

Appendix A
Correspondence and Guidance
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

NOV 18 2002

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

SUBJECT: 2002 Base Year Emission Inventory SIP Planning: 8-hr Ozone, PM_{2.5} and
Regional Haze Programs

FROM: *Lydia N. Wegman*
Lydia N. Wegman, Director
Air Quality Strategies and Standards Division

Peter Tsirigotis, Director *P. Tsirigotis*
Emissions, Monitoring, and Analysis Division

TO: Regional Air Division Directors

The EPA anticipates that nonattainment designations for the 8-hour ozone national ambient air quality standards (NAAQS) will occur in 2004, and the designations for the fine particles (PM_{2.5}) NAAQS will occur in the 2004-2005 time frame. Within 3-4 years after designations are promulgated, States will need to submit new attainment demonstration State implementation plans (SIPs) for the new NAAQS. A key element in the overall SIP planning process is the need for updated statewide emission inventories. This memorandum identifies 2002 as the anticipated emission inventory (EI) base year for the SIP planning process to address these pollutants. Identifying the base year at this time gives certainty to States, and the selection of 2002 harmonizes dates for other reporting requirements, e.g., EPA's Consolidated Emissions Reporting Rule (CERR) that requires submission of EI every three years; 2002 is one of the required years for such updates.

The Agency encourages States to take early action to reduce emissions of pollutants that cause violations of the NAAQS for ozone (the 8-hour standard) and PM_{2.5}, and that cause regional haze. States will be able to take credit for emission reductions that occur after the 2002 base year, including reductions that occur before the deadlines for submission of these SIPs. As a matter of policy, EPA seeks to avoid penalizing States for moving forward early to address these problems. Attached is additional information.

The EPA is aware that some areas have already begun on a voluntary basis to model for purposes of the 8-hour ozone standard. These areas may continue to use modeling from previous base years for each set of meteorological episode conditions for use in their SIP submittals if these studies are still applicable for an attainment demonstration. The 2002 EI, however, needs

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to be factored into this analysis. For example, the 2002 inventory would be a good choice for use in modeling “current” emissions. As described in the modeling guidance, predictions for the current emissions and predictions for the future year emissions are used in the modeled attainment test¹. Furthermore, for reasonable further progress (RFP) purposes, the 2002 EI needs to be used as the base year.

Please make this guidance available to the appropriate contacts in your State and local air agencies. Questions on this should be directed to (for ozone) Annie Nikbakht at 919-541-5246 or (for PM_{2.5}) Rich Damberg at 919-541-5592.

cc: Lydia Wegman
Peter Tsirigotis
Rich Ossias
Kevin McLean

¹U.S. EPA, (1999), “*Guidance on the use of models and other analyses in attainment demonstrations for the 8-hour ozone NAAQS*,” DRAFT, May 1999, Web site: <http://www.epa.gov/ttn/scram>, under Guidance/Support, file name: O3TEST.

Attachment

Background

The EPA anticipates that designations for the 8-hour ozone NAAQS will occur in 2004, and the designations for the PM_{2.5} NAAQS will occur in the 2004-2005 time frame. The Clean Air Act (CAA) requires States to submit attainment demonstration SIPs for the 8-hour ozone standard within 3 to 4 years (depending on classification), and within 3 years for the PM_{2.5} standard. Therefore, EPA anticipates that SIPs will be due in 2007 or 2008² for both NAAQS programs. For regional haze, most States (i.e., those participating in regional planning organizations) will have SIPs due at the same time as PM_{2.5} SIPs. We anticipate that technical analyses in support of these SIPs, such as regional scale air quality modeling, will need to begin no later than the 2004 time frame. Updated statewide emissions inventories will be an important component used in these analyses. In addition, for many of the required SIPs, emissions in upwind States will also be an important input to necessary technical analyses.

For the 8-hour ozone, PM_{2.5}, and regional haze program areas, there are statutory and regulatory provisions related to prospective and/or retrospective demonstrations of progress in reducing emissions and/or improving air quality, although the exact provisions differ somewhat across programs. We have considered the statutory and regulatory provisions applicable to each of these program areas, and have concluded that in each case 2002 is an appropriate base year for program requirements related to progress. In addition, there are practical reasons for choosing 2002, as explained below.

Therefore, even though EPA has not developed final rules or guidance for implementation of either the 8-hour ozone NAAQS or the PM_{2.5} NAAQS, EPA believes that 2002 should be the base year inventory for these SIP planning efforts, including for regional haze SIPs. Using the 2002 inventory as the base year will also ensure that the inventory reflects one of the years used for calculating the air quality design values on which designation decisions are based, as well as one of the years in the 2000-2004 period used to establish baseline visibility levels for the regional haze program. Our reasoning is explained in more detail below for each program area.

The year 2002 is also suitable as the principle or one of the principle years used for air quality model validation.

The practical reasons for choosing 2002 have to do with the requirements of the CERR (67 Federal Register 39602), which was finalized on June 10, 2002, and with the schedule of EPA's own work on the National Emissions Inventory. The CERR requires States to submit

²The EPA is still working on the implementation guidance that will address the extent to which subparts 1 and 2 of the CAA apply for purposes of the 8-hour ozone NAAQS. Subpart 1 provides up to three years after nonattainment designation for States to submit attainment and reasonable further progress (RFP) SIPs, while subpart 2 provides 3 to 4 years, depending on an area's classification, for States to submit those plans.

emissions inventories for all criteria pollutants and their precursors every three years, on a schedule that includes the emissions year 2002. The due date for the 2002 emission inventory is established in the CERR as June 2004. Therefore, each State should have information available some time before this date to develop the in-state emissions inventory needed for technical analyses during 2004. In addition, EPA plans to make its initial version of the 2002 National Emission Inventory (NEI) available to the states by December 2003, based on 2002 data on emissions from electric generating units, preliminary 2002 vehicle miles traveled information from the Federal Highway Administration, and growth and control projections starting with the 1999 NEI for other source types. This preliminary 2002 NEI can be used in 2004 by each State needing emission estimates for upwind States. The EPA's final 2002 NEI, which will merge and augment the state-by-state inventories received in 2004, will be ready by the summer of 2005. Depending on where they are in their work, States may wish to switch to the newer estimates of upwind-states' emissions, and certainly should at least consider how the emission estimates for upwind States have changed.

Alternatively, some regional groupings of States may exchange and merge their 2002 inventories directly, prior to completion of EPA's final 2002 NEI. We will be consulting with multi-state organizations about the 2002 inventory process so that work is not duplicated unnecessarily.

8-hour Ozone NAAQS

Under the 8-hour ozone standard, EPA anticipates that many areas designated nonattainment for the 8-hour ozone NAAQS will need to comply with the rate of progress (ROP) requirement in Subpart 2 of the CAA, which applies to areas classified moderate or above. Any area not subject to the subpart 2 ROP requirement would be subject to the more general requirement under subpart 1 to make RFP. Both ROP and RFP consider progress made from a baseline inventory. As enacted in 1990, Subpart 2 provided that the base-year inventory would be 1990. See, CAA section 182(b)(1)(B). Thus, for 1-hour ozone nonattainment areas classified moderate or higher, ROP reductions for the target of 1996 were considered to be a 15 percent reduction of volatile organic compound (VOC) emissions from the 1990 baseline year. Similarly, for each three-year period following 1996 up to its attainment date, a serious or above nonattainment area was required to achieve an additional 9 percent reduction in VOC emissions.³ Under the 8-hour ozone standard, EPA anticipates that, consistent with the above discussion, a 2002 base year emission inventory would be used as the baseline from which future target levels of emissions would be calculated. Therefore, any emission reductions that the State initiates after 2002 would be creditable toward the ROP or RFP requirements.

³ The CAA provides that nitrogen oxides (NO_x) emission reductions may be substituted for VOC emission reductions for these subsequent three-year periods under prescribed circumstances. See CAA section 182(c)(2)(C).

For areas subject to the subpart 2 ROP requirement, section 182(b)(1)(D) places constraints on the use of emission reduction credits from certain pre-1990 programs even though those programs might achieve additional reductions in the years following 1990, i.e., the federal motor vehicle emission control program, Reid Vapor Pressure programs, corrections required to pre-existing reasonably available control technology (RACT) rules, and inspection and maintenance (I/M) program corrections. While these limitations would still apply for purposes of credit for SIPs designed to meet the 8-hour ozone NAAQS, EPA does not believe it is legally required and does not plan to expand the list of programs for which credit is precluded. Subpart 1 does not establish any limits on the creditability of measures for purposes of RFP and EPA does not anticipate establishing any regulatory limits on the creditability of emission reductions. Thus, EPA does not anticipate establishing any additional constraints on crediting emission reductions achieved in years following the 2002 base year. Therefore, apart from those programs listed in the CAA, we believe that States can take credit for other emission reductions that occur after the 2002 base year.

PM_{2.5} NAAQS

The EPA anticipates that States will be required to implement the PM_{2.5} NAAQS under Subpart 1 since the more specific provisions in Subpart 4 that address particulate matter expressly apply only to PM₁₀. As provided above, Subpart 1 does not place limits on the types of controls that are creditable for purposes of the RFP requirement. As with the 8-hour ozone NAAQS, EPA does not anticipate establishing any regulatory constraints limiting creditability of emission controls. Subpart 1 generally calls for States to submit plans including emission reduction measures designed to attain the NAAQS within 3 years after a nonattainment designation. It also includes a reasonable further progress (RFP) requirement, but does not have a specific percent reduction requirement as there is in the ROP requirement of Subpart 2. The exact form of the RFP requirement for PM_{2.5} has yet to be established, but it is expected that any emission reductions that occur after the base year of 2002 would be credited toward the emission reductions needed by the State under its attainment demonstration and toward the reductions needed to meet the RFP requirement.

Regional Haze Program

The regional haze program calls for States participating in regional planning organizations to submit SIPs in 2007-8 that contain progress goals for every class I area and emission reductions strategies needed to meet these goals. Progress in improving visibility is tracked from baseline conditions (established using air quality monitoring for the 2000-2004 period). If 2002 is used as the base year for planning purposes, then States can take credit for emission reductions that are achieved before the 2007-2008 SIP due date.

Credits in General

It should be noted that EPA cannot provide “double credit” for an emission reduction for purposes of RFP or ROP. For instance, if a program or rule results in emission reductions prior to or in the base year, those reductions would be considered in calculating the base year emissions inventory and thus could not be counted as emission reductions from the base-year level. Such reductions would likely lower ambient pollutant concentrations, however, and would be important in terms of determining an area’s designation and, if designated nonattainment, could affect the area’s classification and thus its planning obligations. For example, emission reductions in NO_x or VOC achieved prior to or during 2002 could have already resulted in the area having a lower ozone design value, which is the measure of whether the area is violating the 8-hour ozone standard and, if so, by how much. Reductions from such measures in years beyond the base year would be creditable towards ROP SIPs. These concepts of credit were discussed in the January 29, 2001, memorandum from John Seitz entitled “Near-Term Discretionary Emission Reductions for Ozone NAAQS–Clarification,” which addressed the 1-hour ozone standard, but which are also conceptually applicable to implementation of the 8-hour ozone standard.

However, post-2002 emission reductions that benefit ozone, PM_{2.5} and regional haze can be credited toward the RFP requirements for each of these programs.



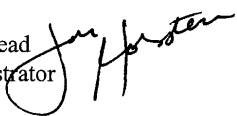
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 01 2003

MEMORANDUM

OFFICE OF
AIR AND RADIATION

SUBJECT: Designations for the Fine Particle National Ambient Air Quality Standards

FROM: Jeffrey R. Holmstead 
Assistant Administrator

TO: Regional Administrators, Regions I-X

This memorandum provides guidance to State and local air pollution control agencies and Tribes on the process for designating areas for the purpose of implementing the fine particle national ambient air quality standards. The EPA plans to issue final designations on December 15, 2004. This memorandum describes the process for developing State and Tribal recommendations on designations and the time line for EPA action leading to the final designations.

The EPA promulgated the air quality standards for fine particulate matter (known as $PM_{2.5}$) on July 18, 1997 (62 Federal Register 38652). The standards were based on a number of health studies showing that increased exposure to $PM_{2.5}$ is correlated with increased mortality and a range of serious health effects, including aggravation of lung disease, asthma attacks, and heart problems. Estimates show that attainment of these standards would result in tens of thousands fewer premature deaths each year and would prevent tens of thousands of hospital admissions and millions of work absences and respiratory illnesses in children annually. The designation process for $PM_{2.5}$ that is outlined below is the next step toward developing and implementing emission control programs that will address this important public health problem.

The first step in the designation process is the submittal of State and Tribal recommendations. The EPA requests that States and Tribes provide a list of recommended designations to EPA by February 15, 2004. The EPA plans to announce its intended designations in July 2004 and will provide 120 days for States and Tribes to comment on any modifications that EPA makes to the recommended designations. We plan to publish final $PM_{2.5}$ designations for all areas on December 15, 2004. We also intend to propose and finalize its implementation rule for $PM_{2.5}$ early enough to be taken into consideration during the designation process. The EPA hopes that by following a designation schedule for $PM_{2.5}$ similar to that for the 8-hour ozone program, the States and Tribes will be able to harmonize area boundaries and future control strategies to the extent possible.

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As explained in this guidance, we intend to apply a presumption that the boundaries for urban nonattainment areas should be based on Metropolitan Area boundaries. A metropolitan area, as defined by the Office of Management and Budget, may consist of a single Metropolitan Statistical Area in some cases, and a Consolidated Metropolitan Statistical Area in other cases. These metropolitan areas provide presumptive boundaries for the geographic extent of urban areas. The presumptive use of metropolitan area boundaries to define urban nonattainment areas is based on recent evidence that violations of the PM_{2.5} air quality standards generally include a significant urban-scale contribution as well as a significant larger-scale regional contribution. For rural areas that are identified as violating the PM_{2.5} standards, the guidance sets forth EPA's presumption that the full county should be designated nonattainment. The approach taken in this guidance is similar to our approach to designations for the 8-hour ozone standard, and we urge States and Tribes to harmonize their ozone and PM_{2.5} designation recommendations where appropriate.

