

Technical Demonstration to Satisfy CAA Section 110(a)(2)(D)(i)(I) of the 2012 PM_{2.5} i-SIP

1. Background

This technical demonstration document shows how emissions, ambient air concentrations, and related regulatory approaches in Albuquerque and Bernalillo County satisfy requirements of the “Good Neighbor provision” of the Clean Air Act, Section 110(a)(2)(D)(i)(I), in regard to the 2012 NAAQS for PM_{2.5}. This document is based on a similar document prepared by the New Mexico Environment Department (NMED) to accompany the state of New Mexico’s 2012 PM_{2.5} infrastructure SIP. The NMED document analyzed PM_{2.5} transport data and information to demonstrate the state’s compliance with the Good Neighbor provision under the 2012 PM_{2.5} NAAQS. This document incorporates the information from the NMED document on the PM_{2.5} transport situation across New Mexico, then provides, where necessary, transport information specific to Albuquerque and Bernalillo County. By using this approach, both Albuquerque - Bernalillo County and the state of New Mexico will present a common analytical framework regarding transport requirements of the 2012 PM_{2.5} NAAQS.

For air quality regulation purposes, the state of New Mexico and Albuquerque Bernalillo County are treated as two separate jurisdictions. The Albuquerque - Bernalillo County Air Quality Control Board (Air Board) approves air quality plans and regulations for the city and county, with the City of Albuquerque Environmental Health Department (COA/EHD) acting as the implementing agency for the plans and regulations approved by the Board. For the rest of New Mexico, the Environmental Improvement Board approves air quality plans and regulations while the New Mexico Environment Department acts as the implementing agency. Thus, when this document refers to “New Mexico,” this term refers to the air quality jurisdiction outside of Albuquerque - Bernalillo County, which is a single, separate jurisdiction for air quality purposes.

New Mexico has submitted monitoring data showing attainment for three counties (other than Bernalillo County) with active PM_{2.5} monitors in their jurisdiction (San Juan, Dona Ana, and Lea counties). Separately, Albuquerque - Bernalillo County has submitted its own monitoring data showing attainment in the city and county. Based on the foregoing data, all areas in New Mexico, including Bernalillo County, have been designated Attainment / Unclassifiable for the 2012 primary annual PM_{2.5} National Ambient Air Quality Standard (NAAQS) based on air quality monitoring data from 2011-2013.¹.

Although there are no PM_{2.5} nonattainment areas in the state, New Mexico and Albuquerque - Bernalillo County already have numerous control measures in place to reduce emissions from PM_{2.5} and its precursors. This technical demonstration includes a summary of PM, SO₂, and NO_x emissions reductions programs in both the state and Albuquerque - Bernalillo County.

¹ 80 Fed. Reg. 2,206 (Jan. 15, 2015)

2. Control Strategy Overview

CAA Section 110(a)(2)(D)(i)(I) requires states to submit a state implementation plan (SIP) revision that contains adequate provisions to prohibit any source or other type of emissions activity within the state from emitting any air pollutants in amounts that will contribute significantly to nonattainment of the NAAQS for areas in other states or interfere with maintenance of the NAAQS in any other state. The following sections evaluate annual PM_{2.5} design value trends for monitored areas in Albuquerque - Bernalillo County, the rest of New Mexico, and in surrounding states. These sections then outline the control measures implemented in New Mexico (including Albuquerque - Bernalillo County) to achieve emission reductions. This analysis demonstrates that emissions from New Mexico (including Albuquerque - Bernalillo County) do not contribute significantly to nonattainment or interfere with maintenance of the 2012 PM_{2.5} NAAQS in another state.

2.1 Significant Contribution to Nonattainment and Interference with Maintenance Elements

2.1.1 Technical Analysis

Airborne PM can be comprised of either solid or liquid particles or a complex mixture of both. Airborne PM is composed of sulfates (SO₄); nitrates (NO₃); ammonium; elemental carbon; organic mass; and inorganic material (i.e., ‘crustal’ material, which can include metals, dust, sea salt and other trace elements). Airborne PM can be of different sizes, either ‘coarse’ or ‘fine’ particles. Fine particles have an aerodynamic diameter less than or equal to 2.5 micrometers (µm) in diameter (PM_{2.5}). PM_{2.5} commonly includes ‘primary’ particles and ‘secondary’ particles. Primary particles, or direct PM_{2.5}, are emitted directly into the air as solid or liquid particles by a variety of sources (e.g., elemental carbon from diesel engines or wildfires, or condensable organic particles from gasoline engines). Secondary particles are formed in the atmosphere as a result of reactions between specific pollutants known as PM_{2.5} precursors (e.g., SO₄ and NO₃ from emissions of mobile and stationary sources of NO_x and SO₂ combined with ammonia).

PM_{2.5} can also be transported for long distances (for example, PM_{2.5} from fires originating in Mexico and dust blown in from as far away as Africa). In southwestern New Mexico, fall and spring are the dry seasons, with most of the precipitation occurring in the summer from the North American Monsoon System. “Convective storms from the monsoon are a very important event in defining the air quality in this region. High winds from thunderstorm downdraft and gust fronts lofting dust into the air have accounted for many wind erosion events and exceedances of the PM₁₀ NAAQS in the region.” “A La Niña event is a sign of drought conditions in the region due to a lack of rain, low soil moistures, due to storm tracks bringing in winds but little to no

precipitation. This is a recipe for potentially higher than normal dust storm events and storms that are intense.”²

The EPA made final designations for the annual PM_{2.5} NAAQS on December 18, 2014.³ The EPA calculates annual PM_{2.5} design values by first averaging the quarterly PM_{2.5} values to get an annual average and then averaging the annual average PM_{2.5} values over three years to get a design value. The EPA has designated 14 areas in six states as nonattainment of the 2012 annual PM_{2.5} NAAQS (Figure 2-1).

