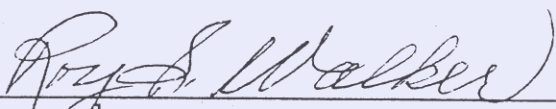


This document only contains the main text of the Anthony, New Mexico Particulate Matter Nonattainment Area State Implementation Plan Revision. If you would like a copy of any of the appendices for this document, please contact Gail Cooke at 505-955-8022

REVISION TO THE
NEW MEXICO PM10 STATE IMPLEMENTATION PLAN
FOR ANTHONY, NEW MEXICO

Prepared by the
New Mexico Environment Department
Air Quality Bureau

November 8, 1991



Approved
Roy Walker, Chairman
Environmental Improvement Board

11/8/91

Date

I. Background

A. History

Soil in Anthony and the surrounding region tends to be sandy and friable. This, in concert with the sparse vegetation, low rainfall and gusty winds inherent to the region, can result in relatively high levels of naturally occurring rural fugitive dust. In 1987, New Mexico petitioned EPA and was granted Rural Fugitive Dust Area (RFDA) designation for Anthony. This designation was based on a list of criteria which included reviews of air sampling data, particulate emission sources, available control strategies and demographics. Under the RFDA policy, it was recognized that exceedances of the particulate matter ambient standard were primarily due to blowing dust inherent to the region and thus the development of control strategies would be pointless.

With the implementation of the 1990 Clean Air Act Amendments (CAAA), EPA discontinued the RFDA program. Under the CAAA, all areas violating the PM10 standard prior to January 1, 1989 were designated non-attainment whether or not the particulate matter could actually be controlled. PM10 is defined as particulate matter with an aerodynamic diameter less than or equal to 10 microns. EPA adopted the National Ambient Air Quality Standards (NAAQS) for PM10 in July of 1987. These standards limit the PM10 24-hour average to 150 micrograms per cubic meter (ug/m^3) and the annual arithmetic mean to $50 \text{ ug}/\text{m}^3$.

All non-attainment areas, including Anthony, have been initially classified as moderate. EPA may subsequently redesignate moderate areas as serious, subjecting them to stricter control requirements. This may happen if an area cannot practicably attain the PM10 standard by the moderate area deadline of December 31, 1994, or if the State fails to submit a PM10 State Implementation Plan revision by the November 15, 1991 deadline. However, the CAAA also provides for a waiver to the attainment date for areas where non-anthropogenic emissions contribute significantly to a NAAQS violation. As discussed in this plan, the Department believes a waiver is appropriate for Anthony and that further controls for serious areas are unwarranted.

The State Implementation Plan or SIP contains all federally required air quality plans and regulations developed to ensure that the provisions of the federal Clean Air Act and its amendments are satisfied. This includes the attainment and maintenance of the NAAQS. New Mexico's air quality SIP, first adopted in 1972, incorporates the control strategies and regulations found necessary to meet these standards.

The purpose of this revision to the New Mexico SIP is to address the mandatory federal requirements for PM10 non-attainment areas applicable to Anthony. In those moderate PM10 non-attainment areas where the State's control strategy cannot demonstrate attainment by the applicable date mandated in the Act, EPA requires the State to document that its control strategy represents the application of the available control measures to all source categories. Available control measures include those which are technologically and economically feasible for the area. The State has considered partial implementation of control measures where full implementation is not feasible. In addition, the State has addressed the impacts of individual source categories on ambient air levels, legal responsibility for and enforceability of chosen control measures and relevant quantitative milestones. Sources whose emissions are shown to be insignificant ("de minimis") are excluded from further consideration.

B. Anthony, NM and Surrounding Region

The community of Anthony is located in south central New Mexico, just east of where the Rio Grande first crosses the border into Texas. Las Cruces, New Mexico, with a population of 62,126 (1990 census) lies 35 kilometers (km) to the north. El Paso, Texas, with a population of 515,342 (1990 census) lies 30 km to the south. Although the community of Anthony, New Mexico, is not incorporated as a municipality, its 1990 population as a Census Designated Place (CDP) was 5160. Anthony, Texas, directly across the border to the south, is incorporated and has a population of 3,328. The County of Dona Ana (in which both Anthony and Las Cruces are situated) had a 1990 population of 135,510. Figure 1 presents a map of Dona Ana County. Figure 2 is a map of Anthony, including the designated non-attainment area (sections 35 and 36 of Township 26 south, Range 3 east).

The south (Mesilla) valley, created by the Rio Grande, is defined in this report as extending south of Las Cruces to north of El Paso (Texas). The valley is about five kilometers wide, narrowing towards El Paso and bordered by the West Mesa and, to the east, by the Franklin Mountains. Unless otherwise noted, demographic information does not include the Texan (south-eastern) portion of the valley.

Of the 21 communities in Dona Ana County, only Las Cruces, Sunland Park, Hatch and Mesilla (adjoining Las Cruces) are incorporated. The reason is financial. Most communities lack the tax base necessary to support a municipal government. As a result, the county carries the burden for roads, planning and other services. Unfortunately, the county's tax base is also weak. Approximately 86 percent of the county is non-taxable (state or federally owned) land. Much of the county's work is funded by state or federal grants. For example, 75 to 100% of road work money (depending on the project) is provided by the state.