Two attachments provide additional information and guidance. Attachment 1 is a time line of important dates in the fine particle NAAQS implementation process. Attachment 2 is a series of questions and answers providing more detailed guidance, including discussion of several factors to be considered in evaluating whether modifications to nonattainment area boundaries are appropriate.

This memorandum provides EPA's current views on how boundaries should be determined for designations. This guidance is not binding on States, Tribes, the public, or EPA. Issues concerning nonattainment area boundaries will be addressed in actions to designate nonattainment and attainment/unclassifiable areas under section 107 and section 301(d) of the Clean Air Act (Act). When EPA promulgates designations, that action will be final and binding on States, Tribes, the public, and EPA as a matter of law.

Staff in EPA's regional offices and the Office of Air Quality Planning and Standards are available for assistance and consultation throughout the designation process. Questions on this guidance may be directed to Tom Rosendahl at 919-541-5314 or Rich Damberg at 919-541-5592. The Regional Offices should make this guidance available to their States and Tribes and work closely with them to ensure they submit their area recommendations and supporting information by February 15, 2004.

Attachments: 2

cc: Stephen D. Page, OAQPS
Air Division Directors, Regions I-X
Margo Oge, OTAQ
Brian McLean, OAP
Elizabeth Cotsworth, ORIA

ATTACHMENT 1

TIME LINE FOR PM_{2.5} NAAQS IMPLEMENTATION PROGRAM	
Date	Item
September 2003	EPA issues proposed PM _{2.5} implementation rule
February 15, 2004	State and Tribal recommendations due for PM _{2.5} designations - Recommendations can be based on 2000-2002 data
July 2004	EPA notifies States and Tribes concerning any modifications to their recommendations.
September 2004	EPA issues final PM _{2.5} implementation rule
December 15, 2004	EPA issues final PM _{2.5} designations.
December 2007	State implementation plans are due for PM _{2.5} nonattainment areas (3 years after designation date).
December 2009-2014	Date for attaining PM _{2.5} standards (5 years after designation date). - An extension of up to five years is possible with an adequate demonstration.

ATTACHMENT 2

GUIDANCE ON NONATTAINMENT AREA DESIGNATIONS FOR PM_{2.5}

1. What are the underlying requirements for designating areas for the PM_{2.5} NAAQS?

Requirements for area designations are found in section 107 of the Clean Air Act (Act). Upon promulgation of a new or revised national ambient air quality standard (NAAQS)¹, States are required under section 107(d) of the Act to submit to EPA a recommended list of areas for designation as attainment, nonattainment, or unclassifiable. While the language of Section 107 specifically addresses States, EPA will follow the same process for Tribes to the extent practicable, pursuant to Sections 110(o) and 301(d) of the Act and the Tribal Authority Rule, or TAR.²

Section 107(d) specifies that nonattainment areas shall include "any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant." Interpretation of this requirement is a key purpose of this guidance.

Section 107 further specifies a timetable for action on designations. Under section 107(d)(1), States are to submit recommendations within one year after promulgation of a new or revised standard. Under section 107(d)(1)(B)(ii), if EPA intends to promulgate a designation that deviates from the State recommendation, it must notify the State at least 120 days before promulgating the modified designation, and EPA must provide the State the opportunity to comment on the potential modification. EPA should promulgate designations within two years after promulgation of a new or revised standard, with a possible one year extension if EPA has insufficient information.

The Transportation Equity Act for the 21st Century (TEA-21) of 1998 amended the timetable for PM_{2.5} designations, based on the recognition that the monitoring network first needed to be deployed to collect sufficient monitoring data to designate areas. Under section 6102(c)(1) of TEA-21, States are required to submit recommended area designations to EPA within 1 year after receipt of 3 years of air quality monitoring data obtained with federal reference (or equivalent) monitoring methods. Section 6102(d) requires EPA to promulgate designations within 1 year after State recommendations are due, but no later than December 31, 2005. Although the TAR provides Tribes with flexibility in meeting the schedules set forth in

¹ EPA promulgated the NAAQS for PM_{2.5} on July 18, 1997. See 62 Federal Register 38652. The annual standard for PM_{2.5} was set at a level of 15 µg/m³, based on the 3-year average of annual arithmetic mean PM_{2.5} concentrations. The 24-hour standard was set at a level of 65 µg/m³, based on the 3-year average of the 98th percentile of 24-hour PM_{2.5} concentrations.

²The "Tribal Authority Rule," promulgated on February 12, 1998, specifies that Tribes shall be treated as States in selected cases as appropriate. See 63 FR 7254, codified at 40 Code of Federal Regulations (CFR) Part 49 (1998).

the Act, EPA has the obligation to designate areas consistent with the schedules in the Act. Therefore, EPA will designate Tribal areas, in consultation with the Tribes, on the same schedule as State designations. State implementation plans designed to meet the standards are then due within three years of the date of designation (e.g. December 2007) in accordance with section 172 of the Act.

2. What are the key milestones of the PM_{2.5} designations process?

The milestones of the PM_{2.5} designation process are listed in Attachment 1. In developing these milestones, we considered that implementation of the TEA-21 schedule for designations could be complicated by the variety of dates on which various locations first have 3 years of data available. Some sites had 3 years of data available as of July 2002, other sites did not have 3 years of data until later in 2002, and some sites will not have 3 years of data until July 2003. This approach could result in designations occurring between July 2004 and July 2005. EPA believes that a staggered designation schedule, which would yield staggered implementation plan deadlines, would hamper the regional and metropolitan area-based coordination that is needed among various governments and stakeholders. Therefore, this guidance contains single dates for State/Tribal recommendations and final designations by EPA.

EPA requests that all State and Tribal recommendations be submitted by February 15, 2004. Consistent with TEA-21 time frames, EPA plans to designate all areas by December 15, 2004. States and Tribes will be able to use the 2000-2002 data in their recommendations. Areas should be identified as “nonattainment” (violating a standard or contributing to nearby violations), or as “attainment/unclassifiable” (either meeting the standard or having insufficient data to determine air quality, and not contributing to nearby nonattainment). EPA intends to promulgate area designations in terms of these two categories. State recommendations do not apply to Indian country.

After EPA evaluates the recommendations it receives, EPA will notify States and Tribes of any modifications it intends to make to their recommendations at least 120 days before the designations are to be finalized.³ If a State or Tribe disagrees with any change, it may provide information to EPA to demonstrate why it believes that the proposed modification is inappropriate, and EPA will consider this information in developing the final list of area designations. In their comments, States and Tribes may take into account the 2001 to 2003 monitoring data, which EPA expects to be available before comments are due. As noted above, EPA’s policy is to use the most recent three years of data available at the time of designations.

³EPA’s legal obligation to provide 120 days notice of modifications applies only to those Tribes that have sought and received formal authority to recommend designations pursuant to the Tribal Authority Rule. However, EPA is soliciting Tribal recommendations and intends to provide 120 days notice of any modifications irrespective of whether a Tribe has this formal authority.

EPA plans to promulgate final designations on December 15, 2004 and intends to consider the 2001 to 2003 data in making these designations.

The EPA is committed to ensuring that all stakeholders have an opportunity to participate in the designation process for the PM_{2.5} NAAQS, and that State, local and Tribal officials have ample time to comply with obligations that are triggered by designations. States and Tribes are encouraged to involve their stakeholders in developing their recommendations. Regional Offices should work with States and Tribes, particularly for areas where a monitor is recording a violation of the PM_{2.5} standards. If a State or Tribe does not provide any designation recommendations for specific areas, EPA will promulgate the designations it deems appropriate.

3. How are violations identified?

The first step in defining nonattainment areas is to identify monitoring sites at which air quality does not meet either the annual or 24 hour standard for PM_{2.5}. Appendix N to 40 CFR Part 50 specifies the procedures to be used to analyze whether air quality at any site meets the air quality standards. Procedures associated with data handling and calculations for comparing data to the PM_{2.5} standards are described in more detail in the "Guideline on Data Handling Conventions for the PM NAAQS" (EPA-454/R-99-008, 1999). The EPA's designation of areas will be based on the most recent 3 consecutive calendar years of air quality data from Federal reference or equivalent method monitors. Data used must be quality-assured and meet 40 CFR part 58 requirements (e.g., for monitor siting).

Many areas collect additional data on particulate matter composition using the Interagency Monitoring for Protecting Visual Environments (IMPROVE) protocol or using methods of the speciation trends network. These methods are not Federal reference methods or equivalent methods, and data collected according to these methods should not be used to determine the existence of a violation. However, as noted in 40 CFR 58 (Appendix C, section 2.9) with respect to IMPROVE protocol monitors, these methods may be used to estimate background concentrations and thus may be used to assess the geographic extent of the area contributing to a nonattainment situation.

The air quality standards for PM_{2.5} specify two exceptional circumstances in which concentrations above the level of the standard are not to be interpreted as violating the standard. The first exception is that sites that monitor source-oriented hot spots in some cases should be assessed only with respect to the 24-hour standard, not the annual average standard. In 40 CFR Part 58 (Appendix D, section 2.8.1.2.3), EPA states that monitoring sites representing unique localized conditions not found elsewhere in the area should not be compared with the annual average standard. For sites that States or Tribes have designated as hot-spot sites, EPA must review whether available evidence confirms that the annual average concentrations at the site are in fact unrepresentative of conditions elsewhere in the region. If so, data from the site will not be compared against the annual standard, but it will be compared against the 24-hour standard.

The second exception arises when the option of spatial averaging is applied, which may result in a group of monitors collectively indicating attainment of the annual average standard, even though individual monitors in the group may show average concentrations which do not meet the standard. Conversely, spatial averaging could indicate nonattainment for the area even though some monitors show concentrations which meet the standard. Appendix N of 40 CFR Part 50 offers the option of applying spatial averaging in the analysis for the annual average standard. For a State or Tribe to apply spatial averaging, it must have previously designated PM_{2.5} monitors for spatial averaging as an element of its PM_{2.5} monitoring plan, and it must have provided a suitable opportunity for the public to comment on this intent.⁴

Monitors with data to be averaged must satisfy detailed criteria given in 40 CFR Part 58 (Appendix D, section 2.8.1.6). Sites within an identified area that meet these criteria will be addressed on a spatially averaged basis only if the State or Tribe opts to do so. For monitors that satisfy these criteria, the procedures for averaging the qualifying data are given in Appendix N to 40 CFR Part 50 and the aforementioned data handling guidance. A determination would be made as to whether the spatially averaged annual average meets or does not meet the annual average standard, irrespective of whether concentrations at any individual site meet or do not meet the annual standard.

4. How should boundaries of urban nonattainment areas be determined? Are there presumptive boundaries for nonattainment areas?

As noted above, a nonattainment area must be defined not only to include the area that is violating the standard, but also to include the nearby source areas that contribute to the violation. Thus, a key factor in setting boundaries for nonattainment areas is determining the geographic extent of nearby source areas contributing to the nonattainment problem. For each monitor or group of monitors that exceed a standard, nonattainment boundaries must be set that include a sufficiently large area to include both the area judged to violate the standard and the source areas that contribute to these violations. Evaluations of source areas must account for sources of PM_{2.5} precursors (such as sulfur dioxide, nitrogen oxides, ammonia, and some volatile organic compounds) as well as sources of direct PM_{2.5} emissions.

EPA has examined various evidence addressing the typical geographic scale of source areas that contribute to violations of the PM_{2.5} standard. This evidence indicates substantial contributions to violations of the PM_{2.5} standard both from long-range transport⁵ and from the collection of urban sources dispersed within metropolitan areas. To assess the metropolitan scale

⁴ See 40 CFR Part 58.20(f) and 40 CFR Part 58.26(e) for information about public notification and public comment requirements associated with spatial averaging.

⁵ See discussion of long-range transport of sulfate and nitrate particles in supporting materials for the Clear Skies Act at <http://www.epa.gov/clearskies/>.

contribution, EPA examined the geographic distribution of total PM_{2.5} concentrations in and near many metropolitan areas. EPA found an association of higher PM_{2.5} concentrations with greater levels of urban activity. Comparisons of rural versus urban concentrations of the components of PM_{2.5} indicate that certain components (such as carbonaceous particles and nitrates) resulting in part from urban emissions are found in significantly higher concentrations in urban areas.⁶ These "urban emissions" arise from human activities, such as motor vehicle use and home heating as well as industrial activities, that occur with greater density in more populated areas.

The metropolitan area, as delineated by the Office of Management and Budget (OMB), provides a presumptive definition of the populated area associated with a core urban area.⁷ Accordingly, EPA believes that the metropolitan area provides a presumptive definition of the source area that contributes to a PM_{2.5} nonattainment problem. For this reason, EPA believes that the Metropolitan Area should serve as the presumptive boundary for urban PM_{2.5} NAAQS nonattainment areas. This presumption reflects EPA's view that, in the absence of evidence to the contrary, violations of the PM_{2.5} NAAQS in urban areas may be presumed attributable at least in part to contributions from sources distributed throughout the Metropolitan Area. This approach parallels the presumptive metropolitan area boundaries established in the 1990 Amendments to the CAA for certain ozone nonattainment areas.

"Metropolitan areas" are defined by the Office of Management and Budget based on data collected by the U.S. Bureau of the Census. In each case, a metropolitan area includes a core urban area plus the full set of associated nearby communities. These areas in some cases include a single Metropolitan Statistical Area (MSA) that is not associated with and is typically not contiguous with any other MSA, and in other cases include multiple contiguous Primary Metropolitan Statistical Areas (PMSA) which collectively form a Consolidated Metropolitan Statistical Area. In Metropolitan Areas consisting of a single MSA, EPA presumes the entire MSA should be designated as nonattainment. In Metropolitan Areas consisting of multiple PMSA's which collectively form a Consolidated Metropolitan Statistical Area, EPA presumes the entire Consolidated Metropolitan Statistical Area should be designated nonattainment.

EPA anticipates that OMB will publish revised metropolitan area lists later in 2003. Unfortunately, this publication may not occur early enough for States and Tribes to consider the revised lists in the development of recommended designations for PM_{2.5}. Furthermore, EPA seeks to maximize consistency between designations for PM_{2.5} and designations for the 8-hour ozone standard. The earlier timetable for ozone designations makes it even less likely that revised metropolitan area lists will be available for State and Tribal consideration in recommending

⁶ V. Rao, N. Frank, A. Rush, F. Dimmick, "Chemical Speciation of PM_{2.5} in Urban and Rural Areas", in the Proceedings of the Air & Waste Management Association Symposium on Air Quality Measurement Methods and Technology, San Francisco, November 13-15, 2002.