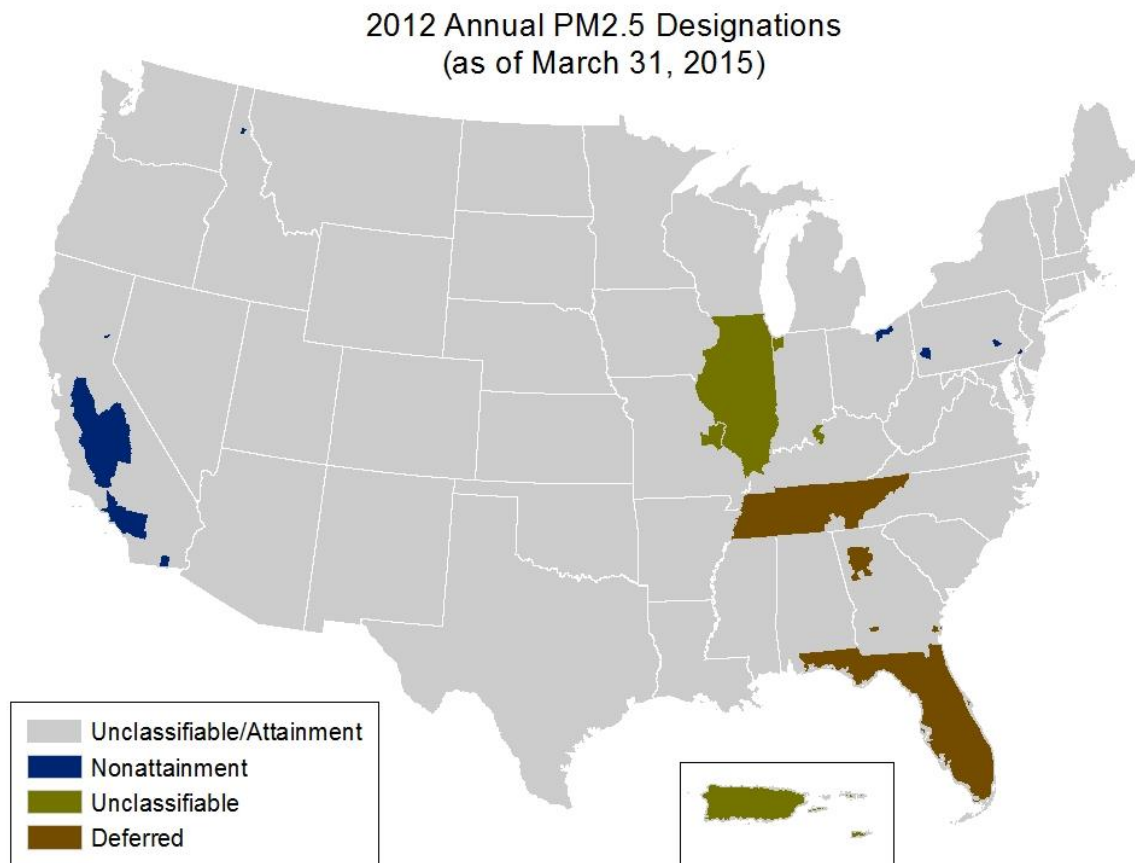


Figure 2-1: Areas Designated by the EPA as Nonattainment of the Annual PM_{2.5} NAAQS⁴
<http://www.epa.gov/pmdesignations/2012standards/final/20150331map.jpg>

² DuBois, Dave. 2014. *Final Report for the Windblown Dust Emission Inventory for the International Border Region of Southern New Mexico*. New Mexico State University, Las Cruces, NM. November 17, 2014

³ 80 Fed. Reg. 2,206 (Jan. 15, 2015)

⁴ “Final Area Designations for the 2012 National Air Quality Standard for Fine Particles,” last modified January 30, 2015, <http://www.epa.gov/pmdesignations/2012standards/regs.htm>

Figure 2-1 shows a map of the areas that the EPA has designated as nonattainment. California has the most counties (or partial counties) in nonattainment, which are shown in blue on the map, followed by Ohio, Pennsylvania, Kentucky, Indiana, and finally Idaho. The EPA designated three areas as unclassifiable, as shown in green on the map, due to quality assurance/quality control issues which resulted in incomplete data for the relevant period from 2011-2013. These areas included the entire state of Illinois, including parts of Indiana and Missouri that border Illinois; Puerto Rico; and the U.S. Virgin Islands. Also, as a result of data validity issues in several states, the EPA is using additional time available under CAA, §107(d)(1)(B), to defer designations for parts of Georgia, South Carolina, Alabama, Tennessee, and the entire state of Florida, as shown in brown on the map. The EPA is awaiting additional air quality monitoring data to designate these areas. No areas within EPA Region 6, the region to which New Mexico (including Albuquerque - Bernalillo County) belongs, are designated as nonattainment for the annual $PM_{2.5}$ NAAQS.

To determine the impact of New Mexico (including Albuquerque - Bernalillo County) on other areas' $PM_{2.5}$ concentrations, the technical analysis considers the following factors:

- an evaluation of the most recent annual $PM_{2.5}$ design values to determine which areas near New Mexico violate, or are close to violating the 2012 annual $PM_{2.5}$ NAAQS;
- an analysis of the $PM_{2.5}$ annual design value trends in New Mexico (including Albuquerque - Bernalillo County) to determine if $PM_{2.5}$ concentrations are increasing or decreasing; and
- an investigation of $PM_{2.5}$ annual design value trends in other states to determine whether $PM_{2.5}$ concentrations in those areas are increasing or decreasing.