Preliminary (1990 estimated) census figures support the common observation that the area is poor:

	<u>Median Yearly Household Income</u>	<u>Per Capita Yearly Income</u>
United States	\$27,000	\$13,900
New Mexico	\$20,500	\$9,600
Dona Ana County	\$17,300	\$7,400
South Valley	\$14,900	\$5,300

While the median yearly household income in the south valley is low, at 55% of the national average, the per capita income is even less, at only 38%. This area has a higher percentage of children, elderly and unemployed, all of which require services while not necessarily paying taxes. The 1990 census results verify that New Mexico and Dona Ana County residents are younger than the national average and live in larger households:

	<u>Median Age</u>	<u>Persons per household</u>
United States	32.9	2.63
New Mexico	31.3	2.74
Dona Ana County	27.9	2.92
Anthony CDP	NA	3.96

It is estimated (1980 census) that approximately 30% of the valley's population is over 16 years of age and works. The 1990 census results indicate that 40% of Anthony's population is 16 years of age or younger and that 23% of Anthony's households have one or more persons who are 60 years old or older. The County estimates that 16% of the population receives unemployment benefits in any given year, with 8% unemployed for 15 or more weeks per year. In 1980, 28% of all families were below the poverty level (compared to 22% nationally).

Anthony's population has been doubling in size each decade, with (New Mexico) populations of 1700 in '70, 3200 in '80 and 5160 in '90. This growth is not expected to slow. The population is swelling due to the birthrate and to incoming immigrants looking for work. In 1980, about one quarter of the population was foreign born, mostly from Mexico. Since then, the 1987 Amnesty law has allowed hundreds of Mexican laborers to establish legal residence in the Mesilla valley. Many have subsequently brought their families.

The opening of a new border crossing and the continuing expansion of El Paso will further stimulate growth in the area. Anthony is particularly attractive to developers as the community has municipal sewer service. Without such service, state regulations limit the minimum size of residential plots to 3/4 acre. Only three communities in the south valley (Santa Teresa, Sunland Park and Anthony) have sewage treatment plants. State funds have been allotted to double the capacity of the Anthony plant over the next 2 years.

C. Air Quality Data

The State has been monitoring PM10 in Anthony since March of 1988. Air quality data is included in Appendix A. As of the end of the second quarter of 1991, a total of twelve PM10 24-hour averages greater than the standard have been recorded. Four of these exceedances occurred within the first month of monitoring. The state measured 7, 4 and 1 exceedances in 1988, 1989 and 1990, respectively. There have been no exceedances measured in the first two quarters of 1991. This downward trend is also reflected in Figure 3, where the monthly averages tend to drop with each passing year.

Prior to 1990, the standard for the annual arithmetic mean was also exceeded. The annual arithmetic means have been calculated using the method described in 40 CFR Part 50 appendix K. These values include high wind and flagged data. The annual arithmetic mean for 1991 reflects only the first two quarters of the year.

The 24-hour and annual mean exceedances are listed in Table 1. Half of the 24-hour exceedances occurred on windy days. Two have been flagged by EPA as exceptional events, and the state has requested that the four additional high wind days also be flagged. As seen in Figure 3, PM10 concentrations and exceedances tend to be higher during the windier seasons of Spring and Fall. Exceedances which occurred on low wind days were possibly caused by atmospheric inversions trapping locally generated dust.

The filters which recorded the 1989 and 1990 exceedances have been analyzed and are discussed in Appendix B. Analysis has shown that the particulates in the air on both high and low wind days are characteristic of, and likely derived from, local soils. Meteorological data presented is from the La Union monitoring tower, 11 km southwest of Anthony.

II. Emission Sources and Control Strategies

In accordance with the April 2, 1991 EPA policy document titled PM-10 Moderate Area SIP Guidance, all listed and known area and point source categories have been analyzed for the Anthony area. The Guidance requires that anthropogenic (man-made) source categories with significant emissions be analyzed for the technical and economic feasibility of implementing control measures. For point sources, such measures are called "RACT" or "reasonably available control technology". For area sources, these measures are called "RACM" or "reasonably available control measures". The EPA guidance document described above includes a list of RACT and RACM strategies to be considered. Indications of the legal responsibility for and enforceability of chosen control measures and relevant quantitative milestones are also required.

PM10 emission sources within Dona Ana county and the Anthony non-attainment area are discussed below and in Table 2. Where particulate emissions from any specific category were determined to be de minimis or insignificant, the category was dropped from further consideration for the implementation of RACT or RACM. As shown, all source categories are being currently controlled and/or are de minimis. As such, the application of quantitative milestones or contingency plans are not relevant. The greatest source of PM10 in Dona Ana county, windblown soil from partially vegetated areas such as range lands and desert, is non-anthropogenic.

A. Point Sources

Industrial point sources of PM10 have been analyzed to determine their impacts on Anthony and the appropriateness of retrofitting reasonably available control technology or RACT. Because Anthony is located on the New Mexico-Texas border, the point source analysis included sources within Texas. An emission inventory was compiled and used as input for dispersion modeling to predict the impact on Anthony.

In the past, several cotton gins operated in this area. These gins, included in the emission inventory (Table 2) and modeling summary (Appendix C), have all been closed within the last year in order to consolidate their operations into a single, larger gin near Vado (11 km north of Anthony). Anticipated PM10 emissions from the new gin are 1.14 pounds per hour. The gin is to operate a maximum of 24 hours per day for 4 months of each year (mid-September to mid-January).