⁷ For further information on the definitions of metropolitan areas, see:
<http://www.census.gov/population/www/estimates/metroarea.html>.

ozone designations. Therefore, EPA anticipates relying on the current metropolitan area definitions, published by OMB on June 30, 1999, in establishing presumptive nonattainment area boundaries.

EPA will consider State, local, and Tribal recommendations of nonattainment area boundaries that deviate from metropolitan area boundaries based on various factors. These factors are discussed in question 5 below. Consideration of these factors may warrant a nonattainment area that has additions and/or deletions relative to OMB's defined metropolitan area.

Boundaries used for implementation of the 8-hour ozone standard may also be an important factor in determining boundaries for $PM_{2.5}$ nonattainment areas. Indeed, there are many areas that violate both the 8-hour ozone and the $PM_{2.5}$ standards, and States and Tribes may wish the nonattainment boundaries for the two pollutants to be identical in order to coordinate air quality planning, control strategy development, and the implementation of the transportation conformity program.

We recognize that, unlike ozone nonattainment problems, there are situations where nonattainment of the $PM_{2.5}$ NAAQS can arise on a very localized basis. For example, violations can be caused by the emissions from a single major source or set of sources, in some cases exacerbated by severely restricted atmospheric dispersion (such as a narrow mountain valley). In such cases, the State or Tribe should further investigate the causes of the violation and the geographic extent of the violation. The recommended boundaries of the nonattainment area should then reflect a case-specific judgment of the area sufficient to include the areas violating the $PM_{2.5}$ NAAQS plus any additional source areas contributing to the violation. The State or Tribe will need to provide an adequate justification demonstrating that a smaller area would include the full area that is violating the standards and all nearby source areas that contribute to the violation. EPA expects there to be a limited number of situations of this type.

5. What factors will EPA consider as the basis for a State or Tribal request for an alternative urban area definition?

In some cases, a State or Tribe may find that a violation of the $PM_{2.5}$ standard is attributed to a significant metropolitan-scale component and yet believe that the Metropolitan Area does not appropriately define the area that should be designated nonattainment. EPA will consider requests for urban nonattainment area definitions that deviate from OMB's metropolitan area definitions on a case-by-case basis, considering the factors described below. These factors resemble the factors identified in previous EPA guidance on 8-hour ozone nonattainment boundaries, though EPA will make its decisions based on the distribution of sources contributing to $PM_{2.5}$ concentrations. EPA will apply these same factors in evaluating boundary modifications for both States and Tribes. $PM_{2.5}$ is a regional pollutant, and sources of $PM_{2.5}$ and its precursors are numerous and located over a broad area. For this reason, EPA believes it would be unlikely

that we would designate any area as attainment that is surrounded on all sides by nonattainment areas.

EPA will consider the following factors in assessing whether to exclude portions of a metropolitan area and whether to include additional nearby areas outside the metropolitan area as part of the designated nonattainment area:

- Emissions in areas potentially included versus excluded from the nonattainment area
- Air quality in potentially included versus excluded areas
- Population density and degree of urbanization including commercial development in included versus excluded areas
- Traffic and commuting patterns
- Expected growth (including extent, pattern and rate of growth)
- Meteorology (weather/transport patterns)
- Geography/topography (mountain ranges or other air basin boundaries)
- Jurisdictional boundaries (e.g., counties, air districts, Reservations, etc.)
- Level of control of emission sources

Analyses of these factors may suggest nonattainment boundaries that are either larger or smaller than the metropolitan area. A demonstration supporting the designation of boundaries that are less than the full metropolitan area must show both that violations are not occurring in the excluded portions of the metropolitan area and that the excluded portions are not source areas that contribute to the observed violations. A State or Tribal submittal that only addresses whether violations are occurring throughout the area will not suffice as a justification for designating a nonattainment area smaller than the metropolitan area. States and Tribes are encouraged to justify such recommendations by addressing all of the factors identified above. Recommendations to designate a nonattainment area larger than the metropolitan area should also be based on an analysis of these factors. EPA will consider these factors in evaluating State and Tribal recommendations and assessing whether any modifications are appropriate.

Air quality dispersion modeling and data interpolation techniques can be useful tools to help assess how air quality in unmonitored areas compares to air quality at monitoring sites. Accordingly, these tools can help assess the geographic area violating and/or contributing to a violation of the standards. EPA and others are undertaking various efforts to improve the reliability of these tools. In determining whether an analysis appropriately justifies modified nonattainment area boundaries, EPA will give particular consideration to the reliability of the relevant modeling or interpolation technique.

6. How should designation recommendations, including boundaries, be addressed when more than one State or Tribe might be affected?

Where more than one State or Tribe is involved in an area, close coordination is needed

among the affected States and Tribes prior to the time the recommendation is made. In addition, the EPA Regional Office should coordinate where an area may be located in States or tribal lands located in two or more regions. There is a strong presumption that interstate areas making up one metropolitan area will be designated as one nonattainment area. The EPA strongly encourages States and Tribes involved in multi-jurisdictional areas to make consistent and coordinated boundary recommendations.

7. How will EPA address rural areas?

Previous questions have addressed urban areas, presumptively defined as metropolitan areas surrounding core cities, with potential boundary adjustments based on a variety of factors. This question addresses rural areas, defined here to mean counties or areas not included in or adjacent to such urban areas. An area found to violate the standard that is adjacent to a metropolitan area will generally be designated as part of that urban nonattainment area and would not be treated as rural for purposes of this guidance.

As with urban areas, the first step in determining attainment status for rural areas is to evaluate available air quality data measured by Federal reference method monitors. The second step is to assess the boundaries of the airsheds represented by the rural monitors and determine the source areas contributing to air quality at these monitors. For cases in which rural data indicate nonattainment, the nonattainment area again must be sufficient to include the full area that is violating the standards as well as any nearby source areas that are contributing to the violation.

When a rural monitor violates the standard, EPA intends to apply a presumption that the nonattainment area shall include the full county in which the monitor is located. EPA will consider recommendations to adjust rural area nonattainment boundaries based on the same factors as it applies to urban areas, as discussed in question 5 above. Using these factors, a State or Tribe that recommends that a smaller area should be designated nonattainment should provide convincing evidence that the monitor is not representative of the full county, that the excluded portions of the county are not source areas contributing to the nonattainment, and that the excluded portions of the county are meeting the standard. Similarly, a State or Tribe may recommend that a larger area be designated nonattainment based on technical information relevant to these factors. Nevertheless, as discussed above, if nonattainment is demonstrably very localized and is attributable to localized sources, EPA intends to establish nonattainment area boundaries based on a case-specific evaluation of the nature and extent of the problem.

8. What additional documentation should a State or Tribal government submit concerning the nonattainment area recommendations?

In addition to technical information documenting the recommendation for area

boundaries noted in question number 5 above, the EPA is requesting that each State or Tribe in its submission provide certain air quality data and geographic information to support its nonattainment area recommendation. The EPA is asking for the following information:

For nonattainment areas:

- a. $PM_{2.5}$ design value for the area.
- b. Three year period represented by the design value, e.g., 2000-2002
- c. Design value monitoring site location(s) and identification number(s).

For attainment/unclassifiable AND nonattainment areas:

- d. Names of counties and tribal lands included, and
- e. If partial counties or portions of tribal lands are included, the boundary definition/description as outlined below.

If the recommended nonattainment area boundary is smaller than the metropolitan area definition, the State or Tribe should document its rationale for selecting the nonattainment area boundary. The documentation should address how all the factors discussed in question number 5 (such as population, traffic and commuting patterns, commercial development, projected growth, prevailing meteorology, nearby sources and air quality, and any other relevant or technical justification factors) affect the drawing of boundaries for each county or other sub-area not included in the recommended nonattainment area. In particular, where the recommended area boundary consists of parts of counties, metropolitan areas, or tribal lands, the State or Tribe must provide a technical analysis for its recommendation, explaining how the boundary is consistent with §107 (d)(1) of the Act.

If the recommendation includes any partial counties, the EPA is requesting a legal definition of the area, a detailed hard copy map, and, because EPA plans to map each area, a digitized latitude and longitude description. The submittal should include the names of contacts for this information.

The EPA envisions making information on designation recommendations available electronically. Therefore, EPA requests that each State submit its designation recommendations, supporting documentation, and boundary information and associated maps to EPA in both a detailed written form and in electronic form.

9. How is EPA addressing Tribal concerns about the designations process?

Tribes are encouraged, but not required, to submit designation recommendations for their reservations or other areas under their jurisdiction to EPA. The TAR offers flexibility to Tribes for specific plan submittal and implementation deadlines for NAAQS-related requirements, including but not limited to such deadlines in CAA sections 110(a)(1), 172(a)(2), 182, 187, 189,

and 191. However, EPA is required by the Act to promulgate area designations according to a timetable. Therefore, if a Tribe wishes to participate in the designation process they must submit a recommendation in time for EPA to consider that recommendation when making a designation. In cases where Tribes do not make a recommendation, the EPA, upon consultation with the respective Tribe(s), will promulgate the designation it deems appropriate.

EPA has discussed designation issues with many Tribal representatives and we recognize that there are several issues of particular concern to Tribes. Some Tribes have expressed concern that where a violation is monitored in a metropolitan area that includes tribal lands, the tribal lands presumptively should not be part of the urban nonattainment area, because the tribal lands often are not politically and economically integrated with the urban area. EPA will address this concern on a case-by-case basis. Upon request, EPA will help any Tribe obtain relevant information addressing the factors described under question 5 above. As with State lands, EPA will use this information to help judge whether the tribal lands are meeting the air quality standards and whether the tribal lands are a source area contributing to nonattainment in the metropolitan area. EPA will designate the tribal lands based on this information.

Some Tribes have expressed concern about the use of monitors located on State lands to establish designations for tribal lands. Given EPA's obligation to promulgate designations for all locations, EPA by necessity must judge the air quality of unmonitored locations on the basis of monitoring data from other locations. Where a monitor indicates a violation of an air quality standard, EPA will designate a nonattainment area that includes unmonitored areas either that EPA judges also to be violating the standard or that EPA judges to be a nearby source area contributing to the nonattainment. Some Tribes have also raised concerns with the designation process that they may not have the resources to do the detailed analysis necessary to prepare their recommendations. EPA offers to work with Tribes on their recommendations upon request.

MEMORANDUM

SUBJECT: Additional Guidance On Defining Area Boundaries for PM-2.5 Designations

FROM: Lydia N. Wegman, Director
Air Quality Strategies and Standards Division (C504-01)

TO: Air Division Directors, Regions I-X

This memorandum provides additional guidance for determining boundaries of PM-2.5 areas in the PM-2.5 designations process. Our April 2003 boundary guidance establishes the metropolitan area (i.e. the larger of the Consolidated Metropolitan Statistical Area (CMSA) or Metropolitan Statistical Area (MSA)) as the presumptive boundary for PM-2.5 nonattainment areas¹. The boundaries of CMSAs and MSAs, which were delineated by the Office of Management and Budget (OMB) in 1999, include populated areas associated with core urban areas. Our April 2003 guidance recognized that OMB planned to publish revised urban area definitions sometime in 2003, but, because the specific release date was not known at that time, the guidance stated that the Environmental Protection Agency (EPA) anticipated using the 1999 definitions for the PM-2.5 designation process.

OMB subsequently issued revised urban area definitions on June 6, 2003. The definitions established core-based statistical areas (CBSAs) (or CBSAs, comprised of “metropolitan” and “micropolitan” areas), and combined statistical areas (CSAs) (or CSAs, comprised of two or more core-based statistical areas)². While we are not requiring States and Tribes to use the recently-defined CSA and CBSA as the presumptive boundaries for determining PM-2.5 nonattainment areas, we ask that in your review of State and Tribal recommendations that you assess all counties included in any relevant CSA or CBSA under the 2003 definitions, as well as any adjacent counties, using the 9 factors identified in the April 1, 2003 guidance. We believe this approach is appropriate because the new OMB definitions group together counties having a

¹ Memorandum from Jeffrey R. Holmstead, Assistant Administrator, to EPA Regional Administrators, “Designations for the Fine Particle National Ambient Air Quality Standards,” April 1, 2003.

² A list of the 2003 OMB metropolitan area definitions and associated information may be found at: <http://www.census.gov/population/www/estimates/metroarea.html>.

high degree of social and economic integration with a central core area, reflecting the latest technical information available about significant growth and commuting rates. While EPA is not requiring that States use the 2003 OMB boundary definitions as the presumptive boundaries, please ask that your respective States and Tribes fully document the basis for their recommendations, using the 9 factors identified in the April 2003 guidance.

All other information contained in the April boundary guidance continues to apply, and States and Tribes should continue to follow the guidance in making the boundary recommendations by February 15, 2004, as required in our guidance and the Consolidated Appropriations Bill for FY-2004.³ In addition, as we requested in the April 2003 guidance we encourage States and Tribes to make every effort to process the 4th quarter 2003 air quality data as quickly as possible so it can be taken into account in the February recommendations. Also, stated in the April 2003 guidance, EPA will make available on our website information submitted in connection with designation recommendations. Therefore, we request that each State and Tribe submit to EPA its designation recommendations, description of the proposed area boundaries, associated maps, and other supporting documentation in electronic format as well as in a hard-copy format.

The Regional Offices should share this additional guidance with States and Tribes and work closely with them to resolve any issues related to the submittal of their area recommendations and supporting information. Staff in OAQPS are available to provide assistance and consultation throughout the designation process. Questions related to this memorandum may be directed to Larry Wallace of my staff at 919-541-0906 or Rich Damberg at 919-541-5592.

cc: Stephen D. Page, OAQPS
Margo Oge, OTAQ
Joe Paisie, OAQPS
Kevin McLean, OGC
Geoffrey Wilcox, OGC
Air Program Managers, Regions I-X

³ The Consolidated Appropriations Bill for FY-2004 (Public Law 108-199), signed by the President on January 23, 2004, codifies the dates for State recommendations and final EPA action on PM-2.5 designations.