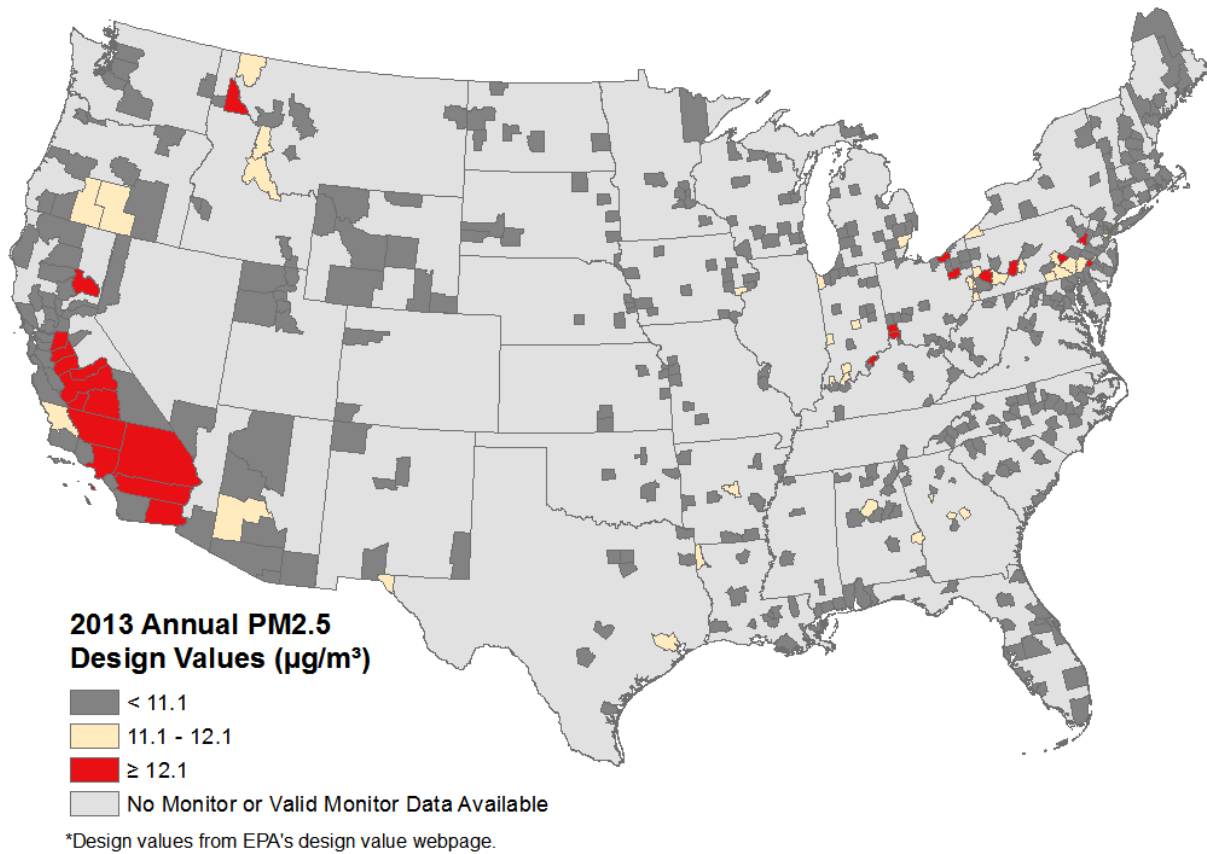


Figure 2-2: 2013 Annual PM_{2.5} Design Values by County

Figure 2-2: *2013 Annual PM_{2.5} Design Values by County* shows a map of the 2013 annual PM_{2.5} design values by county. Only counties with a valid annual PM_{2.5} design value in 2013 are filled in on the map. Counties colored in red represent counties with a 2013 annual design value greater than 12.1 µg/m³, counties colored in light yellow represent counties with a 2013 annual PM_{2.5} design value that is equal to or above 11.1 µg/m³, and counties colored in gray are counties with a 2013 annual PM_{2.5} design value less than 11.1 µg/m³. The map only shows the level of the annual PM_{2.5} design value within a county and does not indicate whether that county is designated as nonattainment. The design values only exclude exceptional events concurred by the EPA as of August 8, 2014.

Out of the 50 states in the United States (U.S.), only five have valid 2013 design values above the annual PM_{2.5} NAAQS: California, Indiana, Ohio, Pennsylvania and Idaho. Of those five states, only 24 counties were above the annual PM_{2.5} NAAQS in 2013, and over half of those counties are located within the state of California. No county in New Mexico (including Bernalillo), or in EPA Region 6, is above the annual PM_{2.5} NAAQS. There are 40 U.S. counties, colored in light yellow on the map, that are within 1.0 µg/m³ of the annual PM_{2.5} NAAQS. Four of those counties are located within EPA Region 6, two in Texas (Harris County and El Paso County), one in Louisiana (Caddo Parish), and one in Arkansas (Pulaski County). One county

(Maricopa) is located in neighboring Arizona (Region 9). The monitor sites and annual $PM_{2.5}$ design values for Arizona are shown in Table 2-3.

Although no nonattainment areas are within close proximity to New Mexico, an examination of annual $PM_{2.5}$ design value trends in New Mexico (including Albuquerque - Bernalillo County) can be useful to determine whether the state is interfering with maintenance of the annual $PM_{2.5}$ NAAQS in nearby areas. Trends in New Mexico's annual $PM_{2.5}$ design values by county for the past 10 years, excluding Albuquerque - Bernalillo County, are displayed below in Figures 2-3a, *Annual $PM_{2.5}$ Design Value Trends by County in New Mexico (excluding Bernalillo County)*. Trends in annual $PM_{2.5}$ design values for Albuquerque - Bernalillo County appear separately, in Figure 2-3b, *Annual $PM_{2.5}$ Design Value Trends in Bernalillo County, New Mexico*.

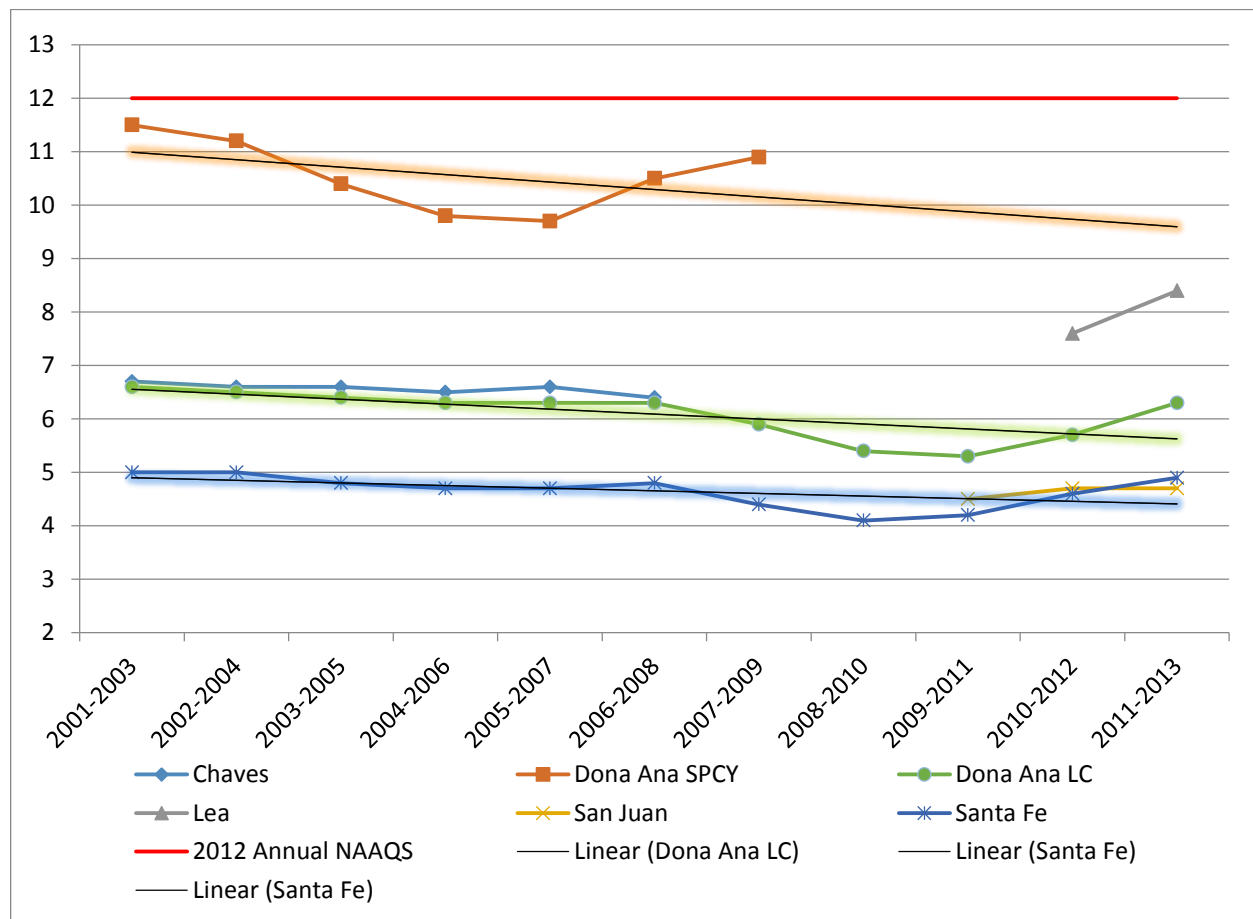


Figure 2-3a: Annual $PM_{2.5}$ Design Value Trends by County in New Mexico (excluding Bernalillo County)* ** ***

*Includes only Valid Design Values

**SPCY site did not meet siting criteria beginning in Nov 2010 resulting in invalid design values. Las Cruces site used from 2008-2013.