There are no other industrial point sources of any size in or adjacent to Anthony located within New Mexico. This determination is based on a search of all existing emission inventory, permitting, and registration files. The closest point sources to Anthony in New Mexico are both located in Sunland Park which is approximately 23 km away. All PM10 point sources within 50 km of Anthony were included regardless of size. Using this criterion, three sources besides the cotton gins were identified. One of the three sources, Ribble Construction, is a portable sand and gravel plant which had been located 30 km from Anthony but is currently not in Dona Ana County.

The Texas Air Control Board furnished the Department with a complete PM10 point source inventory which has been compiled for the El Paso PM10 SIP. For purposes of this analysis, the six sources closest to Anthony were included. Even though it is located 26 km from Anthony, the Asarco Smelter was included due to its high PM10 emission rate. The two point sources closest to Anthony

are located across the state line in Texas. These facilities, Proler International and Border Steel, are each within 5 km of Anthony.

A summary of the point source emission inventory and modeling inputs, outputs and results are included as Appendix C to this revision. Maximum impact due to these sources was modeled using ISCST (version 90346). It was determined that the most representative meteorological data was from a station in Las Cruces. One full year of meteorological data (1990) was used. The maximum predicted 24-hour impact from all historical and current point sources was 2.86 ug/m³. The cumulative annual average was predicted to be 0.69 ug/m³.

These two values are extremely low and considered to be de minimis, especially when compared to the 24-hour and annual PM₁₀ standards of 150 ug/m³ and 50 ug/m³ respectively. For comparison, EPA non-attainment new source review requirements in 40 CFR Part 51, Appendix S establish significance levels which define when a major source is causing or contributing to a violation of a NAAQS. Impacts below these Appendix S concentrations are deemed de minimis. The Department has used these same values in AQCR 702-Permits to define sources impacting non-attainment areas. For PM₁₀, the significance values are 5 ug/m³ and 1 ug/m³ for the 24-hour and annual standards, respectively. Not only does each point source in the analysis have an ambient impact below these concentrations, but the cumulative impact of all sources combined is below these significance levels.

Based on the modeling analysis, the Department finds industrial point sources have no significant impact on air quality in Anthony. As allowed by the EPA SIP Guidance for PM₁₀ Moderate Areas, it is not necessary to consider the appropriate level of RACT to be required of point sources because the current impact is de minimis. There would be no improvement in PM₁₀ concentrations in Anthony brought about through additional controls on point sources. In addition, there is no reason to conduct any other more advanced modeling analysis regarding point sources when their impact is very clearly minimal.

Regarding future emissions from point sources, the Department recognizes that Anthony is officially designated non-attainment for PM₁₀. As such existing requirements for new sources locating in or impacting Anthony in AQCR's 702 and 709 will be applied and followed. The Department will also strive to meet EPA guidance on non-attainment new source review issued in response to the 1990 Amendments prior to revising AQCR's 702 and 709 when this is possible.

EPA recently promulgated new test methods (201 and 201A) for PM₁₀ and proposed test method 202 for measurement of condensible particulate emissions. Although this SIP revision contains no emission limits, any future source given PM₁₀ emission limits will be required to use appropriate EPA approved test methods.

B. Area Sources

Available emission inventories indicate that the majority of PM₁₀ emissions in New Mexico are from area sources. Area sources include fugitive and reentrained dust from roads, fugitive dust from sparsely vegetated surfaces, range lands and agricultural areas, motor vehicles and residential woodburning.

1. Unpaved Roads

The Dona Ana County Planning Department has estimated that almost 10 miles, or about 1/3, of the streets in Anthony are unpaved. Traffic along unpaved roads is observed to be slow, an apparent attempt to minimize dust. PM10 emissions from unpaved roads in the non-attainment area are estimated to be 36.7 tons per year (see Table 2 for calculations).

Area residents are eager to have these streets paved, or at least improved. However, County and State funds only cover 2 road projects per year in each (Road Commissioner) district. Anthony shares District 2 with 5 other communities. As a result, progress has been slow. However, some streets have been primed (sprayed with oil) or treated by double penetration (grading, oil and large aggregate, oil and small aggregate) until funds are available to pave them. Priming is expected to last about a year. Double penetration treatment should last 5 to 6 years. Last year, 4 streets were primed in Anthony. Other streets were treated (double penetration) in conjunction with the installation of new sewer lines.

In the 1986 EPA Rural Fugitive Dust Area Study in Grant County, New Mexico, researchers determined that:

"The possible control strategies for the area are limited due to the nature of the dust sources. Because agricultural tilling and wind erosion represent negligible dust sources, common controls such as conservation tilling and acreage stabilization are unwarranted. Since the greatest source of dust is generated by vehicular traffic on dirt roads, the control having the greatest effect would be paving or treating the dirt roads. This form of dust control may prove to be cost prohibitive. Grant County road officials estimated paving costs to be \$80,000 per mile. This would amount to \$2,000 per ton of particulates removed assuming paving would eliminate the 22,997 tons/year particulates reported in [the 1983] NEDS. The county paved a total of 3 miles in 1985."

