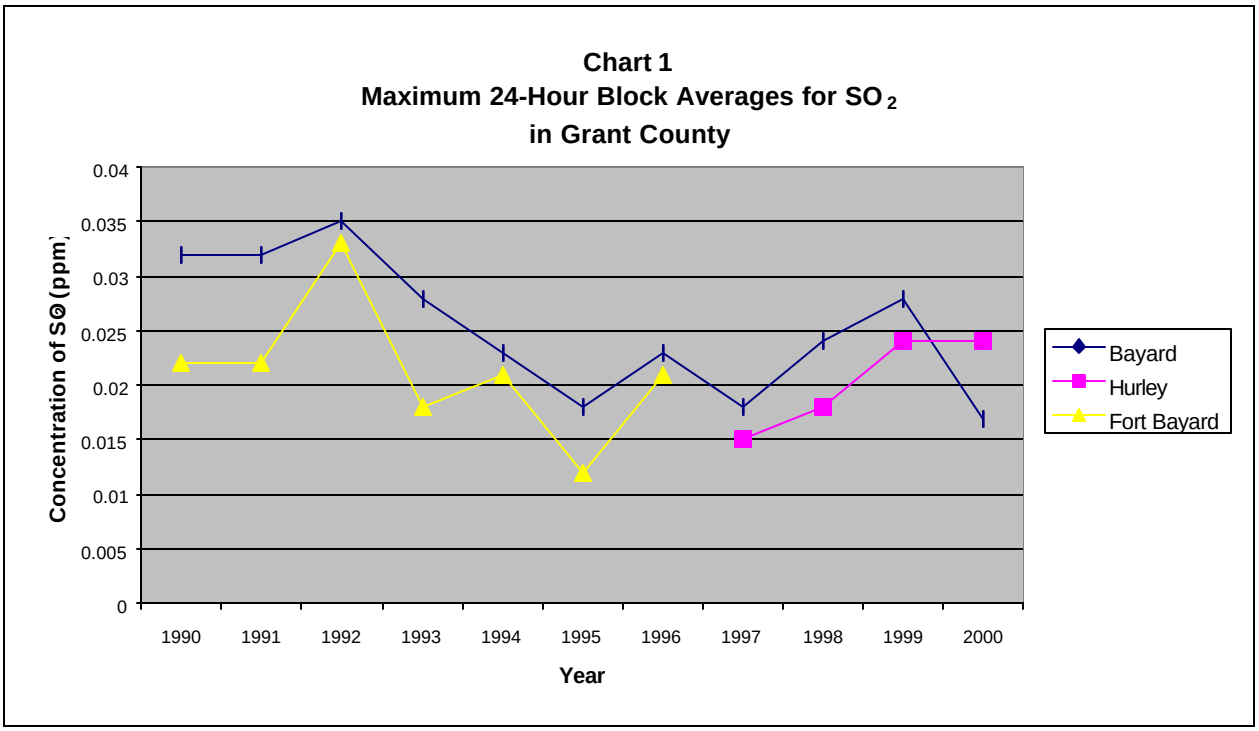
Name	AIRS Monitor ID	County Site ID	Monitoring Period
Bayard, NM	35-017-0001-42401-1	0001	1974-Present
Hurley, NM*	35-017-0002-42401-1	0002	1974
Hurley, NM	35-017-0003-42401-1	1003	1997-Present
Hurley, NM*	35-017-0006-42401-1	0006	1974
US Forest Service Nursery	35-017-0007-42401-1	0007	1975
Fort Bayard Hospital	35-017-0008-42401-1	0008	1976-1997

* Operated by Private Sector for SO_2 Related Studies


Grant County
SO2 Nonattainment Area
Legend
SO2 Nonattainment Area
Smelter Stack
SO2 Monitoring Sites
Primary road with limited access
Primary road
Secondary and connecting road
Counties
Urban Areas
N
Catron
Sierr
90
Grant
180
Hidalgo
10
Luna
0 1 2 4 Miles
152
180
Central
Bayard
Grant
Hurley

B. Monitoring Results and Attainment Demonstration

The air quality data over the past ten years (1990-2000) from these monitoring sites (see Chart 1) verifies that the area surrounding the Hurley Smelter is attaining the primary 24-hour SO_2 NAAQS. A violation has not been recorded since 1975 (Bayard). See Appendix A for 24-hour block monitoring data tables.



