Federal Register

Friday,
September 21, 2007

Part II

Environmental Protection Agency

40 CFR Parts 51 and 52

Prevention of Significant Deterioration (PSD) for Particulate Matter Less Than 2.5 Micrometers ($PM_{2.5}$)—Increments, Significant Impact Levels (SILs) and Significant Monitoring Concentration (SMC); Proposed Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 51 and 52

[EPA–HQ–OAR–2006–0605; FRL–8470–1]

RIN 2060–AO24

Prevention of Significant Deterioration (PSD) for Particulate Matter Less Than 2.5 Micrometers ($PM_{2.5}$)—Increments, Significant Impact Levels (SILs) and Significant Monitoring Concentration (SMC)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Clean Air Act (Act) authorizes EPA to establish regulations to prevent significant deterioration of air quality due to emissions of any pollutant for which a national ambient air quality standard (NAAQS) has been promulgated. The NAAQS for particulate matter using the $PM_{2.5}$ indicator were promulgated in 1997. The EPA is proposing to facilitate implementation of a $PM_{2.5}$ Prevention of Significant Deterioration (PSD) program in areas attaining the particulate matter less than 2.5 micrometers ($PM_{2.5}$) NAAQS by developing $PM_{2.5}$ increments, Significant Impact Levels (SILs), and a Significant Monitoring Concentration (SMC). In addition, EPA is proposing to revoke the annual PM_{10} increments.

''Increments'' are maximum increases in ambient $PM_{2.5}$ concentrations ($PM_{2.5}$ increments) allowed in an area above the baseline concentration. The SILs and SMCs are numerical values that represent thresholds of insignificant, i.e., *de minimis*, modeled source impacts or monitored (ambient) concentrations, respectively. The EPA is proposing such values for $PM_{2.5}$ that will be used as screening tools by a major source subject to PSD to determine the subsequent level of analysis and data gathering required for a PSD permit application for emissions of $PM_{2.5}$.

DATES: Comments must be received on or before November 20, 2007. Under the Paperwork Reduction Act, comments on the information collection provisions must be received by the Office of Management and Budget (OMB) on or before October 22, 2007.

Public Hearing. If anyone contacts us requesting to speak at a public hearing by October 11, 2007, we will hold a public hearing. Additional information about the hearing would be published in a subsequent **Federal Register** notice.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA–HQ–OAR–2006–0605, by one of the following methods:

- *www.regulations.gov*. Follow the on-line instructions for submitting comments.
- *E-mail: a-and-r-Docket@.epa.gov*.
- *Mail:* Air and Radiation Docket and Information Center, Environmental Protection Agency, Mailcode: 2822T, 1200 Pennsylvania Avenue, NW., Washington, DC 20460. Please include a total of two copies. In addition, please mail a copy of your comments on the information collection provisions to the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), Attn: Desk Officer for EPA, 725 17th Street, Northwest, Washington, DC 20503.
- *Hand Delivery:* Air and Radiation Docket and Information Center, EPA/DC, EPA West, Room 3334, 1301 Constitution Avenue, NW., Washington, DC 20004. Such deliveries are only accepted during the Docket Center's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

Instructions: Direct your comments to Docket ID No. EPA–HQ–OAR–2006–0605. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *www.regulations.gov*, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *www.regulations.gov* or e-mail. The *www.regulations.gov* Web site is an ''anonymous access'' system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through *www.regulations.gov* your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD–ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional instructions on submitting comments, go to section I.B of the **SUPPLEMENTARY INFORMATION** section of this document.

Docket: All documents in the docket are listed in the *www.regulations.gov* index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either electronically in *www.regulations.gov* or in hard copy at the Air and Radiation Docket and Information Center, EPA/DC, EPA West, Room 3334, 1301 Constitution Avenue, Northwest, 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 Air and Radiation Docket and Information Center is (202) 566–1742.

FOR FURTHER INFORMATION CONTACT: Mr. Raghavendra (Raj) Rao, Air Quality Policy Division, Office of Air Quality Planning and Standards (C504–03), Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number (919) 541–5344; fax number (919) 541–5509; e-mail address: *rao.raj@epa.gov* or Dan deRoeck, Air Quality Policy Division, Office of Air Quality Planning and Standards (C504–03), Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number (919) 541–5593; fax number (919) 541–5509; e-mail address: *deroeck.dan@epa.gov*. To request a public hearing or information pertaining to a public hearing on this document, contact Ms. Pamela S. Long, Air Quality Policy Division, Office of Air Quality Planning and Standards (C504–03), Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number (919) 541–0641; fax number (919) 541–5509; e-mail address: *long.pam@epa.gov*.

SUPPLEMENTARY INFORMATION:

I. General Information

A. Does this action apply to me?

Entities potentially affected by this proposed action include owners and operators of emission sources in all industry groups, as well as the EPA and State, local, and tribal governments that are delegated authority to implement these regulations. The majority of sources potentially affected are expected to be in the following groups:

Category	NAICS[a]	Industry group
Industry	221111, 221112, 221113, 221119, 221121, 221122.	Electric services.
	32411	Petroleum refining.
	325181, 32512, 325131, 325182, 211112, 325998, 331311, 325188.	Industrial inorganic chemicals.
	32511, 325132, 325192, 325188, 325193, 32512, 325199.	Industrial organic chemicals.
	32552, 32592, 32591, 325182, 32551	Miscellaneous chemical products.
	211112	Natural gas liquids.
	48621, 22121	Natural gas transport.
	32211, 322121, 322122, 32213	Pulp and paper mills.
	322121, 322122	Paper mills.
	336111, 336112, 336712, 336211, 336992, 336322, 336312, 33633, 33634, 33635, 336399, 336212, 336213.	Automobile manufacturing.
	325411, 325412, 325413, 325414	Pharmaceuticals.
Federal government	924110	Administration of Air and Water Resources and Solid Waste Management Programs.
State/local/tribal Government	924110	Administration of Air and Water Resources and Solid Waste Management Programs.

[a] North American Industry Classification System.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. To determine whether your facility is regulated by this action, you should examine the applicability criteria in the PSD rules for attainment areas (40 CFR 52.21). If you have any questions regarding the applicability of this action to a particular entity, contact the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

B. What should I consider as I prepare my comments for EPA?

1. *Submitting CBI.* Do not submit this information to EPA through *www.regulations.gov* or e-mail. Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD ROM that you mail to EPA, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2. Send or deliver information identified as CBI only to the following address: Roberto Morales, OAQPS Document Control Officer (C404–02), Environmental Protection Agency, Research Triangle Park, NC 27711, Attention Docket ID No. EPA–HQ–OAR–2006–0605.

2. *Tips for Preparing Your Comments.* When submitting comments, remember to:

- Identify the rulemaking by docket number and other identifying information (subject heading, **Federal Register** date and page number).
- Follow directions—The agency may ask you to respond to specific questions or organize comments by referencing a Code of Federal Regulations (CFR) part or section number.
- Explain why you agree or disagree, suggest alternatives, and substitute language for your requested changes.
- Describe any assumptions and provide any technical information and/or data that you used.
- If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.
- Provide specific examples to illustrate your concerns, and suggest alternatives.
- Explain your views as clearly as possible, avoiding the use of profanity or personal threats.
- Make sure to submit your comments by the comment period deadline identified.

C. 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 proposal will also be available on the World Wide Web. Following signature by the EPA Administrator, a copy of this notice will be posted in the regulations and standards section of our NSR home page located at *http://www.epa.gov/nsr.*

D. How can I find information about a possible Public Hearing?

Persons interested in presenting oral testimony should contact Ms. Pamela Long, New Source Review Group, Air Quality Policy Division (C504–03), Environmental Protection Agency, Research Triangle Park, NC 27711; telephone number (919) 541–0641 or e-mail *long.pam@epa.gov* at least 2 days in advance of the public hearing. Persons interested in attending the public hearing should also contact Ms. Long to verify the time, date, and location of the hearing. The public hearing will provide interested parties the opportunity to present data, views, or arguments concerning these proposed rules.

The information presented in this preamble is organized as follows:

II. Overview of Proposed Regulations

This proposal is the first step in the rulemaking process for promulgating $PM_{2.5}$ increments, SILs, and a SMC. The purpose of this proposed rulemaking is to develop the final elements that will aid implementation of the PSD program for $PM_{2.5}$. When final, these elements will supplement the final NSR implementation rule for $PM_{2.5}$. Following final action on this proposal and the $PM_{2.5}$ implementation rule for NSR, the Federal $PM_{2.5}$ NSR programs will no longer have to rely on the PM_{10} program as a surrogate, as has been the practice under our existing guidance. A State implementing a NSR program in an EPA approved State Implementation Plan (SIP) may continue to rely on the interim surrogate policy until we approve a revised SIP addressing these requirements. In this rulemaking, we [1] are proposing several options for increments, SILs and the SMC, respectively.

A. Summary of Proposed Options for Increments

We are proposing three sets of $PM_{2.5}$ increments, based on several approaches that are described in greater detail later in this preamble. For the first set (option 1), we are relying on an approach that treats $PM_{2.5}$ as a new pollutant. This option follows our statutory authority section 166(a) of the Act to develop increments for ''pollutants for which national ambient air quality standards are promulgated after the date of enactment of this part * * *'' This is the same approach that we used to establish NO_X increment regulations on October 12, 2005 (70 FR at 59586). The second and third options (options 2A and 2B) rely on an approach that we used in 1993 to promulgate PM_{10} increments in lieu of the statutory increments for particulate matter (PM) following our replacement of the then existing indicator for the PM NAAQS based on total suspended particulate with a new indicator based on PM_{10}. (58 FR 31622, June 3, 1993.) These two options represent variations of the approach used under the authority of section 166(f) of the Act to ''substitute'' PM_{10} increments for TSP increments. The increment values resulting from each of these three options are:

[1] In this proposal, the terms ''we,'' ''us,'' and ''our'' refer to the EPA and the terms ''you'' and ''your'' refer to the owners or operators of stationary sources of air pollution.

Option	Proposed increments (μg/m³)						NAAQS (μg/m³)	
	Class I		Class II		Class III		Annual	24-hr
	Annual	24-hr	Annual	24-hr	Annual	24-hr		
1	1	2	4	9	8	18	.....	.....
2A	1	2	4	9	8	18	15	35
2B	1	2	5	9	10	18	.....	.....

B. Summary of Proposed Options for SILs

We are also proposing three options for SILs. The first option utilizes the same approach we proposed for PM_{10} in the 1996 NSR Reform proposal. For option 2, we are proposing to scale the PM_{10} SIL values by the ratio of direct $PM_{2.5}$ to direct PM_{10} emissions. The $PM_{2.5}/PM_{10}$ emissions ratio is the national average derived from the 2001 extrapolation of the 1999 National Emissions Inventory. For option 3, we are proposing to scale the PM_{10} SIL values by the ratio of the $PM_{2.5}$ NAAQS to the PM_{10} NAAQS. The SIL values resulting from each of these options are:

Option	Proposed SILs (μg/m³)					
	Class I		Class II		Class III	
	Annual	24-hr	Annual	24-hr	Annual	24-hr
1	0.04	0.08	1.0	5.0	1.0	5.0
2	0.16	0.24	0.8	4.0	0.8	4.0
3	0.06	0.07	0.3	1.2	0.3	1.2

C. Summary of Proposed Options for the $PM_{2.5}$ SMC

The first option we are proposing for the SMC is the ''Lowest Detection Concentration'' or LDC approach that we used for establishing the SMC for TSP and PM_{10}. For option 2, we are proposing to scale the PM_{10} SMC value by the ratio of direct $PM_{2.5}$ to direct PM_{10} emissions. The $PM_{2.5}/PM_{10}$ emissions ratio is the national average derived from the 2001 extrapolation of the 1999 National Emissions Inventory. For option 3, we are proposing to scale the PM_{10} SMC value by the ratio of the $PM_{2.5}$ NAAQS to the PM_{10} NAAQS. The proposed SMC values for each of these options for the 24-hour averaging period are:

Option 1—10 μg/m³
Option 2—7.9 μg/m³
Option 3—2.3 μg/m³

III. Background

A. PSD Program

The NSR provisions of the Act are a combination of air quality planning and air pollution control technology program requirements for new and modified stationary sources of air pollution. In brief, section 109 of the Act requires us to promulgate primary NAAQS to protect public health and secondary NAAQS to protect public welfare. Once we have set these standards, States must develop, adopt, and submit to us for approval SIPs that contain emission limitations and other control measures to attain and maintain the NAAQS and to meet the other requirements of section 110(a) of the Act. Part C of title I of the Act contains the requirements for a component of the major new source review (NSR) program known as the PSD program. This program sets forth procedures for the preconstruction review and permitting of new and modified major stationary sources of air pollution locating in areas meeting the NAAQS (''attainment'' areas) and areas for which there is insufficient information to classify an area as either attainment or nonattainment (''unclassifiable'' areas). Most states have SIP-approved preconstruction permit (major NSR) programs. The Federal PSD program at 40 CFR 52.21 applies in some States that lack a SIP-approved permit program, and in Indian country.[2] The applicability of the PSD program to a major stationary source must be determined in advance of construction and is a pollutant specific determination. Once a major source is determined to be subject to the PSD program (PSD source), among other requirements, it must undertake a series of analyses to demonstrate that it will use the best available control technology (BACT) and will not cause or contribute to a violation of any NAAQS or incremental ambient pollutant concentration increase (increment). In cases where the source's emissions may adversely affect an area classified as a Class I area, additional review is conducted to protect the increments and special attributes of such an area defined as ''air quality related values.''

As part of the analysis of air quality impacts to determine compliance with the NAAQS and increment, the permit applicant and reviewing authority may compare the source's impacts for a pollutant with the corresponding SIL for that pollutant to show that a cumulative air quality impacts analysis is not necessary. Similarly, the permit applicant and reviewing authority may use the corresponding SMC for that pollutant to determine if pre-application site-specific ambient monitoring data is needed to conduct the air quality analysis.

When the reviewing authority reaches a preliminary decision to authorize construction of each proposed major new source or major modification, it must provide notice of the preliminary decision and an opportunity for comment by the general public, industry, and other persons that may be affected by the emissions of the major source or major modification. After considering these comments, the reviewing authority may issue a final determination on the construction permit in accordance with the PSD regulations.

[2] We have delegated authority to some States to implement the Federal PSD program. The EPA remains the reviewing authority in non-delegated States and in Indian country.

B. History of PM NAAQS

1. TSP and PM_{10} NAAQS

The EPA initially established NAAQS for PM in 1971, measured by the TSP indicator. Based on the size of the particles collected by the ''high-volume sampler,'' which was the reference method for determining ambient concentrations, TSP included all PM up to a nominal size of 25 to 45 micrometers. We established both annual and 24-hour NAAQS for TSP.

On July 1, 1987, we promulgated new NAAQS for PM in which we changed the indicator from TSP to PM_{10}, the latter including particles with a mean aerodynamic diameter less than or equal to 10 micrometers. These smaller particles are the subset of inhalable particles small enough to penetrate to the thoracic region (including the tracheobronchial and alveolar regions) of the respiratory tract (referred to as thoracic particles). We established annual and 24-hour NAAQS for PM_{10}, and revoked the NAAQS for TSP. (52 FR 24634).

2. $PM_{2.5}$ NAAQS

On July 18, 1997, we again revised the NAAQS for PM in several respects. While we determined that the NAAQS should continue to focus on particles less than or equal to 10 micrometers in diameter, we also determined that the fine and coarse fractions of PM_{10} should be considered separately. We established new annual and 24-hour NAAQS for $PM_{2.5}$ (referring to particles with a nominal mean aerodynamic diameter less than or equal to 2.5 micrometers) as the indicator for fine particles. Our 1997 rules also modified the PM_{10} NAAQS for the purpose of regulating the coarse fraction of PM_{10} (referred to as thoracic coarse particles or coarse-fraction particles; generally including particles with a nominal mean aerodynamic diameter greater than 2.5 micrometers and less than or equal to 10 micrometers, or $PM_{10-2.5}$), however this part of the action was vacated during subsequent litigation, leaving the pre-existing 1987 PM_{10} NAAQS in place (62 FR 38652).

3. Revised $PM_{2.5}$ and PM_{10} NAAQS

On October 17, 2006, we promulgated revisions to the NAAQS for $PM_{2.5}$ and PM_{10} with an effective date of December 18, 2006 (71 FR 61144). We lowered the 24-hour NAAQS for $PM_{2.5}$ from 65 micrograms per cubic meter ($\mu g/m^3$) to 35 $\mu g/m^3$, and retained the existing annual $PM_{2.5}$ NAAQS of 15 $\mu g/m^3$. In addition, we retained the existing PM_{10} 24-hour NAAQS of 150 $\mu g/m^3$, and revoked the annual PM_{10} NAAQS (previously set at 50 $\mu g/m^3$).

C. Implementation of NSR for $PM_{2.5}$

After we established new annual and 24-hour NAAQS for $PM_{2.5}$ (referring to particles with a nominal mean aerodynamic diameter less than or equal to 2.5 micrometers) as the indicator for fine particles in July 1997, we issued a guidance document ''Interim Implementation for the New Source Review Requirements for $PM_{2.5}$,'' John S. Seitz, Director, Office of Air Quality Planning and Standards, EPA, October 23, 1997. As noted in that guidance, section 165 of the Act implies that PSD requirements become effective for a new NAAQS upon the effective date of the NAAQS. Section 165(a)(1) of the Act provides that no new or modified major source may be constructed without a PSD permit that meets all of the section 165(a) requirements with respect to the regulated pollutant. Moreover, section 165(a)(3) provides that the emissions from any such source may not cause or contribute to a violation of any increment or NAAQS. Also, section 165(a)(4) requires BACT for each pollutant subject to PSD regulation. The 1997 guidance stated that sources would be allowed to use implementation of a PM_{10} program as a surrogate for meeting $PM_{2.5}$ NSR requirements until certain difficulties were resolved. These difficulties included the lack of necessary tools to calculate the emissions of $PM_{2.5}$ and related precursors, the lack of adequate modeling techniques to project ambient impacts, and the lack of $PM_{2.5}$ monitoring sites.

On April 5, 2005, we issued a guidance document entitled ''Implementation of New Source Review Requirements in PM–2.5 Nonattainment Areas,'' Stephen D. Page, Director, Office of Air Quality Planning and Standards, EPA. This memorandum provides guidance on the implementation of the nonattainment major NSR provisions in $PM_{2.5}$ nonattainment areas in the interim period between the effective date of the $PM_{2.5}$ NAAQS designations (April 5, 2005) and when we promulgate regulations to implement nonattainment major NSR for the $PM_{2.5}$ NAAQS. In addition to affirming the continued use of the John S. Seitz guidance memo in $PM_{2.5}$ attainment areas, this memo recommends that until we promulgate the $PM_{2.5}$ major NSR regulations, States should use a PM_{10} nonattainment major NSR program as a surrogate to address the requirements of nonattainment major NSR for the $PM_{2.5}$ NAAQS.

On November 1, 2005, we proposed a rule to implement the $PM_{2.5}$ NAAQS, including proposed revisions to the NSR program. For those States with EPA-approved PSD programs, we proposed to continue the 1997 NSR guidance to use PM_{10} as a surrogate for $PM_{2.5}$, but only during the SIP development period. We also indicate in that proposal that we will develop increments, SILs, and SMC in a separate rulemaking—i.e. this proposed rulemaking. Since there was an interim surrogate NSR program in place, EPA decided to first promulgate the non-NSR part of the implementation rule (including attainment demonstrations, designations, control measures etc.)—which was promulgated on April 25, 2007. The NSR part of the implementation rule is anticipated to be promulgated in September 2007. Additionally, once this proposed rulemaking is finalized, States will be able to fully implement a $PM_{2.5}$ NSR program.

D. Background on Implementation of PSD Increments

Under section 165(a)(3) of the Act, a PSD permit applicant must demonstrate that emissions from the proposed construction and operation of a facility ''will not cause, or contribute to, air pollution in excess of any (A) maximum allowable increase or maximum allowable concentration for any pollutant. * * *'' 42 U.S.C. 7475(a)(3). The ''maximum allowable increase'' of an air pollutant that is allowed to occur above the applicable baseline concentration for that pollutant is known as the PSD increment. By establishing the maximum allowable level of ambient pollutant concentration increase in a particular area, an increment defines ''significant deterioration.''

For PSD baseline purposes, a baseline area for a particular pollutant emitted from a source includes the attainment or unclassifiable area in which the source is located as well as any other attainment or unclassifiable area in which the source's emissions of that pollutant are projected (by air quality modeling) to result in an ambient pollutant increase of at least 1 $\mu g/m^3$ (annual average). *See*, e.g., 40 CFR 52.21(b)(15)(i). Once the baseline area is established, subsequent PSD sources locating in that area need to consider that a portion of the available increment may have already been consumed by previous emissions increases.

In general, the submittal date of the first complete PSD permit application in a particular area is the operative

''baseline date.'' [3] On or before the date of the first complete PSD application, emissions generally are considered to be part of the baseline concentration, except for certain emissions from major stationary sources, as explained in the following discussion of baseline dates. Most emissions increases that occur after the baseline date will be counted toward the amount of increment consumed. Similarly, emissions decreases after the baseline date restore or expand the amount of increment that is available.

In practice, three dates related to the PSD baseline concept are important in understanding how to calculate the amount of increment consumed—(1) Trigger date; (2) minor source baseline date; and (3) major source baseline date. Chronologically, the first relevant date is the trigger date. The trigger date, as the name implies, triggers the overall increment consumption process nationwide. Specifically, this is a fixed date, which must occur before the minor source baseline date can be established for the pollutant-specific increment in a particular attainment area. *See, e.g.*, 40 CFR 52.21(b)(14)(ii). For PM and SO_2, Congress defined the applicable trigger date as August 7, 1977—the date of the 1977 amendments to the Act when the original statutory increments were established by Congress. For NO_2, we selected the trigger date as February 8, 1988—the date on which we proposed increments for NO_2. *See* 53 FR 40656, 40658; October 17, 1988. In this action, as described later, we are proposing to add a new trigger date for purposes of calculating the new $PM_{2.5}$ increments.

The two remaining dates—''minor source baseline date'' and ''major source baseline date''—as described later, are necessary to properly account for the emissions that are to be counted toward increment consumed following the national trigger date, in accordance with the statutory definition of ''baseline concentration'' in section 169(4) of the Act. The statutory definition provides that the baseline concentration of a pollutant for a particular baseline area is generally the air quality at the time of the first application for a PSD permit in the area. Consequently, any increases in actual emissions occurring after that date (with some possible exceptions that we will discuss later) would be considered to consume the applicable PSD increment. However, the statutory definition in section 169(4) also provides that ''[E]missions of sulfur oxides and particulate matter from any major emitting facility on which construction commenced after January 6, 1975 shall not be included in the baseline and shall be counted in pollutant concentrations established under this part.''

To make this distinction between the date when emissions changes in general (i.e., from both major and minor sources) affect the increment and the date when emissions resulting from the construction at a major stationary source consume the increment, we established the terms ''minor source baseline date'' and ''major source baseline date,'' respectively. *See* 40 CFR 51.166(b)(14) and 52.21(b)(14). Accordingly, the ''minor source baseline date'' is the date on which the first complete application for a PSD permit is filed in a particular area. Any change in actual emissions after that date affects the PSD increment for that area.

The ''major source baseline date'' is the date after which actual emissions increases associated with construction at any major stationary source affect the PSD increment. In accordance with the statutory definition of ''baseline concentration,'' the PSD regulations define a fixed date to represent the major source baseline date for each pollutant for which an increment exists. Congress defined the major source baseline date for the statutory increments for PM and SO_2 as January 6, 1975. For the NO_2 increments, which we promulgated in 1988 under our authority to establish an increment system under section 166(a) of the Act, the major source baseline date we selected is February 8, 1988—the date on which we proposed increments for NO_2. 53 FR 40656. In this action, as described later, we are proposing to add a new major source baseline date for $PM_{2.5}$.

The PSD regulations set out the third date that is relevant to the PSD baseline concept. These regulations provide that the earliest date on which the minor source baseline date can be established is the date immediately following the ''trigger date'' for the pollutant-specific increment. See, e.g., 40 CFR 52.21(b)(14)(ii). For PM and SO_2, Congress defined the applicable trigger date as August 7, 1977—the date of the 1977 amendments to the Act when the original statutory increments were established by Congress. For NO_2, we selected the trigger date as February 8, 1988—the date on which we proposed increments for NO_2. *See* 53 FR 40656, 40658; October 17, 1988.

Once the minor source baseline date associated with the first PSD permit application for a proposed new major stationary source or major modification in an area is established, the new emissions from that source consume a portion of the increment in that area, as do any subsequent actual emissions increases that occur from any new or existing source in the area. When the maximum pollutant concentration increase defined by the increment has been reached, additional PSD permits cannot be issued until sufficient amounts of the increment are ''freed up'' via emissions reductions that may occur voluntarily, e.g., via source shutdowns, or via control requirements imposed by the reviewing authority. Moreover, the air quality in a region cannot deteriorate to a level in excess of the applicable NAAQS, even if all the increment has not been consumed. Therefore, new or modified sources located in areas where the air pollutant concentration is near the level allowed by the NAAQS may not have full use of the amount of pollutant concentration increase allowed by the increment.

Under EPA guidance, the actual increment analysis that a proposed new or modified source undergoing PSD review must complete depends on the area impacted by the source's new emissions.[4] We have also provided approved air quality models and guidelines for sources to use to project the air quality impact of each pollutant (over each averaging period) for which an increment analysis must be done.[5] In addition, we established significant impact levels for each pollutant under the nonattainment major NSR program that have also been used under the PSD program to identify levels below which the source's modeled impact is regarded as *de minimis. See* 40 CFR 51.165(b) and part 51, appendix S, section III.A. In the event that a source's modeled impacts of a particular pollutant are below the applicable significant impact level at all ambient air locations modeled, i.e., *de minimis* everywhere, EPA policy provides that no further modeling analysis is required for that pollutant. Our policy is that when a preliminary screening analysis based on the significant impact level is sufficient to demonstrate that the source's

[3] Baseline dates are pollutant specific. That is, a complete PSD application establishes the baseline date only for those regulated NSR pollutants that are projected to be emitted in significant amounts (as defined in the regulations) by the applicant's new source or modification. Thus, an area may have different baseline dates for different pollutants.

[4] We note that on June 6, 2007, we published a notice of proposed rulemaking proposing to refine several aspects of the increment calculation process to clarify how States and regulated sources may calculate increases in pollutant concentrations for purposes of determining compliance with the PSD increments. See 72 FR at 31372. When final, these revisions will amend the PSD regulations at 40 CFR 51.166 and 52.21.

[5] *See* EPA's ''Guideline on Air Quality Models'' at 40 CFR part 51, appendix W.

emissions will not cause or contribute to a violation of the increment, there is no need for a full impacts analysis involving a cumulative evaluation of the emissions from the proposed source and other sources affecting the area.

Within the impact area of a source that does have a significant impact, increment consumption is calculated using the source's proposed emissions increase, along with other emissions increases or decreases of the particular pollutant from sources in the area, which have occurred since the minor source baseline date established for that area. (For major sources, emissions increases or decreases that have occurred since the major source baseline date consume or expand increment.) Thus, an emissions inventory of sources whose emissions consume or expand the available increment in the area must be compiled. The inventory includes not only sources located directly in the impact area, but sources outside the impact area that affect the air quality within the impact area.

The inventory of emissions includes emissions from increment-affecting sources at two separate time periods—the baseline date and the current period of time. For each source that was in existence on the relevant baseline date (major source or minor source), the inventory includes the source's actual emissions on the baseline date and its current actual emissions. The change in emissions over these time periods represents the emissions that consume increment (or, if emissions have gone down, expand the available increment). For sources constructed since the relevant baseline date, all their current actual emissions consume increment and are included in the inventory.

When the inventory of emissions has been compiled, computer modeling is used to determine the change in ambient concentration that will result from these emissions when combined with the proposed emissions increase from the new major source or major modification that is undergoing PSD review. The modeling has generally been guided by the ''Guideline on Air Quality Models'' (40 CFR part 51, appendix W), which includes provisions on air quality models and the meteorological data input into these models. The model output (expressed as a change in concentration) for each relevant averaging period is then compared to the corresponding allowable PSD increment.

E. Historical Approaches for Developing Increments

1. Congressional Enactment of Increments for PM and SO_2

Congress established the first increments defining significant deterioration of air quality in the 1977 Amendments to the Act. These amendments to the Act, among other things, added subpart C to title I, setting out the requirements for PSD. In section 163, Congress included numerical increments for PM and sulfur dioxide (SO_2) for Class I, II, and III areas.

The three area classes are part of the increment system originally established by Congress. Congress designated Class I areas (including certain national parks and wilderness areas) as areas of special national concern, where the need to prevent deterioration of air quality is the greatest. Consequently, the allowable level of incremental change is the smallest relative to the other area classes, i.e., most stringent, in Class I areas. The increments of Class II areas are larger than those of Class I areas and allow for a moderate degree of emissions growth. For future redesignation purposes, Congress defined as Class III any existing Class II area for which a State may desire to promote a higher level of industrial development (and emissions growth). Thus, Class III areas are allowed to have the greatest amount of pollutant increase of the three area classes while still achieving the NAAQS. There have been no Class III redesignations to date.

In establishing these PSD increments, Congress used the then-existing NAAQS for those pollutants as the benchmark for determining what constitutes ''significant deterioration.'' Congress established the increments for PM as a percentage of the then-existing PM NAAQS. At the time the Act was amended in 1977, the NAAQS for PM were expressed in terms of ambient concentrations of total suspended particulate (TSP). Thus, EPA interpreted the statutory increments for PM using the same ambient ''indicator.''

2. EPA's Promulgation of Increments for NO_2 and PM_{10}

Congress also provided authority for EPA to promulgate additional increments and to update the original PM increments created by statute. The EPA has promulgated two regulations pursuant to this authority.

a. Increments for NO_X Using the ''Contingent Safe Harbor'' Approach Under Section 166(a) of the Act

As enacted in 1977, subpart C of the Act also included sections 166(a) through 166(e), which set out requirements related to increments for other pollutants. Section 166(a) requires EPA to develop regulations to prevent the significant deterioration of air quality due to emissions of certain named pollutants, and to develop such regulations for any pollutants for which NAAQS are subsequently promulgated. Section 166(b) prescribes timelines for the effective date of such regulations, and for corresponding SIP submittals and EPA approvals. Specifically, regulations, including increments, developed pursuant to section 166(a) become effective 1 year after the date of promulgation, and State plan revisions containing the new regulations are to be submitted to EPA for review within 21 months of promulgation. The same provision then calls for EPA's approval or disapproval of the revised plan within 25 months of promulgation. The legislative history indicates that this 1-year delay before the new PSD requirements, including the new increments, become effective is to allow Congress an opportunity to review them before States are required to implement them. H.R. Conf. Rep. 95–564, at 151 (1977), 1977 U.S.C.C.A.N. 1502, 1532. Section 166(c) and (d) set forth criteria and goals that such regulations must meet.

Based on section 166 of the Act, on October 17, 1988, EPA promulgated increments for nitrogen dioxide (NO_2) to prevent significant deterioration of air quality due to emissions of NO_X (53 FR 40656). The EPA based these increments on percentages of the NAAQS in the same way that Congress derived the statutory increments for PM and SO_2. Those NO_2 increments were challenged in 1988 by the Environmental Defense Fund (now Environmental Defense, or ''ED'') when ED filed suit in the U.S. Court of Appeals for the District of Columbia Circuit against the Administrator (*Environmental Defense Fund, Inc.* v. *Reilly,* No. 88–1882). Environmental Defense successfully argued that we failed to sufficiently consider certain provisions in section 166 of the Act. The court remanded the case to EPA ''to develop an interpretation of section 166 that considers both subsections (c) and (d), and if necessary to take new evidence and modify the regulations.'' *See Environmental Defense Fund* v. *EPA,* 898 F.2d 183, 190 (D.C. Cir. 1990). Section 166(c) of the Act requires the PSD regulations to, among other things, meet the goals and purposes set forth in sections 101 and 160 of the Act. Section 166(d) requires these regulations be at least as effective as the increments

established for PM (in the form of TSP) and SO_2 in section 163 of the Act. The court considered the NO_2 increment values determined using the percentage-of-NAAQS approach as ''safe harbor'' increments which met the requirements of section 166(d) of the Act. However, the court also determined that EPA's reliance on such increment levels was contingent upon our completing the analyses required under section 166(c), which provided that the final increment values must address the goals of sections 101 and 160 of the Act to protect public health and welfare, parks, and air quality related values (AQRVs) [6] and to ensure economic growth.

In response to the court's decision, we proposed rulemaking on increments for NO_X on February 23, 2005 (70 FR 8880) and finalized the rule on October 12, 2005 (70 FR 59582). In the final rule, we established our policy on how to interpret and apply the requirements of sections 166(c) and (d) of the Act. In accordance with the court ruling, we conducted further analyses (considering the health and welfare effects of NO_X) and concluded that the existing NO_2 increments were adequate to fulfill the requirements of section 166(c). *See* 70 FR 59586 for our detailed analysis of how pollutant regulations satisfy the requirements of section 166 of the Act. Hence, we retained the existing NO_2 increments along with other parts of the existing framework of pollutant-specific PSD regulations for NO_X. We also amended the requirements of 40 CFR 51.166 to make it clear that States may seek EPA approval of SIPs that utilize a different approach than EPA used to establish these NO_2 increments. To receive our approval of an alternative program, a State must demonstrate that its program satisfies the requirements of sections 166(c) and 166(d) of the Act and prevents significant deterioration of air quality from emissions of NO_X.[7]

[6] The term ''air quality related values'' is not defined in the Act, but the legislative history provides that ''The term 'air quality related values' of Federal lands designated as class I includes the fundamental purposes for which such lands have been established and preserved by the Congress and the responsible Federal agency. For example, under the 1916 Organic Act to establish the National Park Service (16 U.S.C. 1), the purpose of such national park lands 'is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.' '' S. Rep. No. 95–127 at 36 (1977)

[7] Under the 2005 NO_X regulation, States can adopt measures other than increments as long as they can demonstrate that the measures selected comply with the same criteria and goals of 166 (c) and (d) of the Act that must be met for increments.

b. Increments for PM_{10} Using ''Equivalent Substitution'' Approach Under Section 166(f)

On October 5, 1989, we proposed new PM_{10} increments. *See* 54 FR 41218. Although section 163 did not expressly define the existing statutory increments for PM in terms of a specific indicator, EPA reasoned that Congress's knowledge that TSP was the indicator for the PM NAAQS, and that the TSP standards were the starting point for the increments levels when the increments were established in 1977, meant that TSP was also the appropriate measure for the PM increments in section 163. As a consequence, EPA believed that the statutory PM increments could not simply be administratively redefined as PM_{10} increments, retaining the same numerical values, following the revision of the PM NAAQS. Rather, we stated our belief that with the promulgation of the PM_{10} NAAQS, EPA had both the responsibility and the authority under sections 166 and 301 of the Act to promulgate new increments for PM to be measured in terms of PM_{10}. We further concluded that promulgating PM_{10} increments to replace, rather than supplement, the statutory TSP increments under section 163 represented the most sensible approach for preventing significant deterioration with respect to PM. *See* 54 FR 41220–41221.

We promulgated PM_{10} increments to replace the existing TSP increments on June 3, 1993 (58 FR 31622). In the interim between proposal and promulgation, Congress enacted the 1990 Act Amendments. As part of these Act Amendments, Congress amended section 166 to add a new section 166(f). This section specifically authorized EPA to substitute PM_{10} increments for the existing section 163 PM increments based on TSP, provided that the substituted increments are ''of equal stringency in effect'' as the section 163 increments.

Thus, we were able to replace the TSP increments under section 163 of the Act using PM_{10} increments based directly on the newly enacted authority under section 166(f) of the Act. In the PM_{10} rule, we maintained the existing baseline dates and baseline areas for PM that had been previously established using the TSP indicator. Also as proposed, we promulgated PM_{10} increments developed based on an approach we called the ''equivalent to statutory increments'' approach. Under this approach, we used the original TSP increments as a benchmark for calculating the PM_{10} increments, thereby retaining roughly the same limitations on future deterioration of air quality as was allowed under the TSP increments. In using this approach, we considered the historical consumption of TSP increment by a sample population of permitted PSD sources, and then determined the PM_{10} increments for each area classification and averaging time that would provide approximately the same percentage of PM_{10} increment consumption, on average, by the same population of sources. Then, all future calculations of increment consumption after the PM_{10} implementation date would be based on PM_{10} emissions. *See* 58 FR 31622 and 31625.

IV. EPA'S Interpretation of Section 166 of the Clean Air Act

A. Which Criteria in Section 166 Should EPA Use to Develop Increments for $PM_{2.5}$?

The EPA interprets section 166 of the Act to give the Administrator the discretion to use either the ''contingent safe harbor'' approach or the ''equivalent substitution'' approach to establish increments for $PM_{2.5}$. Since sections 166(a) and section 166(f) contain or incorporate different criteria for establishing PSD regulations containing increments or other measures, the interpretation that EPA chooses to follow could have an impact on the increments or other measures that EPA adopts. Regulations promulgated under section 166(a) must be based on the criteria in section 166(c) and 166(d). 42 U.S.C. 7476(c)–(d). Regulations promulgated under section 166(f) must ''be of equal stringency in effect as those specific in the provisions for which they are substituted.'' 42 U.S.C. 7476(f). Furthermore, section 166(a) calls broadly for regulations, which may include increments, whereas section 166(f) addresses only increments.

Section 166(a) provides authority for EPA to promulgate additional pollutant-specific PSD regulations, which may include increments, for the pollutants specifically identified in that provision plus additional pollutants for which EPA may promulgate a NAAQS after a specific date 42 U.S.C. 7476(a). The last sentence of section 166(a) provides the following:

> In the case of pollutants for which national ambient air quality standards are promulgated after August 7, 1977, [the Administrator] shall promulgate such regulations not more than 2 years after the date of promulgation of such standards.

Since EPA promulgated an additional NAAQS for PM, based on the $PM_{2.5}$ indicator, in 1997, one potential

approach for developing increments for $PM_{2.5}$ is for EPA to promulgate these increments under the authority of section 166(a). Under this approach, EPA would promulgate increments or other measures for $PM_{2.5}$ that satisfy the standards set forth in subsections (c) and (d) of section 166, as interpreted by EPA in our recent rulemaking for nitrogen oxides.

However, in light of the provisions in section 163 and 166(f) of the Act that address increments for TSP and PM_{10}, respectively, there is some ambiguity on the question of the legal authority EPA should rely upon to establish increments for $PM_{2.5}$. In 1993, EPA construed section 166(f) to establish the sole criteria for promulgation of a new PM increment and thus did not base our final PM_{10} increment on section 166(a) of the Act. Considering sections 163, 166(a), and 166(f) together, an alternative interpretation of these provisions might be that Congress intended that section 163 and 166(f) alone cover PM. Under this reading, EPA would promulgate additional increments for particular matter based on the section 163 increments and 166(f) of the Act, which are the only provisions that specifically mention PM and PSD increments. However, as discussed later, it may also be possible to read sections 166(a) and 166(f) in harmony. Thus, we propose to adopt one of the following legal theories to support promulgation of increments for $PM_{2.5}$ using either of the two methods that EPA used in prior rules to develop PSD increments.

1. Support for ''Contingent Safe Harbor'' Approach for $PM_{2.5}$ Under Section 166(a)

The EPA believes it is permissible to interpret section 166(a) to apply to $PM_{2.5}$. Although EPA has generally characterized the NAAQS for $PM_{2.5}$ as a NAAQS for a new indicator of PM, EPA did not replace the PM_{10} NAAQS with the NAAQS for $PM_{2.5}$ in 1997. Rather, EPA established an additional NAAQS for $PM_{2.5}$ as if it were a new pollutant, even though EPA had already developed air quality criteria for PM generally. Thus, for purposes of section 166(a), the addition of a NAAQS for $PM_{2.5}$ is functionally the same as establishing a NAAQS for an additional pollutant after 1977.

We read section 166(a) to authorize EPA to promulgate pollutant-specific PSD regulations meeting the requirements of sections 166(c) and 166(d) for any pollutant for which EPA promulgates a NAAQS after 1977. Most of the pollutants identified in section 166(a) (nitrogen oxides, photochemical oxidants, carbon monoxide) are pollutants for which EPA had established NAAQS in 1977 when Congress adopted section 166 of the Act. There was no need for Congress to list other criteria pollutants, sulfur dioxide and particular matter, in section 166(a) because Congress had already established increments for these pollutants in section 163 of the Act. In addition to requiring regulations for the enumerated pollutants, Congress clearly intended to authorize EPA to establish additional pollutant-specific PSD regulations, potentially containing increments, for any additional pollutants for which EPA promulgated a NAAQS under section 109 of the Act. Furthermore, because the Act refers to pollutants for which EPA promulgates NAAQS after 1977, and does not use the phrase ''additional pollutants'' we believe that Section 166(a) provides authority for EPA to promulgate new increments after revising an existing NAAQS (including one first promulgated before 1977), when we find that such action is appropriate.

In our 1989 proposal on the PM_{10} increments, EPA construed section 166(a) to apply to PM_{10}, even though EPA regarded PM_{10} to be a new indicator for PM. 58 FR 31623–24. Thus, before the adoption of section 166(f), EPA read the language of section 166(a) to apply to the promulgation of increments using a new indicator for PM and did not limit the application of section 166(a) to wholly new criteria pollutants. Similarly, in the current proposal, EPA believes it can continue to interpret section 166(a) to apply to the promulgation of an additional increment for a new indicator of an existing criteria pollutant since EPA promulgated a NAAQS for a new indicator of that pollutant after 1977.

Although EPA ultimately applied the standard in section 166(f) as the sole basis for our PM_{10} increments in 1993, that provision does not necessarily govern the situation EPA currently faces with $PM_{2.5}$. One could read section 166(f) to address only EPA's authority to substitute new PM increments for the congressionally-established increments for TSP rather than the distinct issue now faced by EPA concerning the promulgation of additional PM increments for $PM_{2.5}$ without necessarily revoking existing increments. Furthermore, the language in section 166(f) could be read to limit the scope of this provision to only increments using the PM_{10} indicator. Thus, section 166(f) may not necessarily be applicable to the substitution of PM_{10} increments with $PM_{2.5}$ increments.

The EPA believes that section 166(a) could apply to the adoption of new increments, without the revocation of existing increments. As reflected in the 2005 increments rule for NO_X and the court decision in *EDF* v. *EPA*, when sections 166(a)–(d) apply, EPA is obligated to evaluate which indicator or form should be used in our pollutant-specific PSD regulations to meet these requirements in the Act. Based on this interpretation, we are proposing to use a contingent safe harbor approach (option 1) that involves first deriving increment values based on percentage of the NAAQS and then evaluating whether alternative increments or additional measures are necessary to meet the criteria in section 166(c).

2. Support of ''Equivalent Substitution'' Approach for $PM_{2.5}$ Under Section 166(f)

The EPA believes it is also permissible for the Agency to construe section 166(f) as a continuing grant of authority for the Administrator to update the increments for particular matter whenever the Administrator decides to adopt a new form of particular matter as the indicator for the NAAQS. Although the terms of section 166(f) of the Act appear to address PM_{10} alone, the overall intent of this provision was to clarify that EPA had the authority to update the original TSP increments to reflect changes in the NAAQS indicator. Language describing the PM_{10} indicator was used in the Act because this was the indicator for PM that EPA was seeking to incorporate into the PSD program at the time of the 1990 Amendments when section 166(f) was adopted. However, we believe it is reasonable to conclude that Congress intended to authorize EPA to continue updating the particular matter increments contained in section 163 if EPA promulgated a NAAQS for another appropriate indicator for particular matter.

We believe EPA is authorized to promulgate increments for $PM_{2.5}$ as a substitute for the PM_{10} increments, as well as the original TSP increments, so long as the new increments for $PM_{2.5}$ are of ''equal stringency in effect as those specified in the provisions for which they are substituted.'' 42 U.S.C. 7476(f). Based on this interpretation, we propose two approaches (options 2A and 2B discussed later) for developing $PM_{2.5}$ increments that would meet the ''equal stringency in effect'' standard contained in section 166(f).

While we believe section 166(f) may be construed to provide continuing authority to ''update'' the increments for PM to conform to the NAAQS, section

166(f) describes a process in which EPA would ''substitute'' one PM increment for another. The language in section 166(f) does not address whether EPA may adopt additional increments for other PM indicators while retaining the existing PM increments. In contrast, section 166(a) does contain language addressing the promulgation of PSD regulations when EPA adds to the suite of NAAQS. Thus, we construe section 166(a) to have the closest connection to the task of adding, rather than the substituting or replacing, PSD increments for PM. As a result, for purposes of establishing the proposed 24-hour $PM_{2.5}$ increments, we propose only one option—using the contingent safe harbor approach described in option 1—because we are not proposing to replace the existing 24-hour PM_{10} increment with a new 24-hour $PM_{2.5}$ increment, since we have retained the 24-hour PM_{10} NAAQS. However, we also seek comment on whether we could rely on section 166(f) to promulgate the 24-hour $PM_{2.5}$ increments using the same methodology as for the annual $PM_{2.5}$ increments described later, even though the 24-hour PM_{10} NAAQS is not being revoked.

B. Requirements of Sections 166(a)–(d) of the Clean Air Act

If we determine that section 166(a) applies to $PM_{2.5}$, we propose to follow the interpretation of sections 166(a)–(d) that we adopted in our most recent increments rule for NO_X. This interpretation was upheld in a recent court decision *E.D.* v. *EPA*, No. 05–1446 (June 19, 2007 DC Cir.). We summarize the key elements of this interpretation later, but a more detailed discussion can be found in our October 2005 final rule for NO_X. 70 FR 59582.

In section 166(a) of the Act, Congress directed EPA to develop pollutant-specific regulations to prevent significant deterioration of air quality. Congress further specified that such regulations meet the following requirements set forth in sections 166(c) and 166(d):

(c) Such regulations shall provide specific numerical measures against which permit applications may be evaluated, a framework for stimulating improved control technology, protection of air quality values, and fulfill the goals and purposes set forth in section 101 and section 160.

(d) The regulations * * * shall provide specific measures at least as effective as the increments established in section 163 [for SO_2 and PM] to fulfill such goals and purposes, and may contain air quality increments, emission density requirements, or other measures.

The goals and purposes of the PSD program set forth in section 160 are as follows:

(1) To protect public health and welfare from any actual or potential adverse effect which in the Administrator's judgment may reasonably be anticipate[d] to occur from air pollution or from exposures to pollutants in other media, which pollutants originate as emissions to the ambient air, notwithstanding attainment and maintenance of all national ambient air quality standards;

(2) To preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value;

(3) To insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources;

(4) To assure that emissions from any source in any State will not interfere with any portion of the applicable implementation plan to prevent significant deterioration of air quality for any other State; and

(5) To assure that any decision to permit increased air pollution in any area to which this section applies is made only after careful evaluation of all the consequences of such a decision and after adequate procedural opportunities for informed public participation in the decisionmaking process.

As described in our 2005 rule for NO_X, EPA's interpretation of these provisions is grounded on five central elements. First, we read section 166 of the Act to direct EPA to conduct a holistic analysis that considers how a complete system of regulations will collectively satisfy the applicable criteria, rather than evaluating one individual part of a regulatory scheme in isolation. Second, we use a ''contingent safe harbor'' approach which calls for EPA to first establish the minimum level of effectiveness necessary to satisfy section 166(d) and then to conduct further analysis to determine if additional measures are necessary to fulfill the requirements of section 166(c). Third, we interpreted section 166(c) of the Act to identify eight statutory factors that EPA must apply when promulgating pollutant-specific regulations to prevent significant deterioration of air quality. Fourth, we interpreted the requirements to simultaneously satisfy each of these factors to establish a balancing test in cases where certain objectives may be at odds with each other. Fifth, we recognized that the requirements of section 166 may be satisfied by adopting other measures besides an increment and that EPA may allow States to demonstrate that alternatives to an increment contained in a SIP meet the requirements of sections 166(c) and 166(d).

1. Regulations as a Whole Should Fulfill Statutory Requirements

Section 166(a) directs EPA to develop pollutant-specific regulations to prevent the significant deterioration of air quality. Sections 166(c) and 166(d) provide detail on the contents of those regulations, but do not necessarily require the same type of increment system Congress created in section 163 of the Act. Thus, in order to develop pollutant-specific regulations under subsection (a), EPA must establish both the overall regulatory framework for those regulations (such as system of increments) and fill details around that framework (such as the level of the increments). Thus, EPA interprets section 166 to require that the entire system of PSD regulations (the framework and details) for a particular pollutant must, as a whole, satisfy the criteria in sections 166(c) and 166(d). We propose to use the same approach to establish pollutant-specific regulations for $PM_{2.5}$ under option 1 of this proposal.

When we propose a framework involving numerical increments under section 166(a) of the Act, we do not look at increments in isolation, but we also consider how these increments work in conjunction with other measures to satisfy the statutory criteria. The other measures that EPA may consider include new measures proposed by EPA for that pollutant or measures applicable to other pollutants that EPA proposes to apply to additional pollutants. Examples of other measures are an area classification system, AQRV review in Class I areas, additional impacts analysis, and control technology requirements. This approach is consistent with section 166(d), which says that pollutant-specific PSD regulations ''may contain'' increments or ''other measures.''

2. Contingent Safe Harbor Approach

The EPA continues to view the ''contingent safe harbor'' approach to be an appropriate methodology for ensuring that our pollutant-specific PSD regulations meet the requirements of sections 166(c) and 166(d). Subsection (c) of section 166 describes the kinds of measures to be contained in the regulations to prevent significant deterioration of air quality called for in section 166(a) and specifies that these regulations are to ''fulfill the goals and purposes'' set forth in sections 160 and 101 of the Act. Then, under subsection (d), to ''fulfill such goals and purposes,'' EPA must promulgate ''specific measures at least as effective as the increments established in section 7473

of this title [section 163 of the Act].'' 42 U.S.C. 7476. Thus, subsection (d) can be construed to require that EPA identify a minimum level of effectiveness, or safe harbor, for the body of pollutant-specific PSD regulations adopted under section 166. Subsection (c) may then be read to require that EPA conduct further review to determine whether, based on the criteria in subsection (c), EPA's pollutant-specific PSD regulations under section 166 should contain measures that deviate from the minimum ''safe harbor'' identified under subsection (d). EPA construes subsection (d) to require that the measures be ''at least as stringent'' as the statutory increments set forth in section 163.

When EPA employs an increment and area classification system in regulations promulgated under section 166 of the Act, we interpret the Act to require that EPA, at minimum, establish increments that are consistent with the statutory increments established by Congress in section 163 of the Act. Thus, we start by identifying ''safe harbor'' increments for each area classification (Class I, II, or III) that are established (1) Using an equivalent percentage of the NAAQS as the statutory increments; (2) for the same pollutants as the NAAQS; and (3) for the same time period as the NAAQS. We then conduct further review to determine whether these ''safe harbor'' increments, in conjunction with existing elements of the PSD program or additional measures proposed under section 166 to augment the increments, sufficiently fulfill the criteria in subsection (c) of section 166. In this review, we weigh and balance the criteria set forth in subsection (c) (and the incorporated goals and purposes of the Act in section 101 and the PSD program in section 160) to determine whether additional measures are needed to satisfy the criteria in subsection (c).

3. The Statutory Factors Applicable Under Section 166(c)

The EPA interprets section 166(c) of the Act to establish eight factors to be considered in the development of PSD regulations for the pollutants covered by this provision. These factors are three of the four criteria listed in section 166(c) and the five goals and purposes identified in section 160 of the Act. The three stand-alone criteria in section 166(c) indicate that PSD regulations for specific pollutants should provide (1) Specific numerical measures for evaluating permit applications; (2) a framework for stimulating improved control technology; and (3) protection of air quality values. 42 U.S.C. 7476(c). The five goals and purposes in section 160 are incorporated into the analysis by virtue of the fourth criterion in section 166(c), which directs that EPA's pollutant-specific PSD regulations ''fulfill the goals and purposes'' set forth in sections 160 and 101 of the Act. We construe the term ''fulfill the goals and purposes,'' as used in section 166(c), to mean that EPA should apply the goals and purposes listed in section 160 as factors applicable to pollutant-specific PSD regulations established under section 166. The Agency's view is that PSD measures that satisfy the specific goals and purposes of section 160 also satisfy the more general purposes and goals identified in section 101 of the Act.

4. Balancing the Factors Applicable Under Section 166(c)

The EPA interprets the Act to establish a balancing test among the eight factors. Since, as discussed further later, many of the factors can be satisfied by using an increment framework, when determining the characteristics of numerical increments themselves within that framework, EPA focuses on balancing the goal to promote economic growth with the factors that direct us to protect: (1) AQRVs; (2) the public health and welfare from reasonably anticipated foreseeable adverse effects; and (3) the air quality in parks and special areas. Section 166 of the Act authorizes EPA to promulgate pollutant-specific PSD regulations that satisfy each of the eight factors. While these objectives are generally complementary, there are circumstances where some of the objectives may be in conflict. In these situations, some degree of balance or accommodation is inherent in the requirement to establish regulations that satisfy all of these factors.

As discussed in our PSD regulations for NO_X, we believe this balancing test derives primarily from the third goal and purpose set forth in section 160. Section 160(3) directs us to ''insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources.'' To some extent, this goal of the PSD program in section 160(3) more specifically articulates the broader purpose of the Act, described in section 101(b)(1) of the Act, to ''protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population.'' 42 U.S.C. 7401(b)(1). Sections 160(3) and 101(b)(1) are similar in that both sections reflect the goal to protect air quality and maximize opportunities for economic growth. Thus, in interpreting the meaning of section 160(3) when used as a factor applicable under section 166(c), we also consider the broader purpose of the Act set forth in section 101(b)(1).

The need to balance the applicable factors to achieve these objectives is also supported by our interpretation of the second goal in section 160(2) of the Act to ''protect public health and welfare.'' The precise meaning of this goal in the context of the PSD program is somewhat ambiguous because it appears to mirror the legal standards applicable to the promulgation of the primary and secondary NAAQS. Under section 109(b) of the Act, the primary NAAQS must ''protect the public health'' with an adequate margin of safety (section 109(b)(1)) and the secondary NAAQS must ''protect the public welfare from any known or anticipated adverse effects'' associated with ambient concentrations of the pollutant (section 109(b)(2)). The term ''welfare'' is defined in the Act to include ''effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility, and climate.'' Section 302(h) of the Act.

When applied as one of the factors applicable to pollutant-specific PSD regulations under section 166(c) of the Act, we construe the goal in section 160(3) of the to ''protect public health and welfare'' to mean EPA should evaluate whether reasonably anticipated adverse effects may occur as a result of increases in ambient pollutant concentrations to levels below the NAAQS. If such effects may occur in some areas of the country, then EPA would establish PSD regulations that protect public health and welfare against those effects where they may occur. However, we do not interpret the PSD program to require regulations that eliminate all negative effects that may result from increases in pollution in attainment areas.

The PSD program is, as its title indicates, designed to prevent ''significant deterioration'' from a baseline concentration. *See* S. Rep. 95–127 at 11 (3 LH at 1385) (''This legislation defines 'significant deterioration' in all clean air areas as a specified amount of *additional* pollution.* * * This definition is intended to prevent any *major decline* in air quality currently existing in clean air areas.'' (emphasis added)). Thus, some decline in air quality (relative to the baseline air quality concentration) is permissible for any particular area of the country that is currently achieving the NAAQS, as long as it is not ''significant.''

When EPA employs an area classification system in its section 166

regulations, we generally weigh these factors in each type of area (Class I, Class II, and Class III). However, the weight given to each factor may be more or less, depending on the area involved and the amount of deterioration deemed ''significant'' for that type of area. For example, economic growth may be the most important factor in a Class III area, but our PSD regulations for such areas should offer some level of protection for existing clean air resources. In a Class I area, our PSD regulations should allow some level of economic growth, even though preservation of existing clean air resources may be the dominant factor for these areas.

5. Authority for States To Adopt Alternatives to Increments

While section 166 of the Act authorizes EPA to promulgate increments for pollutants listed under section 166(a), we also interpret the section to authorize States to employ approaches other than increments to prevent significant deterioration of air quality, so long as such an approach otherwise meets the requirements of sections 166(c) and 166(d). As described earlier, we explained this interpretation in the 2005 NO_X increment rulemaking whereupon we amended the PSD regulations at 40 CFR 51.166 by adding new paragraph (c)(2) to codify this statutory authority (70 FR 59582, October 12, 2005). However, in establishing the new provision, the language at paragraph (c)(2) reflected the authority for States to adopt alternative measures only with respect to increments for NO_X. In order to clarify our interpretation that the authority to adopt alternative measures covers any pollutant listed in section 166(a), we are proposing in this action to revise existing 40 CFR 51.166(c)(2) to make it inclusive to applicable pollutants rather than just NO_X.

C. Requirements of Section 166(f) of the Clean Air Act

If we decide to use the equivalent substitution options in this proposal for $PM_{2.5}$, EPA proposes to interpret section 166(f) of the Act in the same manner that the Agency interpreted that provision in our 1993 rule for PM_{10}. In 1993, EPA construed section 166(f) as authorizing EPA to follow the path that EPA laid out in our 1989 proposal for developing equivalent increments for PM measured as PM_{10}. 58 FR 31626. Thus, in our 1993 rulemaking, EPA developed our PM_{10} increments using the ''equivalent to statutory increments'' option that EPA described in our notice of proposed rulemaking. The EPA did not interpret the ''equivalent stringency in effect'' standard in section 166(f) to require EPA to use the second approach from the proposal, the ''percentage of NAAQS'' approach that Congress had originally used to establish TSP increments. The Agency observed that if Congress intended to require EPA to update the TSP increments using a straight percentage, Congress could have easily revised the increments in section 163 instead of providing EPA discretion to establish increments following the standard provided in section 166(f). 58 FR 31626. The EPA thus construed section 166(f) as providing EPA discretion to determine appropriate equivalent levels of PM_{10}. *Id.* The EPA identified equivalent levels by developing a ratio based on a comparison of the TSP and PM_{10} impacts of stationary sources. 58 FR 31627.

In this rulemaking, EPA proposes to apply the same type of ratio approach to establish equivalent increments for PM_{10} under section 166(f) of the Act. Since this ratio approach was the foundation of EPA's equivalency method in the 1989 proposal, we believe it is permissible, as we did in 1993, to construe section 166(f) as authorizing EPA to continue utilizing this approach to establish equivalent increments for PM.

In 1993, EPA disagreed with commenters who recommended that EPA consider welfare effects and visibility impairments when establishing PM_{10} increments under section 166(f) for class I areas. The EPA observed that there was no evidence that Congress itself adopted increments that would ensure specific levels of welfare and visibility protection at each Class I area throughout the nation. The increments established by Congress did not establish an absolute ceiling on air quality, but rather limited the marginal amount of deterioration in air quality above a baseline concentration that varies for each area, and thus permitted each area with the same classification to deteriorate in the same amount without regard to its particular sensitivities as compared to other areas with the same classification. 58 FR 31625. The EPA concluded that the PM_{10} increments should be designed to protect each area from large adverse changes in air quality while the air quality related values analysis was the main tool for protecting specific ecologically-based attributes in particular class I areas. *Id.*

In this rulemaking for $PM_{2.5}$, we maintain the view that the ''equal stringency in effect'' language in section 166(f) does not require EPA to consider welfare effects and visibility when promulgating replacement increments under that provision. However, as reflected in our recent increments rule for NO_X, when promulgating PSD increments under section 166(a), welfare effects and visibility impacts are factors in the contingent safe harbor analysis under the criteria in sections 166(c) and 160 of the Act. Consistent with our recent PSD regulations for NO_X, we continue to believe that increments (whether promulgated under section 166(a) or 166(f)) should be designed to provide each area with a basic level of protection from large adverse changes in air quality without necessarily reflecting the unique air pollution sensitivities in each class I area. The EPA considers welfare and visibility impacts across the nation when establishing increments under section 166(a), but we continue to believe that the Air Quality Related Values (AQRV) review is the preferred tool for identification and protection of specific ecologically-based attributes within particular class I areas. *See* 58 FR 31625.

V. Increments and Other Measures To Prevent Significant Deterioration

In this action, EPA is proposing three options for establishing increments for $PM_{2.5}$. The first option described uses the ''contingent safe harbor'' approach (using percentages of the NAAQS as our initial basis) following section 166(a) of the Act. The other two options are variations of the section 166(f) ''Equivalent Increment'' approach. The EPA is proposing option 1 as our preferred option and seeking comments on the other two options.

A. Option 1—Contingent Safe Harbor Approach for Annual and Short-Term Increments—Section 166(a)

Under the first option, we would consider $PM_{2.5}$ to be a new pollutant [8] for which a NAAQS was promulgated after the date of enactment of subpart C, and we would use the authority of section 166(a) of the Act to develop new increments for $PM_{2.5}$. Using this option, we are proposing to establish a system of increments at the safe harbor level in conjunction with the other measures described as follows:

1. Proposed Framework for Pollutant Specific PSD Regulations for $PM_{2.5}$

Under this option, EPA proposes to apply the same basic framework reflected in our regulation for NO_X in

[8] In our review of the PM NAAQS, we concluded that, because the fine and thoracic coarse components of PM_{10} generally have different sources, composition and formation processes, they should be treated as separate pollutants. (OAQPS SP, December 2005, page 3–1.)

pollutant-specific PSD regulations for $PM_{2.5}$. Thus, we propose to adopt an increment and area classification system for $PM_{2.5}$ and to apply an AQRV review process to $PM_{2.5}$ as well. As discussed further later, EPA believes that many of the factors applicable under section 166(c) are fulfilled by using this type of framework for pollutant-specific PSD regulations under section 166(a) of the Act. For other factors, this framework of regulations partially contributes to the fulfillment of an applicable factor but may not fully satisfy that factor. In these instances, the details of our regulations (such as the characteristics of the increments themselves) are also important and we evaluate the effectiveness of the framework in conjunction with more detailed elements of our regulations. The EPA believes our obligations under section 166(c) of the Act are satisfied when the PSD regulations collectively satisfy the factors applicable under 166(c) of the Act.

a. Increment System

An increment is the maximum allowable level of ambient pollutant concentration increase that is allowed to occur above the applicable baseline concentration in a particular area. As such, an increment defines ''significant deterioration.'' Establishing an increment system for $PM_{2.5}$ will fulfill two of the factors applicable under section 166(c).

An increment-based program satisfies the requirements under 166(c) to provide ''specific numerical measures against which permit applications may be evaluated.'' Under section 165(a)(3) of the Act, a permit applicant must demonstrate that emissions from the proposed construction and operation of a facility ''will not cause, or contribute to, air pollution in excess of any (A) maximum allowable increase or maximum allowable concentration for any pollutant.'' 42 U.S.C. 7475(a)(3). Once the baseline date associated with the first proposed new major stationary source or major modification in an area is established, the new emissions from that source consume a portion of the increment in that area, as do any subsequent emissions increases that occur from any source in the area. When the maximum pollutant concentration increase defined by the increment has been reached, additional PSD permits cannot be issued until sufficient amounts of the increment are ''freed up'' via emissions reductions that may be required by the reviewing authority. Thus, an increment is a quantitative value that establishes a ''maximum allowable increase'' for a particular pollutant. It functions, therefore, as a specific numerical measure that can be used to evaluate whether an applicant's proposed project will cause or contribute to air pollution in excess of allowable levels.

Increments also satisfy the second factor in section 166(c) by providing ''a framework for stimulating improved control technology.'' Increments establish an incentive to apply improved control technologies in order to avoid violating the increment and to ''free-up'' available increment to promote continued economic growth. These control technologies may become the basis of BACT determinations elsewhere, as the technologies become more commonplace and the costs tend to decline. *See* also S. Rep. 95–127 at 18, 30 (3 LH at 1392, 1404) (''the incremental ceiling should serve as an incentive to technology, as a potential source may wish to push the frontiers of technology in a particular case to obtain greater productive capacity within the limits of the increments'').

However, we recognize that an increment system is not the only way to fulfill the requirements of section 166 of the Act. Congress did not require EPA to utilize increments in our PSD regulations for NO_X but gave EPA the discretion to employ increments if appropriate to meet the criteria and goals and purposes set forth in sections 166 and 160 of the Act. 42 U.S.C. 7474(d); *EDF* v. *EPA*, 898 F.2d at 185 (''Congress contemplated that EPA might use increments''). Thus, in this action, we are also proposing to allow States to develop alternatives to an increment system at their discretion, and to submit any such alternative program to EPA so that we can determine whether it satisfies the requirements of section 166.

b. Area Classifications

The EPA proposes to establish the same three-tiered area classification system for $PM_{2.5}$ that is applicable to NO_X and other pollutants under the PSD program and the Clean Air Act. Accordingly, areas that are currently Class I for other pollutants would also be Class I for $PM_{2.5}$ and all other areas would be Class II for $PM_{2.5}$ unless we redesignated the area based on a request by a state or tribe pursuant to the process in section 164 of the Act and EPA's regulations at 40 CFR 51.166(g) and 52.21(g).

As explained earlier, in section III.E.1, Class I areas are areas where especially clean air is most desirable. In contrast, Class III areas, which are those areas in which a State wishes to permit the highest relative level of industrial development, have the largest increment level. Areas that are not especially sensitive or that do not wish to allow for a higher level of industrial growth are classified as Class II. When Congress established this three-tiered scheme for SO_2 and PM, it intended that Class II areas be subject to an increment that allows ''moderately large increases over existing pollution.''

H.R. Rep. 95–294, 4 LH at 2609.

Establishing increments at different levels for each of the three area classifications helps to fulfill two of the factors applicable under section 166(c) of the Act. Establishing the smallest increments in Class I areas helps fulfill EPA's obligation to establish regulations that ''preserve, protect, and enhance the air quality'' in parks and special areas. Class I areas are primarily the kinds of parks and special areas covered by section 160(2) of the Act. With the air quality in Class I areas subject to the greatest protection, this scheme then provides two additional area classifications with higher increment levels to help satisfy the goal in section 160(3) of the Act that EPA ''insure that economic growth will occur in a manner consistent with preservation of clean air resources.'' In those areas where clean air resources may not require as much protection, more growth is allowed. By employing an intermediate level (Class II areas) and higher level (Class III areas), this classification scheme helps ensure that growth can occur where it is needed (Class III areas) without putting as much pressure on existing clean air resources in other areas where some growth is still desired (Class II areas).

By requesting that EPA redesignate an existing Class II area to Class III, States may accommodate economic growth and air quality in areas where the Class II increment is too small to allow the siting of new or modified sources. The procedures specified by the Act for such a redesignation require a commitment by the State government to create such an area, extensive public review, local government participation in the SIP area redesignation process, and a finding that the redesignation will not result in the applicable increment being exceeded in a nearby Class I or Class II area. *See* 42 U.S.C. 7474(a)–(b) (Section 164(a)–(b) of the Act). The EPA believes that the three-tiered classification system has allowed for economic growth, consistent with the preservation of clean air resources.

However, an area classification system alone may not completely satisfy the factors applicable under section 166(c) of the Act. The increment that is

employed for each class of area is also relevant to an evaluation of whether the area classification scheme achieves the goals of the PSD program. We discuss the characteristics of increments later.

c. Permitting Procedures

Two of the factors applicable under section 166(c) are fulfilled by the case-by-case permit review procedures that are built into our existing regulations. The framework of our existing PSD regulations employs the preconstruction permitting system and procedures required under section 165 of the Act. 42 U.S.C. 7475. These requirements are generally reflected in 40 CFR 51.166 and 52.21 of EPA's PSD regulations in Title 40 of the Code of Federal Regulations. These permitting and review procedures, which we interpret to apply to construction of new major sources and to major modifications at existing sources, fulfill the goals set forth in sections 160(4) and 160(5) of the Act. These goals require that PSD programs in one State not interfere with the PSD programs in other States and that PSD programs assure that any decision to permit increased air pollution is made after careful evaluation and public participation in the decisionmaking process. For the same reasons discussed in our proposal for the pollutant-specific PSD regulations for NO_X regulations, 70 FR 8896, we believe these factors are also fulfilled for $PM_{2.5}$ by employing the permit review procedures.

d. Air Quality Related Values Review by Federal Land Manager and Reviewing Authority

The EPA also proposes to apply the requirement to evaluate impacts on AQRVs in Class I areas to $PM_{2.5}$. The AQRV review provides the Federal Land Managers (FLM) the opportunity to review source impacts on site-specific AQRVs in Class I areas and to bring any adverse impacts to the attention of the reviewing authority. Under an increment approach, we consider this review to be an additional measure that helps to satisfy the factors in sections 166(c) and 160(2) which require that EPA's pollutant-specific PSD regulations protect air quality values, and parks and other special areas, respectively.

In our rulemakings addressing PSD for NO_X, EPA extended the AQRV review procedures set forth in 40 CFR 51.166(p) and 52.21(p) to cover NO_2. These AQRV review procedures were established based on section 165(d) of the Act, and they were originally applied only in the context of the statutory increments for PM and SO_2. However, because they also address many of the factors applicable under section 166(c) of the Act, EPA also applied them to NO_X through regulation. We propose the same approach for $PM_{2.5}$ in this rulemaking.

Section 165(d) creates a scheme in which the FLM and reviewing authority must review the impacts of a proposed new or modified source's emissions on AQRVs. The Act assigns to the FLM an ''affirmative responsibility'' to protect the AQRVs in Class I areas. The FLM may object to or concur in the issuance of a PSD permit based on the impact, or lack thereof, that new emissions may have on any affected AQRV that the FLM has identified and for which information is available to the general public. If the proposed source's emissions do not cause or contribute to a violation of a Class I increment, the FLM may still prevent issuance of the permit by demonstrating to the satisfaction of the reviewing authority that the source or modification will have an adverse impact on AQRVs. Section 165(d)(2)(C). On the other hand, if the proposed source will cause or contribute to a violation of a Class I increment, the reviewing authority (State or EPA) shall not issue the permit unless the owner or operator demonstrates to the satisfaction of the FLM that there will be no adverse impact on AQRVs.[9] Thus, the compliance with the increment determines whether the FLM or the permit applicant has the burden of satisfactorily demonstrating whether or not the proposed source's emissions would have an adverse impact on AQRVs.[10] In any event, the FLM plays an important and material role by raising these issues for consideration by the reviewing authority, which in the majority of cases will be the State.

Incorporating these AQRV review procedures into the PSD regulations for $PM_{2.5}$ helps to provide protection for parks and special areas (which are generally the Class I areas subject to this review) and air quality values (which are factors considered in the review). As discussed later, we believe the factors applicable under section 166(c) of the Act can be fulfilled when the review of AQRVs is applied in conjunction with increments and other aspects of our PSD regulations. In those cases where the increment is not violated and the reviewing authority agrees that a proposed project will adversely affect AQRVs, the parks and other special areas will be protected by denying issuance of the permit or by requiring the applicant to modify the project to alleviate the adverse impact. Legislative history suggests that the AQRV review provisions of section 165(d) were intended to provide another layer of protection, beyond that provided by increments. The Senate committee report stated the following: ''A second test of protection is provided in specified Federal land areas (Class I areas), such as national parks and wilderness areas; these areas are also subjected to a review process based on the effect of pollution on the area's air quality related values.'' S. Rep. 95–127, at 17, 4 LH at 1401. As we stated in the NO_X rule, we believe the term ''air quality values'' should be given the same meaning as ''air quality related values.'' Legislative history indicates that the term ''air quality value'' was used interchangeably with the term ''air quality related value'' (AQRV) regarding Class I lands.[11]

e. Additional Impacts Analysis.

The additional impacts analysis set forth in our regulations also helps fulfill the criteria and goals and purposes in sections 166(c) and 160. The additional impacts analysis involves a case-by-case review of potential harm to visibility, soils, and vegetation that could occur from the construction or modification of a source.

Sections 51.166(o)(1) and 52.21(o)(1) of the PSD regulations require that a permit provide the following analysis:

An analysis of the impairment to visibility, soils and vegetation that would occur as a result of the source or modification, and general commercial, residential, industrial and other growth associated with the source

[9] Even if such a waiver of the Class I increment is allowed upon a finding of no adverse impact, the source must comply with such emissions limitations as may be necessary to ensure that the Class II increment for SO_2 or PM is not exceeded. Section 165(d)(2)(C)(iv). The EPA made this provision applicable to the PSD provisions for NO_X, with a cap of 25 g/m^3—the NO_2 Class II increment. 53 FR 3704; 40 CFR 51.166(p)(4) and 52.21(p)(5).

[10] In response to concerns that Class I increment would hinder growth in areas surrounding the Class I area, Congress established Class I increments as a means of determining where the burden of proof should lie for a demonstration of adverse effects on AQRVs. *See* Senate Debate, June 8, 1977 (3 LH at 725).

[11] *See* S. Rep. 95–127, at 12, reprinted at 3 LH at 1386, 1410 (describing the goal of protecting ''air quality values'' in ''Federal lands—such as national parks and wilderness areas and international parks,'' and in the next paragraph and subsequent text using the term ''air quality related values'' to describe the same goal); *id.* at 35, 36 (''The bill charges the Federal land manager and the supervisor with a positive role to protect *air quality values* associated with the land areas under the jurisdiction of the [FLM]'' and then describing the statutory term as ''air quality related values''). H.R. Report 95–564 at 532 (describing duty of Administrator to consider ''air quality values'' of the tribal and State lands in resolving an appeal of a tribal or State redesignation, which is described in the final bill as ''air quality related values'').

or modification. The owner or operator need not provide an analysis of the impact on vegetation having no significant commercial or recreational value.

This requirement was based on section 165(e)(3)(B) of the Act, which provides that EPA establish regulations that require ''an analysis of the ambient air quality, climate and meteorology, terrain, soils and vegetation, and visibility at the site of the proposed major emitting facility and in the area potentially affected by emissions from such facility * * * ''

42 U.S.C. 7475(e)(3)(B).

This portion of the additional impacts analysis is especially helpful for satisfying the requirements of section 166(c) in Class II and Class III areas. These areas are not subject to the additional AQRV review that applies only in Class I areas. While not as intensive a review as AQRV analysis required in Class I areas, considering impairments to visibility, soils, and vegetation through the additional impacts analysis contributes to satisfying the factors applicable under section 166(c) of the Act in all areas, including Class II and Class III areas.

f. Installation of Best Available Control Technology

The requirement that new sources and modified sources subject to PSD apply BACT is an additional measure that helps to satisfy the factors in sections 166(c), 160(1), and 160(2) of the Act. This requirement, based on section 165(a)(4) of the Act, is already included in EPA's PSD regulations and thus we consider it to be a part of the regulatory framework for the Agency's pollutant-specific regulations for $PM_{2.5}$. 40 CFR 52.21(j); 40 CFR 51.166(j). Our existing regulations define ''best available control technology'' as ''an emission limitation * * * based on the maximum degree of reduction for each pollutant subject to regulation under the Act * * * which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source through application of production processes or available methods, systems, and techniques * * * '' 40 CFR 52.21(b)(12); 40 CFR 52.166(b)(12). This pollutant control technology requirement in practice has required significant reductions in the pollutant emissions increases from new and modified sources while also stimulating the on-going improvement of control technology. The control of $PM_{2.5}$ emissions through the application of BACT helps to protect air quality values, public health and welfare, and parks and other special areas.

2. Proposed Increments

Based on our evaluation of the effects of $PM_{2.5}$ and a balancing of the criteria in section 166(c) of the Act (and the incorporated goals and purposes of the Act in section 101 and the PSD program in section 160), EPA proposes to find that the ''safe harbor'' increments for $PM_{2.5}$ (which meet the minimum requirements in section 166(d) of the Act) are sufficient to fulfill the criteria in section 166(c) when combined with the other measures described earlier that we propose to apply to $PM_{2.5}$. Since several of the eight factors applicable under section 166(c) are satisfied by adopting the framework and other measures described earlier, our development of the proposed increments for $PM_{2.5}$ was guided by the four remaining factors that may not be fully satisfied by the framework and other measures: (1) Protecting AQRVs; (2) protecting the public health and welfare from reasonably-anticipated adverse effects; (3) protecting the air quality in parks and special areas; and (4) ensuring economic growth.[12] In accordance with the contingent safe harbor approach, to determine the specific characteristics of the proposed increments, we first established the minimum level of effectiveness necessary to satisfy section 166(d) and then conducted further analysis to determine if additional measures are necessary to fulfill the requirements of section 166(c).

a. Identification of Safe Harbor Increments

Using the percentage-of-NAAQS approach, we derived the following safe harbor increments for $PM_{2.5}$:

Averaging period	NAAQS ($\mu g/m^3$)	Increments ($\mu g/m^3$)		
		Class I	Class II	Class III
Annual	15	1	4	8
24-hour	35	2	9	18

The $PM_{2.5}$ levels of both the primary and secondary NAAQS are 15 $\mu g/m^3$ for the annual averaging time and 35 $\mu g/m^3$ for the 24-hour averaging time. *See* 40 CFR 50.7. We calculated the safe harbor increments based on the same percentages that were used by Congress to establish the original PM increments (measured as TSP) in section 163 of the Act *i.e.* 6.6 percent of the NAAQS for Class I areas; 25 percent of the NAAQS for Class II areas and 50 percent of the NAAQS for Class III areas. Increments with these characteristics are sufficient to satisfy the requirement in section 166(d) requirement that we adopt increments (or other PSD regulations) that are ''at least as effective as'' the increments established in section 163 of the Act. 42 U.S.C. 7476(d); *See EDF* v. *EPA*, 898 F.2d at 188, 190.

b. Data Utilized by EPA for the Evaluation of the Safe Harbor Increments for $PM_{2.5}$

We evaluated whether measures other than the safe harbor increments are necessary by analyzing primarily the scientific and technical information on the health and welfare effects of $PM_{2.5}$ contained in the June 2005 OAQPS Staff Paper (SP) used for the periodic review of the 2004 PM air quality Criteria Document (CD).[13]

Section 166 provides that EPA is to establish pollutant-specific PSD regulations, including increments, after the establishment of a NAAQS for the applicable pollutants. 42 U.S.C. 7476(a). Under normal circumstances, the Act provides that EPA promulgate new PSD regulations under section 166, including new increments if appropriate, within 2 years from the promulgation of any NAAQS after 1977. 42 U.S.C. 7476(a). In such instances, the health and welfare information used for the setting of the NAAQS would also be ''current'' for

[12] We have paraphrased these factors here and in other sections to facilitate the explanation of our reasoning. However, we recognize, as we did in our regulation for NO_X that the statutory language is broader than the shorthand we use here for convenience.

[13] This periodic review of the PM NAAQS updates the last review, which began in 1994 and resulted in revised standards for PM in 1997.

purposes of establishing pollutant-specific PSD regulations. We believe this timing reflects Congressional intent that EPA consider the same body of information concerning a pollutant's health and welfare effects when it promulgates the NAAQS and subsequent PSD increments (or other measures) defining significant air quality deterioration for the same pollutant. However, when we use that same information as the basis for our pollutant-specific PSD regulations, we must evaluate that information under the legal criteria in section 166 of the Act rather than the criteria in section 109 applicable to the promulgation of NAAQS. *See EDF* v. *EPA*, 898 F.2d at 190.

Since we just completed a review of the $PM_{2.5}$ NAAQS, the information used in that review is current and timely for purposes of this proposal to establish pollutant-specific PSD regulations for $PM_{2.5}$. As discussed earlier, on October 17, 2006, based primarily on considerable new data on the air quality and human health effects for $PM_{2.5}$ directly, EPA revised the primary and secondary NAAQS to provide increased protection of public health and welfare by retaining the level of the annual standard and tightening the level of the 24-hour standard from 65 to 35 $\mu g/m^3$ while retaining the 24-hour PM_{10} NAAQS and revoking the annual PM_{10} NAAQS. The information contained in the 2004 CD and 2005 SP that we also consider for purposes of this proposed rule was used for this latest review of the PM NAAQS.

The 2004 CD and 2005 SP are the products of a rigorous process that is followed to validate and interpret the available scientific and technical information, and provided the basis for recommending the $PM_{2.5}$ NAAQS. In accordance with the Act, the NAAQS process begins with the development of ''air quality criteria'' under section 108 for air pollutants that ''may reasonably be anticipated to endanger public health or welfare'' and that come from ''numerous or diverse'' sources. Section 108(a)(1). For each NAAQS review, the Administrator must appoint ''an independent scientific review committee composed of seven members of the National Academy of Sciences, one physician, and one person representing State air pollution control agencies,'' known as the Clean Air Scientific Advisory Committee (CASAC). Section 109(d)(2)(A). The CASAC is charged with recommending revisions to the criteria document and NAAQS, and advising the Administrator on several issues, including areas in which additional knowledge is required to appraise the adequacy and basis of existing, new, or revised NAAQS. Section 109(d)(2)(B),(C).

''Air quality criteria'' must reflect the latest scientific knowledge on ''all identifiable effects on public health or welfare'' that may result from a pollutant's presence in the ambient air. 42 U.S.C. 7408(a)(2). The scientific assessments constituting air quality criteria generally take the form of a ''criteria document,'' a rigorous review of all pertinent scientific studies and related information. The EPA also develops a ''staff paper'' to ''bridge the gap'' between the scientific review and the judgments the Administrator must make to set standards. *See Natural Resources Defense Council* v. *EPA* (''*NRDC*''), 902 F.2d 962, 967 ''D.C. Cir. 1990). Both documents undergo extensive scientific peer-review as well as public notice and comment. *See*, e.g., 62 FR 38654/1–2.

c. Scope of Effects Considered

The effects of ambient $PM_{2.5}$ concentrations may include secondarily-formed $PM_{2.5}$. Hence, in this analysis we have evaluated the health and welfare effects of both direct $PM_{2.5}$ and secondarily-formed $PM_{2.5}$ that may result from the transformation of other pollutants such as SO_2 and NO_X. This is consistent with the approach we described for addressing these effects in the recently completed review of our pollutant-specific PSD regulations for NO_X. 70 FR 59590.

d. Evaluation of the Health and Welfare Effects of $PM_{2.5}$

Airborne PM is not a specific chemical entity, but rather is a mixture of liquid and solid particles from different sources and of different sizes, compositions and properties. Particle size distributions show that atmospheric particles exist in two classes: fine particles and coarse particles. $PM_{2.5}$ is an indicator for fine particles and represents particles that are mostly less than 2.5 micrometers in size. $PM_{10–2.5}$ is an indicator for thoracic coarse particles and represents particles sized between 2.5 and 10 micrometers. In the last two reviews of the PM NAAQS, EPA concluded that these two indicators, because of their different sources, composition, and formation processes should be treated as separate subclasses of PM pollution for purposes of setting ambient air quality standards.

Coarse particles are generally primary particles, emitted directly from their source as particles. These particles result from mechanical disruption of large particles by crushing or grinding, from evaporation of sprays, or from dust resuspension. In addition, some combustion-generated particles may be found as coarse particles. By comparison, fine PM is derived directly from combustion material that has volatilized and then condensed to form primary PM or from precursor gases, such as SO_2 and NO_X, reacting in the atmosphere to form secondary PM. Because of the complexity of the composition of ambient $PM_{2.5}$ and $PM_{10–2.5}$, sources are best discussed in terms of individual constituents of both primary and secondary $PM_{2.5}$ and $PM_{10–2.5}$. Each of these constituents can have anthropogenic and natural sources. Major components of fine particles are sulfates, strong acid, ammonium nitrate, organic compounds, trace elements (including metals), elemental carbon, and water. Primary and secondary fine particles have long lifetimes in the atmosphere (days to weeks) and travel long distances (hundreds to thousands of kilometers). They tend to be uniformly distributed over urban areas and larger regions, especially in the eastern United States. As a result, they are not easily traced back to their individual sources. By contrast, coarse particles are not readily transported across urban or broader areas. These particles can settle rapidly from the atmosphere with lifetimes ranging from minutes to days depending on their specific size, atmospheric conditions, and altitude.

(1) Health Effects

The EPA reported important progress since the last PM NAAQS review in advancing our understanding of potential mechanisms by which ambient $PM_{2.5}$, alone and in combination with other pollutants, is causally linked to a number of key health effects. The more extensive and stronger body of evidence used by EPA to study the health effects of $PM_{2.5}$ in our latest review identified a broader range of effects than those previously documented, involving premature mortality and indices of morbidity (including respiratory hospital admissions and emergency room visits, school absences, work loss days, restricted activity days, effects on lung function and symptoms, morphological changes, and altered host defense mechanisms) associated with both long- and short-term exposure to $PM_{2.5}$.

An overview of the scientific and technical evidence considered in the 2004 CD and 2005 SP can be found in our proposed rule for revising the NAAQS for PM published at 70 FR 2619, January 17, 2006, beginning at page 2626. The discussion which follows is only a brief summary of those

effects, with an explanation of the range of $PM_{2.5}$ concentrations that we examined in considering revisions to the primary $PM_{2.5}$ NAAQS.

While most epidemiological studies continue to be indexed by $PM_{2.5}$, some studies also implicate various components within the mix of fine particles that have been more commonly studied (e.g., sulfates, nitrates, carbon, organic compounds, and metals) as being associated with adverse effects. Furthermore, the available information suggests that many different chemical components of fine particles and a variety of different types of source categories are all associated with, and probably contribute to, effects associated with $PM_{2.5}$. While there remains uncertainty about the role and relative toxicity of various components of fine PM, the current evidence continues to support the view that fine particles should be addressed as a group for purposes of public health protection.

Short-term exposure (from less than 1 day up to several days) to $PM_{2.5}$ is likely causally associated with mortality from cardiopulmonary diseases, increased hospitalization and emergency department visits for cardiopulmonary diseases, increased respiratory symptoms, decreased lung function, and changes in physiological indicators for cardiovascular health. Effects associated with short-term exposure identified since the last NAAQS review include increased non-hospital medical visits (physician visits) and aggravation of asthma associated with short-term exposure to $PM_{2.5}$. Although a growing body of studies provided evidence of effects associated with exposure periods shorter than 24-hours (e.g., one to several hours), EPA concluded in our 2004 SP that this information was too limited to serve as a basis for establishing a primary fine particle standard with less than a 24-hour averaging time. However, it was concluded that this information added weight to the importance of a 24-hour standard. In addition, some studies suggested consideration of a multiple-day averaging time, but EPA concluded that a multiple-day averaging time would add complexity without providing more effective protection than a 24-hour averaging time.

For setting the level of the short-term PM standard, EPA focused on a range of 24-hour 98th percentile $PM_{2.5}$ concentrations of about 30 to 35 $\mu g/m^3$. Some new short-term mortality studies considered for the last NAAQS review provided evidence of statistically significant associations with $PM_{2.5}$ in areas with air quality levels below the level of the then-current primary 24-hour $PM_{2.5}$ NAAQS (65 $\mu g/m^3$). The EPA observed a strong predominance of studies with 24-hour 98th percentile values down to about 39 $\mu g/m^3$ showing statistically significant association with mortality, hospital admissions, and respiratory symptoms. Within the range of 24-hour average 98th percentile $PM_{2.5}$ concentrations of about 30 to 35 $\mu g/m^3$, EPA no longer observed this strong predominance of statistically significant results. Below 35 $\mu g/m^3$, EPA found increasing variation in the short-term exposure studies, which indicated an increase in the uncertainty as to whether likely causal associations could be extended. In considering what level would be appropriate for the primary 24-hour $PM_{2.5}$ standard, the Administrator indicated that in the absence of evidence of any clear effects thresholds, EPA had discretion to select a specific standard level from within this range of values. In ultimately deciding to set the level of the primary 24-hour $PM_{2.5}$ standard at 35 $\mu g/m^3$, the Administrator concluded that a standard set at a higher level would not likely result in improvement in air quality in areas across the country in which short-term exposure to $PM_{2.5}$ can reasonably be expected to be associated with serious health effects. Similarly, a standard set at a lower level was rejected because of uncertainties in interpreting the available epidemiologic studies that could causally relate the reported associations of health risks to $PM_{2.5}$ at those lower levels.

New epidemiologic studies have built upon earlier limited evidence to provide fairly strong evidence that long-term exposure to $PM_{2.5}$ is likely causally associated with mortality from cardiopulmonary disease, as well as development of chronic respiratory disease and reduced lung function growth. The new studies also provide evidence suggesting that long-term exposure to fine particles is associated with lung cancer mortality. The 2004 CD placed the greatest weight on re-analyses and extensions of two mortality studies (Six Cities and American Cancer Society (ACS) studies) originally considered in the previous NAAQS review. In the Six Cities study, the long-term mean $PM_{2.5}$ concentration was 18 $\mu g/m^3$, within an overall range of 11 to 30 $\mu g/m^3$. In the extended ACS study, the mean for the more recent time period used in the analysis was 14 $\mu g/m^3$, while the confidence intervals around the relative risk functions start to become appreciably wider (more uncertain) below approximately 12 to 13 $\mu g/m^3$. Based on this and other sets of evidence, EPA decided to consider, for setting the level of the annual $PM_{2.5}$ standard, a range of annual $PM_{2.5}$ concentrations beginning somewhat below 15 $\mu g/m^3$ (the then-existing primary annual $PM_{2.5}$ NAAQS) down to about 12 $\mu g/m^3$. However, after carefully considering public comments and relevant studies, including the uncertainties in interpreting the available long-term exposure epidemiologic studies, the Administrator decided to retain the level of the primary annual $PM_{2.5}$ standard at 15 $\mu g/m^3$ to protect public health with an adequate margin of safety from serious health effects. *See* 71 FR at 61177.

Despite the advances in knowledge about the effects of $PM_{2.5}$ on human health, the 2005 SP noted the continued difficulty of being able to establish a dose-response relationship between $PM_{2.5}$ concentrations and specific health-related effects. ''The available toxicologic studies have generally not been designed to quantify dose-response relationships* * *. Among the studies reviewed [in the 2004 CD] are some that report no evidence of a dose-response relationship gradient, (CD, p. 7–152), while some do (CD, p. 7–155), and the CD draws no overall conclusions regarding dose-response relationships from toxicologic studies. Therefore, while epidemiologic studies provide clear indication of increasing response with increasing concentration, no conclusions can be drawn from toxicologic evidence.'' 2005 SP at 3–30.

(2) Welfare Effects

Ambient PM alone, and in combination with other pollutants, can have a variety of effects on public welfare. While visibility impairment is the most noticeable effect of fine particles present in the atmosphere, both fine and coarse particles can have other significant welfare-related effects, including effects on vegetation and ecosystems, materials (e.g., soiling and corrosion), and climate change processes. In 1997, EPA established a suite of secondary PM standards, including annual and 24-hour $PM_{2.5}$ standards and annual and 24-hour PM_{10} standards, to address visibility impairment associated with fine particles, and materials damage and soiling related to both fine and coarse particles. *See* 62 FR 38683. In 2006, EPA considered the then-currently available evidence and decided to revise the current suite of $PM_{2.5}$ secondary standards by making them identical in all respects to the revised suite of primary $PM_{2.5}$ standards, retain the current 24-hour PM_{10} secondary

standard, and revoke the current annual PM_{10} secondary standard.

In reaching our decision in 2006 to revise the suite of PM secondary standards, EPA factored in several key conclusions from the scientific and technical information contained in the 2004 CD and 2005 SP. These conclusions included the following: (1) PM-related visibility impairment is principally related to fine particle levels, and most directly related to instantaneous levels of visual air quality associated with short-term averaging periods; (2) $PM_{2.5}$ concentrations can be used as a general surrogate for visibility impairment in urban areas; (3) any secondary NAAQS for visibility protection should be considered in conjunction with the regional haze program as a means of achieving appropriate levels of protection against PM-related visibility impairment in urban, non-urban, and Class I areas nationwide; (4) the available evidence is not sufficient to support distinct secondary standards for fine or coarse particles for any non-visibility related welfare effects; and (5) the secondary standards should be considered in conjunction with protection afforded by other programs intended to address various aspects of air pollution effects on ecosystems and vegetation, such as the acid deposition program and other regional approaches to reducing pollutants linked to nitrate or acidic deposition.

Notwithstanding the conclusions reached in setting the NAAQS for PM, EPA has reviewed the scientific and technical information concerning welfare related effects considered in the 2004 CD and 2005 SP to determine whether there is any basis for modifying the safe harbor increments developed for $PM_{2.5}$ to satisfy the criteria under sections 166(c) and 160 of the Act. The EPA's review began with visibility impairment, followed by effects on vegetation and other ecosystem components, materials and soiling, and climate changes.

(a) Visibility impairment.

The EPA has long recognized that impairment of visibility is an important effect of PM on public welfare. Visibility can be defined as the degree to which the atmosphere is transparent to visible light. Visibility conditions are determined by the scattering and absorption of light by particles and gases from both natural and anthropogenic sources. The classes of fine particles principally responsible for visibility impairment are sulfates, nitrates, organic matter, elemental carbon, and soil dust.

Visibility impairment can occur in two principal ways: as local visibility impairment (e.g., localized plumes) and as regional haze. Local-scale impairment is generally the result of the plume from a single source or small group of local sources, rather than from long-range transport from more distant sources. With this type of impairment, a band or layer of discoloration can be observed well above the terrain, obscuring the sky or horizon relatively near the source, or sources, which cause it. Such visibility problems in urban areas are often dominated by local sources, which may include stationary, mobile and area sources. Visibility impairment from the combined effects of urban sources have been studied in several major cities because of concerns about fine particles and their significant impacts on residents of large metropolitan areas.

The second type of impairment, regional haze, generally results from pollutant emissions from a multitude of sources located across a broad geographic region. Regional haze can impair visibility in every direction over a relatively large area, in some cases over multi-state regions. Regional haze is principally responsible for impairment in national parks and wilderness areas (Class I areas) across the country where scenic views are considered an important attribute. Fine particles transported from urban and industrialized areas may, in some cases, be significant contributors to regional-scale impairment in Class I and other rural areas.

Annual average visibility conditions vary regionally across the United States. Higher visibility impairment tends to occur more in the East, and is due to generally higher concentrations of anthropogenic fine particles and higher relative humidity conditions. In addition, the rural East generally has higher levels of impairment than remote sites in the West. For Class I areas, visibility levels on the 20 percent haziest days in the West are about equal to levels on the 20 percent best days in the East. For urban areas, however, East/West visibility differences from fine particles are substantially smaller than they are in rural areas.

The EPA's latest PM NAAQS review focused on visibility impairment primarily in urban areas for the following reasons: (1) The efforts now underway to address all human-caused visibility impairment in Class I areas through regional strategies under the regional haze program (65 FR 35713, July 1, 1999), and (2) new information from visibility and fine particle monitoring networks since the last PM NAAQS review that has allowed for updated characterizations of visibility trends and current levels in urban areas. Given the strong link between visibility impairment and short-term $PM_{2.5}$ concentrations, EPA gave significant consideration to the question of whether visibility impairment in urban areas allowed by the original 24-hour secondary NAAQS for $PM_{2.5}$ could be considered adverse to public welfare.

New data available on $PM_{2.5}$, primarily in urban areas, enabled EPA to better characterize urban visibility than was previously possible. Such data includes Federal Reference Method (FRM) measurements of $PM_{2.5}$ mass, continuous measurements of hourly $PM_{2.5}$ mass, and $PM_{2.5}$ chemical speciation measurements. Using the new data EPA sought to explore the factors that historically complicated efforts to address visibility impairment nationally, including regional differences related to levels of primarily fine particles and relative humidity. Using the most recent monitoring information and analyses, as well as photographic representations of visibility impairment in several urban areas to help inform judgments about the acceptability of varying levels of visual air quality in urban areas, EPA observed that:

(1) At concentrations at or near the level of the 24-hour $PM_{2.5}$ standard (65 $\mu g/m^3$), which equates to visual ranges roughly around 10 kilometers (6 miles), scenic views around and within the urban areas, are significantly obscured from view.

(2) Appreciable improvement in the visual clarity of the scenic views occurs at $PM_{2.5}$ concentrations below 35 to 40 $\mu g/m^3$, which equates to visual ranges generally above 20 kilometers for the urban areas considered.

(3) Visual air quality appears to be good at $PM_{2.5}$ concentrations generally below 20 $\mu g/m^3$, corresponding to visual ranges of approximately 25 to 35 kilometers.

While being mindful of the limitations in using visual representations from a small number of areas as a basis for considering national visibility-based secondary standards, EPA concluded that the observations noted earlier supported consideration of revising the then current $PM_{2.5}$ secondary standards to enhance visual air quality, particularly with a focus on urban areas. This led to the evaluation of information related to indicator, averaging time, level, and form to identify a range of alternative PM standards that would protect visual air quality, primarily in urban areas. Notwithstanding the selection process used in selecting the primary and

secondary NAAQS for PM, for this PM increment proposal we are examining the same information to determine whether it might justify modifying the safe harbor increments for $PM_{2.5}$, which follow the indicator, averaging times, and form of the NAAQS for $PM_{2.5}$, as described earlier as option 1.

PM indicator. While both fine and coarse particles contribute to visibility impairment, visibility impairment is the most noticeable effect of fine particles present in the atmosphere. Analyses of hourly $PM_{2.5}$ measurements and other information demonstrate that fine particles contribute to visibility impairment directly in proportion to their concentration in the ambient air. Moreover, hygroscopic components of fine particles, in particular sulfates and nitrates, contribute disproportionately to visibility impairment under high humidity conditions, when such components reach particle diameters up to and even above 2.5 μm. The EPA's analyses of how well $PM_{2.5}$ concentrations correlated with visibility in urban locations across the United States lead to the conclusion that the observed correlations were strong enough to support the use of $PM_{2.5}$ as the indicator for standards to address visibility impairment in urban areas, especially when the indicator is defined for a relatively short period of daylight hours.

Averaging time. While EPA selected the 24-hour averaging time for the $PM_{2.5}$ secondary standard to address visibility impairment primarily in urban areas, a range of shorter term (sub-daily) daylight averaging times were also considered. Strong correlations between visibility and $PM_{2.5}$ concentrations were found to occur at the 24-hour averaging time, but the strongest correlations were found to occur at the sub-daily daylight averaging times, e.g., 4-to 8-hour daylight averaging times. In fact, the correlation was greatest in the 4-hour time period between 12 and 4 p.m. At the sub-daily daylight averaging times, correlations between $PM_{2.5}$ concentrations and light extinction were less influenced by relative humidity and more consistent across regions.

A number of different daylight time periods was selected to compare correlations between visibility and hourly $PM_{2.5}$ concentrations in urban areas across the United States and in eastern and western regions. Ultimately, EPA staff recommended consideration of a short-term averaging time, within the range of 4 to 8 hours, within a daylight time period between approximately 10 a.m. to 6 p.m., to target the driest part of the day. Most CASAC Panel members supported the SP recommendation of a sub-daily averaging time.

Following careful consideration of the various sets of data and evidence concerning visibility impairment, the Administrator proposed to revise the secondary 24-hour standard for $PM_{2.5}$ to make it identical to the proposed revised primary $PM_{2.5}$ standard (based on a 24-hour averaging time for the short-term standard). Consistent with recommendations to consider a sub-daily averaging time, the Administrator also solicited comment on 4-to 8-hour averaging time for the secondary $PM_{2.5}$ standard. In reaching his final decision to rely on the 24-hour averaging period to set the secondary standard for $PM_{2.5}$, the Administrator concluded that the relative protection against adverse effects on public welfare provided by the proposed primary standards was equivalent or more protective than several of the 4-hour secondary standard alternatives in the range recommended by CASAC and the SP. He also believed that caution was warranted in establishing a distinct secondary standard for visibility impairment primarily in urban areas, given the limitations in the underlying studies and the subjective nature of the judgment required.

Level of increment. In evaluating the adequacy of the levels of the contingent safe harbor increments for $PM_{2.5}$, we examined the range of $PM_{2.5}$ concentrations considered in setting a national visibility standard primarily for urban areas. We had established that range of concentrations by using the results of public perception and attitude surveys conducted in the United States and Canada, State and local visibility standards within the United States, and visual inspection of photographic representations of several urban areas across the United States. These approaches are detailed in the 2005 SP (pp. 6–18 to 6–23.)

The public perception and attitude studies were used to gain an understanding of what the public regarded as an acceptable visible range. In some urban areas, poor visibility has led to more localized efforts to better characterize, as well as improve, urban visibility conditions. Public perception surveys used in Denver, Phoenix, and British Columbia studies yielded reasonably consistent results, with each study indicating that a majority of citizens find value in protecting local visibility to with a visual range of about 40 to 60 km. Visibility standards for the Lake Tahoe area in California and for areas within the State of Vermont are both targeted at a visual range of about 50 km. In contrast, California's longstanding general state-wide visibility standard is a visual range of approximately 16 km.

Aided by photographic representations of varying levels of visual air quality developed for several cities across the United States, EPA staff reached the conclusion that a national visibility standard in the $PM_{2.5}$ concentration range of 30 to 20 $\mu g/m^3$ should be considered. Further analyses to characterize the distributions of $PM_{2.5}$ concentrations, 4-hour averages in the 12 to 4 p.m. time frame, by region, that correspond to various visual range target levels, resulted in a finding that concentrations of 30, 25, and 20 $\mu g/m^3$ correspond to the target visual ranges of approximately 25, 30 and 35 km, respectively. Thus, it was determined that a standard set within the range of 30 to 20 $\mu g/m^3$ could be expected to correspond generally to media visual range levels of approximately 25 to 35 km in urban areas across the United States. This range was generally consistent with a national target visual range below 40 km, the level suggested by the public perception surveys and the local visibility standards and goals. Nevertheless, EPA staff noted that a standard set at any specific $PM_{2.5}$concentration will necessarily result in visual ranges that vary somewhat in urban areas across the country, reflecting in part the less-than-perfect correlation between $PM_{2.5}$ concentrations and reconstructed light extinction. 2005 SP at page 7–8.

Form of increment. In considering a reasonable range of forms for a $PM_{2.5}$ standard within the range of $PM_{2.5}$ concentration levels being considered, EPA staff took into account the same general factors that were taken into account in considering an appropriate form for the primary $PM_{2.5}$ standard. In that case, EPA staff concluded that a concentration-based form should be considered because of its advantages over the previously used expected-exceedance form.[14] For visibility, the advantages are that the concentration-based form (1) Would give proportionally greater weight to days when the PM-related visibility impairment is substantially higher than to days just above the standard, and (2) has greater stability. 2005 SP at 7–11. To identify a range of concentration percentiles that would be appropriate for consideration, it was concluded that

[14] The form of the 1987 24-hour PM_{10} standard is based on the expected number of day per year (averaged over 3 years) on which the level of the standard is exceeded; thus, attainment with the one-expected exceedance form is determined by comparing the fourth-highest concentration in 3 years with the level of the standard.

the upper end of the range of consideration should be the 98th to 99th percentile, consistent with the forms being considered for the 24-hour primary $PM_{2.5}$ standard. For the lower end of the range, EPA staff used the 92nd percentile because it represented the mean of the distribution of the 20 percent worst days, consistent with the fact that the regional haze program targets the 20 percent most impaired days for improvements in visual air quality in Class I areas. 2005 SP at 7–12.

While EPA staff regarded $PM_{2.5}$ as the best indicator for addressing visibility impairment in urban areas, they considered a range of averaging times, levels, and forms for setting a $PM_{2.5}$ secondary standard. In summary, EPA staff recommended that consideration be given to a short-term averaging time for a $PM_{2.5}$ standard, within the range of 4 to 8 hours, within a daylight time period between approximately 10 a.m. to 6 p.m. In addition, they recommended that consideration should be given to the adoption of Federal equivalent methods for appropriate continuous methods for measurement of short-term average $PM_{2.5}$ concentrations to facilitate implementation of the standard. Within the recommended 4- to 8-hour averaging time, the EPA staff recommended consideration of a standard level within the range of 30 to 20 $\mu g/m^3$, depending in part on the form of the standard selected. Finally, staff recommended consideration of a percentile-based form, focusing on a range from the 92nd percentile up to the 98th percentile of the annual distribution of daily short-term $PM_{2.5}$ concentrations averaged over 3 years. 2005 SP at 7–13.

(b) *Vegetation and other ecosystem components.*

The 2004 CD found that then-current $PM_{2.5}$ levels in the United States ''[had] the potential to alter ecosystem structure and function in ways that may reduce their ability to meet societal needs'' (CD, p. 4–153). However, studies show that vegetation and other ecosystem components result predominantly from exposure to excess amounts of specific chemical species than from particle source, predominant form (particle, gas, or liquid) or size fraction. The 2004 CD discussed the effects of a number of different chemical species, including dust, trace metals, and organics, found within ambient PM, but ultimately focused on particulate nitrates and sulfates based on the conclusion that these latter constituents of $PM_{2.5}$ were ''of greatest and most widespread environmental significance.'' Thus, the 2005 SP focused on the welfare effects of particulate nitrates and sulfates, either individually, in combination, and/or as contributors to total reactive nitrogen deposition and total deposition of acidifying compounds on sensitive ecosystem components and essential ecological attributes.

Nitrogen and sulfur in varying amounts are necessary and beneficial nutrients for most organisms that make up ecosystems. It is when unintentional additions of atmospherically derived nutrient and acidifying compounds containing nitrogen and sulfur force unintended change on ecosystems, resulting in adverse impacts on essential ecological attributes, that deposited particulate nitrate and sulfate are termed ecosystem ''stressors.'' In order for any specific chemical stressor present in ambient PM to impact ecosystems, it must first be removed from the atmosphere through any of three different types of deposition: wet (rain/frozen precipitation), dry, or occult (fog, mist, or cloud). At the national scale, all types of deposition must be considered in determining potential impacts to vegetation and ecosystems because each type may dominate over specific intervals of time or space.

The most significant PM-related ecosystem-level effects result from long-term cumulative deposition of a given chemical species (e.g., nitrate) or mix (e.g., acidic or acidifying deposition) that exceeds the natural buffering or storage capacity of the ecosystem and/or affects the nutrient status of the ecosystem. The 2005 SP examined the environmental effects of both reactive nitrogen (of concern is the reactive nitrogen resulting from the conversion of both atmospheric nitrogen and fossil nitrogen during the combustion of fossil fuels) and PM-related acidic and acidifying deposition on various ecosystems, including vegetation, terrestrial ecosystems, threatened and endangered species, and aquatic habitat.

Vegetation. Various studies indicate that at current ambient levels, risks to vegetation from short-term exposures to dry deposited particulate nitrate or sulfate are low; however, when found in acidifying deposition, such particles do have the potential to cause direct foliar injury. The 2005 SP concluded on the basis of available information that the risk of injury occurring from acid precipitation in the eastern United States is high, noting that acid precipitation with levels of acidity associated with adverse foliar effects exist in some locations of the United States. Such adverse effects may include damage to leaf surface structure; increased permeability of leaf surface to toxic material, water, and disease agents; increased leaching of nutrients from foliage; altered reproductive processes; and overall weakening of trees making them more susceptible to other stressors. Having said all this, the 2005 SP also found that the contribution of particulate sulfates and nitrates to the total acidity found in the acid precipitation impacting eastern vegetation is not clear.

Terrestrial ecosystems. The 2005 SP concluded that excess nitrogen deposition is having a ''profound and adverse impact on the essential ecological attributes associated with terrestrial ecosystems.'' Terrestrial ecosystems may be adversely impacted by (1) increased nitrogen associated with atmospheric deposition, surface runoff, or leaching from nitrogen saturated soils into ground or surface waters; and (2) acidic and acidifying deposition.

Long-term, chronic additions of reactive nitrogen (including nitrate deposition and ammonium from ambient PM) can cause the nitrogen input to plants to exceed the natural capacity of plants and soil microorganisms to utilize and retain the nitrogen needed for normal growth. As this excess occurs over time, a detrimental ecological condition known as ''nitrogen saturation'' is said to exist.

Nitrogen saturation does not occur at a specific point in time, but reflects a set of gradually developing critical changes in the ecosystem process. In addition, not all vegetation, organisms, or ecosystems react in the same manner to increased nitrogen availability from nitrogen deposition. Those plants that are predisposed to capitalize on any increases in nitrogen availability gain an advantage over those that are not as responsive to added nitrogen. Over time, this shift in the competitive advantage may lead to shifts in overall plant community composition. Whether this shift is considered adverse would depend on the management context within which that ecosystem falls and the ripple effects of this shift on other ecosystem components, essential ecosystem attributes, and ecosystems.

The addition of nitrogen on plant community succession patterns and biodiversity has been studied in several long-term nitrogen fertilization studies in both the United States and Europe. These studies suggest that some forests receiving chronic inputs of nitrogen may decline in productivity and experience greater mortality. Some of the U.S. forests that are showing severe symptoms of nitrogen saturation are: the northern hardwoods and mixed conifer

forests in the Adirondack and Catskill Mountains of New York; the red spruce forests at Whitetop Mountain, Virginia, and Great Smoky Mountains National Park, North Carolina; mixed hardwood watersheds at Fernow Experimental Forest in West Virginia; American beech forests in Great Smoky Mountains National Park, Tennessee; and mixed conifer forests and chaparral watersheds in southern California and the southwestern Sierra Nevada in Central California. 2005 SP at 6–31.

Studies have shown that acid deposition has changed the chemical composition of soils by depleting the content of available plant nutrient cations (e.g., Ca^{2+}, Mg^{2+}, and K^{+}) by increasing the mobility of aluminum, and by increasing the sulfur and nitrogen content. Effects of acidic deposition have been extensively documented, as discussed in the 2004 CD and reports referenced therein. For example, effects on some species of forest trees linked to acidic deposition include increased permeability of leaf surfaces to toxic materials, water, and disease agents; increased leaching of nutrients from foliage; and altered reproductive processes; all of which serve to weaken trees so that they are more susceptible to other stresses (e.g., extreme weather, pests, and pathogens). In particular, acidic deposition has been implicated as a causal factor in the northeastern high-elevation decline of red spruce. Although U.S. forest ecosystems other than the high-elevation spruce-fir forests are not currently manifesting symptoms of injury directly attributable to acid deposition, less sensitive forests throughout the United States are experiencing gradual losses of base cation nutrients, which in many cases will reduce the quality of forest nutrition over the long term.

Threatened and endangered species. The adverse ecological effects of PM include those effects on rare and unique ecosystems, including both plant and wildlife species. Nitrogen deposition, including particulate nitrate, may have a direct adverse affect on some plant species, while for others the harm results when added nitrogen serves as a nutrient for some invasive species that eventually replace the more sensitive, rare species.

In some instances, as sensitive vegetation is harmed or lost, wildlife species that depend on these plants are also adversely affected. Several threatened or endangered species listed by the U.S. Fish and Wildlife Service, such as the desert tortoise and checkerspot butterfly have declined as a result of native food supplies being replaced by invasive plant species whose productivity is enhanced in part by nitrogen deposition.

Aquatic habitat. Adverse effects of PM on aquatic systems (streams, rivers, lakes, estuaries, and oceans) can be the result of either elevated levels of reactive nitrogen input or acidification. In either case, the nitrogen input contribution from PM may be the result of atmospheric deposition directly into the water body or on terrestrial ecosystems, reaching the water body via surface runoff or leaching from nitrogen saturated soils into ground or surface waters. However, it is not clear how much of the total nitrogen input to aquatic systems results from atmospheric deposition rather than from other nitrogen sources.

Estuaries receive far greater nutrient inputs than other systems. Excess nitrogen in estuaries results in eutrophic conditions whereupon dissolved oxygen is significantly reduced; yielding an environment that favors plant life over animal life. The 2005 SP describes research being done in the Pamlico Sound in North Carolina, which is a key fisheries nursery in the southeastern United States. Studies have shown that direct nitrogen deposition onto waterways feeding into the Pamlico Sound or onto the Sound itself and indirect nitrogen inputs via runoff from the upstream watersheds contribute to conditions of severe water oxygen depletion; formation of algae blooms in portions of the Pamlico Sound estuarine complex; altered fish distributions, catches, and physiological states; and increases in the incidence of disease. 2005 SP at p. 6–35.

Other studies have shown that under extreme rainfall events, massive influxes of reactive nitrogen (in combination with excess loadings of metals or other nutrients) into watersheds and sounds can lead to dramatic decreases of oxygen in water and the creation of widespread ''dead zones'' and/or increases of algae blooms that can cause extensive fish kills and damage to commercial fish and sea food harvesting. 2005 SP at p. 6–35.

The 2005 SP indicates that there is a clear link between acidic water, which results from atmospheric deposition of strong acids, and fish mortality. Studies have shown that inputs of acid deposition to regions with base-poor soils have resulted in the acidification of soil waters, shallow ground waters, streams, and lakes in a number of locations with the United States. This can result in lower pH and higher concentrations of inorganic monomeric aluminum, which causes changes in chemical conditions that are toxic to fish and other aquatic animals.

(c) *Materials damage and soiling.*

As part of the review for setting secondary standards for PM, the 2004 CD and 2005 SP considered the adverse effects that the deposition of ambient PM can have on materials such as metals, paint finishes, and building stone and concrete. Substantial evidence exists to show that ambient PM plays a role in both physical damage and impaired aesthetic qualities of materials. Physical damage to materials, including corrosion, degradation, and deterioration, is known to result from exposure to environmental factors such as sunlight, moisture, fungi, and varying temperatures; however, to the extent that particles may cause or contribute to physical damage of building materials, such damage is primarily caused by chemically active—especially particulate nitrates and sulfates—fine particles or hygroscopic coarse particles. On the other hand, particles consisting of carbonaceous compounds are responsible for soiling of commonly used building materials and culturally important items (statues, works of art, etc.) Soiling or exposure to PM can affect the aesthetic appeal of surfaces by giving them a dirty appearance, resulting in an increased frequency of cleaning. Nevertheless, while the role of ambient PM in specific adverse effects is well documented in the available studies, the 2004 CD and 2005 SP also concluded that there remains insufficient evidence to establish a quantitative relationship between ambient PM and any of the various effects described.

The EPA believes that these observations and the underlying available evidence continue to support consideration of retaining an appropriate degree of control on both fine and coarse particles. Lacking any specific quantitative basis for establishing distinct standards to protect against PM related to adverse effects on materials, EPA believes that reductions in fine and coarse particles likely to result from the current suite of secondary PM standards, or the range of recommended revisions to the primary PM standards and to the secondary $PM_{2.5}$ standard to address visibility impairment, would contribute to protection against PM-related soiling and materials damage.

(d) *Climate and solar radiation effects.*

The effects of PM on climate result from either the scattering or absorption of radiation by ambient particles, resulting in a cooling or warming effect on climate, respectively. Studies suggest

that global and regional climate changes could have both positive and negative effects on human health and welfare, and the environment. Most components of ambient PM, especially sulfates, scatter and reflect incoming solar radiation back into space. However, some components of ambient PM, especially black carbon, absorb incoming solar radiation or outgoing terrestrial radiation. Sulfate particles indirectly affect climate by serving as condensation nuclei which alter the size distribution of cloud droplets (producing more droplets with smaller sizes), causing the amount of solar radiation that clouds reflect back to space to increase.

While substantial qualitative information has shown the important role that ambient PM plays in both global and regional climatic processes, that role is presently poorly quantified. There are considerable uncertainties and difficulties in projecting likely climate change impacts. The 2005 SP indicates that ''any complete assessment of the direct radiative effects of PM would require computationally intensive calculations that incorporate the spatial and temporal behavior of particles of varying composition that have been emitted from, or formed by precursors emitted from, different sources.'' 2005 SP at 6–55. In addition, calculations of indirect physical effects of particles on climate are subject to much larger uncertainties than those related to the direct radiative effects of particles.

Exposure to solar radiation may have direct effects on human health and agricultural and ecological systems; indirect effects on human health and ecosystems, and effects on materials. 2005 SP at 6–56ff. Several studies cited in the 2004 CD reinforce the idea that particles can play an important role in affecting the transmission of solar UV–B radiation. However, none of these studies included measurements of ambient PM concentrations, so that direct relationships between PM levels and UV–B radiation transmission could not be determined. In addition, the relationships between particles and UV–B radiation transmission can vary considerably over location, conditions, and time. 2005 SP at 6–56. In summary, the EPA staff concluded that available information is insufficient to project the extent to which, or even whether, location-specific changes in ambient PM would indirectly affect human health or the environment.

e. Fundamental Elements of Increments

As we have previously noted, under the model established in the Act and prior EPA regulations, the function of an increment is not like that of the NAAQS in that an increment is not intended to set a uniform ambient pollutant concentration ''ceiling'' across the United States. *See* 70 FR 59600. That is, while both increments and NAAQS generally serve to limit air pollution levels, increments are designed to allow a uniform degree of pollutant concentration increase for each area in the United States with a particular classification, with the allowable increase measured against a baseline air quality level for a particular area.[15] Because the baseline air quality level varies from one location to another, and is not established until a PSD permit is submitted, it is not possible to determine what the maximum pollutant concentration attainable is for a given area (to be used to determine the protection afforded by an increment against potential adverse environmental effects) until the specific baseline air quality level is known.

For the reasons described in our increments rule for NO_X, our objective is to establish uniform increments that allow the same level of deterioration for each area of the country having the same classification. 70 FR 59601. Our goal is not to establish increments to reduce existing air pollutant concentrations below baseline levels in each area, but rather to define a level of increase in pollutant concentrations above baseline levels that represents ''significant'' deterioration for each area classification. 70 FR 59600.

f. Evaluation of the Safe Harbor Increments

Mindful of the considerations we previously described about the fundamental characteristics of the increments, we reviewed the scientific and technical evidence available for the 2005 review of the NAAQS for PM in order to determine whether, and to what extent, the ''safe harbor'' increments might need to be modified in order to protect air quality values, health and welfare, and parks while ensuring economic growth consistent with the preservation of clean air resources in accordance with sections 166(c) and 160 of the Act. As we did in our evaluation of the safe harbor NO_2 increments, we propose to rely on an approach that evaluates how protective the safe harbor $PM_{2.5}$ increments are by trying to compare the marginal pollutant concentration increases allowed by the safe harbor increment levels against the pollutant concentrations at which various environmental responses occur. We analyzed the available evidence from both a quantitative and qualitative perspective to reach a decision about whether we should modify the contingent safe harbor $PM_{2.5}$ increments and whether we have sufficient information to select a specific alternative level, averaging time, or pollutant indicator for the increments.

(1) Non-Visibility Related Effects

In quantitatively evaluating the adequacy of the contingent safe harbor increments for $PM_{2.5}$ for non-visibility related welfare effects, we experienced difficulties with identifying the appropriate indicator, as well as to the level of the increments. In the most recent evaluation of the NAAQS for PM, EPA staff concluded that ''sufficient information is not available at this time to recommend consideration of either an ecologically based indicator or an indicator based distinctly on soiling and materials damage, in terms of specific chemical components of PM.'' 2005 SP at 7–15. For consideration of the effects of ambient PM on vegetation and other ecosystems, the available data indicate that the chemical species of PM (especially particulate nitrate and sulfate) has more relevance than the size fraction (coarse or fine). Acid precipitation, including particulate sulfate, has been found to be particularly damaging to foliage, and along with ambient SO_2 contributes significantly to materials damage and soiling.

Determining the most effective levels for any indicator for PM from the available data is difficult because the evidence is insufficient to provide a quantitative relationship between ambient PM concentrations and known and observed adverse ecological effects. Fundamental areas of uncertainty preclude establishing predictable relationships between ambient concentrations of particulate nitrogen and sulfur compounds and associated ecosystem effects. One source of uncertainty hampering the characterization of such relationships is the extreme complexity and variability that exist in estimating particle deposition rates. These rates are affected by numerous factors, including particle size and composition, associated atmospheric conditions, and the properties of the surfaces being impacted. A related source of uncertainty is establishing the portion of the total nitrogen and sulfur deposition occurring at a given site is attributable to ambient PM. Though several national

[15] It should be noted, however, that an increment does not allow air pollution levels in an area to increase beyond the ambient concentration of a pollutant that would exceed the level allowed by the NAAQS.

deposition monitoring networks have been successfully measuring wet and dry deposition for several decades, they often do not distinguish the form (e.g., particle, wet, and dry gaseous) in which a given chemical species is deposited. Further, it is not clear how well data from monitoring sites may apply to non-monitored sites with different surface cover, meteorology, or other deposition related factors.

Another fundamental problem that makes it difficult to establish a meaningful dose-response relationship between ambient PM levels and specific adverse environmental effects is that ecosystems have different sensitivities and capacities to buffer or assimilate pollutants. Many of the documented ecosystem-level effects only became evident after long-term, chronic exposures to total annual loads of reactive nitrogen (Nr) or acidifying compounds that eventually exceeded the natural buffering or assimilative capacity of the system. In most cases, PM deposition is not the only contributor to the total load of Nr or acidifying compounds entering the affected system. Since it is difficult to predict the rate of PM deposition, and thus, the PM contribution to total deposition at a given site, it is difficult to predict the ambient concentration of PM that would likely lead to the observed adverse effects within any particular ecosystem. Equally difficult is the prediction of recovery rates for areas already affected, if PM deposition rates of various chemical species were to be reduced.

In response to our 2005 proposal for NO_2 increments, some commenters expressed the opinion that a better way of identifying acceptable pollutant loadings, particularly for protection against ecological effects, is the use of a ''critical load'' concept.[16] 70 FR 59612. At that time, EPA expressed support for the concept, but indicated that our current knowledge about critical loads did not ''provide a sufficient basis for establishing a uniform, national standard such as a PSD increment.''

The critical load concept was once again reviewed in the 2005 SP for PM. It was noted in that document that the ''[k]ey to the establishment of a critical load is the selection of appropriate ecological endpoints or indicators that are measurable characteristics related to the structure, composition, or functioning of ecological systems (i.e., indicators of condition).'' 2005 SP at 6–46. The EPA recognized the value of using critical loads and acknowledged that a number of different groups in the United States have begun to use or develop critical loads. Nevertheless, while recognizing that current activities ''hold promise,'' EPA concluded that ''widespread use of [critical loads] in the U.S. is not yet possible.'' Among other things, currently available data are insufficient to quantify the contribution of ambient PM to total Nr or acid deposition, and it is not clear whether a critical load could be developed just for the portion of the total N or S input that is contributed by PM. SP at 4–49. Research, in conjunction with the development of improved predictive models, could help in future consideration within the United States of the critical loads concept, and in determining how much of any given critical load is contributed by different sources of pollutants.

As explained earlier, the available scientific and technical data do not yet enable us to adequately relate ambient concentrations of $PM_{2.5}$ to ecosystem responses. Without such key information, it is difficult to quantitatively evaluate the effectiveness of the ''safe harbor'' increments for protecting air quality values, health and welfare, and parks while ensuring economic growth consistent with the preservation of clean air resources. Alternatively, we must make a qualitative judgment as to whether the contingent safe harbor increments for $PM_{2.5}$ or some alternative increments meet the applicable factors.

In this situation, we believe that the determination of the increment levels that satisfy the factors applicable under section 166(c) is ultimately a policy choice that the Administrator must make, similar to the policy choice the Administrator must make in setting a primary NAAQS ''with an adequate margin of safety.'' *See Lead Industries Ass'n* v. *EPA*, 647 F.2d 1130, 1147 (D.C. Cir. 1980) (where information is insufficient to permit fully informed factual determinations, the Administrator's decisions rest largely on policy judgments). Using a similar approach is warranted because both section 109 and section 160(1) direct the Administrator to use his or her judgment in making choices regarding an adequate margin of safety or protecting against effects that may still occur notwithstanding compliance with the NAAQS—both areas of inquiry characterized by great uncertainty. Thus, in the process for setting NAAQS, the Administrator looks to factors such as the uncertainty of the science, the seriousness of the health effects, and the magnitude of the environmental problem (isolated or commonplace). E.g., 62 FR 38652 (July 18, 1997) ($PM_{2.5}$ NAAQS).

Bearing on this policy decision for increments are various considerations, based on the available information and the factors applicable under section 166(c). The factors establishing particular environmental objectives (protecting air quality values, health and welfare, and parks) might suggest that, in some areas, we permit little or no increase in $PM_{2.5}$ emissions or establish an increment for another form of PM because there are data indicating that an effect may be attributable to PM emissions. However, as explained in the NO_X rule, we do not believe that Congress intended for the PSD program to eliminate all negative effects. Thus, rather than just seeking to eliminate all negative effects, we must attempt to identify a level of increase at which any additional effects beyond existing (or baseline) levels would be ''significant'' and protect against those ''adverse'' effects. Furthermore, we need to ensure that our increments provide room for some economic growth. Congress intended for EPA to weigh these considerations carefully and establish regulations that balance economic growth and environmental protection.

Since we are unable to establish a direct, widely applicable, quantitative relationship between particular levels of $PM_{2.5}$ and specific negative effects, we give particular weight to the policy judgment that Congress made when it set the statutory increments as a percentage of the NAAQS and created increments for the same pollutant form and time period that was reflected in the NAAQS. In section 166 of the Act, Congress directed that EPA study the establishment of PSD regulations for other pollutants for which Congress did not wish to set increments at the time.

Congress's own reluctance to set increments to prevent significant deterioration of air quality due to emissions of NO_X, and the provisions ensuring time for Congressional review and action, suggest that Congress intended for EPA to avoid speculative judgments about the science where data are lacking. Thus, in the absence of specific data showing that an increment level that of the ''safe harbor'' level would better protect health, welfare, parks, and air quality values, while simultaneously maximizing opportunities for economic growth, we give weight in our qualitative analysis of the factors applicable under section

[16] A ''critical load'' is a numerical estimate of the amount of polloution that a sensitive ecosystem can absorb on a sustained basis before it experiences a measurable amount of degradation. In contrast to the units for increments, μ/m^3, a critical load is typicallly expressed as a loading rate in kilograms of a pollutant per hectare per year.

166(c) to the method that Congress used to establish the statutory increments.

In making this qualitative judgment, we also consider the overall regulatory framework that we have established in the PSD regulations for $PM_{2.5}$. This framework includes a case-by-case analysis of each permit application to identify additional impacts (e.g., soils and vegetation), a special review by the FLM and State reviewing authority of potential adverse effects on air quality values in parks and special areas, and a requirement that all new and modified sources install BACT. In addition, the area classification system ensures that there will be economic growth in particular areas that is consistent with the values of each State and its individual communities. Based on this qualitative analysis, we do not believe it is necessary to adopt more stringent increments to satisfy section 166(c) of the Act with respect to non-visibility related effects.

(2) Visibility Protection

In the case of visibility protection, the available evidence was strong enough to enable EPA to conclude that $PM_{2.5}$ is the appropriate indicator for measuring the effects of ambient PM on visibility impairment. Accordingly, using $PM_{2.5}$ concentrations as the basis for review, EPA evaluated a range of $PM_{2.5}$ ambient concentrations, averaging times (24 hours and less), and a range of concentration percentiles (using a concentration-based form for the standard) in order to establish a recommendation for setting the secondary NAAQS for PM to address visibility impairment in urban areas. As explained in the 2005 SP, EPA considered, as a lower bound for setting the short-term secondary $PM_{2.5}$ standard, a $PM_{2.5}$ concentration of either 20 or 25 $\mu g/m^3$, averaged over a 4- to 8-hour averaging time within daylight hours, depending on the percentile range considered for the form of the standard.

The Class II, short-term safe harbor increment for $PM_{2.5}$ is 9 $\mu g/m^3$. This level is well below the lower bound recommended for setting the secondary $PM_{2.5}$ standard, but is based on a 24-hour averaging time at the 98th percentile. The 2005 SP also notes that the estimated 98th percentile values in distributions of daily background levels are below 10 $\mu g/m^3$ in most areas. Thus, the allowable deterioration from the safe harbor increment in addition to the natural background level generally falls below the minimum values recommended in the 2005 SP for the secondary short-term standard for $PM_{2.5}$.

With regard to the Class I increments for $PM_{2.5}$, we note that Congress explicitly included visibility as an air quality related value (AQRV), enabling Federal land managers to protect significant attributes of Federal Class I areas. Act section 165(d)(2)(B). The FLM, assigned the affirmative responsibility to protect Federal Class I areas, are to use AQRVs which are separate and distinct from increments, to address individual Class I areas and the unique attributes identified for each Class I area. Congress recognized that AQRVs and increments were not the same thing and established independent procedures for the implementation of each. For example, the Act authorizes FLM to evaluate the effects of pollutant increases using AQRVs as the basis regardless of the effect of such pollutant increases on the increments. In using the AQRV, FLM are not limited in their evaluation by the maximum allowable pollutant increase set by the increment and may identify adverse impacts on visibility pursuant to AQRVs even when the pollution increase will not cause or contribute to an exceedance of an increment. Instead, the pollutant increase is evaluated against the AQRV which considers the specific conditions existing in the Class I area of concern. Thus, regardless of the increased amount of pollution that an increment may allow, the FLM may determine that the visibility in the Class I area is adversely affected by an amount of pollutant increase less than that allowed by the increment.

From a qualitative perspective, we believe that visibility protection in Class I areas is more adequately provided by the AQRV process, where each area can be addressed on the basis of the local situation and the FLM's assessment of potential ambient impacts by a particular source. Nevertheless, generally speaking an increment should not be so large that it routinely results in substantially more pollution in Class I areas than is generally acceptable under the AQRV approach. The contingent safe harbor $PM_{2.5}$ increments for Class I areas are 1 $\mu g/m^3$ and 2 $\mu g/m^3$ for the annual and 24-hour averaging periods, respectively.

We believe the importance of using distinct $PM_{2.5}$ increments to protect against visibility impairment is also lessened by the fact that Congress, aware of the statutory requirements for prevention of significant deterioration of air quality, established several visibility programs that specifically target emissions reductions to achieve the desired visibility benefits. Under the regional haze regulations, promulgated by EPA in 1999, States are required to establish goals for improving visibility on the 20 percent most impaired days in each Class I area, and for allowing no degradation on the 20 percent least impaired days. Each State must adopt emission reduction strategies which, in combination with the strategies of contributing States, assure that Class I area visibility improvement goals are met. Five multi-state planning organizations are evaluating the sources of $PM_{2.5}$ contributing to Class I area visibility impairment to lay the technical foundation for developing strategies, coordinated among many States, in order to make reasonable progress in Class I areas across the United States.

We believe it is also important to consider the fact that some State and local governments have also developed programs to improve visual air quality in specific urban areas. These programs are individually designed to focus on improving visibility to a visual range defined by the specific area of concern. Such local programs can more appropriately focus on the preferences of individual communities where a uniform national increment for visibility protection generally cannot.

In setting the NAAQS for PM, EPA ultimately concluded that a distinct secondary standard with a different averaging time or form was not warranted at that time. Instead, we concluded that a set of secondary $PM_{2.5}$ standards set identical to the revised primary $PM_{2.5}$ standards a reasonable approach when considered in conjunction with the regional haze program as a means of achieving appropriate levels of visibility protection in urban, non-urban, and Class I areas across the United States. With regard to evaluating the safe harbor increments for $PM_{2.5}$, we had to consider how much weight to give to visibility protection as a function of the increments. That is, whether the increments were the appropriate means of providing the most effective protection against visibility impairment in urban areas as well as in rural areas, including Federal Class I areas. In light of the other more direct approaches being used to address visibility problems across the United States, we believe that the use of distinct PM increments for visibility protection is not the most effective means of addressing the visibility problem. Thus, we do not believe it is necessary to modify the safe harbor increments for $PM_{2.5}$ to further protect visibility.

3. Proposed Baseline Dates for $PM_{2.5}$ Increments Under Option 1

If we adopt option 1, we propose to require the implementation of the $PM_{2.5}$ increment system with new baseline areas, baseline dates and trigger dates. Specifically, we are proposing that the major source baseline date and trigger date, both fixed dates, will be defined as the effective date of this rule after promulgation.

In light of current and expected trends in $PM_{2.5}$ concentrations, EPA's judgment is that starting with new baseline dates on or after the effective date of this rule would make the new PSD increments more protective. Under our proposed approach, any emissions reductions occurring prior to the effective date of this rule would be counted toward the baseline concentration rather than expanding the $PM_{2.5}$ increment. If a retroactive baseline date were to apply, emissions reductions occurring prior to the effective date of this rule would serve to expand the available increments, enabling more pollution than would otherwise be allowed to occur.

In addition, we believe starting with new baseline dates to implement new increments for $PM_{2.5}$ is appropriate under this option because we would treat $PM_{2.5}$ essentially as a ''new'' pollutant for purposes of PSD and section 166 of the Act. We believe that establishing a new baseline overcomes significant implementation concerns that would otherwise exist if the existing PM baseline were maintained. If we were to require sources and reviewing authorities to conduct $PM_{2.5}$ increment analyses based on the minor source baseline dates previously established under the TSP or PM_{10} program, they would have to attempt to recreate the $PM_{2.5}$ emissions inventory as of the minor source baseline date in order to determine the baseline $PM_{2.5}$ concentration for the area. For early minor source baseline dates in particular (e.g., 1976 in areas of the United States), establishing the emissions inventory for $PM_{2.5}$ would be extremely difficult, cumbersome and potentially inaccurate because historic emissions inventories did not include $PM_{2.5}$ emissions. For all of these reasons, we are proposing option 1 as our preferred option and request comment on this contingent safe harbor approach under option 1

4. Revocation of PM_{10} Annual Increments

If we use option 1 to adopt additional increments for $PM_{2.5}$, we propose to revoke the annual increments for PM_{10} based on the same technical evidence that led us to revoke the annual PM_{10} NAAQS. As discussed earlier, we do not believe EPA is precluded from adopting new particular matter increments under section 166(a) of the Act because we promulgated a NAAQS for $PM_{2.5}$ after 1977. However, if we read section 166(f) to address PM_{10} alone, the interaction of sections 166(a) and 166(f) could suggest that pollutant-specific PSD regulations for PM promulgated on the basis of section 166(a) must be limited to regulations that address fine PM. However, this view would create tension with language in section 166(a) that calls for us to conduct a holistic evaluation to establish a system of PSD regulations (including numerical and other measures) for each pollutant covered by this provision. Since it would be preferable to develop a system of regulation for PM generally and select the appropriate indicator for PM increments based on a comprehensive review of the effects of all forms of PM (as we did in the recent NAAQS rule), we do not believe Congress could have intended to constrain EPA's discretion to consider the potentially differing effects of coarse and fine particles when developing pollutant-specific PSD regulations under section 166(a).

Since EPA recently revised the NAAQS for PM_{10} and eliminated the annual PM_{10} NAAQS, we believe it is permissible for the Agency to interpret the phrase ''pollutants for which national ambient air quality standards are promulgated after August 7, 1977'' to apply to revisions to PM_{10} as well. In our 1989 proposal to adopt PM_{10} increments, before the addition of section 166(f) to the Act, we construed the language in section 166(a) to be broad enough to support adoption of PM_{10} increments. Under a holistic approach, considering all forms of PM, we do not believe the evidence supports retaining an annual increment for PM_{10} under the PSD program. In our October 17, 2006 action on the PM NAAQS, the Administrator concluded that an annual coarse particle NAAQS was not warranted at this time. 71 FR 61198–99. The CD concluded that the available evidence does not suggest an association of adverse health effects with long-term exposure to coarse particles and the SP concluded there is no quantitative evidence that directly supports an annual standard. *Id.* at 61198. With respect to welfare effects, the evidence indicated that a short-term $PM_{2.5}$ standard was the best approach for addressing visibility. *Id.* at 61280. For non-visibility welfare effects, the Administrator concluded that the available evidence was not sufficient to support an additional indicator, but that a secondary NAAQS identical to the primary NAAQS directionally improves the level of protection afforded vegetation, ecosystems, and materials. *Id.* at 61210.

When the evidence described in the Criteria Document and Staff Paper is considered in light of the legal criteria applicable under section 166(c), we believe it supports the conclusion that an annual PM_{10} increment is no longer needed under the PSD program. In the absence of a clear association between long-term exposure to coarse particles and adverse health effects, we do not see a justification for an annual PM_{10} increment to protect public health, notwithstanding compliance with the NAAQS. In addition, the new increments for $PM_{2.5}$ that we propose to adopt, in combination with the existing 24-hour increment for PM_{10}, will address welfare effects, air quality related values, and air quality in national parks and other special areas. As described earlier, visibility impacts are principally attributable to short-term fine particle concentrations and thus will be addressed by the new short-term $PM_{2.5}$ increment. The evidence indicates that the non-visibility welfare effects of concern are primarily attributable to deposition of sulfate and nitrate particles of any size. Thus, the combination of the new $PM_{2.5}$ increments and the existing 24-hour PM_{10} increment will address non-visibility welfare impact attributable to deposition. Since we propose to retain the 24-hour PM_{10} increment and adopt new annual and 24-hour fine particle increments that will target all of these effects, we do not consider it warranted to require continued tracking of changes in annual concentrations of PM_{10} under the PSD program.

B. Option 2—Equivalent Substitution Approach for Annual Increments—Section 166(f)

Under this option, we would recognize $PM_{2.5}$ as a new indicator for PM for NSR purposes, and develop annual $PM_{2.5}$ increments to replace the annual PM_{10} increments using the equivalent substitution approach under the authority of section 166(f) of the Act.

The approach proposed under this option in this proposed rule would be similar to the one we used in 1993, and discussed earlier to convert from TSP increments to PM_{10} increments, to avoid having to implement increments based on standards that no longer existed. On October 17, 2006, EPA revoked the primary and secondary annual PM_{10} standards and retained the primary and

secondary 24-hour PM_{10} standards. 71 FR 61144.

In this case, we therefore are developing annual $PM_{2.5}$ increments to replace the annual PM_{10} increments. Also, consistent with our prior action in 1993, we are proposing to eliminate or revoke the PM_{10} increments in this notice. However, for developing the 24-hour $PM_{2.5}$ increments, we are proposing to use the increment values derived under the contingent safe harbor approach explained in option 1. We seek comment not only on the levels of the proposed ''equivalent'' increments, but also on our use of this equivalent increment option for only the annual $PM_{2.5}$ increments. In addition, we seek comment on whether we should rely on section 166(f) to also propose the 24-hour $PM_{2.5}$ increments, even though the primary and secondary 24-hour PM_{10} NAAQS are not being revoked.

1. Development of Equivalent Increments

To establish equivalent PM_{10} increments in the 1993 rule, EPA compared the TSP and PM_{10} impacts of each of the 249 major sources subject to major NSR in our NSR database. EPA observed that, in principle, for any source the equivalent PM_{10} increments was simply the product of the TSP increment to the source's PM_{10}/PM emissions ratio. 58 FR 31627.

In this rulemaking, EPA proposes to apply the same type of ratio approach to establish equivalent increments for $PM_{2.5}$ under section 166(f) of the Act. Unlike the 1993 analysis where we evaluated a database of 249 major sources, for this rulemaking EPA relied on a more comprehensive analysis of the ''2001 National Emissions Estimates by Source Categories'' for PM_{10} and $PM_{2.5}$.[17] From the 2001 National Emissions Inventory, the ratio of emission estimates from utilities and industrial point source categories were used to find the $PM_{2.5}$ to the PM_{10} emissions ratio. For purposes of deriving the ratio, area sources and non-road and mobile sources were not included on the basis that for NSR permitting virtually all of the permitted sources fall within the utility and industrial point source categories.

Utilities and industrial point source emission estimates were combined and a ratio of 0.8 was calculated as the ratio of emissions of $PM_{2.5}$ to PM_{10}. Hence, the annual increments developed for $PM_{2.5}$ would be equal to 0.8 multiplied by the increment value for PM_{10}. Although we believe that this approach is based on a permissible interpretation of the statute, we believe it results in increment values for $PM_{2.5}$ that are much higher than the values Congress envisioned when it established the original increments for PM and SO_2 based on percentages of the then existing NAAQS. For example, an annual $PM_{2.5}$ increment in Class II areas using this approach would be 13 $\mu g/m^3$, which is 87 percent of the annual $PM_{2.5}$ NAAQS of 15 $\mu g/m^3$. In contrast, Congress established the Class II Increments for PM and SO_2 to represent 25 percent of the NAAQS. To avoid such an unreasonable outcome for $PM_{2.5}$, we rejected this approach and instead are proposing two variations (options 2A & 2B) of the equivalent increment approach as the second and third option.

2. Proposed Annual Increments for $PM_{2.5}$

a. Option 2A

In addition to an emissions ratio to reflect the shift in the indicator from PM_{10} to $PM_{2.5}$, we have also considered the shift in the stringency of the NAAQS that resulted when we changed the pollutant indicator from PM_{10} to $PM_{2.5}$. Accordingly, the ratio of emissions (0.8) that we previously calculated would be multiplied by the ratio of the $PM_{2.5}$ NAAQS over the PM_{10} NAAQS (15/50 = 0.3 $\mu g/m^3$ for the annual standard) to derive an adjustment factor (0.24 for the annual NAAQS) for calculating the Class I, II, and III annual $PM_{2.5}$ increments. Hence, multiplying the Class I, II, and III annual PM_{10} increments, 4, 17, and 34 $\mu g/m^3$, respectively, by the new adjustment factor yields the following proposed increment values (rounded to the nearest whole number) under option 2A:

Averaging period	NAAQS ($\mu g/m^3$)	Increments ($\mu g/m^3$)		
		Class I	Class II	Class III
Annual	15	1	4	8
24-hr	35	2	9	18

Coincidentally, this new adjustment based on the $PM_{2.5}$-to-PM_{10} NAAQS ratio results in annual $PM_{2.5}$ increment values identical to the values derived using option 1, the percentage-of-NAAQS approach. As stated earlier, because the 24-hour PM_{10} NAAQS have not been revoked, we do not consider section 166(f) to be the best fit for the development of the 24-hour $PM_{2.5}$ increments. Thus, for new 24-hour $PM_{2.5}$ increments, we are proposing to rely on the authority of section 166(a) to derive 24-hour increments as proposed under option 1.

b. Option 2B

This option represents another variation on the section 166(f) equivalent increment approach. Under this option 2B, we are proposing to develop annual $PM_{2.5}$ increments based solely on the ratio of the annual $PM_{2.5}$ NAAQS to the primary annual PM_{10} NAAQS (15/50 = 0.3 $\mu g/m^3$ for the annual NAAQS). The values for the annual $PM_{2.5}$ increments derived by multiplying the Class I, II, and III annual PM_{10} increments, 4, 17, and 34 $\mu g/m^3$, respectively, by this adjustment ratio yields the following proposed increment levels (rounded to the nearest whole number) under option 2B:

Averaging period	NAAQS ($\mu g/m^3$)	Increments ($\mu g/m^3$)		
		Class I	Class II	Class III
Annual	15	1	5	10

[17] 2001 National Emissions Estimates by Source Categories.

Averaging period	NAAQS ($\mu g/m^3$)	Increments ($\mu g/m^3$)		
		Class I	Class II	Class III
24-hr	35	2	9	18

As with option 2A, for the 24-hour $PM_{2.5}$ increments, we are proposing to use increment values developed via the contingent safe harbor approach as described in option 1.

3. Baseline Dates

Under these options (2A and 2B), since we will be replacing annual PM_{10} increments with annual $PM_{2.5}$ increments, we propose to retain the existing TSP/PM_{10} baseline and trigger dates and baseline areas for the $PM_{2.5}$ program. Section 166(f) does not address how EPA should handle baseline dates for a substituted increment. In 1993, we decided to retain the existing baseline dates for TSP when we replaced the section 163 increment with PM_{10} increments. We propose the same approach under this option in this rulemaking because the continuation of the historic TSP/PM_{10} baseline dates would ensure that no past case of increment consumption is abandoned and serve as the closest measure of a substitute. However, as discussed earlier, given $PM_{2.5}$ emissions trends, our judgment is that establishing baseline dates for $PM_{2.5}$ after the effective date of this rule may be more effective at preventing significant deterioration because the baseline concentrations will reflect emissions reductions. We request comment on whether this would provide sufficient justification for EPA to establish new baseline dates under the section 166(f) substitution approach.

However, in conjunction with the annual $PM_{2.5}$ increments discussed above, we are proposing to use option 1 increment levels for 24-hour $PM_{2.5}$ increments which would use new baseline areas, trigger and baseline dates. Thus, assuming the baseline date for the PM_{10} increments has already been triggered, this results in different baseline dates for the annual and 24-hour $PM_{2.5}$ increments. This would also require a PSD applicant to develop two separate emissions inventories of increment-consuming sources for evaluating a new source's cumulative $PM_{2.5}$ impacts in the area of concern. We seek comment on this issue of multiple inventories under the equivalent increments approach.

VI. Significant Impact Levels (SILs)

A. EPA's Guidance on SILs in the PSD Program

Significant Impact Levels or SILs are numeric values derived by EPA that may be used to evaluate the impact a proposed major source or modification may have on the NAAQS or PSD increment. The SILs currently appear in EPA's regulations in 40 CFR 51.165(b), which are the provisions that require States to operate a preconstruction review permit program for major stationary sources that wish to locate in an attainment or unclassifiable area but would cause or contribute to a violation of the NAAQS. The SILs in that regulation are the level of ambient impact that is considered to represent a ''significant contribution'' to nonattainment.

Although 40 CFR 51.165 is the regulation that establishes the minimum requirements for nonattainment NSR programs in SIPs, the provisions of 40 CFR 51.165(b) are actually applicable to sources located in attainment and unclassifiable areas. *See* 40 CFR 51.165(b)(4). Where a PSD source located in such areas may have an impact on an adjacent non-attainment area, the PSD source must still demonstrate that it will not cause or contribute to a violation of the NAAQS in the adjacent area. This demonstration may be made by showing that the emissions from the PSD source alone are below the significant impact levels set forth in 40 CFR 51.165(b)(2). However, where emissions from a proposed PSD source or modification would have an ambient impact in a non-attainment area that would exceed the SILs, the source is considered to cause or contribute to a violation of the NAAQS and may not be issued a PSD permit without obtaining emissions reductions to compensate for its impact. 40 CFR 51.165(b)(2)–(3).

The EPA has also applied SILs in other analogous circumstances under the PSD program. Based on EPA interpretations and guidance, SILs have also been widely used in the PSD program as a screening tool for determining when a new major source or major modification that wishes to locate in an attainment or unclassifiable area must conduct a more extensive air quality analysis to demonstrate that it will not cause or contribute to a violation of the NAAQS or PSD increment in the attainment or unclassifiable area. SILs are also used to define the extent of the Significant Impact Area (SIA) where a cumulative air quality analysis accounting for emissions changes from all sources in the SIA is performed.

The EPA's historical application of SILs to the analysis of major source impacts on attainment and unclassifiable areas under the PSD program has largely been based on interpretations reflected in EPA guidance memorandum. The EPA has not previously incorporated the concept of a SIL into our PSD regulations at 40 CFR 51.166 and 40 CFR 52.21. Nevertheless, EPA has long considered the ''significant contribution'' test set forth in 40 CFR 51.165(b)(2) to apply to the impact of PSD sources on attainment areas as well, since that provision applies to major new sources and major modifications located in attainment and unclassifiable areas. Thus, EPA has also supported the use of SILs as screening mechanism when analyzing whether a source located in a PSD area will cause or contribute to a violation of the NAAQS or PSD increment in attainment or unclassifiable areas.

Although EPA's current PSD regulations do not contain SILs, EPA initially developed SILs for TSP and other pollutants under the PSD program in 1978. 43 FR 26380 (June 19, 1978). In the preamble to our 1978 regulations, EPA described SILs as a screening technique to alleviate resource burdens (the costs and time involved in sophisticated computer modeling of ambient air impacts) where there was little or no threat to the PSD increments or NAAQS. 45 FR 26398. However, as the threat to the increments increased, EPA intended for more sophisticated techniques to be used. *Id.* Since EPA's analysis indicated that the air quality impact of many sources fell off rapidly to insignificant levels, the Agency did not intend to analyze the impacts beyond the geographic point where the concentrations from the source fell below certain levels derived from the class I increments. *Id.* These levels were interpreted by EPA as representing the minimum amount of ambient impact that is significant and hence came to be

known as the significant impact levels or SILs. *Id.*

When EPA substantially revised our PSD regulations in 1980 to include significant emissions rates and significant monitoring concentrations, EPA did not include the SILs in our PSD regulations. At that time, EPA felt that there was no need for a separate table of SILs because of the adoption of ''a *de minimis* exclusion for monitoring'' otherwise known as SMCs (described later). 45 FR 52707. In addition, EPA saw little value in retaining SILs as an exemption from the air quality analysis because the demonstration necessary to qualify for the exemption was itself an air quality analysis. 45 FR 52707.

Subsequently, in draft guidance for permit writers, EPA advised that SILs may be used to determine whether a source needs to conduct a cumulative or ''full'' impact analysis to demonstrate that in conjunction with all other increment consuming sources, it will not cause or contribute to violation of the NAAQS or PSD increment in an attainment or unclassifiable areas. New Source Review Workshop Manual, at C.24-C.25 (Draft 1990); *See* also 40 CFR 51.166(k); 40 CFR 52.21(k). Permitting authorities followed this guidance, and this approach remains an accepted aspect of PSD program implementation. If based on a preliminary impact analysis, a source can show that its emissions alone will not increase ambient concentrations by more than the SILs, EPA considers this to be a sufficient demonstration that a source will not cause or contribute to a violation of the NAAQS or increment.

In light of the unique air quality considerations in Class I areas, EPA has drawn a distinction between the use of SILs in Class II areas and Class I areas. The EPA's draft 1990 guidance only identified SILs to be used in Class II areas under the PSD program. Workshop Manual at C.28. However, in 1991, EPA advised the State of Virginia that the concept of a SIL might be applied to Class I areas if the levels were determined in a reasonable manner. Memorandum from John Calcagni, Air Quality Management Division, to Thomas J. Maslany, Air, Radiation, and Toxics Divisions (Sept. 10, 1991). The EPA did not support the use of SILs to determine whether a source should conduct an analysis of its impact on air-quality related values (AQRVs). Since there are currently no Class III areas for PSD in the United States, there has been no need for EPA to apply SILs in these areas.

B. Legal Basis for SILs

The concept of a significant impact level is grounded on the *de minimis* principles described by the court in *Alabama Power Co.* v. *Costle,* 636 F.2d 323, 360 (D.C. Cir. 1980). In this case reviewing EPA's 1978 PSD regulations, the court recognized that ''there is likely a basis for an implication of *de minimis* authority to provide exemption when the burdens of regulation yield a gain of trivial or no value.'' 636 F.2d at 360. Based on this *de minimis* principle from the court's opinion, EPA developed significant emissions rates and significant monitoring concentrations in our 1980s regulations for PSD. The significant emission rates reflect levels below which EPA considers an emissions increase to be *de minimis* and thus not a major modification that requires a PSD permit or NA–NSR permit. 45 FR 52676, 52705–07. *See* also 40 CFR 51.166(b)(23); 40 CFR 52.21(b)(23). As discussed further later, the significant monitoring concentrations in EPA regulations define a *de minimis* level of impact that EPA has concluded does not justify collecting pre-construction monitoring data for purposes of an air quality impact analysis. 45 FR 52710.

Similarly, significant impact levels are intended to identify a level of ambient impact on air quality concentrations that EPA regards as *de minimis*. The EPA considers a source whose individual impact falls below a SIL to have a *de minimis* impact on air quality concentrations. Thus, a source that demonstrates its impact does not exceed a SIL at the relevant location is not required to conduct more extensive air quality analysis or modeling to demonstrate that its emissions, in combination with the emissions of other sources in the vicinity, will not cause or contribute to a violation of the NAAQS at that location. In light of insignificance of the ambient impact from the source alone, EPA considers the conduct of a cumulative air quality analysis and modeling by such a source to yield information of trivial or no value with respect to the impact of the proposed source or modification. The EPA's Environment Appeals Board has recently reiterated and affirmed EPA's interpretation of the Act to allow EPA to evaluate the significance of a source's impact when determining whether it would ''cause or contribute'' to a NAAQS or increment violation under section 165(a)(3) of the Act. *In Re: Prairie State Generating Company,* PSD Appeal No. 05–05, slip op. at 139–144 (Aug. 24, 2006).

Thus, in developing SILs for this proposal, EPA sought to derive SILs for $PM_{2.5}$ utilizing methods that would identify levels representing a *de minimis* or insignificant impact on ambient air quality. In choosing among the options set forth later, EPA proposes to select an option that reflects the degree of ambient impact on $PM_{2.5}$ concentrations that can be considered truly *de minimis* and would justify no further analysis or modeling of the air quality impact of a source in combination with other sources in the area because the source would not cause or contribute to an exceedance of the $PM_{2.5}$ NAAQS or the $PM_{2.5}$ increments established elsewhere in this proposal.

C. Relationship of SILs to AQRVs

We wish to emphasize that consistent with the original purpose of the Class I SILs, the Class I SILs for $PM_{2.5}$ we are proposing are not intended to serve as thresholds for determining the need for an AQRV analysis or whether an adverse impact on an AQRV will occur. An adverse impact on an AQRV depends upon the sensitivity of the particular AQRV. An ambient concentration that is considered insignificant for purposes of increment consumption should not automatically be considered inconsequential relative to the inherently fact-specific demonstration upon which an adverse impact on an AQRV is to be based. Accordingly, the fact that a source's predicted impact is less than the SIL in a Class I area would neither relieve the source from having to complete an analysis of impacts on AQRVs nor automatically allow the reviewing authority to reject the FLM's demonstration of adverse impact on an AQRV. *See* 61 FR at 38292.

D. Proposed Options for $PM_{2.5}$ SILs (for PSD and NA–NSR)

We are seeking comment on the relative merits of each of the following options for setting $PM_{2.5}$ SILs.

1. Option 1. Propose SILs Using the Approach We Proposed for PM_{10} in 1996

The first option that we are proposing utilizes the same approach we proposed for PM_{10} in the 1996 NSR Reform proposal. For Class I areas we would set the SIL to 4 percent of the Class I $PM_{2.5}$ increment. For Class II and Class III areas, we would codify the SIL values of 1.0 $\mu g/m^3$ for the annual averaging period and 5.0 $\mu g/m^3$ for the 24-hour averaging period, that already exist for PM_{10} in 40 CFR 51.165(b)(2). If we adopt this option, we would set the Class I SILs based on the Class I increments

that we elect to adopt under the increment options. Based on the Class I increment values proposed in the percent of NAAQS increment option 1, the SILs under this option would be as follows:

Averaging period	Class I increment ($\mu g/m^3$)	SILs ($\mu g/m^3$)		
		Class I	Class II	Class III
Annual	1	0.04	1.0	1.0
24-hour	2	0.08	5.0	5.0

As stated earlier, we had proposed this approach for setting PM_{10} SILs in our 1996 NSR Reform proposal. Many commenters supported this approach and believed that the proposed SIL values would serve as appropriate *de minimis* values. In fact, EPA is aware that many States have been using these proposed SILs for PM_{10} as screening tools since 1996.

Regarding the proposal to set the level of Class I SILs at 4 percent of the Class I increments, we believe that where a proposed source contributes less than 4 percent to the Class I increment, concentrations are sufficiently low so as not to warrant a detailed analysis of the combined effects of the proposed source and all other increment-consuming emissions. We previously used a similar rationale to establish the significant emissions rates for PSD applicability purposes, concluding in part that emissions rates that resulted in ambient impacts less than 4 percent of the 24-hour standards for PM and SO_2 were sufficiently small so as to be considered *de minimis*.

The original SIL values of 1.0 and 5.0 $\mu g/m^3$ for TSP and PM10 were interpreted by EPA as representing the minimum amount of ambient impact that is significant. This forms the basis of the proposed $PM_{2.5}$ SIL values of 1.0 and 5.0 $\mu g/m^3$ for the annual and 24-hour standard for Class II and III areas.

2. Option 2. $PM_{2.5}$ to PM_{10} Emissions Ratio

In our second proposed option for SILs, we would multiply the PM_{10} SILs (proposed in 1996) by the emissions ratio of $PM_{2.5}$ to PM_{10} for point sources in the 2001 extrapolation of the final 1999 NEI. This is very similar to option 2A for developing increments, and would use the same $PM_{2.5}/PM_{10}$ emissions ratio (0.8). The Class I PM_{10} SILs that we proposed in 1996 were 0.2 $\mu g/m^3$ (annual) and 0.3 $\mu g/m^3$ (24-hour). For Class II and III PM_{10} SILs, we proposed 1.0 $\mu g/m^3$ (annual) and 5.0 $\mu g/m^3$ (24-hour) levels. The SIL values determined in this option are as follows:

Averaging period	SILs ($\mu g/m^3$)		
	Class I	Class II	Class III
Annual	0.16	0.8	0.8
24-hour	0.24	4.0	4.0

The SILs derived under this option are slightly more stringent for Class II & III areas than those in option 1. Since $PM_{2.5}$ emissions are a subset of PM_{10} emissions, we believe that an emissions ratio of the PM_{10} SILs would serve as an appropriate *de minimis* SIL value and represent insignificant impact on ambient air quality.

3. Option 3. $PM_{2.5}$ to PM_{10} NAAQS Ratio

Under the third option that we are proposing, we would multiply the PM_{10} SILs by the ratio of the $PM_{2.5}$ NAAQS to the PM_{10} NAAQS. This is very similar to option 2B for developing $PM_{2.5}$ increments, and would use the same factors. We would start with the same values for the PM_{10} SILs that we used for option 2 above for SILs. The $PM_{2.5}$ SILs determined using this approach are as follows:

Averaging period	SILs ($\mu g/m^3$)		
	Class I	Class II	Class III
Annual	0.06	0.3	0.3
24-hour	0.07	1.2	1.2

The SILs derived under this option are very stringent for Class II and III areas compared to options 1 and 2. Nevertheless, we believe that the NAAQS ratio approach is an appropriate alternative to determine SILs, since it reflects the stringency in the NAAQS for $PM_{2.5}$ relative to that of PM_{10}. We believe that these SIL values would serve as appropriate *de minimis* values.

VII. Significant Monitoring Concentrations (SMCS)

A. Background on SMCs

1. Preconstruction Monitoring and Its Role in NSR Program

Under the Act and EPA regulations, an applicant for a PSD permit is required to gather preconstruction monitoring data in certain circumstances. Section 165(a)(7) calls for ''such monitoring as may be necessary to determine the effect which emissions from any such facility may have, or is having, on air quality in any areas which may be affected by emissions from such source.'' 42 U.S.C. 7475(a)(7). In addition, section 165(e) requires an analysis of the air quality in areas affected by a proposed major facility or major modification and calls for gathering 1 year of monitoring data unless the reviewing authority determines that a complete and adequate analysis may be accomplished in a shorter period. 42 U.S.C. 7575(e)(3). These requirements are codified in

EPA's PSD regulations at 40 CFR 51.166(m) and 40 CFR 52.21(m).

In accordance with EPA's Guideline for Air Quality Modeling (40 CFR part 51, Appendix W), the preconstruction monitoring data is primarily used to determine background concentrations in modeling conducted to demonstrate that the proposed source or modification will not cause or contribute to a violation of the NAAQS. 40 CFR part 51, Appendix W, section 9.2. For most areas where multiple sources of air pollution are present, EPA's Guideline recommends using monitoring data to identify the portion of background concentrations attributable to natural background, minor sources, and distant major sources. 40 CFR part 51, Appendix W, section 9.2.3.f. For nearby major sources, EPA recommends explicitly modeling the emissions of such sources rather than relying on monitored data as part of the NAAQS compliance demonstrations. As described earlier, the compliance demonstration with respect to the PSD increment compliance focuses on modeling the change in emissions from sources in the Significant Impact Area.

2. History of SMC Rules Adopted by EPA

In 1980, EPA adopted regulations that exempt sources from preconstruction monitoring requirements for a pollutant if the source can demonstrate that its ambient air impact is less than a value known as the Significant Monitoring Concentration or SMC. The pollutant-specific SMCs are codified at 40 CFR 51.166(i)(5)(i) and 40 CFR 52.21(i)(5)(i). The EPA developed SMCs as a screening tool for sources to determine whether they should conduct site-specific preconstruction ambient monitoring. At the time they were adopted, EPA described the SMCs as ''air quality concentration *de minimis* level[s] for each pollutant * * * for the purpose of providing a possible exemption from monitoring requirements.'' 45 FR 52676, 52707 (Aug. 7, 1980). The EPA explained that it believed there was ''little to be gained from preconstruction monitoring'' where a source could show that its projected impact on the affected area was below these *de minimis* levels. 45 FR 52710.

In 1980, EPA determined the SMCs based on the current capability of providing a meaningful measure of the pollutants. The EPA promulgated values that represented five times the lowest detectable concentration in ambient air that could be measured by the instruments available for monitoring the pollutants. 45 FR 52710. The EPA chose the factor of five after reviewing test data for various methods and considering instrument sensitivity, potential for sampling error, instrument variability, and the capability to read recorded data. *Id.*

For PM, EPA set the SMCs for TSP at five times the lowest detectable ambient concentration for TSP (2.0 $\mu g/m^3$) using the Reference Method 5 for ambient sampling at that time. Memorandum from Rehme, K. A., EPA/EMSL/QAD/MSB, to Peters, W., EPA/OAQPS/CPDD, on PSD Monitoring (May 20, 1980). We set a SMC only for the 24-hour averaging period, at a level of 10 $\mu g/m^3$. We retained the same numerical level when we replaced the TSP NAAQS and increments with the PM_{10} NAAQS and increments.

B. Legal Basis for SMCs

As with the SMCs adopted by EPA in 1980, the SMCs for $PM_{2.5}$ proposed in this action are supported by the *de minimis* doctrine set forth in the *Alabama Power* v. *Costle* opinion. Like the other pollutants for which EPA has promulgated SMCs, EPA believes there is little to be gained from preconstruction monitoring of $PM_{2.5}$ concentrations when the increased emissions of $PM_{2.5}$ from a proposed source or modification has a *de minimis* impact on ambient concentrations of $PM_{2.5}$. If a source can show through modeling of its emissions alone that its impacts are less than the corresponding SMC, there is little to be gained by requiring that source to collect additional monitoring data on $PM_{2.5}$ emissions to establish background concentrations for further analysis.

Therefore, in developing SMCs for this proposal, EPA sought to use methods that would identify levels representing a *de minimis* or insignificant impact on $PM_{2.5}$ ambient air quality that makes the collection of additional monitoring data extraneous. In choosing among the options set forth later, EPA proposes to select an option that reflects the degree of ambient impact on $PM_{2.5}$ concentrations that can be considered truly *de minimis* and would not justify the gathering of monitoring data to establish background concentrations for a demonstration of compliance with the NAAQS.

C. Proposed Options for $PM_{2.5}$ SMC

1. Option 1. Lowest Detectable Concentration

For this approach, we would use the same methodology originally used in 1980 to set the SMC for TSP, *i.e.*, determining the lowest detectable concentration and multiplying this value by five. The lowest detectable 24-hour average concentration for $PM_{2.5}$ is 2.0 $\mu g/m^3$ (40 CFR 50 App L, section 3). Thus, applying this methodology for $PM_{2.5}$ yields an SMC of 10 $\mu g/m^3$ for the 24-hour averaging period.

As we indicated in 1980 when we originally used this methodology to set the SMCs for TSP and the other PSD pollutants, the use of five times the lowest detectable concentration was chosen to realistically reflect pollutant levels at which low level concentrations or small incremental changes in pollutant concentrations can reasonably be determined. The factor of five takes into account the measurement errors associated with the monitoring of these low pollutant levels or small incremental changes in concentration. These measurement errors arise from various sources, such as sample collection, analytical measurement, calibration, and interferences (See Memorandum from Rehme, K. A. mentioned earlier). We believe this is a reasonable approach, since it has also been used for $PM_{2.5}$ and TSP. We seek comment on this approach.

2. Option 2. $PM_{2.5}$ to $PM_{2.5}$ Emissions Ratio

Proposed option 2 establishes the SMC for $PM_{2.5}$ by multiplying the existing PM_{10} SMC (10 $\mu g/m^3$) by the ratio of $PM_{2.5}$ emissions to PM_{10} emissions in the 2001 extrapolation of the final 1999 NEI. This is the same methodology used in Increments option 2A and SIL option 2, and uses the same emissions ratio (0.8). This yields a SMC value of 8.0 $\mu g/m^3$ for $PM_{2.5}$ for the 24-hour averaging period.

This approach gives a $PM_{2.5}$ SMC value that is equivalent, in terms of emissions, to the existing PM_{10} SMC. We believe that this approach is consistent with the approach that Congress set out for increments in section 166(f) of the Act and is, as such, a reasonable approach for developing $PM_{2.5}$ SMCs. We seek comment on this approach.

3. Option 3. $PM_{2.5}$ to PM_{10} NAAQS Ratio

Under the third option, we propose to multiply the PM_{10} SMC by the ratio of the $PM_{2.5}$ NAAQS to the PM_{10} NAAQS. This is the same approach proposed for Increment option 2B and SIL option 3. Because the PM_{10} SMC is for the 24-hour averaging period, we would use the ratio of the 24-hour NAAQS for $PM_{2.5}$ (35 $\mu g/m^3$) and PM_{10} (150 $\mu g/m^3$). The resulting factor is 0.233. Thus, the $PM_{2.5}$ SMC developed using this option would be 2.3 $\mu g/m^3$, for the 24-hour averaging period.

The SMC developed using this approach is very stringent compared to options 1 and 2, since it reflects the stringency of the 24-hour NAAQS of $PM_{2.5}$ relative to PM_{10}. Nevertheless, we believe this to be also a reasonable approach and seek comments on it.

D. Correction of Cross References

In addition to exempting sources that have emissions increases below the SMCs, EPA also exempts sources from preconstruction monitoring where the source demonstrates that existing ambient concentrations of a pollutant in the affected area are currently below the SMCs. 40 CFR 51.166(i)(5)(ii); 52.21(i)(5)(ii). This aspect of the monitoring exemption was also adopted in the 1980 rulemaking. 45 FR 52710.

The EPA also proposes in this rulemaking to correct a cross reference contained in these parts of the regulations. Paragraphs (ii) and (iii) in 40 CFR 51.166(i)(5) and paragraph (ii) in 40 CFR 52.21(i)(5) each refer to concentrations listed in paragraphs (i)(8)(i). However, there is no paragraph (i)(8)(i) in § 51.166 and no concentration values are contained in section (i)(8)(i) of § 52.21. The cross references in these provisions were intended to reference the SMCs in paragraph (i)(5)(i), but EPA failed to make this change when the paragraphs were renumbered in a prior rulemaking. We propose to correct that oversight in this rule.

VIII. Effective Date of the Final Rule, SIP Submittal/Approval Deadlines and PM_{10} Revocation Deadline

This section sets forth EPA's proposed effective dates for the $PM_{2.5}$ increments (under different options), SILs and SMC. In addition, we are setting forth the proposed deadlines for States to submit revisions to their SIPs incorporating these changes to the PSD regulations, and for EPA to approve or disapprove the revised plans. Finally, this section describes EPA's proposed schedule for revoking the PM_{10} annual increments in conjunction with the commencement of the $PM_{2.5}$ increment system under the part 51 and part 52 PSD regulations and we request comment on establishing a transition period for processing complete permit applications. Please *see* Table 1 in the docket (Docket ID No. EPA–HQ–OAR–2006–0605) for a summary of the proposed options and alternatives on which we seek comment.

A. Option 1: Increments Promulgated Pursuant to Section 166(a) of the Act

1. Effective Date of Final Rule

As described in section III.E.2.a of this preamble, section 166(b) of the Act specifies that new regulations for increments promulgated pursuant to section 166(a) of the Act become effective 1 year after the date of promulgation. Accordingly, if we promulgate the new $PM_{2.5}$ increment under the authority of Section 166(a) following Option 1, we propose a year's delay in the effective date.

Alternatively, EPA seeks comments on whether we could make the new increment regulations effective 60 days from promulgation. Considering the various timeframes outlined in section 166, it is clear that Congress envisioned that increments or other measures would become effective within 3 years of the promulgation of a NAAQS. In the current circumstance, due to prolonged litigation and other implementation concerns, there has been an extended delay of over 10 years since we established the $PM_{2.5}$ NAAQS. Given this extended delay, we believe that the overall Congressional intent reflected in section 166 may best be met by advancing the effective date of the proposed regulations.

States have to submit SIPs by April 5, 2008 to address the NSR provisions of the final $PM_{2.5}$ implementation rule after the Federal NSR implementation rule is promulgated later this year. If EPA decides to promulgate option 1 for increments and section 166(b) timelines, the increments rule would not be implemented in SIP-approved States until approximately January 2010 (assuming promulgation of this rule in Spring 2008 and allowing 21 months for SIP submittal). Thus from April 2008 to January 2010, PSD sources would be subject to a $PM_{2.5}$ applicability program, but would need to continue the current PM_{10} air quality impacts analysis. Under these circumstances, we expect that States, affected industry, and environmental groups will see value in advancing the effective date of the promulgated increments.

Legislative history indicates that, when section 166(b) was first enacted in 1977, Congress established the delayed effective date in order to allow time for ''contrary Congressional action.'' H.R. Conf. Rep. 95–564, at 151 (1977). The Congressional Review Act (CRA) provides Congress with an expedited means of reviewing and potentially disapproving final actions issued by Federal agencies. Under the CRA, a member of Congress can introduce a joint resolution to disapprove a particular rule and have that resolution considered using expedited procedures if the resolution is introduced within the designated time period (generally 60 days depending on the Congressional calendar). Furthermore, an agency rule meeting the CRA definition of ''major'' cannot take effect for 60 days. We request comment on whether, given these procedures under the CRA, a 60-day delay in the effective date of the proposed rule could satisfy the Congressional intent reflected in section 166(b).

2. State Program

In this action, we propose to establish final $PM_{2.5}$ increments as minimal program element for all State Programs. Accordingly, States must submit revised SIPs for EPA's approval that incorporate the final $PM_{2.5}$ increments, or demonstrate that an alternative approach is at least equivalent to this minimum program element. Irrespective of whether we establish an effective date of the final rule that falls 1 year after or 60 days after we promulgate the final rule, we propose to require States to submit revised implementation plans to EPA for approval within 21 months of promulgation (9 months after the effective date of such regulations) in accordance with the time frames specified in section 166(b) of the Act. Section 166(b) also specifies that we must approve or disapprove these revisions within 25 months of promulgation (4 months from the statutory deadline for SIP submittal). We regard these statutory deadlines as maximum allowed timeframes for action and do not believe that the Act restricts our ability to approve SIP revisions requested by a State at any time before these deadlines. We also propose to change the regulatory provisions at 40 CFR 166(a)(6) to specifically articulate these deadlines for these State SIP submittals.

3. Federal Program

The EPA must also decide how to apply the procedures set forth in section 166(b) of the Act to the new $PM_{2.5}$ increments under our 40 CFR part 52 PSD regulations, which apply for States without approved PSD programs as well as for Indian lands. We propose to begin to implement the Part 52 PSD program upon the effective date of the final rule. Accordingly, if we delay the effective date for 1 year after the date of promulgation in accordance with Section 166(b), then the Part 52 PSD program would become effective and implemented in the applicable areas, on this date. Alternatively, if we establish an effective date 60 days after we promulgate the final rules, the Part 52 PSD program would become effective on this same date.

Alternatively, we request comment on whether we should delay implementation of the Federal Part 52

PSD program until 25 months after promulgation, or the outside date by which EPA is required to approve State SIP revisions. This is the same approach we took in 1988 to implement the then new NO_2 increments. 53 FR at 40658. We are not offering this as our proposed approach because of the significant delay that has already occurred between the time we promulgated the $PM_{2.5}$ NAAQS and the time we will finalize this rule. However, we recognize that it may not be equitable to begin implementation of the new program requirements in those few areas where the Federal program applies before the majority of States are required to implement the program. Nonetheless, we seek comment on applying this alternative approach for the Federal Part 52 PSD program and specifically on the consequences of potential inequities.

B. Option 2: Increments Promulgated Pursuant to Section 166(f) of the Act

1. Effective Date of Final Rule

In contrast to the proposed delay of the effective date of the new $PM_{2.5}$ increments under option 1, we propose to make the new $PM_{2.5}$ increments proposed under option 2 effective 60 days from the date of promulgation, consistent with the CRA timeframe. We do not interpret section 166(b) of the Act to apply to increments promulgated under the authority of section 166(f) because the first sentence in section 166(b) describes only ''[r]egulations referred to in subsection (a).''

2. State Program

We previously stated that we believe that it is appropriate to establish a deadline for States to submit required SIP revisions analogous to the deadline that applies to States when we promulgate or revise a NAAQS. 67 FR 80241. We previously codified, conforming regulatory text at 40 CFR 166(a)(6). Under Option 2 of this proposal, we propose to follow the existing regulatory provisions that require a State to adopt and submit for EPA approval its $PM_{2.5}$ plan revisions no later than 3 years after the date on which we promulgate (i.e., publish in the **Federal Register**) the new regulations in the 40 CFR part 51 PSD regulations. Alternatively, we request comment on whether we should require a timeframe shorter than 36 months, such as the statutory maximum of 21 months required under Option 1. Given the limited nature of the required changes, we believe that States generally may not need more than 21 months to adopt and submit revised plans to EPA for approval. If we select this alternative approach, we propose to make conforming regulatory changes to 40 CFR 166(a)(6).

3. Federal Program

For the Federal part 52 PSD regulations, we propose under Option 2 to make the new $PM_{2.5}$ increments effective 60 days from the date we promulgate the final rules. However, unlike the proposed 3-year period being proposed for States to submit their plan revisions to EPA for review and approval, we propose to implement the new increments under the part 52 PSD regulations upon the effective date of the final rules. Since it would be difficult to know when States are planning to revise their own PSD programs consistent with the new increment regulations, it is not possible to ensure a consistent implementation date between approved State programs and programs being implemented under the part 52 PSD regulations unless we delayed implementation for a full 4 years (3 years for SIP submission and 1 year for EPA to approve the revision). We believe that this delay is excessive and does not accomplish the goal of expedient implementation of a $PM_{2.5}$ PSD program. We request comment on this approach.

C. Revocation of the PM_{10} Increment

While we believe it is appropriate to revoke the annual PM_{10} increment as explained earlier in this preamble, we propose to retain the PM_{10} increments in both 40 CFR part 51 and part 52 PSD regulations until the new $PM_{2.5}$ increments are being implemented either by a State through an approved SIP, or by EPA through the Federal Part 52 PSD program. Accordingly, we propose to approve the removal of the annual PM_{10} increments from any SIP on or after the date we approve the new $PM_{2.5}$ increments in the same plan. We believe that States should request the removal of the annual PM_{10} increments from their PSD programs at the same time they submit plan revisions containing the new $PM_{2.5}$ increments, allowing EPA to act on both actions simultaneously.

Similarly, we propose to retain the annual PM_{10} increments in the Part 52 PSD regulations until the effective date of the new $PM_{2.5}$ increments.

D. Transition Period

We believe that it is appropriate to establish a transition period to clarify when PSD permit applications must contain an increment analysis for the new $PM_{2.5}$ increments following the date they become effective and are approved as part of any State or Federal PSD program. In the past, we have allowed for permit applications submitted before the implementation date of new increment regulations to continue to be processed under the existing rules, so long as the reviewing authority has determined that the application is complete before the implementation date. *See* e.g., existing 40 CFR 51.166(a)(i)(8) and (9). Consequently, we are also proposing a new provision in both the 40 CFR parts 51 and 52 PSD regulations to provide a transition process for initiating the requirement for analysis of the new $PM_{2.5}$ increments. Under the Part 51 regulations, we are proposing that during the transition period, States have discretion to continue the existing PM_{10} increment program or begin implementing the new $PM_{2.5}$ increment program. For the federally administered programs under the Part 52 PSD regulations, the provision would apply to each new PSD permit applicant upon the effective date of the rule. However, we are also proposing a similar transition period in these programs. *See* proposed 40 CFR 51.166(i)(10) and 40 CFR 52.21(i)(11), respectively.

E. Effective Date for SILs and SMCs

Unlike the approach we propose for $PM_{2.5}$ increments, we are not proposing to make SILs and SMCs a minimum element of an approved SIP. Accordingly, we are not proposing to establish specific deadlines for submission of revisions to incorporate the final rules into SIPs. We do not believe that SILs or SMCs are required elements of an approvable State program because in the absence of these requirements, States can satisfy the statutory requirements by obtaining pre-construction monitoring data and conducting a cumulative air quality analysis for every PSD permit application.

Nonetheless, we believe that availability of SILs and SMCs greatly improve program implementation by streamlining the permit process and reducing the labor hours necessary to submit and review a complete permit application where the projected impact of the proposed source is *de minimis* in the relevant area. For these reasons, we request comment on whether we have authority to establish these as minimum program elements based on the improved efficiency of the permit process. If we require States to incorporate SILs and SMCs as mandatory elements of an approvable program, then we would apply the existing regulations at 40 CFR 166(a)(6) for establishing the SIP submittal deadline. Under either approach, the

final rules would become effective 60 days after we promulgate the final rules.

IX. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), this action is a significant regulatory action because it raises novel legal or policy issues arising out of legal mandates, the President's priorities, or the principle set forth in the EO. 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 recommendations have been documented in the docket for this action.

B. Paperwork Reduction Act

The information collection requirements in this rule have been submitted for approval to the OMB under the *Paperwork Reduction Act,* 44 U.S.C. 3501 *et seq.* The information collection requirements are not enforceable until OMB approves them. The Information Collection Request (ICR) document prepared by EPA has been assigned EPA ICR number 2276.01.

Certain records and reports are necessary for the State or local agency (or the EPA Administrator in non-delegated States), for example, to: (1) Confirm the compliance of status of stationary sources, identify any stationary sources not subject to the standards, and identify stationary sources subject to the rules; and (2) ensure that the stationary source control requirements are being achieved. The information would be used by EPA or State enforcement personnel to (1) Identify stationary sources subject to the rules, (2) ensure that appropriate control technology is being properly applied, and (3) ensure that the emission control devices are being properly operated and maintained on a continuous basis.

The proposed rule would increase the PSD permitting burden for owners and operators of major stationary sources of $PM_{2.5}$ emissions by adding $PM_{2.5}$ to the list of regulated NSR pollutants for which air quality impact analyses must be carried out to track increment consumption and demonstrate compliance with the NAAQS. At the same time, there would be a reduction in burden directly associated with the revocation of the annual increment for PM_{10}, as proposed in this proposed rule. Over the 3-year period covered by the ICR, we estimate an average annual burden totaling about 14,000 hours and $920,000 for all industry entities that would be affected by the proposed rule. For the same reasons, we also expect the proposed rule (when fully implemented) to increase burden for the State and local authorities reviewing PSD permit applications. In addition, there would be additional burden for State and local agencies to revise their SIPs to incorporate the proposed changes. Over the 3-year period covered by the ICR, we estimate that the average annual burden for all State and local reviewing authorities will total about 4,150 hours and $180,000.