It is not clear whether EPAs cost estimate has been annualized, or if it includes the continuing costs of maintaining and repaving these roads. However, the Division agrees that the cost to government of paving public roads as a form of dust control is prohibitive. This cost has risen since the 1986 Grant County report. The Dona Ana County Road Department estimates that one mile of (hot mix) paved road costs \$4.59 per square yard, or \$108,000 per mile (40 foot width). This 26% cost increase translates to an estimated control cost of \$2520 per ton of particulate. Assuming that 47% of the total suspended particulate is PM10 (PM10 SIP Development Guide, EPA, June 1987), the cost of controlling PM10 by paving roads may be estimated at approximately \$5360 per ton.

The County and State continue to pave and treat roads as expeditiously as funding allows. However, to pave all of the unpaved roads in Anthony (assuming a road width of 24 feet) will cost approximately \$693,000 (1991 dollars). Paving as a PM10 control strategy is economically infeasible.

Recent growth in the area has raised concerns about the creation of additional unpaved residential roads. A number of low-cost housing developments have been built or proposed in the region. The recently revised Land Subdivision Regulations of Dona Ana County (December 11, 1990) require most developers to pave newly established roads. If these streets are up to (hot mix) code, the county will annex and maintain them. The New Mexico Constitution prohibits the county from paving or maintaining private roads.

2. Paved Roads

The Dona Ana County Road Department is responsible for maintaining the paved public roads in Anthony. This includes clean-up after heavy rains or winds have deposited soil onto paved roads. Climate has not necessitated the salting of roads in the winter. Due to a lack of funding, sidewalks are rare in Anthony and street sweepers are operated on a complaint basis only.

The State has estimated PM10 emissions due to re-entrained dust from paved roads to be 0.7 tons per year. These emissions are considered de minimis.

3. Haul Trucks

By policy, all Dona Ana County haul trucks are covered. Most commercial trucks are covered as well, in order to avoid material loss and complaints from broken windows. Emissions from these sources are considered de minimis.

4. Unvegetated Areas

Dona Ana County receives less than 9 inches of rain per year. This scarcity of water virtually guarantees an abundance of dry, dusty yards, vacant lots and ball fields. All of these fugitive dust sources are adjacent to (and up wind of) the monitor. The only ballfield in Anthony is about 1000 feet southwest of the monitor. This well used ballpark is devoid of plantlife, and the parking area and adjacent road are unpaved.

Nearer the monitor, the (historically) paved parking lot on which the monitors sit is now either ground to dust and gravel or simply covered with dust and gravel. A vacant lot sits across the street (south and slightly west). Although the nearest streets are paved, there are no curbs, sidewalks or lawns. A partially vegetated vacant lot sits due east of the monitors (emissions from this vacant lot are shown in Figures 21 and 22 of Appendix B).

Clearly, these sources can be significant, although during high winds dust from surrounding range land may dominate impacts on the monitor site. However, for a region in which virtually all areas not covered by pavement or buildings are sparsely vegetated and subject to wind erosion, feasible control strategies are not forthcoming. Irrigated crop lands and school lawns are notable exceptions; however, in the desert not all areas can be irrigated. In fact, water pressures in the overextended residential water system in Anthony are often feeble and erratic. Even with the planned improvements to the system, area water resources cannot sustain the kind of groundcover necessary to prevent wind erosion. It is technologically infeasible to vegetate the surrounding area with ground cover.

Earth moving activities further raise dust. An ordinance regarding the grading of land has recently been developed by the County Road Department. The new ordinance requires individuals to obtain a permit and to water while grading.

5. Trash Burning

New Mexico Air Quality Control Regulation (AQCR) 301, included as Appendix G, prohibits the burning of refuse in towns the size of Anthony. It is also illegal to burn trash in Dona Ana County (Dona Ana County Ordinance No. 79-1, Section III.E). Violators may be fined up to \$300 or sentenced to up to 90 days in jail for each offense of the County regulation, and fined up to \$1000 per day for violation of the State regulation. In addition, the transfer facility where residents deposit their trash will not accept the remains of

burnt trash. This policy was instituted after smoldering garbage ignited and destroyed one of their bins. The county is also developing a system to provide household pick-up. These efforts reduce both blowing trash and trash burning.

PM-10 emissions due to the burning of trash are considered well controlled and de minimis.

6. Wood Burning (home heating)

The 1990 census information regarding the use of wood burning for home heating is not yet available. According to the 1980 census for Anthony, 'House heating fuel' use was 71% utility gas, 27% bottled, tank or LP gas, 2% electricity and zero wood, fuel oil, coal or other fuel. However, it is not clear how many migrants, illegals or illiterate were included in the 1980 census, or how many of these individuals winter in Anthony. The 1990 results will likely be higher, as woodstoves became more popular during the 1980's. Although fireplaces have always been common, the regional practice is to use them on Christmas Eve and not for general home heating.

Woodsmoke contributions to PM10 exceedances would be most significant on low wind days in the winter. However, the filter analyses described in Appendix B have shown that wood smoke was not a significant contributor to any of the exceedances, including the exceedance which occurred on the (low wind) Christmas Eve of 1989. Based on filter analyses and available information, emissions from these sources are considered de minimis.

7. Off-road recreational vehicles

Due to low income levels, off-road recreational vehicles are uncommon in or around Anthony. Although some of these vehicles were observed near Sunland Park, aerial photographs do not show any areas near Anthony with the distinctive patterns of off-road vehicle use.

