



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 29 2004

4APT-APB

Honorable Mark Sanford
Governor of South Carolina
State Capitol
P.O. Box 11829
Columbia, SC 29211

Dear Governor Sanford:

Fine-particle pollution represents one of the most significant barriers to clean air facing our nation today. These tiny particles – about 1/30th the diameter of a human hair – have been scientifically linked to serious human health problems. Their ability to be suspended in air for long periods of time makes them a public health threat far beyond the source of emissions. An important part of our nation's commitment to clean, healthy air deals with reducing levels of this fine particle or PM2.5 pollution.

In February, your State submitted its recommended boundaries for PM2.5 attainment and nonattainment areas. We have thoroughly reviewed your recommendations and the technical information you have submitted to support your recommendations. We appreciate the effort your State has made to develop this supporting information. Consistent with the Clean Air Act, this letter is to notify you that based on the information contained in your submittal, EPA intends to make modifications to recommended designations and boundaries in your State.

The detailed enclosure contains a description of areas where EPA intends to modify your State recommendations, and the basis for such modification. Should you have additional information that you wish to be considered by EPA in this process, we request that you provide it to us by September 1.

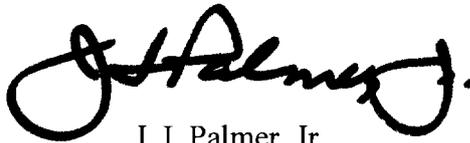
You will hear from us again in November when EPA takes the final step in the PM2.5 designation process and determines those areas that are in attainment and meet the fine particle standards and those areas that do not meet them. For areas in attainment, the challenge will be not only to maintain, but also to continue the progress you have made toward clean air. It is a commitment to no backsliding in your State's clean air status for fine particles. EPA will also issue a proposed fine particle implementation rule prior to final designations, which will allow you to proceed with planning to achieve clean air.

The Bush Administration is addressing fine particle pollution with a comprehensive national clean air strategy. This strategy includes EPA's recent rule to reduce pollution from nonroad diesel engines, and the proposed rule to reduce pollution from power plants in the

eastern U.S. These two rules are important components of EPA's efforts to help States and localities meet the more protective national fine-particle and 8-hour ozone air quality standards. Together these rules will help all areas of the country achieve cleaner air.

Should you or your staff have any questions, I invite you to contact Beverly H. Banister, Director, Air Pesticides and Toxics Management Division, at 404/562-9077, or Kay T. Prince, Chief, Air Planning Branch, at 404/562-9026. We look forward to a continued dialogue with you as we work together to implement the PM2.5 standards.

Sincerely,

A handwritten signature in black ink, appearing to read "J. I. Palmer, Jr.", with a stylized flourish at the end.

J. I. Palmer, Jr.
Regional Administrator

Enclosure

cc: Robert W. King, Deputy Commissioner
SCDHEC
James Joy, Asst. Deputy Commissioner
SCDHEC
Earl Hunter, Commissioner, SCDHEC
Scott English, Governor's Office
Myra Reece, SC BAQ



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Robert W. King, P.E., Deputy Commissioner
Environmental Quality Control
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, SC 29201

Dear Mr. King:

Fine-particle pollution represents one of the most significant barriers to clean air facing our nation today. These tiny particles – about 1/30th the diameter of a human hair – have been scientifically linked to serious human health problems. Their ability to be suspended in air for long periods of time makes them a public health threat far beyond the source of emissions. An important part of our nation's commitment to clean, healthy air deals with reducing levels of this fine particle or PM2.5 pollution.

In February, your State submitted its recommended boundaries for PM2.5 attainment and nonattainment areas. We have thoroughly reviewed your recommendations and the technical information you have submitted to support your recommendations. We appreciate the effort your State has made to develop this supporting information. Consistent with the Clean Air Act, this letter is to notify you that based on the information contained in your submittal, EPA intends to make modifications to recommended designations and boundaries in your State.

Your Governor was sent a letter today notifying him that EPA is modifying the State's recommendation. This letter contains a more detailed enclosure containing a description of areas where EPA intends to modify your State recommendations, and the basis for such modification. Should you have additional information that you wish to be considered by EPA in this process, we request that you provide it to us by September 1, 2004.

