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Subject Draft PM2.5 implementation preamble - all sections

Amy and Art -

Attached is the full version of the PM2.5 implementation preamble to date. We are doing a final review of the regulatory text and will send it on Monday, August 7. Next call is Tuesday August 8 on condensable PM issues and the improved source monitoring section.

PM25 impl rule 080306.doc

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6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 51 and 52

[EPA-HQ-OAR-2003-0062; FRL-7969-1]

RIN 2060-AK74

CLEAN AIR FINE PARTICLE IMPLEMENTATION RULE

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This final action provides rules and guidance on the minimum Clean Air Act (CAA) requirements for State and Tribal plans to implement the 1997 fine particle ($PM_{2.5}$) national ambient air quality standards (NAAQS). Fine particles and precursor pollutants are emitted by a wide range of sources, including power plants, cars, trucks, industrial sources, and other burning or combustion-related activities. The health effects associated with exposure to $PM_{2.5}$ are serious, including premature death, aggravation of heart and lung disease, and asthma attacks. Those particularly sensitive to $PM_{2.5}$ exposure include older adults, people with heart and lung disease, and children. This rule and preamble describe the requirements that States and Tribes must meet in their implementation plans for attainment of the 1997 fine particle NAAQS.

Air quality designations for 39 areas (with a total population of 90 million) not attaining the 1997 $PM_{2.5}$ standards became effective on April 5, 2005. By April 5, 2008, each State having a nonattainment area must submit to EPA an attainment demonstration and associated air quality modeling, adopted State regulations to reduce emissions of $PM_{2.5}$ and its precursors, and other supporting information demonstrating that the area will attain the standards as expeditiously as practicable. Section I of the preamble provides background information on this rulemaking. Section II describes the various core elements of the $PM_{2.5}$ implementation program, based primarily on the subpart 1 requirements of section 172 of the CAA. Important topics discussed in section II include policies for addressing $PM_{2.5}$ precursors, attainment dates, attainment demonstrations and modeling, local emission reduction measures [reasonably available control technology (RACT) and reasonably available control measures (RACM)], and reasonable further progress (RFP). Section III addresses the various statutory requirements and executive orders applicable to this rule. The final section contains the final regulatory text for implementation of the $PM_{2.5}$ NAAQS, in the form of subpart Y amending 40 CFR part 51. Final revisions to the new source review program to address the fine particle standards will be set forth in a separate rulemaking.

DATES: This rule is effective on [INSERT DATE 60 DAYS FROM DATE OF SIGNATURE].

ADDRESSES: The EPA has established a docket for this action under Docket ID EPA-HQ-OAR-2003-0062. All documents relevant to this action are listed in the Federal docket management system at www.regulations.gov. Although listed in the index, some information is not publicly available (e.g. Confidential Business Information or other information whose disclosure is restricted by statute). Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through www.regulations.gov or in hard copy format at the EPA Docket Center, EPA/DC, EPA West, Room B102, 1301 Constitution Avenue, NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Office of Air and Radiation Docket and Information Center is (202) 566-1742. A variety of information and materials related to the fine particle NAAQS and implementation program are also available on EPA's web site: https://www.epa.gov/pmdesignations.

NOTE: The EPA Docket Center suffered damage due to flooding during the last week of June 2006. The Docket Center is continuing to operate. However, during the cleanup, there will be temporary changes to Docket Center telephone numbers, addresses, and hours of operation for people who wish to make hand deliveries or visit the Public Reading Room to view documents. For current information on docket operations, locations and telephone numbers, consult EPA's Federal Register notice at 71 FR 38147 (July 5, 2006) or the EPA website at www.epa.gov/epahome/dockets.htm. The Docket Center's mailing address for U.S. mail and the procedure for submitting comments to www.regulations.gov are not affected by the flooding and will remain the same.

FOR FURTHER INFORMATION CONTACT: For general information, contact Mr. Richard Damberg, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Mail

Code C539-01, Research Triangle Park, NC 27711, phone number (919) 541-5592 or by e-mail at: damberg.rich@epa.gov; or Ms. Julie McClintock, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Mail Code C539-01, Research Triangle Park, NC 27711, phone number (919) 541-5339 or by e-mail at: mcclintock.julie@epa.gov.

SUPPLEMENTARY INFORMATION:

I. General Information

A. Does this Action Apply to Me?

[ADD REGULATED/AFFECTED ENTITIES DISCUSSION]

B. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this final will also be available on the WWW. Following signature by the EPA Administrator, a copy of this final will be posted in the regulations and standards section of our NSR home page located at [insert location].

C. How is the preamble organized?

I. Background

[to be added]

II. Elements of the Clean Air Fine Particle Implementation Rule

A. <u>Precursors and Pollutants Contributing to Fine Particle Formation</u>

1. Introduction.

The main precursor gases associated with fine particle formation are sulfur dioxide (SO_2), nitrogen oxides (NO_x), volatile organic compounds (VOC), and ammonia. This section provides technical background on each precursor, discusses the policy approach for addressing each precursor under the $PM_{2.5}$ implementation program, and responds to key issues raised in the public comment process. A subsection is also included on direct $PM_{2.5}$ emissions to address key comments received on this issue as well.

Gas-phase precursors SO_2, NO_x, VOC, and ammonia undergo chemical reactions in the atmosphere to form secondary particulate matter. Formation of secondary PM depends on numerous factors including the concentrations of precursors; the concentrations of other gaseous reactive species; atmospheric conditions including solar radiation, temperature, and relative humidity (RH); and the interactions of precursors with preexisting particles and with cloud or fog droplets. Several atmospheric aerosol species, such as ammonium nitrate and certain organic compounds, are semivolatile and are found in both gas and particle phases. Given the complexity of PM formation processes, new information from the scientific community continues to emerge to improve our understanding of the relationship between sources of PM precursors and secondary particle formation.

As an initial matter, it is helpful to clarify the terminology we use throughout this notice to discuss precursors. We recognize NO_X, SO_2, VOCs, and ammonia as precursors of $PM_{2.5}$ in the scientific sense because these pollutants can contribute to the formation of $PM_{2.5}$ in the ambient air. However, interactions among these pollutants are complex and variable. The level of our understanding about the emissions inventories, the efficacy of relevant control measures, and the overall contribution of these precursors to $PM_{2.5}$ formation varies by location. This requires that we further consider in this action how States should address these $PM_{2.5}$ precursors in their $PM_{2.5}$ nonattainment plan programs. Thus, we use the term "$PM_{2.5}$ nonattainment plan precursor" to describe those precursors that are required to be addressed in a specific $PM_{2.5}$ nonattainment area or maintenance area plan.

In this rule, EPA has not made specific findings regarding which precursors should be addressed in each specific nonattainment area. The policy approach in the rule instead describes general presumptive findings for NOx, ammonia, and VOC for all nonattainment areas. The rule provides a mechanism by which the State and/or EPA can make an area-specific demonstration to reverse the general presumption for these three precursors. States must also consider any relevant information brought forward by interested parties in the SIP planning and development process. (See section II.A.8 for additional discussion on these issues.)

In the following sections, we discuss how States must address $PM_{2.5}$ precursors for nonattainment program issues in $PM_{2.5}$ implementation plans, including issues such as RACT, RACM, and reasonable further progress. This discussion in the final rule is linked to precursor policies for the implementation of the new source review program, the transportation conformity program, the general conformity program, and the regional haze program. All of these programs take effect prior to approval of SIPs for attaining the $PM_{2.5}$ NAAQS. In the case of NSR, the program applies on the effective date of the nonattainment area designation. In the case of transportation conformity and general conformity, the program takes effect 1 year from the effective date of designation of the nonattainment area (i.e., April 5, 2006 for areas designated nonattainment effective April 5, 2005). Thus, for each of these programs there is an interim period between the date the program becomes applicable to a given nonattainment area and the date the State receives EPA approval of its overall $PM_{2.5}$ implementation plan.

2. Legal Authority to Regulate Precursors

a. Background.

The CAA authorizes the Agency to regulate criteria pollutant precursors. The term “air pollutant” is defined in section 302(g) to include “any precursors to the formation of any air pollutant, to the extent the

Administrator has identified such precursor or precursors for the particular purpose for which the term 'air pollutant' is used." The first clause of this second sentence in section 302(g) explicitly authorizes the Administrator to identify and regulate precursors as air pollutants under other parts of the CAA. In addition, the second clause of the sentence indicates that the Administrator has discretion to identify which pollutants should be classified as precursors for particular regulatory purposes. Thus, we do not necessarily construe the CAA to require that EPA identify a particular precursor as an air pollutant for all regulatory purposes where it can be demonstrated that various CAA programs address different aspects of the air pollutant problem. Likewise, we do not interpret the CAA to require that EPA treat all precursors of a particular pollutant the same under any one program when there is a basis to distinguish between such precursors. For example, in a recent rule addressing $PM_{2.5}$ precursors for purposes of the transportation conformity program, we chose to adopt a different approach for one precursor based on the limited emissions of that precursor from onroad mobile sources and the degree to which it contributes to $PM_{2.5}$ concentrations. (70 FR 24280; May 6, 2005).

Other provisions of the CAA reinforce our reading of section 302(g) that Congress intended precursors to NAAQS pollutants to be subject to the air quality planning and control requirements of the CAA, but also recognized that there may be circumstances where it is not appropriate to subject precursors to certain requirements of the CAA. Section 182 of the CAA provides for the regulation of NO_x and VOCs as precursors to ozone in ozone nonattainment areas, but also provides in section 182(f) that major stationary sources of NO_x (an ozone precursor) are not subject to emission reductions controls for ozone where the State shows through modeling that NO_x reductions do not decrease ozone. Section 189(e) provides for the regulation of PM_{10} precursors in PM_{10} nonattainment areas, but also recognizes that there may be certain circumstances (e.g. if precursor emission sources do not significantly contribute to PM_{10} levels) where it is not appropriate to apply control requirements to PM_{10} precursors. The legislative history of Section 189(e) recognized the complexity behind the science of precursor transformation into PM10 ambient concentrations and the need to harmonize the regulation of PM10 precursors with other provisions of the CAA:

> The Committee notes that some of these precursors may well be controlled under other provisions of the CAA. The Committee intends that . . .the Administrator will develop models, mechanisms, and other methodology to assess the significance of the PM10 precursors in improving air quality and reducing PM10. Additionally, the Administrator should consider the impact on ozone levels of PM10 precursor controls. The Committee expects the Administrator to harmonize the PM10 reduction objective of this section with other applicable regulations of this CAA regarding PM10 precursors, such as NOx. See H. Rpt. 101-490, Pt. 1, at 268 (May 17, 1990), reprinted in S. Prt. 103-38, Vol. II, at 3292.

In summary, section 302(g) of the CAA clearly calls for the regulation of precursor pollutants, but the CAA also identifies circumstances when it may not be appropriate to regulate precursors and gives the Administrator discretion to determine how to address particular precursors under various programs required by the CAA. Due to the complexities associated with precursor emissions and their variability from location to location, we believe that in certain situations it may not be effective or appropriate to control a certain precursor under a particular regulatory program or for EPA to require similar control of a particular precursor in all areas of the country.

b. Final rule.

The final rule maintains the same legal basis for regulating precursors as was described in the proposal and in the background section above. We also include a clarification of the term "significant contributor." In the proposal, when considering the impacts of the precursors NOx, VOC and ammonia on ambient concentrations of particulate matter, we referred to the possibility of reversing the presumed approach for regulating or not regulating a precursor if it can be shown that the precursor in question is or is not a “significant contributor” to $PM_{2.5}$ concentrations within the specific nonattainment area. Consistent with the legislative history above, we are clarifying that the use of the term "significant contribution" to the area's $PM_{2.5}$ concentration means that a significant change in emissions of the precursor would be projected to provide a significant change in $PM_{2.5}$ concentrations in the area. For example, if modeling indicates that a 30 percent NOx reduction would reduce ambient $PM_{2.5}$ levels, but that a 30 percent ammonia reduction would result in virtually no change in ambient $PM_{2.5}$ levels, this would suggest that NOx is a significant contributor in the area but that ammonia is not. This approach to identifying a precursor for regulation reflects atmospheric chemistry conditions in the area and the magnitude of emissions of the precursor in the area or State. Assessments of which source categories are more cost effective or attractive to control should be part of the later RACT and RACM assessment, to occur after the basic assessment of which precursors are to be regulated is completed.

c. Comments and responses

Comment: The EPA received several comments supporting EPA's interpretation of 302(g) to determine the appropriate regulatory status of each precursor pollutant.

Response: The EPA agrees with the commenters. In establishing section 302(g), Congress intended that precursors to NAAQS pollutants be subject to the air quality planning and control requirements of the CAA. However, the CAA also recognizes that there may be circumstances where it is not appropriate to subject precursors to certain requirements of the CAA.

Comment: The EPA received several comments regarding the applicability of section 189(e), noting that it requires states to presumptively control sources of PM10 precursors except where the EPA "determines that such sources [of precursors] do not significantly contribute to PM-10 levels which exceed the standard in the area." Several commenters stated that EPA does not have the legal authority to regulate $PM_{2.5}$ precursors in a different manner. Several commenters maintained that all $PM_{2.5}$ precursors presumptively should be subject to regulation unless demonstrated by the State as not a significant contributor to $PM_{2.5}$ concentrations in a specific area.

Response: As stated above, EPA believes that section 302(g) allows the Administrator to presumptively not require certain precursors to be addressed in PM2.5

implementation plans generally, while allowing the State or EPA to make a finding for a specific area to override the general presumption. In the following pollutant-specific sections of this preamble, EPA finds that at this time there is sufficient uncertainty regarding whether certain precursors significantly contribute to $PM_{2.5}$ concentrations in all nonattainment areas such that the policy set forth in this rule does not presumptively require certain precursors (ammonia, VOC) to be controlled in each area. However, the State or EPA may reverse the presumption and regulate a precursor if it provides a demonstration showing that the precursor is a significant contributor to $PM_{2.5}$ concentrations in the area. In addition, if in the State's SIP planning and adoption process a commenter provides additional information suggesting an alternative policy for regulating a particular precursor, the State will need to respond to this information in its rulemaking action.

3. Policy for ammonia

[Section II.E.2 of November 1, 2005 proposed rule (70 FR 65999); sec 51.1002 in draft and final regulatory text.]

a. Background

Ammonia (NH3) is a gaseous pollutant that is emitted by natural and anthropogenic sources. Emissions inventories for ammonia are considered to be among the most uncertain of any species related to PM. Ammonia serves an important role in neutralizing acids in clouds, precipitation and particles. In particular, ammonia neutralizes sulfuric acid and nitric acid, the two key contributors to acid deposition (acid rain). Deposited ammonia also can contribute to problems of eutrophication in water bodies, and deposition of ammonium particles may effectively result in acidification of soil as ammonia is taken up by plants. The NARSTO Fine Particle Assessment[1] indicates that reducing ammonia emissions where sulfate concentrations are high may reduce $PM_{2.5}$ mass concentrations, but may also increase the acidity of particles and precipitation. An increase in particle acidity is suspected to be linked with human health effects and with an increase in the formation of secondary organic compounds. Based on the above information and further insights gained from the NARSTO

[1] NARSTO (2004) *Particulate Matter Assessment for Policy Makers: A NARSTO Assessment.* P. McMurry, M. Shepherd, and J. Vickery, eds. Cambridge University Press, Cambridge, England. ISBN 0 52 184287 5.

Fine Particle Assessment, it is apparent that the formation of particles related to ammonia emissions is a complex, nonlinear process.

Though recent studies have improved our understanding of the role of ammonia in aerosol formation, ongoing research is required to better describe the relationships between ammonia emissions, particulate matter concentrations, and related impacts. The control techniques for ammonia and the analytical tools to quantify the impacts of reducing ammonia emissions on atmospheric aerosol formation are both evolving. Also, area-specific data are needed to evaluate the effectiveness of reducing ammonia emissions on reducing $PM_{2.5}$ concentrations in different areas, and to determine where ammonia decreases may increase the acidity of particles and precipitation.

The proposal showed consideration for the uncertainties about ammonia emissions inventories and about the potential efficacy of ammonia control measures by providing for a case-by-case approach. It was recommended that each State should evaluate whether reducing ammonia emissions would lead to $PM_{2.5}$ reductions in their specific PM2.5 nonattainment areas. The proposed policy did not require States to address ammonia as a $PM_{2.5}$ nonattainment plan precursor, unless a technical demonstration by the State or EPA showed that ammonia emissions from sources in the State significantly contribute to the $PM_{2.5}$ problem in a given nonattainment area or to other downwind air quality concerns. Where the State or EPA has determined that ammonia is a significant contributor to $PM_{2.5}$ formation in a nonattainment area, the State would be required to address ammonia emissions in its nonattainment SIP due in 2008, in the implementation of the PM program, and in other associated programs in that area.

b. Final rule

In the final rule, ammonia is presumed not to be a $PM_{2.5}$ nonattainment plan precursor, meaning that the State is not required to address ammonia in its nonattainment plan or evaluate sources of ammonia emissions for reduction measures. This presumption can be reversed based on an acceptable technical demonstration for a particular area by the State or EPA. If a technical demonstration by the State or EPA shows that ammonia emissions from sources in the State significantly contribute to the $PM_{2.5}$ problem in a given nonattainment area or to other downwind air quality concerns, the State must then evaluate and consider control strategies for reducing ammonia emissions in its nonattainment SIP due in 2008, in the implementation of the PM2.5 program, and in other associated programs in that area. Further discussion about technical demonstrations to support reversing a PM2.5 precursor presumption is included in section II.A.8 below.

This approach was retained from the proposal because of continued uncertainties regarding ammonia emission inventories and the effects of ammonia emission reductions. Ammonia emission inventories are presently very uncertain in most areas, complicating the task of assessing potential impacts of ammonia emissions reductions. In addition, data necessary to understand the atmospheric composition and balance of ammonia and nitric acid in an area are not widely available across PM2.5 nonattainment areas, making it difficult to predict the results of potential ammonia emission reductions. Ammonia reductions may be effective and appropriate for reducing PM2.5 concentrations in selected locations, but in other locations such reductions may lead to minimal reductions in PM2.5 concentrations and increased atmospheric acidity. Research projects continue to expand our collective understanding of these issues, but at this time EPA believes this case-by-case policy approach is appropriate given that there is sufficient uncertainty regarding the impact of ammonia emission reductions on PM2.5 concentrations in all nonattainment areas. In light of these uncertainties, we encourage States to continue efforts to better understand the role of ammonia in its fine particle problem areas.

In places for which the needed atmospheric data are available to determine whether increased acidity is an issue, analysis showing that increased acidity of particles and precipitation would likely result from ammonia controls would support the presumption against ammonia regulation. Analysis showing that ammonia reductions would be unlikely to increase the acidity of particles and precipitation, and that potential reductions in ammonia would significantly reduce PM2.5 levels, would support a technical demonstration to reverse the presumption.

c. Comments and Responses

Comment: One commenter stated that scientific understanding of the complexities of PM formation from ammonia is limited. The commenter claimed that the reduction of ammonia will not reduce PM in many areas, and speciated PM data to investigate the potential decrease in PM from ammonia emissions reductions is not available in all areas.

Response: The final rule takes these uncertainties into consideration by allowing ammonia to be addressed on a case-by-case basis. The State or EPA should develop a technical demonstration justifying the control of ammonia for any area about which enough information is available to determine that ammonia emission reductions would lead to a beneficial reduction in PM2.5. This demonstration should be completed as part of the SIP development process and prior to the adoption of control measures, in consultation with the appropriate EPA regional office.

Comment: Some commenters claimed that requiring no action on some precursors is counter to the requirement in sections 172(a)(2) and 188 to attain the NAAQS as expeditiously as practicable. They also asserted that presuming that ammonia is not a PM2.5 nonattainment plan precursor violates 302(g) by improperly delegating authority to the States.

Response: In many areas, reducing ammonia emissions could have little effect on PM2.5 concentrations and could lead to the potentially harmful effect of increased atmospheric acidity. While States are not required to take action on ammonia sources under this policy, States would be required to address information on ammonia brought to their attention during the planning and rule adoption process. Under this approach, States should design programs to achieve ammonia reductions in areas where such reductions will be beneficial. The EPA does not believe that this approach improperly delegates authority to the States. It establishes a general presumption for all areas through this rulemaking process, and allows for the presumption to be modified by the State or EPA on a case-by-case basis. EPA still retains the ability to make a technical demonstration for any area if appropriate to reverse the presumption and require ammonia to be addressed in its nonattainment area plan.

Comment: Some commenters stated that the results of a large pending ammonia emissions study should be evaluated before requiring control of ammonia in areas where agriculture is alleged to be major source.

Response: The upcoming ammonia study, a $9 million national study coordinated by Purdue University, will greatly improve ammonia emissions inventories and our understanding of the impacts of agriculture on particle formation from ammonia. The results will be used to establish policies for emissions of air pollutants for the livestock and poultry industries.

Comment: A presumption to not address ammonia will impede certain states (i.e. those that have provisions requiring their regulations to be “no stricter than Federal” provisions) from regulating ammonia.

Response: This presumptive approach to ammonia will not restrict States from addressing ammonia in their PM2.5 nonattainment plans if available information indicates that ammonia reductions would be appropriate. For some areas, available information may clearly point to the beneficial nature of reducing ammonia emissions. In such cases, inclusion of ammonia as a PM2.5 nonattainment plan precursor would not be considered stricter than Federal requirements. Under the policy in the final rule, the Federal government or the State may assess the impact of ammonia in a particular area and determine whether the presumption of insignificance is appropriate or whether ammonia is in fact a significant contributor to the PM2.5 problem in the area.

4. Policy for VOC

[Section II.E.2 of November 1, 2005 proposed rule (70 FR 65999); sec 51.1002 in draft and final regulatory text.]

a. Background

The VOC policy in today's rule addresses volatile and semivolatile organic compounds, generally up to 24 carbon atoms. High molecular weight organic compounds (typically 25 carbon atoms or more) are emitted directly as primary organic particles and exist primarily in the condensed phase at ambient temperatures. Accordingly, high molecular weight organic compounds are to be regulated as primary PM2.5 emissions for the purposes of the PM2.5 implementation program.

The organic component of ambient particles is a complex mixture of hundreds or even thousands of organic compounds. These organic compounds are either emitted directly from sources (i.e. primary organic aerosol) or can be formed by reactions in the ambient air (i.e. secondary organic aerosol, or SOA). Volatile organic compounds are key precursors in the formation processes for both SOA and ozone. The relative importance of organic compounds in the formation of secondary organic particles varies from area to area, depending upon local emissions sources, atmospheric chemistry, and season of the year.

The lightest organic molecules (i.e., molecules with six or fewer carbon atoms) occur in the atmosphere mainly as vapors and typically do not directly form organic particles at ambient temperatures due to the high vapor pressure of their products. However, they participate in atmospheric chemistry processes resulting in the formation of ozone and certain free radical compounds (such as the hydroxyl radical [OH]) which in turn participate in oxidation reactions to form secondary organic aerosols, sulfates, and nitrates. These VOCs include all alkanes with up to six carbon atoms (from methane to hexane isomers), all alkenes with up to six carbon atoms (from ethene to hexene isomers), benzene and many low-molecular weight carbonyls, chlorinated compounds, and oxygenated solvents.

Intermediate weight organic molecules (i.e., compounds with 7 to 24 carbon atoms) often exhibit a range of volatilities and can exist in both the gas and aerosol phase at ambient conditions. For this reason they are also referred to as semivolatile compounds. Semivolatile compounds react in the atmosphere to form secondary organic aerosols. These chemical reactions are accelerated in warmer temperatures, and studies show that SOA typically comprises a higher percentage of carbonaceous PM in the summer as opposed to the winter. The production of SOA from the atmospheric oxidation of a specific VOC depends on four factors: its atmospheric abundance, its chemical reactivity, the availability of oxidants (O3, OH, HNO3), and the volatility of its products. In addition, recent work suggests that the presence of acidic aerosols may lead to an increased rate of SOA formation. Aromatic compounds such as toluene, xylene, and trimethyl benzene are considered to be the most significant anthropogenic SOA precursors and have been estimated to be responsible for 50 to 70 percent of total SOA in some airsheds. Man-made sources of aromatics gases include mobile sources, petrochemical manufacturing and solvents. Some of the biogenic hydrocarbons emitted by trees are also considered to be important precursors of secondary organic particulate matter. Terpenes (and b-pinene, limonene, carene, etc.) and the sesquiterpenes are expected to be major contributors to SOA in areas with significant vegetation cover, but isoprene is not. Terpenes are very prevalent in areas with pine forests, especially in the southeastern U.S. The rest of the anthropogenic hydrocarbons (higher alkanes, paraffins, etc.) have been estimated to contribute 5–20 percent to the SOA concentration depending on the area.

The contribution of the primary and secondary components of organic aerosol to the measured organic aerosol concentrations remains a controversial issue. Most of the research performed to date has been done in southern California, and more recently in central California, while fewer studies have been completed on other parts of North America. Many studies suggest that the primary and secondary contributions to total organic aerosol concentrations are highly variable, even on short time scales. Studies of pollution episodes indicate that the contribution of SOA to the organic particulate matter can vary from 20 percent to 80 percent during the same day.

Despite significant advances in understanding the origins and properties of SOA, it remains probably the least understood component of PM2.5. The reactions forming secondary organics are complex, and the number of intermediate and final compounds formed is voluminous. Some of the best efforts to unravel the chemical composition of ambient organic aerosol matter have been able to quantify the concentrations of hundreds of organic compounds representing only 10–20 percent of the total organic aerosol mass. For this reason, SOA continues to be a significant topic of research and investigation.

Current scientific and technical information clearly shows that carbonaceous material is a significant fraction of total PM2.5 mass in most areas, that certain VOC emissions are precursors to the formation of secondary organic aerosol, and that a considerable fraction of the total carbonaceous material is likely from local as opposed to regional sources. However, while significant progress has been made in understanding the role of gaseous organic material in the formation of organic PM, this relationship remains complex. We recognize that further research and technical tools are needed to better characterize emissions inventories for specific VOC compounds, and to determine the extent of the contribution of specific VOC compounds to organic PM mass.

In light of these factors, the proposed rule did not require States to address VOC's as PM2.5 nonattainment plan precursors, unless the State or EPA makes a finding that VOC's significantly contribute to a PM2.5 nonattainment problem in the State or to other downwind air quality concerns. Many PM2.5 nonattainment areas are also nonattainment areas for the 8-hour ozone standard; control measures for VOCs will be implemented in some of these areas, potentially providing a co-benefit for PM2.5 concentrations.

b. Final rule

The final rule maintains the same policy as proposed. States are not required to address VOC in PM2.5 implementation plans unless the State or EPA makes a technical demonstration that VOCs significantly contribute to a PM2.5 nonattainment problem in the State or to other downwind air quality concerns. Technical demonstrations are discussed in section II.A.8 below. The technical demonstration should be developed in advance of the attainment demonstration.

c. Comments and Responses

Comment: One commenter stated that our understanding of the complexities of PM2.5 formation from VOCs is limited, that speciated PM data are not available in all areas, and that VOC reductions will not reduce PM2.5 in many areas.

Response: The EPA acknowledges the uncertainties regarding the role of VOC in secondary organic aerosol formation. For this reason the final rule does not presumptively include VOC as a regulated pollutant for PM planning. However, if available data demonstrates that control of VOC would reduce PM2.5 concentrations in an area, the State or EPA may include VOC as a nonattainment plan precursor.

Comment: One commenter stated that the rationale that VOC should be “out” because most PM areas are also ozone areas is not appropriate because many ozone areas will attain soon and VOC reductions will still be needed for PM.

Response: The primary rationale for not including VOC as a regulated precursor in every nonattainment area is the uncertainty regarding the contribution of anthropogenic VOCs to the formation of the organic carbon portion of fine particles. In certain areas, EPA expects that VOC control measures will have some co-benefits in the reduction of fine particulates. However, this reason should not be considered the principle reason for the policy in the final rule that VOCs presumptively should not be considered PM2.5 nonattainment plan precursors. If a State or EPA determines that VOCs do contribute significantly to PM2.5 concentrations in an area, the State will be required to address VOC as a regulated precursor for that area. This approach will provide for regulation of VOCs in locations where it is most appropriate.

Comment: One commenter suggested that EPA wait for the results of the pending agricultural emissions study before requiring control of VOCs in agricultural areas.

Response: Most PM2.5 nonattainment areas are located in urban areas, so agricultural VOC emissions may be a factor in only a limited number of areas. EPA recognizes that the agricultural emissions study is expected to provide additional data for future planning purposes, but the results from the study likely will not be available in time to be considered in the development of PM2.5 state implementation plans due in April 2008. Any technical demonstration to provide for the inclusion of VOCs as a nonattainment plan precursor would need to be developed on the best information available at the time. Technical demonstrations to reverse the VOC presumption are discussed in section II.A.8 below.

5. Policy for NOx

[Section II.E.2 of November 1, 2005 proposed rule (70 FR 65999); sec 51.1002 in draft and final regulatory text.]

a. Background

The sources of NOx are numerous and widespread. The combustion of fossil fuel in boilers for commercial and industrial power generation and in mobile source engines each account for approximately 30 percent of NOx emissions in PM2.5 nonattainment areas (based on 2001 emission inventory information). Nitrates are formed from the oxidation of oxides of nitrogen into nitric acid either during the daytime (reaction with OH) or during the night (reactions with ozone and water). Nitric acid continuously transfers between the gas and the condensed phases through condensation and evaporation processes in the atmosphere. However, unless it reacts with other species (such as ammonia, sea salt, or dust) to form a neutralized salt, it will volatilize and not be measured using standard PM2.5 measurement techniques. The formation of aerosol ammonium nitrate is favored by the availability of ammonia, low temperatures, and high relative humidity. Because ammonium nitrate is semivolatile and not stable in higher temperatures, nitrate levels are typically lower in the summer months and higher in the winter months. The resulting ammonium nitrate is usually in the sub-micrometer particle size range. Reactions with sea salt and dust lead to the formation of nitrates in coarse particles. Nitric acid may be dissolved in ambient aerosol particles.

Based on a review of speciated monitoring data analyses, it is apparent that nitrate concentrations vary significantly across the country. For example, in some southeastern locations, annual average nitrate levels are in the range of 6 to 8 percent of total PM2.5 mass, whereas nitrate comprises 40 percent or more of PM2.5 mass in certain California locations. Nitrate formation is favored by the availability of ammonia, low temperatures, and high relative humidity. It is also dependent upon the relative degree of nearby SO2 emissions because ammonia reacts preferentially with SO2 over NOx. NOx reductions are expected to reduce PM2.5 concentrations in most areas. However, it has been suggested that in a limited number of areas, NOx control would result in increased PM2.5 mass by disrupting the ozone cycle and leading to increased oxidation of SO2 to form sulfate particles, which are heavier than nitrate particles. Because of the above factors, the proposed rule presumed that States must evaluate and implement reasonable controls on sources of NOx in all nonattainment areas, but allowed for the State and EPA to develop a technical demonstration to reverse this presumption.

b. Final rule

EPA is retaining the proposed approach in the final rule. Under this policy, States are required to address NOx under all aspects of the program, unless the State and EPA makes a finding that NOx emissions from sources in the State do not significantly contribute to the PM2.5 problem in a given area or to other downwind air quality concerns. This policy is consistent with other recent EPA regulations requiring NOx reductions to address fine particle pollution and other air quality problems, such as the Clean Air

Interstate Rule and a number of rules targeting onroad and nonroad engine emissions.

It is presumed that States must evaluate and implement reasonable controls on sources of NOx in all nonattainment areas. Technical demonstrations that would reverse the presumption should be developed in advance of the attainment demonstration and are discussed in section II.A.8 below.

c. Comments and Responses

Comment: Most commenters generally agreed with the proposed inclusion of NOx as a presumptive PM2.5 nonattainment plan precursor.

Response: The EPA agrees with these commenters.

Comment: Some commenters requested guidance on what would constitute an acceptable demonstration to reverse the presumption that NOx is a PM2.5 nonattainment plan precursor.

Response: Guidance on technical demonstrations to reverse the presumptive inclusion of NOx in all state implementation plans is discussed in section II.A.8 below.

Comment: One commenter raised concerns that the proposed policy for NOx would allow a State to find NOx to be an insignificant contributor to an area's PM2.5 nonattainment problem and effectively keep the State from controlling the area's NOx emissions for other purposes, such as to address interstate transport under section 110 of the CAA. Section 110 requires SIPs to prohibit emissions within the State that would contribute significantly to another State's nonattainment problem or interfere with another State's maintenance plan.

Response: In addressing this concern, the final rule requires NOx to be addressed as a PM2.5 nonattainment plan precursor unless a determination is made that NOx does not contribute significantly to the nonattainment in the area, <u>and</u> that NOx does not contribute to downwind air quality concerns. This provision ensures that NOx be addressed in a State's plan if emissions from the area contribute to downwind air quality problems in one or more other states. In addition, this policy in the PM2.5 implementation rule would not prevent a State from regulating NOx sources under section 110 to address the contribution of such sources to air quality problems other than PM2.5.

6. Policy for SO2

[Section II.E.2 of November 1, 2005 proposed rule (70 FR 65999); sec 51.1002 in draft and final regulatory text.]

a. Background

Sulfur dioxide is emitted mostly from the combustion of fossil fuels in boilers operated by electric utilities and other industry. Less than 20 percent of SO_2 emissions nationwide are from other sources, mainly other industrial processes such as oil refining and pulp and paper production. The formation of sulfuric acid from the oxidation of SO_2 is an important process affecting most areas in North America. There are three different pathways for this transformation.

First, gaseous SO_2 can be oxidized by the hydroxyl radical (OH) to create sulfuric acid. This gaseous SO_2 oxidation reaction occurs slowly and only in the daytime. Second, SO_2 can dissolve in cloud water (or fog or rain water), and there it can be oxidized to sulfuric acid by a variety of oxidants, or through catalysis by transition metals such as manganese or iron. If ammonia is present and taken up by the water droplet, then ammonium sulfate will form as a precipitate in the water droplet. After the cloud changes and the droplet evaporates, the sulfuric acid or ammonium sulfate remains in the atmosphere as a particle. This aqueous phase production process involving oxidants can be very fast; in some cases all the available SO2 can be oxidized in less than an hour. Third, SO2 can be oxidized in reactions in the particle-bound water in the aerosol particles themselves. This process takes place continuously, but only produces appreciable sulfate in alkaline (dust, sea salt) coarse particles. Oxidation of SO2 has also been observed on the surfaces of black carbon and metal oxide particles. During the last 20 years, much progress has been made in understanding the first two major pathways, but some important questions still remain about the smaller third pathway. Models indicate that more than half of the sulfuric acid in the eastern United States and in the overall atmosphere is produced in clouds.

The sulfuric acid formed from the above pathways reacts readily with ammonia to form ammonium sulfate, (NH4)2SO4. If there is not enough ammonia present to fully neutralize the produced sulfuric acid (one molecule of sulfuric acid requires two molecules of ammonia), part of it exists as ammonium bisulfate, NH4HSO4 (one molecule of sulfuric acid and one molecule of ammonia) and the particles are more acidic than ammonium sulfate. In certain situations (in the absence of sufficient ammonia for neutralization), sulfate can exist in particles as sulfuric acid, H2SO4. Sulfuric acid often exists in the plumes of stacks where SO2, SO3, and water vapor are in much higher concentrations than in the ambient atmosphere, but these concentrations become quite small as the plume is cooled and diluted by mixing.

Because sulfate is a significant contributor (e.g. ranging from 9 percent to 40 percent) to PM2.5 concentrations in nonattainment areas and to other air quality problems in all regions of the country, EPA proposed that States would be required to address sulfur dioxide as a PM2.5 nonattainment plan precursor in all areas.

b. Final rule

The final rule includes the same policy for sulfur dioxide as in the proposal. States are required to address sulfur dioxide as a PM2.5 nonattainment plan precursor in all areas.[2] Sulfate is an important precursor to PM2.5

[2] Sulfur dioxide is not required to be addressed in transportation conformity determinations before a SIP is

formation in all areas, and has a strong regional impact on PM2.5 concentrations. This policy is consistent with past EPA regulations, such as the Clean Air Interstate Rule, the Clean Air Visibility Rule, the Acid Rain rules, and the

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submitted unless either the state air agency or EPA regional office makes a finding that on-road emissions of sulfur dioxide are significant contributors to the area's PM2.5 problem. Sulfur dioxide would be addressed under transportation conformity after a PM2.5 SIP is submitted if the area's SIP contains an adequate or approved motor vehicle emissions budget. EPA based this decision on the de minimis level of sulfur dioxide emissions from on-road vehicles currently, and took into consideration the fact that sulfur dioxide emissions from on-road sources will decline in the future due to the implementation of requirements for low sulfur gasoline (which began in 2004) and for low sulfur diesel fuel (beginning in 2006). For more information, see the May 6, 2005 transportation conformity rule on PM2.5 precursors at 70 FR 24283.

Regional Haze rule, that require SO2 reductions to address fine particle pollution and related air quality problems.

c. Comments and Responses

Comment: Most commenters agreed with the proposed policy for SO_2. One commenter stated, "…requiring states to address sulfur dioxide in nonattainment planning in all areas is consistent with the science of PM2.5 formation and essential to effective implementation of the $PM_{2.5}$ NAAQS." Another commenter concluded that EPA's proposal "…is justified based on the fact that SO_2 has been found to be a significant contributor to PM2.5 nonattainment in all areas."

Response: The EPA agrees with these comments.

Comment: Some commenters believe States should be able to make a demonstration that SO2 not be addressed as a nonattainment plan precursor. The commenters claim that the urban increment of sulfate is generally small, and SO_2 control will not matter in many areas. Commenters also note that a large percentage of the SO2 emission inventory is being reduced and will be reduced further through existing programs, and that if attainment can be demonstrated without additional SO_2 controls, a State should be allowed to make that demonstration in its SIP. One commenter stated that whether SO_2 emissions from a given source located in a nonattainment area in fact contribute significantly to ambient concentrations of sulfate and $PM_{2.5}$ in that nonattainment area likely will depend on a range of factors, including source type, stack height, location, and meteorology. The commenter asserted that sulfate forms over significant geographic distances from the source of the SO_2 emissions and may not form significant concentrations of PM2.5 in the local nonattainment area.

Response: As in the proposal, the final rule requires SO2 to be considered a PM2.5 nonattainment plan precursor in all cases. Sulfate is a significant fraction of PM2.5 mass in all nonattainment areas currently, and although large SO2 reductions are projected from electric generating units with the implementation of the CAIR program, sulfate is still projected to be a key contributor to PM2.5 concentrations in the future. SO2 emissions also lead to sulfate formation on both regional and local scales. EPA agrees that the extent of the contribution from a particular source in a nonattainment area to PM2.5 concentrations in the area will depend on a number of factors, and that at times the reaction of SO2 emissions in the atmosphere to form sulfate particles may occur less rapidly and extend over a significant distance. However, at other times the conversion of SO2 to sulfate can occur rapidly and local impacts from a particular source can be more significant. States are required to develop plans to attain as expeditiously as practicable through the identification of technically and economically feasible control measures from the full range of source categories contributing to PM2.5 nonattainment areas. In developing these plans, each State will need to consider whether controls on local SO2 sources would be cost-effective and would be needed to attain expeditiously.

7. Policy for direct PM

Section II.E.2 of November 1, 2005 proposed rule (70 FR 65999); sec 51.1002 in draft and final regulatory text.]

a. Background

This section addresses inorganic and organic forms of directly emitted PM. Although these direct emissions are by definition not precursors to PM2.5, this section is included to provide information on the full range of components that commonly make up fine particulate matter.

The main anthropogenic sources of inorganic (or crustal) particles are: entrainment by vehicular traffic on unpaved or paved roads; mechanical disturbance of soil by highway, commercial, and residential construction; and agricultural field operations (tilling, planting and harvesting). Industrial processes such as quarries, minerals processing, and agricultural crop processing can also emit crustal materials. While much of these emissions are coarse PM, the size distribution can have a tail of particles smaller than PM2.5.

In general, coarse PM is most important close to the source, and not generally a significant contributor to regional scale PM problems. Even so, during certain high wind events, fine crustal PM has been shown to be transported over very long distances.

Emission estimates of mechanically suspended crustal PM from sources within the US are often quite high. However, this PM is often released very close to the ground, and with the exception of windblown dust events, thermal or turbulent forces sufficient to lift and transport these particles very far from their source are not usually present. Thus, crustal material is only a minor part of PM2.5 annual average concentrations.

Primary carbonaceous particles are largely the result of incomplete combustion of fossil or biomass fuels. This incomplete combustion usually results in emissions of both black carbon and organic carbon particles. High molecular weight organic molecules (i.e., molecules with 25 or more carbon atoms) are either emitted as solid or liquid particles, or as gases that rapidly condense into particle form. These heavy organic molecules sometimes are referred to as volatile organic compounds, but because their characteristics are most like direct PM emissions, they will be considered to be primary emissions for the purposes of this regulation. Primary organic carbon also can be formed by condensation of semi-volatile compounds on the surface of other particles.

The main combustion sources emitting carbonaceous PM2.5 are certain industrial processes, managed burning, wildland fires, open burning of waste, residential wood combustion, coal and oil-burning boilers (utility, commercial and industrial), and mobile sources (both onroad and nonroad). Certain organic particles also come from natural sources such as decomposition or crushing of plant detritus. Most combustion processes emit more organic particles than black carbon particles. A notable exception to this is diesel engines, which typically emit more black carbon particles than organic carbon. Because photochemistry is typically reduced in the cooler winter months for much of the country, studies indicate that the carbon fraction of PM mass in the winter months is likely dominated by direct PM emissions as opposed to secondarily formed organic aerosol.

Particles from the earth's crust may contain a combination of metallic oxides and biogenic organic matter. The combustion of surface debris will likely entrain some soil. Additionally, emissions from many processes and from the combustion of fossil fuels contain elements that are chemically similar to soil. Thus, a portion of the emissions from combustion activities may be classified as crustal in a compositional analysis of ambient PM2.5.

The proposed rule required that States address the direct emissions of particulate matter in their PM2.5 nonattainment plans. During the comment period, EPA received several comments that in the definon what should be regulated as “direct PM2.5.”

b. Final rule

This rule defines direct PM2.5 emissions as “air pollutant emissions of direct fine particulate matter, including organic carbon, elemental carbon, direct sulfate, direct nitrate, and miscellaneous inorganic material (i.e crustal material).” Development of nonattainment plans will include direct PM2.5 emissions and specific PM2.5 nonattainment plan precursors.

c. Comments and Responses

Comment: A few commenters noted that section 51.1000 of the proposed rule includes definitions for both “direct PM2.5 emissions” and for “PM2.5 direct emissions.” They recommend including just one definition in the final rule.

Response: EPA acknowledges this oversight and has included in the final rule a single definition for “direct PM2.5 emissions.” It reads: “*Direct PM2.5 emissions* means solid particles emitted directly from an air emissions source or activity, or gaseous emissions or liquid droplets from an air emissions source or activity which condense to form particulate matter at ambient temperatures. Direct

PM2.5 emissions include elemental carbon, directly emitted organic carbon, directly emitted sulfate, directly emitted nitrate, and other inorganic particles (including but not limited to crustal material, metals, and sea salt)."

8. Optional technical demonstrations for NOx, VOC, and ammonia

[Section II.E.2 of November 1, 2005 proposed rule (70 FR 65999); sec 51.1002 in draft and final regulatory text.]

a. Background

The proposed rule required States to evaluate and consider control strategies for sources of SO2 and direct PM2.5 emissions in all nonattainment areas. For the precursors NOx, VOC, and ammonia, the proposed rule included presumptive policies that could be reversed with an acceptable technical demonstration by the State or EPA. (The policy in the proposal presumptively required that NOx emissions must be addressed in all areas, and that VOC and ammonia emissions do not need to be addressed in all areas.) A number of commenters requested additional guidance on the criteria for an acceptable technical demonstration.

b. Final rule

The final rule retains provisions for the State or EPA to conduct a technical demonstration to reverse the presumptive inclusion of NOx or to reverse the presumptive exclusions of ammonia and VOC as PM2.5 nonattainment plan precursors. Demonstrations to reverse the presumptions for ammonia, VOC, or NOx are to be based on the weight of evidence of available information, and any demonstration by the State must be approved by EPA. The State must demonstrate that based on the sum of available technical and scientific information, it would be appropriate for a nonattainment area to reverse the presumptive approach for a particular precursor. The demonstration should include information from multiple sources, including results of speciation data analyses, air quality modeling studies, chemical tracer studies, emission inventories, or special intensive measurement studies to evaluate specific atmospheric chemistry in an area.

Because of the variation among nonattainment areas in terms of such factors as local emissions sources, growth patterns, topography, and severity of the nonattainment problem, EPA believes that it would not be appropriate to define a prescriptive set of analyses that must be included in all PM2.5 precursor technical demonstrations. The key criterion is that any technical demonstration must fairly represent available information.

In developing the implementation plan for a nonattainment area, the State should use all relevant information available (from EPA, the State, or other sources) to determine the scientifically most appropriate approach to regulating NOx, ammonia, and VOC emissions in the area. As required under any State rulemaking process, the State must consider and provide a response in the record to any information or evidence brought forward by commenters during the SIP planning, development and review process which indicates that the presumption for a precursor should be reversed. If the State's record regarding a particular nonattainment area contradicts this rule's presumption for a precursor (by showing that a precursor does, or does not, significantly contribute to PM2.5 levels in that area), the State has an obligation to submit a demonstration to reverse the presumption for that precursor. In its review of the forthcoming State implementation plan submittal, EPA will review the State's proposed precursor policies in light of all currently available information. If information brought forward and considered by the State and EPA in the SIP development process indicates that a particular precursor should be addressed in a nonattainment area, the State then would be required to evaluate control measures for sources in the nonattainment area and to implement those measures that are technically and economically feasible and that will contribute to expeditious attainment of the standards.

In the section below we suggest examples of the types of analyses that would be appropriate to use in developing such a demonstration. States are encouraged to consult with EPA in formulating appropriate technical demonstrations.

i. Emission inventory information: An analysis might show that a precursor composes a significant fraction of the emissions inventory in an area and therefore requires greater consideration.

Example: Several stationary sources emitting particular VOCs known to contribute to SOA formation make up a significant portion of the area’s VOC inventory, indicating that control of such sources may help reduce PM in the area.

ii. Speciation data information: Analysis of data from speciation networks might lead a State to determine the relative importance of a precursor to seasonal or yearly average PM concentrations. Individual precursors require different approaches. Collection of new data could be used to understand the impacts of precursors in an area.

Example: Nitrate ion is a large portion of winter average PM2.5 mass. Nitrate ion is a major portion of PM2.5 mass on the 10 highest PM2.5 days in winter in the past 3 years. The days with the highest mass concentrations might be indicative of inversion conditions and/or local impacts, rather than large-scale transport processes. For these reasons, nitrate should be addressed in the PM2.5 nonattainment plan.