8. Agricultural and range lands

A report describing the PM10 contributions from rural land soils in the Anthony area is included as Appendix D. As documented in that report and in Appendix F (correspondence from the Soil Conservation Service), Dona Ana County's croplands are in compliance with the Food Securities Act. The EPA PM10 Moderate Area SIP Guidance: Final Staff Work Product (April 1991) lists, as an available fugitive dust control measure, reliance "upon the soil conservation requirements... of the Food Security Act to reduce emissions from agriculture operations." Thus, the favored RACM for agricultural land is already in place. PM10 emissions from these areas are not considered significant.

As discussed in Appendix D, open burning (for weed control) is not commonly practiced in this area. However, New Mexico Air Quality Control Regulation (AQCR) 301 (Open Burning) is included as reference in Appendix G. AQCR 301 was most recently revised in February of 1983.

The federal Bureau of Land Management (BLM) leasing requirements are designed, in part, to minimize overgrazing. In fact, the average carrying capacity for allotments in the area is less than two animal units per (640 acre) section per year. However, the soil composition of regional rangelands are inherently susceptible to wind erosion, regardless of impacts from humans. Estimated potential PM10 emissions from rangelands, based on soil types and natural vegetation, are high, approximately 150 tons per acre per year, and apt to contribute significantly to windy day exceedances (Control of Open Fugitive

Dust Sources, EPA-450/3-88-008, September 1988). There are no range lands within the Anthony non-attainment area. However, approximately 86%, or 3350 square miles, of Dona Ana county are classified as range lands. This represents potential countywide emissions of 502,584 tons per year. Similar desert soils in Mexico, Arizona, Texas, California and other parts of New Mexico are also likely PM10 contributors during high wind seasons. Long range transport of PM10 is an established phenomenon. The State finds that these emissions, while significant, should not be considered anthropogenic.

C. Summary

The State finds all point and area sources of PM10 in or effecting the Anthony non-attainment area to be de minimis, with the exception of unpaved roads, unvegetated and sparsely vegetated areas, and range lands. Of these, the paving of roads is economically infeasible and enhancement of ground cover in the area or region is technologically infeasible. Emissions from range lands are considered non-anthropogenic. The State is aware of no additional reasonable or available control measures for anthropogenic sources of PM10 in the Anthony area.

III. Attainment Feasibility and Waivers

The State finds the attainment of the PM10 NAAQS in Anthony by the required deadline impracticable. Although the continuing efforts of County, State and Federal agencies have reduced dust levels within the area, the State is not confident that the implemented control strategies can prevent exceedances which are predominantly non-anthropogenic. As acknowledged by EPA in the establishment of the RFDA program and current waiver provisions, high winds, friable soils and low annual rainfall are not within regulatory control.

Under section 188(f) of the CAAA, the EPA Administrator may waive the attainment date if he or she determines that non-anthropogenic (natural) sources of PM10 contribute significantly to a violation of the PM10 NAAQS in the area. The State believes this to be the case in Anthony, as filter analyses have shown that the overwhelming contributor to PM10 violations is airborne soil. Although some of this soil may originate from unpaved roads, a significant portion arises from regional terrain which is sandy, dry and only partially vegetated.

The State understands that a waiver of the attainment date does not release it from full implementation of its moderate area SIP requirements. Despite significant economic hardship and onerous control costs, anthropogenic sources of PM10 are being controlled as rapidly as practicable.

IV. Conclusion

The State and County have been working steadily to reduce PM10 levels in Anthony. Existing roads are being paved as quickly as funding allows. Permitting regulations in both New Mexico and Texas are designed to prevent industrial source contributions to PM10 violations. Agricultural and range lands are being managed as recommended and required by Federal agencies.

These State, County and Federal efforts have been successful. Whereas in 1988, the first year of PM10 monitoring, seven exceedances were measured, in 1989 four were measured and in 1990 only one. No exceedances have been

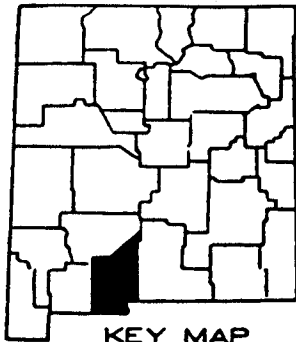
measured to date in 1991. Likewise, the annual arithmetic mean in 1990 was significantly lower than those measured previously.

However, the region continues to be dry and sparsely vegetated. Recent improvements in air quality may be the result of fortunate climatic conditions. Dust storms and dust devils will continue to occur, especially in the Spring. Non-anthropogenic sources persist and will, at times, prevail. This was acknowledged in EPA's acceptance of Anthony as an RFDA.