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.

Any 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.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques, EPA has established a public docket for this ICR under Docket ID number EPA–HQ–OAR–2007–0628. Submit any comments related to the ICR for this proposed rule to EPA and OMB. *See* 'Addresses' section at the beginning of this notice for where to submit comments to EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Office for EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after September 21, 2007, a comment to OMB is best assured of having its full effect if OMB receives it by October 22, 2007. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that 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 this proposed rule on small entities, ''small entity'' is defined as: (1) A small business as defined by the Small Business Administration's regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government or 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 this proposed rule on small entities, I certify that this rule will not have a significant economic impact on a substantial number of small entities. This proposed rule will not impose any requirements on small entities. We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

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, we 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 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 us 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 us 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 we establish any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, we 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 our regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

We have determined that this proposed 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 one year. The proposed rule adds only a relatively small number of new requirements to the existing permit requirements already in place under the PSD program, since States are currently implementing a PM_{10} surrogate program pursuant to EPA guidance. Thus, this proposed rulemaking is not subject to the requirements of sections 202 and 205 of the UMRA. We have also determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments because this rule applies only to new major stationary sources. Thus, this proposed rulemaking is not subject to the requirements of section 203 of the URMA.

E. Executive Order 13132: Federalism

Executive Order 13132, entitled ''Federalism'' (64 FR 43255, August 10, 1999), requires us 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 would 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. Pursuant to the terms of Executive Order 13132, it has been determined that this proposed rule does not have ''federalism implications'' because it does not meet the necessary criteria. Thus, the requirements of section 6 of the Executive Order do not apply to this proposed rule.

In the spirit of Executive Order 13132, and consistent with our policy to promote communications between us and State and local governments, we specifically solicit 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 Government'' (65 FR 67249, November 6, 2000), requires us 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 provides the elements to implement a $PM_{2.5}$ PSD program in attainment areas. 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 $PM_{2.5}$ 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.

Although Executive Order 13175 does not apply to this rule, EPA did reach out to national tribal organizations in 2006 to provide a forum for tribal professionals to provide input to the rulemaking. However, not much participation or input was received. It will neither impose substantial direct compliance costs on tribal governments, nor preempt tribal law. The EPA specifically solicits additional comment on this proposed rule from tribal officials.

G. Executive Order 13045: Protection of Children From Environmental Health & Safety Risks

Executive Order 13045 ''Protection of Children from Environmental Health Risks 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 we have reason to believe may have a 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.

This proposed rule is not subject to the EO because it is not economically significant as defined in EO 12866, and because the Agency does not have a reason to believe the environmental health or safety risks addressed by this action present a disproportionate risk to children because one of the basic requirements of the PSD program is that new and modified major stationary sources must demonstrate that any new emissions do not cause or contribute to air quality in violation of the national ambient air quality standards. The public is invited to submit or identify peer-reviewed studies and data, of which EPA may not be aware, that assessed resolutions of early life exposure to ambient concentrations of fine particulate measured as $PM_{2.5}$.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

This rule is not a ''significant energy action'' as defined in Executive Order 13211, ''Actions Concerning Regulations 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. Further, we have concluded that this rule is not likely to have any adverse energy effects.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law No. 104–113, 12(d) (15 U.S.C. 272 note) directs us to use voluntary consensus standards (VCS) in our regulatory and procurement activities unless to do so would be inconsistent with applicable law or otherwise impractical. The VCS are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) developed or adopted by one or more voluntary consensus bodies. The NTTAA directs us to provide Congress, through annual reports to OMB, with explanations when we do not use

available and applicable VCS. This proposed rule does not involve technical standards. Therefore, we are not considering the use of any VCS.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629 (February 16, 1994)) establishes Federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

The EPA has determined that this proposed rule will not have disproportionately high and adverse human health environmental effects on minority or low-income populations because it does not affect the level of protection provided to human health or the environment. This regulation would provide regulatory certainty for implementing the preconstruction NSR permitting program for $PM_{2.5}$. However, the requirements would be similar to the existing requirements of the PM_{10} program and hence does not impact the human health environmental effects.

X. Statutory Authority

The statutory authority for this proposed action is provided by sections 101, 160, 163, 165, 166, 301, and 307(d) of the Act as amended (42 U.S.C. 7401, 7470, 7473, 7475, 7476, 7601, and 7607(d)).

List of Subjects

40 CFR Part 51

Administrative practices and procedures, Air pollution control, Environmental protection, Intergovernmental relations.

40 CFR Part 52

Administrative practices and procedures, Air pollution control, Environmental protection, Intergovernmental relations.

Dated: September 12, 2007.

Stephen L. Johnson,

Administrator.

For the reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is proposed to be amended as follows:

PART 51—[AMENDED]

1. The authority citation for part 51 continues to read as follows:

Authority: 23 U.S.C. 101; 42 U.S.C. 7401–7671q.

Subpart I—[Amended]

2. Section 51.165 is amended by revising the table in paragraph (b)(2) to read as follows:

§ 51.165 Permit requirements.

* * * * *

(b) * * *

(2) * * *

Option 1 for the table in paragraph (b)(2):

Pollutant	Annual	Averaging time (hours)			
		24	8	3	1
SO_2	1.0 µg/m³	5 µg/m³		25 µg/m³.	
PM_{10}					5 µg/m³.
$PM_{2.5}$	1.0 µg/m³	5 µg/m³.			
NO_2	1.0 µg/m³.				
CO			0.5 mg/m³		2 mg/m³.

Option 2 for the table in paragraph (b)(2):

Pollutant	Annual	Averaging time (hours)			
		24	8	3	1
SO_2	1.0 µg/m³	5 µg/m³		25 µg/m³.	
PM_{10}		5 µg/m³.			
$PM_{2.5}$	0.8 µg/m³	4 µg/m³.			
NO_2	1.0 µg/m³.				
CO			0.5 mg/m³		2 mg/m³.

Option 3 for the table in paragraph (b)(2):

Pollutant	Annual	Averaging time (hours)			
		24	8	3	1
SO_2	1.0 µg/m³	5 µg/m³		25 µg/m³.	
PM_{10}		5 µg/m³.			
$PM_{2.5}$	0.3 µg/m³	1.2 µg/m³.			
NO_2	1.0 µg/m³.				
CO			0.5 mg/m³		2 mg/m³.

* * * * *

3. Section 51.166 is amended as follows:

a. By revising the table in paragraph (c);

b. By revising paragraph (i)(5)(i)(*c*);

c. By revising paragraphs (i)(5)(ii) and (iii);

d. By revising paragraphs (i)(8) and (9);

e. By adding paragraph (i)(10);

f. By revising paragraph (k); and

g. By revising the table in paragraph (p)(4).

§ 51.166 Prevention of significant deterioration of air quality.

* * * * *

(c) * * *

Option 1 for the table in paragraph (c):

Pollutant	Maximum allowable increase (micrograms per cubic meter)
Class I	
$PM_{2.5}$:	
Annual arithmetic mean	1
24-hr maximum	3
PM_{10}:	
24-hr maximum	8
Sulfur dioxide:	
Annual arithmetic mean	2
24-hr maximum	5
3-hr maximum	25
Nitrogen dioxide:	
Annual arithmetic mean	2.5
Class II	
$PM_{2.5}$:	
Annual arithmetic mean	4
24-hr maximum	9
PM_{10}:	
24-hr maximum	30
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	512
Nitrogen dioxide:	
Annual arithmetic mean	25
Class III	
$PM_{2.5}$:	
Annual arithmetic mean	8
24-hr maximum	18
PM_{10}:	
PM_{10}, 24-hr maximum	60
Sulfur dioxide:	
Annual arithmetic mean	40
24-hr maximum	182
3-hr maximum	700
Nitrogen dioxide:	
Annual arithmetic mean	50

Option 2A for the table in paragraph (c):

Pollutant	Maximum allowable increase (micrograms per cubic meter)
Class I	
$PM_{2.5}$:	
Annual arithmetic mean	1
24-hr maximum	2
PM_{10}:	
24-hr maximum	8
Sulfur dioxide:	

Pollutant	Maximum allowable increase (micrograms per cubic meter)
Annual arithmetic mean	2
24-hr maximum	5
3-hr maximum	25
Nitrogen dioxide:	
Annual arithmetic mean	2.5
Class II	
$PM_{2.5}$:	
Annual arithmetic mean	4
24-hr maximum	9
PM_{10}:	
24-hr maximum	30
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	512
Nitrogen dioxide:	
Annual arithmetic mean	25
Class III	
$PM_{2.5}$:	
Annual arithmetic mean	8
24-hr maximum	18
PM_{10}:	
24-hr maximum	60
Sulfur dioxide:	
Annual arithmetic mean	40
24-hr maximum	182
3-hr maximum	700
Nitrogen dioxide:	
Annual arithmetic mean	50

Option 2B for the table in paragraph (c):

Pollutant	Maximum allowable increase (micrograms per cubic meter)
Class I	
$PM_{2.5}$:	
Annual arithmetic mean	1
24-hr maximum	2
PM_{10}:	
24-hr maximum	8
Sulfur dioxide:	
Annual arithmetic mean	2
24-hr maximum	5
3-hr maximum	25
Nitrogen dioxide:	
Annual arithmetic mean	2.5
Class II	
$PM_{2.5}$:	
Annual arithmetic mean	5
24-hr maximum	9
PM_{10}:	
24-hr maximum	30
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	512

Pollutant	Maximum allowable increase (micrograms per cubic meter)
Nitrogen dioxide:	
Annual arithmetic mean	25
Class III	
$PM_{2.5}$:	
Annual arithmetic mean	10
24-hr maximum	18
PM_{10}:	
24-hr maximum	60
Sulfur dioxide:	
Annual arithmetic mean	40
24-hr maximum	182
3-hr maximum	700
Nitrogen dioxide:	
Annual arithmetic mean	50

* * * * *

(i) * * *

(5) * * *

(i) * * *

(*c*) Particulate matter:

(*1*) 10 μg/m³ of PM_{10}, 24-hour average;

Option 1 for paragraph (i)(5)(i)(*c*)(*2*):

(*2*) 10 μg/m³ of $PM_{2.5}$, 24-hour average;

Option 2 for paragraph (i)(5)(i)(*c*):

(*2*) 8.0 μg/m³ of $PM_{2.5}$, 24-hour average;

Option 3 for paragraph (i)(5)(i)(*c*):

(*2*) 2.3 μg/m³ of $PM_{2.5}$, 24-hour average;

* * * * *

(ii) The concentrations of the pollutant in the area that the source or modification would affect are less than the concentrations listed in paragraph (i)(5)(i) of this section; or

(iii) The pollutant is not listed in paragraph (i)(5)(i) of this section.

* * * * *

(8) The plan may provide that the permitting requirements equivalent to those contained in paragraph (k)(1)(*b*) of this section do not apply to a stationary source or modification with respect to any maximum allowable increase for nitrogen oxides if the owner or operator of the source or modification submitted an application for a permit under the applicable permit program approved or promulgated under the Act before the provisions embodying the maximum allowable increase took effect as part of the plan and the reviewing authority subsequently determined that the application as submitted before that date was complete.

(9) The plan may provide that the permitting requirements equivalent to those contained in paragraph (k)(1)(*b*) of this section shall not apply to a stationary source or modification with respect to any maximum allowable increase for PM_{10} if (i) the owner or operator of the source or modification submitted an application for a permit under the applicable permit program approved under the Act before the provisions embodying the maximum allowable increases for PM_{10} took effect as part of the plan, and (ii) the reviewing authority subsequently determined that the application as submitted before that date was complete. Instead, the applicable requirements equivalent to paragraph (k)(1)(*b*) shall apply with respect to the maximum allowable increases for TSP as in effect on the date the application was submitted.

(10) The plan may provide that the permitting requirements equivalent to those contained in paragraph (k)(1)(*b*) of this section shall not apply to a stationary source or modification with respect to any maximum allowable increase for $PM_{2.5}$ if (i) the owner or operator of the source or modification submitted an application for a permit under the applicable permit program approved under the Act before the provisions embodying the maximum allowable increases for $PM_{2.5}$ took effect as part of the plan, and (ii) the reviewing authority subsequently determined that the application as submitted before that date was complete. Instead, the applicable requirements equivalent to paragraph (k)(1)(*b*) shall apply with respect to the maximum allowable increases for PM_{10} as in effect on the date the application was submitted.

* * * * *

(k) *Source impact analysis*—(1) *Required demonstration.* The plan shall provide that the owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reduction (including secondary emissions), would not cause or contribute to air pollution in violation of:

(*a*) Any national ambient air quality standard in any air quality control region; or

(*b*) Any applicable maximum allowable increase over the baseline concentration in any area.

(2) *Significant impact levels.* The plan shall provide that, for purposes of $PM_{2.5}$, the demonstration required in paragraph (k)(1) of this section is deemed to have been made if the emissions increase of direct $PM_{2.5}$ emissions from the new stationary source alone or the net emissions increase of direct $PM_{2.5}$ emissions from the modification alone would cause, in all areas, air quality impacts less than the following amounts:

Option 1 for the table in paragraph (k)(2):

Averaging time	Class I significant impact levels	Class II significant impact levels	Class III significant impact levels
Annual	0.04 μg/m³	1.0 μg/m³	1.0 μg/m³.
24-hour	0.08 μg/m³	5.0 μg/m³	5.0 μg/m³.

Option 2 for the table in paragraph (k)(2):

Averaging time	Class I significant impact levels	Class II significant impact levels	Class III significant impact levels
Annual	0.16 μg/m3	0.8 μg/m^3	0.8 μg/m^3.
24-hour	0.24 μg/m^3	4.0 μg/m^3	4.0 μg/m^3.

Option 3 the table in paragraph (k)(2):

Averaging time	Class I significant impact levels	Class II significant impact levels	Class III significant impact levels
Annual	0.06 μg/m^3	0.3 μg/m^3	0.3 μg/m^3.
24-hour	0.07 μg/m^3	1.2 μg/m^3	1.2 μg/m^3.

* * * * *

(p) * * *

(4) * * *

Option 1 for the table in paragraph (p)(4):

Pollutant	Maximum allowable increase (micrograms per cubic meter)
$PM_{2.5}$:	
Annual arithmetic mean	4
24-hr maximum	9
PM_{10}:	
24-hr maximum	30
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	325
Nitrogen dioxide:	
Annual arithmetic mean	25

Option 2A for the table in paragraph (p)(4):

Pollutant	Maximum allowable increase (micrograms per cubic meter)
$PM_{2.5}$:	
Annual arithmetic mean	4
24-hr maximum	9
PM_{10}:	
24-hr maximum	30
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	325
Nitrogen dioxide:	
Annual arithmetic mean	25

Option 2B for the table in paragraph (p)(4):

Pollutant	Maximum allowable increase (micrograms per cubic meter)
$PM_{2.5}$:	
Annual arithmetic mean	5
24-hr maximum	9
PM_{10}:	
24-hr maximum	30
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	325
Nitrogen dioxide:	
Annual arithmetic mean	25

* * * * *

4. Appendix S to part 51 is amended by revising the table in Section III.A to read as follows:

Appendix S to Part 51—Emission Offset Interpretative Ruling

* * * * *

III. * * *

A. * * *

Option 1 for the table in Section III.A:

Pollutant	Annual	Averaging time (hours)			
		24	8	3	1
SO_2	1.0 μg/m³	5 μg/m³		25 μg/m³.	
PM_{10}		5 μg/m³.			
$PM_{2.5}$	1.0 μg/m³	5 μg/m³.			
NO_2	1.0 μg/m³.				
CO			0.5 mg/m³		2 mg/m³.

Option 2 for the table in Section III.A:

Pollutant	Annual	Averaging time (hours)			
		24	8	3	1
SO_2	1.0 μg/m³	5 μg/m³		25 μg/m³.	
PM_{10}		5 μg/m³.			
$PM_{2.5}$	0.8 μg/m³	4 μg/m³.			
NO_2	1.0 μg/m³.				
CO			0.5 mg/m³		2 mg/m³.

Option 3 for the table in Section III.A:

Pollutant	Annual	Averaging time (hours)			
		24	8	3	1
SO_2	1.0 μg/m³	5 μg/m³		25 μg/m³.	
PM_{10}		5 μg/m³.			
$PM_{2.5}$	0.3 μg/m³	1.2 μg/m³.			
NO_2	1.0 μg/m³.				
CO			0.5 mg/m³		2 mg/m³.

* * * * ** * *

PART 52—[AMENDED]

5. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401, *et seq.*

Subpart A—[Amended]

6. Section 52.21 is amended as follows:

a. By revising the table in paragraph (c);

b. By revising the third entry in paragraph (i)(5)(i);

c. By revising paragraphs (i)(5)(ii) and (iii);

d. By revising paragraphs (i)(9) and (10);

e. By adding paragraph (i)(11);

f. By revising paragraph (k); and

g. By revising the table in paragraph (p)(5).

§ 52.21 Prevention of significant deterioration of air quality.

* * * * *

(c) * * *

Option 1 for the table in paragraph (c):

Pollutant	Maximum allowable increase (micrograms per cubic meter)
Class I	
$PM_{2.5}$:	
Annual arithmetic mean	1
24-hr maximum	2
PM_{10}:	
24-hr maximum	8
Sulfur dioxide:	
Annual arithmetic mean	2
24-hr maximum	5
3-hr maximum	25
Nitrogen dioxide:	
Annual arithmetic mean	2.5
Class II	
$PM_{2.5}$:	
Annual arithmetic mean	4
24-hr maximum	9
PM_{10}:	
24-hr maximum	30
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	512
Nitrogen dioxide:	
Annual arithmetic mean	25
Class III	
$PM_{2.5}$:	
Annual arithmetic mean	8
24-hr maximum	18
PM_{10}:	
PM_{10} 24-hr maximum	60
Sulfur dioxide:	
Annual arithmetic mean	40
24-hr maximum	182
3-hr maximum	700
Nitrogen dioxide:	
Annual arithmetic mean	50

Option 2A for the table in paragraph (c):

Pollutant	Maximum allowable increase (micrograms per cubic meter)
Class I	
$PM_{2.5}$:	
Annual arithmetic mean	1
24-hr maximum	2
PM_{10}:	
24-hr maximum	8
Sulfur dioxide:	
Annual arithmetic mean	2
24-hr maximum	5
3-hr maximum	25
Nitrogen dioxide:	
Annual arithmetic mean	2.5

Pollutant	Maximum allowable increase (micrograms per cubic meter)
Class II	
$PM_{2.5}$:	
Annual arithmetic mean	4
24-hr maximum	9
PM_{10}:	
24-hr maximum	30
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	512
Nitrogen dioxide:	
Annual arithmetic mean	25
Class III	
$PM_{2.5}$:	
Annual arithmetic mean	8
24-hr maximum	18
PM_{10}:	
24-hr maximum	60
Sulfur dioxide:	
Annual arithmetic mean	40
24-hr maximum	182
3-hr maximum	700
Nitrogen dioxide:	
Annual arithmetic mean	50

Option 2B for the table in paragraph (c):

Pollutant	Maximum allowable increase (micrograms per cubic meter)
Class I	
$PM_{2.5}$:	
Annual arithmetic mean	1
24-hr maximum	2
PM_{10}:	
24-hr maximum	8
Sulfur dioxide:	
Annual arithmetic mean	2
24-hr maximum	5
3-hr maximum	25
Nitrogen dioxide:	
Annual arithmetic mean	2.5
Class II	
$PM_{2.5}$:	
Annual arithmetic mean	5
24-hr maximum	9
PM_{10}:	
24-hr maximum	30
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	512
Nitrogen dioxide:	
Annual arithmetic mean	25

Pollutant	Maximum allowable increase (micrograms per cubic meter)
Class III	
$PM_{2.5}$:	
Annual arithmetic mean	10
24-hr maximum	18
PM_{10}:	
24-hr maximum	60
Sulfur dioxide:	
Annual arithmetic mean	40
24-hr maximum	182
3-hr maximum	700
Nitrogen dioxide:	
Annual arithmetic mean	50

* * * * *

(i) * * *

(5) * * *

(i) * * *

Option 1 for the third entry in paragraph (i)(5)(i):

Particulate matter:

(*a*) 10 μg/m^3 of PM_{10}, 24-hour average;

(*b*) 10 μg/m^3 of $PM_{2.5}$, 24-hour average;

Option 2 for the third entry in paragraph (i)(5):

Particulate matter:

(*a*) 10 μg/m^3 of PM_{10}, 24-hour average;

(*b*) 8.0 μg/m^3 of $PM_{2.5}$, 24-hour average;

Option 3 for the third entry in paragraph (i)(5):

Particulate matter:

(*a*) 10 μg/m^3 of PM_{10}, 24-hour average;

(*b*) 2.3 μg/m^3 of $PM_{2.5}$, 24-hour average;

* * * * *

(ii) The concentrations of the pollutant in the area that the source or modification would affect are less than the concentrations listed in paragraph (i)(5)(i) of this section; or

(iii) The pollutant is not listed in paragraph (i)(5)(i) of this section.

* * * * *

(9) The requirements of paragraph (k)(1)(*a*) of this section shall not apply to a stationary source or modification with respect to any maximum allowable increase for nitrogen oxides if the owner or operator of the source or modification submitted an application for a permit under this section before the provisions embodying the maximum allowable increase took effect as part of the applicable implementation plan and the Administrator subsequently determined that the application as submitted before that date was complete.

(10) The requirements in paragraph (k)(1)(*b*) of this section shall not apply to a stationary source or modification with respect to any maximum allowable increase for PM_{10} if (i) the owner or operator of the source or modification submitted an application for a permit under this section before the provisions embodying the maximum allowable increases for PM_{10} took effect in an implementation plan to which this section applies, and (ii) the Administrator subsequently determined that the application as submitted before that date was otherwise complete. Instead, the requirements in paragraph (k)(1)(*b*) shall apply with respect to the maximum allowable increases for TSP as in effect on the date the application was submitted.

(11) The requirements in paragraph (k)(1)(*b*) of this section shall not apply to a stationary source or modification with respect to any maximum allowable increase for $PM_{2.5}$ if (i) the owner or operator of the source or modification submitted an application for a permit under this section before the provisions embodying the maximum allowable increases for $PM_{2.5}$ took effect in an implementation plan to which this section applies, and (ii) the Administrator subsequently determined that the application as submitted before that date was otherwise complete. Instead, the requirements in paragraph (k)(1)(*b*) shall apply with respect to the maximum allowable increases for PM_{10} as in effect on the date the application was submitted.

* * * * *

(k) *Source impact analysis*—(1) *Required demonstration.* The owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reductions (including secondary emissions), would not cause or contribute to air pollution in violation of:

(*a*) Any national ambient air quality standard in any air quality control region; or

(*b*) Any applicable maximum allowable increase over the baseline concentration in any area.

(2) *Significant impact levels.* For purposes of $PM_{2.5}$, the demonstration required in paragraph (k)(1) of this section is deemed to have been made if the emissions increase of direct $PM_{2.5}$ emissions from the new stationary source alone or the net emissions increase of direct $PM_{2.5}$ emissions from the modification alone would cause, in all areas, air quality impacts less than the following amounts:

Option 1 for the table in paragraph (k)(2):

Averaging time	Class I significant impact levels	Class II significant impact levels	Class III significant impact levels
Annual	0.04 μg/m^3	1.0 μg/m^3	1.0 μg/m^3.
24-hour	0.08 μg/m^3	5.0 μg/m^3	5.0 μg/m^3.

Option 2 for the table in paragraph (k)(2):

Averaging time	Class I significant impact levels	Class II significant impact levels	Class III significant impact levels
Annual	0.16 μg/m³	0.8 μg/m³	0.8 μg/m³.
24-hour	0.24 μg/m³	4.0 μg/m³	4.0 μg/m³.

Option 3 for the table in paragraph (k)(2):

Averaging time	Class I significant impact levels	Class II significant impact levels	Class III significant impact levels
Annual	0.06 μg/m³	0.3 μg/m³	0.3 μg/m³.
24-hour	0.07 μg/m³	1.2 μg/m³	1.2 μg/m³.

* * * * *

(p) * * *

(5) * * *

Option 1 for the table in paragraph (p)(5):

Pollutant	Maximum allowable increase (micrograms per cubic meter)
$PM_{2.5}$:	
Annual arithmetic mean	4
24-hr maximum	9
PM_{10}:	
24-hr maximum	30
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	325
Nitrogen dioxide:	
Annual arithmetic mean	25

Option 2 for the table in paragraph (p)(5):

Pollutant	Maximum allowable increase (micrograms per cubic meter)
$PM_{2.5}$:	
Annual arithmetic mean	4
24-hr maximum	9
PM_{10}:	
24-hr maximum	30
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	325
Nitrogen dioxide:	
Annual arithmetic mean	25

Option 3 for the table in paragraph (p)(5):

Pollutant	Maximum allowable increase (micrograms per cubic meter)
$PM_{2.5}$:	

Pollutant	Maximum allowable increase (micrograms per cubic meter)
Annual arithmetic mean	5
24-hr maximum	9
PM_{10}:	
24-hr maximum	30
Sulfur dioxide:	
Annual arithmetic mean	20
24-hr maximum	91
3-hr maximum	325
Nitrogen dioxide:	
Annual arithmetic mean	25

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[FR Doc. E7–18346 Filed 9–20–07; 8:45 am]

BILLING CODE 6560–50–P