Example: Ammonium ion data combined with total calculated nitrate data indicates that reductions in ammonia would reduce PM concentrations without a sharp related increase in particle acidity. PM speciation data shows that PM in the area is generally within 10% of calculated neutralization.

iii. Modeling information: Results of atmospheric modeling may help a State characterize the impacts of potential precursor emission reductions on PM2.5 concentrations in an area.

Example: Modeling of SO2, NOx, and VOC emission reductions result in lower sulfate and nitrate levels but not lower secondary organic aerosol levels. This likely indicates that VOC reductions are not as vital as reductions of the other precursors.

Example: Modeled reductions of NOx show a potential increase in sulfate formation through disruption of the ozone cycle. SO2 reductions may be a better choice than NOx reductions.

Example: Modeled ammonia reductions show a projected reduction in PM2.5 concentrations in selected areas. Although dependant on good quality inventory data, this type of an analysis would indicate that the area is ammonia-limited and that ammonia reductions may be beneficial.

Example: Modeling shows that reductions in SO2 in the absence of NOx reductions in an area will not result in a significant PM2.5 reduction because more nitrate particles form when less SO2 is available for particle formation. However, PM2.5 reductions are significant when both SO2 and

NOx are reduced concurrently. This analysis would indicate that NOx reductions should be included in the PM2.5 nonattainment plan in the area.

iv. Monitoring, data analysis, or other special studies: Could include monitoring of gases and compounds not typically monitored under the PM2.5 speciation network, receptor modeling analysis, or special monitoring studies.

Example: Data from specialized monitoring studies can provide insights about concentrations of ammonia gas and nitric acid in an area and whether the area is ammonia-limited or not. Ammonia reductions in ammonia-limited areas typically yield reductions in PM2.5 concentrations. Specialized monitoring and laboratory studies can also assess the relative concentrations of organic compounds and provide insights into the contributions of different anthropogenic and biogenic VOCs to secondary organic aerosol formation.

Example: Receptor modeling and statistical analysis PM2.5 speciation monitoring data can indicate relative contributions to PM2.5 mass from sources with different chemical “fingerprints.”

Example: Additional analysis of organic compounds on filters collected through speciation monitoring may reveal insights about the relative degree of carbonaceous material considered to be from fossil fuel combustion as opposed to combustion of “modern” material (such as wood or biomass).

c. Comments and Responses

Comment: A number of commenters requested that the final rule include guidance on acceptable technical demonstrations.

Response: The above section includes examples designed to help States formulate appropriate demonstrations. Prescribing specific technical indicators to be used in all areas would ignore the scientific uncertainty inherent in the relationships between precursor emissions and the responses of atmospheric concentrations of PM2.5. Therefore, States are encouraged to review available information and consult with EPA in formulating technical demonstrations appropriate to a particular area.

B. No classification system for $PM_{2.5}$ nonattainment areas.

1. No classification system or a two-tiered (moderate/serious) system.

a. Background.

Section 172 of subpart 1 contains the general requirements for SIPs for all nonattainment areas. Section 172(a)(1) states that on or after the date of designation, the Administrator *may* classify an area for the purpose of applying an attainment date or for some other purpose. Thus, a classification system is allowed under section 172 of the CAA, but is not required for the purposes of implementing a national ambient air quality standard. The CAA also states that EPA may consider certain factors in making a decision concerning classification for areas, such as the severity of nonattainment in such areas, and the availability and feasibility of the pollution control measures that may be needed to achieve attainment. In the proposed rule, EPA provided two implementation approaches for classifying $PM_{2.5}$ nonattainment areas. Under the first approach, there would be no classification system. Under the second approach, a two-tiered classification system would apply, with areas classified as either “moderate” or “serious” based on specific criteria.

For example, the two classification tiers could be based on the severity of nonattainment (e.g., serious areas would be those with a design value above a specific threshold), or on the attainment date for the area (e.g., serious areas would be those with attainment dates after April 2010). However, any moderate area that needs an attainment date longer than 5 years would be reclassified as serious. This would ensure that areas with a more persistent $PM_{2.5}$ problem are subject to more stringent requirements, even if they are not one of the areas with the highest current design values. For such areas, the State would be required to request reclassification for an area and ensure that the 2008 attainment SIP submission for the area includes all measures needed to meet the serious area requirements. Under the two tiered classification approach, we proposed that serious $PM_{2.5}$ nonattainment areas would be required to meet the more stringent requirements than moderate areas that would be defined in this rulemaking action (e.g., lower thresholds for RACT, fixed percentage reduction for RFP, etc.). For serious areas, the attainment date would be as expeditious as practicable, but no later than 10 years after designation, depending on the year in which the area would be projected to attain considering existing control requirements and the effect of RACM, RACT and RFP.

b. Final rule.

The EPA believes that in the case of PM2.5, the no-classification approach is the most appropriate approach. An advantage of this approach is that it provides a relatively simple implementation structure for State implementation of the $PM_{2.5}$ standards, and avoids the need to define a classification system and determine classifications for each area. Without classifications, this rule still requires that that SIPs include all reasonable measures that contribute to achieving attainment as expeditiously as practicable. (Further detail is provided in sections D. and F. below.) Because of differences in the nature and sources of the PM2.5 problem in different parts of the country, EPA did not find it appropriate to establish a tiered classification system with increasing control measure requirements. The no-classifications approach provides States with greater flexibility to determine the control strategies that will be most effective and efficient in bringing specific areas into attainment as expeditiously as practicable.

In addition, EPA believes that States requesting additional time to attain the standard beyond the initial 5 year attainment date, provided for under Subpart I, will need to adopt additional or more stringent measures to meet their obligations for RACT, RACM and attainment that is as expeditious as practicable. We believe that this addresses the main concerns of those commenters who contend that a two tiered classification system should be implemented.

c. Comments and Responses.

Comment: The majority of the commenters who commented on this issue stated that they agreed with EPA's preferred no classification approach. These commenters generally stated that they believed that EPA has the authority not to establish a classification system for $PM_{2.5}$ nonattainment areas. Some commenters stated that it would also be unreasonable, at this point in the process, for EPA to implement a classification scheme for the $PM_{2.5}$ standard. Many commenters support the no classification approach because it provides for a simple implementation structure and/or allows greater implementation flexibility to States, including flexibility to address specific problems related to individual nonattainment areas in the most cost-effective and expeditious manner, rather than through a one size fits all approach. Other commenters stated that they believe that a classification system is not needed because nonattainment areas in the Eastern United States are likely to attain the standard within a timeframe that is consistent with the timeframe established under Subpart 1.

Response: The EPA agrees with these commenters.

Comment: Several commenters disagreed with EPA's preferred approach and agreed with the two tiered classification approach featuring a "moderate" and a "serious" area classification. These commenters also stated that the threat of reclassification or "bump up" to a higher classification was a powerful incentive for areas to attain as expeditiously as practicable. Commenters also indicated that areas needing more time to attain the standard should be required to implement more stringent measures or mandatory measures.

Response: The EPA agrees that areas with more severe nonattainment problems will need to implement more stringent measures to attain. However, EPA does not believe that a classification system is needed to ensure that such measures are implemented. The EPA believes that on balance the no classification approach is the most appropriate classification option for the implementation of the $PM_{2.5}$ standard because of the difference in contributing sources from area to area.

Comment: Several commenters stated that under EPA's preferred approach, each State would be required to submit an attainment demonstration proposing an attainment date that is "as expeditious as practicable" for each area. They asserted that to allow States to propose their own attainment dates would invite delay in the process of cleaning up fine particle pollution. These commenters further stated that States would have no incentive to set an attainment date earlier than the outer limit set by EPA, even if it would be practicable to attain the NAAQS sooner.

Response: Section 172 of the CAA requires SIPs to demonstrate attainment as expeditiously as practicable regardless of whether there is a classification system, and under this rule states must justify that their attainment date is as expeditious as practicable considering all reasonable measures. As noted above, EPA believes that States requesting additional time to attain the standard beyond the initial 5 year attainment date will need to adopt additional or more stringent measures to meet their obligations for RACT and RACM and to attain as expeditiously as practicable. More details on the analytical process required for an attainment demonstration is included in section II.F.

Comment: Several commenters stated that the CAA requires regulation of the $PM_{2.5}$ standard under Subpart 4 of Part D. These commenters State that EPA takes the position that it must regulate $PM_{2.5}$ under Subpart 1 of the CAA, which applies to nonattainment areas in general. The commenters State that section 7513, in Subpart 4 of Part D of the CAA, contains specific provisions for classification of particulate matter nonattainment areas, and that EPA must therefore regulate $PM_{2.5}$ under Subpart 4, which requires a moderate and serious area classification system. Other commenters argued that implementation of the $PM_{2.5}$ standard must proceed under Subpart 1 of Part D of Title I of the CAA and cannot be governed by Subpart 4 of Part D, which addresses the implementation of the PM_{10} standard which is a different pollutant than $PM_{2.5}$.

Response: The EPA finds that the $PM_{2.5}$ standard should be implemented under subpart I of the CAA, which is the general provision of the CAA related to NAAQS implementation. Part D of Title I of the CAA sets forth the requirements for SIPs needed to attain the national ambient air quality standards. Part D also includes a general provision under Subpart I which applies to all NAAQS for which a specific subpart does not exist. Because the $PM_{2.5}$ standards were not established until 1997, the nonattainment plan provisions found in section 172 of subpart 1 apply. The EPA further agrees with comments stating that subpart 4 on its face applies only to the PM_{10} standard. In general, the emphasis in subpart 4 on reducing PM_{10} concentrations from certain sources of direct PM2.5 emissions can be somewhat effective in certain PM2.5 nonattainment areas but not in all. Contributions to PM2.5 concentrations are typically from a complex mix of sources of primary emissions and sources of precursor emissions which form particles through reactions in the atmosphere. PM2.5 also differs from PM10 in terms of atmospheric dispersion characteristics, chemical composition, and contribution from regional transport.

2. Rural transport classification option

a. Background.

The 8-hour ozone implementation program includes a “rural transport classification” for subpart 1 nonattainment areas. In the proposal for this rule we discussed whether an area classification of this type would be appropriate for the $PM_{2.5}$ implementation program in light of the fact that no currently designated $PM_{2.5}$ nonattainment area met the criteria similar to those that apply to rural transport areas under the ozone implementation program.

As addressed in the proposal, a $PM_{2.5}$ nonattainment area would qualify for the “rural transport” classification if it met criteria similar to those specified for rural transport areas for the 1-hour ozone standard under section 182(h). Section 182(h) defines “rural transport” areas as those areas that do not include, and are not adjacent to, any part of a Metropolitan Statistical Area (MSA) or, where one exists, a Consolidated Metropolitan Statistical Area (CMSA). Section 182(h) further limits the category to those areas whose own emissions do not make a significant contribution to pollutant concentrations in those areas, or in other areas.

As discussed in the preamble to the proposed rule, potential criteria for a State to identify an area for a rural transport classification under the PM2.5 program could be similar to the criteria used in the ozone implementation program: a State with a $PM_{2.5}$ “rural transport” area would need to 1) demonstrate that the area meets the above criteria, 2) demonstrate using EPA approved attainment modeling that the nonattainment problem in the area is due to the “overwhelming transport” of emissions from outside the area, and 3) demonstrate that sources of $PM_{2.5}$ and its precursor emissions within the boundaries of the area do not contribute significantly to $PM_{2.5}$ concentrations that are measured in the area or in other areas.

An area which qualifies for the “rural transport” classification would only be required to adopt local control measures sufficient to demonstrate that the area would attain the standard by its attainment date “but for” the overwhelming transport of emissions emanating from upwind States. RFP requirements under subpart 1 would still apply to these areas. As with other nonattainment areas, rural transport nonattainment areas would be subject to NSR, transportation conformity, and general conformity requirements. In the proposal we solicited comments on whether it would be appropriate to establish less burdensome NSR requirements in the event that a classification for rural transport areas is adopted in the final rule. The EPA requested comment on whether this type of classification option is needed at all under the $PM_{2.5}$ implementation program.

b. Final rule.

The final rule does not include a rural transport classification. This type of classification was included in the CAA for purposes of implementing the ozone standards because of the phenomenon of the formation of high ozone levels far downwind in very rural locations, including on high elevation mountain peaks. In reviewing the currently designated $PM_{2.5}$ nonattainment areas, it appears that all areas are within or adjacent to a metropolitan area (i.e. core-based statistical area or consolidated statistical area), and thus would not meet the criteria discussed above. Although PM2.5 concentrations are greatly affected by long-range transport of air pollution, it appears that nonattainment areas typically are located in urban areas and include significant local pollutant sources.

c. Comments and responses

Comment: Several commenters stated that they do not support the adoption of a rural transport classification because it is not needed. Commenters stated that given the criteria for the rural transport classification, which greatly limits its applicability, few if any $PM_{2.5}$ nonattainment areas can qualify for the option. One commenter stated that EPA modeled the rural transport classification after the “rural transport areas” provision contained in subpart 2 of the CAA, which applies only to the ozone standard. The commenter further states that neither Subpart 1 nor 4 contain any statutory authority for such a classification.

Response: The EPA believes that it has sufficient statutory authority under the CAA to establish a rural transport classification, but we do not believe that such a classification is needed.

Comment: One commenter generally supported the rural transport concept and the proposed associated requirements, with the addition that data analysis be included as appropriate in the required technical demonstrations in addition to modeling. While no $PM_{2.5}$ area currently meets the requirements for the rural transport classification option, several commenters recommended that it be maintained for potential cases in which the $PM_{2.5}$ standards are made more stringent, or measured air quality in areas change in such a way that areas would qualify for the rural transport classification at a later date.

Response: The EPA does not agree that a rural transport classification is needed. The EPA will re-evaluate the need for such a classification as appropriate.

C. When are $PM_{2.5}$ attainment demonstrations and SIPs due and what requirements must they address?

a. Background.

Part D of Title I of the CAA sets forth the requirements for SIPs needed to attain the national ambient air quality standards. Part D includes a general subpart 1 which applies to all NAAQS for which a specific subpart does not exist. The 1990 CAA Amendments do not include any subpart for PM2.5 because the PM2.5 standards were not yet established. The EPA has determined that for PM2.5, the nonattainment plan provisions found in section 172 of subpart 1 apply.

Section 172(b) of the CAA requires that at the time the Agency promulgates nonattainment area designations, the EPA must also establish a schedule for States to submit SIPs meeting the applicable requirements of section 172(c) and of section 110(a)(2) of the CAA. Nonattainment area designations were finalized in December 2004, and a supplemental notice was issued in April 2005. Consistent with section 172(b) of the CAA, section 51.1002 of the proposed rule requires the State to submit its attainment demonstration and SIP revision within 3 years, or by April 2008.

Section 51.1006 of the proposed rule addresses the situation in which an area is initially designated as attainment/unclassifiable but is later designated as nonattainment based on air quality data after the 2001-2003 period. Under such circumstances, the SIP submittal date would be 3 years from the effective date of the redesignation, and the attainment date would be as expeditiously as practicable but no later than 5 years from the effective date of the redesignation.

The section 172(c) requirements that States are to address under section 172(c) (including RACT, RACM, RFP, contingency measures, emission inventory requirements, and NSR) are discussed in later sections of this notice. Section 110(a)(2) of the CAA requires all States to develop and maintain a solid air quality management infrastructure, including enforceable emission limitations, an ambient monitoring program, an enforcement program, air quality modeling, and adequate personnel, resources, and legal authority. Section 110(a)(2)(D) also requires State plans to prohibit emissions from within the State which contribute significantly to nonattainment or maintenance areas in any other State, or which interfere with programs under part C to prevent significant deterioration of air quality or to achieve reasonable progress toward the national visibility goal for Federal class I areas (national parks and wilderness areas). In order to assist States in addressing their obligations regarding regionally transported pollution, EPA has finalized the CAIR to reduce SO_2 and nitrogen oxide emissions from large electric generating units.[3]

[3] More information on the Clean Air Interstate Rule is

To date, few states have submitted a SIP revision addressing the section 110(a)(2) requirements for the purposes of implementing the PM2.5 standards. The EPA recognizes that this situation is due in part to the fact that there were a series of legal challenges to the PM standards which were not resolved until March 2002, at which time the standards and EPA's decision process were upheld (see section I.B. for further discussion of past legal challenges to the standards). To address the States' continuing obligation to address the requirements of section 110(a), section 51.1002 of the proposed rule also required each State to address the required elements of section 110(a)(2) of the CAA in its nonattainment plan SIP revision, if it has not already done so. On March 10, 2005, EPA entered into a consent decree with Environmental Defense and American Lung Association concerning EPA's failure to find that States failed to submit SIPs to address the section 110(a)(2) requirements. As a part of that consent decree, by no later than October 8, 2008, EPA is required to publish a notice in the Federal Register related to its determinations of whether each State has

available at: www.epa.gov/cair.

submitted SIPs for PM2.5 that meet the requirements as stated under section 110(a)(2) of the CAA.

b. Final Rule.

The final rule maintains the regulatory approach described above.

c. Comments and Responses.

There were no comments on this portion of the proposal.

D. How will the attainment date for a PM2.5 nonattainment area be determined?

1. Background on statutory requirements.

Section 172(a)(2) states that an area's attainment date "shall be the date by which attainment can be achieved as expeditiously as practicable, but no later than 5 years from the date such area was designated nonattainment …, except that the Administrator may extend the attainment date to the extent the Administrator determines appropriate, for a period no greater than 10 years from the date of designation as nonattainment considering the severity of nonattainment and the availability and feasibility of pollution control measures."

Since $PM_{2.5}$ designations have an effective date of April 2005, the initial 5-year attainment date for $PM_{2.5}$ areas would be no later than April 2010. For an area with an attainment date of April 2010, EPA would determine whether it had attained the standard by evaluating air quality data from the three previous calendar years (i.e. 2007, 2008, and 2009).

For any areas that are granted the full 5 year attainment date extension under section 172, the attainment date would be no later than April 2015. For such areas, EPA would determine whether they have attained the standard by evaluating air quality data from 2012, 2013, and 2014. Section 51.1004 of the proposed regulations addressed the attainment date requirement. Section 51.1004(b) provided that in their attainment demonstrations, States would propose an attainment date representing attainment as expeditiously as practicable based upon implementation of existing Federal and State measures, and all reasonable local measures. The EPA would approve a particular attainment date based on its review of the attainment demonstration.

2. Determination of Attainment Dates

a. Background

The EPA proposed rule language on attainment dates that closely tracks the statutory language. In the preamble, EPA noted that the attainment date that is as expeditious as practicable should reflect the projected impact of existing national and State programs (e.g. partial implementation of the CAIR rule, final Acid Rain Program, motor vehicle tier II standards and heavy-duty diesel engine standards, NO_x SIP call, State legislation such as Clean Smokestacks bill in North Carolina) as well as additional reasonable measures required for the PM2.5 nonattainment SIP.

With respect to its authority to extend an area's date beyond 5 years, EPA stated in the preamble that the State can submit a SIP demonstrating that it is impracticable to attain by the 5-year attainment date:

"As stated previously, under section 172(a)(2)(A), EPA may grant an area an extension of the initial attainment date for a period of one to 5 years. States that request an extension of the attainment date under this provision of the CAA must submit a SIP in 2008 that includes, among other things, an attainment demonstration showing that attainment within 5 years of the designation date is impracticable. It must also show that the area will attain the standard by an alternative date that is as expeditiously as practicable, but in no case later than 10 years after the designation date for the area (i.e. by April 2015 for an area with an effective designation date of April 2005). An appropriate extension in some cases may be only 1 or 2 years - a 5-year extension is not automatic upon request.

The attainment demonstration must provide sufficient information to show that attainment by the initial attainment date is impracticable due the severity of the nonattainment problem in the area, the lack of available or feasible control measures, and any other pertinent information which shows that additional time is required for the area to attain the standard. States requesting an extension of the attainment date must also demonstrate that all local control measures that are reasonably available and technically feasible for the area are currently being implemented to bring about expeditious attainment of the standard by the alternative attainment date for the area. The State's plan will need to project the emissions reductions expected due to Federally enforceable national standards, State regulations, and local measures such as RACT and RACM, and then conduct modeling to project the level of air quality improvement in accordance with EPA's modeling guidance. The EPA will not grant an extension of the attainment date beyond the initial five years required by section 172(a)(2)(A) for an area if the State has not considered the implementation of all RACM and RACT local control measures for the area (see section III.I for a more detailed discussion of RACT and RACM). The EPA also will examine whether the State has adequately considered measures to address intrastate transport of pollution from sources within its jurisdiction. In attainment planning, States have the obligation and authority to address the transport of pollution from one area of the State to another. Any decision made by EPA to extend the attainment date for an area beyond its original attainment date will be based on facts specific to the nonattainment area at issue and will only be made after providing notice in the Federal Register and an opportunity for the public to comment."

b. Summary of final rule

We are adopting the approach above from the proposed rule, with a clarification concerning the criteria for extension. The "other pertinent information which shows that additional time is required for the area to attain the standard" refers to information pertinent to the two statutory extension criteria – "the severity of nonattainment and the availability and feasibility of pollution control measures."

c. Comments and responses

Comment: Some commenters expressed concern that EPA's preamble language appeared to assert a new basis for granting extensions not provided by the statute. They said EPA has authority to extend the attainment date under Section 7502(a)(2) based solely on consideration of two enumerated factors: the severity of nonattainment, and the availability and feasibility of control measures.

Response: The EPA agrees that extensions must be based upon the two factors in the statute, which are quite broad. A clarification of the preamble phrase cited by the commenter is provided above. The phrase in question – "*any other pertinent information which shows that additional time is required for the area to attain the standard*" --

refers to information that relates to the two statutory factors.

Comment: One commenter stated that an area should qualify for an extension only if the area will implement stringent local controls, yet still cannot practicably attain by the five-year deadline. The commenter stated that at a minimum, EPA must require states to adopt RACM for both mobile and stationary sources before granting an extension. Another commenter said that given the difficulty many areas will have in meeting the five-year deadline for attainment of the PM2.5 NAAQS (and especially in light of the fact that the deadline occurs only 2 years after states are to submit attainment SIPs), EPA should provide maximum flexibility in allowing extensions to the full 10-year period.

Response: The EPA agrees that extensions should be granted only if an area cannot practicably attain within 5 years despite application of all reasonable measures, including RACM. Although some measures can be implemented within a year or two, many measures require a longer period for installation of controls or full program implementation. In light of the limited time period between the SIP submittal deadline and the 5-year date, EPA believes that a significant number of areas may warrant extensions ranging from one to 5 years, with the length of extension depending on the factors described above.

Comment: One commenter advocated that EPA include in this final rule a determination of those areas for which attainment within 5 years is impracticable. Another commenter advocated that EPA establish guidance based on EPA national modeling conducted last year to establish 2015 as constituting expeditious attainment for certain areas.

Response: The EPA is not determining in this rulemaking the areas that should receive extensions or should receive the maximum 10-year attainment date, for several reasons. First, EPA did not propose such an approach. Therefore, the public has not had the opportunity to comment on the approach or on the technical information on which EPA would make such judgments.

Second, EPA believes that modeling being conducted by the states, with updated inventories and finer grids, will generally provide a more reliable basis for projecting future PM2.5 base case levels than national modeling conducted by EPA with older information. State modeling of future year PM2.5 levels that has been conducted to date indicates that some areas will start closer or farther from the standard than EPA had projected.

Third, the SIP process provides a forum for states to identify reasonable controls and conduct analyses to determine the appropriate attainment date for an area. This process provides for input from expert stakeholders, the general public, other states which may share the same multi-State nonattainment area, and EPA on decisions regarding controls and attainment dates. At this time, EPA does not have the benefit of this process to inform a judgment as to when areas can practicably attain. The EPA cannot conduct a credible RACM demonstration for all PM2.5 nonattainment areas.

Fourth, no State commenter advocated that EPA attempt to make these judgments on attainment dates in advance of the State SIP process. The statute gives the states the lead in developing State implementation plans.

Comment: Another commenter recommends that an area should receive an attainment date extension when collectively the following conditions have been met:

- It is proven through modeling that the region is adversely effected by transport of PM2.5 emissions from up wind sources beyond that State's control;
- A State has submitted and committed to implementing all Federal PM2.5 emission reduction requirements in a timely manner; and,
- The extension concept is approved through the State air agency or through the MPO Interagency Consultation Process at the MPO level if applicable.

Response: This commenter advocates for attainment date extensions without any consideration of reasonable local measures. As stated above, EPA believes that extensions should be granted only if an area cannot practicably attain within 5 years despite application of all reasonable measures, including RACM. Although some measures can be implemented within a year or two, many measures may require a longer period for installation of controls or full program implementation. In light of the limited time period between the SIP submittal deadline and the 5-year date, EPA believes that a significant number of areas may warrant extensions ranging from one to 5 years, with the length of extension depending on the factors described above.

3. Attainment dates: 1-year extensions

a. Background.

Subpart 1 provides for States to request two 1-year extensions of the attainment date for a nonattainment area under limited circumstances. Section 172(a)(2)(C) of the CAA provides that EPA initially may extend an area's attainment date for 1 year, provided that the State has complied with all the requirements and commitments pertaining to the area in the applicable implementation plan, and provided that the area has had no more than a minimal number of "exceedances" of the relevant standard in the preceding year. Because the $PM_{2.5}$ standards do not have exceedance-based forms but are based on 3-year averaging periods, we interpret the air quality test in section 51.1005 to mean that the area would need to have "clean data" for the third of the 3 years that are to be evaluated to determine attainment.[4] By this we mean that for the third year, the air quality for all monitors in the area as analyzed in accordance with Appendix N to 40 CFR 50 each

[4] See section 51.1005 of the proposed regulation.

must have an annual average of 15.0 μg/m^3 or less, and a 98th percentile of 24-hour monitoring values of 65 μg/m^3 or less in order to qualify for a 1-year extension. (Given the rounding provisions specified in 40 CFR Part 50, Appendix N, these criteria would be satisfied if the concentrations before final rounding are less than an annual average of 15.05 μg/m^3 and a 24-hour value of 65.5 μg/m^3.)

For example, suppose an area in violation of the annual standard has an attainment date of April 2010, and its annual average for 2007 was 15.8 and for 2008 was 15.6. If the annual average for the area in 2009 is 14.9, then the 3-year average would be 15.4, and it would not have attained the standard. We interpret section 172(a)(2)(C) as allowing the area to submit a request to EPA for a 1-year extension of its attainment date to 2011 (provided the State has also complied with its requirements and commitments) since the 14.9 ambient air quality value in the third year (2009) met the test of being at or below 15.0. Section 51.1005(a) of the proposed regulation addresses the initial 1-year attainment date extension.

The air quality measured in 2010 in conjunction with prior data will determine if the area attains the standard, qualifies for a second 1-year extension, or does not attain the standard. For example, if the area's annual average for 2011 is 14.3, then its 3-year average for 2009-2011 would be 14.9 and it would have met the annual standard.

If the area's annual average for 2011 is 14.9, however, then its 3-year average for 2009-2011 would be 15.1. In this situation the area would not have attained the standard, but the area would meet the air quality test for the second of the 1-year extensions allowed under section 172(a)(2)(C), because the 2011 annual average was at or below 15.0. Section 51.1005(b) of the proposed rule addresses the second 1-year attainment date extension. After obtaining a second 1-year extension, the State would evaluate whether the air quality values in 2012, in conjunction with 2010 and 2011 data, bring the area into attainment.

Pursuant to section 172(a)(2)(C), States must submit additional information to EPA to demonstrate that they have complied with applicable requirements, commitments, and milestones in the implementation plan. This information is needed in order for EPA to make a decision on whether to grant a 1-year attainment date extension. The EPA will not be inclined to grant a 1-year attainment date extension to an area unless the State can demonstrate that it has met important requirements contained in the area's implementation plan. States must demonstrate that: (1) control measures have been submitted in the form of a SIP revision and substantially implemented to satisfy the requirements of RACT and RACM for the area, (2) the area has made emissions reductions progress that represents reasonable further progress (RFP) toward attainment of the NAAQS, and (3) trends related to recent air quality data for the area indicate that the area is in fact making progress toward attainment of the standard. Any decision made by EPA to extend the attainment date for an area will be based on facts specific to the nonattainment area at issue, and will only be made after providing notice in the Federal Register and an opportunity for the public to comment.

If an area fails to attain the standard by the attainment date, EPA would publish a finding to this effect in accordance with section 179 of the CAA. The area then would be required, within 1 year of publication of this finding, to develop a revised SIP containing additional emission reduction measures needed to attain the standard as expeditiously as practicable.

b. Final rule.

The final rule retains the proposed criteria for states to receive a 1-year attainment date extension for a nonattainment area.

c. Comments and Responses

Comment: A number of commenters supported EPA's ability to grant a 1-year attainment date extension if monitoring data indicate that the PM2.5 levels during the most recent year were below 15.05 ug/m3.

Response: The EPA agrees with these comments.

Comment: Some commenters recommended that a 1-year extension be provided if the trend line of the area's emissions levels or air quality data projects attainment in the extension year.

Response: The EPA believes that 1-year extensions should be based on air quality data, which can be assessed quickly after the end of the year. Basing such extensions solely on emissions trends would be impractical due to the longer turnaround time needed to evaluate emissions changes affecting a monitor.

Comment: One commenter believes the current requirement is overly stringent and inconsistent with the statute. The commenter believes that EPA’s proposed approach incorrectly defines the statutory language referring to a “minimal number of exceedances” of the standard in the previous year as “zero” exceedances. Alternatively, the commenter suggests EPA could withdraw this provision and provide more detailed guidance giving the Agency and states some flexibility to demonstrate that exceedances were minimal in a given case since nothing in the statute requires the rigid definition of minimal that EPA proposes.

Response: The EPA believes the policy in the final rule is a reasonable application of the statutory language to a standard not based on exceedances. The EPA does not believe it would be appropriate to provide a 1-year extension to an area with air quality data showing it violating the standard over the 3 years prior to the attainment year.

4. Achieving "Clean Data" Prior to the area's approved attainment date

a. Background

Section III.D of the preamble to the proposed rule describes the incentives for attaining the standards prior to April 2008, when SIP submittals are due, or prior to an area's approved attainment date. Areas with design values just over the level of the standard may be able to achieve reductions in the local area or in the State so that, when their effect is considered in combination with reductions achieved under national programs, they may be sufficient to attain the standards before SIPs are due in 2008. For example, if monitoring in a nonattainment area shows that the air quality for 2004-2006 meets the standards, then the area may be subject to reduced regulatory requirements and be redesignated as "attainment."

EPA issued a "Clean Data" policy memorandum in December 2004 describing possible reduced regulatory requirements for areas that attain the standards early, but have not yet been redesignated as attainment.[5]

[5] Memorandum of December 14, 2004, from Steve Page, Director, EPA Office of Air Quality Planning and Standards to EPA Air Division Directors, "Clean Data Policy for the

b. Final Rule

In the proposed rule, EPA indicated that it had issued this “Clean Data” policy to apply for purposes of the PM2.5 standards. In this action EPA is finalizing as a rule the statutory interpretation that is embodied in the policy. The text of the final rule encapsulates the statutory interpretation set forth in the policy. Determinations as to whether individual areas have attained the PM2.5 standard and thus qualify for application of the new clean data rule will be made in the context of rulemakings for those individual areas.

The preamble to the proposed rule mistakenly stated that if an area achieved “clean data,” it would be “relieved of the requirements to implement the nonattainment NSR program otherwise required for nonattainment areas, and instead would implement the PSD program.” EPA wishes to clarify that the Clean Data Policy does not provide for suspension of the requirements for NSR nor for RACT. The provisions at issue in the Clean Data Policy include the requirements for an attainment

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Fine Particle National Ambient Air Quality Standards.” This document is available at: http://www.epa.gov/pmdesignations/guidance.htm demonstration and other related requirements, reasonable further progress, and contingency measures.

c. Comments and Responses

Comment: One commenter stated that EPA has absolutely no authority to waive NSR or any of the Clean Air Act's other requirements for nonattainment areas merely because a nonattainment area has 3 years of clean data, nor does EPA have authority to waive mandatory requirements of the CAA such as NSR, RACT, and RFP merely because EPA or the State claims they are not needed for attainment. The commenter believes that the only way that a nonattainment area can cease implementing controls and requirements mandated for such areas is to seek and obtain redesignation to attainment, and demonstrate in the process that the controls and requirements are not needed for maintenance of standards. The CAA has explicit procedures and prerequisites for redesignating nonattainment areas to attainment (CAA §§107(d)(3)(E) and 175A). EPA's "clean data" proposal would illegally circumvent those requirements.

Response: The Clean Data policy does not waive requirements for NSR nor for RACT. However, EPA believes that "clean data" policies for the ozone and fine particle programs are based on a reasonable interpretation of the CAA. The Clean Data Policy is the subject of two EPA memoranda setting forth our interpretation of the provisions of the Act as they apply to areas that have attained the relevant NAAQS. EPA also finalized the statutory interpretation set forth in the policy in a final rule, 40 CFR 51.918, as part of its Final Rule to Implement the 8-Hour Ozone National Ambient Air Quality Standard – Phase 2 (Phase 2 Final Rule). See discussion in the preamble to the rule at 70 FR 71645-71646 (November 29, 2005). The legal rationale for the Clean Data policy is explained in our Phase 2 Final Rule, in our December 14, 2004 memorandum from Stephen D. Page entitled "Clean Data Policy for the Fine Particle National Ambient Air Quality Standards" (Page Memo), and in our May 10, 1995 memorandum from John S. Seitz, entitled "Reasonable Further Progress, Attainment Demonstration, and Related Requirements for Ozone Nonattainment Areas Meeting the Ozone National Ambient Air Quality Standard" (Seitz memo). We adopt and reiterate those explications here.

EPA has also explained its rationale for applying the Clean Data policy in rulemaking actions associated with nonattainment areas for the PM-10 and 1-hour ozone standards. For rulemaking actions applying the Clean Data policy to the PM-10 standards, see 71 FR 27440 (May 11, 2006) (Weirton, WVA), 71 FR 13021 (March 14, 2006) (Yuma, AZ), 71 FR 6352 (February 8, 2006) (Ajo, Az). For a discussion of the legal rationale supporting rulemaking actions applying the Clean Data policy to the 1-hour ozone standards, see, for example, 67 FR 49600 (July 31, 2002); 65 FR 37879 (June 19, 2000) Cincinnati-Hamilton, Ohio-Kentucky); 61 FR 20458 (May 7, 1996) (Cleveland Akron-Lorain, Ohio); 66 FR 53094 (October 19, 2001) (Pittsburgh-Beaver Valley, Pennsylvania); 61 FR 31832 (June 21, 1996 (Grand Rapids, Michigan); 60 FR 36723 (July 18, 1995) (Salt Lake and Davis Counties, Utah); 68 FR 25418 (May 12, 2003) (St Louis, Missouri); 69 FR 21717 (April 22, 2004) (San Francisco Bay Area).

EPA has further elaborated on its legal rationale for the Clean Data Policy in briefs filed in the 10^{th}, 7^{th}, and 9^{th} Circuits, and hereby incorporates those briefs insofar as relevant here. See Sierra Club v. EPA, No. 95-9541 (10^{th}

Cir.), Sierra Club v. EPA, NO. 03-2839, 03-3329 (7th Cir.), Our Children's Earth Foundation v. EPA, No. 04-73032 (9th Cir.). As stated in the policy, the attainment demonstration, RFP requirements, and contingency measure requirement are designed to bring an area into attainment. Once this goal has been achieved, it is appropriate to suspend the obligation that States submit plans to meet these goals, so long as the area continues to attain the relevant standard. The Tenth, Seventh and Ninth Circuits have all upheld EPA rulemakings applying the Clean Data Policy. See Sierra Club v. EPA, 99 F. 3d 1551 (10th Cir. 1996); Sierra Club v. EPA, 375 F. 3d 537 (7th Cir. 2004); Our Children's Earth Foundation v. EPA, No. 04-73032 (9th Cir. June 28, 2005 (Memorandum Opinion).

EPA has explained in its memoranda on the Clean Data Policy for PM 2.5 and for ozone that it is reasonable to interpret the provisions regarding RFP and attainment demonstrations, along with certain other related provisions, as not requiring further submissions to achieve attainment for so long as the area is in fact attaining the standard. Under the policy, EPA is not granting an exemption from any applicable requirement under Part D.

Rather, EPA has interpreted these requirements as not applying for so long as the area remains in attainment with the standard. This is not a waiver of requirements that by their terms apply; it is a determination that certain requirements are written so as to be operative only if the area is not attaining the standard.

CAA section 172(c)(2) provides that SIP provisions in nonattainment areas must require “reasonable further progress.” The term “reasonable further progress” is defined in section 171(1) as “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.” Thus, by definition, the “reasonable further progress” provision requires only such reductions in emissions as are necessary to attain the NAAQS. If an area has attained the NAAQS, the purpose of the RFP requirement will have been fulfilled, and since the area has already attained, showing that the State will make RFP towards attainment will “have no meaning at that point.” EPA’s General Preamble for the

Implementation of Title I of the Clean Air Act Amendments of 1990" (General Preamble) 57 FR 13498 , 13564 (April 16, 1992).

CAA section 172(c)(1), the requirement for an attainment demonstration, provides in relevant part that SIPs "shall provide for attainment of the [NAAQS]." EPA has interpreted this requirement as not applying to areas that have reached attainment. If an area has attained the standard, there is no need to submit a plan demonstrating how the area will reach attainment. In the General Preamble (57 FR 13564), 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 also Memorandum from John Calcagni, "Procedures for Processing Requests to Redesignate Areas to Attainment," September 4, 1992, at page 6.

CAA section 172(c)(9) provides that SIPs in nonattainment areas "[S]hall provide for the implementation of specific measures to be undertaken if the area fails to make reasonable further progress, or to attain the [NAAQS] by the attainment date applicable under this part. Such measures shall be included in the plan revision as contingency measures to take effect in any such case without further action by the State or [EPA].”

This contingency measure requirement is inextricably tied to the reasonable further progress and attainment demonstration requirements. Contingency measures are implemented if reasonable further progress targets are not achieved, or if attainment is not realized by the attainment date. Where an area has already achieved attainment by the attainment date, it has no need to rely on contingency measures to come into attainment or to make further progress to attainment. As EPA stated in the General Preamble:

> “The section 172©(9) requirements for contingency measures are directed at ensuring RFP and attainment by the applicable date.” 57 FR 13564. Thus these requirements no longer apply when an area has attained the standard.

It is important to note that should an area attain the PM2.5 standards based on three years of data, its obligation to submit an attainment demonstration is not waived but is only suspended. If the area then has air quality concentrations in the following year such that the area exceeds the standard for years 2 through 4, then the area’s obligation to submit an attainment demonstration is back in effect.

The determination of attainment contemplated by the Clean Data Policy does not purport to be a redesignation, and thus the requirements for redesignation under section 107(d) are not applicable. Nor does the Clean Data Policy avoid or illegally circumvent the redesignation requirements of section 107 of the Clean Air Act. All of the requirements for redesignation remain in effect and must be satisfied for an area to be redesignated. Sierra Club v. EPA, 99 F.3d at 1557-1558. The Clean Data Policy is simply an interpretation of certain provisions of the CAA, whose express purpose is to achieve attainment of the standard, as not requiring SIP revisions to be made by the State for so long as the area continues to attain the standard. The policy does not purport to exempt areas from requirements that are inapplicable only if an area is redesignated to attainment. It interprets certain provisions which are written in such a way as to impose requirements only upon areas that are not attaining the NAAQS, regardless of whether they have been redesignated to attainment. EPA has not provided for any waiver from statutory requirements that was not provided by Congress. The area at issue remains designated nonattainment, and is subject to the risk that if a violation occurs it will have to adopt and implement reasonable further progress requirements, contingency measures, and an attainment demonstration, unless it is redesignated to attainment. In order to be redesignated to attainment, however, the area will have to satisfy all of the requirements of section 107(d)(3)(E), including the requirement for a long-term maintenance plan.

While a determination of attainment is not equivalent to a redesignation to attainment, nothing in the Act compels EPA to wait until an area meets all the requirements for redesignation before EPA makes a determination that the area is in attainment with the standard, thereby suspending the requirements for certain provisions related to attainment. Indeed, section 179(c) of the Act requires EPA to make an attainment determination within six months after an area's applicable attainment date whether or not EPA has made a finding with respect to redesignation. EPA's interpretation of the Act's provisions not to require, once attainment has been reached, certain plan submissions whose purpose is to assure attainment, is not at odds with the requirements for redesignation. Nor does EPA's construction of the statute adversely impact planning for maintenance. An area that is monitoring attainment, but is still designated as a nonattainment area, retains strong incentives to seek redesignation to attainment, and remains subject to the requirement to demonstrate maintenance in order to be redesignated. For a detailed discussion of the relationship of redesignation requirements and attainment determinations, see the discussions in the EPA briefs in Our Children's Earth Foundation v. EPA, supra at pp. 43-60., Sierra Club v. EPA No. 95-9541 (10th Cir.) at 29-43, and Sierra Club v. EPA Nos. 03-2839, 03-3329 (7th Cir.) at 33-44 which are contained in the docket for this rulemaking.

4. Determining attainment

[to be added]

E. Modeling and Attainment Demonstrations

a. Background

[Section III.F.1 of November 1, 2005 proposed rule (70 FR 66007); sec 51.1007 in draft and final regulatory text]

As noted in the proposal, Section 172(c) requires States with nonattainment areas to submit an attainment demonstration. An attainment demonstration consists of: (1) technical analyses that locate, identify, and quantify sources of emissions that are contributing to violations of the $PM_{2.5}$ NAAQS; (2) analyses of future year emissions reductions and air quality improvement resulting from already-adopted national and local programs, and from potential new local measures to meet the RACT, RACM, and RFP requirements in the area; (3) adopted emission reduction measures with schedules for implementation; and (4) contingency measures required under section 172(c)(9) of the CAA.

b. Final Rule

The requirements from the proposal are unchanged. Each State with a nonattainment area will be required to submit a SIP with an attainment demonstration that includes analyses supporting the State’s proposed attainment date. States must show that the area will attain the standards as expeditiously as practicable and it must include an analysis of whether implementation of reasonably available measures will advance the attainment date.

2. Areas that need to conduct modeling

[Section III.F.2 of November 1, 2005 proposed rule (70 FR 66007)]

a. Background

All nonattainment areas need to submit an attainment demonstration, but in some cases, States may not need new, local-scale modeling analyses. In the proposed rule, EPA proposed that States may use in a $PM_{2.5}$ attainment demonstration certain local, regional and/or national modeling analyses that have been developed to support Federal or local emission reduction programs, provided the modeling meets the attainment modeling criteria set forth in EPA's modeling guidance. The proposal also stated that nonattainment areas for which local, regional, or national scale modeling demonstrates the area will not attain the standard within 5 years of designation would be required to submit an attainment demonstration SIP that includes new modeling showing attainment of the standards as expeditiously as practicable.

b. Final Rule

In the final rule, EPA is reaffirming the potential use of national and/or regional modeling as part of an attainment demonstration. We are also clarifying the types of modeling analyses that may be useful as a “primary” modeling analysis and as a “supplemental” analysis.

The proposal suggested that it may be appropriate, in certain circumstances, for a State to submit regional or national modeling as the sole (primary) modeling analysis in its attainment demonstration. This implies that the State would not need to conduct local modeling analyses.

We wish to further define the differences between “national”, “regional”, and “local” modeling analyses. In this context, national analyses are generally those conducted by EPA in support of national or regional rules. Regional and local modeling analyses are generally those conducted by the RPOs and/or States for the purpose of developing State Implementation Plans (SIPs).

EPA has conducted national scale modeling for a variety of rules and analyses. Additionally, the RPOs and many States are conducting regional and/or local scale modeling of PM2.5 and regional haze across the country. The national scale of the EPA modeling analyses requires basic assumptions concerning local model inputs. Compared to regional or local modeling done by the States and/or RPOs, EPA modeling may, in some cases, use coarser grid resolution, use inventories that are not as refined, and model performance may be highly variable from area to area. For these reasons, national scale modeling may not always be appropriate for local area attainment demonstrations.

While States are encouraged to submit national modeling that supports their attainment demonstration, we believe that this modeling is best served as a supplemental analysis and/or part of a weight of evidence demonstration. Regional or local modeling conducted by the States or RPOs is best suited as the primary modeling analysis for a modeled attainment demonstration. The local modeling is more likely to meet the recommendations contained in EPA's modeling guidance.

It should be noted that this does not preclude the use of EPA (or other) modeling that may be appropriate for use in certain nonattainment areas. The judgment of appropriateness should be made by the State(s) and their respective EPA regional office on a case-by-case basis.

c. Comments and Responses

Comment: There were many commenters that agreed that States should be able to use EPA modeling or other national or regional modeling as a modeled attainment demonstration. One commenter recommended that the final rule require States to show that the existing modeling incorporates realistic assumptions, accurately reflects local emissions and trends, and provides adequate model performance for the local nonattainment area.

Response: We agree that national and/regional modeling may be used as part of an attainment demonstration as long as it is shown to be applicable to the local area. This is consistent with the proposal where we said that existing modeling should “meet the attainment modeling criteria set forth in EPA’s modeling guidance.” Part of the analysis to determine if existing modeling meets the criteria in the modeling guidance is to assess whether the modeling incorporates realistic assumptions, accurately reflects local emissions and trends, and provides adequate model performance for the local nonattainment area.

Comment: Some commenters thought States should be able to use EPA modeling in the absence of an analysis of the applicability of the modeling for a local nonattainment area. One commenter said that EPA should determine that States should not have to do any additional modeling analyses if the CAIR modeling showed they were expected to attain the NAAQS by 2010.

Response: We disagree that national modeling should be used in support of an attainment demonstration without further analysis of the modeling assumptions for a particular area. National scale modeling may not always be appropriate for local areas. Most often, national scale EPA modeling is best suited for use as a supplemental analysis or as part of a "weight of evidence" demonstration. The modeling guidance recommends supplemental analyses for all attainment demonstrations. The guidance specifically recommends the examination of other modeling studies as a supplemental analysis. The EPA modeling as well as other “non-local” modeling can be used for this purpose. The “weight” of this alternative modeling in an attainment demonstration should be guided by how well the modeling system is suited for the local nonattainment area. States should consult with their EPA regional offices for further guidance and recommendations.

As such, we do not believe it to be appropriate to determine a priori that CAIR or any other modeling analyses are appropriate to use in a local attainment demonstration for any or all nonattainment areas.

Comment: Several commenters believe that States should be able to use existing EPA modeling (such as CAIR), as the basis for an extension of the area's attainment date, if it shows that the nonattainment area may not be able to attain the NAAQS by 2010. They believe that the State should not have to do additional modeling to show that they need an attainment date extension.