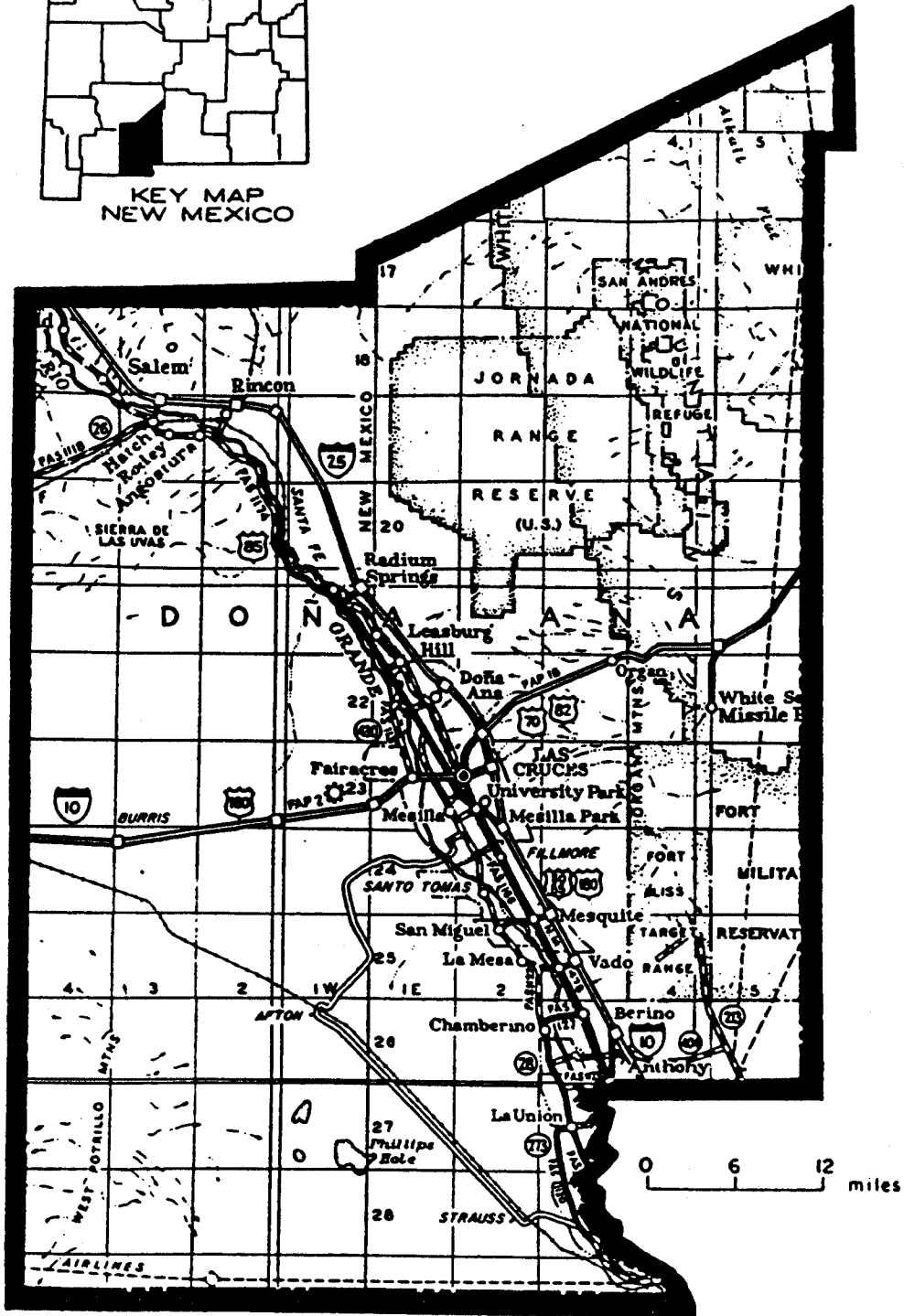
The State remains committed to the dust control measures implemented by Dona Ana County, moderate area control strategies as agreed to in this SIP submittal and to the established air quality monitoring schedule. However, the State is requesting a waiver of the moderate area attainment deadline of December 31, 1994. While efforts towards the mitigation of anthropogenic sources continue, recurring non-anthropogenic sources thwart ambitions of consistent attainment.

Appendices:

- A. Air Quality Data
- B. PM10 Exceedances at Anthony and Sunland Park, New Mexico
- C. Air Quality Dispersion Modeling Summary for Anthony PM10 SIP
- D. PM10 Contributions from Rural Land Soils and Open Burning
- E. Dona Ana County Soils Information from the Soil Conservation Service
- F. Soil Conservation Service Correspondence Regarding Food Security Act
- G. Air Quality Control Regulation 301