***Data from EPA's *Design Values* webpage <http://www.epa.gov/airtrends/values.html>

Figures 2-3a shows that, for counties in New Mexico (excluding Bernalillo County), the annual PM_{2.5} design values were below the 2012 annual PM_{2.5} NAAQS of 12.0 µg/m³. Of the New Mexico counties accounted for in this figure, the only one that had an annual PM_{2.5} design value above 11.0 µg/m³ was Dona Ana County-SPCY, which was discontinued in 2010. The remaining three active county monitors have shown a very slight increase from 2010 through 2013.

The SPCY monitor site in Dona Ana County has always been a hotspot for PM pollution due to its proximity to Ciudad (Cd.) Juárez and topography. In the cooler winter months, low level inversions can form inhibiting vertical dilution and “trapping” of pollutants close to the surface. As the sun sets and temperatures drop, the mountain breeze reverses course to flow downhill and around Mt. Cristo Rey toward the Rio Grande valley. These conditions allow for pollution from Cd. Juárez to be transported directly to the SPCY monitoring site. The PM mixture is composed of dust from unpaved roads as well as combustion particles from home cooking and heating. The SPCY monitoring sight was discontinued in 2013 due to no longer meeting siting criteria, and data from November 2010 onward was invalidated. The reason for the slight upward trend in the other sites, during the past few years, is harder to pinpoint. One explanation could be the extended drought in New Mexico. Another could be an increase in manufacturing and associated economic activity as the area begins to recover from the recession. Despite the recent uptick in design values, the data show declining design values overall from 2003 through 2013, with the highest (Lea County) still well below the standard.

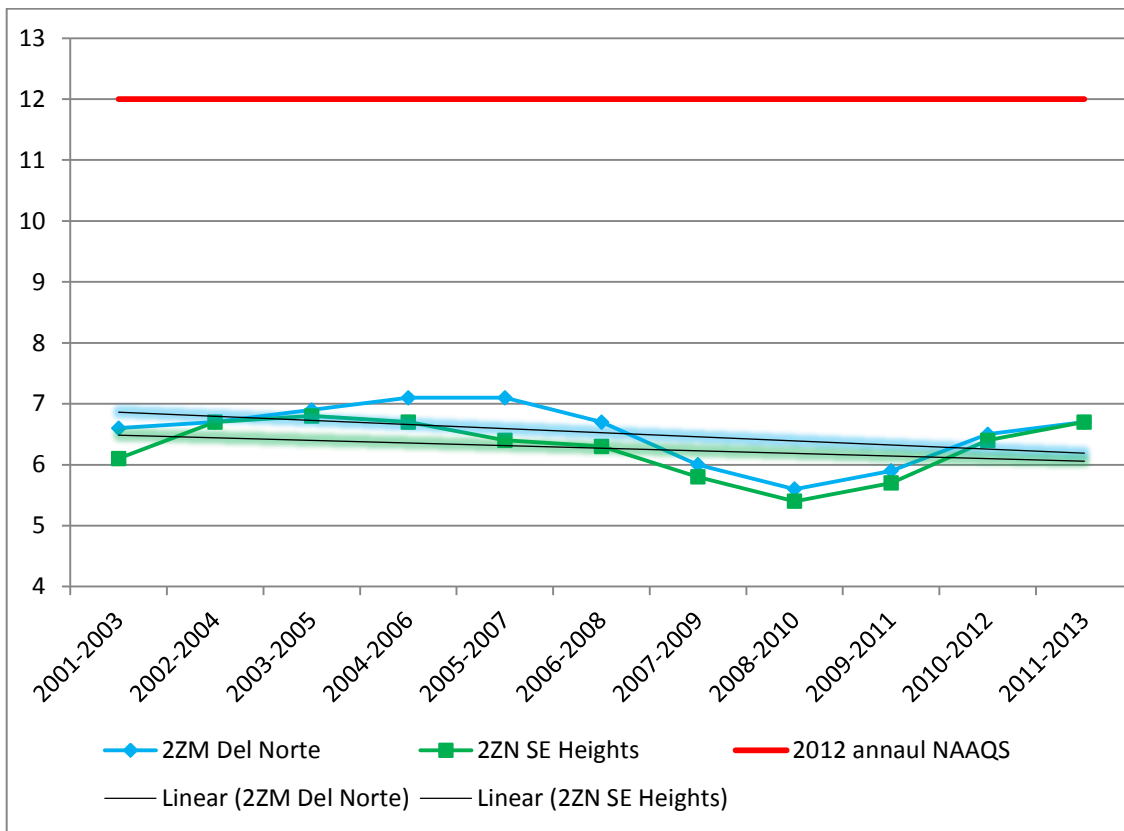


Figure 2-3b: Annual PM_{2.5} Design Value Trends in Bernalillo County, New Mexico* **

*Includes only valid design values

**Data from EPA's *Design Values* webpage <http://www.epa.gov/airtrends/values.html>.

Figure 2-3b shows that the annual PM_{2.5} design value trends have remained below the 2012 annual PM_{2.5} NAAQS of 12.0 µg/m³ for Albuquerque - Bernalillo County.

Trends in annual PM_{2.5} design values in the areas that the EPA designated as nonattainment for the 2012 annual NAAQS are displayed in Figure 2-4: *Annual PM_{2.5} Design Value Trends in Areas Designated as Nonattainment by the EPA*. The percent change in annual PM_{2.5} design values from 2003 through 2013 are listed in Table 2-1: *Percent Change in Annual PM_{2.5} Design Values*. Most areas have experienced large decreases in PM_{2.5} concentrations; however, three areas saw an increase in PM_{2.5}: West Silver Valley, ID, Imperial County, CA, and Plumas County, CA.

Annual PM_{2.5} Design Value Trends in Areas Designated as Nonattainment by the EPA