Response: We disagree with this comment. The CAIR modeling only included national controls that are expected to be in place by 2010 (including the CAIR rule itself). It did not include any additional local controls that could be implemented under RACT and RACM requirements that may bring the area into attainment sooner. Nonattainment areas are required to attain the NAAQS as expeditiously as practicable. Therefore, additional modeling of existing controls as well as additional local controls is needed before an attainment date extension can be granted. Additional information on attainment dates and extensions is contained in the final rule section xxxx and additional information on RACT and RACM requirements is contained in section III.J.(?).

Comment: Several commenters noted an apparent inconsistency in the language concerning who would be required to perform “new” local-scale modeling. First, there are potentially conflicting statements in the proposal when EPA states that areas with an attainment date of 2010 will need to conduct local-scale modeling to project the estimated level of air quality improvement in accordance with EPA’s modeling guidance. This conflicts with the proposed ability for States to use existing national or regional modeling as their modeled attainment demonstration. Second, a portion of a sentence was removed from the Federal Register version of the notice which differs from the pre-Federal Register version. The published version implies that all nonattainment areas would be required to submit new modeling.

Response: We agree that there are inconsistencies in the proposal preamble text. To clarify, new local-scale modeling is required for areas that are not expected to come into attainment by 2010. For other areas, there may be national or regional modeling which may be applicable to the area which shows they are likely to come into attainment. As noted earlier, national scale modeling is best suited for use as a supplemental analysis, but in some cases may be acceptable evidence that an area will attain by 2010.

Additionally, the preamble language in the Federal Register contained an error. A portion of a sentence was mistakenly removed, which led to some confusion. The language in the FR notice (FR page 66008) stated "Nonattainment areas would be required to submit an attainment demonstration SIP that includes new modeling showing attainment of the standards as expeditiously as practicable. The new modeling will need to include additional emissions controls or measures in order to demonstrate attainment." The language should have read, "Nonattainment areas *for which local, regional, or national scale modeling demonstrates the area will not be in attainment of the NAAQS within 5 years of designation* would be required to submit an attainment demonstration SIP that includes new modeling showing attainment of the standards as expeditiously as practicable. The new modeling will need to include additional emissions controls or measures in order to demonstrate attainment.” This should clarify that States that cannot show attainment within 5 years will need to develop new modeling analyses which contain additional control strategies which show how and when they expect to attain the PM2.5 NAAQS.

Comment: One commenter maintained that relying on large-scale regional modeling alone may allow for PM2.5 hot spots (i.e. small unmonitored areas projected to exceed the standard) to exist past the attainment date.

Response: The EPA’s modeling guidance for PM2.5 generally recommends that for urban scale PM2.5 modeling, the State performs modeling analyses at 12 kilometer grid resolution or finer. The guidance contains procedures for examining modeled results in areas without monitors. The "unmonitored area analysis" procedure recommended in the guidance is intended to address large scale unmonitored areas (on the order of 12km resolution) that may be in danger of violating the NAAQS. These areas may be influenced by a large range of sources including direct PM2.5 emissions from point sources. In areas where potential NAAQS violations are indicated, EPA recommends that the State conduct further analyses to better understand the sources potentially contributing to the projected high values. For example, the State could run a dispersion model to further evaluate the contributions of sources of direct PM2.5 emissions. Options for State action to address such a situation could include imposition of reasonably available control technology to reduce emissions, or the deployment of an air quality monitor to further characterize the problem.

3. Modeling Guidance

[Section III.F.3 of November 1, 2005 proposed rule (70 FR 66008)]

a. Background.

Section 110(a)(2)(K)(i) states that SIPs must contain air quality modeling as prescribed by the Administrator for the purpose of predicting the effect of emissions on ambient air quality. The procedures for modeling $PM_{2.5}$ as part of an attainment SIP are contained in EPA's "Guidance for Demonstrating Attainment of Air Quality Goals for $PM_{2.5}$ and Regional Haze." The proposal summarized several of the chapters in a draft version of the modeling guidance.

b. Final rule.

The PM2.5 and regional haze modeling guidance has now been finalized and is available at http://www.epa.gov/ttn/scram/xxxxx. The final PM2.5 and regional haze guidance has been incorporated into the ozone modeling guidance and is now called “Guidance on the Use of Models and Other Analyses in Demonstrating Attainment of Air Quality Goals for the 8-Hour Ozone and PM2.5 NAAQS and Regional Haze”.

The final PM2.5 modeling guidance document is very similar to the previous draft version, although there were several changes and updates. Among them are new methods in treating PM2.5 species components as part of the PM2.5 attainment test; new methods for determining potential future year violations in unmonitored areas; new procedures for handling potential PM2.5 “hotspots”; and an increased reliance on supplemental analyses, including “weight of evidence” analyses.

The modeling guidance describes how to estimate whether a control strategy to reduce emissions of particulate matter and its precursors will lead to attainment of the annual and 24-hour $PM_{2.5}$ NAAQS. Part I of the guidance describes a “modeled attainment test” for the annual and 24-hour $PM_{2.5}$ NAAQS. Both tests are similar. The output of each is an estimated future design value consistent with the respective forms of the NAAQS. If the future design value does not exceed the concentration of $PM_{2.5}$ specified in the NAAQS, the test is passed. The modeled attainment test applies to locations with monitored data.

A separate test is recommended to examine projected future year $PM_{2.5}$ concentrations in unmonitored locations.[6] Interpolated $PM_{2.5}$ ambient data, combined with modeling data, is used to predict $PM_{2.5}$ concentrations in unmonitored areas. The goal of this analysis is to identify areas without monitors that may be violating the PM2.5 NAAQS, often due to high levels of primary PM2.5 (both now and in the future). The details of the analysis are contained in the final modeling guidance.

The guidance also discusses modeling PM2.5 at monitors where high concentrations of primary PM2.5 are measured. In these cases, it may be beneficial to model the primary

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[6] Application of the unmonitored area analysis is limited to locations which are appropriate to allow the comparison of predicted $PM_{2.5}$ concentrations to the NAAQS, based on $PM_{2.5}$ monitor siting requirements and recommendations.

component of the PM2.5 with a Gaussian dispersion model. Dispersion models are better able to capture the influence of primary PM sources where large concentration gradients may exist. Grid models spread out the PM emissions to the size of the grid (typically 4 or 12 km). This makes it difficult to judge the benefits of control strategies that may affect primary PM sources. The final modeling guidance recommends procedures for applying dispersion models in these situations.

The guidance also recommends the submittal of supplemental analyses as part of all attainment demonstrations. Supplemental analyses are modeling, emissions, and/or ambient data analyses that are submitted as part of a SIP, in addition to the primary modeled attainment test. The evaluation of supplemental analyses when the predicted concentrations in the primary attainment test are close to the NAAQS (slightly above or slightly below) is called a weight-of-evidence (WOE) analysis. This is simply a collection of evidence that aims to show that attainment of the standard is likely. The final version of the modeling guidance puts more emphasis on the submittal of supplemental analyses than in previous versions.

Part II of the guidance describes how to apply air quality models to generate results needed by the modeled tests for attainment. This includes developing a conceptual description of the problem to be addressed; developing a modeling/analysis protocol; selecting an appropriate model to support the demonstration; selecting appropriate meteorological episodes or time periods to model; choosing an appropriate area to model with appropriate horizontal/vertical resolution; generating meteorological and air quality inputs to the air quality model; generating emissions inputs to the air quality model; evaluating performance of the air quality model; and performing diagnostic tests. After these steps are completed, the model is used to simulate the effects of candidate control strategies.

Comment: Several commenters were supportive of the weight of evidence concept. They said that PM2.5 modeling is inherently more uncertain than previous ozone modeling and the modeling guidance should reflect that. One commenter noted that weight of evidence demonstrations should be “unbiased”, meaning that States should use all relevant analyses and not only information that helps their case.

Response: The EPA agrees with these comments. The final modeling guidance recommends supplemental analyses (including weight of evidence) for all attainment demonstrations. All States should submit modeling, ambient data, and emissions analyses in addition to the primary modeling demonstration. A weight of evidence analysis is needed if the predicted future year PM2.5 concentrations are slightly higher or slightly lower than the NAAQS.

We also agree that a weight of evidence demonstration should include all relevant information, including analyses which support attainment and those that do not. The idea of the analysis is to “weigh” the evidence, both good and bad. That cannot be fairly done if some evidence is not presented.

Comment: Several commenters suggested that a modeled attainment demonstration should not be specifically required. Instead they suggest that all demonstrations should be weight of evidence demonstrations. This would include different analyses of ambient data, trends, and modeling. But due to the uncertainties in the current

PM2.5 models and emissions data, modeling would be but one part of a broader weight of evidence approach.

Response: We disagree with this comment. Model results should be the primary analysis of an attainment demonstration. Regardless of current uncertainties in the PM2.5 models and emissions, models are the only tool that can predict future concentrations of PM2.5. The uncertainties in the model inputs and formulation should be taken into account when evaluating the results. We agree that a broad analysis of modeling, ambient data and emissions trends should be part of the attainment demonstration. This is reflected in the final modeling guidance.

4. Modeled Attainment test

[Section III.F.4 of November 1, 2005 proposed rule (70 FR 66008)]

a. Background.

The proposal described the nature of the attainment tests for the annual average and 24-hour average PM2.5 NAAQS contained within the modeling guidance. Both tests use monitored data to estimate current air quality. The attainment test for a given standard is applied at each monitor location within or near a designated nonattainment area for that standard. There is also an additional attainment test to be performed in unmonitored areas. Models are used in a relative sense to estimate the response of measured air quality to future changes in emissions. Future air quality is estimated by multiplying current monitored values times modeled responses to changes in emissions. Because $PM_{2.5}$ is a mixture of chemical components, the guidance recommends using current observations and modeled responses of major components of $PM_{2.5}$ to estimate future concentrations of each component. The predicted future concentration of $PM_{2.5}$ is the sum of the predicted component concentrations.

b. Final Rule.

The nature of the PM2.5 attainment tests is unchanged. The final modeling guidance recommends refinements to the test and discusses the treatment of individual PM2.5 species. The speciated modeled attainment test (SMAT) that was used to estimate future PM2.5 concentrations for CAIR has been (mostly) implemented in the final guidance. Among the new recommendations is to better account for the known differences between the FRM measurements and the PM2.5

speciation measurements. For example, it is recommended to account for the volatilization of nitrate from the FRM filters and to account for uncertainties in organic carbon measurements by employing an "organic carbon by mass balance" technique. This assumes that all remaining mass not accounted for by other species is organic carbon mass. Additional details are contained in the modeling guidance.

The guidance also recommends, where necessary, to spatially interpolate PM2.5 species data to estimate the species concentrations at FRM sites. It is necessary to estimate species concentrations when there are no species measurements at FRM sites. Several techniques can be used to estimate species concentrations. Spatial interpolation techniques may be useful in many areas. In other cases, it may be adequate to assume that data from a speciation monitor may be representative of multiple FRM monitors. It is particularly important to develop credible techniques to estimate species concentrations at the locations of the highest FRM monitors.

The guidance lists several techniques that can be used. The EPA will provide software which will apply the modeled attainment test, using ambient data and model outputs.

Additionally, the software will interpolate the PM2.5 species data to allow application of SMAT for all FRM monitors. The software is available at xxxxx.

Ultimately, it is up to the States to determine the best method to represent the PM2.5 species concentrations. These estimates are needed to perform the modeled attainment test.

c. Comments and Responses

Comment: Several commenters were concerned that interpolation of PM2.5 species concentrations may not be appropriate in certain areas or situations. The concentrations can vary significantly between urban and rural areas and even between nearby urban areas. One commenter suggested that it might be useful to use older field study measurements to derive current species concentrations. Another commenter suggested that it might be reasonable to assume that speciation measurements were representative of nearby FRM sites.

Response: We agree that interpolations of species data may not always be the best way to estimate species concentrations at FRM sites. The modeling guidance lists several different possible techniques. States should review their data and situation and choose the most reasonable methodology to estimate species concentrations. Nonattainment areas that don’t have speciation measurements at the highest FRM site(s) need to be especially careful. The result of the speciated attainment test can be heavily influenced by the assumed species concentrations at the highest FRM sites. The attainment test will be more straightforward in areas with speciation monitors at the highest FRM sites. States are also encouraged to place speciation monitors at the highest FRM sites. This will aid in future assessments of attainment and ambient trends.

5. Multi-pollutant assessments

[Section III.F.5 of November 1, 2005 proposed rule (70 FR 66009)]

a. Background.

The formation and transport of $PM_{2.5}$ is in many cases closely related to the formation of both regional haze and ozone. There is often a positive correlation between measured ozone and secondary particulate matter. Many of the same factors affecting concentrations of ozone also affect concentrations of secondary particulate matter. For example, similarities exist in sources of precursors for ozone and secondary particulate matter. Emissions of NO_x may lead to formation of nitrates as well as ozone. Sources of VOC may be sources or precursors for both ozone and organic particles. Presence of ozone itself may be an important factor affecting secondary particulate formation. The proposal recommended multi-pollutant assessments for $PM_{2.5}$ attainment demonstrations. A multi-pollutant assessment, or one-atmosphere modeling, is conducted with a single air quality model that is capable of simulating transport and formation of multiple pollutants simultaneously. This type of model simulates the formation and deposition of $PM_{2.5}$, ozone, and regional haze components, and it includes algorithms simulating gas phase chemistry, aqueous phase chemistry, aerosol formation, and acid deposition.

b. Final Rule.

The recommendation to conduct multi-pollutant assessments remains unchanged. It is recommended to model the impacts of future year control strategies on PM2.5, ozone, and regional haze. It may not always be possible or convenient to do so, but it can be beneficial to the strategy development process.

PM2.5 control strategies will have an impact on regional haze, and will possibly impact ozone. Even if high ozone and high PM2.5 concentrations don't typically occur during the same time of the year, controls that affect precursors to PM2.5 may also affect ozone (e.g. NOx).

The SIP submittal dates for PM2.5, ozone, and regional haze do not currently line up. The PM2.5 SIPs are due almost 1 year later than ozone. But States can still do modeling analyses that can provide information for multiple pollutants. States can use one-atmosphere models that are capable of simulating both ozone and PM2.5. They can also try to use consistent meteorological fields and emissions inventories so that the same control strategies are relatively easy to evaluate for both ozone and PM2.5. Modeling the same future year(s) for PM2.5 and ozone can also make it easier to evaluate the impacts of controls on both pollutants.

It should be noted that there are no specific modeling requirements other than the recommendation to try to harmonize the ozone, PM2.5, and regional haze analyses whenever possible.

c. Comments and Responses

Comment: One commenter suggests that multi-pollutant assessments may not be beneficial because their area experiences winter PM2.5 exceedences and summer ozone exceedences.

Response: We disagree with the comment. Even in situations where high PM2.5 and ozone don't occur during the same time of year, multi-pollutant assessments may be helpful. NOx controls that may be needed to reduce nitrates in the winter are likely to have an impact on ozone in the summer. As well, changes in VOCs and SO2 may have an impact on both PM2.5 and ozone. Running potential control strategies through the same modeling platform for ozone, PM2.5, and regional haze may allow the development of optimized strategies.

6. Which future years(s) should be modeled?

[Section III.F.6 of November 1, 2005 proposed rule (70 FR 66009)]

a. Background.

Modeling analyses consist of base year modeling and future year modeling. The attainment test examines the change in air quality between the base and future years. The proposal recommended, where possible, future modeling years should be coordinated so that a single year can be used for both $PM_{2.5}$ and ozone modeling. This coordination will help to reduce resources expended for individual modeling applications for $PM_{2.5}$ and ozone and will facilitate simultaneous evaluation of ozone and PM impacts.

Although there is some flexibility in choosing the future year modeling time periods, unless the State believes it cannot attain the standards within 5 years of the date of designation and must request an attainment date extension, the choice of modeling years for $PM_{2.5}$ cannot go beyond the initial 5 attainment period. Attainment date extensions will only be granted under certain circumstances. Among other things, the State must submit an attainment demonstration showing that attainment within 5 years of the designation date is impracticable.

b. Final Rule.

Further information is now known concerning the modeling years for ozone. Moderate nonattainment areas are presumed to be modeling 2009. This is consistent with the last year of the 5 year period allowed under Subpart I for

PM2.5. Therefore, it is logical to presume that areas that are able to attain the PM2.5 NAAQS within 5 years will model a future year of 2009. Areas that won't be able to attain the standard in 5 years will need to request an attainment date extension (of up to 5 additional years).

The NAAQS must be attained as expeditiously as practicable. Therefore, attainment date extensions must contain modeling analyses to justify the extension. Details of the required analyses are contained in the RACT and RACM sections of the final rule. See section XX J. for more details.

7. Mid course reviews

[Section III.F.7 of November 1, 2005 proposed rule (70 FR 66010)]

F. What requirements apply for RACT and RACM for $PM_{2.5}$ nonattainment areas?

This section of the preamble discusses the final rule requirements for RACT and RACM. In order to explain EPA's approach in the final rule more clearly, we first discuss the statutory and regulatory background for the RACT and RACM requirements, and we then explain the key options and interpretations upon which we took comment in the proposal.

Thereafter, we discuss significant comments we received on the proposal and provide brief responses to those comments. [Additional comments and responses appear in the RTC for this final rule located in the docket.] Most of the comments received on this topic addressed the three options EPA proposed for the RACT requirement, the relationship between the RACT requirement and EPA's Clean Air Interstate Rule (CAIR), and the control measures to be required or considered for RACT and RACM.

1. Background on statutory requirements for RACT and RACM

Subpart 1 of Part D of the CAA (sections 171 – 179B) applies to all designated nonattainment areas. Section 172 of this subpart includes general requirements for all nonattainment area plans. Section 172(c)(1) requires that each nonattainment area plan "provide for the implementation of all reasonably available control measures as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology), and shall provide for attainment of the national primary ambient air quality standards." In this provision, "reasonably available control measures" or RACM, are understood to be controls of any type that may be applicable to a wide range of sources, whereas the parenthetical reference to "reasonably available control technology" or RACT are understood to be technology based controls applicable primarily to stationary sources. Thus, RACT are a subset of RACM. States are required to implement RACM and RACT "as expeditiously as practicable" as part of nonattainment area plans designed to attain the standards as expeditiously as practicable.[7]

Section 172 does not include any specific applicability thresholds to identify the size of sources that States and EPA must consider in the RACT and RACM analysis. However, the RACT requirement applies both to sources of direct $PM_{2.5}$ emissions and to sources of $PM_{2.5}$ precursors in the given nonattainment area. Other pollutant-specific provisions of the CAA do include such thresholds pertaining to nonattainment area plan requirements for those pollutants. For example, subpart 2 of part D, which establishes additional requirements for

[7] Under the Tribal Air Rule (TAR), requirements for RACT and RACM may be considered to be severable elements of implementation plan requirements for Tribes.

ozone nonattainment areas, establishes thresholds ranging from 100 to 10 tons per year for requirements applicable to "major sources" or "major stationary sources," depending on the area's classification or level of nonattainment. Subpart 4 of part D, which provides additional plan requirements for for PM-10 nonattainment areas, establishes thresholds of 100 and 70 tons per year for requirements applicable to a "major source" or "major stationary source."

Similarly, subpart 1, unlike subparts 2 and 4, does not identify specific source categories for which EPA must issue control technology documents or guidelines, thereby identifying specific source categories for State and EPA evaluation during nonattainment area plan development . For ozone, subpart 2 contains a list of specific requirements for control techniques guidelines (CTGs) and alternative control techniques (ACT) documents. [For PM10, section 190 of the CAA (in subpart 4) places particular emphasis on specific sources of area emissions, but does not identify specific stationary source categories for which RACT guidance must be issued. Section 190 requires EPA to develop RACM guidance documents for residential wood combustion, prescribed burning for forest management and agricultural activities, and for urban fugitive dust control.]

2. What is the Overall Approach to Implementing RACT and RACM in the final rule?

a. Background for RACT.

Since the late 1970s, EPA has interpreted RACT to mean the lowest emissions limitation that a particular source is capable of meeting by the application of control technology that is reasonably available, considering technological and economic feasibility (44 FR 53762; September 17, 1979). Because RACT is a control technology requirement and because modeling techniques were not precise in the past, we have generally considered RACT to be independent of the need to demonstrate attainment. In other words, we have generally required that a stationary source of the requisite type and size be subject to the controls that were deemed to be RACT, whether or not such controls were actually demonstrated to be necessary for the area to attain by its specified attainment date. The EPA's approach to RACT was affirmed in the 1990 amendments to the CAA, which adopted this approach for purposes of ozone in the subpart 2 provisions added at that time. [Thus, for example, section 182(b)(2) requires the imposition of RACT controls for all VOC source categories covered by a CTG and for all other major stationary sources of VOC that are located within certain nonattainment areas. The statute thus requires these controls in such an area, without a specific showing that they are necessary for the area to attain, and without the possibility of a showing that they are not necessary to attain as a means to exclude them from the plan. Extensive discussion of this issue appeared in the 1992 general preamble (57 FR 13541), in which EPA provided guidance for implementation of the ozone NAAQS.

Significantly, Congress did not amend the generally applicable provisions for nonattainment areas that appear in subpart 1 in 1990. This indicates that the Agency retains the authority to interpret the generally applicable nonattainment area plan requirements of section 172(c), including the RACT and RACM requirements, in the way that is most appropriate for new NAAQS that are subject to subpart 1. As discussed below, EPA has determined that a more flexible approach to the RACT requirement is appropriate for implementation of the PM2.5 NAAQS. The EPA believes that the improved ability to model the impacts of controls allows for this more flexible approach, so long as the analysis of what controls are necessary to achieve the NAAQS as expeditiously as practicable in a given area is sufficiently robust.]

b. Proposed options for RACT.

The EPA proposed and requested comment on three alternative approaches for interpretation of the RACT requirement of section 172(c)(1) for implementation of the PM2.5 NAAQS. The EPA proposed these approaches in order to evaluate which method would best ensure that States consider and adopt RACT measures for stationary sources in a way that is consistent with the overarching requirement to attain the standards as expeditiously as practicable, while providing flexibility for States to focus regulatory resources on those sources of emissions that contribute most to local $PM_{2.5}$ nonattainment.

Under the first proposed alternative, EPA would require States to conduct a RACT analysis and to identify and require reasonably available controls for all affected stationary sources in the nonattainment area, comparable to the implementation of RACT provided in subpart 2 governing implementation of the 1-hour ozone NAAQS. Under this option, covered sources would be required to apply technically and economically feasible controls and there would be no opportunity for States to excuse stationary sources from control on the basis that the emissions reductions from those controls would not be necessary to meet RFP requirements or to expedite attainment. Under this alternative, EPA proposed to limit the universe of sources for which States must conduct a RACT analysis and impose RACT controls, by providing an applicability threshold based upon the amount of emissions potentially emitted by the sources. Under this first option, EPA requested comment on a number of alternative emissions applicability thresholds.

Under the second proposed alternative, EPA would require States to conduct a RACT analysis and to identify reasonably available controls for all affected stationary sources. Under this option, however, States could thereafter determine that RACT does not include controls that would not otherwise be necessary to meet RFP requirements or to attain the $PM_{2.5}$ NAAQS as expeditiously as practicable.[8] Under this approach, RACT would be determined as part of the broader RACM analysis and identification of all measures - for stationary, mobile, and area sources - that are technically and economically feasible, and that would collectively contribute to advancing the attainment date. Because RACT and RACM are considered together under this alternative, we did not propose emissions threshold options for evaluation of stationary source RACT. In addition, under the second alternative, areas cannot avoid the imposition of either available RACT or RACM measures without a demonstration that there is no combination of such declined RACT and RACM measures that would advance the date of attainment by one year.

The third proposed alternative, EPA's preferred option in the proposal, combined the first two options and is similar to the RACT approach adopted in the final implementation rule for the 8-hour ozone program. Under the third option, EPA would require States to conduct a RACT analysis and to require reasonably available controls

[8] Under the Tribal Air Rule (TAR), requirements for RACT and RACM may be considered to be severable elements of implementation plan requirements for Tribes.

for all affected stationary sources in nonattainment areas with attainment dates more than 5 years from the date of designation. For areas with an attainment date within 5 years of designation (e.g. by April 2010 for areas with an effective date for designation of April 2005), EPA would require RACT as under the second proposed alternative, in which RACT would be determined as part of the broader RACM analysis. For these areas, States could determine that RACT does not include controls that would not otherwise be necessary to meet RFP requirements or to attain the PM2.5 NAAQS as expeditiously as practicable. The same proposed suboptions with respect to the size of sources for consideration under the first alternative were also included under this alternative.

c. Proposed Approach for RACM

The EPA proposed and asked for comment on one approach for interpreting the RACM requirement for $PM_{2.5}$. EPA based the proposal on the approach that it has adopted for other NAAQS implementation programs. Under this approach, EPA requires the State to provide a demonstration in its SIP that it has adopted all reasonably available measures needed to meet RFP requirements and to attain the standard as expeditiously as practicable.[9] Reasonable measures are those measures that are technologically and economically feasible for the area in question. The required demonstration must show that there are no additional reasonable measures available in the nonattainment area that would advance the attainment date by at least 1 year or would be necessary to meet the RFP requirement for the area.[10]

Under section 172(a)(2), the attainment date for a nonattainment area is as expeditiously as practicable, but no later than 5 years after the effective date of designation of the area (e.g., no later than April 2010 for the final designations effective April 2005). The statute thus creates a presumption for attainment within 5 years of

[9] In the context of the PM10 NAAQS, EPA has concluded that "advancement of the attainment date" should mean an advancement of at least 1 calendar year. See State Implementation Plans; General Preamble for the Implementation of Title I of the CAA Amendments of 1990, 57 FR 12498 (April 16, 1992). See also Sierra Club v. EPA, 294 F.3d 155 (D.C. Cir. 2002).

[10] In the context of the PM_{10} NAAQS, EPA has concluded that "advancement of the attainment date" should mean an advancement of at least 1one calendar year. See State Implementation Plans; General Preamble for the Implementation of Title I of the CAA Amendments of 1990, 57 FR 12498 (April 16, 1992). See also Sierra Club v. EPA, 294 F.3d 155 (D.C. Cir. 2002).

designation unless certain statutory criteria are met for an extension of the attainment date. Under the proposed approach to RACM for PM2.5, EPA would require each State to evaluate all RACM for all sources of PM2.5 or its regulatory precursors in the area to determine if any such measures could contribute to meeting the RFP requirement or or to achieving attainment as expeditiously as practicable. If this evaluation of all RACM finds that the State will not be able to demonstrate attainment within 5 years after designation based upon the severity of nonattainment in that area or the availability or feasibility of implementing controls in that area, then the State may request an attainment date extension. We proposed that under these circumstances, the EPA could extend the attainment date for a period of 1 to 5 years, provided that the State has presented an adequate demonstration showing they will implement all RACT and RACM as expeditiously as practicable, and still need additional time to attain.

In the proposed rule, the EPA also took comment on the following overall steps for implementing the statutory requirement for RACM.

(1) Identification of measures. The State would begin the process of determining RACM by identifying all available control measures for all sources of PM2.5 and its precursors in the nonattainment area. The RACM can apply to mobile sources, area sources, and stationary sources.

(2) Evaluation of measures. After the State identifies the universe of available measures for the sources in the area, the State would evaluate them to determine whether implementation of such measures is technically and economically feasible, and whether the measure will contribute to advancing the attainment date.

(3) Adoption of measures. The State would have the initial responsibility for demonstrating to EPA that it has has adopted all reasonably available measures for the area consistent with meeting the applicable RFP requirements and attaining the standards as expeditiously as practicable, in accordance with applicable policy and guidance for attainment demonstrations. The EPA notes that it must take action on State nonattainment plans through notice and comment rulemaking, and failure of a State to supply adequate reasoning and support for its submission with respect to RACM measures would be a basis for disapproval

of the submission. In reviewing the State's selection of measures for RACM, or determination that certain measures are not RACM, EPA could independently supplement the rationale of the State or provide an alternative reason for reaching the same conclusion as the State, but only where EPA deems it appropriate.

In the proposal, EPA also confirmed its past interpretation that the RACM requirement requires the collective evaluation of measures and the assessment of whether they will advance the attainment date when taken together. Thus, for any measure or measures that would otherwise be RACM in the area, the State would be required to provide a reasoned rationale for declining to adopt such measure or measures, and an analysis to show that adoption of all such measures cumulatively would not advance the attainment for that area by at least 1 year.

c. Final rule.

The EPA has carefully considered the proper interpretation of section 172(c) (1) for the PM2.5 NAAQS. Because of the variable nature of the PM2.5 problem in different nonattainment areas, which may require States to develop nonattainment area plans that address widely disparate circumstances (e.g., different source types and mixes, different precursors and mixes of precursors, and different meteorological conditions), EPA has determined that the regulations implementing the PM2.5 NAAQS should provide for a great degree of flexibility with respect to the RACT and RACM controls.

Selected approach to RACT and RACM. The final rule reflects EPA's decision to select option 2 for RACT and to require a combined approach to RACT and RACM (subject to special considerations for electric generating units participating in CAIR as discussed in section F.6). Under this approach, RACT and RACM are those measures which are reasonably available considering technical and economic feasibility, and which contribute to advancing the attainment date by 1 year or more in the specific nonattainment area. By definition, those measures that are not necessary either to meet the RFP requirement or to help the area attain the NAAQS expeditiously, are not required RACT or RACM for such area. The EPA believes that this approach provides the greatest flexibility to a State to tailor its SIP control strategy to the needs of a particular PM2.5 nonattainment area. In exchange for this flexibility, however, States will need to conduct a more rigorous and systematic analysis to determine what constitutes RACT and RACM measures and what attainment date is as expeditious as practicable for each area. The final rule requires States to demonstrate that they have adopted all appropriate RACT and RACM measures in the attainment demonstrations that States must submit to EPA in early 2008.

The EPA stresses that under the approach in the final rule, it is inappropriate to reject a single measure under consideration as RACT or RACM because the emission reduction benefits from that measure alone would not advance the attainment date by 1 year. For any measure or measures that would otherwise be RACM in the area, the State is required to provide a reasoned rationale for declining to adopt such measure or measures, and an analysis to show that adoption of all such declined measures cumulatively would not advance the attainment for that area by at least 1 year. Th EPA believes that PM2.5 nonattainment is typically the result of the cumulative impact of emissions from a large number of different sources of varying sizes. Implementation strategies, therefore, will require consideration of controls on a broad variety of sources that might not individually cause nonattainment but whose contribution to nonattainment must nevertheless be reduced in order to achieve the NAAQS. Therefore, an approach to RACM that would excuse control measures that would not singlehandedly bring an area into attainment would be an inappropriate way to implement the RACM requirement for PM2.5.

Under the final rule, the State’s analysis must provide a reasoned justification for rejecting any available control measures that would constitute RACT or RACM in such area. The supporting information must show why each rejected measure, including any measure raised during the State's public hearing or public comment process, is technologically or economically infeasible or unreasonable, or will not contribute to advancing attainment by 1 year. Note that special considerations for EGUs apply as discussed in section F.6 below.

Guidance on State analysis to identify RACT, RACM and appropriate attainment date. For each nonattainment area, the State must provide a demonstration showing that the area will attain the standards as expeditiously as practicable considering implementation of existing Federal measures, plus implementation of RACT, RACM, and potential measures to reduce intrastate pollution transport that contributes to the nonattainment problem.

All nonattainment areas are subject to RACT and RACM requirements. However, EPA believes that areas clearly projected to attain within 5 years of designation as a result of existing national measures (i.e. projected to have a design value of 14.5 or lower) may be able to conduct a limited RACT and RACM analysis that does not involve additional air quality modeling. A limited analysis of this type would involve the review of reasonably available measures, the estimation of potential emissions reductions, and the evaluation of the time needed to implement these measures. If the State could not achieve significant emissions reductions during 2008 due to time needed to implement the potential measures or other relevant factors, then the State and EPA could conclude that reasonably available measures in the area could not advance the attainment date relative to the presumptive outer limit for attainment dates, i.e., 5 years from designation. In lieu of conducting air quality modeling to assess the impact of potential RACT and RACM measures, EPA believes that it would be appropriate for States to consider existing modeling information in determining the magnitude of emissions reductions that could significantly affect air quality and potentially result in attaining prior to 2010 (e.g. in 2009 based on 2006-8 air quality data). If the State, in consultation with EPA, determines from this initial limited RACT and RACM analysis that the area may be able to advance its attainment date through implementation of reasonable measures, then the State must conduct a more detailed RACT and RACM analysis, including appropriate air quality modeling analyses, to assess whether it can advance the attainment date.

In general, the combined approach to RACT and RACM in the final rule includes the following steps: (1) identification of potential measures; (2) modeling to identify the attainment date that is as expeditious as practicable; and (3) selection of RACT and RACM.

Identification of potential measures: As supporting information for identification of RACT and RACM, the State must provide data on technologically feasible control measures:

-- A list of all emissions source categories, sources and activities in the nonattainment area (for multi-State nonattainment areas, this would include source categories, sources and activities from all states which make up the area)

-- For each source category, source, or activity, an inventory of direct PM2.5 and precursor emissions;

-- For each source category, source, or activity, a list of technologically feasible emission control technologies and/or measures[11]

-- For each technologically feasible emission control technology or measure, the State should provide the following information: (1) the control efficiency by pollutant; (2) the possible emission reductions by pollutant; (3) the estimated cost per ton of pollutant

[11] The EPA believes that it is not necessary to identify every possible variation of every type of control measure, or all possible combinations of technologies and measures that would apply to a given source or activity if the State has properly characterized the potentially available emissions reductions and their costs. For example, EPA believes that the State can conduct a thorough analysis of VMT reduction measures without including every possible level or stringency of implementation of certain possible measures or combinations of measures for reducing VMT, so long as those measures would not affect the overall assessment of VMT reduction capabilities and the associated costs.

reduced; and (4) the date by which the technology or measure could be implemented.

Based on this information, the State will identify technically and economically feasible measures (potential RACT and RACM) for modeling. (At its option, the State may prefer not to make a judgment on whether certain measures are technically and economically feasible, if it believes they will not contribute to earlier attainment. In that case, the State could include those measures in the modeling, and later exclude them from RACT and RACM by showing that all the excluded measures together would not advance the attainment date by at least 1 year.) As previously mentioned, in determining the attainment date that is as expeditious as practicable, the State is also responsible for considering impacts on the nonattainment area of intrastate transport of pollution from sources within its jurisdiction, and potential reasonable measures to reduce emissions from those sources. The State should provide its rationale for including, or not including, such measures in its SIP (e.g., based on potential emissions reductions, costs and air quality impacts).

Modeling to determine the attainment date that is as expeditious as practicable: Second, for purposes of determining the attainment date that is as expeditious as practicable, the State will need to conduct modeling to show the combined air quality impact of all of the potential measures identified in the first step with a modeling analysis for the year 2009. A base case scenario for the year 2009 would project future air quality given implementation of existing measures (Federal, State and local). If this base case scenario demonstrates attainment by 2010, then the State must demonstrate why "expeditious" attainment could not be achieved in an earlier year. (As noted above, given the April 2008 due date for SIP submissions, it may be difficult to achieve earlier attainment in many cases).

If the base case scenario does not demonstrate attainment, then a control case scenario for 2009 is needed. The control case scenario would add potential SIP measures – specifically, all technically and economically feasible nonattainment area measures which could be implemented by the beginning of calendar year 2009, plus any candidate intrastate transport measures that the State has identified and would be feasible to implement by that year. States in multi-State nonattainment areas are strongly encouraged to collaborate on their modeling analyses. This modeling, along with other information known as weight of evidence considerations, would inform a judgment as to whether reasonable measures could lead to attainment of the standards within 5 years after designation. If the analysis does not demonstrate attainment by 2010, then the analysis would serve as the technical basis for the State to seek an extension of the attainment date beyond April 2010 for that area. Further analysis would then be necessary and is required to identify the specific attainment date.

The choice of future years to model beyond 2010 may vary from area to area. Often, modeling potential controls in two different future years may be necessary to support a judgment that a projected attainment year is as expeditious as practicable. If the area is projected to remain over the standard in the early projection year (e.g., 2009) despite the emission reductions from the modeled control measures, but is projected to be well below the standard in the later projection year (e.g., 2012), interpolation and emission inventory analysis could identify an intermediate year as the appropriate attainment date. There may be cases in which modeling a single year is sufficient because modeling of all technically and economically feasible controls results in attainment by a narrow margin in that year.

For many areas, EPA modeling analysis for CAIR and other modeling analyses that have been performed suggest a number of nonattainment areas will have a modest amount (in some cases only a few tenths of a microgram) of needed reductions in ambient levels after 2010 to reach attainment. For any such area, and for areas otherwise expected to attain relatively soon after 2010 (for example, due to substantial reductions in a dominent local source), EPA believes that this analysis should be for a year no later than 2012. A later date (e.g., 2014) may be appropriate for areas with very high PM2.5 levels that face difficulty attaining within 10 years.

The EPA believes it is not reasonable to require that States should model each and every year between 2009 and 2014 in order to determine the appropriate attainment date. Modeling future year inventories is a time consuming and resource intensive process. Multiple models and pre-processors are needed in order to generate year specific emissions for the various emissions sectors (e.g. mobile, non-road, non-EGU point, EGU point, etc.). Because it is not reasonable to model every year, a logical compromise is to model a year in the middle of the period. As such, we recommend modeling an emissions year no later than 2012 as the initial extension date (which translates to a 2013 attainment date). If this modeling indicates that the area can reach attainment by 2012, then the State can futher analyze emissions and strategies to determine if the attainment date can be advanced to an earlier year. If the modeling indicates that the area cannot reach attainment by 2012, then the modeling will serve as further justification for granting a longer attainment date extension (e.g., attainment date of 2015 with modeling for 2014). In that case, additional modeling of 2014 with further emissions controls would be required in order to show attainment. Again, the State should then further analyze emissions and strategies to determine if the attainment date can be advanced to an earlier year between 2012 and 2015.

Additionally, in the discussion of air quality modeling issues in section II.E above, we discuss the benefits of addressing control strategies for multiple pollutants. Part of the challenge of multi-pollutant modeling is coordinating the future modeling years for different pollutants in order to minimize the number of required future year model runs. As part of the requirements of the 8-hour ozone implementation rule, States are currently working on modeling analyses for 2009 and in some cases for 2012 (serious nonattainment areas). For an area that cannot attain the PM2.5 NAAQS by 2010, this may be reason to select 2012 as the year to model, so that the State could conduct the modeling for both ozone and PM2.5 in tandem. This would, in some cases, allow the pooling of resources (e.g., inventories, model runs, etc.) and provide for faster development of a PM2.5 attainment demonstration.

We emphasize that when a State models later years, that this analysis must take into account potential controls that the State may previously have determined not to be RACT or RACM either because they could not implement the controls in time to meet an earlier nonattainment date (e.g., because of technological, economic, or timing reasons) or because the controls would not sufficiently advance the attainment date. For example, some reasonable measures that are impractical to implement by 2009 could be implemented by 2010, 2011 or 2012. Thus, when the State models later years, the list of potential controls should be expanded to include technically and economically feasible measures that can be implemented by the analysis year.

Selection of RACT & RACM: Based on this analysis, the State should make decisions on RACT, RACM, intrastate measures, and the attainment date that is as expeditious as practicable. Because EPA is defining RACT and RACM as only those technically and economically feasible measures that are necessary for expeditious attainment of the NAAQS , the State need not adopt all measures that are all technically and economically feasible measures The State may exclude those measures that, considered collectively, would not advance the attainment date by at least 1 year. Given the public health risks of PM2.5, we believe that the State should carefully consider a decision to forego a measure that would otherwise be RACT or RACM, and we will require that the State present an adequate rationale and technical support for exclusion of such measures. The EPA notes that States retain the authority under section 116 of the CAA to require more emission reductions, beyond what is required for RACT and RACM, and without regard to whether it would advance the attainment date.

d. Comments and responses.

Comment: A number of commenters generally supported EPA's second proposed alternative to RACT (option 2). Most of these commenters expressed concern that the other options would require the imposition of controls whether or not they were needed to attain the PM2.5 standards as expeditiously as practicable. Some State and local commenters also urged EPA to select option 2 as the best interpretation of the RACT requirement for PN 2.5 because they believe that it will be the most appropriate approach for designing attainment strategies for their particular nonattainment area or areas.

Response: The EPA agrees that these two points are important considerations. Th EPA initially believed that option 1 or option 3 would provide advantages, in that they would automatically require RACT controls on larger sources of emissions in all areas (under option 1) or on all larger sources of emissions in areas which need longer than five years from designation to attain (in the case of option 3). This might allow States to focus control efforts on such sources, to use their analytical resources to evaluate other sources, and to simplify and streamline somewhat the SIP development process. After further consideration, however, EPA has concluded that these options have at least the potential to require imposition of controls on some sources that would not strictly be necessary to attain the NAAQS expeditiously. Moreover, even under options 1 or 3, States would have had an obligation to consider the full range of sources for control under in the process of conducting a RACM analysis, so either option would not necessarily have significantly reduced the degree of analysis that many States would need to conduct under any of the options. Given the nature of the PM2.5 nonattainment problem, EPA has concluded that an interpretation that provides the maximum flexibility, coupled with the requirement of a robust analysis to justify the resulting nonattainment area plans, is a better approach.

Comment: Some commenters recommended that EPA modify proposed option 2 to include a tons-per-year threshold. Under such an approach, the States and EPA would only require RACT for sources whose emissions were above the threshold. Most of these comments recommended a RACT threshold of 100 tons per year. These commenters expressed concern that if option 2 were implemented without such a threshold, States would be burdened with conducting RACT analyses for very small sources or source categories with low emissions.

Response: The EPA believes that under the approach chosen for the final rule in which RACT is considered to be a part of the overall RACM process, it would be inappropriate to define a threshold that would apply for all types of sources and for all types of control measures in all nonattainment areas. It has not been common practice under past EPA policy to establish or use an emissions threshold when considering sources for possible emission reductions as part of a RACM analysis to show attainment as expeditiously as practicable. Indeed, many of the control technique guidelines for VOC RACT do not recommend an emissions threshold. Also, identification of a specific threshold in this rule would not be consistent with the case-by-case nature of the RACT and RACM analysis for each area. For example, an area needing significant emission reductions to attain the standards even by 2015 would likely conclude that controls should be considered on smaller sources than would be needed for a nonattainment area that exceeds the standard by only a few tenths of a microgram per cubic meter. The EPA has selected option 2 for interpretation of the RACT requirement for PM2.5, in part, specifically because that approach contemplates that States will conduct a full analysis of the full spectrum of source categories and potential controls available. To cut off such analysis at a set emissions-based cut point for all sources and all areas would therefore subvert one of the key benefits of the approach. Accordingly, EPA disagrees with comments that option 2 should include a nationally-defined threshold for the size of sources or source categories that require RACT analyses.

Comment: A number of commenters supported EPA’s first and third proposed alternative approaches to RACT (option 1 and option 3). Commenters supporting these two options used similar reasoning. Commenters cited the statutory language in section 172(c)(1) requiring that the nonattainment plan provide for “at a minimum”the adoption of RACT. Accordingly, these commenters argued that RACT is an independent, minimum requirement of nonattainment plans irrespective of the attainment demonstration and that option 2, which would not require the adoption of RACT for all sources, has no policy or legal justification. Other commenters noted that option 1 would be much easier to implement, because RACT would be defined according to technical reasonableness and would not hinge on complicated determinations involving attainment demonstrations. Some commenters argued that option 1 provides for greater equity, because similar measures would be required for similar sources for all nonattainment areas. Finally, some commenters believed that it is inherently inconsistent to assert that plans have met the requirement for attainment “as expeditiously as practicable” without applying RACT to all major sources.

Response: The EPA disagrees with these comments. The EPA believes that option 2 is fully consistent with section 172(c)(1). Section 172(c)(1) requires that nonattainment plans must provide for the implementation of RACM as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of RACT). Contrary to the commenter assertions, this language does not demonstrate that RACT is required for all sources, independent of RACM and attainment demonstrations. Moreover, this provision does not require RACT whether or not imposition of technology would advance the attainment date. Instead, section 172(c)(1) explicitly provides that RACT is included within the definition of RACM, and EPA has previously determined that the CAA only requires such RACM as will provide for expeditious attainment. (See 57 FR 13498, 13560). The courts have deferred to this interpretation and concluded that EPA has reasonably interpreted RACM as a collection of measures that would advance the attainment date. See Sierra Club v. EPA, 294 F.3d 155, 162 (D.C. Cir. 2002); see also Sierra Club v. EPA, 314 F.3d 735, 744 (5th Cir. 2002). The CAA does not "compel [ ] a State to consider whether any measure is 'reasonably available' without regard to whether it would expedite attainment in the relevant area." Sierra Club v. EPA, 294 F.3d at 162. The EPA concludes that because section 172(c)(1) establishes that RACT is a part of RACM, EPA is reasonably applying the same interpretation to the RACT requirement for PM2.5. The RACT is a part of the collection of measures that would advance the attainment date. It is thus directly related to what a specific area needs to attain the NAAQS, and available measures that would not advance the attainment date need not be implemented as part of the PM2.5 RACT requirement.

The EPA also finds that option 2 is consistent with the statutory language providing that a State must apply RACT to existing sources, “at a minimum,” to meet its requirement to apply RACM. Th EPA interprets the “at a minimum” clause to mean that the states must include, as part of RACM, RACT controls on existing stationary sources. Further, EPA believes this requirement for RACT applies to stationary sources as a group, and not to each stationary source. While a State may also chose to impose RACM on other source categories such as mobile sources, RACT controls are only required for existing stationary sources. Section 172(c)(1) requires that RACM include, at a minimum, RACT on existing stationary sources and the final rule is fully consistent with that requirement.

The EPA believes that there are sound policy reasons for choosing option 2. While an approach that provided for application of the same controls in all areas would provide for more equity across areas, EPA emphasizes that equity is only one of many factors considered by EPA when deciding between options 1, 2 and 3. The EPA believes that it is also important to ensure that control strategies focus on the most effective measures with the greatest possibility for significant air quality improvements. In addition, while EPA agrees that options 1 and 3 could provide for greater ease of implementation, this is also only one of the factors EPA considered when deciding between the proposed options. Under option 2, States have a greater burden and responsibility to identify the local strategy that is tailored to their particular air quality problem. At the same time, the States have the ability to identify the sources with the greatest impact on nonattainment and to identify a sound strategy that achieves attainment in the most sensible manner. The EPA believes that approaching RACT and RACM in this manner is consistent with the overall philosophy imbedded in the SIP program since its inception in the late 1960s and early 1970s

Comment: Some commenters believed that the proposed RACM requirement was too broad. These commenters believed that the requirement to analyze the entire "universe" of possible measures was too burdensome for States. Commenters felt this was especially true in light of the lack of federally issued CTG and ACT documents for PM2.5 and its precursors for all potential source categories.