C. Quality Assurance Program

The SO_2 ambient air data for Grant County have been collected and validated in accordance with procedures set forth in 40 CFR Part 58 and in the EPA's *Quality Assurance Handbook for Air Pollution Measurement Systems.* These procedures are documented in the Bureau's *Quality Assurance Project Plan for Ambient Air Monitoring* and its accompanying Appendix I, *Manual of Standard Operating Procedures*. We update these quality assurance documents annually and submit them to EPA Region VI as a requirement of the CAA Section 105 Air Monitoring Grant.

The data validity process is rigorous, the validation of the ambient air data starts with the daily data collection via computer from the dataloggers located at the various monitoring sites. After daily perusal by staff in the main Air Quality Bureau office in Santa Fe, these data enter a local database for further study. They are inspected for anomalies, which are investigated in the 5-minute interval primary data obtained from the dataloggers. The monitor operators' notes in the instrument logs and site logs aid further investigation. QA staff removes non-data obtained during audits, calibrations, and monitor malfunctions. Six precision audits per calendar quarter are performed on each monitor in addition to a minimum of two accuracy audits and two monitor

calibrations per year. For precision audits, data are deleted during the periods when the span difference is greater than 15% indicating a monitor malfunction. Frequent site visits and instrument checks by field staff keep these periods of monitor malfunction to a minimum.

The Bureau submits validated ambient air data to the Aerometric Information Retrieval System (AIRS), which is the EPA's national database. The data are available for public scrutiny through various EPA-sponsored websites or directly from AIRS with the proper permissions. A summary of the Grant County SO_2 monitoring data may be found in Appendix A.

D. Modeling Waiver

Dispersion modeling is typically required in the redesignation of a nonattainment area to ensure that the area has attained the NAAQS. EPA has waived this requirement for modeling in the Grant County nonattainment area. EPA has determined after a detailed study of the modeling generated by the NMED in 1997 for the placement of a new monitor in the Grant County nonattainment area, that the monitor was placed where modeling indicated the highest concentrations was likely to occur and that additional modeling is not required for the redesignation of the area. See Appendix B.

2. State Implementation Plan Approval

The SIP for the Grant County SO_2 nonattainment area was submitted to EPA in January of 1979. See Appendix C for excerpts from the 1979 SIP. EPA approved the SIP revision for Grant County, along with other subsequent submittals, on May 5, 1982 (45 FR 19333). See Appendix D.