*Reader File
Sec's signature*

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross, Jr., Secretary

February 17, 2004

James I. Palmer, Jr., Esq.
Regional Administrator
U.S. EPA, Region IV
61 Forsyth Street, SW
Atlanta, Georgia 30303-3104

RE: Recommendations for PM_{2.5} Non-attainment Designations

Dear Mr. Palmer:

Pursuant to the requirements of the federal Clean Air Act and on behalf of Governor Michael F. Easley, I am submitting to you and your colleagues at EPA the State of North Carolina's recommendations for PM_{2.5} designations.

The attached table presents North Carolina's recommendations for the designation status of each county within the State. These recommendations are based on the most recent three years of data (2001-2003). During this period, violations of the PM_{2.5} standard occurred at only two monitors within the State. There is one violating monitor each in Davidson and Catawba counties.

Davidson County is located in the Greensboro-Winston-Salem-High Point metropolitan statistical area (MSA). All other monitors within the MSA have measured attainment of the standard, thus we recommend that only Davidson County be designated non-attainment.

Catawba County is located in the Unifour MSA. To be consistent with our 8-hour ozone designation, we are recommending that only the MPO planning boundary of Catawba County be designated non-attainment. The MPO planning boundary within this county captures eighty percent of the population. The remainder of the county is rural with an average township population density ranging from less than 100 to just over 200 persons/square mile. A more detailed technical discussion of the PM_{2.5} boundary recommendations from our Division of Air Quality (DAQ) Director, Keith Overcash, will follow this letter by February 20, 2004.

With respect to these two counties, our PM_{2.5} boundary recommendations are the same as our recommendations for 8-hour ozone boundaries. Also, as we did with the 8-hour ozone recommendations, we followed EPA's published guidance concerning the circumstances under which States may vary from the presumptive MSA boundary. Before the guidance was published, EPA accepted and approved in 1990 an approach that had partial MSA's and partial

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Mr. J. I. Palmer, Jr.
February 17, 2004
Page 2

counties for the one-hour ozone designations.

As I stated in my February 6, 2004 8-hr ozone boundary recommendation letter, I believe that the presumptive use of MSA boundaries in a case like this fails to take into account the fact that MSAs are established for statistical data purposes which are different from air pollution control concerns. In the December 27, 2000 Federal Register notice, the Office of Management and Budget states:

"In order to preserve the integrity of its decision making with respect to reviewing and revising the standards for designating areas, OMB believes that it should not attempt to take into account or anticipate any public or private sector non-statistical uses that may be made of the definitions. It cautions that Metropolitan Statistical Area and Micropolitan Statistical Area definitions should not be used to develop and implement Federal, state and local nonstatistical programs and policies without full consideration of the effects of using these definitions for such purposes."

An example of an air quality designation consequence that goes well beyond merely a "statistical" data purpose is the requirement that new or modified major sources of pollution must install the "lowest achievable emission rate" (LAER) level of control and must offset all emissions increases upon designation of non-attainment.

North Carolina is committed to conserving and protecting our natural resources and maintaining a high quality environment for the health, well-being and benefit of all. We believe that improving air quality is critical to the health of our citizens and that our future growth, prosperity and quality of life will be threatened if we do not remain diligent. We look forward to continuing to work with EPA and others to attain the PM_{2.5} standard everywhere in North Carolina and to establish appropriate boundaries for PM_{2.5} non-attainment areas.

Sincerely,



William G. Ross, Jr.

WGR/ko

attachment

cc: The Honorable Michael F. Easley, Governor, State of North Carolina
The Honorable Jim Fain, Secretary, NC Department of Commerce
The Honorable Lyndo Tippet, Secretary, NC Department of Transportation
The Honorable Britt Cobb, Commissioner, NC Department of Agriculture and Consumer Services
Beverly Banister, US EPA
Keith Overcash, Director, Division of Air Quality, NC DENR

North Carolina's Recommendations on Boundaries for PM_{2.5} Non-attainment Areas

Designated Area	Designation Type
Greensboro-Winston-Salem-High Point Area:	
Alamance County	Attainment
Davidson County	Non-attainment
Forsyth County	Attainment
Guilford County	Attainment
Caswell County	Attainment
Davie County	Attainment
Randolph County	Attainment
Rockingham County	Attainment
Hickory-Newton-Conover Area:	
Alexander County	Attainment
Burke County	Attainment
Caldwell County	Attainment
Catawba County	Non-attainment
Unifour MPO Boundary	
Rest of State	Attainment



North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

June 21, 2004

William G. Ross Jr., Secretary

The Honorable Michael Leavitt
Administrator
US Environmental Protection Agency
401 M Street, Southwest
Washington, DC 20460

Re: North Carolina PM_{2.5} Nonattainment Boundaries

Dear Administrator Leavitt:

I am writing to express concerns over the Environmental Protection Agency's recent proposal to use an emissions-weighted approach to define PM_{2.5} nonattainment boundaries, which was announced three months after the states had submitted boundary recommendations. This late notice of a new approach is contrary to the spirit of the established nonattainment designation process under which states use their more thorough knowledge of the monitoring network as well as other local and regional circumstances to propose nonattainment boundaries based upon guidance provided by EPA. By departing from its original April 2003 guidance at this late point in the process, EPA is retroactively changing the rules we have followed.

While North Carolina is still reviewing the emissions-weighted approach, we already have concerns with its failure to take into account prevailing wind directions during the calendar quarters in which PM_{2.5} values are higher, as well as its assumption that emissions impact a monitor equally throughout the year, regardless of the monitor's location and its distance from the source.

The most glaring immediate concern, however, is that boundary decisions based on this new approach would ignore the pollution reductions already required by the North Carolina Clean Smokestacks Act. According to staff in EPA Region 4, Rutherford County, which is neither an MSA county nor has a violating monitor, would be included as part of the Hickory nonattainment area simply because there is a power plant located in this largely rural county. There are apparently at least three other counties (Rowan and Rockingham outside the MSA and Stokes within the MSA) that are being considered for inclusion in the Triad nonattainment area for the same reason. This proposal ignores the landmark Clean Smokestacks legislation passed by the North Carolina General Assembly in 2002. What additional controls, other than those already prescribed by the Clean Smokestacks Act, would we as a state or you as EPA impose on these counties? In fact,

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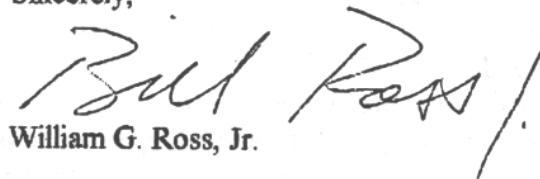
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the inclusion of these four counties in the nonattainment areas for North Carolina will not result in any change in our strategy to reduce emissions that cause the fine particle exceedances in this state and will only result in tagging the subject counties with the consequences of nonattainment.

In addition, EPA has indicated that two of our counties, Forsyth and Guilford, both with attaining monitors, would be part of the nonattainment area due to the violating monitor in Davidson County. Stokes County would also be named, as would Randolph County because of their weighted emission scores. Again, the emissions-weighted approach is not addressing the attaining ambient data in two of the counties, nor the wind direction during the quarters in which $PM_{2.5}$ values are higher.

I strongly encourage your consideration of these comments before the letters are sent to the States later this month. Please call me at (919) 715-4105 should you wish to discuss this issue further.

Sincerely,



William G. Ross, Jr.

cc: Jimmy Palmer
Beverly Banister
Jim Gulick
Keith Overcash



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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

JUN 29 2004

4APT-APB

Honorable Mike F. Easley
Governor of North Carolina
State Capitol
20301 Mail Service Center
Raleigh, NC 27699-0301

Dear Governor Easley:

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

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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, cursive script.

J. I. Palmer, Jr.
Regional Administrator

Enclosure

cc: Keith Overcash, NCDENR
William Ross, NCDENR



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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

JUN 29 2004

4APT-APB

William G. Ross, Secretary
North Carolina Department of Environment
and Natural Resources
1601 Mail Service Station
Raleigh, NC 27699-1601

Dear Mr. Ross:

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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.

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.

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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: Keith Overcash, NCDENR

Enclosure for 120 Day Letter
Justification for Modifications to State Recommendations
PM2.5 Nonattainment Areas
State of North 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. 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. The air quality weighting factors for each area are given below and reflect the percentages of the total estimated "urban excess" value found as, respectively, carbonaceous particles, miscellaneous inorganic particles ("crustal material"), ammonium sulfate, and ammonium nitrate. These scores add to 100 for the metropolitan area counties. Composite scores were also calculated for counties adjacent to the metropolitan area. Tables presented under factor 1 present the emissions of carbonaceous particles, inorganic particles, SO₂, and NO_x and the composite emission scores for the counties in the corresponding metropolitan area and adjacent counties. 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 2003 population for each metropolitan area, as well as the population density for each county in that area. Population data indicate the likelihood of population-based emissions that might contribute to violations.

Factor 4. Traffic and commuting patterns:

The traffic and commuting analysis looks at the number of commuters in each county who drive to another county within the metropolitan area ("Number"), the percent of total commuters in each county who commute to other counties within the metropolitan area ("percent"), as well as the total Vehicle Miles Traveled (VMT) for each county in thousands of miles. 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.*

**Note that the percent of commuters traveling to counties within the metropolitan area is based on the total number of commuters from that county. This total includes commuters who may travel outside the metropolitan area from their county of origin.*

Factor 5. Expected growth:

The expected 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. These data show that annual average PM2.5 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.

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 North Carolina has no such features that significantly influenced EPA's recommended 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.

Below is the nine factor analysis for Greensboro-Winston-Salem-High Point, NC. The Greensboro-Winston-Salem-High Point, NC Metropolitan Statistical Area (MSA) contains the counties of Stokes, Guilford, Davidson, Forsyth, Randolph, Alamance, Yadkin, and Davie.

In February 2004, North Carolina recommended that the entire county of Davidson, be designated as nonattainment for the Fine Particulate Matter Standard. The table below shows the State recommendations and EPA modifications for the Particulate Matter(PM 2.5) nonattainment area in Greensboro-Winston-Salem-High Point, NC. EPA is recommending Davidson County be designated nonattainment because it has a violating PM 2.5 monitor. The MSA counties of Guilford, Stokes, Forsyth and Randolph are also being recommended as nonattainment. Guilford, Forsyth and Randolph counties are adjacent to Davidson County and have large populations and large emissions. Stokes has significant power plant emissions. EPA agrees that Alamance, Davie, Yadkin, Rowan, Chatham, Rockingham, and Iredell Counties be designated attainment/unclassifiable. Alamance is an MSA county with an attaining monitor of 13.7 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), 75 % of the commuters remain in Alamance County and the county has low emissions. Davie and Yadkin are MSA counties that do not contain PM 2.5 monitors, have low populations, and low commuting into Davidson. There is significant distance between the violating monitor and the counties of Iredell and Yadkin. Rowan and Iredell are adjacent to the MSA, do not contain PM 2.5 monitors and are a part of the Charlotte-Gastonia-Rock Hill nonattainment area for ozone. Rowan and Rockingham both have small power plants and there are attaining monitors in counties between the SO_2/NO_x sources in Rowan and Rockingham counties and the violating monitor. Chatham is an adjacent county to the Greensboro-Winston-Salem-High Point MSA with an attaining monitor of $12.2 \mu\text{g}/\text{m}^3$, has low population, and part of the county is in the Raleigh-Durham-Chapel Hill nonattainment area for ozone. The remaining adjacent counties all have low emissions, low population and low VMT, indicating they should be attainment/unclassifiable.

Area	EPA Recommendation	State Recommendation
Greensboro-Winston-Salem-High Point, NC	Full Counties: Stokes, Guilford, Davidson, Forsyth, and Randolph	Full Counties: Davidson

The following is a brief summary of the 9 criteria:

The following table has 2001 PM_{2.5}, SO₂, NO_x, VOC, and Ammonia (Amm) emissions in tons, and weighted emissions scores for the Greensboro-Winston-Salem-High Point Area and surrounding counties. The MSA counties are in **bold**.

		PM 2.5	SO ₂	NO _x	VOC	Amm	Weighted emissions score	Cumulative Weighted emissions score
NC	Stokes	4,821	83,409	35,936	2,566	357	32.8	32.8
NC	Guilford	2,418	2,833	19,068	34,464	1,178	17.6	50.4
NC	Davidson	1,951	1,398	11,281	14,970	632	12.9	63.3
NC	Forsyth	1,559	5,885	14,552	20,679	722	11.7	75.0
NC	Randolph	1,370	907	5,898	10,307	4,014	9.5	84.5
NC	Alamance	1,181	749	5,618	8,967	730	8.2	92.7
NC	Yadkin	606	318	2,061	2,247	896	4.0	96.7
NC	Davie	508	205	1,959	3,278	448	3.3	100.0
NC	Rowan	2,012	12,465	11,681	11,323	726	13.4	
NC	Chatham	1,714	11,605	5,823	4,734	3,012	11.7	
NC	Rockingham	1,555	6,263	12,227	8,770	523	11.2	
NC	Iredell	1,537	1,365	11,065	10,346	2,090	10.8	
NC	Surry	1,224	1,238	5,055	7,478	1,811	8.5	
VA	Pittsylvania	980	1,828	7,490	4,149	581	7.2	
NC	Moore	956	409	3,197	6,519	2,396	6.9	
NC	Wilkes	966	647	2,890	5,097	5,300	6.6	
NC	Orange	857	756	6,264	6,751	572	6.4	
VA	Henry	818	535	3,811	10,517	197	5.6	
NC	Stanly	795	3,129	2,891	4,581	1,460	5.3	
NC	Montgomery	516	484	1,631	4,175	1,246	3.6	
NC	Caswell	483	199	1,071	1,622	155	3.2	
VA	Patrick	408	176	1,039	1,363	214	2.8	
VA	Carroll	378	509	2,305	1,986	441	2.7	
VA	Grayson	291	95	819	952	405	2.0	
NC	Alleghany	217	190	379	590	425	1.4	

Based on the analysis for this factor, there appears to be emissions in Stokes, Guilford, Forsyth, and Randolph counties that contribute to the air quality in Davidson County, resulting in a violating monitor there. This analysis shows that the adjacent counties of Rowan, Chatham, Rockingham, and Iredell have emissions that may contribute to the violation in Davidson County.