Response: The EPA recognizes that States are implementing the PM2.5 standard for the first time, and do not have the long history and experience in implementing PM2.5 as they have in implementing the PM10 and ozone standards. Accordingly, we expect that both the States and EPA will be required to expend extra effort in developing and evaluating nonattainment plans that contain appropriate controls. Given the nature of PM2.5 and the need to address emissions of both direct PM2.5 and its precursors from a variety of sources, however, EPA cannot artificially curtail the RACM requirement solely to those sources and potential controls for which the most extensive information exists. The EPA believes that there are a number of resources available to States that provide information on potential control measure costs and emissions reductions.

EPA also intends to facilitate the sharing of information through a control measure website and other efforts. In addition, given the provisions allowing exclusion of a set of measures that collectively would not advance the attainment date by 1 year, States will likely only need to adopt an appropriate subset of the full “universe” of measures that have a potential for substantial air quality benefit, and it is likely that screening approaches will be available to demonstrate that this is the case.

Comment: One commenter asserted that EPA should not require the analysis for, or implementation of, RACT and RACM for sources throughout the entire nonattainment area, and should permit States to focus only on sources located in smaller specific “problem areas” within the nonattainment area.

Response: The EPA has designated areas nonattainment based upon analysis of the geographic area with sources that “contribute” to the violation of the NAAQS in the area, in accordance with section 107(d). These designations are based upon, among other things, a network of monitors that the State and EPA had previously agreed upon as representative of ambient air concentrations throughout the area. Additional analysis of information during the designation process indicated those areas that contributed to the violations at the violating monitor because of, among other things, the amount of emissions in such adjoining areas. Accordingly, the State in which a nonattainment area is located must evaluate the full range of sources of PM2.5 and its precursors throughout the designated nonattainment area during the development of the SIP. The EPA agrees that there are some nonattainment areas where one or a few large emissions sources may be causing localized concentrations at a monitor that are much higher than those within the remainder of the nonattainment area. For such areas, the nonattainment strategy will likely not succeed without addressing those sources. The EPA does not, however, believe it is acceptable that the nonattainment strategy focus only on those sources, because additional reductions within the nonattainment area would still have the potential to advance the attainment date. Exempting portions of the nonattainment area could expose a portion of the public residing downwind in the area to exposure to levels of PM2.5 that exceed the NAAQS for longer than necessary, and the health detriments from such exposure, merely to minimize the impact of having to impose control strategies on sources upwind. Moreover, to the extent that monitoring in one portion of a nonattainment area indicates violations in multiple portions of the area, a strategy that solely focused upon the sources in the immediate vicinity of the monitor would subvert the goal of achieving the NAAQS throughout the area. Because NAAQS violations generally reflect a combination of regional scale, metropolitan scale, and local scale impacts, and all three scales must be addressed, EPA requires RACT/RACM submittals to address sources throughout the nonattainment area.

Comment: Some commenters agreed with EPA's view that State's RACM analysis must address those measures that a State declines to adopt and must show whether the combined measures would cumulatively advance the attainment date by at least 1 year. One commenter questioned the legal basis for EPA's determination that the only controls necessary to attain the PM2.5 NAAQS as expeditiously as practicable are those that would cumulatively advance an area's projected attainment date by at least one calendar year. The commenter suggested that control measures that would advance attainment by a smaller increment “would meet the criteria endorsed in Sierra Club [Sierra Club v. EPA, 294 F.3d 155 (D.C. Cir 2002)] by ‘expedit[ing] attainment in the relevant area.’”

Response: The EPA has consistently interpreted RACM as a collection of measures that would advance the attainment date by at least 1 year, and the courts have determined that the statutory RACM requirement is ambiguous and deferred to EPA’s interpretation of the requirement. See Sierra Club. v. EPA, 314 F.3d 735, 744 (5th Cir. 2002); see also Sierra Club v. EPA, 294 F.3d, 155 162 (D.C. Cir. 2002). Contrary to the commenter’s suggestion, the court in Sierra Club v. EPA, did not endorse specific criteria for identifying control measures that expedite attainment, but instead deferred to EPA’s interpretation of an ambiguous statutory term. The courts decided to defer to EPA’s interpretation after reviewing EPA’s approval of State SIP submissions. The EPA conducts such reviews consistent with its determination that the CAA only requires such RACM as will provide for expeditious attainment, and its belief that it would be unreasonable to require implementation of measures that would not in fact advance attainment. See 57 FR 13498, 13560 (April 15, 1992); see also 44 FR 20372, 20374 (April 4, 1979). In considering whether a collection of measures would advance the attainment date of an area, EPA has previously interpreted the phrase “advance the attainment date” as meaning that the attainment date would be advanced by at least 1 year. See e.g., 66 FR 57160, 57182 (Nov. 14, 2001) (approval of Houston SIP); 66 FR 586 (Jan 3. 2001) (approval of DC area SIP). Further, EPA’s use of a one-year increment in determining whether a collection of measures would advance the attainment date is reasonable and consistent with the fact that all areas will be designing attainment demonstrations for the annual PM2.5 standard. Section 172(a)(2)(C) statute uses 1 year as the increment by which attainment date extensions can be granted. Thus, requiring evaluation of whether control measures would advance attainment by an increment of 1 year is a reasonable approach for the PM2.5 NAAQS.

Comment: Some commenters recommended that EPA consider not requiring a RACM analysis for areas projected to attain the standards within 5 years of designation, i.e., by April 2010 for the areas currently designated nonattainment. One commenter suggested that practical considerations would make it impossible for any State projected to attain by 2010 to advance the attainment date by a year. This commenter noted that because measures to provide for attainment by 2010 must be implemented by the beginning of 2009, and SIPs are not submitted until April 2008, it would impossible to advance the implementation of measures by 1 year (that is, the beginning of 2008).

Response: The EPA generally agrees that given the time constraints will be difficult for States with areas currently designated nonattainment to devise, adopt, and implement RACM measures to advance the attainment date before 2010. At the same time, however, we note that nothing precludes States from taking early action and we encourage States to take actions to reduce PM2.5 concentrations where feasible even before the SIPs are submitted. RACM is required by the CAA and thus EPA cannot waive the requirement for the analysis and the expeditious implementation of measures that will advance attainment in the area, although a streamlined analysis may be appropriate given the short time periods involved.

3. Observations and considerations in determining RACT and RACM

a. Background.

The preamble to the proposed rule included a discussion of general considerations for RACT (70 FR 66020 and 66021, latter part of section III.I.6) and RACM (70 FR 66028, section III.1.15). The preamble to the final rule retains this discussion with some modifications and restructuring to reflect the combined approach to RACT and RACM

b. Final rule.

General considerations. Once the State has identified measures and technologies that are available for implementation in the nonattainment area, then it must evaluate those measures to determine whether implementation of such measures would be technically and economically feasible, and would collectively advance attainment. Many of the factors that the State should take into consideration in determining technical and economic feasibility are described in sections F.4 and F.5 below. Since RACM applies to area and mobile sources as well as stationary sources, the State should consider other factors as well in conducting its RACM analysis. For example, in many cases obtaining emissions reductions from area and mobile sources is achieved not by adding control technology to a specific emissions source, but by reducing the level of activity of a fleet of vehicles or by modifying a type of commercial process. In these situations, the State should also consider local circumstances such as infrastructure, population, or workforce and the time needed to implement the measure in light of the attainment date.

The EPA believes that while areas projected to attain within 5 years of designation as a result of existing national measures should still be required to conduct a RACT and RACM analysis, such areas may be able to conduct a limited RACT and RACM analysis that does not involve additional air quality modeling. A limited analysis of this type could involve the review of available reasonable measures, the estimation of potential emissions reductions, and the evaluation of the time needed to implement these measures. If the State could not achieve significant emissions reductions by the beginning of 2008 due to time needed to implement reasonable measures or other factors, then it could be concluded that reasonably available local measures would not advance the attainment date. In lieu of conducting air quality modeling to assess the impact of potential RACT and RACM measures, existing modeling information could be considered in determining the magnitude of emissions reductions that could significantly affect air quality and potentially result in earlier attainment. If the State, in consultation with EPA, determines from this initial, more limited RACT and RACM analysis that the area may be able to advance its attainment date through implementation of reasonable measures, then the State must conduct a more detailed RACT and RACM analysis, involving air quality modeling analyses, to assess whether it can advance the attainment date.

Observations on control opportunities. The implementation of the $PM_{2.5}$ NAAQS is in its initial stages, and many of the designated $PM_{2.5}$ nonattainment areas are not current or former PM_{10} nonattainment areas. Thus, some existing stationary sources in these areas may currently be uncontrolled or undercontrolled for PM2.5 or PM2.5 precursors. Further, to this point in time, emissions controls for existing sources in these areas may have focused primarily on particulate matter that is filterable at stack temperatures and thus may not adequately control condensable emissions. In addition, States should bear in mind that the controlled sources may have installed emission controls 15 years ago or more, and there may now be cost-effective opportunities available to reduce emissions further through more comprehensive and improved emissions control technologies, or through production process changes that are inherently lower in emissions.

Moreover, improved monitoring methods may enhance the ability of sources to maintain the effectiveness of installed emissions controls and to reduce emissions by detecting equipment failures more quickly. For example, State imposition of requirements for more frequent monitoring (e.g., continuous opacity monitors, PM continuous emissions monitors, etc.) may provide greater assurance of source compliance and quicker correction of inadvertent upset emissions conditions than existing approaches.

Even in former or current PM_{10} nonattainment areas, existing requirements for controlling direct PM emissions (e.g., with a baghouse or electrostatic precipitator) may not have been revised significantly since the 1970's. When EPA established the PM_{10} standards in 1987, we stated in the preamble that it was reasonable to assume that control technology that represented RACT and RACM for total suspended particulates (TSP) should satisfy the requirement for RACT and RACM for PM_{10}. 52 FR 24672 (July 1, 1987). The basis for EPA's belief was that controls for PM_{10} and TSP would both focus on reducing coarse particulate matter, and specifically that fraction of particulate matter that is solid (rather than gaseous or condensable) at typical stack temperatures. However, emission controls to capture coarse particles in some cases may be less effective in controlling $PM_{2.5}$. For this reason, there may be significant opportunities for sources to upgrade existing control technologies[12] and compliance monitoring methods to address direct PM emissions contributing to fine particulate matter levels with technologies that have advanced significantly over the past 15 years.

[12] For example, see past EPA guidance on $PM_{2.5}$ control technologies: Stationary Source Control Techniques Document for Fine Particulate Matter (EPA-452/R-97-001), EPA Office of Air Quality Planning and Standards, October 1998.

Precursor Controls. It will be important for States to conduct RACT and RACM determinations for stationary sources of $PM_{2.5}$ precursors as well as direct $PM_{2.5}$ emissions. A significant fraction of $PM_{2.5}$ mass in most areas violating the standards is attributed to secondarily-formed components such as sulfate, nitrate, and some organic PM, and EPA believes that certain stationary sources of precursors of these components in nonattainment areas currently may be poorly controlled. Accordingly, to address these precursors, States should review existing sources for emission controls or process changes that could be reasonably implemented to reduce emissions from activities such as fuel combustion, industrial processes, and solvent usage.

Multi-State nonattainment areas. States in multi-State nonattainment areas will need to consult with each other on appropriate level of RACT and RACM for that area. We anticipate that States may decide upon RACT and RACM controls that differ from State to State, based upon the State's determination of the most effective strategies given the relevant mixture of sources and potential controls in the relevant nonattainment areas. So long as each State can adequately demonstrate that its chosen RACT and RACM approach will provide for meeting RFP requirements and for attainment of the NAAQS as expeditiously as practicable for the nonattainment area at issue, we anticipate approving plans that may elect to control a somewhat different mix of sources or to implement somewhat different controls as RACT and RACM. Nevertheless, States should consider and address RACT and RACM measures developed for other areas or other States as part of a well reasoned RACT and RACM analysis. The EPA’s own evaluation of State SIPs for compliance with the RACT and RACM requirements will include comparison of measures considered or adopted by other States.

c. Comments and Responses

Comment: In the proposed rule, EPA indicated that States could consider the “social acceptability” of measures as a factor in the determination of what constitutes RACM in a given area. A number of commenters recommended that EPA eliminate use of this factor. Some commenters questioned whether States or EPA had the legal authority to exclude measures from consideration based on social acceptability or popularity, if the measures are technically and economically available , and are needed to attain the NAAQS for protection of public health. Others expressed concerns that inclusion of such a factor would inevitably result in the elimination of controls for area and mobile sources and for this reason would unfairly focus emissions reduction strategies on industrial sources of PM2.5 and precursors.

Response: The EPA believes that in developing RACM measures, it is important that States not rely unduly on measures that would be very difficult to achieve enforce in practice. The EPA's intent was to discourage States from relying on measures that on paper may seem reasonably available but in practice might fail to achieve benefits due to resistance to implementing the measures. However, we recognize that the CAA does not identify "social acceptability" as a factor in the definition of what may constitute RACT or RACM, and more generally the CAA does not establish a preference for measures that affect industrial sources instead of the general public and are therefore more likely to be "socially acceptable." Therefore, given the concerns raised by commenters that establishment of "social acceptability" as a factor in the

RACM analysis is without basis in the CAA and might result in inappropriate skewing of control strategies, we have removed this term from the final rule. We reiterate, however, that capability of effective implementation and enforcement are relevant considerations in the RACM analysis, even though public “unpopularity” is not. Moreover, in assessing the efficacy of measures and the credit they should be given in the context of attainment demonstrations or RFP calculations, EPA believes that such considerations are important.

4. What factors should States consider in determining whether an available control technology or measure is technically feasible?

a. Background.

In the preamble to the proposed rule, EPA included guidance for States to consider in determining whether an available control technology is technologically feasible. We include this guidance in this preamble as well.

b. Final Rule.

The technological feasibility of applying an emission reduction method to a particular source should consider factors such as the source’s process and operating procedures, raw materials, physical plant layout, and any other environmental impacts such as water pollution, waste disposal, and energy requirements. For example, the process, operating procedures, and raw materials used by a source can affect the feasibility of implementing process changes that reduce emissions and the selection of add-on emission control equipment. The operation and longevity of control equipment can be significantly influenced by the raw materials used and the process to which it is applied. The feasibility of modifying processes or applying control equipment also can be influenced by the physical layout of the particular plant. The space available in which to implement such changes may limit the choices and will also affect the costs of control.

Reducing air emissions may not justify adverse affecting other resources by increasing pollution of bodies of water, creating additional solid waste disposal problems or creating excessive energy demands. An otherwise available control technology may not be reasonable if these other environmental impacts cannot reasonably be mitigated. For analytic purposes, a State may consider a $PM_{2.5}$ control measure technologically infeasible if, considering the availability (and cost) of mitigating adverse impacts of that control on other pollution media, the control would not, in the State's reasoned judgment, provide a net benefit to public health and the environment. In many instances, however, $PM_{2.5}$ control technologies have known energy penalties and adverse effects on other media, but such effects and the cost of their mitigation are also known and have been borne by owners of existing sources in numerous cases. Such well-established adverse effects and their costs are normal and assumed to be reasonable and should not, in most cases, justify rejection of the potential $PM_{2.5}$ control technology. The costs of preventing adverse water, solid waste and energy impacts will also influence the economic feasibility of the $PM_{2.5}$ control technology.

The EPA recommends that States evaluate alternative approaches to reducing emissions of particulate matter by reviewing existing EPA guidance[13] and other sources of

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[13] Stationary Source Control Techniques Document for Fine Particulate Matter (EPA-452/R-97-001), EPA Office of Air Quality Planning and Standards, October 1998. See also: Controlling SO_2 Emissions: A Review of Technologies (EPA/600/R-00/093), EPA Office of Research and Development, November 2000.

control technology information. Th EPA's 1998 guidance presents information on topics such as the design, operation and maintenance of general particulate matter control systems such as electrostatic precipitators, fabric filters, and wet scrubbers. The filterable particulate matter collection efficiency of each system is discussed as a function of particle size. The guidance document also provides informatino concerning other relevant considerations such as energy and environmental considerations, procedures for estimating costs of particulate matter control equipment, and evaluation of secondary environmental impacts. Because control technologies and monitoring approaches are constantly being improved, the State should also consider more updated or advanced technologies not referenced in this 1998 guidance when conducting a RACT determination. Emissions reductions may also be achieved through the application of monitoring and maintenance programs that use critical process and control parameters to verify that emission controls are operated and maintained so that they more continuously achieve the level of control that they were designed to achieve.[14]

c. Comments and Responses

Comment: One commenter noted that the guidance for “technical feasibility” implies that States look at individual sources with a BACT-like case-by-case analysis. The commenter recommended that source owners conduct such a site-specific analysis and submit the analysis to the State through the permitting process.

Response: Where States wished to require source owners to conduct such a site-specific analysis as part of the control technology review, EPA supports this type of process. On the other hand, EPA does not believe it would be appropriate to require all RACT-eligible sources to conduct such an analysis, given that States have the primary responsibility for identifying and analyzing measures for such sources.

5. What factors should States consider in determining whether an available control technology or measure is economically feasible?

[14] See EPA’s website for more information: http://www.epa.gov/ttn/emc/monitor.html.

a. Background.

In the preamble to the proposed rule, EPA included guidance for States to consider in determining whether an available control technology is economically feasible for purposes of identifying reasonably available control measures. We include this guidance in this preamble as well, with modifications.

b. Final Rule.

Economic feasibility considers the cost of reducing emissions and the difference between the cost of the emissions reduction approach at the particular source and the costs of emissions reduction approaches that have been implemented at other similar sources. Absent other indications, EPA presumes that it is reasonable for similar sources to bear similar costs of emissions reduction. Economic feasibility for RACT purposes is largely determined by evidence that other sources in a source category have in fact applied the control technology or process change in question. Of course, EPA also encourages the development of innovative measures not previously employed which may also be technically and economically feasible.

The capital costs, annualized costs, and cost effectiveness of an emissions reduction technology should be considered in determining whether a potential control measure is reasonable for an area or State. One available reference for calculating costs is the EPA Air Pollution Control Cost Manual,[15] which describes the procedures EPA uses for determining these costs for stationary sources. The above costs should be determined for all technologically feasible emission reduction options. States may give substantial weight to cost effectiveness in evaluating the economic feasibility of an emission reduction technology. The cost effectiveness of a technology is its annualized cost ($/year) divided by the emissions reduced (i.e., tons/year) which yields a cost per amount of emission reduction ($/ton). Cost effectiveness provides a value for each emission reduction option that is comparable with other options and other facilities

With respect to a given pollutant, a measure is likely to be reasonable if it has a cost per ton similar to other measures previously employed for that pollutant. In

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[15] EPA Air Pollution Control Cost Manual - Sixth Edition (EPA 452/B-02-001), EPA Office of Air Quality Planning and Standards, Research Triangle Park, NC, Jan 2002.

addition, a measure is likely to be reasonable from a cost effectiveness standpoint if it has a cost per ton similar to that of other measures needed to achieve expeditious attainment in the area within the act's time frames.

The fact that a measure has been adopted or is in the process of being adopted by other states is an indicator (though not a definitive one) that the measure may be technically and economically feasible for another State. We anticipate that States may decide upon RACT and RACM controls that differ from State to State, based on the State's determination of the most effective strategies given the relevant mixture of sources and potential controls in the relevant nonattainment areas, and differences in difficulty attaining expeditiously. Nevertheless, States should consider and address RACT and RACM measures developed for other areas or other States as part of a well reasoned RACT and RACM analysis. The EPA's own evaluation of State SIPs for compliance with the RACT and RACM requirements will include comparison of measures considered or adopted by other States.

In considering what level of control is reasonable, EPA is not proposing a fixed dollar per ton cost threshold for RACT, consistent with the views of multiple commenters. Areas with more serious air quality problems typically will need to obtain greater levels of emissions reductions from local sources than areas with less serious problems, and it would be expected that their residents could realize greater health benefits from attaining the standard. For these reasons, we believe that it will be reasonable and appropriate for areas with more serious air quality problems and higher design values to impose emission reduction requirements with generally higher costs per ton of reduced emissions than the cost of emissions reductions in areas with lower design values. In addition, where essential reductions are more difficult to achieve (e.g., because many sources are already controlled), the cost per ton of control may necessarily be higher.

We believe that in determining appropriate emission control levels, the State should consider the collective health benefits that can be realized in the area due to projected improvements in air quality. The health benefits associated with reducing $PM_{2.5}$ levels are significant. Using estimation techniques reviewed and deemed reasonable by the National Academy of Sciences, national monetized health benefits resulting from reductions in PM concentrations are estimated to exceed emission control costs by a factor of three to thirty times, depending on the particular controls on sources of PM and precursor emissions.[10] This approach is consistent with EPA's selection of option 2 for the interpretation of the RACT requirement for PM2.5, i.e., that RACT is related to what is needed for attainment. That is, because EPA concludes that RACT requirement will be met where the State demonstrates timely attainment, and areas with more severe air quality problems typically will need to adopt more stringent controls, RACT level controls in such areas will require controls at higher cost effectiveness levels ($/ton) than areas with less severe air quality problems.

It is not appropriate to assume that the same cost per ton range is reasonable for direct PM2.5 and different precursors, because an equal amount of emission reduction in different pollutants has a different impact on PM2.5 ambient levels. For example, in a given nonattainment

[10] U.S. EPA, 2003 Technical Support Package for Clear Skies; U.S. EPA, 2003. See also: Draft Regulatory Impact Analysis: Control of Emissions from Nonroad Diesel Engines. United States Environmental Protection Agency Office of Air and Radiation EPA420-R-03-008, April 2003.

area, reductions of direct PM2.5 emissions may prove more expensive than reductions of Nox emissions, but the resulting benefits of reductions of direct PM2.5 might warrant the higher costs. A State should consider this differential impact on ambient PM2.5 in considering the cost per ton that is reasonable for controlling different pollutants. During the SIP process, States and regional planning organizations typically conduct sensitivity modeling that can provide this information. Also, the forthcoming PM NAAQS RIA will provide information on the differential impact of PM2.5 and PM precursor reductions on ambient PM2.5 levels in various areas.

In identifying the range of costs per ton that are reasonable, information on benefits per ton of emission reduction can be useful as one factor to consider. The PM NAAQS RIA will provide information on the estimated benefits per ton of reducing direct PM2.5 and PM precursors from various sectors in several analyzed areas. It should be noted that such benefits estimates are subject to significant uncertainties, and that benefits per ton vary in different areas. Nonetheless this information could be used in a way that recognizes uncertainties. If a per ton for a measure is significantly less than the anticipated benefits per ton, this would be an indicator that the cost per ton is reasonable.

If a source contends that a source-specific RACT level should be established because it cannot afford the technology that appears to be RACT for other sources in its source category, the source should support its claim with detailed and verified information regarding the impact of imposing RACT on:

-- fixed and variable production costs ($/unit),

-- product supply and demand elasticity,

-- product prices (cost absorption vs. cost pass-through),

-- expected costs incurred by competitors,

-- company profits, and

-- employment costs.

c. Comments and Responses.

Comment: Some commenters agreed with EPA’s proposal not to establish presumptive cost-effectiveness thresholds.

Response: The EPA agrees with the commenters.

Comment: A number of commenters expressed concerns over the references to health benefits as a consideration in whether measures are technically or economically available. Some commenters believed this is a consideration not authorized by the CAA. Others believed that consideration of benefits, in combination with EPA's estimates of benefits per ton, would have the effect of converting RACT to more stringent LAER levels. Some commenters expressed concerns whether States had the resources or expertise to conduct cost-benefit analyses for this purpose.

Response: The EPA wishes to clarify that the reference to health benefits does not mean that a cost-benefit, or a detailed health benefits assessment, is a necessary part of a control strategy demonstration. We also wish to clarify that EPA is not requiring that the costs of all technologies and measures for PM2.5 and precursors be deemed acceptable at any dollar/ton levels at or below the calculated monetized benefits per ton of reduction. We do, however, continue to believe that whether PM2.5 ambient reductions generally lead to very high monetized benefits is a relevant consideration in control strategy development. We believe that the general level of benefits is something States and the public should consider when making decisions on whether to pursue control measures and technologies. The EPA disagrees that this limited consideration of benefits would convert the RACT process to the equivalent of LAER. This would perhaps be theoretically possible if RACT were an entirely independent analysis separate from the attainment demonstration, and EPA took the position that all measures less than a bright-line monetized benefits cutoff must be selected.

Because RACT, as structured in the final rule, is inherently linked to the attainment demonstration, and because as clarified above, the benefits estimates are not to be used as a “bright line,” we disagree that use of these benefits estimates could even theoretically convert RACT to LAER.

Comment: One commenter objected to EPA’s proposed requirement that States consider competitive factors such as production costs, demand elasticity, product prices, and cost incurred by competitors in the determination of RACT. The commenter believed that this information is generally not accessible to States or industrial facility owners, and is not necessary for a RACT determination.

Response: The EPA generally disagrees that this type of information is unavailable. For example, EPA calculates or reviews this type of data on a regular basis as part of our work on MACT, NSPS, and other emissions standards. A document that describes these types of analyses and the data used to prepare them is the OAQPS Economic Resource Manual found at http://www.epa.gov/ttn/ecas/analguid.html. EPA believes that this issue is most relevant to category-wide RACT rules where a source seeks a case-by-case exemption. Further, EPA believes most RACT determinations will be developed through case-by-case analyses rather than rules affecting entire source categories. Accordingly, this analysis will be required in relatively few cases.

6. What specific source categories and control measures should a State evaluate when determining RACT and RACM for a nonattainment area?

a. Background.

Section 172 does not provide a specific list of source categories and control measures that must be evaluated for RACT and RACM for $PM_{2.5}$. However, section 172(c)(3) indicates that the nonattainment area plan must include a "comprehensive, accurate, current, inventory of actual emissions from all sources of the relevant pollutant." This indicates that States should look broadly at all types of sources in the nonattainment area. We recognize that PM2.5 is a new NAAQS without a long history of implementation as with ozone. Therefore, we included a list of potential RACM measures in the preamble to the proposed rule, based upon a review of information about the contribution of various sources to emissions inventories and a review of potential control measures for such sources. We requested comment on the specific sources and potential control measures recommended for RACM analysis on this list. Based on comments received and additional information available to EPA since the proposal, we have made some changes to the list. We also refer to this list of potential "RACT and RACM" measures for the combined approach to RACT and RACM in the final rule.

In the preamble to the proposed rule, EPA indicated that due to the short time available, it does not plan to develop new control techniques guidance (CTG) or ACT documents specifically for purposes of PM2.5 implementation. The EPA indicated that other information was available on control technologies, and EPA also indicated its intention to maintain an updated list of references for new PM2.5 control technology information.

b. Final rule.

Emission reduction measures constituting RACM should be determined on an area-by-area basis. We believe that a State should consider each of the measures listed in this section to determine if each measure is reasonably available in the applicable nonattainment area. However, we do not presume that each of these measures is reasonably available in each nonattainment area.

We recommend that each State use the list of source categories in this section as a starting point for identifying potentially available control strategies for a nonattainment area. States are encouraged and expected to add other potentially available measures to the list based on its knowledge of the particular universe of emissions sources in the area and comments from the general public. We expect that, depending on the potential measure being analyzed, the State's degree of evaluation will vary as appropriate. Detailed information on emission control technologies is available from a number of sources.[16] EPA intends to maintain a website with links to sources of information for controlling emissions of direct particulate matter and PM precursors.

As discussed in section II.J.5. above, EPA recognizes that control technology guidance for certain source categories has not been updated for many years. Section 183(c) of the CAA, which addresses control technologies to address ozone nonattainment problems, requires EPA to "revise and update such documents as the Administrator determines necessary." As new or updated information becomes available States should consider the new information in their RACT determinations. A State should consider the new information in any RACT determinations or

[16] There are a number of sources of information on technologies for reducing emissions of PM and its precursors, including: Stationary Source Control Techniques Document for Fine Particulate Matter (EPA-452/R-97-001), EPA Office of Air Quality Planning and Standards; STAPPA and ALAPCO Controlling Fine Particulate Matter Under the Clean Air Act: A Menu of Options; Control Measures "White Papers" from the Lake Michigan Air Directors Consortium (www.ladco.org); New Jersey "Reducing Air Pollution Together" workgroups (http://www.nj.gov/dep/airworkgroups/); California SB 656 Program to identify available PM measures (http://www.arb.ca.gov/pm/pmmeasures/pmmeasures.htm).

certifications that have not been issued by the State as of the time such updated information becomes available.

Stationary source measures

- Stationary diesel engine retrofit, rebuild or replacement, with catalyzed particle filter
- New or upgraded emission control requirements for direct $PM_{2.5}$ emissions at stationary sources (e.g., installation or improved performance of control devices such as a baghouse or electrostatic precipitator; revised opacity standard; improved compliance monitoring methods)
- Improved capture of particulate emissions to increase the amount of PM2.5 ducted to control devices, and to minimize the amount of PM2.5 emitted to the atmosphere, for example, through roof monitors
- New or upgraded emission controls for $PM_{2.5}$ precursors at stationary sources (e.g., SO_2 controls such as wet or dry scrubbers, or reduced sulfur content in fuel; desulfurization of coke oven gas at coke ovens; improved sulfur recovery at refineries; increasing the recovery efficiency at sulfuric acid plants)

- Energy efficiency measures to reduce fuel consumption and associated pollutant emissions (either from local sources or distant power providers)

- Measures to reduce fugitive dust from industrial sites

Mobile source measures

- Onroad diesel engine retrofits for school buses,[11] trucks and transit buses using EPA-verified technologies

- Nonroad diesel engine retrofit, rebuild or replacement, with catalyzed particle filter[12]

- Diesel idling programs for trucks, locomotive, and other mobile sources[13]

- Transportation control measures (including those listed in section 108(f) of the CAA as well as other TCMs), as

[11] See Clean School Bus USA program at http://www.epa.gov/cleanschoolbus/. See also: AWhat You Should Know About Diesel Exhaust and School Bus Idling", (June 2003, EPA420-F-03-021) at http://www.epa.gov/otaq/retrofit/documents/f03021.pdf.

[12] See EPA's voluntary diesel retrofit program web site at http://www.epa.gov/otaq/retrofit/overfleetowner.htm.

[13] See EPA's voluntary diesel retrofit program web site at http://www.epa.gov/otaq/retrofit/idling.htm.

well as other transportation demand management and transportation systems management strategies[14]

- Programs to reduce emissions or accelerate retirement of high emitting vehicles, boats, and lawn and garden equipment
- Emissions testing and repair/maintenance programs for onroad vehicles
- Emissions testing and repair/maintenance programs for nonroad heavy-duty vehicles and equipment[15]
- Programs to expand use of clean burning fuels
- Prohibitions on the sale and use of diesel fuel that exceeds a high sulfur content
- Low emissions specifications for equipment or fuel used for large construction contracts, industrial facilities, ship yards, airports, and public or private vehicle fleets
- Opacity or other emissions standards for "gross-emitting" diesel equipment or vessels
- Reduce dust from paved and unpaved roads

Area source measures

[14] See EPA's website on transportation control measures at http://www.epa.gov/otaq/transp/traqtcms.htm.

[15] See EPA's web site on nonroad engines, equipment, and vehicles at http://www.epa.gov/otaq/nonroad.htm.

- New open burning regulations and/or measures to improve program effectiveness such as programs to reduce or eliminate burning of land clearing vegetation
- Smoke management programs to minimize emissions from forest and agricultural burning activities
- Programs to reduce emissions from woodstoves and fireplaces including outreach programs, curtailments during days with expected high ambient levels of PM2.5, and programs to encourage replacement of woodstoves when houses are sold
- Controls on emissions from charbroiling or other commercial cooking operations
- Reduced solvent usage or solvent substitution (particularly for organic compounds with 7 carbon atoms or more, such as toluene, xylene, and trimethyl benzene)
- Reduce dust from construction activities and vacant disturbed areas

Category- Specific Guidelines on innovative approaches. The EPA has issued a number of category specific guidelines on approaches to taking into account innovative approaches to emissions reductions for purposes of SIPs. Categories currently covered by these guidelines include: (1) Electric-sector Energy Efficiency and Renewable Energy Measures (2) Long Duration Switch Yard Locomotive Idling (3) Long Duration Truck Idling (4) Clean Diesel Combustion Technology (5) Commuter Choice Programs. See http://www.epa.gov/ttn/airinnovations/measure_specific.html

c. Comments and Responses

Comment: Some commenters recommended that EPA provide new CTGs or other control technology review documents for purposes of assisting States to address PM2.5 and its precursors, because the information in some current documents is out-dated.

Response: The EPA recognizes that issuance of new or updated CTGs specifically tailored for PM2.5 would be useful. Unfortunately, limitations on time and resources preclude EPA from developing such CTGs in advance of the SIP submission date. The EPA cannot delay the statutorily specified outer date for SIP submission. However, EPA believes that there are already many sources of information and guidance on key source categories. To the extent that States need to examine potential control measures for sources never addressed before in any area or other context for a previous NAAQS, EPA anticipates that it will work closely with States during the process of plan development and approval to ensure an appropriate approach.

Comment: A number of commenters expressed concerns with references to the STAPPA and ALAPCO Menu of Options document. Some commenters believed that this document must be subject to formal review and comment to ensure appropriate stakeholder input.

Response: The EPA believes that the Menu of Options update contains control technology information that States may wish to consider in developing their PM2.5 SIPs. The purpose of the document was to develop "opportunities" for control through a "menu of options" for States to consider. As the document notes, States will need to assess which items on the menu are applicable in their areas, and will have to assess the costs of applying controls locally. Accordingly, there should be ample opportunity for public review of the State's analysis of the local cost and air quality impacts of any measure listed in the document which is included in a State's SIP. The EPA is not requiring that States adhere to the list of measures in the Menu of Options. The EPA does not in any way mean to imply that the measures in the Menu of Options are presumed to be RACM, merely that they are potential controls for areas to consider. The Menu of Options has no regulatory significance and thus need not be issued through notice-and-comment rulemaking. The EPA notes, however, that the Menu of Options does provide a comprehensive list of potential sources and measures that should help inform States in the development of their plans. Similarly, our own list of potential measures is not intended to be a categorical list of measures which States must adopt, rather it is intended to provide guidance about the types of sources and measures that States should consider in constructing their nonattainment area plans. The EPA emphasizes that whether a source category or potential measure is or is not on this list is simply not dispositive as to whether a given measure should be required to meet the RACT and RACM requirement. That can be determined only through the State's development of the nonattainment plan, and EPA's evaluation of such plan.

Comment: A commenter representing the paper industry interpreted the proposed rule as requiring electrostatic precipitator and tighter sulfur-in-fuel requirements for the forest products industry. The commenter believed that EPA was creating limits for such without adequate rulemaking process.

Response: The EPA disagrees that the listing of control technologies in the table in the rule creates a "rebuttable presumption." Rather, the table identifies potential opportunities for emissions reductions which should be reviewed in light of technical and economic feasibility, and which a State should consider in a list of possible RACT and RACM measures for purposes of attaining the standards as expeditiously as practicable. The EPA is currently conducting a sector-based approach to the paper industry. One of the goals of the sector initiative on pulp and paper is to work with the industry to identify reductions in SO2 and PM2.5 that will assist us in meeting the NAAQS, considering facility locations, magnitude of emissions, emission stream characteristics, and cost effectiveness of controls.

Comment: A number of commenters believed that EPA should develop not only a list of measures to consider for RACM, but should develop a list of mandatory measures that

States should include, particularly for areas with attainment dates more than 5 years after designation.

Response: See discussion in section II.D.3 regarding rule requirements for attainment date extensions and the issue of whether certain measures should be mandatory in order for an area to receive an extension.

Comment: Some commenters believed that the list of possible measures was deficient in not including sources of PM2.5 and PM2.5 precursors from agricultural sources. One commenter believed the list is incomplete without identifying the contribution of ammonia emissions associated with livestock, poultry, and crop fertilizers.

Response: The EPA agrees that measures have been identified for reducing emissions of PM2.5 and other pollutants from agricultural operations. Substantial activity is underway to better characterize emissions and contributions to ambient levels from agricultural activities. For example, a number of air quality topics related to agriculture as discussed on EPA's website at http://www.epa.gov/agriculture/tair.html. The EPA's list of potential measures is not intended to be an exhaustive list of measures for States to consider, and States should evaluate all measures with potential for reasonable control of emissions that are significant in their areas.

Since 2003, EPA and many stakeholders have been interested in developing a framework to enable CAFOs to pursue superior environmental performance across all media. We are aware that today some CAFOs voluntarily conduct whole-farm audits to evaluate releases of pollutants to all media through Environmental Management Systems, self-assessment tools, performance track, ISO 14001 certification, and State-approved trade offs in meeting regulatory thresholds between air and water that accomplish the best overall level of environmental protection given State and local conditions.   The EPA continues to believe the development of new and emerging technologies offers the potential to achieve equivalent or greater pollutant reductions than achieved by the solely effluent guidelines and standards. Many of these are superior from a multimedia perspective, and EPA would like to encourage superior multimedia solutions. SIPs which need to address ammonia may provide a unique opportunity to encourage multimedia approaches at CAFOs. For example, the addition of animal by-products provides a valuable source of nutrients for crops, improves soil structure which enhances soil permeability, and adds valuable organic matter that improves soil health. However, inappropriate application can lead to air and water quality concerns or the improvement of one media at the cost of another. Optimal application technologies and rates reduce potential air and water quality standards violations. The EPA does not want to discourage approaches that are superior from a cross media perspective.

The EPA notes that during the SIP development process at the State level, members of the public can recommend measures for the State to consider, and that this will obligate the State to investigate such controls to determine if they should be RACT or RACM in a given area. Through this process, EPA anticipates that States with areas that should implement such measures will do so. Further discussion regarding ammonia is provided in section II.A. above regarding precursors.

7. How should States consider EGU reductions for CAIR in meeting RACT and RACM requirements?

a. Background.

In section III.I.11 of the proposed rule, we discussed electric generating unit (EGU) sources in states subject to the CAIR emission reduction requirements and the nature of their obligation to implement RACT for SO_2 and NO_x emissions. The CAIR rulemaking was finalized in March 2005 and published at 70 FR 25221 (May 12, 2005). CAIR requires 28 states and the District of Columbia to significantly reduce emissions of SO_2 and/or NO_x. The 26 jurisdictions in the CAIR $PM_{2.5}$ region are required to reduce annual emissions of SO_2 and NO_x, and the 26 jurisdictions in the CAIR ozone region are required to reduce seasonal emissions of NO_x. These jurisdictions also have the option of participating in EPA-administered annual SO_2, annual NO_x, and seasonal NO_x cap-and-trade programs (the CAIR trading programs) to meet these emission reduction requirements. In addition, in March 2006, EPA promulgated a Federal implementation plan (FIP) to implement CAIR in these jurisdictions until they have EPA approved CAIR SIPs in place (71 FR 25328, April 28, 2006). The FIP adopts, as the control measure, the CAIR trading programs slightly modified to allow for Federal instead of State implementation. When fully implemented, CAIR will reduce SO_2 emissions in these jurisdictions by over 70 percent and NOx emissions by over 60 percent from 2003 levels. This will result in $85 to $100 billion in health benefits and nearly $2 billion in visibility benefits per year by 2015 and will substantially reduce premature mortality in the eastern United States. The benefits will continue to grow each year with further implementation.

Sources subject to cap-and-trade programs such as the CAIR trading programs generally have the option of installing emissions control technology, adopting some other strategy to reduce emissions, or purchasing emissions allowances and thereby effectively paying other sources covered by the cap to reduce emissions. In the proposal, we noted that a number of EGUs expected to be covered by the CAIR trading programs are located in nonattainment areas. Based on emissions projections for 2010 and 2015 using the Integrated Planning Model (IPM), some of these EGUs are expected to comply with CAIR by purchasing allowances under the trading program and some are expected to comply by installing emission controls.

The proposal also described our past experience with the implementation of the NOx SIP Call and our belief that many power companies will develop their strategies for complying with CAIR based, in part, on consultations with State and local air quality officials in order to address local PM2.5 and ozone attainment planning needs. The EPA suggested that consultations on location of CAIR controls would be timely during State development of the CAIR SIP, which is due in 2006, prior to the April 2008 deadline for submitting PM2.5 nonattainment area SIPs.

The EPA proposed a determination that in states that fulfill their CAIR SO2 emission reductions entirely through EGU emission reductions (i.e. without reductions from non-EGU sources or allowing non-EGU sources to opt-in to the CAIR SO2 trading program), participation in the CAIR SO2 trading program would satisfy the SO2 RACT requirement for the EGU sources. The EPA also proposed that in states that fulfill their CAIR NOx emission reductions entirely through EGU emission reductions, CAIR would satisfy NOx RACT for the EGU sources, provided that those sources with existing selective catalytic reduction (SCR) emission control technology installed on their boilers operate that technology on a year-round basis beginning in 2009. Note that direct PM2.5 emissions are not addressed by the CAIR program, and EPA did not propose any determination that compliance with CAIR would satisfy RACT for direct PM2.5 emissions. The proposal included a discussion of the rationale for these proposed determinations for SO2 and NOx, and requested comments on the issue.

b. Summary of final rule.

Based on consideration of the public comments received, the final rule maintains the determinations for SO2 and NOx RACT as described in the proposal, and clarifies that, consistent with the SO2 RACT determination, the NOx RACT determination for PM2.5 may be relied upon by states subject to CAIR annual NOx and SO2 emission reduction requirements (i.e. all states in the CAIR PM2.5 region), that achieve all annual CAIR NOx reductions from EGUs.

Section 51.1010 of the final rule provides that in States that fulfill their CAIR SO2 emission reduction requirements entirely through EGU emission reductions (i.e. without reductions from non-EGU sources or allowing non-EGU sources to opt in to the CAIR SO2 trading program), compliance by EGU sources with an EPA-approved CAIR SIP or a CAIR FIP would satisfy the SO2 RACT requirement for the sources. This section also provides that in States that are subject to CAIR annual NOx emission reduction requirements and fulfill these requirements entirely through EGU emission reductions (i.e. without reductions from non-EGU sources or allowing non-EGU sources to opt in to the CAIR annual NOx trading program), compliance by EGU sources with an EPA-approved CAIR SIP or a CAIR FIP would satisfy the NOx RACT requirement for the sources, provided that the sources with existing selective catalytic reduction (SCR) emission control technology installed on their boilers operate that technology on a year-round basis beginning in 2009. This final position is based on a number of factors identified in the proposal and reviewed below.

As discussed more fully in the CAIR final rulemaking notice, EPA has set the 2009 and 2010 CAIR caps for SO2 and NOx at a level that will require EGUs to install emission controls on the maximum total capacity on which it is feasible to install emission controls by those dates. The EPA concluded that the CAIR compliance dates represent an aggressive schedule that reflects the limitations of the labor pool, and equipment/vendor availability, and need for electrical generation reliability for installation of emission controls.

Although the actual SO2 cap does not become effective until 2010, we have designed "banking" provisions in CAIR so that covered EGUs will begin to reduce their SO2 emissions almost immediately after CAIR is finalized, and will continue steadily to reduce their emissions in anticipation of the 2010 cap and the more stringent cap that becomes effective in 2015. The 2015 SO2 and NOx caps are specifically designed to eliminate all SO2 and NOx emissions from EGUs that are highly cost effective to control (the first caps represent an interim step toward that end). In general, we expect that due to economic considerations many of the largest-emitting sources will be the first to install SO2 and NOx control technology and that such control technology will gradually be installed on progressively smaller-emitting sources until the ultimate cap is reached.

We do not believe that requiring source-specific RACT controls on EGUs in nonattainment areas would reduce total SO2 and NOx emissions from sources covered by CAIR below the regionwide levels that will be achieved under CAIR alone. In fact, if states chose to require smaller-emitting sources in nonattainment areas to meet source-specific RACT requirements by 2009, they would likely use labor and other resources that would otherwise be used for emission controls on larger sources. Because of economies of scale, more boiler-makers may be required per megawatt of power generation for smaller units than larger units. In this case, the imposition of source-specific RACT on smaller emitting sources by 2009 could actually reduce the amount of “banking” that would otherwise occur and result in higher SO_2 emissions in 2009 as compared to the level that would result from implementation of CAIR alone.

In any event, the imposition of source-specific control requirements on a limited number of sources also covered by a cap-and-trade program would not reduce the total regionwide emissions from sources subject to the program. Under a cap-and-trade program such as CAIR, there is a given number of allowances that equals a given emission level. Source-specific control requirements may affect the temporal distribution of emissions (by reducing banking and thus delaying early reductions) or the spatial distribution of emissions (by moving them around from one place to another), but it does not affect total emissions. If source-specific requirements were targeted at the units that can be controlled most cost-effectively, then the imposition of source-specific controls would likely achieve the same result as the cap-and-trade program. If not, however, the imposition of source-specific requirements would make any given level of emission reduction more costly than it would be under the cap-and-trade program alone. Thus, the imposition of source-specific RACT on EGUs covered by CAIR would not reduce total regionwide emissions, but would likely achieve the same total emission reductions in a more costly way.

For the reasons stated above, we are confident that CAIR will provide substantial and highly cost-effective SO2 and NOx emissions reductions in most nonattainment areas in the CAIR region, as well as substantial SO2 and NOx reductions in attainment areas. Collectively these regionwide reductions will substantially improve air quality in PM2.5 nonattainment areas in the CAIR region.

In defining RACT, EPA believes that power generation facilities participating in CAIR in states that achieve all reductions from EGUs can be treated differently from other sources because of special attributes of that group of facilities including the unique interrelated nature of the power supply network, and their participation in the CAIR program. Th EPA is defining RACT for other sources in a manner that involves assessment of potential emission reduction options and attainment needs in individual nonattainment areas. By contrast, for EGUs subject to our finding, EPA is defining RACT as a particular level of control[17] independent of attainment needs of the individual area: the level of control that results from implementation of CAIR. Based on the collective reductions and air quality improvements projected throughout the CAIR region, and the other considerations described above in this section, EPA has determined that compliance by EGUs with EPA-approved CAIR SIPs or CAIR FIPs meeting the requirements discussed above would meet the SO2 and NOx RACT requirement for participating EGUs located in PM2.5 nonattainment areas.

[17] Under the ozone program, EPA has identified presumptive levels of control for RACT for various source categories through control techniques guidelines. When RACT is a specified level of control, RACT (unlike RACM) is unrelated to pollution levels and attainment needs of individual areas.

The States will need to review sources in other emissions categories independently in making RACT determinations. Controls on sources subject to RACT are an important element in plans to ensure attainment of the standards as expeditiously as practicable.

EGU controls for expeditious attainment. As discussed in a previous section of the preamble, in this final rule RACT is interpreted as being a part of RACM under section 172(c)(1) of the CAA. The RACM is the collection of measures from stationary, mobile, and area sources which ensure attainment of the standards as expeditiously as practicable. States need to consider for each area those reasonably available measures that if adopted would meet the overarching requirement to attain as expeditiously as practicable. The controls that would be considered necessary for expeditious attainment depend to an extent on the difficulty of attaining the standard in a particular area.

