# Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

**To:** Commissioners **Date:** October 20, 2009

**Thru:** LaDonna Castañuela, Chief Clerk

**From:** Susana M. Hildebrand, P.E.
Chief Engineer's Office

**Subject:** Update on Particulate Matter of 2.5 Microns and Less ($PM_{2.5}$)

At the October 29, 2009, Commissioners' Work Session, an update will be provided regarding the letter the Texas Commission on Environmental Quality (TCEQ) received from the United States Environmental Protection Agency (EPA) concerning $PM_{2.5}$ designations in Texas. The EPA has requested that the TCEQ provide a recommendation of whether an area within Texas (specifically the Clinton Drive monitor in Harris County and the nearby areas that may be contributing to violations) meets the National Ambient Air Quality Standard for $PM_{2.5}$ within 120 days of receipt of the letter. The EPA has stated that based on the most recent air quality monitoring data from the period 2006 to 2008, Harris County is now exceeding the annual $PM_{2.5}$ standard. Staff will be seeking direction on how the commission would like to proceed.

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

OCT 8 2009

The Honorable Rick Perry
Governor of Texas
P.O. Box 12428
Austin, TX 78711

Dear Governor Perry:

I am writing to request that you provide your recommendation of whether an area within your state meets the National Ambient Air Quality Standard (NAAQS) for fine particles ($PM_{2.5}$). If EPA determines that this area does not meet the $PM_{2.5}$ NAAQS, your state will have to submit a State Implementation Plan that contains strategies to control sources that emit this pollutant.

On January 5, 2005, the Environmental Protection Agency (EPA) designated Harris County, Texas, and surrounding areas, as "unclassifiable/attainment" for the 1997 annual $PM_{2.5}$ NAAQS because this area was then meeting the standards. Unfortunately, the most recent air quality monitoring data for $PM_{2.5}$, for the period from 2006 to 2008, indicate that one monitor in Harris County is now violating the 1997 annual $PM_{2.5}$ NAAQS. As a result of this violation, EPA is initiating the process under Clean Air Act section 107(d)(3) to redesignate Harris County, and those nearby areas contributing to the violation in Harris County, as "nonattainment" for the 1997 annual $PM_{2.5}$ NAAQS.

The determination of an air quality violation in Harris County is based on a three-year average of data. This includes some data the Texas Commission on Environmental Quality (TCEQ) regards as being influenced by sources outside of Texas, and therefore potentially subject to exclusion from this determination. We have been working with the TCEQ as we review this data, and will determine shortly whether data for certain days were influenced by "exceptional events" and should be excluded from the three-year data set.

EPA requests that you provide your recommendations for the redesignation of Harris County, and any nearby areas that may be contributing to violations in Harris County, within 120 days of the receipt of this letter. EPA recommends that you assess the geographic boundaries for this area using the guidance for nonattainment area boundaries that EPA previously provided for designations for the 1997 $PM_{2.5}$ NAAQS. EPA provided this guidance in a Memorandum entitled "Designations for the Fine Particle National Ambient Air Quality Standards," from Jeffrey R. Holmstead, dated April 1, 2003 (the Holmstead Guidance, enclosed). EPA also provided additional guidance on defining area boundaries for 1997 $PM_{2.5}$ NAAQS designations in a memo from Lydia N. Wegman, dated February 14, 2004 (enclosed).

EPA will evaluate your recommendations to determine if any modifications are necessary, and if so, work with your staff to assure that the final designations and boundaries are appropriate, based on the facts and circumstances of this area. EPA will also evaluate Harris

County, and any nearby areas that may be contributing to the violation in Harris County, for inclusion within the nonattainment area in accordance with the Holmstead Guidance. After promulgation of the new designation for this area, EPA will likewise work with your staff to develop an appropriate State Implementation Plan for the area to assure the public health protections intended by the standards. We are aware of efforts currently underway by the State and local entities to reduce PM levels. We encourage you to continue these efforts to produce the improvements in air quality as quickly as possible.

We look forward to working with you and your staff to develop the designation for this area for the 1997 annual $PM_{2.5}$ NAAQS in a timely manner. If you have any questions, please do not hesitate to contact me. Your staff may wish to contact Mr. Carl E. Edlund, Director, Multimedia Planning and Permitting Division, EPA Region 6, at (214) 665-8124.

Sincerely yours,

Lawrence E. Starfield
Acting Regional Administrator

Enclosures

cc: Bryan W. Shaw, Ph.D.
Chairman, Texas Commission on Environmental Quality

Mark R. Vickery
Executive Director, Texas Commission on Environmental Quality

April 1, 2003

MEMORANDUM

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.

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<br>- 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).<br>- 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

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[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 • g/m$^3$, 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 • g/m$^3$, based on the 3-year average of the 98$^{th}$ percentile of 24-hour $PM_{2.5}$ concentrations.

[2]The "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).

are due, but no later than December 31, 2005. Although the TAR provides Tribes with flexibility in meeting the schedules set forth in 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

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[3]EPA'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.

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. 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

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[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.

violations of the $PM_{2.5}$ standard both from long-range transport[5] and from the collection of urban sources dispersed within metropolitan areas. To assess the metropolitan scale 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.

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[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/.

[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.

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 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.

February 14, 2004

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 areas[1]. 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

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[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

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[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.