However, these counties are more distant from the violating monitor. Chatham County has an

attaining monitor and is part of the Raleigh MSA. Rowan and part of Iredell County are in the Charlotte ozone nonattainment area.

Factor 2: Air Quality in potentially included versus excluded areas

		2001-2003 Design Value
NC	Guilford	14.1
NC	Davidson	15.8
NC	Forsyth	14.6
NC	Alamance	13.7
NC	Chatham	12.2
NC	Orange	13.1
NC	Montgomery	12.1
NC	Caswell	13.3

There are six monitors in the MSA (two in Guilford, and two in Forsyth counties and one in Davidson, and Alamance counties) and five monitors in the adjacent counties. The monitor in Davidson County, is violating the Particulate Matter Standard of 15.0 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). All other monitors in this area are attaining the Particulate Matter Standard.

Factor 3: Population Density and Degree of Urbanization including commercial development in included versus excluded areas

The following table has the populations for the counties in the Greensboro-Winston-Salem-High Point area and adjacent counties with significant weighted emissions scores.

		2002 Population	% Population of MSA	Population Density (pop./ mi ²)
NC	Stokes	44,984	3.5	100
NC	Guilford	430,937	33.5	663
NC	Davidson	151,238	11.6	274
NC	Forsyth	314,933	24.5	768
NC	Randolph	134,217	10.4	170
NC	Alamance	135,893	10.6	315
NC	Yadkin	37,329	2.9	111
NC	Davie	36,734	2.9	139
NC	Rowan	133,359		261
NC	Chatham	53,893		79
NC	Rockingham	92,778		164

NC	Iredell	130,178		227
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Based on the analysis for this factor, there appears to be significant populations in Guilford, Forsyth, Davidson, Rowan, Iredell, Randolph and Alamance counties, indicating potential contribution.

Factor 4: Traffic and commuting patterns

Commuting Information

Total commuters in Davidson County: 72,893

Commuters in Davidson County, NC, who work in Davidson County: 40,621 (56%)

Total commuters in Forsyth County: 147,838

Commuters in Forsyth County, NC, who work in Forsyth County: 119,233 (81%)

Commuters from Forsyth County, NC to Davidson County, NC: 4,136 (3%)

Total commuters in Guilford County: 213,079

Commuters in Guilford County, NC, who work in Guilford County: 187,150 (88%)

Commuters from Guilford County, NC to Davidson County, NC: 2,982 (1%)

Total commuters in Randolph County: 65,803

Commuters in Randolph County, NC, who work in Randolph County: 38,637 (59%)

Commuters from Randolph County, NC to Davidson County, NC: 2,607 (4%)

Total commuters in Stokes County: 21,709

Commuters in Stokes County, NC, who work in Stokes County: 6,330 (29%)

Commuters from Stokes County, NC to Davidson County, NC: 252 (1%)

The counties of Davie and Rowan have a small number of commuters and very few of them commute to Davidson County. Chatham, Yadkin, Iredell, and Rockingham counties have a low number of commuters and most of them stay within their counties.

Based on commuting patterns, Forsyth and Guilford appear to have the most impact on the violating monitor in Davidson County. However, the impact on the monitor from commuting appears to be small.

The following table contains the vehicle miles traveled (VMT) for the counties in the Greensboro-Winston-Salem-High Point area and some adjacent counties with significant emissions. (MSA counties are in **bold**).

		2002 VMT (thousands of miles)
NC	Stokes	415
NC	Guilford	5,096
NC	Davidson	1,765
NC	Forsyth	3,832
NC	Randolph	1,486
NC	Alamance	1,575
NC	Yadkin	520
NC	Davie	476
NC	Rowan	1,654
NC	Chatham	434
NC	Rockingham	923
NC	Iredell	1,901

Based on total VMT, there appears to be contribution to air quality in Davidson County from Guilford, Davidson, Forsyth, Rowan, Iredell, Randolph and Alamance counties. However, there is very low or no commuting into Davidson County from Rowan, Iredell, and Alamance Counties

Factor 5: Expected growth

The following table has the population and population growth on a percentage basis figures for counties in the Greensboro-Winston-Salem-High Point MSA and some adjacent counties with significant emissions. As noted above, Chatham County is part of the Raleigh MSA, and Iredell and Rowan Counties are in the Charlotte rather than the Greensboro ozone nonattainment area.

		2002 Population	Growth '90-'00	% Change '90-'00
NC	Stokes	44,984	7,488	20
NC	Guilford	430,937	73,628	21
NC	Davidson	151,238	20,569	16
NC	Forsyth	314,933	40,189	15
NC	Randolph	134,217	23,908	22
NC	Alamance	135,893	22,587	21
NC	Yadkin	37,329	5,860	19
NC	Davie	36,734	6,976	25
NC	Rowan	133,359	19,735	18
NC	Chatham	53,893	10,570	27
NC	Rockingham	92,778	5,864	7

NC	Iredell	130,178	29,729	32
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Based on the analysis for this factor, there appears to be significant growth in Davidson, Guilford, Forsyth, Alamance, Randolph, Rowan, Chatham, and Iredell counties indicating a potential contribution to the air quality in Davidson County.

Factor 6: Meteorology

The following meteorological information was provided by North Carolina. This summarizes the wind directions for the MSA during the time periods when PM2.5 values are the highest.

Summertime: southwesterly winds and recirculating patterns dominate. Main urban areas of influence include Charlotte, the Triad, and Hickory.

Wintertime: More northerly and stronger northwesterly winds observed that during the summer. High PM2.5 is generally observed prior to frontal passages when high pressure is in control or during strong nocturnal low-level temperature inversions. Year-round trajectories indicate influence from nearby states.

The information provided is not sufficient to provide a compelling argument to exclude counties based on prevailing winds.

Factor 7: Geography/topography

There are no significant topographical issues associated with this MSA. Chatham, Iredell, and Rockingham counties are one or more counties away from Davidson county. Additionally, there is one or more attaining monitors between the major emissions sources in these counties and the violating monitor, indicating no contribution.

Factor 8: Jurisdictional boundaries

The 8-hour nonattainment boundary designation for the Greensboro-Winston-Salem-High Point area includes the entire counties of Davidson, Davie, Forsyth, Guilford, Alamance, Caswell, Randolph, and Rockingham. Davie, Alamance, Caswell, and Rockingham were designated nonattainment for ozone because they contained violating monitors not because they were found to be contributing. Rowan county and a portion of Iredell county were designated nonattainment for the ozone standard as apart of the Charlotte-Gastonia-Rock Hill MSA area. Due to significant NOx controls, Stokes County was determined not to contribute to the ozone violations.

Factor 9: Level of control of emission sources

Belews Creek is the largest coal-burning station owned by Duke Power located in Stokes County, NC. Duke Power completed the first phase of its massive Selective Catalytic Reduction (SCR) project at Belews Creek Steam Station that will reduce the power plant's nitrogen oxide emissions by over 90 percent. No scrubbers are installed at this time, but are scheduled to be installed in 2009.

The state initiatives are listed below:

NOx SIP Call

The Clean Smokestacks Act

Clean Air Bill

On Board Diagnostics II Emissions Inspection Program

PM_{2.5} Forecasting

Hickory-Morganton-Lenoir, NC

The following is the nine factor analysis for Hickory-Morganton-Lenoir, NC. The Hickory-Morganton-Lenoir, NC Metropolitan Statistical Area (MSA) contains the counties of Catawba, Caldwell, Burke, and Alexander.

In February 2004, North Carolina recommended that the Unifour Metropolitan Planning Organization's (MPO) Planning Boundary in Catawba County, be designated as nonattainment. The table below shows State Recommendations and EPA recommended modifications for the Particulate Matter 2.5 (PM 2.5) nonattainment area in the Hickory-Morganton-Lenoir area. EPA is modifying the recommendation to include the entire county of Catawba and partial county boundaries in Burke and Caldwell Counties. Catawba County has a violating PM 2.5 monitor. The partial county boundaries in Burke and Caldwell Counties follow the MPO boundary lines which were the boundaries determined in the 8-hour ozone designation in April 2004 for the two counties. Over 20 percent of the commuters from Burke and Caldwell counties commute to Catawba County and both counties contain population levels that indicate contribution. EPA agrees that the MSA county of Alexander and the adjacent counties of Rutherford, Iredell, Cleveland, and Wilkes be designated attainment/unclassifiable. These counties have low population, and are low commuting into Catawba County, distant from the violating monitor in Catawba County. The remaining adjacent counties all have low emissions and low population, indicating they should be attainment/unclassifiable.

Area	EPA Recommendation	State Recommendation
Hickory-Morganton-Lenoir	Full Counties: Catawba, Partial Counties: Burke and Caldwell	Full Counties: None Partial Counties: Catawba

The following is a brief summary of the 9 criteria for the Hickory-Morganton-Lenoir MSA and surrounding counties. These analyses were based on existing available data.

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

The following table has 2001 PM_{2.5}, SO₂, NO_x, VOC, and Ammonia (Amm) emissions in tons, and weighted emissions scores for the Hickory-Morganton-Lenoir Area and surrounding counties. The Metropolitan Statistical Area (MSA) counties are in **bold**.

	PM 2.5	SO ₂	NO _x	VOC	Amm	Weighted emissions score	Cumulative Weighted emissions score
Catawba	5,153	78,620	27,968	19,760	886	59.7	59.7
Caldwell	1,104	634	3,530	11,122	391	18.1	77.8
Burke	1,198	877	4,601	7,721	562	17.0	94.8
Alexander	365	349	988	3,312	1,217	5.1	99.9
Rutherford	2,323	30,023	12,135	4,847	254	28.4	
Iredell	1,537	1,365	11,065	10,346	2,090	25.3	
Cleveland	1,258	1,261	4,975	6,591	1,240	18.4	
Wilkes	966	647	2,890	5,097	5,300	15.3	
Mc Dowell	751	373	3,675	4,230	214	13.6	
Lincoln	785	513	2,880	4,556	645	10.8	
Watauga	541	352	1,523	2,370	341	8.5	
Avery	269	163	730	985	77	4.4	

Based on the analysis for this factor, there appears to be emissions in the MSA counties of Caldwell and Burke, counties that contribute to the violation in Catawba County. Although there are large SO₂ emissions in Rutherford county, adjacent to Burke, the source is distant from the violating monitor.

Factor 2: Air Quality in potentially included versus excluded areas

	2001-2003 Design Value
Catawba	15.5
Mc Dowell	14.2
Watauga	10.9

There is one monitor in this area, in Catawba County, which is violating the particulate matter standard of 15.0 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Two adjacent counties contain monitors attaining the standard.

Factor 3: Population Density and Degree of Urbanization

The following table has the populations for the counties in the Hickory-Morganton-Lenoir area and adjacent counties with significant emissions. (MSA counties are in **bold**.)

	2002 Population	% Population of MSA	Population Density (pop./ mi ²)
Catawba	146,690	42.0	367
Caldwell	78,513	22.5	166
Burke	89,638	25.7	177
Alexander	34,400	9.8	132
Rutherford	63,287		112
Iredell	130,178		227
Cleveland	97,960		211
Wilkes	66,773		88

Based on the analysis for this factor, there appears to significant populations in Catawba, Iredell, Cleveland, Caldwell and Burke counties, indicating potential contribution.

Factor 4: Traffic and commuting patterns

Commuting Information

Total commuters in Catawba County: 73, 984

Commuters in Catawba County, NC, who work in Catawba County: 62, 459 (84%)

Total commuters in Rutherford County: 27, 673

Commuters in Rutherford County, NC, who work in Rutherford County: 21, 812 (79%)

Commuters from Rutherford County, NC to Burke County, NC: 305 (1%)

Total commuters in Caldwell County: 38, 970

Commuters in Caldwell County, NC, who work in Caldwell County: 26, 932 (69 %)

Commuters from Caldwell County, NC to Catawba County, NC: 8,011 (21 %)

Total commuters in Burke County: 42,214

Commuters in Burke County, NC, who work in Burke County: 29, 123 (69%)

Commuters from Burke County, NC to Catawba County, NC: 8,366 (20%)

Total commuters in Alexander County: 31,041

Commuters in Alexander County, NC, who work in Alexander County: 24,270 (51%)

Commuters from Alexander County, NC to Catawba County, NC: 5,679 (32%)

Most of the commuters in Iredell, Cleveland and Wilkes counties commute within their counties and very few of them commute to Davidson County.

Based on commuting patterns, Caldwell, Alexander and Burke counties appear to have the most potential impact on the violating monitor in Catawba county.

The following table contains the vehicle miles traveled (VMT) for the counties in the Hickory-Morganton-Lenoir MSA and some adjacent counties with significant weighted emissions scores. (MSA counties are in **bold**.)

	2002 VMT (thousands of miles)
Catawba	2,048
Caldwell	738
Burke	1,112
Alexander	229
Rutherford	606
Iredell	1,901
Cleveland	1,125
Wilkes	619

Based on the analysis for this factor, Burke County has VMT that appears to contribute to the air quality in Catawba County. Although the adjacent counties of Iredell and Cleveland have significant levels of VMT, there is little commuting to Catawba County from these counties.

Factor 5: Expected growth

The following table has the population and population growth figures for counties in the Hickory-Morganton-Lenoir MSA and some adjacent counties with significant emissions.

	2002 Population	Growth '90-'00	Pct change '90-'00
Catawba	146,690	23,273	20
Caldwell	78,513	6,706	9
Burke	89,638	13,404	18
Alexander	34,400	6,059	22
Rutherford	63,287	5,981	11
Iredell	130,178	29,729	32
Cleveland	97,960	11,573	14
Wilkes	66,773	6,239	11

Based on the analysis for this factor, there appears to be significant growth on a percentage in Catawba and Alexander Counties in the MSA and adjacent Iredell County, indicating a potential contribution to the air quality in Catawba County. Although the percentage growth is high for the Iredell County, it is more closely associated with the Charlotte area.

Factor 6: Meteorology

The following meteorological information was provided by North Carolina. This summarizes the wind directions for the MSA during the time periods when PM_{2.5} values are the highest.