The EPA cannot rule out the possibility that through its analytical process a State designing an attainment plan might determine that a certain nonattainment area (1) cannot attain within 5 years, (2) contains EGU units that would be feasible and cost effective to control but would not expeditiously apply controls as a result of CAIR, and (3) would advance its projected attainment date by at least 1 year if those nonattainment area units were controlled in the nonattainment SIP as part of a suite of reasonable measures.[18] Under this area-specific analysis, it could be determined that it would be reasonable for certain EGUs to reduce emissions and advance the attainment date, and in that event their control would be needed to satisfy the requirements for RACM and expeditious attainment. Th EPA anticipates that these circumstances could arise in a few areas (e.g., nonattainment areas where our models project little or no additional emissions reduction due to CAIR). For many other areas, analyses may show attainment by 2010 with existing measures, or show that controls for the particular EGUs in question would not provide a sufficient improvement in local air quality to advance the attainment date.

[18] Because CAIR is designed to achieve highly cost effective emission reductions to abate interstate pollution transport and to provide flexibility on the location of reductions, the projected impact of CAIR in reducing nonattainment area EGU emissions varies significantly by area.

In conclusion, and in response to a number of commenters, EPA clarifies that the RACT and CAIR determinations described above do not inhibit State and local air agencies from taking actions to attain the standards as expeditiously as practicable by consulting with power companies and establishing additional “beyond RACT” emission control requirements on specific sources in nonattainment areas as necessary to provide for expeditious attainment.

Year-round NOx controls. In the CAIR final rulemaking notice, EPA found that the operation of existing SCRs on a year-round basis, instead of operating them only during the ozone season, could achieve NOx reductions at low cost relative to other available NOx controls. The EPA projected that power generators would employ this control measure to comply with CAIR SIPs. Based on this control opportunity, EPA estimated the average cost of non-ozone-season NOx control at $500/ton. These considerations support a finding that RACT should include year-round operation of existing SCRs that are located in PM2.5 nonattainment areas. Because all PM2.5 nonattainment areas violate the annual form of the PM2.5 standard and public health can be affected by high PM2.5 levels in the winter as well as the summer, we believe that year-round operation of existing SCR in nonattainment areas will provide additional health benefits for relatively low dollar cost per ton of pollutant reduced.

The CAA requires RACT to be implemented as expeditiously as practicable (and, in the case of areas without an attainment date extension, no later than 2009). *[Placeholder for discussion defining "existing SCR" and providing compliance date for year-round operation requirement]* Depending on the source, year-round operation of existing SCR involves either no alteration or relatively minor alteration of existing equipment. For EGUs where these alterations are needed, we expect the work to be conducted during a routine outage at a unit, which typically occurs one or more times a year. Finally, the year-round operation requirement will not be legally applicable to individual sources until a RACT SIP including the requirement is adopted. We note that all EGUs in PM2.5 nonattainment areas are on notice from the date this rule is finalized that SIPs must require year-round operation of existing SCRs in order to support a determination that the EGUs in the area meet RACT.

c. Comments and responses

Comment: Some commenters supported the proposed determination that for EGUs located in states that achieve CAIR reductions from EGUs only, compliance with CAIR would satisfy the source's obligation to meet SO2 and NOx RACT requirements. One commenter supports EPA's approach so long as states may pursue additional reductions from EGUs if needed for expeditious attainment.

Response: The EPA agrees with these comments.

Comment: A number of commenters agreed with EPA that CAIR will satisfy the NOx RACT requirement for any EGU with an SCR in place and operated year-round by no later than the beginning of 2009.

Response: The EPA agrees with these comments.

Comment: A number of commenters objected to the proposed determination, arguing that it would result in greater control requirements and economic burden on non-EGU sources located in nonattainment areas. These commenters urged EPA to adopt a final rule that provides for implementing the most cost-effective controls necessary to attain the standard. They argue States should develop cost-effectiveness guidance that includes all stationary source control measures and they should develop SIPs based on the most economic means to attain the standard. They make several arguments to support this position. If an EGU control is more cost-effective than a non-EGU control, the EGU should be subject to "beyond-CAIR" controls. If EPA chooses to call the CAIR rule equivalent to RACT, then other sources should not be subjected to control costs greater than those found reasonable under CAIR (i.e., $800/ton). It would be inequitable to require smaller sources to pay a higher cost for emissions reductions than larger sources, which are a more significant contributor to the problem and which may be able to make more cost-effective emission reductions. One commenter also suggested that EPA should authorize a presumption that emissions reductions required on electric utilities under the CAIR will be equivalent to RACT only if a particular source in a CAIR State has installed controls that achieve the average level of control that EPA has projected will occur for the particular pollutant under the CAIR requirements.

Response: The EPA believes that the CAIR trading programs are the most cost-effective methods for achieving widespread regional SO2 and NOx emissions reductions from EGUs and for providing significant air quality benefits for ozone and PM2.5 nonattainment areas. The determination in the final rule that compliance with a CAIR SIP or FIP may satisfy RACT for EGUs does not constrain a State from requiring specific sources to install emission controls in order for an area to attain an air quality standard as expeditiously as practicable.

Comment: A number of commenters opposed the proposed CAIR=RACT determination arguing it is unlawful, it does not comply with section 172(c)(1) of the CAA which requires RACT (i.e. controls that are technologically and economically feasible) "at a minimum" for all existing sources in the nonattainment area, it would allow very large stationary sources to escape cost-effective controls entirely, and it is largely based on the legally-irrelevant contention that CAIR will reduce emissions more cost-effectively than RACT. They claim that EPA has no authority to displace the Congressionally-mandated RACT requirement, that CAIR was designed to address regional pollution transport (not to be an attainment strategy), and that EPA should remove these proposed provisions in the final rule. Another commenter claimed that EPA’s proposal allowing states who choose to fulfill their CAIR requirements entirely through emission reductions from EGUs to also use CAIR to satisfy their SO2 and NOx PM2.5 RACT requirements, thereby equating these two requirements for the EGU sector, is flawed. This commenter argued that allowing a cap-and-trade program, such as the CAIR, to substitute for the RACT requirement undermines the effectiveness of the controls by allowing facilities to use allowances to offset emissions, rather than control them at the source. The Purchase of an allowance, they assert, does not satisify RACT requirements.

Response: The EPA disagrees with these comments. The final rule does not displace the RACT requirement for any sources. For the reasons described in section (b) above, we believe that states can rely on EPA’s determination that compliance with a CAIR SIP or FIP, meeting certain requirements, satisfies the RACT requirement for certain EGU sources.

Comment: The EPA's proposal to allow EGU emissions to be addressed solely through CAIR undermines states' efforts to meet the Federal PM2.5 health standard. EGU sources are among the most cost-effective to control.

Response: For the reasons described in section (b) above, EPA believes that states can rely on EPA's determination that compliance with a CAIR SIP or FIP, meeting certain requirements, satisifies the RACT requirement for certain EGU sources. Areas can require "beyond RACT" EGU controls if necessary to attain as expeditiously as practicable.

Comment: CAIR fails to address the need for short-term reductions in PM2.5 emissions on high pollution days. While RACT restricts emissions over a 1-hour to 24-hour period, CAIR only provides for an annual or seasonal cap. Reliance on CAIR therefore fails to recognize the importance of reducing short-term emissions, which was recently highlighted by the EPA's own proposal to tighten the 24-hour PM2.5 health standard. Local and short-term adverse air quality effects of PM2.5, must he addressed in the final rule by requiring RACT for all major facilities in addition to CAIR.

Response: The EPA agrees that the CAIR program is oriented toward reducing air quality values on an annual or seasonal basis. All PM2.5 nonattainment areas were designated due to violations of the annual standard. However, the CAIR approach is projected to provide significant air quality benefits in 2010 and 2015 for eastern PM2.5 nonattainment areas on both an annual basis and on a 98^{th} percentile 24-hour basis.

Comment: The proposal is silent on the issue of whether EGUs are subject to direct PM2.5 emissions RACT requirements. It is critical that RACT be required for all facilities with respect direct PM2.5 emissions, regardless of a facility's participation in CAIR.

Response: In the final rule and preamble, EPA has clarified that all EGUs in nonattainment areas are subject to RACT for direct PM2.5 emissions. The determination described above applies only to SO2 and NOx RACT, not RACT for direct PM2.5 emissions from EGUs.

Comment: The EPA fails to consider the geographical distributional impacts of the emission reductions. Equating CAIR with RACT fails to take into account the substantial contribution that emissions from EGUs within a nonattainment area may make toward that area's PM2.5 nonattainment problem. The EPA does not attempt to explain how such a generalized determination satisfies RACT for PM2.5.

Response: The EPA acknowledges that some EGUs subject to the CAIR cap-and-trade programs and located in a nonattainment area will not install emission controls. However, the determination in the final rule that CAIR satisfies SO2 and NOx RACT for certain EGUs does not constrain a State from requiring specific EGU sources to install emission controls in order for an area to attain an air quality standard as expeditiously as practicable. For the reasons described in section (b) above, EPA believes that states can rely on EPA's determination that compliance with a CAIR SIP or FIP, meeting certain requirements, satisifies the RACT requirement for certain EGU sources. We believe that these collective regionwide reductions satisfy the SO2 and NOx RACT requirements for certain EGUs, but we reiterate that States are not constrained from seeking further reductions from EGUs in order to meet the CAA requirement of attainment as expeditiously as practicable.

Comment: A few commenters stated that EPA should explain how this proposal would be implemented for states that request an extension of an attainment date because attaining in 5 years or less is impracticable; i.e., whether EPA would still hold to its interpretation that CAIR equals RACT for EGUs and not require additional reductions from EGUs even if an area can't attain in 5 years and controls on EGUs could lead it to attain more expeditiously. These commenters argue that, in considering if additional RACT is needed in states that obtain extensions of the attainment deadline after 2010, EPA cannot ignore potential RACT for electric generating units any more than they would be allowed legally to avoid consideration of any other RACT candidates. One commenter is particularly concerned that States would not include EGUs in their RACT determinations and instead require smaller industrial boilers or process heaters to control emissions.

Response: As stated above, the determination in the final rule does not constrain a State from requiring specific EGU sources to install emission controls in order for an area to attain the air quality standard as expeditiously as practicable. There may be some situations in which States may need to require controls on specific power plants in nonattainment areas to meet RACM requirements.

Comment: The EPA designated many partial counties nonattainment for PM2.5 solely because the areas contained EGU emission sources thought to cause or contribute to violations of the NAAQS. In implementing nonattainment plans, it makes sense to consider further control of these sources, and because they are located in nonattainment areas, the ability to do so is provided for and legal under the CAA.

Response: The EPA designated PM2.5 nonattainment counties because they either had a violating monitor or they contributed to a nearby air quality problem. The EPA believes that States should evaluate sources in all designated counties, including those partial counties noted by the commenter, in its assessment of reasonably available control strategies to ensure attainment as expeditiously as practicable.

Comment: The EPA should adopt the Ozone Transport Commission's (OTC's) approach to cap-and-trade programs. When the OTC developed its NOx Budget Program (which was the basis for EPA's NOx SIP call and subsequently CAIR), it assumed that RACT was applied first. Thus the cap-and-trade program operated in an environment that assumed RACT was in force, not in lieu of RACT.

Response: Under the ozone national ambient air quality standards, NOx and VOC RACT have been implemented progressively for the past 30 years or more, prior to development of the NOx SIP call regional control program. In contrast, the PM2.5 implementation program is the first instance in which RACT has been required specifically for fine particle pollution. For this reason, the CAIR program is not operating with SO2 and NOx RACT limits already in place for attainment of the PM2.5 standards. As discussed above, EPA believes that implementation of the CAIR requirements will provide for substantial progress in attaining the PM2.5 standards, and that States may in a few areas require additional EGU controls to provide for expeditious attainmment of the standards.

Comment: A few commenters stated that EPA should clarify and modify the part of its proposal that explains why a State cannot rely on EPA's determination that CAIR can satisify the NOx RACT requirement for PM2.5 if the State ‘elect[s] to allow non-EGU sources to voluntarily enter the EPA-administered CAIR trading program through an opt-in provision in the CAIR model rule.’ (70 FR 66025 col. 3). These commenters believe that this part of the proposal might be construed to preclude states subject to both the NOx SIP Call and included in the CAIR region for ozone from relying on the NOx RACT determination for PM2.5 if the states choose ‘to bring their non-CAIR [including non-EGU] NOx SIP Call trading sources into the CAIR ozone season NOx cap and trade program. (70 FR 49708, 49728 col. 3) (August 24, 2005). The commenters assert that EPA gave states the option of bringing non-EGU NOx SIP Call sources into the CAIR seasonal NOx trading program to ensure that non-CAIR sources, including non- EGUs, that are subject to the NOx SIP Call rule would not be ‘stranded,’ starting in 2009, by being left in an ozone season NOx control program with no EGU trading partners. The commenters argued that “EGUs should not be penalized, in the form of denial of CAIR = RACT treatment, as a result of states exercising their option to avoid financial and compliance difficulties for non-EGUs that otherwise would be left without allowance trading partners in the EGU sector after the NOx SIP Call trading program ends in 2008." These commenters point to EPA's determination in the final Phase 2 ozone implementation rule, that participation in the CAIR trading programs can satisify NOx RACT for ozone even if a State brings non-EGUs in the NOx SIP Call trading program into the trading program after 2008, see 70 FR 71657 col. 2, provided the State retains an 'EGU [emission] budget under CAIR that is at least as restrictive as the EGU budget that was set in the State's NOx SIP call SIP,' id. At 71658 col. 1. These commenters argue that EPA should make a similar determination here regarding NOx RACT for purposes of PM2.5 NAAQS implementation.

Response: All states with EPA approved CAIR SIPs or subject to a CAIR FIP implementing the annual NOx emission reduction requirements, and obtaining those reductions solely from EGUs may rely on EPA's determination that CAIR satisifies NOx RACT for PM2.5 for these sources. This determination is unaffected by whether or not a State permits NOx SIP Call non-EGUs to participate in the CAIR ozone season trading program. In the final rule, EPA clarifies that the determination that NOx RACT for PM2.5 is satisified for EGUs complying with a CAIR SIP or CAIR FIP implementing the annual CAIR NOx emission reduction requirements, remains valid unless the State elects to allow non-EGUs to opt-in to the CAIR NOx annual trading program.

In the final ozone implementation rule, EPA addressed numerous issues relating to the transition from the NOx SIP Call to the CAIR ozone season trading program, including the impact of bringing NOx SIP Call non-EGUs into the CAIR ozone season trading program. Commenters suggestion that these determinations are relevant to this PM2.5 implementation rule ignores the fact that both the NOx SIP Call and the CAIR ozone season trading program are seasonal, not annual, trading programs. The NOx SIP Call EGU and non-EGU budgets are seasonal NOx budgets and do not address annual NOx emissions. As discussed above, PM2.5 levels year-round contribute to an area's annual average concentration, and NOx emissions during non-summer months contribute to nitrate concentrations, which are typically highest in cooler temperatures. For these reasons, EPA believes it would be inappropriate to accept commenters' suggestion.

8. What are the required dates for submission and implementation of RACT?

a. Background.

The EPA requested comment on a general approach for the dates for submission and implementation of RACT rules. The final rule retains the proposed approach, as described in the following section.

b. Final Rule.

The final rule requires the following:

(1) Date of submission. States must submit adopted RACT rules to EPA within 3 years of designation, at the same time as the attainment demonstration due in April 2008.

(2) Dates for implementation of control measures. States should also implement any measures determined to be RACT expeditiously, as required by section 172. Implementation of RACT measures should in no case start later than the beginning of the year before the nominal attainment date. For example, if an area has an attainment date of April 2010, then any required RACT measures should be in place and operating no later than the beginning of 2009. This is intended to help provide for

clean air in calendar year 2009. As discussed in section II.D, if other criteria are also met, EPA could then grant the area a 1-year attainment date extension if the air quality level in the 3rd of the 3 years was below the level of the standard. If the area observes a second year of clean air, EPA could grant a second 1-year attainment date extension. In this case, the 2009 to 2011 period would then be reviewed to assess whether the area attains the standards.)

(3) Provisions for a demonstration that additional time is needed. While EPA expects that States will implement required RACT controls by January 2009 in most situations, there may be cases where additional time is needed to implement an innovative control measure or to achieve a greater level of reduction through a phased approach. If a State has provided an adequate demonstration showing that an attainment date extension would be appropriate for an area, then the State may consider phasing-in certain RACT controls after January 2009. The EPA would allow the implementation of selected RACT controls after January 2009 if the State can show why additional time is needed for implementation, and

such delayed implementation still would need to be on a schedule that provides for expeditious attainment. In no event could the State wait to implement RACT controls until the last few years prior to the attainment date without an adequate rationale for why earlier implementation was not feasible.

c. Comments and Responses.

Comment: One commenter supported EPA's position that implementation of RACT and RACM by January 1, 2009 is necessary to achieve the effect on air quality for calendar year 2009.

Response: The EPA agrees with this comment.

Comment: Some commenters supported allowing for an implementation schedule that allowed for implementation of RACT and RACM for a time frame extending beyond 2009. These commenters favored such an approach if States provided an adequate demonstration of why the measures cannot be implemented earlier. Commenters noted that a phased approach to emissions reductions in some cases could lead to additional reductions that could not occur by 2009.

Response: The EPA agrees with these comments.

Comment: One commenter believed that so long as State demonstates attainment by 2015, EPA should not require implementation of any RACT measures. The commenter further asserted that would be bad policy to require costly emissions reductions through imposition of RACT on areas expected to attain the standards through other means by 2015.

Response: The EPA disagrees with this comment. The CAA requires States to demonstrate that the nonattainment plan will attain the standards as expeditiously as practicable and must include RACT and RACM. The requirement for “reasonable” measures does not require that any theoretical measure be implemented, but does require implementation of those reasonable measures which could advance the attainment date by at least 1 year. Given the health effects associated with PM2.5, EPA believes this approach is sound public policy.

9. Which pollutants must be addressed by States in establishing RACT and RACM limits in their PM2.5 nonattainment plans?

a. Background.

In the proposed rule, and in the final rule as discussed in detail in section II.A above, EPA discusses the pollutants which States must address in the nonattainment plans, in particular with respect to RACT, RACM and NSR. These pollutants include not only direct PM2.5, but also gaseous precursors to the formation of PM2.5. In general, the decisions that States and EPA make with respect to which precursors are significant contributors to an area’s PM2.5 nonattainment problem define the pollutants and sources to be addressed by States in developing RACT and RACM.

b. Final rule.

In the final rule, in establishing RACT and RACM limits, those RACT and RACM limits must address:

-- direct emissions of PM2.5

-- SO2, a precursor to PM2.5 formation, and

-- NOx, unless a State makes a finding that NOx emissions from sources in the State do not significantly contribute to the PM2.5 problem in a given nonattainment area or to other downwind area concerns.

The EPA generally presumes that RACT and RACM limits are not needed for ammonia or VOC unless that State or EPA determines otherwise for a given nonattainment area. RACT and RACM limits are needed for ammonia if a State or EPA makes a finding that ammonia emissions significantly contribute to the PM2.5 problem in a given nonattainment area or to other downwind area concerns, and thus finds that control of ammonia would help address the PM2.5 problem. RACT and RACM limits are needed for VOC only if a State or EPA makes a finding that VOC emissions significantly contribute to the PM2.5 problem in a given nonattainment area or to other downwind area concerns. (As a point of clarification, “VOCs,” which are gaseous organic precursors to the chemical formation of secondary organic aerosol, are treated differently from semivolatile or nonvolatile organic compounds which are addressed as directly emitted PM2.5). Issues related to the finding of “significant contribution” for these pollutants are discussed in Section II.A above.

10. Under the $PM_{2.5}$ implementation program, when does a State need to conduct a RACT determination for an applicable source that already has a RACT, BACT, LAER, or MACT determination in effect?

a. Background.

For $PM_{2.5}$ nonattainment areas, States are required to implement the RACT requirement to reduce emissions of direct $PM_{2.5}$ and PM2.5 precursors from applicable sources. The EPA anticipates that for some sources located in PM2.5 nonattainment areas, the State would have previously conducted RACT determinations for VOC or NOx under the 1-hour ozone standard, or for direct PM10 emissions under the PM10 standards. Some of the RACT determinations established under these other programs would be relatively recent while other determinations may be more than 10 years old. In some cases, a new RACT determination might reach the conclusion that the preexisting determination is still valid and would require the installation of similar control technology because the relevant pollutant was addressed, the same emission points were reviewed, and the same fundamental control techniques would still have similar costs. In other cases, however, a new RACT analysis could determine, for example, that better technology has become available, and that cost-effective emission reductions are achievable.

In the proposed rule, the EPA requested comments on a general approach to taking prior RACT determinations into account, and within the general approach, invited comments on two specific questions: 1) should new RACT determinations be required for all existing determinations that are older than a specified amount of time (such as 10 years old)?; and 2) what supporting information should a State be required to submit as part of its certification to demonstrate that a previous RACT analysis meets the RACT requirement currently for purposes of the PM2.5 program?

In the proposed rule, EPA also noted that sources subject to RACT may also have been subject to other prior technology determinations such as BACT, LAER or MACT determinations. The proposed rule requested comment on approaches to taking these prior technology determinations into account.

b. Final rule.

The EPA has determined that it is appropriate to follow the approach in the proposed rule, which is described below. State RACT SIPs for PM2.5 must assure that RACT is met, either through a new RACT determination or a certification that previously required RACT controls represent RACT for PM2.5.

Where a State adopted and EPA approved a control measure as RACT for a pollutant emitted from a specific stationary source or source category under another NAAQS program, the State may submit as part of its SIP revision a certification, with appropriate supporting information, that the previous determination represents a current RACT level of control for those emissions for purposes of the PM2.5 program. Otherwise, the State should revise the SIP to reflect a modified RACT requirement for specific sources or source categories.

In cases where the State's prior RACT analysis under another NAAQS program concluded that no additional controls were necessary, a new RACT determination is required for that source. In cases where the previous RACT determination did not require any controls on the source, it is more likely that a new review might find that emission controls are now economically and technically feasible. This is because emissions reductions from a potential control measure are likely to be greater, and the cost per ton of emission reduction is likely to be lower, than in the case of a source that previously installed controls to meet RACT under another program.

A RACT determination for a source or source category subject to a prior RACT determination is also required for any pollutants that were not the subject of the prior RACT determination, but which the State has determined should be regulated for purposes of PM2.5. T EPA advises that the State should closely review any existing RACT determinations established under another NAAQS program. For RACT certifications and determinations, States are to consider new information that has become available since the earlier RACT determination. For example, where updated information on control technologies is presented as part of notice-and-comment rulemaking, including a RACT SIP submittal for sources previously controlled, States (and EPA) must consider the additional information as part of that rulemaking. Existing EPA guidance on control technologies can be used to help inform RACT decisions. However, EPA believes it may not be sufficient for a State to rely on technology guidance that is several years old and issued to provide recommendations on control measures and levels for a different NAAQS in evaluating RACT for PM2.5

With respect to prior technology determinations other than RACT, the final rule provides that:

(1) Prior BACT and LAER determinations. In many cases, but not all, best available retrofit technology (BACT) or lowest achievable emission rate (LAER) provisions for new sources would assure at least RACT level controls on such sources. The BACT/LAER analyses do not automatically ensure compliance with RACT since the regulated pollutant or source applicability may differ and the analyses may be conducted many years apart. States may, however, rely on information gathered from prior BACT or LAER analyses for the purposes of showing that a source has met RACT to the extent the information remains valid. We believe that the same logic holds true for emissions standards for municipal waste incinerators under CAA section 111(d) and NSR/PSD settlement agreements. Where the State is relying on these standards to represent a RACT level of control, the State should present its analysis with its determination during the SIP adoption process.

(2) Compliance with MACT standards affecting VOC. In situations where the State has determined VOC to be a significant contributor to PM2.5 formation in an area,

compliance with MACT standards may be considered in VOC RACT determinations. For VOC sources subject to MACT standards, States may streamline their RACT analysis by including a discussion of the MACT controls and relevant factors such as whether VOCs are well controlled under the relevant MACT air toxics standard, which units at the facility have MACT controls, and whether any major new developments in technologies or costs have occurred subsequent to establishment of the MACT standards. We believe that there are many VOC sources that are well controlled (e.g., through add-on controls or through substitution of non-VOC non-HAP materials for VOC HAP materials) because they are regulated by the MACT standards, which EPA developed under CAA section 112. Any source subject to MACT standards must meet a level that is as stringent as the best-controlled 12 percent of sources in the industry. Examples of these HAP sources that may effectively control VOC emissions include organic chemical plants subject to the hazardous organic NESHAP (HON), pharmaceutical production facilities, and petroleum refineries.[16] We believe that, in many cases, it will be

[16] There are some MACT categories for which it may not

unlikely that States will identify VOC emission controls more stringent than the MACT standards that are not prohibitively expensive and are thus unreasonable. We noted our view that this will allow States, in many cases, to conclude that the control measures implemented to meet MACT standards satisfy any requirement for VOC RACT.

(3) Compliance with MACT standards affecting $PM_{2.5}$ emissions. Compliance with MACT standards may be considered in direct PM2.5 RACT determinations. For direct PM2.5 sources subject to MACT standards, States may streamline their RACT analysis by including a discussion of the MACT controls and relevant factors such as whether PM2.5 emissions are well controlled under the relevant MACT air toxics standard, which units at the facility have MACT controls, and whether any major new developments in technologies or costs have occurred subsequent to the MACT standards. We believe that there are many direct PM2.5 sources that are well controlled (e.g., through add-on controls that represent State-of the art measures for PM2.5

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be possible to determine the degree of VOC reductions from the MACT standard without additional analysis; for example, the miscellaneous metal parts and products (40 CFR part 60, subpart MMMM) due to the uncertainty of the compliance method that will be selected.

reduction) because they are regulated by the MACT standards which EPA developed under CAA section 112. For some MACT standards, PM2.5 is used as a surrogate for achieving MACT for HAPs such as heavy metals. Any source subject to MACT standards must meet a level that is as stringent as the best-controlled 12 percent of sources in the industry. We believe that there will be sources for which it will be unlikely that States will identify emission controls more stringent than the MACT standards that are not prohibitively expensive and are thus unreasonable. In addressing whether a MACT standard represents best controls for PM2.5, it is important that the State consider all PM2.5 sources at a given facility and the nature of the PM limit (i.e., whether the limit ensures control of the fine fraction of particulate matter). Also, the State should evaluate the degree of capture of PM2.5-- that is, the amount of PM2.5 that is collected and sent to a pollution control device in addition to the efficiency of the device itself. This evaluation should consider the PM2.5 emissions reductions that could by achieved by improving the degree of capture.

(4) Year-round controls for NOx. In some cases, sources subject to NOx RACT for PM will also be subject to controls under the NOx SIP Call. In the 8-hour ozone implementation rule, EPA concluded that certain sources which have installed emission controls to comply with the NOx SIP call would be deemed to meet NOx RACT for the purposes of the 8-hour ozone implementation program. Some of these sources subject to the NOx SIP call may choose to control NOx emissions only or primarily during the ozone season. For purposes of PM2.5, however, EPA concludes that the operation of emission controls only or primarily during the ozone season would not constitute RACT for PM2.5 purposes. Indeed PM2.5 control programs must address annual average concentrations, and in many areas nitrate concentrations are generally highest in the winter. Therefore, RACT for PM2.5 is year-round operation of controls. For sources subject to both the NOx SIP call and NOx RACT for PM, we believe that, in most cases, the additional costs of running the NOx SIP call controls year-round would impose only modest, reasonable additional costs and the cost effectiveness would be better than the average cost effectiveness for many other sources subject

to PM RACT. (See further discussion in section F.7 above related to EGU sources subject to CAIR requirements for NOx).

c. Comments and responses.

Comments: A number of commenters agreed with the requirement for the State to conduct a new RACT determination for any source for which the State's prior RACT analysis under another NAAQS program concluded that RACT was defined as no additional controls. One commenter noted that for a source having a previous RACT determination for ozone or PM10 to show that its level of control currently meets RACT for PM2.5 purposes, the source must provide supporting documentation showing that the previous RACT determination was based on the same universe of controls that are "reasonably available" for the source in the present day.

Response: The EPA agrees with these comments.

Comments: A few commenters recommended that EPA clarify that RACT determinations resulting only in "operational changes" should be treated in an equivalent manner as those resulting in no controls. The commenters suggested that, unlike "physical modification," such operational changes should always be revisited with a new RACT determination.

Response: The EPA does not agree with the implicit recommendation to impose different RACT review requirements based on the types of control previously implemented. Th EPA believes that a reassessment of RACT is warranted, irrespective of the type of control previously implemented that would consider the reasonableness of modifying or adding controls in the particular circumstances. Furthermore, are concerned that making such a distinction based upon the fairly broad term “operational change” would be difficult to interpret and implement, and would invite unnecessary disputes concerning the application of the term.

Comment: Commenters differed on whether new RACT determinations should be required for all existing determinations made before a specific date, and on what that date should be. Some commenters recommended that EPA allow States to rely on any previous RACT determinations made after 1990, and one commenter recommended that EPA require states to review only those older than 10-15 years, another recommended 10 years. One commenter believed that a 15-year period would be reasonable where previous controls were installed, to allow for a 15-year amortization of the cost of those controls. Other commenters recommended that new RACT determinations be made for any RACT determinations older than 5 years. Another commenter recommended that all RACT determinations should be reviewed.

Response: The EPA has not included any specific time frame in the final rule. Th EPA agrees that the more recent the RACT determination, the greater the probability that technology advances or decreases in control cost will not have occurred. At the same time, technology advances and decreases in control cost can and have occurred frequently. Accordingly, we believe it is necessary for States to review whether such technology advances or decreases in control cost have occurred before relying on previous RACT determinations. We do not believe there is any specific date or age that could be identified after which States could ensure that no technology advances or decreases in control cost will have occurred.

Comment: A number of commenters expressed concerns with the resources required to conduct the certifications required by the proposed approach, and argued that expending the resources required to review and to certify previous RACT determinations would not be productive. One commenter recommended that EPA provide guidance on the previous RACT categories for which old RACT determinations are believed to be out of date. Another commenter asserted that the only possible exception to the acceptability of previous RACT measures for purposes of the ozone standards would be when the new RACT is year-round for an existing ozone-season RACT measure.

Response: The EPA believes that the proposed certification approach strikes an appropriate balance in requiring States to verify whether previous RACT determinations currently represent an appropriate RACT level of control for PM2.5 purposes, while stopping short of requiring an exhaustive re-analysis for all RACT sources. The EPA believes that much of the resource concerns expressed in comments were based upon concerns that VOC sources are very numerous, and that this approach would require detailed review for these sources. As noted previously, a RACT analysis for VOC sources is required only if a State makes a finding that VOC sources significantly contribute to nonattainment in the State or to other downwind air quality concerns. We believe the commenters likely overestimate the resource implications of the certification process for prior RACT determinations. Another mitigating factor is that many of these same sources would be reviewed for purposes of implementing the eight-hour ozone standard. On the other hand, where a State or EPA determines that it is appropriate to regulate VOC sources for PM2.5, EPA believes that it likely would be productive to review the previous determination for such sources, some of which have not been reviewed for many years.

Comment: One commenter believed that EPA should acknowledge detailed RACT and RACM analyses for the South Coast and San Joaquin Valley in California prepared during the 1990s for purposes of implementing the ozone and PM10 standards. The commenter believes that EPA acceptance of these determinations as RACT for PM2.5 would enable States to focus resources on developing new measures needed for attainment.

Response: The EPA agrees that States should focus resources on new technologies and new developments. At the same time, EPA recognizes that for most source categories, new technology continues to be developed, and new information continues to be generated. Thus, even recent RACT determinations for a given source category may be outdated. Hence, the certification approach in the rule for the relevant sources or source categories is a reasonable approach which is designed to provide for the type of focused efforts suggested by the commenter.

Comment: One commenter believed that a State certification should only have to identify the existing RACT levels in a SIP and pollutants affected, but the State should not be required to provide any additional information.

Response: The EPA disagrees with this comment. EPA believes that prior technology determinations should be taken into account in the RACT determination process. In reviewing existing RACT determinations, the State should provide supporting information to show that the existing technology in use should still be considered RACT, or it should show that there have been technology advances that have occurred since the previous RACT limits were developed that are technically and economically feasible and would contribute to timely attainment.

Comment: Some commenters supported EPA's requirement for year-round operation of NOx pollution control devices as RACT, given that PM2.5 is an annual standard, while ozone is a summertime problem.

Response: The EPA agrees with these comments.

Comment: One commenter concluded that BACT and LAER determinations should be considered to satisfy RACT, regardless of the date they were made, because BACT and LAER by definition are more stringent than RACT.

Response: The EPA disagrees with this comment. Th EPA believes that in many cases, but not all, BACT and LAER would assure RACT level of controls. Reasons that BACT and LAER might not satisfy RACT include: the pollutant of concern could have been different, the applicability threshold for BACT and LAER may have excluded smaller sources potentially subject to RACT controls, and technology advances or reductions in control costs may have occurred since the old determination was conducted.

Comment: One commenter recommended that EPA allow States to use information gathered from prior BACT or LAER analyses to complete the RACT determination, as was allowed in the 8-hour ozone NAAQS implementation rule.

Response: The final rule allows for use of such information, to the extent it remains valid, to inform a certification by the State that BACT or LAER technology continues to exceed what would currently be considered RACT.

Comment: Some commenters argued that any MACT determination that controls the pollutants of concern should be more than sufficient to satisfy RACT. Some commenters made similar recommendations regarding specific standards where PM limits were developed as a surrogate for HAPs, such as the MACT standard for integrated iron and steel mills, the MACT standard for iron and steel foundries, and the section 129 standards for waste to energy facilities.

Response: While agreeing that MACT controls are relevant, the EPA disagrees that all MACT determinations should be automatically considered to satisfy RACT. Reasons include: a MACT standard aimed at toxics might not ensure that the relevant PM2.5 pollutant(s) are well controlled, MACT applicability provisions might have excluded units potentially subject to RACT, and technology advances or reductions in control costs might have occurred since EPA conducted the MACT analysis. The EPA believes that the State should review whether technology advances have occurred including available “beyond the MACT floor” technologies that may be reasonable in the context of RACT for PM2.5 nonattainment, but which were not selected as MACT for purposes of implementing section 112. The EPA believes that RACT analyses should evaluate whether increased capture of PM2.5 could be achieved, and whether an increased efficiency in controlling the fine fraction of particulate matter is reasonably available. The EPA has, however, added a specific recognition that MACT standards can reduce PM2.5 as well as VOC, and that PM2.5 information gathered for MACT standards development may inform a State’s conclusions on available technologies for direct PM2.5 emissions.

Comment: One commenter expressed a concern that EPA should not presume that MACT represents RACT where the MACT rule allows for a risk-based exemption from the control technology requirement.

Response: The EPA agrees with this comment.

11. How should condensable emissions be treated in RACT determinations?

a. Background.

Certain commercial or industrial activities involving high temperature processes (fuel combustion, metal processing, cooking operations, etc.) emit gaseous pollutants into the ambient air which rapidly condense into particle form. The constituents of these condensed particles include, but are not limited to, organic material, sulfuric acid, and metals. In general, condensable emissions are taken into account wherever possible in emission factors used to develop national emission inventories, and States are required under the consolidated emissions reporting rule (CERR)[17] to report condensable emissions in each inventory revision. Currently, some States have regulations requiring sources to quantify condensable emissions and to implement control measures for them, and others do not. In 1990, EPA promulgated Method 202 in Appendix M of 40 CFR Part 51 to quantify condensable particulate matter emissions. In the

[17] The consolidated emissions reporting rule was published in the Federal Register on June 10, 2002, pages 39602-39616.

proposed rule, EPA discussed and requested comment on issues related to condensable emissions in RACT determinations.

In the proposed rule, we noted that EPA is in the process of developing detailed guidance on a new test method which quantifies and can be used to characterize the constituents of the $PM_{2.5}$ emissions including both the filterable and condensable portion of the emissions stream. We also noted that when a source implements either of these test methods addressing condensable emissions, the State will likely need to revise the source's emissions limit to account for those emissions that were previously unregulated. For the purposes of determining RACT applicability and establishing RACT emission limits, EPA indicated in the proposal that it intends to require the State to adopt the new test method once EPA issues its detailed guidance. This guidance would be for use by all sources within a $PM_{2.5}$ nonattainment area that are required to reduce emissions as part of the area's attainment strategy.

b. Final rule.

Issues and comments related to test method and emissions limit issues for direct PM2.5 for RACT, including discussion of test methods for condensables PM2.5, are discussed in section II.L.3 of this preamble. Th EPA recognizes that in some cases condensable emissions are more difficult to control than filterable emissions. However, condensable emissions may be assumed to be almost entirely in the 2.5 micrometer range and smaller, so these emissions are inherently more significant for PM2.5 than for prior particulate matter standards addressing larger particles. Therefore, EPA encourages States to conduct a thorough evaluation of the potential for reducing condensable emissions when evaluating potential measures for RACT.

12. What criteria should be met to ensure effective regulations or permits to implement RACT and RACM?

a. Final rule.

After the State has identified a RACT or RACM measure for a particular nonattainment area, it must then implement that measure through a legally enforceable mechanism (e.g., such as a regulation or a permit provision). The regulation or permit provision should meet four important criteria.

First, the baseline emissions from the source or group of sources and the future year projected emissions should be quantifiable so that the projected emissions reductions from the sources can be attributed to the specific measures being implemented. It is important that the emissions from the source category in question are accurately represented in the baseline inventory so that emissions reductions are properly calculated. In particular, it is especially important to ensure that both the filterable and condensable components of $PM_{2.5}$ are accurately represented in the baseline since traditional Federal and State test methods have not included the condensable component of particulate matter emissions and have not required particle sizing of the filterable component.

Second, the control measures must be enforceable. This means that they must specify clear, unambiguous, and measurable requirements. When feasible, the measurable requirements for larger emitting facilities should include periodic source testing to establish the capability of such facilities to achieve the required emission level.

Additionally, to verify the continued performance of the control measure, specific monitoring programs appropriate for the type of control measure employed and the level of emissions must be included to verify the continued performance of the control measure. The control measures and monitoring program must also have been adopted according to proper legal procedures.

Third, the measures should be replicable. This means that where a rule contains procedures for interpreting, changing, or determining compliance with the rule, the procedures are sufficiently specific and nonsubjective so that two independent entities applying the procedures would obtain the same result.

Fourth, the control measures should be accountable. This means, for example, that source-specific emission limits should be permanent and must reflect the assumptions used in the SIP demonstration. It also means that the SIP must contain a mechanism (such as a title V operating permit) to track emission changes at sources and provide for corrective action if emissions reductions are not achieved according to the plan.

b. Comments and Responses

Comment: This language is identical to that in the proposal, and there were no comments.

G. ~~What are the Requirements for~~ Reasonable Further Progress (RFP)~~?~~

1. Background

Clean Air Act Section 172(c)(2) requires that nonattainment area plans "shall require reasonable further progress," which as defined in Section 171(1) "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 national ambient air quality standard by the applicable date." This section describes the requirements the Administrator is establishing for states to achieve reasonable further progress.

In general terms, the goal of these RFP requirements is for areas to achieve generally linear progress toward attainment. The RFP requirements were included in the Clean Air Act to assure steady progress toward attaining air quality standards, as opposed to deferring implementation of all measures until the end date by which the standard is to be attained.

2. Requirements for Areas with Attainment Dates of 2010 or Earlier~~Requirements for RFP Submittals~~

~~a. Requirements for areas attaining by 2010~~

a~~i~~. Background

EPA proposed in section 51.1009(b)(1) of the proposed rule that a State which submits an implementation plan in April 2008 and demonstrates that a nonattainment area will achieve attainment-level emissions during 2009 (and thereby attain the standards in 2010) would not be required to submit a separate reasonable further progress plan for that area. The rationale for this approach is that the period between submittal of the attainment demonstration and the date for attainment is very limited (i.e. less than two years), and it would not be practical for the state to be required to meet any set of interim emission reduction targets prior to the end of 2009.

b~~ii~~. Summary of final rule

EPA maintains the approach included in the proposed rule. An area that demonstrates attainment by 2010 shall be considered to have satisfied the RFP requirement and need not submit any additional material to satisfy the RFP requirement. EPA shall view the attainment demonstration as also demonstrating that the area is making reasonable further progress toward attainment.

c~~ii~~. Comments and responses

Comment: A number of commenters supported EPA's view that a demonstration of attainment by 2010 would also demonstrate that the area is making reasonable further progress toward attainment. These commenters asserted that the timetable for adoption of control measures would not allow for adoption of additional measures any sooner that would yield more rapid progress toward attainment.

Response: EPA agrees with these comments.

~~*Comment:*~~*Comment:* A set of commenters characterize EPA's approach as assuming that adequate interim progress is already being made in areas that purport to demonstrate attainment, and they assert that this policy unlawfully waives the RFP requirement for an area demonstrating attainment by 2010. The commenters object to a "blanket finding of compliance with RFP requirements for any area submitting a SIP that purports to demonstrate attainment by 2010," noting that a SIP that provides no annual reductions or even allows interim increases should not be considered to meet RFP simply by virtue of a purported attainment demonstration. The commenters object to EPA allowing areas to avoid any interim progress, let alone the linear progress that EPA has historically required. These commenters state that a variety of uncertainties in the attainment process enhances the importance of the RFP requirement and the accountability that RFP is intended to provide.

These commenters also claim that PM2.5 nonattainment areas must meet the requirements of Subpart 4 of Part D of Title I of the Clean Air Act, including a requirement in Section 189(c) for quantitative progress milestones to be achieved every 3 years from the date of designation. Thus, in the case of an area submitting a SIP in 2008 which demonstrates attainment by 2010, the commenters believe that progress milestones for 2008 should be submitted as part of the implementation plan. (For areas that expect to attain in 2015, these commenters assert that milestones achieving RFP must be submitted for 2008, 2011, and 2014.) They believe that EPA's proposal to "waive RFP requirements" for areas expected to attain the standard within 5 years would be to "pick and choose among the dictates of the Clean Air Act." The commenters also observe that Section 189(f) provides a limited set of potential exemptions from Subpart 4 requirements under a limited set of circumstances, and they conclude that the absence of additional exemptions clearly illustrates the intent of Congress that EPA not provide other exemptions from Subpart 4 requirements.

The commenters also claim that waiving the RFP requirements would be unlawful even if EPA could implement the PM2.5 standards under Subpart 1 of Part D. The commenters observe that subpart 1 [section 172(c) of the Act] requires all nonattainment areas to achieve RFP, and that EPA cannot undo that requirement by administrative rule.

~~*Response:*~~*Response:* As discussed elsewhere in today's action, EPA believes that implementation of the PM2.5 standards is governed by subpart 1 of the Act rather than subpart 4. Subpart 4 explicitly addresses PM10 and was included in the 1990 Clean Air Act amendments to address the PM10 standards established in 1987. At the time subpart 4 was adopted, the PM2.5 standards were not in existence. Subpart 1 was included in the Act to address any new standards adopted after 1990. Although elements of subpart 4 may provide useful guidance in terms of implementing other standards addressing particulate matter, it was not developed specifically to address the fine particle standards.

The Act provides substantial flexibility for defining how the RFP requirement is to be met. EPA believes that areas that submit plans in April 2008 demonstrating they will achieve attainment-level emissions during the 2009 emissions year should not be required to establish and meet any interim emission reduction targets. Any policy that would require interim targets, given the short time between the SIP submittal date and the attainment date, could not be practicably implemented. More time would be needed to adopt and implement control measures and to verify that interim reduction levels had been achieved. For this reason, EPA believes that demonstrating attainment by 2010 should be considered to satisfy the requirement for reasonable further progress.

The commenters misinterpret some aspects of EPA's proposal. They imply that a SIP submittal that claims to demonstrate attainment but later is determined by EPA as not approvable would nevertheless be found to satisfy the RFP requirement. This is not the case. Under the final rule, if EPA concludes that a state submittal does not satisfactorily demonstrate attainment by 2010, then the state would be required to revise its submittal to ensure that it adequately demonstrates attainment by 2010, or it must submit a revised attainment demonstration with an attainment date of 2011 or later. In any demonstration for an attainment date of 2011 or beyond, the state would be required to include an RFP plan with milestones for 2010 and possibly 2013 as required in section 51.1009 of the final rule.

The commenters also claim that EPA is waiving the RFP requirement. EPA does not believe it would be reasonable to require interim emissions milestones between the date that SIPs are due in 2008 and the end of 2009. EPA asserts that in fact the RFP requirement is being retained, and EPA is addressing how this requirement should be met. EPA believes that a state that submits a plan in 2008 successfully demonstrating attainment by 2010 will need to include as part of its plan an assessment and accounting of the measures that will achieve progress in emissions reductions and air quality improvement between 2008 and the end of 2009. Submitting an approvable attainment demonstration combined with actually attaining the standard in 2010 (based on 2007-9 data) would meet the reasonable further progress requirement for areas with 2010 attainment dates, and would not constitute an exemption from the requirement.

3. Requirements for Areas With Attainment Dates Beyond 2010

~~b. Areas attaining after 2010~~

a~~i~~. Background

The proposed rule required a State to submit an RFP plan along with its attainment demonstration and SIP due in April 2008 for any area for which the State determines that 2011 or later is the most expeditious attainment date. EPA proposed that the 2008 RFP plan must provide emission reduction and program implementation milestones to be achieved by January 1, 2010 (based on the 2009 emissions year), and, if necessary, milestones to be achieved by January 1, 2013 (based on the 2012 emissions year). The emissions milestones must represent generally linear progress from the 2002 baseline year to the attainment year.

b~~ii~~. Final Rule

The final rule requires a State to submit an RFP plan along with its attainment demonstration and SIP due in April 2008 for any area for which the State determines that 2012 or later is the most expeditious attainment date. The RFP plan must provide emission reduction and program implementation milestones to be achieved by January 1, 2011 (based on the 2010 emissions year), and, if necessary, milestones to be achieved by January 1, 2013 (based on the 2012 emissions year). The emissions milestones must represent generally linear progress from the 2002 baseline year to the attainment year.

If the state demonstrates that attainment will occur by 2011 or earlier, EPA will consider the attainment demonstration as meeting the reasonable further progress requirement, and the State will not be required to submit an additional RFP plan for the area.

This policy changes the initial milestone year from the 2009 emissions year (as proposed) to the 2010 emissions year primarily because of the limited amount of time States would have to implement control measures between submittal of the SIP in April 2008 and the beginning of the 2009 emissions year. Therefore, EPA's final rule requires RFP plans only for areas that justify an extension of the attainment date to 2012 or later.

c~~iii~~. Comments and Responses

~~*Comment:*~~*Comment:* For areas that demonstrate attainment by 2015 without adopting additional measures, a commenter recommended that the attainment demonstration be viewed as also demonstrating that the area is achieving RFP. The commenter therefore recommended that the state not be required to submit an RFP plan for such an area.