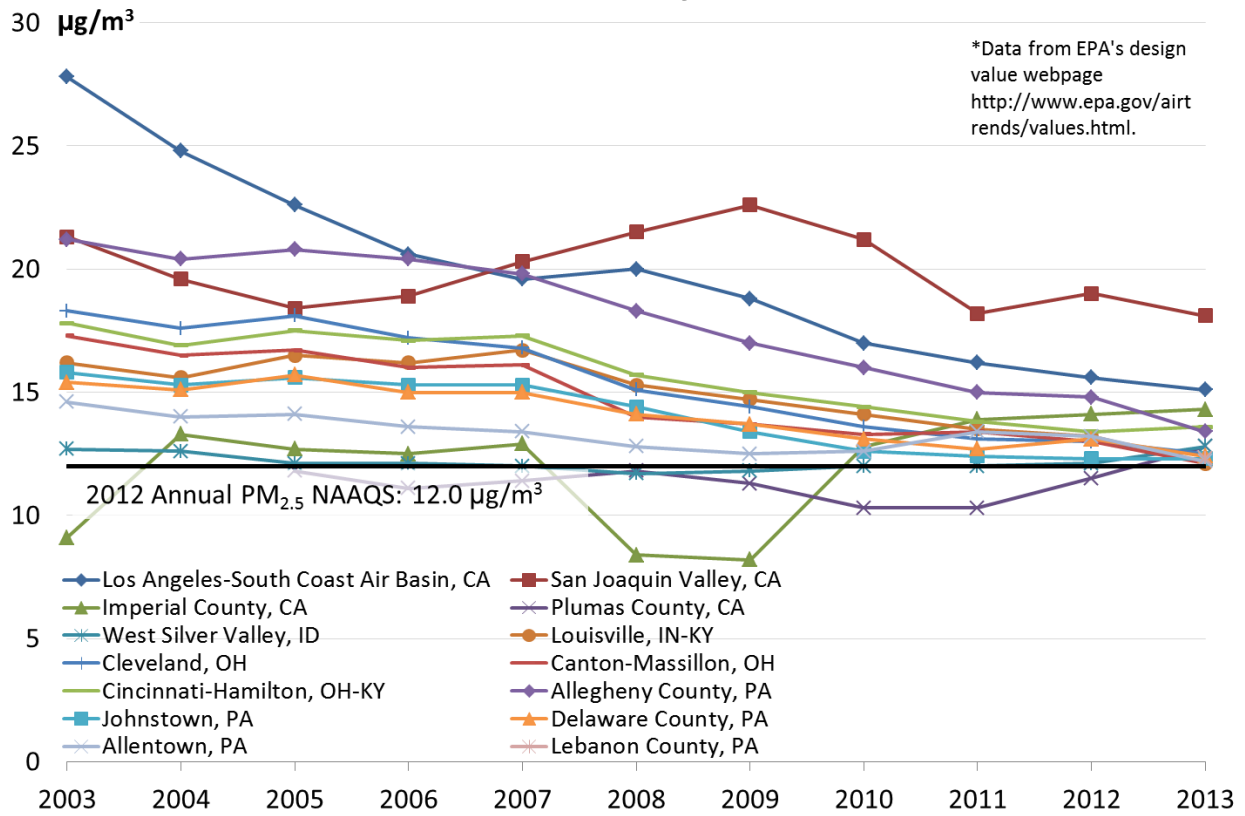


Figure 2-4: Annual PM_{2.5} Design Value Trends in Areas Designated as Nonattainment by the EPA

Table 2-1: Percent Change in Annual PM_{2.5} Design Values

EPA Designated Nonattainment Area	Percent Change 2003-2013
Los Angeles-South Coast Air Basin, CA	-46
Allegheny County, PA	-37
Cleveland, OH	-32
Canton-Massillon, OH	-30
Louisville, IN-KY	-25
Cincinnati-Hamilton, OH-KY	-24
Johnstown, PA	-22
Delaware County, PA	-19
Allentown, PA	-16
San Joaquin Valley, CA	-15
West Silver Valley, ID	1
Imperial County, CA	57
Plumas County, CA*	8
Lebanon County, PA**	--

*Indicates that the area did not have data in 2003; therefore, percent change was calculated from the first year of data (2005) through 2013.

**Indicates that the area only had data in 2013; therefore, no percent change could be calculated.

Another way to view trends in PM_{2.5} is to look at what areas the EPA projects to be nonattainment in the year 2020. Those areas are displayed in the map in Figure 2-5: *Annual PM_{2.5} Design Values Projected for 2020*.⁵ Using 2007 emissions and accounting only for “on the books” reductions from federal and state rules, the EPA projects only seven counties within the state of California to have annual PM_{2.5} design values above 12.0 µg/m³ in 2020. No state or county within EPA Region 6 or adjacent to EPA Region 6 is projected to be above the 2012 PM_{2.5} annual NAAQS. The EPA’s projections in conjunction with the low PM_{2.5} levels in New Mexico (including Albuquerque - Bernalillo County) make it clear that New Mexico (including Albuquerque - Bernalillo County) is not likely to affect any other state’s attainment or maintenance status of the annual PM_{2.5} NAAQS.

⁵ U.S. Environmental Protection Agency, “EPA Revises the National Ambient Air Quality Standards for Particle Pollution,” Last modified September 11, 2014, <http://www.epa.gov/airquality/particlepollution/actions.html#dec12>

EPA Projections Show 99% of U.S. Counties with Monitors Would Meet the Annual Fine Particle Health Standard of 12 $\mu\text{g}/\text{m}^3$ in 2020



Source: PM NAAQS RIA
For more information: www.epa.gov/pm

Figure 2-5: Annual $\text{PM}_{2.5}$ Design Values Projected for 2020⁶

<http://www.epa.gov/airquality/particlepollution/2012/2020map.pdf>

2.1.2 Monitoring Sites

In 2013, there were 75 $\text{PM}_{2.5}$ monitors located within EPA Region 6. The location of $\text{PM}_{2.5}$ monitors with valid 2013 annual $\text{PM}_{2.5}$ design values were displayed in the map in Figure 2-2: *2013 Annual $\text{PM}_{2.5}$ Design Values by County*. A complete list of $\text{PM}_{2.5}$ monitors, including those without valid design values are shown in Table 2-2: *Monitor Sites and Annual $\text{PM}_{2.5}$ Design Values in EPA Region 6* and Table 2-3: *$\text{PM}_{2.5}$ Monitor Sites and Annual $\text{PM}_{2.5}$ Design Values Greater than 11.1 in Neighboring States* (sites for which no valid 2013 design value exists are

⁶ U.S. Environmental Protection Agency, “EPA Revises the National Ambient Air Quality Standards for Particle Pollution,” Last modified September 11, 2014, <http://www.epa.gov/airquality/particlepollution/actions.html#dec12>

noted with an empty cell). Note that these are monitors that have reported data to the EPA's Air Quality System. Texas has the most PM_{2.5} monitors, 22, in Region 6. Louisiana and Arkansas each have 16 PM_{2.5} monitors, Oklahoma has 14 PM_{2.5} monitors, and New Mexico has six active PM_{2.5} monitors (three in Albuquerque-Bernalillo County and three in the remainder of the state). Arizona, which is in Region 9, has 19 PM_{2.5} monitors.