Summertime: southwesterly winds and recirculating patterns dominate. Main urban areas of influence include Charlotte, the Triad, and Hickory.

Wintertime: More northerly and stronger northwesterly winds observed that during the summer. High PM_{2.5} is generally observed prior to frontal passages when high pressure is in control or during strong nocturnal low-level temperature inversions. Year-round trajectories indicate influence from nearby states.

The information provided is not sufficient to provide a compelling argument to exclude counties based on prevailing winds.

Factor 7: Geography/topography

There are no significant topographical issues associated with this MSA.

Factor 8: Jurisdictional boundaries

The 8-hour nonattainment boundary designation for the Hickory-Morganton-Lenoir area includes the entire counties of Alexander and Catawba and partial counties of Burke and Caldwell. The nonattainment designation in Burke and Caldwell counties are along the Unifour Metropolitan Planning Organization boundaries. Catawba County is located geographically between Alexander and Lincoln Counties, which both have monitors violating the 8-hour ozone standard.

In Catawba County, a second monitor was operated approximately 10 miles southwest of the current violating Hickory monitor. This monitor was further removed from a major highway. The location of this monitor at a rescue squad and was not able to continue at that location. While in existence for seven quarters, this monitor showed an average of $1.89 \mu\text{g}/\text{m}^3$ lower than the current violating monitor. Therefore, the state believes that this monitor would have continued to show attainment/unclassifiable if it remained in existence to collect three years of data.

Factor 9: Level of control of emission sources**Duke Power - Marshall Steam Station (Catawba County)**

No scrubbers are installed at this time. However, in 2004, Duke Power began installation of flue gas desulfurization (scrubber) equipment. This equipment will lower sulfur dioxide emissions by approximately 90 percent. The project is scheduled for completion in 2007.

The state initiatives are listed below:

NO_x SIP Call

The Clean Smokestacks Act

Clean Air Bill

On Board Diagnostics II Emissions Inspection Program

PM_{2.5} Forecasting



North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

September 8, 2004

William G. Ross Jr., Secretary

Mr. James I. Palmer, Jr.
Regional Administrator
U.S EPA, Region 4
61 Forsyth Street
Atlanta, Georgia 30303

RE: PM_{2.5} Non-attainment Designations

Dear Mr. Palmer:

In your June 29, 2004 letter, you provided North Carolina with EPA's response to our state's PM_{2.5} non-attainment boundary recommendations. North Carolina has been a leader among states with regard to improving air quality and remains committed to the continued improvement of air quality and the protection of its citizens. The non-attainment boundary recommendations made by EPA include several counties that North Carolina continues to believe should be designated attainment for PM_{2.5}. Below, I state why North Carolina believes that these counties should be designated attainment. I also urge you to consider again the discussion and technical documents presented in our initial February 2004 submissions. In addition, please find attached our PM_{2.5} Designation Response Technical Support Document.

In the Greensboro/Winston-Salem/High Point area, EPA recommends that the entire counties of Stokes, Guilford, Davidson, Forsyth and Randolph be designated non-attainment. North Carolina originally recommended Davidson County only as the PM_{2.5} non-attainment boundary. We continue to believe that only Davidson County should be designated as non-attainment.

North Carolina believes that Stokes County should be designated attainment for the following reasons. While Stokes County contains the Belews Creek power plant, an analysis of forward trajectories indicates that emissions from Belews Creek do not frequently impact the PM_{2.5} monitor in Davidson County. There are also PM_{2.5} monitors currently attaining the standard in Forsyth County that lie between Stokes County and the non-attaining monitor in Davidson County. Even if the Belews Creek facility is affecting the Lexington area, significant NO_x controls have already been installed on the plant. Selective catalytic reduction systems have already been installed on units 1 and 2 at the Belews Creek facility, and additional burner technology has been added at unit 2. This NO_x control technology began operation in 2003 and 2004. Consequently, the NO_x emissions will decrease from 43,567 tons per year to 7,022 tons per year and new SO₂ controls will be installed over the next several years as a result of the Clean Smokestacks Act. SO₂ emissions from Belews Creek will be reduced by nearly 90% in the next several years as these controls become fully operational.

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Also, Stokes County is an extremely rural county, and therefore has very little mobile emissions. North Carolina believes that the current and future controls on the Belews Creek facility, the apparent small impact of Belews Creek on Davidson County, and the rural nature of the county support designating Stokes County in attainment for $PM_{2.5}$. If EPA continues to believe that Stokes County should be designated non-attainment because of Belews Creek, North Carolina recommends that only the Sauratown Township where the Belews Creek power plant is located be designated non-attainment.

North Carolina believes that Randolph County should be designated attainment for several reasons. The EPA L-Factor ranking for Randolph County is the lowest of the counties recommended by EPA to be designated non-attainment. Randolph County is also predominately downwind of Davidson County during the summer months when $PM_{2.5}$ concentrations are the highest and therefore emissions from Randolph County would not be expected to contribute significantly to $PM_{2.5}$ concentrations in Davidson County during those months. The majority of emissions within Randolph County are mobile emissions and less than 5% of the workforce commutes into Davidson County. Furthermore, the mobile source emissions will be addressed by federal rules such as heavy-duty engine standards and low sulfur diesel.

Guilford and Forsyth counties each contain $PM_{2.5}$ monitors that are attaining the standard based on current design values. The counties also lie to the north and northeast of Davidson County, which makes Guilford and Forsyth counties predominately downwind of Davidson County during the summer months when $PM_{2.5}$ is the highest. The majority of emissions from these counties are mobile, and therefore these counties and surrounding counties will benefit from federal rules addressing mobile emissions as well as the expanded North Carolina motor vehicle inspection program. They will also benefit from local measures aimed at reducing mobile emissions as part of the Early Action Compact (EAC) effort in the Triad area.

North Carolina has an analysis that shows $PM_{2.5}$ concentration and its relationship to population density in the Triad area. The Lexington monitor does not behave the same as surrounding monitors when considering the population around the monitoring site. The analysis suggests that the higher concentrations of $PM_{2.5}$ in Davidson County are the result of local factors rather than broader population-related regional influences and therefore the addition of counties beyond just Davidson County will not help the monitor attain the standard. Please see appendix for details.

Finally, with regard to the Lexington monitor, there has been a downward trend in the $PM_{2.5}$ concentrations since 1999. We believe that this in considerable part reflects some reductions in the emission of pollutants in certain upwind states over that period. EPA itself has already concluded that these out-of-state sources contribute significantly to elevated $PM_{2.5}$ in North Carolina. We expect that the downward trend should continue at this site as more emissions reductions are expected due to implementation of the Clean Smokestacks Act, NOx SIP call rules, federal heavy-duty engine standards and new fuel standards. We anticipate further improvement in Lexington monitor air quality will result from positive action by EPA on North Carolina's section 126 petition, as well as actual promulgation of the proposed Clean Air

Interstate Rule, both of which will further reduce the contribution from upwind, out-of-state sources to the Lexington area's non-attainment and maintenance problems.

For the reasons stated herein, North Carolina believes that only Davidson County should be designated non-attainment, while Stokes, Randolph, Guilford and Forsyth counties should be designated as attainment for $PM_{2.5}$.

With regard to the non-attaining monitor in Hickory, North Carolina continues to oppose a non-attainment designation for any area beyond the metropolitan planning organization boundary of Catawba County. There is little to be gained by including the partial counties of Burke and Caldwell in the non-attainment area for the Hickory region for several reasons. Catawba County emissions are significantly higher than both Burke and Caldwell counties in the L-Factor analysis. The bulk of emissions from these counties is from the mobile sector and therefore will benefit from state and federal rules addressing mobile emissions. There would be little to no additional opportunity to reduce mobile emissions by designating Burke and Caldwell counties as non-attainment.

A non-attainment designation for $PM_{2.5}$ would place significant additional burdens on Burke and Caldwell counties since these counties are already participating in an EAC for ozone. These counties are making progressive strides to reduce emissions as part of the EAC effort and North Carolina feels that a designation of non-attainment for these counties would do little to reduce $PM_{2.5}$ in Catawba County. North Carolina believes the recommendation to designate only Catawba County as non-attainment is appropriate, while Burke, Caldwell and the non-MPO parts of Catawba counties should be designated as attainment for $PM_{2.5}$.

Furthermore, on the basis of air quality data for 2004 gathered to date, North Carolina believes there is a significant probability that the Hickory monitor will attain the standard based on complete 2002-2004 data. We expect that it will be possible to maintain this attainment status as more emissions reductions are expected due to implementation of the Clean Smokestacks Act, NOx SIP call rules, federal heavy-duty engine standards and new fuel standards. We are also anticipating needed reductions from upwind out-of-state sources from the proposed Clean Air Interstate Rule, North Carolina's section 126 petition and other initiatives, which will help Davidson County as well. EPA already has concluded that these out-of-state sources contribute significantly to elevated $PM_{2.5}$ in North Carolina.

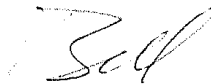
North Carolina therefore suggests that EPA designate the Hickory area as "unclassifiable", if the designation is made before December 31, 2004. The designation for this area as attainment can then be finalized in February 2004 using the 2002-2004 data, assuming that it in fact shows what we anticipate. Alternatively, if the designation is made after December 31, 2004, the designation should be based on the 2002-2004 data. This approach would conserve significant federal, state and local resources by avoiding the need for the redesignation demonstration, as well as transportation conformity, in an area that is already attaining the $PM_{2.5}$ standard.

Mr. James I. Palmer, Jr.
September 8, 2004
Page 4 of 4

Finally, on June 21, 2004, I wrote to the Administrator to register our concerns regarding the recently introduced emissions-weighted approach for nonattainment boundary delineation. I reiterate those comments here. In particular, the emissions-weighted analysis fails to account for prevailing wind directions during the periods when PM_{2.5} values are higher, assumes incorrectly that emissions impact a monitor equally throughout the year, fails to consider distance between emissions and the monitors, and fails to recognize any effects from the significant reductions resulting from North Carolina's Clean Smokestacks Act. The most glaring demonstration of the weakness of the emissions-weighted approach is that some counties EPA intends to designate as nonattainment under this approach actually are in attainment according to monitors located in those counties. Moreover, this emissions-weighted analysis was introduced late and so could not be addressed by the Governors in their initial recommendations. This runs counter to the state-federal interactive process prescribed by law. For these reasons, the State believes that the use of the emissions-weighted approach is arbitrary and should not influence the final delineation of nonattainment area boundaries.

North Carolina is proud to be a leader in the improvement of air quality and is committed to the continued improvement of air quality within its borders. We have invested significant resources in understanding the nature of our air quality issues and feel confident that our recommendation to designate only Davidson and Catawba counties is sufficient for the state and EPA to continue the work toward protecting the health of our citizens. We know that you and your colleagues will give these comments careful attention as EPA evaluates and makes the final decisions on PM_{2.5} boundaries later this year. We appreciate that careful attention because we also appreciate the nature and extent of the challenge EPA faces in making these decisions across the nation.

Sincerely,



William G. Ross, Jr.

Attachment: *PM_{2.5} Designation Response Technical Support Document*

cc: Secretary Lyndo Tippet (w/o attachment)
Secretary James Fain (w/o attachment)
Keith Overcash (w/o attachment)



**STATE OF NORTH CAROLINA
OFFICE OF THE GOVERNOR
20301 MAIL SERVICE CENTER
RALEIGH, NC 27699-0301**

MICHAEL F. EASLEY
GOVERNOR

September 9, 2004

The Honorable Michael Leavitt
Administrator
US Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

Dear Administrator Leavitt:

I am writing concerning your agency's response to North Carolina's PM 2.5 non-attainment boundary recommendations. As you know, North Carolina has been a leader among states in improving air quality through aggressive programs to cut emissions from both coal-fired power plants and mobile sources. No state in America is more committed to solving the problems posed by particulate emissions and other harmful pollutants. But we are committed to doing so wisely, in a manner that does not unnecessarily harm our state's favorable business climate.

In its letter of June 29, 2004, EPA has provided flawed analysis to support far-reaching PM 2.5 nonattainment designations surrounding two isolated, non-attaining monitors in Hickory and Lexington, North Carolina. According to North Carolina's analysis, which is included in the attached letter from Secretary of Environment Bill Ross, these broad designations will not help solve the non-attainment problem at these two monitors. In fact, they are unlikely to have an appreciable effect on North Carolina's efforts to improve air quality.

These excessive non-attainment designations will, however, have a significant dampening effect on economic development efforts in the Triad and further west in the Hickory/Morganton/Lenoir area. These two areas of our state have been hit particularly hard by manufacturing job losses associated with unfair federal trade policies. Both areas are turning a corner now, but they can ill afford non-attainment designations that can undermine their ability to bring jobs to their communities – particularly when there is no beneficial effect.

The Honorable Michael Leavitt
Page 2
September 9, 2004

With this in mind, I urge you to narrow your non-attainment designation to Davidson County and the MPO portion of Catawba County surrounding the Hickory monitor. Thank you for your attention to this request. If there is anything that my office can do to assist you in your decisionmaking process in the coming months, I trust that you will let me know.

With kindest regards, I remain

Very truly yours,

A handwritten signature in black ink, appearing to read "Mike Easley", written in a cursive style.

Michael F. Easley

MFE: rht

cc: North Carolina Congressional Delegation
James I. Palmer, Regional Administrator, US EPA



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

DEC 14 2004

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: Clean Data Policy for the Fine Particle National Ambient Air Quality Standards

FROM: Stephen D. Page, Director
Office of Air Quality Planning and Standards

TO: Air Division Directors, Regions I-X

Purpose

In December 2004, EPA is designating areas as nonattainment with the national ambient air quality standards (NAAQS) for fine particles. This policy memorandum addresses the requirements for those nonattainment areas that, prior to the date that their State Implementation Plans (SIPs) are due, demonstrate that they are attaining the fine particle standard. Specifically, it addresses whether such areas must submit certain portions of the plans – those addressing reasonable further progress (RFP), attainment demonstrations and contingency measures as required in section 172 (c) of the Clean Air Act (CAA). This memorandum also describes the process by which EPA will determine whether an area is attaining the PM_{2.5} standard.