~~*Response:*~~*Response:* A submittal that demonstrates attainment at the latest allowable date and does not address interim air quality fails to show that the path to attainment will yield interim incremental air quality improvements. States have ample opportunity to adopt measures that would provide interim air quality improvement long before 2015. Indeed, as discussed elsewhere, a submittal that only addresses 2015 would also fail the attainment demonstration requirement, insofar as it would not be addressing the requirement for attainment as expeditiously as practicable. Therefore, irrespective of whether additional measures are needed to attain by 2015, the Clean Air Act mandates assessing progress at reasonable interim dates as well as mandating attainment.

4. Generally linear progress and associated timeline

~~3. How Does EPA Assess Reasonable Further Progress?~~

~~a. Linear Progress and Associated Timeline~~

a~~i~~. Background

EPA proposed that states with areas needing an extension of the attainment deadline beyond 2010 would be required to submit a plan demonstrating that emissions would be sufficiently reduced by 2009 to achieve generally linear incremental improvement in air quality. The notice of proposed rulemaking provided an example calculation for an area with a 2013 attainment date, i.e. an area that achieves attainment level emissions in 2012. (See section III.G.4.b.iv of the proposal, 70 FR 66013.) In this example, the 2009 emissions year represents 7/10 of the period extending from the baseline year of 2002 to the 2012 attainment year. Therefore, for this example, EPA's proposed requirement would be for this area to achieve emission reductions by 2009 representing 7/10 of the emission reductions needed to attain the standards. For states with areas needing the attainment deadline extended to 2014 or 2015, EPA proposed that they would be required to address two milestone dates—the 2009 and 2012 emission years—demonstrating that the area would achieve generally linear emission reductions by January 1 of 2010 and 2013, respectively.

The paragraph above identifies several RFP policy elements that EPA preferred over other alternatives. The most prominent alternative would have required a fixed percentage emission reduction, patterned after the requirement in Subpart 2 of Part D/Title I of the Clean Air

Act (applicable to ozone plans) for RFP defined as a three percent per year emission reduction. Also, implicit in an option that focuses on expected air quality improvements is that the assessment reflects consideration of all relevant control measures. A contrasting alternative would exclude consideration of federally adopted measures such as the Federal Motor Vehicle Control Program and focus solely on measures adopted by the state. Another contrasting alternative would be patterned after Section 182(b)(1) (specifying ozone RFP requirements), in which several specific types of emission reductions are not creditable for RFP purposes. The preceding paragraph also highlights the timeline EPA proposed to follow, including the base year of the assessment, the end year of the assessment, and the progress target date for which interim emission reductions are evaluated.

EPA received several comments on various elements of its proposed approach. Several commenters objected to EPA's proposed requirement to achieve linear progress toward attainment, typically commenting that EPA cannot reasonably expect states to achieve a significant amount of progress within a short time after plan submittals are due. Some commenters recommended requiring a specific emission reduction percentage, similar to the rate of progress requirement for ozone. These comments are addressed below.

b~~ii~~. Final Rule

EPA is requiring states with areas needing an extension of the attainment deadline to at least 2012 to submit RFP plans. These plans must demonstrate that generally linear reductions in emissions will occur by 2010, i.e. that emissions in 2010 will be no higher than the level represented by a generally linear progression from 2002 base year emissions to attainment-level emissions. For any area that needs an extension of the attainment deadline to 2014 or 2015, the state's RFP plan would also need to demonstrate that further generally linear reductions will be achieved in the 2012 emissions year as well. For any area that can demonstrate attainment by 2011 (i.e., that achieves attainment level emissions by 2010), the attainment plan shall be considered to demonstrate that the area is achieving RFP, and no additional RFP submittal shall be necessary.

One significant difference between EPA's proposed RFP requirement and the final RFP requirement is the first RFP progress target date. In response to comments regarding achievement of linear reductions, EPA reevaluated the date by which states could reasonably be required to implement accelerated measures as necessary to provide for interim progress. Since EPA is requiring RFP plans in conjunction with attainment plans, due in April 2008, EPA concluded that a progress target date of 2009 would not provide adequate opportunity to implement additional measures sufficiently for a 2009 progress target date to be an appropriate requirement. Therefore, EPA is revising the first progress target date to 2010. EPA is setting the second progress target date as 2012 (where applicable) as proposed.

c~~iii~~. Comments and Responses

~~Comment:~~Comment: Several commenters objected to EPA's proposed requirement that states demonstrate linear progress toward attainment. For example, a commenter stated that a "generally linear reduction process may not be practicable." One commenter stated that it "agrees that areas should be able to take credit for reductions from 2002 forward, [but] EPA should allow for fewer reductions (as opposed to linear reductions) prior to 2008."

A commenter noted that EPA's "proposed approach ignores several important realities about PM NAAQS implementation. First, . . . [n]ot until SIP submittal in April 2008, some 6 years after the RFP baseline date, will any local measures be finally adopted and approved. Under [the example EPA provided in its proposed rulemaking], states will be required to play 'catch-up' by achieving 70 percent of the required reductions in 2009. . . . Second, the 'generally linear' approach ignores that EPA intends for states to rely in large part on mobile source reductions and reductions in NOx and SOx from CAIR implementation to achieve attainment in many areas. These measures fail a 'generally linear' test since most of the reductions they provide will not be realized until after 2009." This commenter continues that the incremental reductions in emissions required in the Clean Air Act need not be equal increments, that the absence of a specific statutorily mandated increment (such as the 3 percent per year requirement for ozone) allows EPA to be more flexible and to rely more heavily on later reductions. The commenter also argues that EPA's proposal is more stringent than the ozone RFP requirement, insofar as the ozone RFP requirement provides for averaging over 3 years. Similar comments were submitted by other associated industry commenters.

Another commenter supported EPA's proposal. This commenter supported requiring demonstrations that areas achieve emission reductions that will yield incremental improvement in air quality on a path toward expeditious attainment.

~~*Response:*~~*Response:* The commenters objecting to the requirement for generally linear progress appear to be assuming that only minimal emission reductions can be expected before 2008, so that a requirement for generally linear progress would require plans submitted in 2008 to compensate by achieving unrealistically high levels of emission reductions. EPA disagrees with this assumption. In fact, substantial emission reductions are occurring and can be expected to occur in the next few years. While EPA has promulgated significant mobile source rules recently that will yield substantial benefits in the coming years, these benefits follow a series of prior rules that provide a steady progression of emission reductions as newer, cleaner vehicles replace older, dirtier vehicles. For utilities, a major portion of the emission reductions expected after 2002 are from the NOx SIP Call occurred around 2004. Also, with EPA revising the first progress target date (i.e. the first date by which RFP must be achieved) to 2010, a substantial fraction of the SO2 emission reductions expected from CAIR will be achieved by the progress target date.

EPA is allowing credit for these existing measures in assessing whether RFP is being met. While different control measures require various timelines for implementation, EPA believes that many of the additional measures that states might adopt for attainment planning purposes can be implemented in timely fashion for addressing RFP requirements, particularly with a revised first progress target date of 2010. Consequently, EPA believes that its requirement for the combination of existing and additional measures to provide generally linear progress in reducing emissions is a very reasonable requirement. For this reason, and because this approach appropriately reflects the applicable RFP requirement in the Clean Air Act, EPA is finalizing the requirement that RFP plans for areas needing the attainment deadline extended to at least 2012 (i.e. attainment level emissions projected to start no sooner than 2011) must show that generally linear progress in reducing emissions will occur by 2010, and areas needing an attainment deadline extension to 2014 or 2015 (i.e. attainment level emissions projected to start in 2013 or 2014) must additionally show that generally linear progress in reducing emissions will occur by 2012.

It is difficult to compare the stringency of this RFP requirement to the RFP requirement for ozone. The requirement for ozone measures one form of progress that occurs after 3 years, and the requirement for PM-2.5 measures a different form of progress that occurs after 8 years (and for some areas also after 10 years). That is, the ozone RFP requirement applies a fixed, universally applicable emission reduction percentage for one pollutant (VOC), whereas EPA is defining the PM-2.5 RFP requirement as an area-specific combination of emission reductions for multiple pollutants, defined on the basis of each area's attainment demonstration.

EPA believes that the Clean Air Act mandates not merely eventual attainment by 2015 but also that states demonstrate that emissions are being incrementally reduced in earlier years. (As discussed elsewhere, states must also demonstrate attainment by earlier than 2015 if feasible.) The requirement for RFP reflects Congressional intent that areas make steady progress toward attainment in the years before attainment occurs, and states have ample opportunity to assure that reductions occur well before 2015.

~~Comment:~~*Comment:* A commenter observes that the PM-2.5 nonattainment areas in its state also violate the ozone standard. The commenter observes, "In setting plan requirements, U.S. EPA should choose options that best facilitate harmonization of fine particulate and ozone control programs. This includes using a fixed percentage of emission reductions per year for reasonable further progress (RFP). We recommend the ozone RFP metric of three percent annual emission reductions averaged over three years." Another commenter also supports a more prescriptive RFP requirement, and comments that "As suggested by EPA, nonattainment areas must be required to achieve 'a fixed percentage reduction of the emissions of direct PM2.5 and regulated PM2.5 precursors & in specific milestone years' between the base year and the attainment year proposed in the attainment demonstration." A third commenter supported establishing a requirement for a fixed emission reduction percentage, set at "no less than the 3 percent rate" in Section 182, with the possibility of higher rates in areas with more severe air quality problems.

Other commenters prefer the approach that EPA proposed. For example one commenter states that it agrees with EPA's approach of using the attainment demonstration to define the parameters for determining what constitutes RFP, and the commenter supports the flexibility of EPA's proposed approach "rather than requiring fixed linear percentage reductions." Regarding the proposed option to require 3 percent per year emission reductions for areas classified as serious, some commenters recommended against establishing classifications and a fixed emission reduction percentage for any area.

~~*Response:*~~*Response:* Requiring a fixed emission reduction percentage would impose a "one-size-fits-all" approach to address a range of circumstances. Requiring a fixed annual emission reduction percentage would overstate the reductions needed to achieve timely attainment in some areas and would understate the reductions needed to achieve timely attainment in other areas. EPA believes that defining the RFP requirement in terms of achieving generally linear progress toward the emission reductions needed for timely attainment assures that each area will achieve a steady rate of progress most appropriate for the area to achieve timely attainment.

EPA recognizes that many areas are nonattainment for both PM-2.5 and ozone and that the control programs for the two pollutants are sufficiently intertwined that harmonization of planning for meeting requirements applicable to the two pollutants is important. However, because the statutory requirements set forth in section 182 do not apply to PM2.5 RFP plans, EPA believes it is neither necessary nor appropriate to impose these requirements for PM 2.5. Indeed, given the multiple pollutants that contribute to PM-2.5 and the variations that exist in the nature and composition of PM-2.5 across the country, EPA believes that the PM-2.5 RFP requirements are better defined to reflect these variations and thus be better targeted toward the emission reductions that in each area can be expected to lead toward timely attainment. Further, EPA believes that application of a different form of the

RFP requirement does not cause conflicts in implementation planning for the two standards. For example, reductions of NOx emissions will generally reduce concentrations of both ozone and PM-2.5, and NOx emission reductions are creditable for meeting both the ozone and the PM-2.5 RFP requirements.

An important distinction between PM-2.5 and ozone is the multiple components of and multiplicity of precursors to PM-2.5. EPA does not believe that RFP targets should require the same percentage reduction for all PM2.5 related pollutants. Instead, EPA believes that RFP plans should reflect an appropriate combination of pollutant reductions that most effectively provides for attainment. Therefore, EPA has defined an RFP requirement in which target emission reductions are established in conjunction with the area's attainment plan.

5. Geographic Coverage of Emissions Sources

~~b. Geographic Coverage~~

a~~i~~. Background

PM-2.5 concentrations reflect a combination of impacts over a wide range of geographic scales. For some components of PM-2.5, observed concentrations typically arise predominantly from sources with the nonattainment area. For other components, PM2.5 concentrations may be impacted by sources across a broad area extending outside the nonattainment area. EPA's intent is to define the RFP requirement in terms of emissions reductions that can be expected to provide linear improvements in air quality in the nonattainment area. For this purpose, EPA continues to believe that RFP requirements for PM2.5 are best defined such that states evaluate emissions of each pollutant throughout the area that contributes to PM2.5 concentrations in the nonattainment area.

As described in the proposed rulemaking, EPA expects each area's attainment demonstration to identify many of the parameters for determining whether the area is achieving RFP. First, the attainment plan will identify the pollutants that are being reduced to achieve attainment. Second, the attainment plan will identify the amount of reduction of each pollutant and the date by which attainment can be achieved. This information suffices to calculate a baseline set of reductions to be achieved by 2010 to provide for RFP. Third, where a state chooses to achieve RFP by reducing some pollutants earlier than others, the attainment plan will provide the information needed to assess whether the intended set of reductions can be expected to provide equivalent air quality improvement. Fourth, if the State intends to include emissions sources located outside the nonattainment area in its RFP plan, the attainment plan must provide information justifying the inclusion of such sources.

EPA's proposed rulemaking identified several expectations regarding regional versus local impacts. For directly emitted fine particulate matter (including organic and other carbonaceous particles as well as miscellaneous inorganic particles), EPA recognized that impacts are commonly localized, and that direct PM2.5 emissions outside the nonattainment area should not be included in the RFP plan. Conversely, EPA recognized the regional nature of secondarily-formed sulfate and nitrate, and proposed that states could justify inclusion in the RFP plan of SO2 and NOx emissions sources located within 200 kilometers of the nonattainment area.

EPA recognizes that fine particles travel over long distances, and that distant emissions of SO2 and NOx emissions can influence a nonattainment area's air quality. At the same time, distant sources can be expected to have less impact than sources closer to the nonattainment area. EPA's procedures for assessing RFP rely on a general assumption that all the sources included in the assessment have a comparable impact per ton of emissions. For this reason, it would be inappropriate to include distant emission sources in the assessment. Indeed, the limiting of consideration of SO2 and NOx emissions to a 200 kilometer range is intended to assure that only sources with comparable impacts are included in the assessment.

b. ~~ii~~ Final Policy

The policy for addressing primary emissions in RFP plans remains unchanged from the proposal: only emissions from within the nonattainment area may be included. Conversely, for SO2 and NOx, EPA believes that states could be able to justify considering not only all emissions in the nonattainment area but also all stationary, area, and mobile emissions (other than onroad mobile emissions) within a distance that may be up to 200 kilometers from the nonattainment area. States may also be able to justify consideration of VOC and ammonia emissions outside the nonattainment area on a case-by-case basis. EPA believes that onroad mobile source emissions outside the nonattainment area should not be considered, to avoid conflicts with transportation conformity policy which, for several reasons, focuses on emissions within the nonattainment area. The State cannot include only selected sources providing emission reductions in the analysis. The inventories for 2002, 2010, 2012 (where applicable) and the attainment year would reflect the same source domain (i.e. the same set of sources except for the addition of any known new sources or removal of known, creditable permanently shutdown sources).

EPA is further restricting the geographic area to be included in RFP assessments to include only areas within the state or states represented in the nonattainment area. For a single state nonattainment area, only emissions within that state would be considered, even if other states may be within 200 kilometers of the nonattainment area. For multi-state nonattainment areas, only regions within states represented in the nonattainment area shall be included in the RFP assessment. This restriction is intended to address commenters' concerns about the enforceability of emission reductions included in the RFP assessment and helps assure accountability for these reductions. This topic is discussed further in the discussion below about multi-state nonattainment areas.

Based on its review of the comments, EPA is revising its approach for considering regional emissions. EPA will continue to support consideration of SO2 and NOx emissions out to as much as 200 kilometers from the nonattainment area (provided the state justifies these emissions as having substantial impact within the nonattainment area). However, for the area outside the nonattainment area, EPA will expect state RFP assessments to reflect emissions changes from all sources in this area other than onroad mobile sources. The State cannot include only selected sources providing emission reductions in the analysis. EPA is retaining the approach that RFP assessments may not include primary emissions from sources outside the nonattainment area. If a State regulates VOC or ammonia emissions as part of its attainment strategy, the RFP plan must include these emissions. In the event that a State technical demonstration indicates that emissions of VOC or ammonia from sources outside the nonattainment area contribute significantly to PM2.5 concentrations in the nonattainment area, EPA will consider on a case-by-case basis whether it would be appropriate to include such emissions sources in the RFP plan.

c. ~~iii~~ Comments and Responses

EPA received numerous comments on its proposal regarding how regional versus local impacts would be addressed. Multiple commenters objected to EPA's proposal that states could consider sources reducing emissions but ignore neighboring sources increasing emissions. Other commenters recommended that EPA support granting credit for primary emission reductions that occur outside nonattainment areas. A few commenters also recommended different treatment of selected pollutants, in particular recommending the EPA provide for consideration of VOC and ammonia emission reductions outside the nonattainment area.

~~*Comment:*~~*Comment:* Several commenters objected to the methods by which EPA proposed to account for reductions outside the nonattainment area. A set of commenters stated that if indeed sources outside the nonattainment contribute to nonattainment , "then EPA cannot lawfully or rationally allow the state to claim RFP credit from a single source's reductions without including in the baseline emissions from all sources (mobile, area and stationary) within the same distance from the nonattainment area, and without calculating the impacts of increases and decreases in such emissions on RFP. Viewing reductions from a single 'outside the area' source in isolation will invariably provide an incomplete and inaccurate picture of the actual increase or decrease in emissions contribution to the nonattainment area from all 'outside the area' sources. Moreover, EPA's proposal creates numerous opportunities to game and undermine the system. By allowing nonattainment areas to rely on RFP reductions made outside the nonattainment area, the proposed rule strays from the Act's focus on achieving emissions reductions from sources within the nonattainment area." Another commenter insisted that states should not be allowed to consider emissions from sources outside the area unless they can demonstrate the impacts of these sources on nonattainment area concentrations.

In addition, a commenter objected to consideration only of sources that are reducing emissions and recommend that EPA allow credit for upwind source reductions only "on the condition that all other major sources in the 200 kilometer boundary are also not allowed to increase emissions." Another commenter supported an option which states would only consider emissions within the nonattainment area, observing that to consider emissions outside the nonattainment would be difficult to administer and might inappropriately "dilute the reductions needed in the nonattainment area." This commenter also observed that a 200 kilometer limit does not include much of the emissions that yield long range transport. Another commenter supported crediting reductions outside the nonattainment area but requested that EPA define the area to be considered.

~~*Response:*~~*Response:* EPA has reevaluated these issues and agrees that significant changes in the methods of assessing RFP are warranted. In particular, EPA agrees that examining emissions reductions of only selected sources outside the nonattainment area gives an inaccurate assessment of the progress that an area is making. Indeed, a process that credits emission reductions at Source A but ignores emission increases at neighboring Source B does not properly assess whether incremental air quality improvements can be expected.

The commenters suggest various remedies for this problem. One suggestion is to include all sources within the area that is used. Another suggestion is to allow no consideration of emissions outside the nonattainment area. Yet another suggestion is to allow consideration of selected sources so long as other sources do not increase emissions.

EPA is adopting a modified version of the first of these suggestions: for the pertinent area outside the nonattainment area, the RFP assessment must include emissions (for all years evaluated) for all stationary sources. EPA believes that emissions of some pollutants outside the nonattainment area may have roughly comparable impact as comparable emissions within the nonattainment area, so that these emissions would warrant inclusion in assessing whether the area is making reasonable further progress. The suggestion to make an absence of emission increases a prerequisite for considering emissions outside the nonattainment area does not provide proper accounting when the prerequisite is met and fails to consider potentially significant emissions when the prerequisite is not met.

Some commenters recommended that any inclusion of emissions outside the nonattainment area should incorporate emissions from all mobile sources as well as all area and point sources. However, EPA believes that various policy considerations warrant exclusion of mobile source emissions that occur outside the nonattainment area. Mobile source emissions are subject to a transportation conformity review process, a process designed for managing the level of mobile source emissions. For practical reasons, these emissions are most effectively managed on a local level, within a geographic area that is at least approximately equivalent if not identical to the nonattainment area. EPA believes that the set of mobile source emissions considered in the RFP plan must match the set of emissions managed in the transportation conformity process. Therefore, EPA continues to believe that RFP assessments should consider mobile source emissions only within the nonattainment area, and the consideration of emissions outside the nonattainment area (if justified) shall include all other sources.

The relevant comments in general did not address the dimensions of spatial domain of the sources outside the nonattainment area that would be used in assessing RFP. EPA agrees with a commenter urging, as a prerequisite to including sources of the pertinent pollutants outside the nonattainment area in the assessment, that states must justify the inclusion of sources outside the nonattainment area. Another commenter recommends that EPA define the area to be included. Since the demonstrations of impact are best done by states, in conjunction with their attainment planning, EPA does not intend to mandate specific distance ranges for states to justify.

~~*Comment:*~~*Comment:* Numerous commenters recommended that EPA allow credit for primary emission reductions outside the nonattainment area. Some of these commenters also recommended that EPA allow credit for mobile source emission reductions outside the nonattainment area. Other commenters supported EPA's proposed approach, in which states may justify considering precursor emissions outside the nonattainment area but must evaluate primary emissions based solely on emissions within the nonattainment area.

~~*Response:*~~*Response:* Under Section 107 of the Clean Air Act, EPA is to promulgate nonattainment areas that include areas nearby to the violations that contribute to the violations. Given the spatial scale of the impacts of primary emissions, EPA believes that any primary emission source that demonstrably influences nonattainment area violations (i.e., contributes to these violations) would also be considered to be nearby to the violations for designation purposes. EPA believes that it has properly defined the nonattainment areas to include all nearby contributing sources. Nevertheless, EPA asks anyone with evidence that an additional source or source area contributes to violations in a nonattainment area to submit that information to EPA and to recommend incorporation of that source or source area into the nonattainment area.

EPA has commented on consideration of mobile source emissions above. Again, EPA believes that consideration of mobile source emissions outside the nonattainment area would lead to conflicts with the transportation conformity program; therefore, EPA is not providing for consideration of mobile source emissions outside the nonattainment area.

~~*Comment:*~~*Comment:*   A commenter states that “RFP credits for VOC should be granted for reductions achieved within the nonattainment area as well as [within] geographical limits outside of the nonattainment area.” This commenter supports consistency with the ozone policy, which allows credit for NOx reductions within 200 kilometers and VOC reductions within 100 kilometers of the nonattainment area. Another commenter makes similar comments regarding VOC and comments that “[a]s the science and understanding of PM-2.5 formation increases, EPA must revisit the 200 kilometer parameter and develop a possible proposal for ammonia.”

~~*Response:*~~*Response:*   Conceptually, EPA agrees that in areas where VOC emissions outside the nonattainment area are shown to be a significant contributor to nonattainment area PM-2.5 concentrations, presumably by reducing the formation of organic particles that influence nonattainment area concentrations, reduction of these VOC emissions could help improve in nonattainment area air quality. Therefore, EPA is revising its policy to accommodate consideration of these impacts. EPA's presumptions for RACM (including RACT) purposes reflect its judgment that these impacts will generally be small, but the impacts are appropriate to consider when they can be properly quantified and justified.

Nevertheless, EPA must highlight the technical challenges involved in assessing the impacts of VOC emission reductions. First, it is essential that the impacts of secondary organic particle formation from anthropogenic VOC emissions be differentiated from the impacts caused by biogenic VOC emissions and from the impacts of primary organic particle emissions. Second, the process of organic particle formation is highly complex, and currently available atmospheric models typically perform poorly in assessing the mass of particles thus formed. Third, the distance range of impacts, and to be more precise the distance range over which source impacts are comparable, is especially uncertain. While the distance range for organic particle formation is not necessarily the same as for the influence of VOC on ozone formation, it may be appropriate to focus on sources within 100 kilometers of the nonattainment area for both purposes, as the commenter recommended.

EPA is not prepared at this time to establish generally applicable guidance with respect to how RFP plans should address ammonia in cases where that precursor is found to be significant. EPA expects most state plans not to regulate ammonia emissions, so for most states this will be a moot issue. States that do expect to regulate ammonia emissions should consult their regional office regarding appropriate approaches for their particular areas. EPA agrees with the commenter that EPA should revisit the range of issues regarding geographic distances of impacts as more information and understanding become available.

6. Pollutants to be addressed in the RFP plan

~~c. Pollutants Addressed~~

a~~i~~. Background

A number of commenters appeared to be confused by the discussion in the notice of proposed rulemaking regarding the pollutants to be included in the RFP assessment. EPA proposed that the attainment demonstration would provide the key parameters of the RFP demonstration, and that the list of pollutants to be addressed in the RFP demonstration would match the list of pollutants regulated as part of the attainment demonstration. However, the notice of proposed rulemaking also suggested that the presumptions regarding whether different pollutants are to be regulated under NSR and RACT would also apply to RFP. This led some commenters to recommend different treatment of specific pollutants.

In fact, the presumptions of applicability that EPA is promulgating for RACM are not germane to RFP. The pollutant coverage of RFP assessments is determined on an area-specific basis according to each area’s attainment demonstration, and EPA need not establish presumptions as to what pollutants are included in the RFP assessment. For example, if a state includes no NOx emission reductions in its attainment plan, then the RFP plan would not include NOx, irrespective of whether the (uncontrolled) NOx emissions contribute significantly to the areas PM-2.5 concentrations.

The contrast between establishment of presumptions for RACM and having no such presumptions for RFP (or for attainment demonstrations) reflects differences in regulatory context. For RACM, at issue is whether the impact of the pollutant is sufficient to warrant full implementation of the RACM requirements. For RFP (as for attainment plans), in contrast, EPA is allowing states to implement no incremental reductions for any particular pollutant or pollutants, so long as compensating extra incremental reductions are made for other pollutant(s), and there is no need to make a judgment as to whether the reductions for a particular pollutant are significant. For this reason, EPA is making no presumptions as to what pollutants will be included in RFP plans.

b~~ii~~. Final Policy

As proposed, the pollutants to be addressed in the RFP plan are those pollutants that are subject to control measures in the attainment plan.

c~~iii~~. Comments and Responses

~~*Comment:*~~*Comment:* A commenter states that "VOC should be considered a presumptive PM-2.5 precursor." Another commenter recommends presuming that VOC and ammonia are included in the RFP plan.

A third commenter recommends against including condensables in RFP plans. This commenter is concerned that states would set milestones based on current understanding of condensable emission rates and then changes in the understanding of condensable emission rates would yield violations of those milestone levels through no fault of the sources with condensable emissions.

~~*Response:*~~*Response:* EPA's approach to RFP does not rely on presumptions as to whether a pollutant does or does not warrant regulation as a precursor. Instead, pollutants are to be included or excluded according to whether the attainment demonstration includes emission controls for the pollutant that yield quantitative air quality benefits. Thus, irrespective of the presumptions applicable to RACM, the RFP plan would not include VOC unless the attainment plan reflects air quality improvements from VOC emission controls. The challenges of addressing VOC as part of an RFP plan were discussed earlier in this section. Similarly, ammonia would be included in the RFP plan if and only if the attainment plan regulates ammonia emissions.

The comment on condensables appears to reflect a misunderstanding of the nature of RFP milestones. EPA views the RFP as a planning requirement, wherein states apply current understanding of emissions to judge whether areas can be expected to achieve suitable reductions in emissions at specified interim dates. Today's rule does not establish specific requirements for states to conduct a review for example in 2011 to assess whether the milestones projected in the April 2008 RFP plan were met. As explained in section 9 below, EPA is instead relying more heavily on midcourse reviews. For areas with attainment deadlines extended at least to 2014, EPA believes that a complete reassessment of the attainment plan would provide a more timely and productive evaluation of whether the areas are on track toward timely attainment. In this reassessment, changes in our estimations of condensable emissions would be used along with improvements in our understanding of atmospheric chemistry and other attainment plan elements.

The treatment of condensable emissions in RFP plans differs slightly from the treatment of other pollutants, insofar as condensable emissions are often only a subset of a broader category of emissions. In particular, condensable organic particle emissions would commonly be treated as a subset of total organic particle emissions. The RFP plan must address organic particle emissions if the attainment plan involves control of organic particle emissions, in which case the condensable fraction of organic particle emissions would be included in the assessment, irrespective of whether control of the condensable fraction is planned. Nevertheless, the concern about inclusion of condensable emissions in the RFP plan is misplaced, insofar as EPA does not contemplate an RFP milestone review process, and areas would not fail an RFP milestone review simply because our knowledge of condensable emissions improved.

7.

~~d.~~ Equivalent air quality improvement~~Equivalency~~

a~~i~~. Background

EPA proposed that states could use alternative combinations of various types of emission control programs to meet RFP requirements if the alternative would be expected provide air quality improvements that are approximately equivalent to those of the benchmark emission reductions. Some control programs for some pollutants can be implemented more quickly than other control programs. EPA believes that it is unnecessary to require that all pollutants be reduced at the same rate or by the same fraction of the ultimate attainment plan reductions. EPA believes instead that the states should have flexibility to “mix and match” control strategies, so long as they provide a demonstration that the adopted approach can be expected to yield approximately the same air quality progress as an approach in which the state achieves an identical fraction of the attainment strategy for all pollutants by the progress target date.

The notice of proposed rulemaking presents illustrative examples of the assessment of RFP, illustrating EPA's recommended approach for establishing a benchmark set of emission reductions and illustrating EPA's recommended procedures for whether modified approaches that control some pollutants earlier than other pollutants may be considered equivalent. Those examples will not be repeated here.

Most commenters supported EPA's proposal to allow alternative combinations of control that can be shown by simple means to be equivalent. A set of environmental commenters objected to this approach, given the uncertainties involved in the equivalency assessment. Nevertheless, for this aspect of RFP policy, EPA's final policy reflects the policy that it proposed.

b~~ii~~. Final Policy

EPA is adopting an approach that establishes a benchmark level of controls but allows states the flexibility to adopt any combination of controls of the various pollutants that can be shown to provide equivalent benefits using procedures that EPA is recommending. The first step is to determine the ratio of the number of years from the baseline year to the progress target year (e.g., the 8 years from 2002 to 2010) divided by the number of years from the baseline year to the year in which attainment level emissions are achieved (e.g. the 10 years from 2002 to 2012, for an area with a 2013 attainment deadline). The benchmark level of controls is then determined by multiplying this ratio times the level of control being achieved for each pollutant. For example, for an area with an attainment deadline extended to 2013, the benchmark level of controls would reflect 8/10 of the emission reductions of each pollutant that is controlled in the attainment plan.

The equivalency process involves consideration of the air quality benefits for the emission reductions in the alternative plan for each regulated pollutant. In effect, the air quality benefits for each pollutant are used as weighting factors, such that pollutants for which controls yield larger benefits are weighted more heavily in determining the adequacy of the resulting plan. For each pollutant, the first step is to find the ratio of the emission reductions achieved by the RFP review date (e.g. the emission reductions achieved between 2002 and 2010) divided by the emission reductions achieved by the attainment date. The second step is to multiply this ratio times the air quality improvement attributable to full implementation in the attainment year of the attainment strategy relevant to that pollutant. The third step is to add these pollutant-specific results to obtain a total estimated air quality benefit of the alternative plan.

The air quality benefits of the benchmark reductions are easier to determine. The first step, inherent to defining the benchmark reductions, is to determine the ratio of the number of years to the RFP review divided by the number of years to attainment level emissions (in the example above, 8/10). The second step is simply to multiply this ratio times the quantity of air quality improvement achieved by the attainment plan. (Conceptually, the calculations are the same as are done for the alternative plan, but the mathematics are simpler because one is applying the same assumed fraction of the attainment plan emission reductions (e.g. 8/10) for all pollutants, so that there is no need to subdivide by pollutant.) For each review date, any alternative that provides estimated air quality benefits by the RFP review date that are at least as much as the estimated benefits of the benchmark level of emission reductions shall be considered to satisfy RFP requirements.

c~~iii~~. Comments and Responses

~~*Comment:*~~*Comment:* A set of commenters argues that the equivalency process is too uncertain, and recommends instead that states be required to achieve at least a fixed percentage reduction for all pollutants. The commenters cites the uncertainties acknowledged by EPA, including potential nonlinearity (i.e. that a given percentage of an emission reduction may yield a different percentage of the related air quality benefit). The commenters contrast EPA's willingness to accommodate these uncertainties, for purposes of giving states flexibility for alternate RFP plan designs, with EPA's unwillingness to accommodate the uncertainties inherent in regulating ammonia emissions. The commenters state that "Rather than propose a standardized process for coherently determining 'equivalency,' EPA embraces the possibility that States will invent multiple and disparate methodologies." The commenters argue that the need for certainty in achieving emission reductions trumps the benefits of state flexibility, not the other way around. The commenters state that if "EPA decides nonetheless to accept equivalency demonstrations, it should at least . . . require States to conduct dispersion modeling" to confirm equivalency. The commenters further find unlawful the fact that EPA would allow "rough equivalency" rather than full equivalency to the benchmark approach. The commenters would prefer that EPA required a fixed percentage reduction of the emissions of direct PM-2.5 emissions and of each precursor.

~~*Response:*~~*Response:* EPA believes that its proposed approach satisfies the intent of the RFP requirement, which is to make ongoing, steady progress toward attainment rather than backloading control strategies. A requirement to obtain at least a given percentage of each of the pollutants that contribute to PM-2.5 concentrations would impose an inflexibility that EPA concludes is unnecessary where not required by the statute. EPA proposed to require that areas achieve emission reductions that are generally linear, and a plan that provides for rough equivalency to the benchmark approach would indeed provide generally linear reductions. The commenters' request asking EPA to establish a standardized process for assessing equivalency is superfluous, because EPA in fact proposed and is finalizing a standardized process for assessing equivalency. It is not clear whether the fixed reduction percentage that the commenters are recommending would be an area-specific percentage (such as EPA uses to define the benchmark approach) or a universally applicable percentage (such as 3 percent per year). If the former, then EPA would repeat the response above regarding flexibility being consistent with the Act's requirements; if the latter, then responses in III.H.4 regarding a fixed reduction percentage apply. EPA believes that the procedures it is establishing to assess equivalency are adequate for assessing RFP and that dispersion modeling need not be required for this purpose.

84. Other RFP Issues

a. Multi-state nonattainment areas

As stated in the proposed rulemaking, EPA seeks to ensure that nonattainment areas that include more than one State meet RFP requirements as a whole. Some commenters expressed concern about how one state's submittal should address emissions in other states, including how the state might address questions about the enforceability of another state's requirements.

The issues here resemble the issues for attainment demonstrations. In that context as well, EPA seeks plans that reflect active consultation by the affected states and provide a combination of reductions that are enforceable by the respective states that collectively provide for attainment. The active involvement of regional planning organizations helps assure a collective design of a plan with specific requirements to be adopted by specific states. Likewise for RFP, EPA would expect states with multi-state nonattainment areas to consult with other involved states, to formulate a list of the measures that they will adopt and the measures that the other state(s) will adopt, and then to adopt their list of measures under the assumption that the other state(s) will adopt their listed measures. That is, each state would be responsible for adopting and thereby providing for enforcement of its list of measures, and then that state and ultimately EPA (at such time as the plan is approved) would be responsible for assuring compliance with the SIP requirements.

In accordance with this view of RFP, as is the case for attainment plans, EPA expects states sharing a multi-state nonattainment to submit a common assessment of whether RFP will occur. As a default, if the assessment only includes emissions within the nonattainment area, then each state would submit an assessment based on emissions from the full nonattainment area including portions of the area in other states. If the assessment includes precursor emissions from additional area outside the nonattainment area, then the states should have a common rationale for the area included, and all affected states would use the same inventory of the same multi-state area thus defined in assessing whether RFP will occur. EPA would judge such submittals based on 1) whether the overall projected emission reductions will achieve RFP and 2) whether the submitting state has adopted the necessary enforceable measures to assure that the reductions projected within its boundaries will in fact occur.

As a point of clarification, even if a state justifies consideration of emissions outside the nonattainment area in its RFP assessment, EPA intends that these assessments not use emissions from outside the state or states represented in the nonattainment area. For single state nonattainment areas, only emissions within that state would be considered. This will help assure accountability for the emission reductions included in the plan.

b. Tribal areas

EPA received no comments on its proposed policy regarding RFP for tribal areas, and EPA is finalizing the proposed policy. Under its Tribal Authority Rule (40 CFR 49.4), EPA found that it was not appropriate to apply SIP schedule requirements to tribes. For similar reasons, EPA is not requiring tribes to submit RFP plans. Generally this exemption will have limited if any impact on the achievement of RFP by an area. Nevertheless, consistent with its general role in implementing programs for tribes where "necessary and appropriate," EPA will work with the affected tribes and states to ensure that emissions on tribal lands are appropriate addressed. EPA intends to ensure that areas that include both state and tribal lands will satisfy RFP on a collective basis, similar to the policy applicable to multi-state nonattainment areas.

9~~5~~. Mid-Course Review

a. Background

EPA proposed requiring mid-course reviews on a case-by-case basis. The proposal described a mid-course review as a combination of reviews aimed at assessing whether a nonattainment area is or is not making sufficient progress toward attainment of the PM2.5 standards. The proposal describes the mid-course review as involving "three basic steps: (1) Demonstrate whether the appropriate emission limits and emission reduction programs that were approved as part of the original attainment demonstration and SIP submittal were adopted and implemented; (2) analyze available air quality, meteorology, emissions and modeling data and document relevant findings; and (3) document conclusions regarding whether progress toward attainment is being made using a weight of evidence determination."

EPA is promulgating mid-course review requirements as part of a set of requirements for implementing the Clean Air Act requirements for reasonable further progress. For areas that demonstrate attainment by 2011, EPA believes that this attainment demonstration also demonstrates that reasonable further progress is being achieved. For areas that demonstrate attainment after 2011, EPA is requiring states to submit a plan, due in April 2008, showing that emissions in 2010 and, in some cases, in 2012, will be sufficiently reduced to provide generally linear progress toward levels that are expected to yield attainment. At issue here is how then to conduct ongoing tracking of whether the planned progress toward attainment is in fact occurring. Subparts 2 (for ozone) and 4 (for PM-10) include explicit requirements for ongoing milestone tracking. Since Subpart 1 (applicable for PM-2.5) allows EPA flexibility in determining how ongoing progress is to be tracked, EPA has the flexibility to adopt other approaches for achieving the necessary assurances that ongoing progress toward attainment is occurring. Milestone reviews can be confounded by changes in inventory methods (a concern expressed by a commenter particularly with respect to condensable emissions) and involve lengthy delays while inventories are compiled before planning can begin. Other approaches involving only air quality data reviews also do not provide for timely planning, insofar as such approaches involve waiting for three years of air quality data after implementation of controls before planning can begin. EPA believes that a mid-course review provides the most productive approach, in lieu of establishing milestone tracking or other requirements to assure that ongoing progress in reducing emissions is being achieved. For this reason EPA proposed a requirement for mid-course reviews in its proposed rulemaking.

EPA proposed a process for establishing and implementing mid-course review. After the state submits an attainment plan (due in April 2008), EPA would evaluate whether a mid-course review is warranted after considering various factors including factors identified in the proposal. EPA did not propose to conduct further rulemaking on establishing this requirement, but EPA proposed that "[w]here EPA finds that a MCR would be required, the approval of the [attainment] demonstration would be contingent on a commitment from the State to conduct the MCR." The mid-course review would then be due April 2010. EPA's proposal also stated that "EPA would determine [based on review of the mid-course review] whether additional emissions reductions are necessary," so that states would need to complete the mid-course review "three or more years before the applicable attainment date to ensure that any additional controls that may be needed can be adopted [in timely fashion]" Finally, EPA stated "[i]f a mid-course review will be required for certain PM2.5 nonattainment areas, separate PM2.5 mid-course review guidance will be written to address the specific requirements of PM2.5 nonattainment areas."

EPA received numerous comments objecting to EPA's proposed approach. Several commenters noted the inconsistency between requiring a mid-course review in April 2010 versus requiring a mid-course review due 3 or more years before an attainment date of 2012 or earlier. Multiple commenters objected to EPA requiring a mid-course review only 2 years after the initial attainment plan is due. A commenter requested "nationally applicable guidance on when an MCR would be required and what it would need to include." No commenters supported EPA's timeline for mid-course reviews.

Based on the comments that EPA received, EPA has reevaluated the process for mid-course reviews. Upon reevaluation, EPA shares many of the concerns expressed by commenters about the proposal. The proposal indeed presents conflicting dates for submittal. EPA agrees that a deadline just two years after the initial SIP submittal is too soon for states to conduct meaningful analyses of whether areas are progressing toward attainment. This problem would be exacerbated by the proposed process, in particular the fact that states would not know to begin work on a mid-course review until after they had submitted their initial SIP and after EPA had sufficiently reviewed the submittal to determine the need for a mid-course review. An early mid-course review also would defeat some of the purpose of the mid-course review, which is to take advantage of advances in the science and understanding of the nature of condensables and other components of PM-2.5, to adjust plans to be better targeted at solving problems.

For these reasons, EPA is significantly revising its approach to mid-course reviews as recommended by the commenters. EPA is establishing a rule which provides more certainty to the states as to applicability and content of mid-course review requirements, thereby avoiding the need for future EPA rulemakings on the subject. EPA's rule clearly exempts states with early attainment dates from a mid-course review requirement and would clearly mandate a mid-course review only for areas with later attainment dates. EPA's final rule clarifies the content of mid-course reviews and provides for states to make decisions on whether further controls are needed rather than having EPA make this determination. The mid-course review shall include an updated modeled attainment demonstration as well as a review of the implementation of measures in the April 2008 SIP and a review of recent air quality data. EPA believes that all of these elements are necessary and should be sufficient for the state to identify whether additional measures are needed to achieve timely attainment. EPA believes that states should make the initial determination as to whether additional measures are needed, not EPA, and EPA believes that mid-course reviews that include all these elements are necessary and sufficient for this to occur.

EPA is promulgating a fixed date of April 2011 as a date for submittal of mid-course reviews for areas with attainment dates of 2014 or 2015. This fixed date will facilitate joint planning for multiple areas to apply common assumptions regarding regional transport. This date also gives states adequate notice for preparing these reviews and adequate time after the April 2008 submittal to incorporate new information and understanding of PM-2.5 nonattainment problems to adjust attainment strategies as appropriate.

EPA is exempting areas demonstrating attainment by 2013 or before from the requirement for a mid-course review. Such areas will have attainment level emissions by 2012, and EPA believes that an April 2011 mid-course review would not provide a timely reassessment of such areas' attainment plans. Instead, EPA is clarifying that mid-course reviews are only required for areas that cannot demonstrate that attainment will be achieved before 2014.

b. Summary of Final Rule

EPA is requiring mid-course reviews for areas with attainment date extensions to 2014 or 2015. The EPA would require submittal of the mid-course review by April 2011. The mid-course reviews shall include an updated attainment demonstration as well as a review of the implementation status of measures included in the April 2008 submittal and a review of recent air quality data. The state shall determine whether additional measures are needed for timely attainment, just as the state is responsible for determining whether additional measures are needed in the April 2008 attainment demonstration, subject to formal EPA SIP review. EPA is not requiring RFP milestone reviews, and EPA is requiring mid-course reviews for areas with sufficiently extended attainment dates in lieu of any other form of tracking reasonable progress.

c. Comments and Responses

~~*Comment:*~~*Comment:* Multiple commenters objected to EPA's proposed timeframe that would have areas submit a mid-course review only two years after the initial SIP is due. They recommended, instead, that areas with attainment dates two years or more beyond the first five-year period submit mid-course reviews three years after the SIPs are due (April 2011) and every three years thereafter, if necessary. Their reason for this suggestion is that the timing of mid-course review requirements needs to be clearer and should allow adequate time between plans and mid-course reviews if they are to serve as meaningful reviews.

Multiple commenters also noted an inconsistency in the timing of mid-course review requirements under EPA's proposal. EPA proposed that mid-course review submittals would be due 5 years after the initial designation, which for all the original designations means 5 years after April 2005, i.e. April 2010. However, EPA also proposed that mid-course reviews would be due 3 years before the attainment date, which for areas with an April 2012 attainment date means April 2009. The commenters considered April 2009 for a mid-course review submittal to be too soon after the initial SIP submittal in April 2008, arguing that EPA would not have had time to review the 2008 SIP submittal, and the States would not have time to prepare a mid-course review by 2009. Some of these commenters expressed a view that EPA should not require mid-course reviews earlier than three years after the SIP submittal date.

~~*Response:*~~*Response:* EPA agrees with these comments. EPA is remedying the inconsistency in submittal dates by establishing the single submittal due date of April 2011 that was recommended by the commenters. As requested by commenters, EPA is also clarifying the applicability of the mid-course review requirement, clarifying that this requirement shall apply to areas with attainment dates extended to 2014 or 2015 and clarifying that mid-course reviews shall not be required for areas that are expected to attain the standards by 2013. This approach will allow states subject to this requirement to get an earlier start on this planning and not be delayed waiting for EPA to determine whether a mid-course review is necessary. Finally, EPA is adopting a mid-course review requirement that does not involve the delays waiting for compilation of emissions or pertinent air quality data that would be involved in other approaches for tracking whether reasonable further progress is occurring.

~~*Comment:*~~*Comment:* A commenter supports mid-course reviews as a means of assuring that areas with longer-term compliance dates are on track to attain the NAAQS as expeditiously as practicable.

~~*Response:*~~*Response:* The EPA agrees that mid-course reviews can be a critical step in assuring expeditious attainment for areas with extended attainment dates. Indeed, EPA is relying on mid-course reviews rather than milestone reviews or other forms of RFP tracking to serve this purpose.

~~*Comment:*~~*Comment:* A commenter recommended eliminating mid-course review requirements for any area with less than seven years between SIP submittal and attainment by suggesting that the proposal language on mid-course reviews contains an inconsistency in timeline milestones. The commenter urged that EPA carefully reconsider its overall time lines for PM2.5 while considering the feasibility and practical usefulness of the steps required of States and emission sources.

~~*Response:*~~*Response:* EPA agrees with this comment. In response, EPA is eliminating the requirement for mid-course reviews for areas demonstrating attainment prior to 2014. For those areas that cannot demonstrate that attainment will occur prior to 2014, EPA has streamlined the mid-course review process so that the state bears responsibility for making the initial determination as to whether additional measures are needed to achieve timely attainment, rather than requiring additional steps of EPA rulemaking and initial findings by EPA as to the level of controls in the state's SIP. With the revised timetable, states can be assured of a meaningful mid-course review effort that focuses on the areas that particularly warrant such a review and for which time is available for a productive assessment of the need for additional measures.

~~*Comment:*~~*Comment:* One commenter stated that the proposal that allows the Agency to determine whether or not a State needs to submit a mid-course review with their attainment demonstration on a case- by-case basis lacks sufficient information. Since these attainment demonstrations must meet rigorous criteria, and require substantial work by the States, despite the onerous burden facing the States, the proposal neglects to outline the criteria EPA will use to make the case-by-case mid-course review determinations. The commenter asks that EPA provide the States with nationally applicable guidance on when an MCR would be required and what it would need to include. This guidance should be timely, and must be consistent for all areas.