Table 2-2: PM_{2.5} Monitor Sites and Annual PM_{2.5} Design Values in EPA Region 6

State	County/Parish Name	AIRS Number	Site Name	2013 Annual Design Value (µg/m ³)
Arkansas	Arkansas	50010011	Stuttgart	10.1
Arkansas	Ashley	50030005	Crossett	10.1
Arkansas	Crittenden	50350005	Marion	10.6
Arkansas	Faulkner	50450002	Conway	
Arkansas	Garland	50510003	Hot Springs	10.5
Arkansas	Jackson	50670001	Newport	9.6
Arkansas	Phillips	51070001	Helena	
Arkansas	Polk	51130002	Mena	10.5
Arkansas	Pope	51150003	Russellville	
Arkansas	Pulaski	51190007	Parr	11.2
Arkansas	Pulaski	51191004	Adams Field	11.1
Arkansas	Pulaski	51191008	Doyle Springs Road	11.7
Arkansas	Sebastian	51310008	Ft. Smith	
Arkansas	Union	51390006	El Dorado	10.7
Arkansas	Washington	51430005	Springdale	10.2
Arkansas	White	51450001	Searcy	
Louisiana	Caddo	220170008	Shreveport / Calumet	11.6
Louisiana	Calcasieu	220190009	Vinton	8.1
Louisiana	Calcasieu	220190010	McNesse	8.4
Louisiana	East Baton Rouge	220330009	Capitol	9.4
Louisiana	Iberville	220470005	Geismar	9.4
Louisiana	Iberville	220470009	Bayou Plaquemine	8.5
Louisiana	Jefferson	220511001	Kenner	8.2
Louisiana	Jefferson	220512001	Marrero	8.7

State	County/Parish Name	AIRS Number	Site Name	2013 Annual Design Value (µg/m3)
Louisiana	Lafayette	220550006	Lafayette / State Police Troop	
Louisiana	Lafayette	220550007	Lafayette / USGS	8.5
Louisiana	Ouachita	220730004	Monroe / Airport	8.9
Louisiana	Rapides	220790002	Alexandria	8.1
Louisiana	St. Bernard	220870007	Chalmette Vista	9.7
Louisiana	Tangipahoa	221050001	Hammond	8.5
Louisiana	Terrebonne	221090001	Houma	7.8
Louisiana	West Baton Rouge	221210001	Port Allen	9.9
New Mexico	Bernalillo	350010023	“2ZM” Del Norte High School	6.7
New Mexico	Bernalillo	350010024	“2ZN” South East Heights	6.7 Decommissioned 4/30/2015
New Mexico	Bernalillo	350010029	“2ZV” South Valley	
New Mexico	Chavez	350050005	“5ZG. On roof of Roswell city offices; moved from Country Court House	Decommissioned 7/13/11
New Mexico	Dona Ana	350130025	“6Q.” Las Cruces District Office of NM Environment Dept.	6.3
New Mexico	Grant	350171002	On roof of WNMU Adult Basic Education Building, Silver City.	Decommissioned 7/12/11
New Mexico	Lea	350250008	“5ZS.” Hobbs-Jefferson	8.4
New Mexico	San Juan	350450019	“1FO.” Farmington Environment Department Office	4.7

State	County/Parish Name	AIRS Number	Site Name	2013 Annual Design Value ($\mu\text{g}/\text{m}^3$)
New Mexico	Santa Fe	350490020	Runnels Bldg. 1190 St. Francis Dr.	4.9 Decommissioned 6/11/14
Oklahoma	Adair	400019009	Stilwell	
Oklahoma	Caddo	400159008	Anadarko PM _{2.5}	
Oklahoma	Cleveland	400270049	Moore Water Tower	
Oklahoma	Comanche	400310651	Lawton North	
Oklahoma	Kay	400710604	Ponca City Salvation Army	
Oklahoma	Kay	400719030	Kanza Travel Plaza	
Oklahoma	Love	400850300	Weather Station – Burneyville Mesonet Site	
Oklahoma	Mayes	400970186	Pryor	
Oklahoma	Oklahoma	401090035	Central Fire Station	9.7
Oklahoma	Oklahoma	401091037	OKC North	9.5
Oklahoma	Pittsburg	401210415	McAlester Municipal Airport	10.3
Oklahoma	Sequoyah	401359021		10.5
Oklahoma	Tulsa	401430174	Tulsa South	
Oklahoma	Tulsa	401431127	North Tulsa - Fire Station #24	10.1
Texas	Bexar	480290032	San Antonio Northwest	8.9
Texas	Bexar	480290059	Calaveras Lake	8.6
Texas	Bowie	480370004	Texarkana	10.6
Texas	Cameron	480612004	Isla Blanca Park	
Texas	Dallas	481130050	Convention Center	10.8
Texas	Dallas	481130069	Dallas Hinton	10.0
Texas	Ellis	481390016	Midlothian OFW	9.7
Texas	El Paso	481410037	El Paso UTEP	9.5
Texas	El Paso	481410044	El Paso Chamizal	11.6
Texas	Galveston	481671034	Galveston 99th Street	

State	County/Parish Name	AIRS Number	Site Name	2013 Annual Design Value ($\mu\text{g}/\text{m}^3$)
Texas	Harris	482010024	Houston Aldine	11.1
Texas	Harris	482010058	Baytown	10.7
Texas	Harris	482011035	Clinton	11.8
Texas	Harris	482011039	Houston Deer Park #2	
Texas	Harrison	482030002	Karnack	10.5
Texas	Hidalgo	482150043	Mission	
Texas	Nueces	483550032	Corpus Christi Huisache	10.2
Texas	Nueces	483550034	Dona Park	9.4
Texas	Tarrant	484391002	Fort Worth Northwest	10.5
Texas	Tarrant	484391006	Haws Athletic Center	10.6
Texas	Travis	484530020	Austin Audubon Society	7.8
Texas	Travis	484530021	Austin Webberville Rd	9.6

*A blank cell indicates that there is no valid 2013 annual $\text{PM}_{2.5}$ design value at that site.

Table 2-3: $\text{PM}_{2.5}$ Monitor Sites and Annual $\text{PM}_{2.5}$ Design Values Greater than 11.1 in Neighboring States

State	County/Parish Name	AIRS Number	Site Name	2013 Annual Design Value ($\mu\text{g}/\text{m}^3$)
Arizona	Maricopa	40130019	West Phoenix	11.2
Arizona	Maricopa	40139812	Durango Complex	11.5

2.2 Statewide Emissions Reductions

In the *2013 Progress Report for the State Implementation Plan for Regional Haze* (March 11, 2014,⁷ New Mexico demonstrated that: “ NO_2 , SO_2 and PM point source actual emissions have decreased in New Mexico from 2008-2012. This decrease in actual emissions is significantly greater for NO_2 and SO_2 than projected by WRAP’s regional modeling for New Mexico’s 2018

⁷ Available at https://www.env.nm.gov/aqb/reghaz/documents/NM_Final_RH_Progress_Report_2013.pdf.

emissions. New Mexico has successfully reduced point source emissions beyond its regional commitments with WRAP states for this first progress period. Part of this reduction in emissions was as a result of controls installed at San Juan Generating Station (SJGS) in response to a consent decree between Public Service Company of New Mexico (PNM), NMED, and Grand Canyon Trust. The consent decree controls were completed in 2009, and reduced emissions of SO₂, NO_x, PM and mercury.”⁸

The figure from NMED’s regional haze progress report demonstrating reductions in point source emissions of NO₂, SO₂, and PM is reproduced below, as Figure 2-6, *Point Source Emission Reductions for SO₂, NO₂, and PM from 2008-2012 Compared to WRAP’s Projected 2018 Emissions*. This figure provides data on emissions within NMED’s jurisdiction, i.e., outside of Albuquerque - Bernalillo County. To supplement Figure 2.6, Table 2-4, *Point Source Emissions from Albuquerque - Bernalillo County*, shows recent point source emissions from Albuquerque and Bernalillo County.

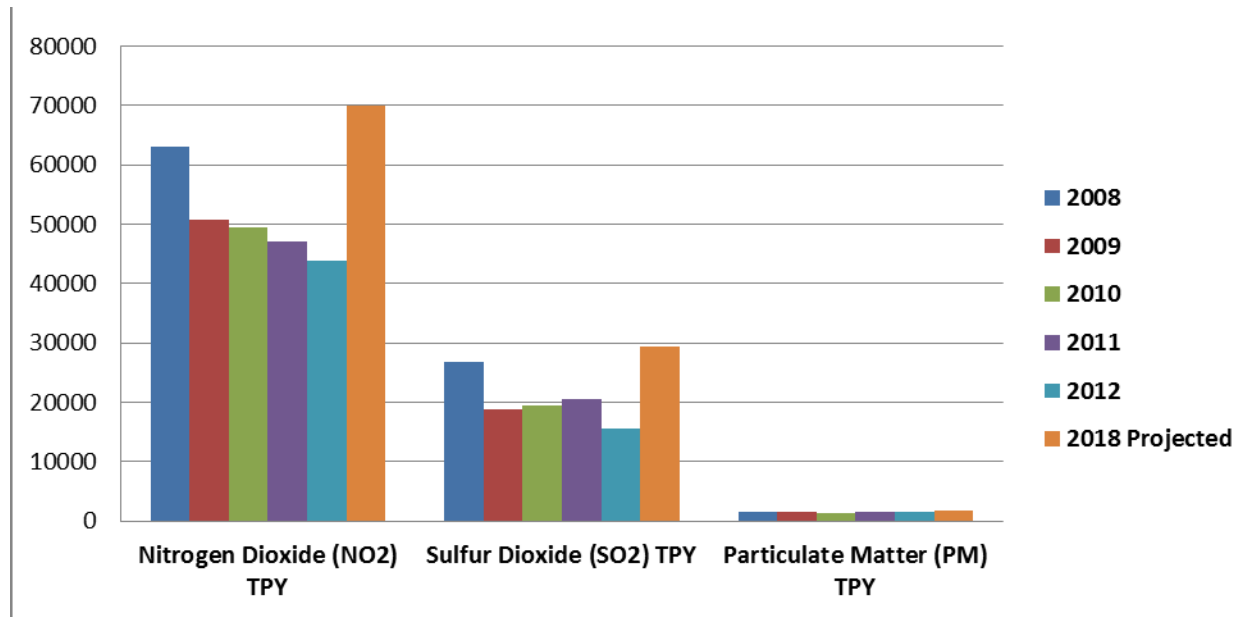


Figure 2-6: Point Source Emission Reductions for SO₂, NO₂, and PM from 2008-2012 Compared to WRAP’s Projected 2018 Emissions.⁹

⁸ 2013 Progress Report for the State Implementation Plan for Regional Haze (March 11, 2014), p. 14, https://www.env.nm.gov/aqb/reghaz/documents/NM_Final_RH_Progress_Report_2013.pdf.

⁹ Source: 2013 Progress Report for the State Implementation Plan for Regional Haze (March 11, 2014), p. 15, https://www.env.nm.gov/aqb/reghaz/documents/NM_Final_RH_Progress_Report_2013.pdf. Point source emission data based on NMED’s 2008-2012 emission inventories.

Table 2-4: Point Source Emissions from Albuquerque - Bernalillo County¹⁰

Year	NO _x	SO ₂	PM ₁₀	PM _{2.5}
2008	1,139.11	56.81	1222.39*	238.78*
2011	1,120.34	73.86	186.39	109.89
2012	1,167.03	132.23	351.42	115.91
2013	1,401.06	164.93	323.07	117.22
2018 WRAP projected**	3,420.06	1,611.95	410.68	22.76.69

*2008 data for PM₁₀ and PM_{2.5} likely in error due to anomalous reporting from a single facility.¹¹

**WRAP PRPb scenario

2.2.1 BART

The SJGS is the only facility in New Mexico that is subject to a BART determination. SJGS includes four coal-fired boilers: Unit 1 is 360 megawatts (MW), Unit 2 is 350 MW, Unit 3 is 544 MW and Unit 4 is 544 MW. BART for NO_x for the SJGS is selective noncatalytic reduction (SNCR) on Units 1 and 4, with a shutdown of Units 2 and 3 by the end of 2017. Installation of SNCR will be completed within 15 months following EPA's approval of the revised Regional Haze SIP, but not earlier than January 31, 2016. This BART strategy is in accordance with the tentative agreement (contained in a 'Term Sheet') reached between New Mexico, EPA, and PNM, (i.e. 'State Alternative'). Implementation of the State Alternative will reduce NO_x emissions from 0.30 lb/mmBtu from four units to no greater than 0.23 lb/mmBtu from Units 1 and 4. Combined with the retirement of Units 2 and 3, this will result in reductions from current emissions of NO_x by 62% (from 21,000 tons per year (tpy) to 8,011 tpy); of SO₂ by

¹⁰ Point source emission data based on City of Albuquerque Environmental Health Department (EHD) emission inventories. EHD does not have quality assured data for 2009 and 2010.

¹¹ 2008 National Emissions Inventory data included reported emissions from a Portland Cement manufacturing facility, the GCC Rio Grande facility in Tijeras, New Mexico. For 2008, this facility reported 904.17 tons of PM₁₀ emitted and 130.70 tons of PM_{2.5}. This level of emissions does not represent normal operations for this facility. Compare to data reported for the same facility for the 2011 National Emissions Inventory, which showed 107.61 tons of PM₁₀ emitted and 51.52 tons of PM_{2.5}.

67% (from 10,500 tpy to 3,843 tpy); and of particulate matter by 50% (from 2,380 to 1,184 tpy). This represents a 35% reduction in statewide emissions of NO_x, SO₂ and particulate matter.¹²

On November 27, 2012, EPA approved New Mexico's 2003 and 2011 Regional Haze SIP submittals, but expressly declined to take action on the portion of the 2011 SIP making a NO_x BART determination for SJGS, which consisted of SNCR with an emission rate of 0.23 lbs/mmBtu.¹³

On October 9, 2014, EPA approved a revision to the New Mexico Regional Haze SIP that addressed BART for SJGS, making the emission limitations federally enforceable;¹⁴ satisfying CAA 110(a)(2)(D)(i)(II) with respect to interstate transport of air pollution and visibility protection for the 8-hour ozone and PM_{2.5} NAAQS (the New Mexico Visibility Transport SIP).¹⁵ Because of this, EPA withdrew their FIP for New Mexico that applies to SJGS.¹⁶

2.2.2 Emissions Reductions from Electric Generating Units (EGUs)

Emissions reduction strategies outside of Albuquerque and Bernalillo County have resulted in significant NO_x and SO₂ emissions reductions from EGUs between 1996 and 2010, as documented in the New Mexico Regional Haze Progress Report.¹⁷ Below, Figure 2-7, *Sum of EGU Emissions of SO₂ and NO_x Reported Between 1996 and 2010 for New Mexico*, reproduces the EGU emissions data from that progress report.