Background & Policy

EPA established NAAQS for fine particles in 1997. EPA expects to make final attainment, unclassifiable, and nonattainment designations in December 2004. Nonattainment areas must submit their SIPs within 3 years of the effective date of the designations (i.e. March 2008). Areas must attain the standard as expeditiously as practicable. Presumptively, attainment should be achieved within 5 years of designation, although EPA may grant an attainment date extension of up to 5 additional years based on the severity of the nonattainment problem and the availability of emissions controls. Thus, attainment dates will range from 5 to 10 years from the date of designation (i.e. 2010 to 2015). Attainment must be determined based on the 3 calendar years prior to the attainment date.

Because PM_{2.5} exposure is linked to significant health effects, EPA encourages States to achieve reductions in PM_{2.5} and its precursor emissions as early as possible, especially in areas that are expected to be designated as nonattainment. Public health in these areas will improve as levels of fine particles decline. By meeting the standard, they will reduce the incidence of premature mortality, hospital admissions, missed days of work and school, and other adverse respiratory and cardiac effects in children and adults.

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With these benefits in mind, we have reviewed the CAA to determine whether an area that is originally designated as nonattainment must still submit certain SIP requirements if the area has 3 consecutive calendar years of air quality data showing that it meets the PM2.5 standards prior to its required SIP submittal date. We believe that such areas may be exempt from making submissions for RFP, attainment demonstrations, and contingency measures – as long as those areas continue to meet the standard. However, if such an area is determined to violate the standards prior to being redesignated to attainment, the area will be required to address the pertinent requirements when it submits its SIP to EPA. EPA encourages States to take action to redesignate areas that are attaining the standard as expeditiously as practicable. In order to assist in this process, EPA will be reviewing the possibility of developing a “Limited Maintenance Plan Policy” for PM2.5 areas, which may be used in conjunction with the Clean Data Policy to assist States in getting areas redesignated to attainment in an expeditious manner.

Interpretation and Legal Rationale

The SIP provisions that are the subject of this policy are those addressing RFP, attainment demonstrations, and contingency measures. EPA previously has interpreted that the general provisions of the CAA subpart 1, part D (§§171 and 172) do not require an *ozone* nonattainment area to include these provisions in its SIP if that area meets the ozone standard. We believe it is appropriate to make the same interpretation for PM2.5. Our rationale is as follows:

- 1) **Reasonable Further Progress:** Section 171 (1) states that, for the purposes of part D, Reasonable Further Progress means:

“such annual incremental reductions in emissions of the relevant air pollutant as are required by this part or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable NAAQS by the applicable date.”

If an area has 3 consecutive calendar years of air quality data showing it has attained the standard before the SIP due date, the purpose of the RFP requirement will have been fulfilled, and we believe the area does not have to address RFP in its SIP.

We took this view with respect to the general RFP requirement [CAA §172(c)(2)] in the “General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990” (General Preamble) (see 57 FR 13498, April 16, 1992), and we are now extending that interpretation to PM2.5. In the General Preamble, EPA stated that:

“requirements for RFP will not apply in evaluating a request for redesignation to attainment since, at a minimum, the air quality data for the area must show that the area has already attained. A showing that the State will make RFP toward attainment will, therefore, have no meaning at that point” (see 57 F R 13564).

2) Attainment Demonstrations

This interpretation also is consistent with our previous interpretation of §172(c) requirements in the General Preamble as they pertain to ozone attainment demonstrations. EPA stated that no other measures to provide for attainment would be needed by areas seeking redesignation to attainment since “*attainment will have been reached*” (see 57 FR 13564; also Calcagni memorandum, September 4, 1992). If an area has attained the standard before the SIP due date, we believe the area does not have to include an attainment demonstration in its SIP.

3) Contingency Measures

Similar reasoning applies to the contingency measures SIP requirement, which is linked with both the attainment demonstration and RFP requirements. EPA previously has interpreted the contingency measures requirement of §172(c)(9) as no longer being applicable once an area has attained the standard, because those “*contingency measures are directed at ensuring RFP and attainment by the applicable date*” (see 57 FR 13564). Areas attaining the PM2.5 standard before their SIP due dates will not have to address contingency measures in their SIPs.

Each of these interpretations applies only as long as a nonattainment area continues to monitor attainment of the standard. If such an area violates the PM2.5 NAAQS, the area would again be required to submit the pertinent SIP sections. Therefore, a determination that an area need not submit one or more parts of a SIP **amounts to a suspension of the requirement as long as the area continues to attain the standard.** If EPA ultimately redesignates the area to attainment, then the area will be entirely relieved of these requirements (to the extent they are not the basis for the area’s maintenance plan).

Consequences for Redesignations, Sanctions and Conformity

Redesignation: A determination that an area has met the PM2.5 NAAQS is not equivalent to a redesignation to attainment. Attainment of the standard is only one of the criteria an area must satisfy in order to be redesignated [CAA §107(d)(3)(E)]. The State also must submit, and receive full approval of a request that satisfies all of the criteria for redesignation, including the requirements to:

- demonstrate that the improvement in the area’s air quality is due to permanent and enforceable reductions;

- have a fully approved SIP that meets all of the applicable requirements under section 110 and part D; and
- have a fully approved maintenance plan.

The SIP submissions for RFP, attainment demonstration, and contingency measures discussed in this memorandum would not be required in order for an area's redesignation request to be approved, provided that the area is attaining the PM2.5 standard. However, if an area again violates the standard before EPA takes final action on that area's redesignation request, EPA could not redesignate the area, and the SIP requirements would once again apply. Areas that are redesignated are relieved of all nonattainment requirements.

Sanctions: If EPA determines that an area is attaining the PM2.5 standard, thereby suspending the SIP submission requirements discussed above would be suspended, and any sanction clock related to those SIP requirements would be stopped.

Conformity: An area determined to be attaining the standard under this policy will be required to use the applicable regional emissions test, as required in the transportation conformity rule at 69 FR 40004 (July 1, 2004). This rule addresses the specific emissions tests for transportation plan and TIP conformity determinations that occur before and after a PM2.5 SIP having motor vehicle emissions budgets is established.

New Source Review (NSR)

An attainment determination pursuant to this policy will not relieve an area of its responsibility to meet the requirements of EPA's NSR regulations. All NSR requirements would continue to apply to any area designated as nonattainment.

Process for Determining Attainment

Regional offices make determinations – EPA Regional Offices will conduct individual rulemakings for each area seeking an attainment determination under this policy. Once the area has demonstrated that it is meeting the PM2.5 standard, the Regional Office will issue a binding determination that the area has attained the standard and need not make the SIP submittals discussed above.

Three years of clean data required – To demonstrate that it is meeting the standard, a nonattainment area must have 3 consecutive years of air quality monitoring data (e.g. 2004-2006, for areas that have a SIP submittal date of February 2008) that show the area had clean air quality that precede the areas required SIP submittal date. The data must be complete and quality-assured, consistent with 40 CFR part 58 requirements, and other relevant EPA guidance. The State also must ensure that the data are properly submitted to the Air Quality Subsystem of

EPA's Aerometric Information Retrieval System. The State should notify its EPA Regional Office that it believes a nonattainment area is attaining the PM_{2.5} standard and petition for an attainment determination under this policy. EPA believes that the determination of attainment for an area should be consistent with the manner that the area was designated as nonattainment¹.

Entire multi-state areas must have clean air to be eligible – Multi-state nonattainment areas must demonstrate attainment for the entire nonattainment area in order for EPA to suspend any of the SIP requirements covered by this policy. EPA will not suspend any requirements based on a determination that part of a nonattainment area is monitoring attainment. If the multi-state nonattainment area involves more than one EPA Region, the appropriate Regional Offices should coordinate these efforts in making any attainment determinations.

Areas must continue to meet PM_{2.5} standard – Areas that are determined to attain the PM_{2.5} standard under this policy must continue to monitor clean air. The State must continue to operate an appropriate air quality monitoring network, in accordance with EPA regulations, to verify the attainment status of the area (see 40 CFR part 58).

A violation means SIP requirements apply – If EPA determines that an area has violated the PM_{2.5} standard, the area would again be required to submit the pertinent requirements under the SIP for the area. EPA would notify the State of that determination and would also provide notice to the public in the Federal Register. Areas subject to such a determination would receive a reasonable amount of time to address the RFP, attainment demonstration and/or contingency measure requirements and submit revisions to their SIPs. EPA would establish this SIP submittal date on a case-by-case basis, taking into account individual circumstances surrounding the particular SIP provisions at issue.

Areas remain subject to other EPA requirements – Attainment determinations under this policy do not shield an area from other required actions, such as provisions to address pollution transport, which could require emission reductions at sources or other types of emission activities contributing significantly to nonattainment in other areas or States, or interfering with maintenance in those areas. EPA has the authority to require emissions reductions as necessary and appropriate to deal with transported air pollution [see CAA §§110(a)(2)(D) and 110(a)(2)(A).]

¹ Areas that are designated based upon violations identified at specific monitors located within a given area should also be used in the determination of attainment for the area. The use of spatial averaging should only be used in determinations of attainment for an area where the technique was also used in designating the area as nonattainment initially.

- 6 -

If you have any questions about this policy, please contact Larry Wallace of my staff, at (919) 541-0906, or Rich Damberg at (919) 541-5592.

cc: Rob Brenner
Bill Harnett
Rich Ossias
Joe Paisie
Sally Shaver
Peter Tsirigotis
Lydia Wegman



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

December 17, 2004

THE ADMINISTRATOR

The Honorable Michael Easley
Governor, State of North Carolina
20301 Mail Service Center
Raleigh NC 27699-0301

Dear Governor Easley:

Thirty-four years ago this month, the first Clean Air Act signaled the beginning of our country's resolve to dramatically improve air quality. Today, we celebrate our accomplishments which have enabled us to breathe the cleanest air we have ever measured. As 2004 comes to a close, I am pleased to report that this has been a remarkable year for protecting and improving the country's air quality.

The Bush Administration has made implementation of a national clean air strategy a top priority by implementing more protective air quality standards for ozone and fine particles and designing national tools to help meet those standards. Legislation and regulation will be the centerpiece of the President's clean air and clean energy strategy as we move forward. Together, we are on the path to make this generation one of the most productive periods of air quality improvement in our nation's history.

An important part of our nation's commitment to clean, healthy air is reducing the levels of fine-particle or PM_{2.5} pollution. 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, lodge deep in our lungs, and have been associated with heart attacks, chronic bronchitis, asthma attacks and missed days of school and work.

Key to the reduction of particle pollution is implementation of the fine particle standards and identification of the areas of the country needing additional work to meet the standards. We take the first of those important steps today, identifying the areas in your state that do not meet the fine particle standards. Those parts of your state designated as "nonattainment" will require more actions to achieve a common goal of cleaner, healthier air (a list of nonattainment areas is attached). For areas in your state that attain the standard you will need to continue your progress to sustain clean air.

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To assist you, we have both proposed and instituted rules as part of our national clean air strategy that will bring the vast majority of the country into attainment with the standards over the next decade. Our clean air/clean energy strategy, including Clear Skies legislation and the Clean Air Rules, will cut power plant emissions of sulfur dioxides, nitrogen oxides and mercury by nearly 70 percent when fully implemented, and will reduce emissions from off-road diesel fuels, vehicles and engines by over 90 percent — those black puffs of exhaust smoke are going to be a thing of the past. Together, these Clean Air Rules will build on the tremendous progress made in previous decades, and do it in record time.

The last several decades have seen a growing commitment to clean air coupled with a progression of science and technology that has informed our decision-making and driven our actions. I think of our clean air history as a relay where a baton is passed from generation to generation and from Administration to Administration. This Administration has made a commitment to accelerate our clean air progress so that all Americans live healthier, longer, more productive and prosperous lives.

Sincerely,

/s/

Michael O. Leavitt

cc (with attachment):

Mr. William G. Ross, Jr.
Secretary
North Carolina Environment and Natural
Resources Department

Ms. Robin Smith
Assistant Secretary for Environmental Protection
North Carolina Environment and Natural
Resources Department

Mr. James I. Palmer, Jr.
Regional Administrator, Region IV

Attachment

Nonattainment Areas

State	Area Name	Counties
North Carolina	Greensboro-Winston Salem-High Point, NC	Davidson Guilford
	Hickory-Morganton-Lenoir, NC	Catawba

Internet Address (URL) ● <http://www.epa.gov>

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North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

February 22, 2005

William G. Ross Jr., Secretary

Mr. James I. Palmer, Jr.
Regional Administrator
U.S EPA, Region 4
61 Forsyth Street
Atlanta, Georgia 30303

RE: PM_{2.5} Non-attainment Designations

Dear Mr. Palmer:

In the January 5, 2005 Federal Register notice on PM_{2.5} non-attainment boundaries, EPA indicated that State submittal of complete, quality assured, certified 2004 data for the purpose of showing a change in the non-attainment boundary was appropriate. Therefore, North Carolina would like to provide the data for the three counties that were designated as non-attainment for PM_{2.5}: Catawba, Davidson, and Guilford¹; and to request that Guilford be re-designated as attainment.

Despite the fact that the Guilford County monitor attained the PM_{2.5} standard with a 2001-2003 design value of 14.0 $\mu\text{g}/\text{m}^3$, a value significantly below the ambient standard, this county was designated as non-attainment. The 2002-2004 data show a design value of 13.7 $\mu\text{g}/\text{m}^3$, which demonstrates that the air quality in Guilford County is well below the NAAQS. As I stated in earlier correspondence on the PM_{2.5} non-attainment boundary issue, I believe that Guilford County should be designated attainment. We have indicated previously our reasons why we believe including Guilford

¹ Catawba County's monitor is located in Hickory. The 2001-2003 design value for this monitor is 15.5 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The 2002-2004 design value for this monitor is 15.1 $\mu\text{g}/\text{m}^3$. North Carolina had anticipated this area would attain the PM_{2.5} standard with the 2004 data. The values are very close to the PM_{2.5} standard, but unfortunately still violating. However, North Carolina believes it is likely that this area will attain with the 2005 data. North Carolina will begin work on the re-designation package as early as September 2005. We request that if EPA intends to issue re-designation guidance, that this be accomplished by mid-2005 so that the guidance is available when we are beginning the re-designation process. In any event, we intend to consult with EPA early in the process in order to ensure that our request can be processed as quickly as possible.