3. Improvement in Air Quality Due to Permanent and Enforceable Emission Reductions

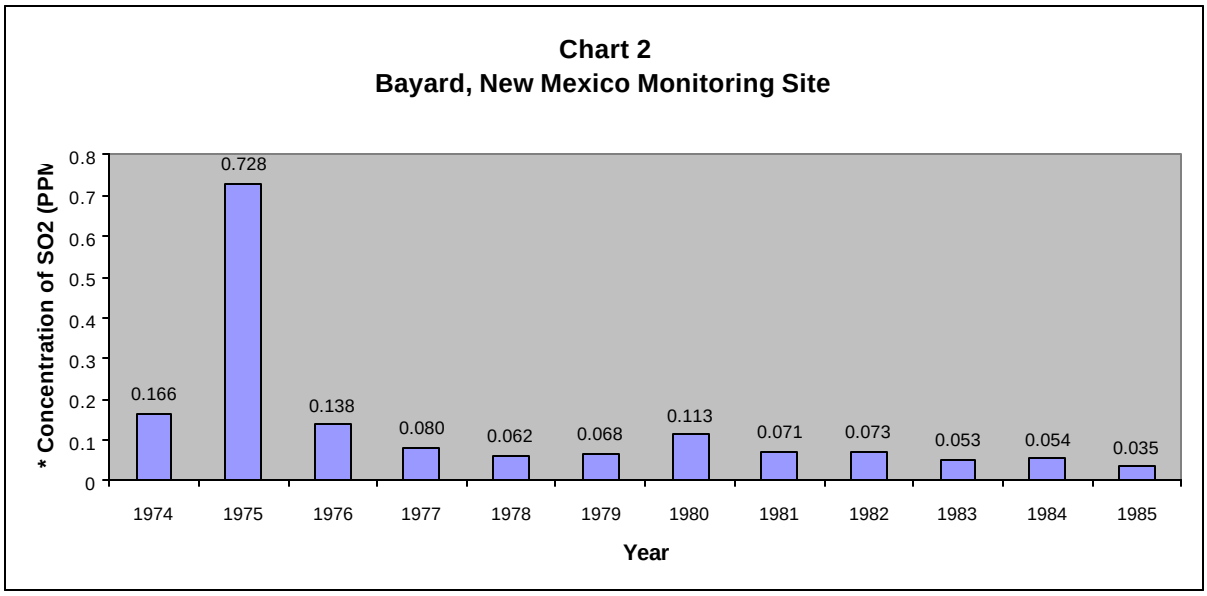
The decrease in SO_2 emissions in Grant County can be attributed to the SIP revision for the area. To ensure compliance with the NAAQS, the SIP adopted regulations and placed limits on stack emissions for the 24-hour, 3-hour and annual levels. These improvements implemented by the SIP are permanent and enforceable. Chart 2 on the following page shows the decrease in SO_2 emissions from the Bayard, New Mexico monitoring site since the area was designated nonattainment by the EPA and the SIP for Grant County was implemented.

A. Regulations

To control the level of emissions being emitted by the Hurley Smelter, the State of New Mexico adopted Air Quality Control Regulation (AQCR) 652 and AQCR 200/201. These regulations are now referred to as 20.2.41 NMAC -- Nonferrous Smelters-Sulfur and 20.2.3 NMAC -- Ambient Air Quality Standards. See Appendix E for current state regulations.

20.2.41 NMAC established requirements and standards for nonferrous smelters to minimize sulfur emissions. This regulation was included in the Grant County SIP submittal in 1979. To establish ambient air quality standards for the areas of New Mexico under the state's jurisdiction,

20.2.3 NMAC was adopted in 1970 and then revised in 1981 to include State Standards for the maximum concentration of SO_2 in the Grant County nonattainment area.



* Concentrations are based on the maximum 24-hour Block Average recorded.

B. Permit Conditions

The Hurley Smelter is a Title V source and requires a Title V operating permit. The facility originally applied for a permit in 1981 as a minor source. In the year 2000 the facility was deemed to be a Title V source. A significant level of emission controls are required in the smelter's permit, and the facility is required to abide by those permit conditions or will be deemed in violation of their permit and could be subject to injunctive relief and civil penalties. See Appendix F for current permit conditions.

4. Clean Air Act Section 110 and Part D Requirements

For redesignation to attainment/maintenance, all nonattainment areas are required to met CAA Section 110 and Part D.

A. CAA Section 110:

- The establishment and implementation of enforceable emission limitations;
- The monitoring, computation, compiling and analyzing of ambient air quality data; preconstruction review for new and modified major stationary sources; preconstruction consultation with and participation of local governments that are affected by the plan;
- Assurance that the State has the adequate funds and authority to enforce the SIP and associated regulations; and
- Permit fees for stationary sources.

CAA Section 110 concerns the general requirements needed in a SIP. The SIP that was approved in 1982, along with other subsequent submittals, has satisfied the requirements of Section 110. Any requirements of Section 110 that apply specifically to the Grant County SO_2 attainment/maintenance area are addressed in the maintenance section of this document.

B. CAA Part D

- The implementation of reasonably available control measures, including reasonably available control technologies for existing sources;
- Reasonable further progress towards meeting attainment;
- The identification and quantification of allowable emissions for new and modified stationary sources;
- A stationary source permitting program;
- Enforceable emission limitations, other control measures, and compliance schedule;
- Compliance with Section 110 provisions; and
- Contingency measures.

CAA Subpart 1 of Part D addresses general requirements of nonattainment areas and plans. The requirements of Subpart 1 are addressed in the SIP and subsequent submittals, except where either attainment has already been measured, or the requirement will be satisfied by the maintenance plan included with the redesignation request. Subpart 1 also establishes the requirements for transportation conformity. The nonattainment area in Grant County is nonattainment as the result of operations at one source. Due to the limited nature of the nonattainment area, a transportation conformity SIP was not required for the area.

V. MAINTENANCE PLAN

The CAA Section 107(d)(3)(E) mandates that for a nonattainment area to be reclassified to attainment, EPA must fully approve a maintenance plan for the area that meets the requirements of CAA Section 175A. A maintenance plan is a SIP revision that must provide for maintenance to the SO_2 NAAQS for at least ten years after the EPA redesignates the area to attainment.

EPA is allowed up to 18 months to approve or disapprove a redesignation request after a complete submittal has been received. To allow for EPA's review of the redesignation request and the State's rulemaking review process, while still attaining the ten year review requirement, the maintenance plan end date will be 2015.

CAA 175A requires five elements of a maintenance plan.

1. Attainment Inventory
2. Maintenance Demonstration
3. Monitoring Network
4. Verification of Continued Attainment
5. Contingency Plan

1. ATTAINMENT INVENTORY

The CAA requires that an emissions inventory be developed to identify the level of emissions in the nonattainment area that is sufficient to attain the NAAQS. For the Grant County nonattainment area the attainment inventory is based on the most recent emission inventory conducted by Phelps Dodge as part of its permit requirements. The following table lists the actual emissions from the Hurley Smelter for the last four years. Appendix G contains the most recent inventory conducted for the facility.

Table 2
SO_2 Emission Inventory for Hurley Smelter

YEAR	ACTUAL EMISSIONS (TPY OF SO_2)	* ACTUAL EMISSIONS WITH RULE EFFECTIVENESS (TPY OF SO_2)	** DAILY EMISSIONS (TPD OF SO_2)
1997	14784.0	17740.8	48.6
1998	14784.0	17740.8	48.6
1999	16068.3	19281.9	52.8
2000	16309.2	19571.0	53.6
2001	15224.0	18268.8	50.0

* EPA's default rule effectiveness of 80% compliance was applied to the actual emissions data.

** For the SO_2 daily emissions calculation, 365 days per year operation was used.

2. MAINTENANCE DEMONSTRATION

To demonstrate maintenance of the NAAQS for a nonattainment area, the CAA requires a State to show that future emissions of a pollutant or its precursor will not exceed the attainment inventory developed for the area or to provide modeling to show that future sources and emissions will not cause an exceedance of the NAAQS.

Maintenance of the NAAQS in the Grant County nonattainment area has been achieved for the last 20 years through permit requirements. The purposes of Title V permits are to reduce violations of air pollution laws and improve enforcement of air quality control laws. This is accomplished through enforceable emission limitations and standards; a compliance schedule; a requirement that the permittee submit to the permitting authority, no less often than every 6 months, the results of any required monitoring; and such other conditions as necessary to assure compliance with applicable requirements of their permits. Permit conditions for the Hurley Smelter, along with state regulations, will ensure that future sources and emissions of SO_2 do not cause an exceedance of the NAAQS. See Appendices D and E.

3. MONITORING NETWORK

To verify compliance with the NAAQS for SO_2 once an area has been redesignated to attainment/maintenance, an appropriate air quality monitoring network needs to be maintained by the state. The monitoring network must be in accordance with 40 CFR Part 58.

Table 1 in the Redesignation Request contains information on the current SO_2 monitoring network in Grant County. The New Mexico Air Quality Bureau will continue to use the current SO_2 monitoring station located in Hurley, New Mexico to verify attainment of the NAAQS in the area. The Hurley monitoring station is in accordance with 40 CFR Part 58. The SO_2 monitoring station located in Bayard, New Mexico will be discontinued.

4. VERIFICATION OF CONTINUED ATTAINMENT

To ensure that attainment will be continued in the future, the State must retain the legal authority to implement and enforce all air quality measures needed to attain and maintain the NAAQS for SO_2. The current permit conditions for the Hurley Smelter and state regulations in 20.2.41 NMAC and 20.2.3 NMAC verify that the State of New Mexico has the continued legal authority needed to implement and enforce air quality controls to maintain the NAAQS for SO_2 in Grant County in the future. See Appendices E and F.

5. CONTINGENCY PLAN

As a requirement of CAA Section 175A, a contingency plan must be developed to correct any violations of the SO_2 NAAQS in Grant County after the area has been redesignated. The plan must be an enforceable part of the SIP and must ensure that the appropriate measures will be adopted in the event that the NAAQS are exceeded for SO_2.

During all operations, the Hurley Smelter is required to possess a current air quality permit. See Appendix F. In addition, the contingency plan for the Grant County nonattainment area provides that the NMED will maintain a comprehensive program to identify sources of violation of the SO_2 NAAQS within the maintenance area and to undertake aggressive follow up measures for compliance and enforcement.

VI. CONCLUSION

The NMED is requesting that EPA redesignate the Grant County nonattainment area to maintenance/attainment status. Along with the redesignation of the nonattainment area, the NMED is also requesting that the SO_2 monitor in Bayard be shut down and removed from the current monitoring network.

1. The Redesignation to Attainment Maintenance Status

EPA considers an area to be in attainment for the sulfur dioxide NAAQS if the annual average concentration of SO_2 in the ambient air is equal to or less than 0.03 parts-per-million, and the 24-hour concentration of 0.14 parts-per-million and the sulfur dioxide concentration 3-hour value of 0.50 parts-per-million are not exceeded more than once during a calendar year. Grant County has not experienced an exceedance of the sulfur dioxide NAAQS since the mid-1970's.

Each redesignation requirement of Clean Air Act Section 107(d)(3)(E) is listed in the analysis performed by the NMED. The Grant County redesignation request includes the justification and support for redesignation to attainment of the Grant County nonattainment area. The maintenance plan includes measures to ensure future attainment of the sulfur dioxide NAAQS and a contingency plan in the event that the area does exceed the sulfur dioxide standard in the future.

2. Discontinuation of the Sulfur Dioxide Monitor in Bayard, New Mexico

The NMED is requesting the discontinuation of the current sulfur dioxide monitoring in Bayard, New Mexico. The monitor has temporarily been removed from its present location at the Cobre Consolidated School due to renovation work. The reasons for requesting the discontinuation of this monitoring site are the lack of recorded exceedance data and the resources used to maintain the site. The modeling conducted by the NMED in 1997 showed that the area of highest concentration for sulfur dioxide in the nonattainment area is in Hurley where a NMED sulfur dioxide monitoring site has been located since 1997. Due to the lack of recorded exceedance data from the Bayard monitoring site and the fact that the site is not located in the area of highest concentration for sulfur dioxide within the nonattainment area, the NMED does not feel that it is an effective tool for measuring sulfur dioxide levels within the Grant County nonattainment area.