¹² New Mexico 2013 Regional Haze Progress Report, pp. 7- 8.

¹³ 77 Fed. Reg. 70,693 (Nov. 27, 2012).

¹⁴ 79 Fed. Reg. 60,985 (Oct. 9, 2014).

¹⁵ 80 Fed. Reg. 15,963, 15,964 (Mar. 26, 2015).

¹⁶ *Progress Report For The State Implementation Plan For Regional Haze*, p. 44, https://www.env.nm.gov/aqb/reghaz/documents/NM_Final_RH_Progress_Report_2013.pdf.

¹⁷ See Figure 3.21 in March 11, 2014, *Progress Report For The State Implementation Plan For Regional Haze*, p. 44, https://www.env.nm.gov/aqb/reghaz/documents/NM_Final_RH_Progress_Report_2013.pdf.

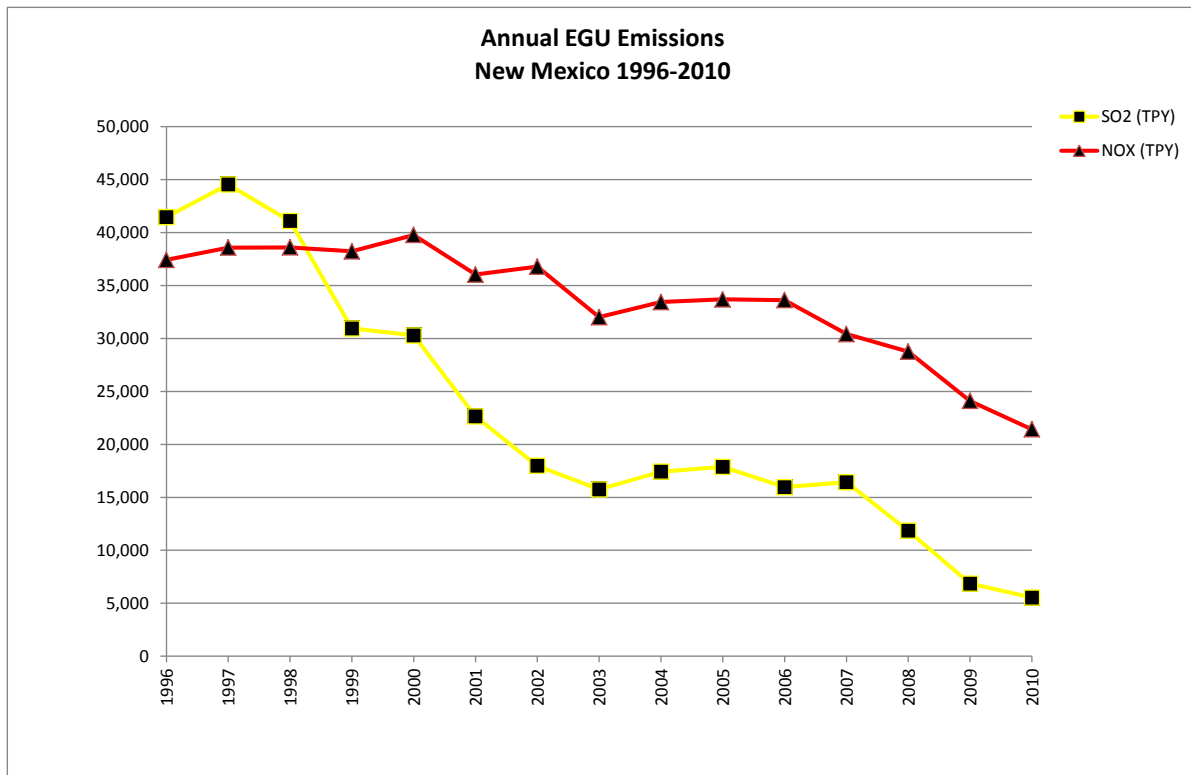


Figure 2-7. Sum of EGU Emissions of SO₂ and NO_x Reported Between 1996 and 2010 for New Mexico

Only two EGUs exist in Albuquerque - Bernalillo County: Rio Bravo Generating Station and Reeves Generating Station. They produce only a small amount of NO_x and SO₂ emissions compared to the rest of the state, as shown below by Table 2-5, *SO₂ and NO_x Emissions from EGUs in Albuquerque and Bernalillo County, in tons per year.*¹⁸

¹⁸ These emissions are small compared to the amount documented for the rest of New Mexico, outside of Albuquerque and Bernalillo County, in the New Mexico Regional Haze Progress Report.

Table 2-5
SO₂ and NO_x Emissions from EGUs in Albuquerque and Bernalillo County, in tons per year¹⁹

	Rio Bravo Generating Station		Reeves Generating Station	
	SO ₂	NO _x	SO ₂	NO _x
1997			0	116
1998			0	138
1999			1	224
2000	2	28	1	374
2001	5	105	2	697
2002	0	12	0	173
2003	0	3	1	235
2004	0	2	0	164
2005	0	4	0	151
2006	0	14	0	80
2007	0	21	0	99
2008	0	38	0	98
2009	0	6	0	84
2010	0	3	0	107
2011	1	350	0	114
2012	0	25	0	93
2013	1	15	0	144

2.2.3 Emission Reductions from Other Sources

Diesel Emissions Reduction Act (DERA) funding combined with American Recovery and Reinvestment Act (ARRA) funding helped fund diesel emissions reductions projects in New Mexico. NMED has successfully implemented a variety of diesel emission reduction projects throughout the state with PM_{2.5} total emissions reductions of 56.7822 tons from 2008 to 2014. Projects are currently planned to extend through 2016.

Other measures aimed at controlling emissions of PM_{2.5} in New Mexico and in Albuquerque - Bernalillo County are described in their respective infrastructure SIP submittals for the 2012 PM_{2.5} NAAQS.

¹⁹ Data in this table were obtained from U.S. Environmental Protection Agency, Air Markets Program Data, <http://ampd.epa.gov/ampd/>.

3. Summary

Overall, monitoring data suggest that emissions from New Mexico (including Albuquerque - Bernalillo County) do not contribute significantly to nonattainment or interfere with maintenance of the 2012 primary annual PM_{2.5} NAAQS for areas in any other state. Additionally, the EPA's projections also show that New Mexico is not likely to affect other state's attainment or maintenance status of the annual PM_{2.5} NAAQS. New Mexico (including Albuquerque - Bernalillo County) has numerous control measures in place to address emissions of PM_{2.5} and its precursors, and all are federally enforceable through SIP revisions.