The Davidson County monitor has a similar downward trend in PM_{2.5} values. The 2001-2003 design value for the Lexington site is 15.8 $\mu\text{g}/\text{m}^3$. The 2002-2004 design value for this site is 15.4 $\mu\text{g}/\text{m}^3$. Again, while this site did not attain the PM_{2.5} standard, the value is still on a downward trend. We are hopeful that air quality will continue to improve in Davidson County and the Lexington monitor will attain the PM_{2.5} standard with the inclusion of 2005 data. If so, we intend, as with Catawba County, to seek expeditious re-designation of the area. We reiterate that, if EPA intends to issue re-designation guidance, it should release such guidance before September 2005.

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County in the non-attainment area is arbitrary and unlawful. I request that you again review my September 8, 2004 letter, in light of the fact that the design value in Guilford continues to be well below the standard.

From our previous comments, I reiterate that, while the mobile source emissions in Guilford County are greater than in other counties in this area, mobile source emissions will continue to decrease through implementation of federal rules addressing mobile sources as well as the expanded North Carolina motor vehicle inspection program. The mobile emissions will also decrease due to local measures included as part of the Early Action Compact (EAC) effort in the Triad. The most direct influence of these reductions will be reduced ambient concentrations in Guilford County at the monitor already demonstrating compliance with the $PM_{2.5}$ standard.

Unfortunately for the citizens of Guilford County, EPA has reached the puzzling conclusion that sources in this attaining county are contributing to pollution in another county which lies in a direction opposite the prevailing winds. This conclusion is supported neither by the facts nor reason, and therefore I ask that it be withdrawn. The EPA analysis appears to rely primarily on the fact that Guilford County has a relatively larger and more urban population and produces relatively larger quantities of $PM_{2.5}$ and $PM_{2.5}$ precursors. But EPA fails to adequately consider that, for example, Guilford County's air quality complies with the $PM_{2.5}$ NAAQS and, indeed, is improving with respect to the pollutant $PM_{2.5}$. The only evidence shows that federal, state, and local controls already in place continue to reduce $PM_{2.5}$ concentrations in Guilford County and surrounding counties. While we share a common interest in assuring clean air in Davidson County, it is entirely unclear what additional measures you would recommend be imposed and how those measures would have a meaningful impact on air quality in Davidson County.

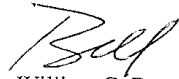
EPA's own data indicate that regional sources account for a great deal of the elevated $PM_{2.5}$ levels in the east and southeast. For this reason, EPA has in fact proposed to find that power plant emissions throughout the region should be regulated -- by the Clean Air Interstate Rule. All available data and analysis indicate that a non-attainment designation for Guilford County will have little if any effect on the $PM_{2.5}$ levels in Davidson County, and whatever effect it does have will be dwarfed by other emissions reductions programs. A more sensible approach would be to require significant regional emission reductions from large sources in the near term, which would help both Davidson County and Catawba County attain and then maintain the $PM_{2.5}$ standard. I ask that EPA not penalize Guilford County for a problem that it can do little if anything to rectify.

North Carolina is proud to be a leader in the improvement of air quality and is committed to the continued improvement of air quality within its borders. Part of our successful strategy in North Carolina has been the deployment of our limited resources in an efficient manner. Unfortunately, the designation of Guilford County as nonattainment will result in the expenditure of unnecessary resources in an area that has already

Mr. James I. Palmer, Jr.
February 22, 2004
Page 3 of 3

demonstrated compliance with the NAAQS. I want to see all areas of the State attain the PM_{2.5} standard as quickly as possible. I trust that these comments will be considered as EPA moves forward with implementation of the PM_{2.5} standard.

Sincerely,

A handwritten signature in dark ink, appearing to read "Bill", written over a horizontal line.

William G. Ross, Jr.

cc: Secretary Lyndo Tippet
Secretary James Fain
✓ Keith Overcash



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 5 2005

THE ADMINISTRATOR

William G. Ross, Jr., Secretary
North Carolina Department of Environment
and Natural Resources
1601 Mail Service Station
Raleigh, NC 27699-1601

Dear Secretary Ross:

Thank you for your letter of February 22, 2005, concerning fine particulate matter (PM_{2.5}) designations and Guilford County, North Carolina. In your letter, you provided 2004 monitoring data for Davidson, and Guilford Counties, and requested that the Environmental Protection Agency (EPA) designate Guilford County as attainment for the PM_{2.5} National Ambient Air Quality Standard (NAAQS). For the reasons set forth herein, EPA denies your request.

In determining an area's designation, we rely on the Clean Air Act (CAA) definition of a nonattainment area in section 107(d)(1)(A)(i): an area that is violating an ambient standard or an area that is contributing to a nearby area that is violating the standard. If an area meets this definition, EPA is obligated to designate the area as nonattainment. On April 1, 2003, EPA issued guidance for states and tribes to use in identifying areas that meet or do not meet EPA's national air quality standards for PM_{2.5}. In making designations, we used the most recent 3 years of monitoring data. Once we determined that a monitor was recording a violation, the next step was to determine if there were any nearby areas that were contributing to the violation and include them in the designated nonattainment area. In making this determination, we reviewed all available technical data related to nine factors set out in the April 1, 2003, guidance such as air quality, source locations and emissions, meteorology, terrain, population, commuting, and growth in the area. The technical support analyses for all nonattainment areas are located on EPA's web site at:
<http://epa.gov/pmdesignations/documents/final/TSD/Ch6.pdf>.

Based on the analysis of all factors for the Greensboro area, EPA determined that Guilford County was contributing to the violating monitor in adjacent Davidson County. Our analysis showed that Guilford County had sufficient emissions and emission sources to contribute to the ambient air quality in Davidson County. For example, Guilford County has the largest population of any county in the area, accounting for over one third of the metropolitan statistical area's total population, as well as significant population growth. Additionally, Guilford County commuters total by far the highest vehicle miles traveled in the area. These factors indicate that Guilford County has significant sources of emissions. EPA further found that Guilford County has sufficient emissions of PM_{2.5}.

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and precursor pollutants sulfur dioxide (SO₂), nitrogen oxides (NO_x), and volatile organic compounds (VOC) to contribute to the ambient air quality in Davidson County.

2002-2004 Data

In EPA's January 5, 2005, Final Designation Notice, we invited states to submit, by February 22, 2005, complete, quality assured, certified 2004 data that suggests a change in designation of an entire nonattainment area is appropriate for any area within the State. EPA stated that it would change an area's designation if inclusion of 2004 data showed that every county in an area was neither monitoring a violation of the standards nor contributing to a violation of the standards of a nearby area. We stated this because as long as there is a continuing violation of the standards, those areas that are contributing to the violation need to be part of the nonattainment area for controls designed to achieve the standard.

In your February 22, 2005, letter, you provided complete, quality assured, certified 2004 data for Davidson and Guilford Counties and noted that data from the PM_{2.5} monitor in Guilford County was below the annual average PM_{2.5} standard of 15.0 µg/m³. Your letter did not conform to EPA's January 5 offer to revisit designations based on 2004 data and was not addressed in EPA's April 5, 2005, Supplemental Notice. Instead, EPA has evaluated your letter and is responding to it separately here as a petition for reconsideration.

The 2004 data provided in your letter, while being new in the sense that it was not available to be considered in EPA's final designation of Guilford County, does not provide any new information that would compel EPA to reach a different conclusion regarding Guilford County's nonattainment status based upon its contribution to air quality in Davidson County. While the 2004 data show a decrease in Guilford County's design value, this demonstrates the continuation of a trend already in existence at the time EPA made its final designations. EPA is pleased that this monitor continues to show decreasing design values; however, nothing about the 2004 monitor data changes EPA's evaluation of Guilford County's contribution to Davidson County's air quality.

Meteorology

In your letter, you characterize as "puzzling" EPA's finding that emission sources in Guilford County contribute to the ambient air quality of Davidson County, which "lies in a direction opposite the prevailing winds." We understand your perspective and believe that EPA and North Carolina are viewing the wind data differently.

North Carolina submitted information prior to EPA making the final determination of the nonattainment boundary for the Greensboro area which included a discussion of wind patterns and other meteorology. The State's analysis showed that wind direction varies based on season, with influence coming from different directions at

different times of year. In your letter, you focused on the wind pattern during the summer months, which shows prevailing winds from Guilford County generally away from Davidson County.

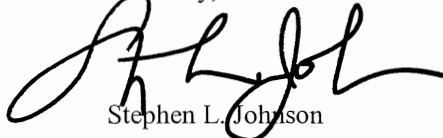
EPA analyzed the wind patterns, from all times of the year, in the area and found that there is influence on the Davidson County monitor from varying directions, including from the direction of Guilford County. While your assertion that the prevailing wind patterns from Guilford County are away from Davidson County is generally true in the summer months, EPA's analysis of year-round wind patterns found that the second strongest contribution to Davidson County is from the northeast, the direction of Guilford County. Attachment 1 is a pollution rose diagram for the violating monitor located in Davidson county. Each dot in the diagram represents a daily PM_{2.5} concentration (from the 2001-3 period) and the average wind direction and wind speed for that day. It shows that there were a number of days in the period when PM_{2.5} contributions toward the Davidson county monitor came from the northeast (the direction of Guilford county).

Regional Controls

In your letter, you discussed future regional controls, such as EPA's Clean Air Interstate Rule (CAIR), as providing reductions in PM_{2.5} levels in the east and southeast. EPA agrees that regional controls, such as CAIR, will provide reductions in elevated PM_{2.5} levels in the southeast, and we agree that CAIR will provide an important tool for reducing ambient PM_{2.5} levels across the region. However, regional control programs do not substitute for area-specific attainment demonstrations and are not designed to achieve to help a specific nonattainment area attain the national standards. For nonattainment areas, we rely on an area-specific control strategy developed by the State which should include a combination of significant regional controls along with specific local controls. In addition, the PM_{2.5} designations were based on current violations of the standard and associated contributions, not projected future conditions.

EPA understands North Carolina's preference for a smaller nonattainment boundary for the Greensboro-Winston Salem-High Point area and appreciate your commitment to continued improvement of air quality. However, your letter did not provide information that persuades EPA to reconsider its decision. Therefore, your petition for reconsideration is denied.

Sincerely,

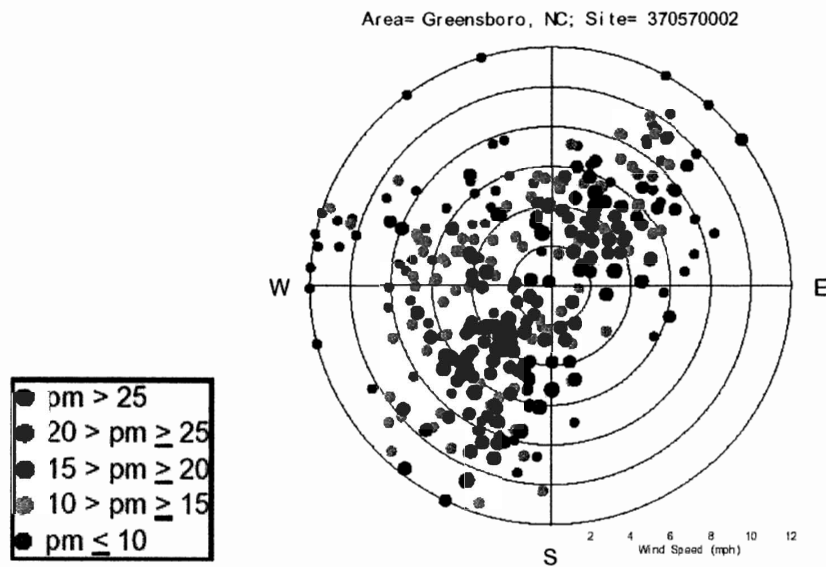
A handwritten signature in black ink, appearing to read 'S. L. Johnson', written over the printed name.

Stephen L. Johnson

Enclosure: Attachment 1

Pollution Rose for Davidson County, NC Monitor

Attachment 1
Pollution Rose for Davidson County, NC Monitor



Plot indicates PM2.5 concentration, wind direction, and wind speed for days in 2001-2003 with PM2.5 monitoring data.



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

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ATLANTA, GA.

MEMORANDUM

SUBJECT: Procedures for Processing Requests to Redesignate Areas to Attainment

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

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

Purpose

The Office of Air Quality Planning and Standards (OAQPS) expects that a number of redesignation requests will be submitted in the near future. Thus, Regions will need to have guidance on the applicable procedures for handling these requests, including maintenance plan provisions. This memorandum, therefore, consolidates the Environmental Protection Agency's (EPA's) guidance regarding the processing of requests for redesignation of nonattainment areas to attainment for ozone (O_3), carbon monoxide (CO), particulate matter (PM-10), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and lead (Pb). Regions should use this guidance as a general framework for drafting Federal Register notices pertaining to redesignation requests. Special concerns for areas seeking redesignation from unclassifiable to attainment will be addressed on a case-by-case basis.

Background

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

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AIR QUALITY PLANNING

1. The EPA has determined that the national ambient air quality standards (NAAQS) have been attained.

2. The applicable implementation plan has been fully approved by EPA under section 110(k).

3. The EPA has determined that the improvement in air quality is due to permanent and enforceable reductions in emissions.

4. The State has met all applicable requirements for the area under section 110 and Part D.

5. The EPA has fully approved a maintenance plan, including a contingency plan, for the area under section 175A.

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

1. Attainment of the Standard

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

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

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

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

2. State Implementation Plan (SIP) Approval

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

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

3. Permanent and Enforceable Improvement in Air Quality

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

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

4. Section 110 and Part D Requirements

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

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

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

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

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

a. Section 110 Requirements

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

b. Part D Requirements

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

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

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

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

i. Section 172(c) Requirements

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

ii. Conformity

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

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

5. Maintenance Plans

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

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

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

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

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

• a. Attainment Inventory

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

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

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

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

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

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

• b. Maintenance Demonstration

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

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

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

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

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

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

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

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

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

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

c. Monitoring Network

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

d. Verification of Continued Attainment

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

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

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

⁹See references for modeling guidance cited in footnote 8

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

e. Contingency Plan

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

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

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

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

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

Summary

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

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