~~*Response:*~~*Response:* EPA agrees with this comment. In particular, EPA agrees that establishing clear criteria for applicability and content of a mid-course review requirement will provide states the opportunity to plan for these reviews and conduct appropriate reviews in a timely fashion. Therefore, this final rule is establishing specific criteria for the applicability of the mid-course review requirement, namely that a mid-course review shall be conducted for any area that cannot demonstrate attainment before 2014. This final rule is also identifying the necessary elements of this mid-course review, i.e. a review of the implementation of measures in the 2008 SIP, and review of recent air quality data, and an updated modeled attainment demonstration. EPA agrees that its guidance must be timely and consistent for all areas, and EPA believes that its final rule achieves these imperatives.

H. Contingency Measures

a. Background.

Under subpart 1 of the CAA, all PM2.5 nonattainment areas must include in their SIPs contingency measures consistent with section 172(c)(9). Contingency measures are additional control measures to be implemented in the event that an area fails to meet RFP or fails to attain the standards by its attainment date. These contingency measures must be fully adopted rules or control measures that are ready to be implemented quickly upon failure to meet RFP or failure of the area to meet the standard by its attainment date. The preamble to the proposal stated that the SIP should contain trigger mechanisms for the contingency measures, specify a schedule for implementation, and indicate that the measures will be implemented without significant further action by the State or by EPA. The contingency measures should consist of other control measures for the area that are not included in the control strategy for the SIP.

The April 16, 1992 General Preamble provided the following guidance: "States must show that their contingency measures can be implemented without further action on their part and with no additional rulemaking actions such as public hearings or legislative review. In general, EPA will expect all actions needed to affect full implementation of the measures to occur within 60 days after EPA notifies the State of its failure." (57 FR at 13512.) This could include Federal measures and local measures already scheduled for implementation, as explained below.

The EPA has approved numerous SIPs under this interpretation – i.e., that use as contingency measures one or more Federal or local measures that are in place and provide reductions that are in excess of the reductions required by the attainment demonstration or RFP plan. (62 FR 15844, April 3, 1997; 62 FR 66279, December 18, 1997; 66 FR 30811, June 8, 2001; 66 FR 586 and 66 FR 634, January 3, 2001.) The key is that the statute requires that contingency measures provide for additional emission reductions that are not relied on for RFP or attainment and that are included in the demonstration to provide a cushion while the plan is being revised to meet the missed milestone. In other words, contingency measures are intended to achieve reductions over and beyond those relied on in the attainment and RFP demonstrations. Nothing in the statute precludes a State from implementing such measures before they are triggered. In fact, a recent court ruling upheld contingency measures that were previously required and implemented where they were in excess of the attainment demonstration and RFP SIP. <u>See LEAN v. EPA</u>, 382 F.3d 575, 5th Circuit., 2004.

One basis EPA recommends for determining the level of reductions associated with contingency measures is the amount of actual $PM_{2.5}$ emissions reductions required by the control strategy for the SIP to attain the standards. The contingency measures are to be implemented in the event that the area does not meet RFP, or attain the standards by the attainment date, and should represent a portion of the actual emissions reductions necessary to bring about attainment in area. Therefore, the emissions reductions anticipated by the contingency measures should be equal to approximately 1 year's worth of emissions reductions necessary to achieve RFP for the area.

As stated previously, EPA believes that contingency measures should consist of other available control measures beyond those required to attain the standards, and may go beyond those measures considered to be RACM for the area. It is important, however, that States make decisions concerning contingency measures in conjunction with their determination of RACM for the area, and that all available measures needed in order to demonstrate attainment of the standards must be considered first; all remaining measures should then be considered as candidates for contingency measures. It is important not to allow contingency measures to counteract the development of an adequate control strategy demonstration.

The preamble to the proposal stated that contingency measures must be implemented without “significant further action” after EPA determines that the area has either failed to meet RFP, or has failed to attain the standard by its attainment date. The purpose of the contingency measure provision is to ensure that corrective measures are put in place automatically at the time that EPA makes its determination that an area has either failed to meet RFP or failed to meet the standard by its attainment date. The EPA is required to determine within 90 days after receiving a State’s RFP demonstration, and within 6 months after the attainment date for an area, whether these requirements have been met. The consequences for states which fail to attain or to meet RFP are described in section 179 of the CAA.

2. Final Rule.

Section 51.100x of the final rule includes regulatory text for contingency measures and maintains the overall policy approach as described in the preamble to the proposal. The key requirements associated with contingency measures are:

- Contingency measures must be fully adopted rules or control measures that are ready to be implemented quickly upon failure to meet RFP or failure of the area to meet the standard by its attainment date.
- The SIP should contain trigger mechanisms for the contingency measures, specify a schedule for implementation, and indicate that the measures will be implemented without further action by the State or by EPA.
- The contingency measures should consist of other control measures for the area that are not included in the control strategy for the SIP.
- The measures should provide for emission reductions equivalent to about 1 year of reductions needed for RFP, based on the overall level of reductions needed to demonstrate attainment divided by the number of years from the 2002 base year to the attainment year.

3. Comments and Responses

Comment: Several comments were received concerning the requirement for contingency measures under section 172(c)(9). The proposal indicated that contingency measures adopted as part of the State plan are to be equal to approximately 1 year's worth of emissions reductions necessary to achieve RFP, as determined by the attainment demonstration for the area. One commenter indicates that this amount of reductions for contingency measures may be excessive in some cases. The commenter stated that States should be allowed to demonstrate appropriate amount of reductions for contingency measures in each area based on the degree of the $PM_{2.5}$ nonattainment area problem and the progression of emission reductions planned for the area as a part of the SIP.

Response: The EPA agrees that the CAA does not include the specific level of emission reductions that must be adopted to meet the contingency measures requirement under section 172(c)(9). One possible interpretation of the CAA would assume that contingency measures should be in place in the event that all of the State's measures fail to produce their expected emission reductions. Under this scenario, the State theoretically would be required to adopt sufficient contingency measures to make up for the entire short fall. In other words, the State would have to adopt 'double' the measures required to statisfy the applicable emissions reduction requirements.

The EPA believes that this scenario would be highly unlikely and that this interpretation would be an unreasonable requirement. The adoption of double the measures needed for attainment would be difficult for States. Therefore, the EPA believes that it is reasonable that contingency measures should, at a minimum, ensure that an appropriate level of emissions reduction progress continues to be made if attainment of r RFP is not achieved, or if an area fails to attain the standard by its statutory attainment date and additional planning is needed by the State. The EPA believes that the contingency measures adopted by the State for the affected area should represent a portion of the actual emissions reductions necessary to bring about attainment in the area. Therefore, EPA believes that it is reasonable to require states to adopt contingency measures equal to approximately 1 year's worth of emissions reductions necessary to achieve RFP for the area.

Comment: One commenter claimed that EPA incorrectly quoted the CAA as requiring SIPs to provide for implementation of contingency measures upon an attainment or RFP failure, without ‘significant’ further action by the State or EPA. The commenter stated that section 172(c)(9) does not contain the word ‘significant.’ The CAA requires that contingency measures take effect ‘without further action’ by the State or EPA.

Response: The EPA agrees with the commenter that the general requirements for nonattainment area plans specified under section 172(c)(9) State that each plan must contain additional measures that will take effect without ‘further action’ by the State or EPA if an area either fails to make RFP or fails to attain the standard by the applicable attainment date. Section 51.100x of the final rule describes the contingency measures requirement and does not include the word “significant.” However, as a matter of practicality states need to take minimal steps to make contingency measures effective and alert the affected public that the measures are in force. Thus, EPA has indicated based on conclusions first made in the 1992 General Preamble that states should complete all of these administrative steps within 60 days and that all regulatory steps be completed before SIP submission.

Comment: The commenter further states that EPA is wrong in asserting that contingency measures can include Federal measures and local measures already scheduled for implementation, or previously implemented measures that provide 'excess' reductions. The CAA requires contingency measures to consist of controls 'to be undertaken if' the area fails to meet attainment or RFP. The commenter states that this language clearly states that such measures are to be new measures that will be undertaken upon the triggering event specifically to address RFP or failure to attain, not measures already in place, or measures required for other reasons.

Further, the commenter claims that EPA can not rationally refer to any reductions prior to an attainment or RFP failure as 'excess' when total reductions in the area in fact prove insufficient to meet attainment RFP. The commenter states that EPA cites a 5th Circuit case as support, but the commenter respectfully submits that the case was incorrectly decided on this issue for the aforementioned reasons.

Response: In response to comments claiming that EPA is wrong in asserting that contingency measures can include Federal measures and local measures already scheduled for implementation, or previously implemented measures that provide ‘excess’ reductions, as stated previously, the EPA has approved numerous SIPs under this interpretation. The statute requires that contingency measures provide for additional emission reductions that are not relied on for RFP or attainment and that are included in the attainment demonstration for the area. These measures are intended to provide a “cushion” in terms of emissions reductions for the area while the State is revising the SIP for the area due to the failure to show RFP or attain. In other words, contingency measures are intended to achieve reductions over and beyond those relied on in the attainment and RFP demonstrations. Nothing in the statute precludes a State from implementing such measures before they are triggered.

As noted above, EPA’s General Preamble interpreted the control measure requirements of sections 172(c)(9) and 182(c)(9) to allow nonattainment areas to implement their contingency measures early. 57 FR 13498, 13511 (April 16, 1992). The EPA has applied this interpretation in rulemakings. See, for example, 67 FR 6,590, 6,591-92 (September 26, 2002). See also rulemakings cited in the Background section, above. As set forth above, the Fifth

Circuit has upheld EPA's interpretation. Louisiana Environmental Action Network v. EPA, 382 F.3d 575 (Fifth Cir. 2004). ("LEAN") Commenters have not provided a basis for concluding that the Fifth Circuit in the LEAN case wrongly interpreted the CAA.

Commenters contend that the language in the CAA regarding contingency measure controls "to be undertaken" requires measures not already in place or required for other reasons. The Fifth Circuit disagreed, finding that the terms in section 172(c)(9) — "to be undertaken" and "to take effect" – were ambiguous, and finding persuasive EPA's interpretation that this language allows measures already in place or otherwise required. The Court held:

> "Here, the EPA's allowance of early reductions to be used as contingency measures comports with a primary purpose of the CAA – the aim of ensuring that nonattainment areas reach NAAQS compliance in an efficient manner – and necessary requirements of the CAA." 382 F.3d at 583.

The Court further found that "By utilizing contingency measures early, the contingency measures ensured that 'an appropriate level of emissions reduction progress' would be implemented while the State ‘adopt[ed] newly required measures resulting from the bump-up to a higher classification.” [citing the General Preamble]. Id.

In addition, the Court agreed with EPA that “early reductions are necessary in order to create an incentive for nonattainment areas to implement ‘all reasonably available control measures as expeditiously as practicable’” in accordance with section 172(c)(1) of the CAA. Thus the Court concluded that it would be “illogical to penalize nonattainment areas that are taking extra steps , such as implementing contingency measures prior to a deadline, to comport with the CAA’s mandate that such states achieve NAAQS compliance as ‘expeditiously as practicable.’” Id. at 583-584.

The Fifth Circuit also endorsed the concept of “excess” reductions, noting that the reductions credits at issue in that case, “although already implemented, are in effect set aside, ‘to be applied in the event that attainment is [not] achieved’ and such reduction credits ‘are not available for any other use.’ [citations omitted]. The setting aside of a continuing, surplus emissions reduction fits neatly within the CAA’s requirement that a necessary element of a contingency measure is that it must 'take effect without further action by the State or [EPA]'." The Court concluded that "the early activation of continuing contingency measures is consistent with the purpose and requirements of the CAA statute." Id. at 584.

Thus, EPA's approval of early implemented contingency measures is consistent with the CAA, as well as with EPA guidance. For example, EPA has consistently taken the position that ozone nonattainment areas classified moderate and above must include sufficient contingency measures so that "upon implementation of such measures, additional emissions reductions of up to 3 percent of the emissions in the adjusted base year inventory (or such lesser percentage that will cure the identified failure) would be achieved in the year following the year in which the failure has been identified." 57 FR at 13,511 (EPA's General Preamble). Thus the contingency measures are supposed to ensure that progress towards attainment will occur while the relevant State adopts whatever additional controls may be necessary to correct a shortfall in emissions reductions. Id. EPA has historically allowed early reductions – that is, reductions achieved before the contingency measure is "triggered" – to be used as contingency measures, because if it did not do so it would discourage areas from implementing "all reasonably available control measures as expeditiously as practicable" as required by CAA section 172(c)(1). See also August 13, 1993 Memorandum from G.T. Helms: Early Implementation of Contingency Measures for Ozone and Carbon Monoxide (CO) Nonattainment Areas).

The commenter's argument that emission reductions cannot be valid contingency measures if they are otherwise required is also misplaced. A State must have the legal authority to require whatever reductions it may require as a contingency measure. As EPA has previously stated, "all contingency measures must be fully adopted rules or measures." 62 FR 15,844, 15,846 (April 3, 1997). The fact that the State or Federal government has already exercised that authority is irrelevant because, as noted above, contingency measures must "take effect without further action by the State or [EPA]." Section 172(c)(9). Thus, by definition, the State necessarily will have already exercised its legal authority to require reductions as a contingency measure before the measure is triggered. It does not matter whether or not a specific contingency measure is already required by law, as long as the emissions reductions that will result from that contingency measure have not been accounted for in the attainment and reasonable further progress demonstrations. If the reductions from the contingency measure are not available for any other use, then they are surplus that is set aside in the event reasonable further progress or attainment is not achieved.

A key element of a valid contingency measure reduction is that the State may not use the reduction in its attainment or reasonable further progress demonstrations if it is already using the reduction as a contingency measure. Those demonstrations must account for the actual emissions reductions that will make reasonable further progress towards, and achieve attainment of the NAAQS in the absence of contingency measures.

I. Transportation Conformity

Transportation conformity is required under CAA section 176(c) (42 U.S.C. 7506(c)) to ensure that Federally supported highway and transit project activities are consistent with ("conform to") the purpose of the SIP. Conformity currently applies to areas that are designated nonattainment, and those redesignated to attainment after 1990 ("maintenance areas" with plans developed under CAA section 175A) for the following transportation-related criteria pollutants: ozone, particulate matter ($PM_{2.5}$ and PM_{10}), carbon monoxide (CO), and nitrogen dioxide (NO_2). Conformity to the purpose of the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS (or "standards").

Today's final $PM_{2.5}$ implementation rule does not contain any revisions to the transportation conformity regulation. The EPA addressed the transportation conformity requirements that apply in $PM_{2.5}$ nonattainment and maintenance areas in three separate rulemakings as described below.

First, on July 1, 2004, EPA published a final rule (69 FR 40004) that addressed the majority of requirements that apply in $PM_{2.5}$ areas including:

- regional conformity tests to be used in conformity determinations both before and after SIPs are submitted and motor vehicle emissions budgets are found adequate or are approved;

- consideration of direct $PM_{2.5}$ emissions in regional emissions analyses;
- consideration of re-entrained road dust in $PM_{2.5}$ regional emissions analyses;
- consideration of transportation construction-related fugitive dust in $PM_{2.5}$ regional emissions analyses; and
- compliance with $PM_{2.5}$ SIP control measures.

Then on May 6, 2005, EPA promulgated a final rule (70 FR 24280) that specified the transportation-related $PM_{2.5}$ precursors and when they apply in transportation conformity determinations in $PM_{2.5}$ nonattainment and maintenance areas.

Finally, on March 10, 2006, EPA promulgated a final rule entitled, "$PM_{2.5}$ and PM_{10} Hot-Spot Analyses in Project-Level Transportation Conformity Determinations for the New $PM_{2.5}$ and Existing PM_{10} National Ambient Air Quality Standards" (71 FR 12468). This final rule establishes the criteria for determining which transportation projects must be analyzed for local particle emissions impacts in $PM_{2.5}$ and PM_{10} nonattainment and maintenance areas. This rule establishes new requirements in $PM_{2.5}$ areas and revises existing requirements in PM_{10} areas. If required, an analysis of local particle emissions impacts is done as part of a transportation project's conformity determination.

Transportation conformity for the PM2.5 standards started applying in PM2.5 nonattainment areas on April 5, 2006, 1 year after the effective date of EPA's PM2.5 nonattainment designations (i.e., April 5, 2005). The CAA section 176(c)(6) and 40 CFR 93.102(d) provide a 1-year grace period before conformity applies in areas newly designated nonattainment for a new standard. State attainment demonstrations and SIP submittals would identify any on-road motor vehicle emissions budgets for direct PM2.5 or PM2.5 precursors, as appropriate. These budgets would be used for satisfying transportation conformity requirements, when found adequate by EPA as part of the SIP approval process.

J. General conformity

a. Background

The General Conformity regulations promulgated in 1993 establish an implementation process where Federal agencies are responsible for making their own determination of conformity with State implementation plans (SIPs), and EPA plays an advisory role. Recognizing that it was impracticable to evaluate all Federal actions for conformity, EPA created a number of exemptions in those regulations for actions with insignificant or not reasonably foreseeable emission increases, including exemptions for Federal actions with emissions below specified *de minimis* levels. When a Federal agency must demonstrate conformity for an action, the regulations provide several methods for making that demonstration. With the designations of $PM_{2.5}$ nonattainment areas on April 5, 2005, requirements for demonstrating conformity become effective in those areas on April 5, 2006. We have issued interim guidance that allows for the use of the PM-10 *de minimis* level as a surrogate for $PM_{2.5}$ emissions until the $PM_{2.5}$ *de minimis* level is finalized.

On April 5, 2006 EPA issued a direct final rule and parallel proposal to amend the General Conformity Regulations to establish *de minimis* levels for $PM_{2.5}$ for the General Conformity program. The EPA received two adverse comments on the direct final rule and accompanying parallel proposal establishing 100 tons/year of direct $PM_{2.5}$ emissions and its precursors as the *de minimis* level where the General Conformity regulations would apply in $PM_{2.5}$ nonattainment areas. In accordance with the Administrative Procedures Act requirements, EPA withdrew the direct final rule and is addressing comments in a separate final rule. Two adverse comments were received. One commenter was concerned about emissions from burning by Federal agencies. Another commenter proposed that the *de minimis* level for emissions of direct $PM_{2.5}$ should be set significantly lower than 100 tons – in the range of 25-50 tons per year (TPY) in areas that are likely to attain the $PM_{2.5}$ national ambient air quality standard within 5 years, and a level of 10-25 TPY in areas that are likely to take more than 5 years to achieve the national ambient air quality standard. A third commenter supported the proposed de *minimis* level.

The final rule will revise the tables in sub-paragraphs (b)(1) and (b)(2) of the General Conformity Regulations by adding a *de minimis* emission level for $PM_{2.5}$ and its precursors. The EPA proposed 100 tons/year as the *de minimis* emission level for direct $PM_{2.5}$ and each of its precursors. This action maintained our past policy of consistency between the conformity *de minimis* emission levels and the size of a major stationary source under the New Source Review program (70 FR 65984). These levels are also consistent with the levels promulgated for Reasonably Available Control Technology applicability levels for volatile organic compound and nitrogen oxide emissions in subpart 1 areas under the 8-hour ozone implementation strategy (68 FR 32843). Since EPA did not propose any classifications for the $PM_{2.5}$ nonattainment areas, we did not establish differing $PM_{2.5}$ *de minimis* emission levels for higher classified nonattainment areas.

In addressing these comments, we intend leave open the option to revisit the *de minimis* level once the $PM_{2.5}$ implementation rule is finalized. If in the future we change our legal rationale for considering $PM_{2.5}$ precursors among the various air quality planning programs from the positions currently under consideration as a result of comments received on the $PM_{2.5}$ implementation rule proposal, such changes could necessitate a subsequent revision to the general conformity rule. In the case where an amendment to the General Conformity regulations is needed to reflect an alternative approach to considering $PM_{2.5}$ precursors, EPA expects it would conduct such a revision through full public notice and comment rulemaking.

b. Final rule

We have committed to other Federal agencies to issue a final rule within 60 days of the close of the comment period on the direct final rule or by July 5, 2006. We plan to work with the Office of Management and Budget (OMB) to get expeditious clearance of this rulemaking in time to meet this commitment, or as soon as possible thereafter.

On April 5, 2006, the EPA issued a Direct Final Rule setting a *de minimis* emission level for General Conformity applicability for Federal actions in $PM_{2.5}$ nonattainment areas. The Direct Final Rule indicated it would become effective June 5, 2006, if no adverse comments were received. Since EPA received two adverse comments on the rule, it has been withdrawn and Federal agencies are awaiting promulgation of a final rule addressing the adverse comments and setting a *de minimis* level for General Conformity applicability in $PM_{2.5}$ nonattainment areas.

Federal agencies are currently operating under interim guidance indicating they should use the *de minimis* level for PM-10 emissions as a surrogate for $PM_{2.5}$. There is no court or statutory deadline for setting $PM_{2.5}$ *de minimis* levels, however, Federal agencies have expressed discomfort with operating under the interim policy for an extended period and requested EPA issue a final *de minimis* level as soon as possible. The expedient promulgation of this rule will provide a stronger legal basis for Federal agencies to make applicability determinations than they currently have under the interim policy.

c. Comments and Responses

Comment: One commenter requests that EPA communicate to all Federal agencies the value of the agencies advising the States as soon as possible of any planned future projects in nonattainment areas that may be above the General Conformity de minimis values or that will have to be evaluated to show that they are below de minimis. This is for projects that are very likely to proceed. The aim is to consider these future emissions in any growth projections during SIP development since such growth may not be anticipated well by the available growth model (E-GAS). States can communicate with existing Federal facilities now concerning this issue.

Response: The EPA sees the value in Federal agencies working with States to anticipate growth in emissions and include those anticipated emissions in the applicable SIP. The EPA is in the process of proposing regulatory amendments to the General Conformity regulations that provide a framework for Federal facilities to work with States to account for facility-wide emissions in SIPs and to include Federal facility emissions in future SIPs. The EPA anticipates that these rule amendments should be proposed before the end of summer 2006.

Comment: Some commenters stated that the de minimis level for PM2.5 for conformity applicability should be less than 100 tons per year. A level of 50 tons per year was suggested for direct PM2.5 emissions.

Response: Similar comments were received when the PM2.5 de minimis level was proposed on April 5, 2006. The response to those comments can be found in the preamble to the final rule setting the de minimis level for PM2.5 at **[add FR cite and date].**

Comment: Are the precursors for general conformity consistent with this proposed rulemaking or with the transportation conformity rulemaking?

Response: Yes, the precursors for general conformity are generally consistent both with this rule and the transportation conformity rule. The only difference between the transportation rule and this rule is that SO2 is not considered a precursor for transportation conformity because SO2 is not emitted in significant amounts from mobile sources. Since general conformity applies to stationary sources it is anticipated that the general conformity rule will use the same precursors as the final Clean Air Fine Particle Implementation Rule.

Comment: When will rulemaking containing the de minimis levels for PM2.5 and for the precursors be issued? There is some confusion, since the proposed rule says that states should assume 100 tpy for all PM2.5 pollutants, as this would make it consistent with the levels for NOx and VOC for the subpart 1 areas under 8-hour ozone. However, since New Jerseys classification is moderate under the 8-hour ozone standard and we are in an Ozone Transport Region, the de minimis level for VOC is **[add level here.]**

Response: Federal agencies are currently operating under interim guidance indicating that they should use the *de minimis* level for PM-10 emissions as a surrogate for

$PM_{2.5}$. A final de minimis level for PM2.5 and its precursors is expected to be published in July 2006.

Comment: If a Statement of Conformity has been issued on a project and if the project has not been completed to date, are they required to address PM2.5 prior to completion of the project or will they be grandfathered in?

Response: If a Federal action has completed a conformity determination and the action has started (regardless of whether the project is complete or not) then no new determination is needed. If the conformity determination was completed, but the action did not start in 5 years a new determination is needed under the general conformity rules.

Comment: What guidance should states use to establish budgets for large facilities or military bases?

Response: The EPA has not issued any guidance for States and Federal facilities to establish facility-wide budgets in the applicable SIP. There is nothing in the General Conformity regulations preventing this approach which would allow Federal actions that do not increase total facility emissions over the budget in the SIP from determining the action conforms on the basis of its compliance with the budget limit. The EPA sees this practice as a positive step to encourage States and Federal agencies to work together to account for emissions in a SIP so they conform with the purposes and goals of the SIP. The EPA intends to address the approach and provide guidance in planned revisions to the General Conformity regulations which are expected to be proposed in 2006.

Final PM2.5 implementation rule

Emission inventory preamble section:

O. What emission inventory requirements should apply under the $PM_{2.5}$ NAAQS?

1. Background for Existing Emission Inventory Requirement

Emission inventories are critical for the efforts of State, local, tribal and federal agencies to attain and maintain the NAAQS that EPA has established for criteria pollutants including $PM_{2.5}$. Pursuant to its authority under section 110 of Title I of the CAA, EPA has long required States to submit emission inventories containing information regarding the emissions of criteria pollutants and their precursors. The EPA codified these requirements in 40 CFR part 51, subpart Q in 1979 and amended them in 1987.

The 1990 CAAA revised many of the provisions of the CAA related to attainment of the NAAQS and the protection of visibility in mandatory Class I Federal areas (certain national parks and wilderness areas). These revisions established new emission inventory requirements applicable to certain areas that were designated nonattainment for certain pollutants. In the case of particulate matter, the emission inventory provisions are in the general provisions under Section 172(c)(3).

In June 2002, EPA promulgated the Consolidated Emissions Reporting Rule (CERR)(67 FR 39602; June 10, 2002). The CERR consolidated the various emissions reporting requirements that already existed into one place in the CFR, established new reporting requirements for $PM_{2.5}$ and ammonia, and established new requirements for the statewide reporting of area source and mobile source emissions.

The CERR established two types of required emission inventories: annual inventories, and 3-year cycle inventories. The annual inventory requirement is limited to reporting statewide emissions data from the larger point sources. For the 3-year cycle inventory, States need to report data from all of their point sources plus all of the area and mobile sources on a statewide basis. A special case existed for the first 3-year cycle inventory for the year 2002 which was due on June 1, 2004.

The EPA designated 2002 as the new Base Year for 8-hour ozone, $PM_{2.5}$ and regional haze (November 18, 2002 EPA memorandum "2002 Base Year Emission Inventory SIP Planning: 8-hr Ozone, $PM_{2.5}$ and Regional Haze Programs" http://www.epa.gov/ttn/chief/eidocs/2002baseinven_102502new.pdf). By merging the information on point sources, area sources and mobile sources into a comprehensive emission inventory, State, local and Tribal agencies may do the following:

- set a baseline for SIP development.
- measure their progress in reducing emissions.
- have a tool to support future trading programs.
- answer the public's request for information.

EPA uses the data submitted by the States to develop the National Emission Inventory (NEI). The NEI is used by EPA to show national emission trends, as modeling input for analysis of potential regulations, and other purposes.

Most importantly, States need these inventories to help in the development of control strategies and demonstrations to attain the annual and 24-hour PM2.5 NAAQS. In April 1999, EPA published the "Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations," EPA-454/R-99-006. The EPA updated this guidance in August 2005.[111] The current version of this guidance is available at: http://www.epa.gov/ttn/chief/eidocs/eiguid/index.html. The EPA developed this guidance document to complement the CERR and to provide specific guidance to State and local agencies and Tribes on how to develop emissions inventories for 8-hour ozone, PM2.5, and regional haze SIPs. While the CERR sets forth requirements for data elements, EPA guidance complements these requirements and indicates how the data should be prepared for SIP submissions.

The SIP inventory must be approved by EPA as a SIP element and is subject to public hearing requirements,

[111] Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations," EPA-454/R-05-001, August 2005.

whereas the CERR is not. Because of the regulatory significance of the SIP inventory, EPA will need more documentation on how the SIP inventory was developed by the State as opposed to the documentation required for the CERR inventory. In addition, the geographic area encompassed by some aspects of the SIP submission inventory will be different from the statewide area covered by the CERR emissions inventory. If a State's 2005 emission inventory (or a later one) becomes available in time to use for an area subsequently redesignated nonattainment, then that inventory should be used. We also encourage the cooperation of the Tribes and the State and local agencies in preparing their emissions inventories.

2. Summary of Final Rule

In the proposed rulemaking, EPA asked “What emission inventory requirements should apply under the $PM_{2.5}$ NAAQS.” Several specific questions followed this general question to assess whether or not additional emission inventory requirements or guidance are needed to implement the proposed standard. It was noted in the proposal that the basis for EPA’s emission inventory program is specified in the Consolidated Emissions Reporting Rule (CERR) and the related guidance document titled *Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations,"* September 2005.

Subsequent to the proposed rulemaking, EPA proposed the Air Emissions Reporting Rule (AERR) at 71 FR 69. The AERR will update CERR reporting requirements; ensure additional emissions reporting needed to verify reductions required by the Clean Air Interstate Rule (CAIR); harmonize, reduce, and simplify the emissions reporting requirements; and make complying with emissions reporting requirements easier. At this time, EPA is reviewing comments submitted on the AERR proposal and expects to finalize this rulemaking during early calendar year 2007. The AERR is expected to be the means by which the Agency will implement any additional data reporting requirements for $PM_{2.5}$ SIP emission inventories. Since the AERR rulemaking is in progress, EPA believes it is appropriate to defer responding to comments on the proposed PM 2.5 Implementation Rule that relate to data reporting and emission inventory requirements that were discussed in the

AERR proposal. Those comments will be addressed in the final AERR rulemaking.

Significant comments that are separable from the AERR rulemaking and relate to data reporting and emission inventory requirements for the $PM_{2.5}$ NAAQS are addressed below.

3. Comments and Responses

A. Should EPA specify an inventory approval process?

Comment: EPA received many comments on whether or not the Agency should specify an inventory approval process. Several commenters indicated that the current process of approving SIP inventories by EPA regional offices is appropriate and did not believe that additional approval requirements were necessary. Some commenters noted that flexibility is needed to address regional needs such as nonattainment areas that are influenced by regional emissions may not require as rigorous an approval process as those influenced by local sources. Several commenters noted that SIP emission inventories may include requirements or information in addition to data required by the Consolidated Emissions Reporting Rule (CERR). A few commenters felt that additional guidance was needed on the SIP emission inventory approval process.

One commenter noted that EPA regional offices already approve Quality Assurance Project Plans (QAPPs) which outline the basic inventory collection, estimation and review processes conducted by each state. The same commenter noted that the National Emissions Inventory (NEI) is often used as a starting point for developing SIP and modeling inventories and observed that States routinely develop information outside the CERR for purposes of their SIP development. This commenter believed that additional requirements need not be defined by EPA but should be left to states to fulfill their own business requirements. Another commenter indicated that States should be allowed to customize a nonattainment area inventory from or in place of national database inventory for use in the analysis of nonattainment. One commenter recommended that requirements for nonattainment area emission inventories be incorporated in the CERR or AERR.

Response: EPA notes that procedures for approval of SIP inventories are discussed in the document titled *Emissions Inventory Guidance for Implementation of Ozone* *and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations,"* September 2005. Section 2.5, Inventory Approval, references a memorandum titled *Public Hearing Requirements for 1990 Base-Year Emissions Inventories for Ozone and CO Nonattainment Areas,* September 29, 1992. EPA intends to use the procedures discussed in the memorandum to the extent that they are applicable to approval of PM emission inventories submitted as part of the SIP.

EPA agrees with comments suggesting that flexibility is needed to address regional needs and will continue to work with States through its regional offices on development and approval of emission inventories for PM SIPs. EPA recognizes that there may be emission inventory needs for specific areas which extend beyond the minimum data reporting requirements established in the CERR since applicability of the CERR is to all geographic areas, regardless of attainment status.

B. Are the data elements specified within the CERR sufficient to develop adequate SIPs? For example, in the determination of RACT, should more information on existing control devices be required?

Comments: One commenter recommended no additional reporting requirements because EPA had not presented compelling evidence (1) for the need to collect additional information; (2) that the costs to state and local agencies and the regulated community could be justified; or (3) that the effectiveness of the additional information could be demonstrated to improve the national emissions inventory. The commenter also suggested that any additional reporting requirements be addressed through the CERR/AERR and associated guidance.

Another commenter stated that although they believe that more detail concerning control equipment would be helpful within all parts of emissions inventories, the commenter invited discussion with EPA concerning whether the additional burden on industry compared to the benefit to the state and local agencies would warrant requiring this data. The commenter suggested further examination of the benefit to the inventory of having more information on RACT-related and other control devices.

One commenter believed that the reporting requirements within the CERR are sufficient to develop a PM2.5 SIP for most areas and noted that nonattainment areas substantially influenced by local sources may require additional inventory information, but this should be evaluated on a case-by-case basis. Any additional inventory requirements should be identified during the SIP development process, in cooperation with the EPA regional office, and should not be part of this rule.

Response: EPA agrees with the comments that requirements for additional data should be addressed under the AERR (71 FR 69, January 3, 2006). The AERR proposed the addition of several data elements, including emission release point type, control status and emission type. Emission release point type is a code for the physical configuration of the emission release point (e.g., vertical stack, fugitive, etc.). Control status is a code that represents whether emissions reported are controlled or uncontrolled and is needed to correctly project future emissions and properly evaluate the impact of emission control programs. Emission type is a code describing the temporal period of emissions reported (e.g., annual, daily, etc.) and is needed to ensure that emission estimates are used properly. EPA is reviewing comments submitted on the

AERR and will address the issues noted by the commenters in the final AERR rulemaking.

C. *Currently the CERR requires the reporting of SO2, VOC, NOx, CO, Pb, PM10, PM2.5, and NH3. VOC and PM are speciated by the emissions processing models based on speciation profiles for specific source categories. Is this approach sufficient, or should EPA require more specific emission component reporting such as groups of compounds or reporting of elemental carbon and organic carbon?*

Comment: Most commenters supported retaining the existing reporting requirements under the CERR. Others encouraged expansion of the requirements to include reporting of specific organic compounds and organic fractions although some thought this should be a requirement while others thought it should be optional. Another commenter thought that EPA should encourage the reporting of PM components (filterable, condensable and total).

Response: The recently proposed AERR identifies data elements to be reported by state and local agencies to EPA and would require reporting of the total PM2.5 emissions and as well as the filterable and condensable components. It would also require reporting of precursors to PM2.5, which include emissions of SO2, NOx, VOC and ammonia. EPA is not proposing to require reporting of speciated emissions or of carbon fractions (organic and elemental). Comments regarding the reporting of PM filterable and condensable components, speciated compounds and carbon fractions will be addressed in the final rulemaking on the AERR.

Comment: One commenter thought that EPA should work with industry trade groups to develop and improve the speciation profiles of the most important source categories rather than asking the state and local agencies to characterize VOC and PM species.

Response: EPA agrees with the comment that it should improve speciation profiles for VOC and PM and is in the process of updating its SPECIATE database. SPECIATE is a central repository for data related to VOC and PM species and can be used for developing species data needed for air quality modeling analyses.

D. *The CERR allows states to adopt EPA developed emission estimates from area and mobile sources in lieu of making* *these estimates themselves if they accept these estimates for their emission inventory. Since 2002 has been designated as the new base year, should EPA require that States develop their own estimates for area and mobile sources?*

Comment: One commenter believed that EPA should require States to develop their own estimates for area and mobile sources. All other commenters thought that the existing requirement under the CERR that allows States to adopt EPA developed emission estimates for area and mobile sources was adequate. One commenter thought that adding new reporting requirements would be a significant burden for State agencies and would add uncertainty to the emission inventory estimates.

Response: The recently proposed AERR would continue to allow states to stipulate that EPA estimates be used to satisfy CERR data submittal requirements for mobile and nonpoint (area) source sectors, and would also allow states the option of providing emission inventory estimation model inputs in lieu of submitting actual emissions data which could lead to an improved NEI. As discussed earlier, EPA will respond to comments on the emission reporting requirements for area and mobile sources in the final AERR rulemaking.

L. Condensable particulate matter and related test methods

a. Background.

This section provides background on issues associated with condensable particulate matter: defining test methods, quantifying direct PM2.5 for inventories, and developing effective regulations. In the preamble to the November 1, 2005 proposed rule, we noted several times that primary or direct $PM_{2.5}$ emissions are significant contributors to ambient $PM_{2.5}$. The proposal also stated that direct $PM_{2.5}$ emissions, both filterable and condensable, are to be taken into account wherever possible in emissions factors used to develop national emissions inventories. States are required under the consolidated emissions reporting rule (CERR) to report direct $PM_{2.5}$ emissions, including condensable PM, in each inventory revision. We also emphasized that direct $PM_{2.5}$ emissions, including condensable PM, are to be considered in RACT determinations and should be addressed, as necessary, in regulations implementing the $PM_{2.5}$ NAAQS rule. Accounting for condensable PM is important to the decision making process. For example, the current national emissions inventories have characterized the contribution of the condensable PM emissions to range from 40 to 80 percent of the direct $PM_{2.5}$ emissions particularly from combustion source categories. To the extent necessary, States will need to ensure that inventories and baselines for sources in their areas adequately reflect the contributions of direct $PM_{2.5}$ emissions, including condensable PM.

In addition to assuring that the inventories reflect the contributions of direct $PM_{2.5}$ emissions, we believe that many States will need to develop direct $PM_{2.5}$ emissions regulations to implement their SIPs. These new and revised regulations will need to 1) include requirements for controls necessary for sources emitting significant amounts of direct $PM_{2.5}$, and 2) specify the test methodologies suitable for measuring direct PM2.5 emissions. We believe that many existing SIPs do not include such requirements. The existing PM emissions regulations implementing many current SIPs have focused almost exclusively on filterable PM at stack conditions or other elevated temperatures (e.g., 250°F) with little or no measurement of condensable

PM, let alone filterable $PM_{2.5}$. These deficiencies exist in spite of the Agency's policies and guidance presented in documents such as the 1987 *PM-10 SIP Development Guideline*[19] and the *General Preamble for the Implementation of Title 1 of the Clean Air Act Amendments of 1990* [20] issued in 1992. These documents set forth Agency policy stating that direct PM_{10} and direct $PM_{2.5}$ emissions include both filterable and condensable particulate matter. The policies are reinforced by a 2005 directive from the CAA Advisory Committee.[21] These Agency policies are clear that direct PM emissions consist not only of materials that are solid or liquid at elevated stack temperatures, but also materials that are gaseous at elevated temperatures and

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[19] U.S. Environmental Protection Agency. *PM-10 SIP Development Guideline.* Office of Air Quality Planning and Standards, Research Triangle Park, NC. EPA Publication No. EPA-450/2-86-001. June 1987.

[20] The General Preamble is available online at http://www.epa.gov/ttn/oarpg/t1pfpr.html.

[21] Clean Air Act Advisory Committee, *Recommendations to the Clean Air Act Advisory Committee - Phase I and Next Steps*, Air Quality Management Work Group, Environmental Protection Agency, http://www.epa.gov/air/caaac/pdfs/report1-17-05.pdf, January 2005.

condense to solid or liquid PM when cooled to ambient temperature.

We also discussed in the 2005 preamble to the proposal how direct condensable $PM_{2.5}$ emissions should be considered in RACT determinations. In that section we noted, as we also outlined above, that States are to consider direct $PM_{2.5}$ emissions, both filterable and condensable, in revising and updating emissions inventories and baselines, and in developing new regulations to implement SIPs. That means that inventories and associated baselines must address sources and contributions of direct $PM_{2.5}$ emissions. Specifically, we noted that baselines should quantify direct $PM_{2.5}$ emissions, both filterable and condensable PM, from individual sources and groups of sources as well as future year projected emissions. For these baselines, we highlighted the importance of developing emissions data that are of known quality and representative. These data are important for the purposes of calculating emissions reductions and demonstrating that such reductions are attributable to the control measures being implemented. Also in this context, we raised a concern that emissions test methods applied in both Federal and State programs regularly have not included measurement of both filterable and condensable $PM_{2.5}$ and, as a result, current baselines may lack quantifiable representative data on filterable or condensable $PM_{2.5}$.

We emphasized in the 2005 proposal that when a State determines the need to reduce filterable or condensable $PM_{2.5}$ emissions for particular sources, the State will likely need to revise or develop new emissions limits and specify a corresponding test method(s) to account for those emissions that were previously unregulated. On this point, we said that States that need to adopt local control measures for direct $PM_{2.5}$ emissions in nonattainment areas will need to revise their stationary source test methods in order to quantify both filterable and condensable $PM_{2.5}$. Based on our evaluation of existing SIP regulations, we have concluded that the majority of them currently specify the use of stationary source test methods that quantify only filterable particulate matter. In the 2005 preamble to the proposal, we said that test methodologies that measure only filterable PM would be acceptable in limited situations for areas where no additional reductions of primary $PM_{2.5}$ and $PM_{2.5}$ precursor emissions are required to project attainment of the $PM_{2.5}$ NAAQS. As noted above, for areas where additional local controls of direct PM emissions, including condensable PM, are required as part of the attainment demonstration, we believe that test methods that measure only filterable particulate matter (e.g., EPA Method 5) would not be acceptable. For the purposes of determining RACT applicability and establishing emissions limits reflecting direct $PM_{2.5}$ emissions control, we indicated that a State must adopt an appropriate measurement method such as Method 202. Some States have regulations and associated test methods requiring source owners or operators to quantify condensable PM emissions and to implement control measures to reduce those emissions.

More to the point, the use of test methods that quantify only filterable PM potentially would limit the control measures available for developing cost effective strategies to achieve attainment of the $PM_{2.5}$ NAAQS. We cited a couple of examples where failure to test for condensable PM, in particular, would prevent assessment of the actual direct $PM_{2.5}$ emissions for verifying emissions reductions necessary to meet the NAAQS. Those examples are: 1) where the attainment demonstration includes control methodologies for PM precursors which are likely to result in a significant increase in the direct emissions of direct $PM_{2.5}$ (e.g., ammonia injection to reduce NO_x emissions), and 2) where the attainment demonstration includes control methodologies for PM precursors which are likely to result in a significant decrease in the direct emissions of direct $PM_{2.5}$ (for example, alkaline scrubbers to reduce SO_2 emissions) and incorporate these direct emissions reductions in their attainment demonstration or allow for the use of these reductions as credits for other programs.

In support of these policies, we noted that EPA's 1990 promulgation of Method 202 in Appendix M of 40 CFR Part 51 for use in implementing SIP regulations included quantification of condensable PM emissions. We also described in the 2005 proposal two other PM emissions conditional test methods that States may use to improve the capabilities of their air management programs. For measuring filterable $PM_{2.5}$, we described Conditional Test Method-040 (CTM-040) (http://www.epa.gov/ttn/emc/ctm.html) that defines procedures and equipment for in-stack measurement of coarse PM (aerodynamic diameter from 2.5 to

10 micrometers) and filterable $PM_{2.5}$. In addition, we cited CTM-039 in the 2005 proposal. This is a method which is generally analogous to mobile source test methods for measuring $PM_{2.5}$. CTM-039 employs dilution sampling that approximates the conditions and effects of ambient air on direct $PM_{2.5}$ formation.

We commented in the 2005 proposal that we and industry users[22] are experienced with dilution sampling technology and that the American Society for Testing and Materials (ASTM) is moving to adopt a performance-based dilution sampling protocol as a standard method. Our experiences with dilution sampling include programs at two coal-fired utility boilers, one with a fabric filter and one with an electrostatic precipitator PM control. We also conducted field demonstrations at a Portland cement plant combusting hazardous waste and controlled with a fabric filter and at an oil-fired boiler. We are aware of other method verification and data collection projects with dilution sampling methods including those by Environment Canada at

[22] See also the reports available at http://www.nyserda.org/programs/Environment/EMEP/project/6230/6230_pwp.asp for some of the private industry experience.

pulp and paper facilities and by Brookhaven National Laboratory at oil-fired home heating boilers. We also commented then as we do now that a dilution sampling method provides the most reliable quantification of direct PM_{10} or $PM_{2.5}$ emissions. Further, we believe that the method offers other advantages over Method 202 and CTM-040 including further reducing the potential for artifact formation and potentially reducing the number of sample components for recovery and analysis.

We asked for comments not only on potential improvements to Method 202 and its application but also on the use of CTM-039. We asked for comments on the effect that application of improved methods would have on baseline data and on developing regulations to implement the SIPs and on the importance of having such methods proposed and promulgated following a pubic review and comment process. We requested comments on the status of baselines particularly as related to direct $PM_{2.5}$ emissions, including filterable and condensable PM, for establishing effective regulations, the components of such regulations, and the testing methods that should be applied. Below are discussions of several issues related to these areas of concern, including the comments we received, our responses, and the Agency's final policy direction.

In the proposal, we also asked for suggestions on what criteria are necessary to ensure effective regulations to implement RACT and RACM for direct $PM_{2.5}$ emissions. The preamble identified four elements or criteria for such regulations. They are, in brief, 1) baseline data that quantify both direct filterable and condensable $PM_{2.5}$ emissions; 2) clear testing and monitoring requirements that verify and ensure that control measures are enforceable and reflect the SIP demonstration; 3) replicable specific and objective requirements for interpreting, changing, or determining compliance; and 4) permanent and traceable (e.g., as in a title V operating permit) accountability for applicable requirements. We also requested comment with respect to addressing condensable PM emissions in $PM_{2.5}$ RACT determinations.

b. Final rule

Following review of comments on the proposal, we maintain that accounting for significant contributors of direct $PM_{2.5}$ emissions, both filterable and condensable $PM_{2.5}$, in the baselines will be critical to developing effective regulations necessary to meet the $PM_{2.5}$ NAAQS in most nonattainment areas. As we discussed previously, condensable PM emissions can be significant components of the direct $PM_{2.5}$ emissions especially those emitted by combustion sources such as power plants. Some States have established PM emissions limits or otherwise required PM emissions testing that includes measurement of condensable PM, where appropriate. Accordingly, we believe that States who have or can develop the data baselines to use in establishing direct $PM_{2.5}$ emissions limits with corresponding test methods reflecting the appropriate reductions in direct $PM_{2.5}$ emissions, including reducing condensable PM, should build on their existing regulatory and permit requirements in developing effective regulations for meeting the NAAQS. We believe that it is important that implementation of such new or revised rules and test methods should be prospective and clearly differentiated from existing regulations to avoid confusion over status of compliance relative to existing PM emissions limits.

We realize that in some States there remain questions about which versions of the available test methods are appropriate, the availability of representative direct $PM_{2.5}$

emissions data, on which methods the data applied for inventories are based, and the short time frame within which States must develop SIPs. In response we have decided that some States may need a transition period for adopting appropriate test methods, enhancing direct $PM_{2.5}$ emissions baselines, and developing corresponding regulations with regards to implementing control measures for filterable and condensable $PM_{2.5}$. This transition period may interfere with meeting the initial deadlines in preparing SIP proposals. During this period, we will provide technical support to States when they are ready to act on establishing effective direct $PM_{2.5}$ emissions limits and corresponding testing requirements.