KEY MAP
NEW MEXICO



DOÑA ANA COUNTY

NOTE: ALL OF THIS COUNTY IS LOCATED
WITHIN THE RIO GRANDE BASIN

Figure 1

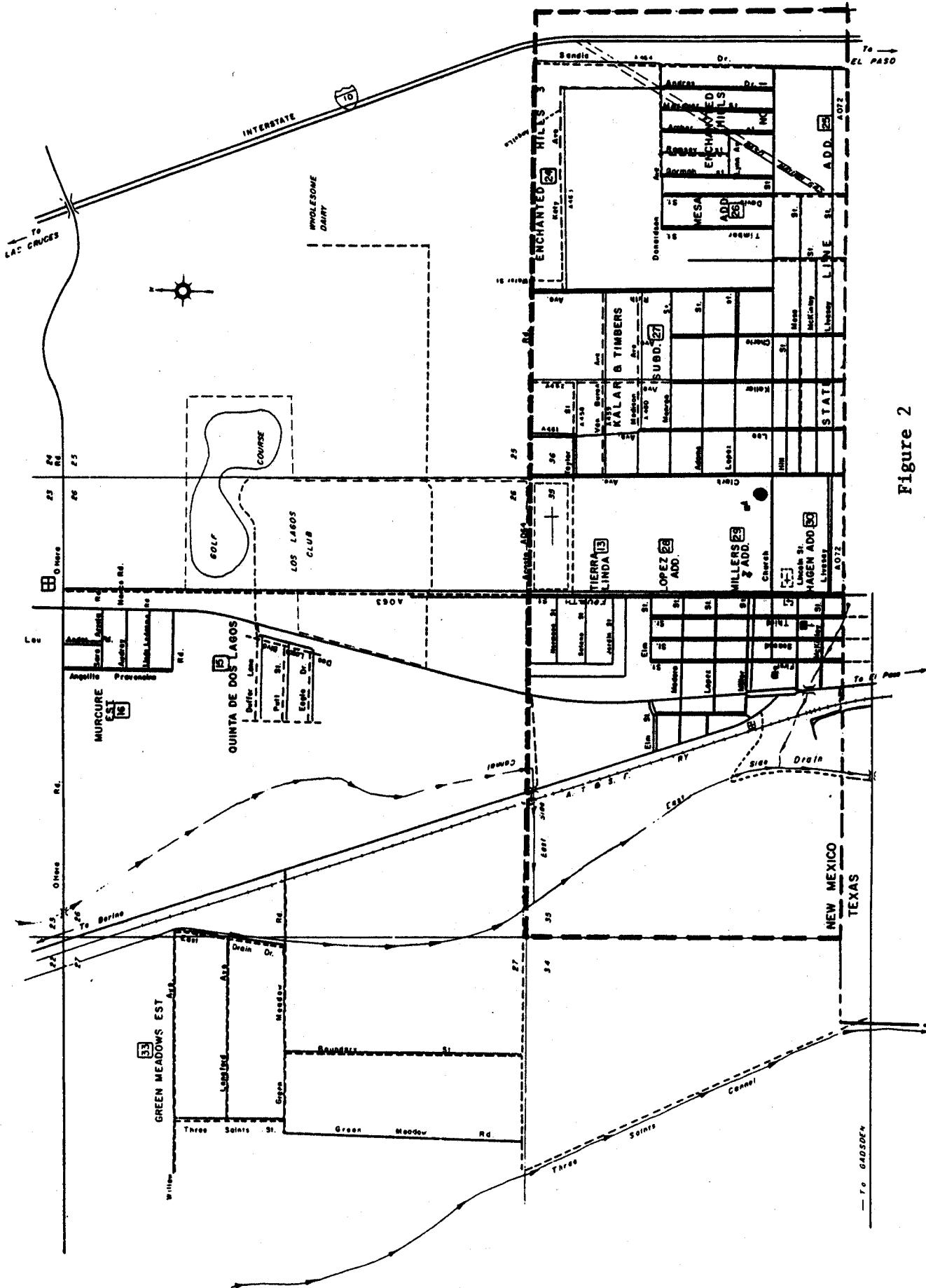


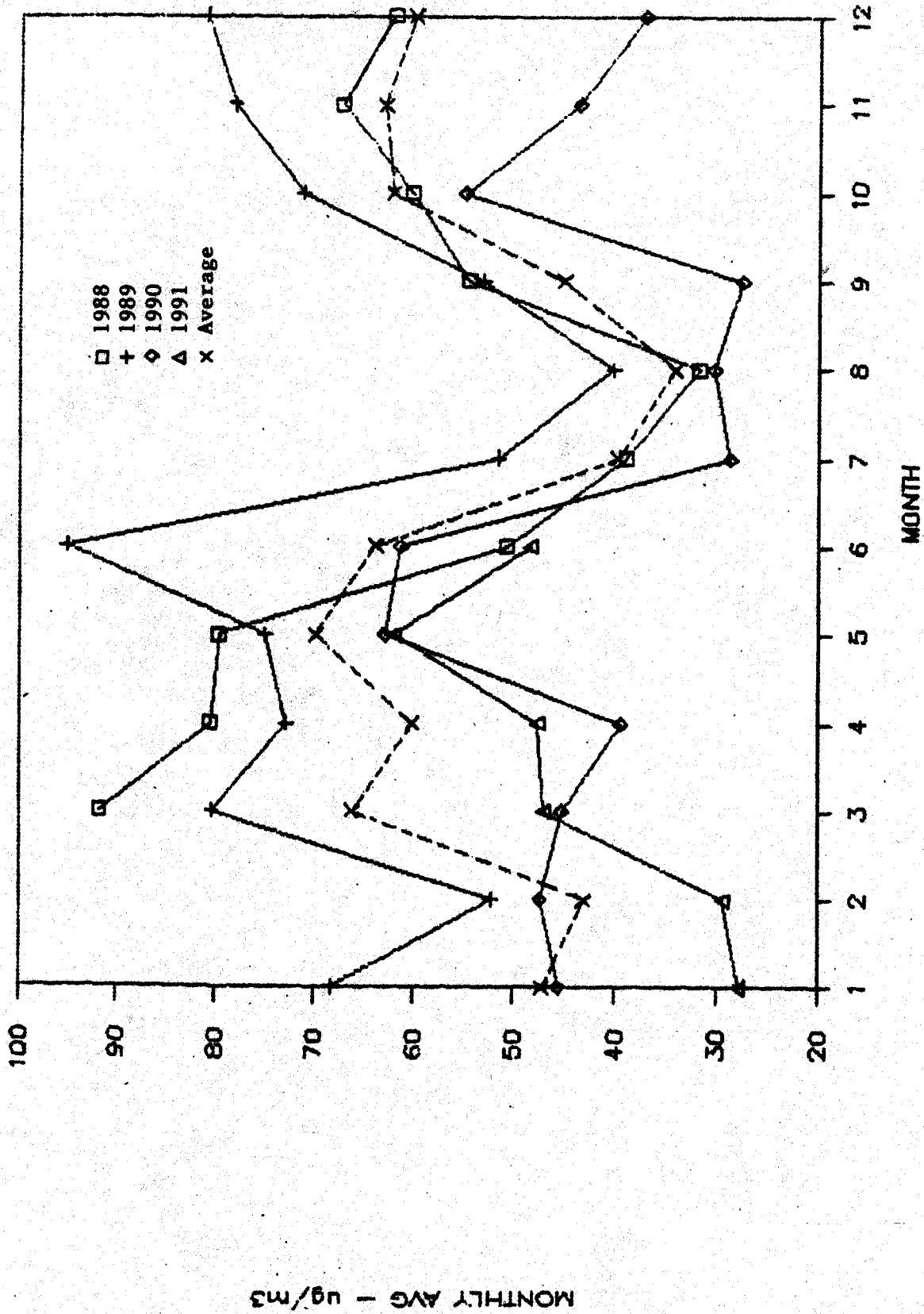
Figure 2

Anthony, New Mexico
 Dona Ana County Engineering Dept.
 1986

— Paved Roads
 - - - - Unpaved Roads
 - - - - Non-attainment Area ● - PM10 Monitoring Site
 Note: Fourth St. and Green Meadows Est have since been paved
 1 inch equals 1500 feet

Figure 3

PM-10 MONTHLY AVERAGES - ANTHONY, NM



Total Number Exceedances
in Each Month:

0 0 0 5 1 2 0 0 0 0 0 0 2

Table 1
PM10 Exceedances at Anthony, New Mexico

<u>24-Hour Average (Standard: 150 ug/m3)</u>		
<u>Date</u>	<u>Concentration (ug-PM10 /m3)</u>	<u>Remarks</u>
3/10/88	170	High wind day (1)
3/19/88	151	
3/28/88	227	
3/29/88	226	
4/21/88	223	High wind day (1)
5/01/88	154	High wind day (1)
12/31/88	173	
3/03/89	297	Flagged as exceptional event
6/13/89	202	High wind day (1)
10/27/89	176	
12/24/89	176	
5/19/90	198	Flagged as exceptional event
(No exceedances recorded in first 2 quarters of 1991)		
<hr/>		
(1) Requested to be flagged as an exceptional event		

<u>Annual Arithmetic Mean (Standard: 50 ug/m3)</u>	
<u>Year</u>	<u>Concentration (ug-PM10 /m3)</u>
1988	59
1989	68
1990	44 (2)
1991	44 (3)
<hr/>	
(2) In compliance with standard	
(3) First two quarters only	

Table 2
PM10 Emission Inventory
(Tons per Year)

Source	Area		Notes
	Dona Ana County	Anthony Non-Attainment Area	
<u>Point Sources</u>			
Joab Incin.	7.5	0	(1)
Ribble Asphalt	13.1	0	
El Paso Electric	46.0	0	
Santo Tomas Gin	1.4	0	(2)
Santo Tomas Short	1.4	0	(2)
Chamberino Coop	1.8	0	(2)
Mesa Farmer's Coop	0.9	0	(3)
<u>Area Sources</u>			
Unpaved Roads	N/A	36.7	(4) (5)
Paved Roads	N/A	0.7	(6)
Rangelands/Desert	502,584	0	(7)

Notes:

(1) Emission estimates derived from permit files and AIRS data base. Only sources in New Mexico are included in this table. Sources in both New Mexico and Texas are listed and modeled in Appendix C.

(2) Closed down as of January, 1991. While in operation, these cotton gins ran a maximum of 24 hours a day, 4 months per year (September 15 - January 15). Also closed in January was the Anthony Gin in Texas, just across the state line and near the southwest corner of the Anthony non-attainment area.

(3) Opened October 1991, to replace closed gins. Permitted to operate a maximum of 24 hours a day, 4 months per year (September 15 - January 15).

(4) Specific emission estimates regarding haul trucks, trash burning, wood burning, off-road vehicles and agricultural practices are not available but are expected to be minimal (see text).

(5) Calculated to be 36.74 tons/yr using AP-42 (Section 11.2.1) and CARB (Calif. Air Resources Board) factors, County estimates and observation:

Emission Factor, $EF = k (5.9) (s/12) (S/30) (W/3)^{0.7} (w/4)^{0.5} (d/365) \text{ lb/VMT}$

Where: k (particle multiplier) = 0.49 for PM-10 (from CARB)

s (silt) = 15% (AP-42)

S (speed) = 20 mph (observation)

W (weight) = 3 tons (AP-42, observation)

w (wheels) = 4 (observation)

d (dry days per year) = 305 (AP-42)

Emissions = $(EF) (\text{VMT per day}) (m) (365 \text{ days/year}) / (2000 \text{ lb/ton})$

Where: $EF = 2.013 \text{ lb/VMT}$ (calculated above)

VMT (vehicle miles traveled) = 10/day (CARB for equivalent areas)

m (miles of unpaved roads) = 10 (County estimate)

(6) Calculated using AP-42 (Section 11.2.5) (which recommends a PM-10 emission factor of 0.018 lb/VMT for local streets) and above assumptions for 20 miles of paved roads: $(0.018)(10)(20)(365)/(2000) = 0.657 \text{ t/y}$

(7) Non-Anthropogenic Source