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Sincerely,



J. I. Palmer, Jr.
Regional Administrator

Enclosure

cc: James Joy, Asst. Deputy Commissioner
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**Enclosure for 120 Day Letter
Justification for Modifications to State Recommendations
PM 2.5 Nonattainment Areas
State of South Carolina**

An Explanation of EPA's 9-Factor Analysis

Factor 1. Emissions in areas potentially included versus excluded from the nonattainment area:

*The analysis for factor 1 looks at emissions of carbonaceous particles (carbon), inorganic particles (crustal), SO₂, and NO_x. In general, EPA computed a composite emission score for each county by multiplying the county's emissions as a fraction of the metropolitan area emissions for each of these pollutants times a corresponding air quality weighting factor. These scores for the metropolitan area counties add to 100. For metropolitan areas with four or fewer counties, counties' emissions were taken as a fraction of total emissions summed over the metropolitan area plus counties adjacent to either the 1999 or the 2003 metropolitan area. For these areas, scores for the metropolitan area counties plus adjacent counties add to 100. The air quality weighting factors for each area are given below and reflect the percentages of the total estimated "urban excess" value found as carbonaceous particles, miscellaneous inorganic particles (crustal material), ammonium sulfate, and ammonium nitrate. Tables presented under factor 1 provide the carbonaceous particles, inorganic particles, SO₂, and NO_x emissions and the composite emission scores for the counties in the corresponding metropolitan area and adjacent counties. Emissions data are derived from the National Emissions Inventory and are for 2001, given in tons per year. Metropolitan area counties are in **bold**. Emissions data indicate the potential for a county to contribute to observed violations, often making the emissions data the most important factor in assessing boundaries of nonattainment areas.*

"Urban excess" values are derived by comparing urban monitored component concentrations against rural monitored component concentrations. Concentrations of the four PM_{2.5} components are obtained from local data if available or, if necessary, from the nearest available urban site, and are compared to available rural concentrations. The monitoring sites used for this purpose are identified below. Although this information is air quality information, it is presented under Factor 1 due to its integration into the analysis of emissions information.

Factor 2. Air quality in potentially included versus excluded areas:

The air quality analysis looks at the annual averaged design value for each area based on data for 2001 to 2003. Counties without monitors are not listed.

Factor 3. Population density and degree of urbanization including commercial development in included versus excluded areas:

Tables presented under factor 3 show the 2002 population for each metropolitan area, as well as the population density for each county in that area. Population density is listed in people per

square mile. Population data indicate the likelihood of population-based emissions that might contribute to violations.

Factor 4. Traffic and commuting patterns:

A county with numerous commuters is generally an integral part of the area, and would be an appropriate part of the domain of some mobile source strategies, thus warranting inclusion in the nonattainment area. A table summarizes the vehicle miles traveled (VMT) in 2002 and the expected VMT growth between 2002-10 for each area. Information on the county to county commuting is also provided.

Factor 5. Growth:

The growth analysis looks at the percent growth for counties in each metropolitan area from 1990 to 2000.

Factor 6. Meteorology:

The meteorology analysis looks at wind data gathered over a ten year period by the National Weather Service. Tables presented under factor 6 list the year round average prevailing wind directions by quadrant for each county in the corresponding metropolitan area. This data shows that annual average PM_{2.5} concentrations are influenced by emissions in any direction at various times, but these data may also suggest that emissions in some directions relative to the violation may be more prone to contribute than emissions in other directions. The meteorology data for the Indianapolis Metropolitan area differs from this standard form.

Factor 7. Geography/topography:

The geography/topography analysis looks at physical features of the land that might have an effect on the airshed, and therefore, the distribution of particulate matter over an area. The State of Indiana has no such features that significantly influenced EPA's intended nonattainment areas.

Factor 8. Jurisdictional boundaries:

The analysis of jurisdictional boundaries looks at the planning and organizational structure of an area to determine if the implementation of controls in a potential nonattainment area can be carried out in a cohesive manner.

Factor 9. Level of control of emission sources:

The level of control analysis looks at what controls are currently implemented in each area.

The Greenville-Spartanburg-Anderson, SC Metropolitan Statistical Area (MSA) contains the counties of Spartanburg, Greenville, Anderson, Pickens, and Cherokee.

In February 2004, South Carolina recommended that the entire state be designated attainment. Currently, all monitors with three years of complete data are attaining the Particulate Matter standard of 15.0 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). However, Greenville County has a monitor that has not been in operation for three years, but is indicating potential to violate the PM 2.5 standard. Anderson and Spartanburg counties have emissions and population levels that potentially contribute to the high levels at the Greenville monitor in question. Therefore, EPA is modifying the State's recommendation to designate Anderson, Greenville and Spartanburg counties as unclassifiable. Once the monitor has operated for three full years, EPA in conjunction with the State will reassess the situation and revise the designation based on three years of data.

Area	EPA Recommendation	State Recommendation
Greenville-Spartanburg-Anderson, SC	Full Counties: Anderson, Greenville, and Spartanburg as unclassifiable	Full Counties: None

Factor 1: Emissions in areas potentially included versus excluded from the nonattainment area

Region 4's analysis for factor 1 looks primarily at $\text{PM}_{2.5}$, SO_x , NO_x , VOC, ammonia emissions and weighted emissions data. A score is assigned for each county reflecting the speciation profile of the urban increment and the corresponding weighted emissions of the MSA/CMSA. These scores add to 100 for the MSA/CMSA counties and are referred to as weighted emissions scores. Counties adjacent to the CSA can then be assigned an weighted emissions score based on the MSA/CMSA as a way to compare the emissions from those counties the MSA/CMSA counties.

The following table has 2001 $\text{PM}_{2.5}$, SO_2 , NO_x , VOC, and Ammonia (Amm) emissions in tons, and weighted emissions scores for the Greenville-Spartanburg-Anderson Area and surrounding counties. The Metropolitan Statistical Area (MSA) counties are in **bold**.

		PM	SO ₂	NOx	VOC	Amm	Weighted emissions score	Cumulative Weighted emissions score
SC	Spartanburg	3,070	2,351	19,046	23,897	821	29.7	29.7
SC	Greenville	2,793	3,369	15,407	28,867	861	27.4	57.1
SC	Anderson	2,904	9,903	11,559	13,621	1,090	22.9	80.0
SC	Pickens	1,428	1,239	5,153	7,489	274	12.5	92.5
SC	Cherokee	834	1,270	4,121	3,538	301	7.4	99.9
SC	York	2,525	9,714	12,206	15,064	1,325	22.5	
NC	Rutherford	2,323	30,023	12,135	4,847	254	17.0	
NC	Cleveland	1,258	1,261	4,975	6,591	1,240	11.4	
SC	Newberry	979	353	3,682	3,813	1,357	11.0	
SC	Laurens	1,027	597	5,262	4,846	414	10.2	
NC	Henderson	1,068	419	4,088	7,066	358	10.1	
SC	Greenwood	1,095	624	3,680	4,353	404	10.0	
SC	Oconee	1,058	298	3,561	4,867	1,457	9.7	
NC	Jackson	588	303	1,344	1,846	216	6.7	
NC	Macon	555	307	1,164	1,798	262	6.3	
SC	Union	549	849	2,027	2,047	197	5.8	
GA	Habersham	651	103	1,757	2,201	3,031	5.6	
NC	Transylvania	449	3,259	2,824	3,388	106	5.4	
GA	Rabun	455	66	943	1,606	341	5.1	
SC	Abbeville	474	208	1,384	1,538	203	4.7	
GA	Elbert	410	71	1,357	1,280	343	3.8	
GA	Franklin	449	84	2,068	1,813	4,128	3.7	
GA	Stephens	406	277	1,480	2,075	976	3.5	
GA	Hart	505	63	1,321	1,595	1,516	3.2	
NC	Polk	266	105	1,299	1,149	256	3.1	

Based on the analysis for this factor, there appears to be emissions in Spartanburg and Anderson counties that contribute to the air quality in Greenville County. The emissions in Pickens and Cherokee Counties are much less and farther from the Greenville monitor with potential violation.

Factor 2: Air Quality in potentially included versus excluded areas

		2001-2003 Design Value
SC	Spartanburg	13.7

SC	Greenville	14.5
SC	York	14.0
SC	Greenwood	13.1
SC	Oconee	10.6
NC	Jackson	13.0

All of the monitors in this area with three years of complete data are attaining the particulate matter standard. However, there is a monitor in Greenville County, SC with less than three years of data that indicates a potential to violate the standard of $15.0 \mu\text{m}/\text{m}^3$.

Factor 3: Population Density and Degree of Urbanization

The following table has the populations for the counties in the Greenville-Spartanburg-Anderson area and adjacent counties with significant weighted emissions scores.

		2002 Population	% Population of MSA	Population Density (pop./ mi ²)
SC	Spartanburg	259,322	26.3	320
SC	Greenville	391,334	39.6	494
SC	Anderson	170,578	17.3	238
SC	Pickens	113,097	11.4	228
SC	Cherokee	53,524	5.4	136
SC	York	173,755		254
NC	Rutherford	63,287		112

Based on the analysis for this factor, there appears to be significant populations to indicate a contribution by Spartanburg and Anderson counties.

Factor 4: Traffic and commuting patterns

Commuting Information

Total commuters in Greenville County: 185,461

Commuters in Greenville County, SC, who work in Greenville County: 24,270 (87%)

Total commuters in Spartanburg County: 117,096

Commuters in Spartanburg County, SC, who work in Spartanburg County: 95,496 (82%)

Commuters from Spartanburg County, SC to Greenville County, SC: 14,586 (12%)

Total commuters in Anderson County: 76,098

Commuters in Anderson County, SC, who work in Anderson County: 52,133 (69%)

Commuters from Anderson County, SC to Greenville County, SC: 13,766 (18%)

Total commuters in Pickens County: 52,130

Commuters in Pickens County, SC, who work in Pickens County: 28,951 (56%)

Commuters from Pickens County, SC to Greenville County, SC: 15,095 (29%)

Total commuters in Cherokee County: 22,999

Commuters in Cherokee County, SC, who work in Cherokee County: 16,052 (70%)

Commuters from Cherokee County, SC to Greenville County, SC: 431 (2%)

Greenville County has the largest number of commuters in the Greenville-Spartanburg-Anderson MSA. There appears to be significant commuting from Spartanburg, Anderson, and Pickens Counties to indicate a contribution to the monitor in Greenville County.

The following table has the vehicle miles traveled (thousands of miles) for the counties in the Greenville-Spartanburg-Anderson area and some adjacent counties with significant weighted emissions scores. (MSA counties are in **bold**).

		2002 VMT
SC	Spartanburg	3,509
SC	Greenville	3,664
SC	Anderson	2,163
SC	Pickens	1,180
SC	Cherokee	754
SC	York	1,860
NC	Rutherford	606

Based on the analysis for this factor, there is contribution to air quality in Spartanburg, Greenville, Anderson, Pickens, and York counties.

Factor 5: Expected growth

The following table has the population and population growth figures for counties in the Greenville-Spartanburg-Anderson area and some adjacent counties with significant weighted emissions scores.

		2002 Population	Growth '90-'00	% Change '90-'00
SC	Spartanburg	259,322	26,991	12
SC	Greenville	391,334	59,449	19
SC	Anderson	170,578	20,544	14
SC	Pickens	113,097	16,863	18
SC	Cherokee	53,524	8,031	18
SC	York	173,755	33,117	25
NC	Rutherford	63,287	5,981	11

Based on the analysis for this factor, there appears to be significant growth in Greenville, Spartanburg, Anderson, Pickens and York counties indicating a potential contribution to the air quality in Greenville County.

Factor 6: Meteorology

No meteorological information was provided by South Carolina. This factor did not play a significant role in the decision making process.

Factor 7: Geography/topography

The counties of Greenville, Spartanburg, Pickens, and York are located on the northern border of South Carolina, which borders the state of North Carolina.

No geographical or topographical data was provided by South Carolina.

This factor did not play a significant role in the decision making process.

Factor 8: Jurisdictional boundaries

This factor did not play a significant role in the decision making process..

Factor 9: Level of control of emission sources

South Carolina is subject to the NO_x SIP Call and the Greenville-Spartanburg-Anderson MSA is participating in Early Action Compacts.

This factor did not play a significant role in the decision making process.