As described below, we will devote time and resources early during this transition period to assessing and improving the available test methods. For example, we understand some commenters have significant questions about the uncertainties associated with applying test methods for measuring direct $PM_{2.5}$, particularly as to measuring condensable PM. These questions concern 1) the differences in the way the accepted condensable PM method (i.e. Method 202) is applied, and 2) the potential for chemical reactions that may occur in the Method 202 sampling medium leading to the formation of materials (artifacts) then counted as condensable PM. In response, we are undertaking laboratory studies in collaboration with several stakeholders to characterize the artifact formation and other uncertainties associated with conducting Method 202, and to identify procedures to be used in applying methods to minimize uncertainties. We are involving stakeholders representing industry and State and local agencies in the project design and results review. Stakeholders who have expressed interest in participating in these studies include the Electric Power Research Institute, companies belonging to National Environmental Development Association’s Clean Air Project (NEDA/CAP), the Portland Cement Association, the Lime Manufacturing Association, the American Foundry Association, the National Aluminum Association, and several governmental organizations represented by State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials (STAPPA/ALAPCO).

By the end of 2007, we intend to have conducted a comprehensive laboratory study that examines the relationship between several critical condensable PM sampling and analysis parameters (e.g., SO_2 concentration, moisture concentration, sample duration, water acidity) and the artifact formation associated with the measurements. One intended result of the project will be identifying possible modifications to Method 202 to minimize and quantify the uncertainties. We will publish the results of the laboratory study on the EPA website and, to the extent possible, in a widely circulated peer review journal. Also, to the extent necessary, we intend to propose revisions to the method to incorporate improvements and to clarify application.

In the case of CTM-039, we believe that a dilution sampling method for measuring direct $PM_{2.5}$ eliminates essentially all artifact formation and provides the most accurate emissions quantification. To the extent that we can secure resources and stakeholder interest, we plan to perform additional validation testing of CTM-039 or other dilution sampling technologies to characterize the precision of this approach. In conjunction with our validation efforts, we intend to continue participation in the ASTM D22 committee work on a dilution sampling method and encourage other volunteers on that committee to approve the consensus based dilution sampling method. We believe that this work is nearly complete.

During this transition period, we will also solicit the involvement of stakeholders with an interest in conducting emissions testing to collect data with the improved Method 202, CTM-040, or CTM-039 (or the ASTM method, if available). The purpose of these stakeholder projects will be to collect new direct filterable and condensable PM emissions data using methodologies that provide data more representative of source direct $PM_{2.5}$ emissions. EPA, States, and others will use this data to improve emissions factors and to help define or revise source emission limits in permits and state implementation plans.

State and local agencies are responsible for enhancing current baselines and inventories as necessary to account more accurately for sources of direct filterable and condensable $PM_{2.5}$ emissions in their areas. We expect them to use the improved emissions factors to enhance their emission inventories and emissions baselines, and to develop appropriate permits and regulations. Some agencies already have applied associated test methods (e.g., Methods 201A and 202, State agency-specific test methods) sufficient for this purpose, have collected data with these methods, and have identified the source categories to target in their regulations. We encourage all agencies, particularly those who have employed test methods for condensable PM and have obtained direct $PM_{2.5}$ emissions data, to take action as soon as practicable to reduce filterable and condensable PM emissions. We encourage all States to take steps to improve inventories for condensable PM in the 2008 national emission inventory, and to make further improvements to condensable PM estimates in the 2011 inventory. We also believe that future SIPs developed for attainment of any revised PM NAAQS must include revised source emission limits to address both filterable and condensable PM emissions. States will need to consider the administrative steps necessary in effecting regulatory changes including revising or retracting existing PM requirements and replacing them in permits with the appropriate test methods, compliance obligations, and averaging times (see also the discussion in paragraph II.L.3.h. of this section below).

The time required for our stakeholders and us to complete the test method assessment may limit the degree to which some State and local agencies can address effectively the necessary direct $PM_{2.5}$ regulations in the 2008 SIP submittals. Correspondingly, we recognize that there may be adjustments to SIPs necessary after the 2008 submittals to account for direct $PM_{2.5}$ regulatory development once methods suitable for setting emissions regulations are available and data are collected. For this transition period, we will apply discretion in the SIP approval process with regards to direct $PM_{2.5}$ emissions regulations and will review plans to complete data collection for assessing the need for and developing such regulations. We would expect no such period for method assessment to be necessary for implementing regulations addressing secondary $PM_{2.5}$ emissions. In any case, we intend to observe strictly the overall goal of having SIPs in place to implement effective regulations, including those limiting direct filterable and condensable $PM_{2.5}$ emissions, as necessary, by 2011.

c. Comments and responses.

We received many comments on quantification of direct $PM_{2.5}$ emissions particularly about the need to conduct further validations for the available test methods, the availability of direct filterable or condensable $PM_{2.5}$ data or lack thereof for representative baselines, and the procedures for applying baseline data for developing effective regulations.

1. Method 202

Comment: A majority of commenters characterized the performance of Method 202 as lacking in reliability. Some commenters characterized the formation of artifacts in Method 202 as significant and the primary reason for their recommendation to defer the inclusion of condensable particulate matter in the baseline assessments and regulatory development for the initial SIPs. The commenters Stated that the principal artifact formed when using Method 202 was the result of SO_2 dissolving in the impinger water and converting to sulfuric acid.

Response: We agree that SO_2 in particular, and perhaps other gaseous compounds, can react with the collecting liquids used in the method to form materials (artifacts) that would not otherwise be solid or liquid or would not condense upon exiting the stack. We believe that when Method 202 is applied appropriately (i.e., with the N_2 purge as prescribed), the SO2 artifact formation is reduced by as much as or more than 90 percent; however, we agree that further verification and refinement would be appropriate to verify the potential for artifact formation. As outlined above, we are already undertaking laboratory studies to assess the method and to identify possible modifications to reduce formation of these artifacts. Preliminary laboratory evaluations conducted by EPA and by Environment Canada[23] indicate that additional artifact reductions of 60 to 90 percent may be achieved with other minor modifications to method 202. These preliminary findings indicate that method 202 is essentially a viable method that these proposed laboratory studies will serve to enhance. Within 18 months we intend to propose, if necessary, modifications to Method 202 or similar methodologies suitable for measuring condensable $PM_{2.5}$.

2. Conditional test methods 039 and 040

[23] Optimized Method 202 Sampling Train to Minimize the Biases Associated with Method 202 Measurement of Condensable Particulate Matter Emissions, paper presented by John Richards, Tom Holder, and David Goshaw, Air Control Techniques, P.C., Cary, North Carolina. Air & Waste Management Association, Hazardous Waste Combustion Specialty Conference AWM, November 2-3, 2005, St. Louis, MO.

Comment: Several commenters cited as a deficiency that neither CTM-040 for measuring filterable $PM_{2.5}$ nor the dilution sampling method (CTM-039) has been thoroughly validated through EPA Method 301. There were also comments that noted that neither of the CTMs was published in the Federal Register.

Response: We agree with the comments that neither method has been subjected to public notice and comment rulemaking. Taking that step will facilitate application of the appropriate methods for implementing the SIPs. On the other hand, there are a number of levels of validation already achieved for one or more of these methods that will determine what, if any, additional validation work will be necessary. For example, while we could seek resources to evaluate dilution sampling technology, including CTM-039, and to request public involvement in the project planning, conduct, and review with the possibility of a Federal Register proposal, our preference would be to incorporate by reference an approved voluntary consensus test method (e.g., ASTM standard).

As for CTM-040, we believe that that further validation of this method is unwarranted since the technology and procedures are based upon the same as evaluated for promulgated Method 201A. Method 201A has undergone public review and comment (55 FR 14246, April 17, 1990). Also, as noted earlier, we have already begun laboratory and data evaluation work the possible result of which would be a revised Method 202 to be proposed in the Federal Register to include improvements indicated by the evaluation. At that same time, we could propose CTM-040 to be used in combination with Method 202 for measuring direct $PM_{2.5}$ with additional guidance on appropriate approaches to testing for direct $PM_{2.5}$ emissions from various types of control measures (e.g., electrostatic precipitator and flue gas desulphurization combinations).

3. Role of condensable PM emissions in defining RACT

Comment: Commenters indicated that States must reassess and revise emissions limits if the States adopt methods for measuring direct $PM_{2.5}$ including condensable PM where not required previously. Commenters noted that most existing PM emissions limits are not reflective of data collected with methods that measure condensable or filterable $PM_{2.5}$ and, therefore, not enforceable using a new or different test method.

Response: We agree that coordinating the test method with the pollutant defined by the emissions limit is critical to an effective regulation. In the case of direct $PM_{2.5}$ regulations, as indicated in sections a and b above, the methods for measuring filterable and condensable PM provide data significantly different than do methods often used in implementing many current regulations (e.g., filterable plus condensable $PM_{2.5}$ versus filterable PM only). See the discussion in II.L.2 above on the work we are undertaking to assess and improve, as necessary, the test methods for those important components of direct $PM_{2.5}$.

Response: We believe that to the extent that control of direct $PM_{2.5}$ emissions, including condensable PM, is important to attaining the standards as expeditiously as practicable, the decisions on RACT should reflect control of condensable PM to the degree consistent with the SIP. That may very well mean that control technologies applied to meet current regulations may have to undergo some modifications or other control technologies or measures applied to satisfy RACT or RACM with regard to control of direct $PM_{2.5}$. For controlling condensable PM, this may mean a change in control device operating temperature or other technological approach to assure necessary emissions reductions. We encourage States to assess the capabilities of current control technologies, possible modifications to such technologies, or new technologies as appropriate relative to control of direct $PM_{2.5}$ emissions in developing effective control strategies and regulations. As noted above, to the extent necessary and consistent with a State's baseline, we encourage those States who have data and associated test methods appropriate for developing effective regulations controlling direct $PM_{2.5}$ emissions to take action as soon as practicable. We repeat that it is important that implementation of such new or revised rules and test methods should be prospective and clearly differentiated from existing regulations to avoid confusion over status of compliance relative to existing PM emissions limits.

4. Sufficiency of current baselines relative to direct $PM_{2.5}$ for regulatory development

Comment: Many commenters indicated that the currently available baselines for direct $PM_{2.5}$ emissions are not sufficient for States to develop effective emissions control regulations. One commenter claimed that States will need additional information regarding how to arrive at enforceable $PM_{2.5}$ emissions limitations through application of correlations to existing PM_{10} emissions limitations.

Response: We agree emissions baselines available for developing effective direct $PM_{2.5}$ emissions regulations are limited in many cases. The emissions baselines for some source categories likely to be subject to regulations in implementing the NAAQS are limited in data quality. In many cases, the emissions baselines are not sufficiently representative of significant direct $PM_{2.5}$ contributors to allow States to develop effective and enforceable emissions limitations for sources that may require control of direct filterable or condensable $PM_{2.5}$ emissions in order for States to come into attainment with the $PM_{2.5}$ NAAQS. We believe that baselines established using the available direct filterable and condensable $PM_{2.5}$ national industry average emissions factors (e.g., those found in AP-42 and WebFIRE, http://www.epa.gov/ttn/chief/efpac/index.html) often are of quality insufficient to establish effective source-specific emissions limits. We believe that use of such national industry average emissions factors are subject to significant uncertainties and we recognize that some the emissions factors databases may not include direct $PM_{2.5}$ emissions data for specific source types that appear in some State and local inventories.

We discourage use of these national industry average emissions factors for establishing source category-specific and pollutant-specific emissions limits in a local or State area. For site-specific or to regulatory development applications, we strongly recommend that such baselines must be augmented with directly measured direct $PM_{2.5}$ emissions results or other significant adjustments. If there are no data available from direct measurements of emissions from the subject sources, national average emissions factors may be used only with appropriate and significant adjustments for uncertainty. Based on our initial study[24] of the uncertainties associated with national average emissions factors when applied to site-specific or rule-development activities, we would expect

[24] Option Paper 4 - Providing Guidance Regarding The Use Of Emissions Factors For Purposes Other Than Emissions Inventories, September 2005, http://www.epa.gov/ttn/chief/efpac/projects.html

multipliers of 0.1 to 3.3 for an A-rated national average filterable and condensable direct $PM_{2.5}$ emissions factors. The level of a particular multiplier would depend on how representative of the source category the applicable emissions factor is, the quantity of data supporting that emissions factor, and the specific application). Determining what adjustment may apply for a particular application requires detailed knowledge of the emissions control variability, the expected range of operational and process variability, and the statistical uncertainty in the measured emissions data. While more general adjustment to emissions factors are possible for these purposes, we believe that the better approach is to improve and update the emissions factors used in the database for a particular area with measured direct $PM_{2.5}$ emissions data.

We recognize that some State and local agencies have required measurement of condensable PM emissions data for sources in their jurisdictions for some time. On the other hand, we question whether those measured emissions data have been used to update emissions factors representative of those sources or are included in the inventories or baselines for regulatory development. As noted above, current inventories consist almost exclusively of calculated source emissions based on national industry average emissions factors and generally eschew use of measured emissions values. As a result, compliance and other emissions test data from implementing these regulations have done little to improve the limited available knowledge of direct condensable $PM_{2.5}$ or filterable $PM_{2.5}$ emissions. We believe that States will have to resolve database accuracy and representativeness issues to 1) incorporate measured emissions data in the baselines for assessing control strategies and 2) use such measured and other data to develop effective regulations for significant contributors of direct $PM_{2.5}$ emissions.

5. Alternatives to developing representative baselines

Comment: Other commenters suggested that EPA should allow States to base their initial 2008 SIPs on NO_x, SO_2, and filterable PM or PM_{10} (as a surrogate for filterable $PM_{2.5}$) rather than require State and local agencies to develop direct $PM_{2.5}$ emissions regulations immediately. Another suggested that EPA needs to include appropriate multipliers for different industry sectors in attainment and nonattainment areas. These multipliers would be used to adjust emissions factors as appropriate for specific applications to account for the uncertainty inherent in the values and minimize the potential for bias.

Response: We understand the commenters concerns about the resources and time needed to develop new baselines, but we believe that basing regulations on emissions of SO_2, NO_x, and filterable PM or applying some industry average adjustments to baselines will not result in effective regulations limiting emissions of direct $PM_{2.5}$. We believe it important to the decision making process to recognize that the current national emissions inventories have characterized the contribution of the condensable PM emissions to be in the range of 40 to 80 percent of the direct $PM_{2.5}$ emissions, particularly from combustion source categories. To the extent that direct $PM_{2.5}$ emissions must be controlled in order for an area to attain or to maintain the NAAQS, we believe that the baselines developed for implementing the regulations should address both filterable and condensable direct $PM_{2.5}$ emissions. Furthermore, we believe that these baselines should be improved and enhanced with measured emissions data as soon as possible.

6. Transition period

Comment: Some commenters suggested that EPA provide a transition period for sources to adapt to whatever the preferred test methods will be. The commenters proposed that during this transition period, a source should be able to continue to use Method 5, Method 17, or whatever method was used to set the underlying limit then contained in the source's title V operating permit. Commenters believe that such a transition plan must provide additional time to collect data related to condensable PM emissions. Commenters believe that this additional time is necessary because it is unrealistic to develop SIP revisions addressing condensable emissions by April 2008. Other commenters suggested that source emissions inventories used for regulatory decision-making and identifying regulatory control measures must be based on accurate measurements.

Response: As outlined above, we agree that a transition period may be necessary for some States and EPA to resolve and adopt appropriate testing procedures, to collect direct $PM_{2.5}$ emissions data more representative of the sources in their areas, and develop effective regulations for controls of direct $PM_{2.5}$, including condensable PM.

7. Data collection for baseline development

Comment: Several commenters recommended that EPA should be responsible for developing baseline data on common sources of direct $PM_{2.5}$.

Response: We disagree with the commenters' recommendation that EPA should be primarily or solely responsible for developing baseline data on common sources of direct PM2.5 emissions. Commenters are suggesting that we should collect data representative of direct PM2.5 emissions from source categories potentially subject to regulation of direct PM2.5 emissions. Furthermore, they suggest that we expand or improve the current compilation of national industry average emissions factors such as found in AP-42 and WebFIRE (http://www.epa.gov/ttn/chief/efpac/index.html). Given the limited extent to which national industry average emissions factors are suitable for developing State or local regulations that set limits on direct PM2.5 emissions, we believe that it is inherent that States instead have primary responsibility for reviewing and applying measured emissions data collected from their sources in enhancing their current baselines. In some cases, this will mean that States and other stakeholders will need to conduct more focused direct $PM_{2.5}$ emissions data collection and improve relevant emissions factors.

We contend that this approach is appropriate for several reasons. One, we believe that stakeholders other than EPA are better equipped to identify specific data needs and that they have the means to collect the data. Second, we believe we are better positioned to provide guidance on test planning, data collection, and emissions factors calculations with a less direct role in data collection and evaluation. Third, we believe that States in need of additional information can also benefit from experience of other States with similar source types and who are developing regulations to implement the NAAQS including the control of condensable PM. See also the discussion in section II.L.2 above on the currently active collaborative study to assess direct $PM_{2.5}$ emissions measurement technologies and to collect updated direct $PM_{2.5}$ emissions data.

8. Developing effective regulations

Comment: A number of respondents commented that EPA needs to promulgate a $PM_{2.5}$ test method and adopt regulatory language that determines the $PM_{2.5}$ limits based on that promulgated $PM_{2.5}$ test method as soon as possible. Other commenters suggested that EPA and States have no choice but to revise the underlying standard by adopting new monitoring requirements through a notice and comment rulemaking. Further, these commenters indicate that it is essential that EPA require that no change in a test method or in methods of monitoring for determining compliance until such time as EPA or the permitting agency have undertaken a notice and comment process to determine how the emission limitations must be revised. A number of commenters cited specific components necessary for effective regulations.

Response: We agree that notice and comment rulemaking is appropriate for establishing effective regulations. As noted above, we are already undertaking a study of the available test methods to determine the need for regulatory revisions. We also agree that new regulations limiting direct $PM_{2.5}$ emissions must include effective emissions limitations to the extent that a State must reduce sources of direct $PM_{2.5}$. How a State determines to take such regulatory action depends on the State's implementation plan. As for regulatory content, we reaffirm our policy as stated in *White Paper Number 2 for Improved Implementation of the Part 70 Operating Permits Program*[25] that effective regulations must include certain elements that define applicable emissions limitations, the testing and monitoring requirements, and compliance, reporting, and corrective action obligations. This policy applies particularly to developing new regulations implementing limits on direct $PM_{2.5}$ emissions and the increased potential to reduce condensable PM emissions using methods that heretofore may not have been applied. The policy also reflects the increased understanding of the need for clarity in defining and demonstrating compliance with applicable requirements that has come with the issuance of operating permits.

Complete and effective regulations that ensure compliance with an applicable emissions limit must include

[25] White Paper Number 2 for Improved Implementation of The Part 70 Operating Permits Program, Lydia N. Wegman, Deputy Director, Office of Air Quality Planning and Standards, March 5, 1996 (http://www.epa.gov/ttn/oarpg/t5wp.html

requirements for both performance testing of emissions and ongoing monitoring of the compliance performance of control measures. We strongly suggest that regulations include the following critical elements of regulatory compliance testing provisions:

- Indicator(s) of compliance - the pollutant or pollutants of interest (e.g., filterable $PM_{2.5}$ plus condensable $PM_{2.5}$) and the applicable measurable units for expressing compliance (e.g., ng/J of heat input, lb/hr);
- Test method - reference to a specific EPA or other published set of sample collection and analytical procedures, equipment design and performance criteria, and the calculations providing data in units of the indicator of compliance (see section II.P.4 below for descriptions of available and potential improved test methods);
- Averaging time - the minimum length of each required test run and the requirement to average the results of the test runs (e.g., three runs) representing a specified period of time (e.g., 8 hours); and
- Frequency - the maximum time between conduct of emissions or performance tests (e.g., within 30 days of

facility start-up and once each successive quarter, 6-month period, year, permit term).

In order to be complete with regard to compliance monitoring provisions, we strongly suggest that regulations include the following critical elements:

- Indicator(s) of performance - the parameter or parameters measured or observed for demonstrating proper operation of the pollution control measures or compliance with the applicable emissions limitation or standard. Indicators of performance may include direct or predicted emissions measurements, process or control device (and capture system) operational parametric values that correspond to compliance with efficiency or emissions limits, and recorded findings of verification of work practice activities, raw material or fuels pollutant content, or design characteristics. Indicators may be expressed as a single maximum or minimum value, a function of process variables (e.g., within a range of pressure drops), a particular operational or work practice status (e.g., a damper position, completion of a waste recovery task), raw material or fuel pollutant content, or an interdependency between two or more variables;

- Measurement technique - the means used to gather and record information of or about the indicators of performance. The components of the measurement technique include the detector type or analytical method, location and installation specifications, inspection procedures, and quality assurance and quality control measures. Examples of measurement approaches include continuous emissions monitoring systems, continuous opacity monitoring systems, continuous parametric monitoring systems, performance testing, vendor or laboratory analytical data, and manual inspections and data collection that include making records of process conditions, raw materials or fuel specifications, or work practices;
- Monitoring frequency - the number of times to obtain and record monitoring data over a specified time interval. Examples of monitoring frequencies include at least one data value every 15 minutes for continuous emissions or parametric monitoring systems, at least every 10 seconds for continuous opacity monitoring systems, upon receipt or application of raw materials or fuel to the process, and at least once per operating day (or week, month, etc.) for

performance testing, work practice verification, or equipment design inspections; and

- Averaging time - the period over which to average and use data to verify compliance with the emissions limitation or standard or proper operation of the pollution control measure. Examples of averaging time include a 3-hour average in units of the emissions limitation, a 30-day rolling average emissions value, a daily average of a control device operational parametric range, periodic (e.g., monthly, annual) average of raw materials or fuel pollutant content, and an instantaneous alarm.

These regulatory elements are essential for effective implementation of the rules and clear and enforceable applicable requirements. We believe that approval of regulations implementing the SIPs must ensure that these critical elements are present and clearly defined. We reiterate that the compliance obligations, including emissions limits and other applicable requirements, must be representative and accountable to the assumptions used in the SIP demonstration. This accountability includes the ability to transfer the applicable regulatory requirements to an operating permit subject to EPA and public review and interpretation.

M. Improving source monitoring

a. Background.

In the November 1, 2005 proposal, we discussed a number of actions the EPA would undertake to improve the effectiveness of existing and new regulations with improved source monitoring provisions. Specifically, we repeated a plan outlined on January 22, 2004 (69 FR 3202; a Federal Register notice describing requirements for monitoring in operating permits), that includes a four-part strategy for improving monitoring of emissions at the source where necessary through rulemaking. One element of that plan is for EPA to develop guidance on how States can reduce $PM_{2.5}$ emissions by improving source monitoring related to $PM_{2.5}$ emissions limits. We noted that we expect to describe in such guidance methods of improving monitoring frequency or adopting more appropriate monitoring for States to consider in developing their $PM_{2.5}$ SIPs and to illustrate the amount of credit that States could receive in $PM_{2.5}$ SIPs for adopting such improved monitoring. We suggested that states with areas where additional reductions are needed to help the area achieve compliance with the NAAQS could implement improved monitoring measures to obtain additional emissions reductions. We put forward that State agencies could receive SIP credits as a result of enforceable improved monitoring or voluntary programs meeting EPA voluntary program policies.

Specific examples of improved monitoring we outlined included: 1) conducting the currently required monitoring more frequently (i.e., increased monitoring frequency), 2) changing the monitoring technique to a parameter more closely related to control of direct or secondary $PM_{2.5}$ emissions (i.e., a correlated parametric monitoring technique), 3) changing the technique to more measurement of direct $PM_{2.5}$ emissions and $PM_{2.5}$ precursors, or 4) a combination of these improvements. These types of monitoring improvements could be conducted for both controlled and uncontrolled emissions units. The improved monitoring control measure would require facilities to pay more attention to the operation of add-on air pollution control devices, work practices, and other process activities. The additional attention will reduce periods during which control devices and other control measures do not operate as intended or required. The result would be increased emissions reductions from implementing existing and new rules

We discussed a range of currently applied and new monitoring technologies. We addressed concerns we have about the limitations of the widespread use of visual emissions (VE) monitoring techniques, such as visible emissions checks, to show compliance with PM limits. We noted particular concerns about VE approaches, even with frequent application, having the ability to verify compliance when the margin of compliance is minimal or the ability to detect relatively significant changes in emissions control performance. The other concern we noted about the use of VE tools is the limited frequency at which they are conducted. We cited studies on the availability of continuous instrumental methods for monitoring opacity and operational parameters closely related to PM control levels including the development of repeatable correlations between parameter levels and PM emissions. We noted that PM continuous emissions monitoring systems (PM CEMS) technology provides the opportunity to quantify PM emissions levels (concentration or emissions rates). These additional data provide the source owner/operator with a level of information that can be useful for understanding and operating the process and the control measures in ways to minimize emissions, improve operating efficiencies, and reduce enforcement liabilities. Furthermore, we noted that this technology will provide the State with quantitative information on PM emissions which will help improve the inventories and to implement effective control strategies to meet the NAAQS.

We also discussed at some length what we believe constitutes improved monitoring and the potential for monitoring-related emissions reductions. We discussed a study of how these emissions reductions would be achieved by increasing the monitoring frequency or improving the monitoring of an add-on air pollution control device or other process activity above the level currently required in existing rules. The increased frequency or improved technique would allow owners or operators to achieve greater emissions reductions by identifying and responding more quickly to periods of ineffective control measure operation. States could use an improved monitoring control measure in regulations or through other means to reduce emissions levels and receive credits towards attainment. Specifically, we cited materials that indicate that source owners and operators who increase monitoring frequency could achieve emissions reductions up to 13 percent and those who improve the monitoring technique could achieve emissions reductions up to 15 percent. States with nonattainment areas in need of additional reductions to achieve compliance with the NAAQS could implement an improved monitoring measure and develop additional emissions reductions credits. We outlined several specific examples.

In order to inform our improved monitoring guidance development efforts, we used the 2005 proposal to solicit specific comments on 1) how potentially inadequate source monitoring in certain SIPs could be improved; 2) how improved $PM_{2.5}$ monitoring relates to title V monitoring; 3) whether instrumental techniques are more appropriate than visual emissions (VE) techniques for monitoring compliance with PM emissions limits; and 4) a basis for determining whether improved monitoring would be effective and under what conditions should be required. We also requested comment on the feasibility of monitoring of co-pollutant control measures and requested examples of improved monitoring for any applications.

b. Final rule.

We maintain that improved monitoring is critical to implementing the $PM_{2.5}$ direct and precursor emissions reductions programs. We also believe that improving monitoring both in terms of increasing data collection and analysis frequency and in measuring the pollutant of interest more directly will accomplish several important and advantageous outcomes. First, improved monitoring will improve verification of compliance and assurance of the intended emissions reductions. Second, improved monitoring can provide additional emissions reductions through quicker detection and correction of control measure problems. Third, improved monitoring can improve operating efficiencies that often result in cost savings to the facility exceeding the cost of the monitoring. We will continue to evaluate the effects of improved monitoring on emissions reductions and ways to quantify the benefits associated with improved monitoring.

We intend to move forward with developing and providing additional technical and informational materials regarding technologies constituting improved monitoring and for developing regulations with improved monitoring. These materials may also include guidance and tools for establishing emissions reductions credits and the economic benefits associated with improved monitoring. As noted in section P above, we also reaffirm our policy that effective regulations must include certain elements that define applicable emissions limitations, the testing and monitoring requirements, and compliance, reporting, and corrective action obligations. This policy applies particularly to developing new regulations implementing limits on direct $PM_{2.5}$ emissions given the conflicting strategies used in implementing PM_{10} limits and the increased need to address condensable PM emissions including improved source monitoring to assure the emissions reductions required.

c. Comments and Responses.

We expected to receive practical advice concerning improved $PM_{2.5}$ source emissions monitoring methods and field-tested examples. Instead, commenters focused on 1) critiquing PM CEMS technology 2) insisting that improving monitoring changes stringency of existing rules and requires rulemaking, and 3) critiquing the theoretical study linking emissions reductions with improved monitoring.

1. Currently available PM CEMS for monitoring direct $PM_{2.5}$ emissions

Comment: Commenters noted that because currently available PM CEMS measure filterable PM at stack conditions or at other elevated temperatures, the instruments do not measure the condensable portion of $PM_{2.5}$.

Response: We agree with this comment relative to PM CEMS in use to date and condensable PM. PM CEMS as applied today can be calibrated to measure filterable $PM_{2.5}$ emissions with very good sensitivity and repeatability. Note that we are aware of a number of PM CEMS vendors developing devices relying on much the same technology but modified to measure condensable PM. Further, we are aware of at least one manufacturer offering a source PM CEMS that also complies with ASTM requirements for mobile source emissions monitoring. We also believe that monitoring for filterable $PM_{2.5}$ will be as important in some cases as monitoring for condensable PM and that PM CEMS in use today are markedly better at monitoring PM emissions than other frequently used monitoring approaches.

We realize that PM CEMS are just one of a range of monitoring options that would represent improvements over the current monitoring. For instance, we believe that improved monitoring would include replacing current periodic VE measurements or daily recording of pressure drop of fabric filters with continuous bag leak detectors. We know of projects (e.g., ASTM committee work) for continuing the development of optical, as well as electromagnetic, monitoring tools to increase sensitivity and cost-effectiveness. Such monitoring would increase monitoring frequency and would yield data much more closely related to and more sensitive to control device operation than most currently applied monitoring. To the extent that condensable PM control is critical in implementing a regulation, we believe that monitoring must address that need. We will continue to collect and also provide information on source monitoring approaches that are improvements over current methods in both frequency and representativeness relative to implementing $PM_{2.5}$ emissions control strategies.

2. Status of guidance relative to regulations

Comment: A significant majority of commenters suggested that improving monitoring in an existing regulation increases its stringency and requires notice and comment rulemaking, not guidance. Just one commenter suggested guidance could be developed and used.

Response: There are two aspects to the comments on this issue. One is whether improved monitoring would change source operations. We agree with the commenters that increasing the frequency of data collection or providing data more directly related to the pollutant of concern with improved monitoring could result in changes in how a facility is operated relative to compliance. We disagree with commenters that such changes in process operation resulting from improved monitoring constitute an increase in a regulation's stringency with respect to compliance. First, as mentioned in the preamble to the Credible Evidence rule (62 FR 8326, February 24, 1997), an emissions standard's required stringency is unaffected by the frequency of monitoring given no decrease in averaging time or emissions limitation. Secondly, data from improved monitoring will provide a facility operator better information on control measure performance more quickly and allow for reducing the duration and the number of periods that may lead to compliance problems. Reducing the duration of excess emissions periods, for example, with improved monitoring is not an increase in regulatory stringency but a decrease in enforcement liability.

The second aspect to the comment is questioning whether we can issue technical information about improved monitoring as guidance without applying it to a Federal Register notice and comment process. We disagree with commenters who believe that our developing and disseminating technical resource information is limited to notice and comment rulemaking. We note that making technical and other information materials available to the public, states, and industry is an important Agency function. There are many examples of such the Agency dispensing such information including the Monitoring Knowledge Base (http://cfpub.epa.gov/mkb/) that provides just such information on improved monitoring. On the other hand, we agree with commenters that any significant change to an existing regulation, including the addition of new monitoring requirements, would be subject to notice and comment rulemaking. To the extent that states determine the need for such changes to existing regulations, public notice and comment rulemaking is appropriate as it would be for new regulations implementing the NAAQS. Our role in developing technical resources and information informing the states in developing those revised or new regulations does not require, nor should be subject to the rulemaking process.

Further, we believe rulemaking is not necessarily required for source owners or operators who volunteer to participate in an optional improved monitoring program, such as the one mentioned in the proposal. That program seeks to provide SIP credits to source owners or operators who agree to improve their PM monitoring approaches. We plan on continuing to prepare and offer non-regulatory incentives for source owners and operators who volunteer to improve existing monitoring.

3. Study of improved monitoring- induced emissions reductions

Comment: Commenters recommended that the proposal's theoretical study showing PM emissions reductions from the use of improved monitoring needs to be validated with field data.

Response: We agree with commenters that one should base any costs and benefits findings as well as validating the approach on available data. To the extent that this applies to assessing the benefits of emissions reductions achieved through improved monitoring, we requested that commenters provide data or leads to other information or to other alternatives that show how improved monitoring yields emissions reductions and ways to quantify possible PM credits for SIPs. In fact, we are disappointed that commenters failed to provide these data or examples of other approaches. As resources allow, we will investigate further field validation of the theoretical study, as well as other means to offer incentives for use of improved monitoring. Meanwhile, we will continue to rely on the results of previous studies indicating significant emissions reductions and associated economic benefits of the current study in developing guidance on how States can reduce $PM_{2.5}$ emissions by improving source emissions monitoring.

N. Guidance specific to Tribes

[to be added]

O. Are there any additional requirements related to enforcement and compliance?

[to be added]

P. What requirements should apply to emergency episodes?

[to be added]

Q. What ambient monitoring requirements will apply under the PM2.5 NAAQS?

[to be added]

III. STATUTORY AND EXECUTIVE ORDER REVIEWS

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order (EO) 12866 (58 FR 51735, October 4, 1993), this action is a “significant regulatory action.” Accordingly, EPA submitted this action to the Office of Management and Budget(OMB) for review under EO 12866 and any changes made in response to OMB suggestions or recommendations had been documented in the docket for this action

B. Paperwork Reduction Act

The information collection requirements in this rule will be submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. The information collection requirements are not enforceable until OMB approves them other than to the extent required by statute.

This rule provides the framework for the States to develop SIPs to achieve a new or revised NAAQS. This framework reflects the requirements prescribed in CAA sections 110 and part D, subpart 1 of title I. In that sense, the present final rule does not establish any new information collection burden on States. Had this rule not been developed, States would still have the legal obligation under law to submit nonattainment area SIPs under part D of title I of the CAA within specified periods after their nonattainment designation for the PM2.5 standards, and the SIPs would have to meet the requirements of part D.

A SIP contains rules and other requirements designed to achieve the NAAQS by the deadlines established under the CAA, and also contains a demonstration that the State's requirements will in fact result in attainment. The SIP must meet the CAA requirements in subpart 1 to adopt RACM, RACT, and provide for RFP toward attainment for the period prior to the area's attainment date. After a State submits a SIP, the CAA requires EPA to approve or disapprove the

SIP. If EPA approves the SIP, the rules in the SIP become Federally enforceable. If EPA disapproves the SIP (or if EPA finds that a State fails to submit a SIP), the CAA requires EPA to impose sanctions (2:1 offsets for major new or modified sources and restrictions on Federal highway funding) within specified timeframes; additionally, EPA must prepare and publish a FIP within 2 years after a disapproval or finding of failure to submit. The SIP must be publicly available. States must maintain confidentiality of confidential business information, however, if used to support SIP analyses. The SIP is a one-time submission, although the CAA requires States to revise their SIPs if EPA requests a revision upon a finding that the SIP is inadequate to attain or maintain the NAAQS. The State may revise its SIP voluntarily as needed, but in doing so must demonstrate that any revision will not interfere with attainment or RFP or any other applicable requirement under the CAA (see section 110(l)).

This rule does not establish requirements that directly affect the general public and the public and private sectors, but, rather, interprets the statutory requirements that apply to States in preparing their SIPs.

The SIPs themselves will likely establish requirements that directly affect the general public, and the public and private sectors.

The EPA has not yet projected cost and hour burden for the statutory SIP development obligation but has started that effort and will shortly prepare an Information Collection Request (ICR) request. However, EPA did estimate administrative costs at the time of promulgation of the PM2.5 standards in 1997. See Chapter 10 of U.S. EPA 1997, Regulatory Impact Analyses for the Particulate Matter and Ozone National Ambient Air Quality Standards, Innovative Strategies and Economics Group, Office of Air Quality Planning and Standards, Research Triangle Park, N.C., July 16, 1997. Assessments of some of the administrative cost categories identified as a part of the SIP for the PM2.5 standards have already been conducted as a result of other provisions of the CAA and associated ICRs (e.g. emission inventory preparation, air quality monitoring program, conformity assessments, NSR, I/M program).

The burden estimates in the ICR for this rule are incremental to what is required under other provisions of the CAA. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR part 9. When this ICR is approved by OMB, the Agency will publish a technical amendment to 40 CFR part 9 in the Federal Register to display the OMB control number for the approved information collection requirements contained in this final rule. However, the failure to have an approved ICR for this rule does not affect the statutory obligation for the States to submit SIPs as required under part D of the CAA.

The information collection requirements associated with NSR permitting for ozone are covered by EPA's request to renew the approval of the ICR for the NSR program, ICR 1230.17, which was approved by OMB on January 25, 2005. The information collection requirements associated with NSR permitting were previously covered by ICR 1230.10 and 1230.11. The OMB previously approved the information collection requirements contained in the existing NSR regulations at 40 CFR parts 51 and 52 under the provisions of the Paperwork Reduction Act, and assigned OMB control number 2060-0003. A copy of the approved ICR may be obtained from Susan Auby, Collection Strategies Division; U.S. Environmental Protection Agency (2822T); 1200 Pennsylvania Ave., NW, Washington, DC 20460 or by calling (202) 566-1672. [See Lakeshia Walker's e-mail of 7/27]

C. Regulatory Flexibility Act

The Regulatory Flexibility Act generally requires an Agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedures Act or any other statute unless the Agency certifies the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions. For purposes of assessing the impacts of today's proposed rule on small entities, small entity is defined as: (1) a small business, as defines by the Small Business Administration's regulations at 13 CFR 121.201; (2) a governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's final rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. The final rule governing SIPs will not directly impose any requirements on small entities. Rather, this rule interprets the obligations established in the CAA for States to submit implementation plans in order to attain the $PM_{2.5}$ NAAQS.

Additionally, with respect to NSR, this proposed rule does not itself create the obligation to obtain an NSR permit for new major stationary sources and modifications resulting in emissions of $PM_{2.5}$ and its precursors. Rather, the preexisting rules establish this obligation, and this final rule clarifies how that obligation will be implemented.

We believe that the existing Regulatory Flexibility Screening Analysis (RFASA) further supports the conclusion that the NSR proposal will not have a significant economic impact on a substantial number of small entities. The RFASA, developed as part of a 1994 draft Regulatory Impact Analysis (RIA) and incorporated into the September 1995 ICR renewal analysis, showed that the changes to the NSR program due to the 1990 CAA Amendments would not have an adverse impact on small entities. This analysis encompassed the entire universe of applicable major sources that were likely to also be small businesses (approximately 50 ”small business” major sources). Because the administrative burden of the NSR program is the primary source of the NSR program's regulatory costs, the analysis estimated a negligible ”cost to sales” (regulatory cost divided by the business category mean revenue) ratio for this source group. Currently, there is no economic basis for a different conclusion. We do not believe the number of ”small business” major sources will increase appreciably because all sources who are major for $PM_{2.5}$ or one of its precursors (SO_2, NO_x. or VOC) will already be major for PM_{10} or such precursor.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and Tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with “Federal mandates” that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any 1 year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

The EPA has determined that this rule does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, and Tribal governments, in the aggregate, or the private sector in any 1 year. The estimated administrative burden hour and costs associated with implementing the $PM_{2.5}$ NAAQS were developed upon promulgation of the standard and presented in Chapter 10 of U.S. EPA 1997, *Regulatory Impact Analyses for the Particulate Matter and Ozone National Ambient Air Quality Standards,* Innovative Strategies and Economics Group, Office of Air Quality Planning and Standards, Research Triangle Park, N.C., July 16, 1997. The estimated costs presented there for States in 1990 dollars totaled $0.9 million. The corresponding estimate in 1997 dollars is $1.1 million. Thus, today's rule is not subject to the requirements of section 202 and 205 of the UMRA.

The CAA imposes the obligation for States to submit SIPs to implement the $PM_{2.5}$ NAAQS. In this rule, EPA is merely providing an interpretation of those requirements. However, even if this rule did establish an independent requirement for States to submit SIPs, it is questionable whether a requirement to submit a SIP revision would constitute a Federal mandate in any case. The obligation for a State to submit a SIP that arises out of section 110 and section 172 (part D) of the CAA is not legally enforceable by a court of law, and at most is a condition for continued receipt of highway funds. Therefore, it is possible to view an action requiring such a submittal as not creating any enforceable duty within the meaning of section 421(5)(9a)(I) of UMRA (2 U.S.C. 658(a)(I)). Even if it did, the duty could be viewed as falling within the exception for a condition of Federal assistance under section 421(5)(a)(i)(I) of UMRA (2 U.S.C. 658(5)(a)(i)(I)).

In the proposal, EPA has determined that this proposed rule contains no regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments. Nonetheless, EPA carried out consultations with governmental entities affected by this rule.

E. Executive Order 13132: Federalism

Executive Order 13132, entitled “Federalism” (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have Federalism implications." "Policies that have Federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

This proposed rule does not have Federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. As described in section D, above (on UMRA), EPA previously determined the costs to States to implement the $PM_{2.5}$ NAAQS to be approximately $0.9 million in 1990 dollars. The corresponding estimate in 1997 dollars is $1.1 million. While this proposed rule considers options not addressed at the time the NAAQS were promulgated, the costs for implementation under these options would rise only marginally. This rule clarifies the statutory obligations of States in implementing the $PM_{2.5}$ NAAQS. Finally, the CAA establishes the scheme whereby States take the lead in developing plans to meet the NAAQS. This proposed rule would not modify the relationship of the States and EPA for purposes of developing programs to implement the NAAQS. Thus, Executive Order 13132 does not apply to this proposed rule.

Although section 6 of Executive Order 13132 does not apply to this rule, EPA actively engaged the States in the development of this proposed rule. The EPA held a number of calls with representatives of State and local air pollution control agencies.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this proposed rule from State and local officials.

F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

Executive Order 13175, entitled "Consultation and Coordination with Indian Tribal Governments" (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure "meaningful and timely input by Tribal officials in the development of regulatory policies that have Tribal implications." This proposed rule does not have "Tribal implications" as defined in Executive Order 13175. This rule concerns the requirements for State and tribal implementation plans for attaining the PM2.5 air quality standards. The CAA provides for States to develop plans to regulate emissions of air pollutants within their jurisdictions. The Tribal Air Rule (TAR) under the CAA gives Tribes the opportunity to develop and implement CAA programs such as programs to attain and maintain the PM2.5 NAAQS, but it leaves to the discretion of the Tribe the decision of whether to develop these programs and which programs, or appropriate elements of a program, they will adopt.

This proposed rule does not have Tribal implications as defined by Executive Order 13175. It does not have a substantial direct effect on one or more Indian Tribes, since no Tribe has implemented a CAA program to attain the PM2.5 NAAQS at this time. EPA notes that even if a Tribe were implementing such a plan at this time, while the rule might have Tribal implications with respect to that Tribe, it would not impose substantial direct costs upon it, nor would it preempt Tribal law

Furthermore, this rule does not affect the relationship or distribution of power and responsibilities between the Federal government and Indian Tribes. The CAA and the TAR establish the relationship of the Federal government and Tribes in developing plans to attain the NAAQS, and this rule does nothing to modify that relationship. As this rule does not have Tribal implications, Executive Order 13175 does not apply.

Although Executive Order 13175 does not apply to this rule, EPA did reach out to Tribal leaders and environmental staff regarding this proposal. The EPA supports a national "Tribal Designations and Implementation Work Group" which provides an open forum for all Tribes to voice concerns to EPA about the designations and implementation process for the NAAQS, including the PM2.5 NAAQS. In conference calls EPA briefed Work Group participants and Tribal environmental professionals gave input as the rule was under development. Furthermore, EPA is sending individualized letters to all Federally recognized Tribes about this proposal to give Tribal leaders the opportunity for consultation. EPA specifically solicits additional comment on this proposed rule from tribal officials.

G. Executive Order 13045: Protection of Children from Environmental Health and Safety Risks

Executive Order 13045: "Protection of Children From Environmental Health and Safety Risks" (62 FR 19885, April 23, 1997) applies to any rule that (1) is determined to be "economically significant" as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

The proposed rule is not subject to Executive Order 13045. Nonetheless, we have evaluated the environmental health or safety effects of the $PM_{2.5}$ NAAQS on children. The results of this evaluation are contained in the 1997 Federal Register notice establishing the $PM_{2.5}$ standards.[26] In a number of locations in that notice, children are

[26] See 62 FR 38652-38760, National Ambient Air Quality Standards for Particulate Matter, Final Rule; also 40 CFR Part 50.

identified as one of the principle sub-populations that are particularly sensitive to exposure to fine particle pollution. Today's proposed rule provides the framework by which States will require sources to reduce pollutant emissions, thereby improving air quality and reducing the exposure of children and others to unhealthy levels of fine particle pollution.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

This proposed rule is not a "significant energy action" as defined in Executive Order 13211, "Actions That Significantly Affect Energy Supply, Distribution, or Use," (66 FR 28355, May 22, 2001) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

I. National Technology Transfer Advancement Act

Section 12(d) of the National Technology Transfer Advancement Act of 1995 (NTTAA), Public Law No. 104-113, section 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards (VCS) in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by VCS bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable VCS.

This proposed rulemaking does not involve technical standards. Therefore, EPA is not considering the use of any VCS.

The EPA will encourage the States and Tribes to consider the use of such standards, where appropriate, in the development of the implementation plans.

J. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 requires that each Federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionate high and adverse human health or environmental effects of its programs, policies, and activities on minorities and low-income populations.

The EPA believes that this proposed rule should not raise any environmental justice issues. The health and environmental risks associated with ozone were considered in the establishment of the $PM_{2.5}$ NAAQS. The level is designed to be protective with an adequate margin of safety. The proposed rule provides a framework for improving environmental quality and reducing health risks for areas that may be designated nonattainment.

K. Petitions for Judicial Review

Under section 307(b)(1) of the CAA, petitions for judicial review of this action must be filed in the United States Court of Appeals for the District of Columbia Circuit by **[insert date 60 days after publication]**. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. See CAA section 307(b)(2).

L. Determination Under Section 307(d)

Pursuant to sections 307(d)(1)(E) and 307(d)(1)(V) of the CAA, the Administrator determines that this action is subject to the provisions of section 307(d). Section 307(d)(1)(V) provides that the provisions of section 307(d) apply to "such other actions as the Administrator may determine." While the Administrator did not make this determination earlier, the Administrator believes that all of the procedural requirements, e.g., docketing, hearing and comment periods, of section 307(d) have been complied with during the course of this rulemaking.

M. Congressional Review Act

The Congressional Review Act, 5 U.S.C. section 801 et seq., as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each Hourse of the Congress and to the Comptroller General to the United State. The EPA will submit a report contacting the rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the Federal Register. A Major rule cannot take effect until 60 days after it is published in the Federal Register. This action is/is not a "major rule" as defined by 5 U.S.C. section 804(2). This rule will be effective [INSERT DATE 60 DAYS FROM PUBLICATION].

LIST OF SUBJECTS

[add]

____
Date

____
Stephen L. Johnson,
Administrator.

5. A new Subpart Y is added to read as follows: