PROPOSED RULE TO IMPLEMENT THE FINE PARTICULATE MATTER ($PM_{2.5}$) NAAQS IN THE NEW SOURCE REVIEW PROGRAM

The Environmental Protection Agency (EPA) promulgated the National Ambient Air Quality Standards (NAAQS) for $PM_{2.5}$ in July 1997. These standards were challenged in court; after a long legal process, the D.C. Circuit Court upheld the $PM_{2.5}$ standards. As a result of this ruling, the EPA designated areas not attaining the $PM_{2.5}$ standards that became effective on April 5, 2005. As part of the effort to implement the $PM_{2.5}$ standards, now the EPA is proposing to amend the New Source Review (NSR) regulations to clarify how to implement the NSR program for the $PM_{2.5}$ standard and any associated precursors (70 Federal Register [FR] 65984). Throughout this proposed rule, EPA is soliciting comments and suggestions on the various standards and implementation methodologies.

Background

The NSR program was developed to assure compliance with any promulgated NAAQS. The NSR program includes the Prevention of Significant Deterioration (PSD), the Nonattainment New Source Review (NA NSR or NNSR), and minor source NSR programs. These program requirements can be found in the following regulations:

Program	Regulation
PSD	40 CFR 52.21, 40 CFR 51.166, 40 CFR 51.165(b)
NA NSR	40 CFR 52.24, 40 CFR 51.165, 40 CFR Part 51 Appendix S
Minor NSR	40 CFR 51.160-164

Maps of the $PM_{2.5}$ nonattainment areas and other information can be found on the EPA website at: www.epa.gov/oar/oaqps/greenbk/qindex.html

This proposed rule suggests different methodologies as to how each of these programs will incorporate the $PM_{2.5}$ standards. Please note that the NSR program requirements are not changing due to the incorporation of the $PM_{2.5}$ and precursors. Also, these $PM_{2.5}$ requirements do not supersede or change any existing PM_{10} requirements.

$PM_{2.5}$ Precursors

NAAQS implementation rules address not only the specific pollutant (i.e., **$PM_{2.5}$ direct**) but also any precursors to the formation of the pollutant. **Sulfur dioxide** (**SO_2**), **nitrogen oxides** (**NO_x**), **volatile organic compounds** (**VOC**), and **ammonia** (**NH_3**) are considered the primary precursors of $PM_{2.5}$. The $PM_{2.5}$ NSR program could include some, all, or none of these precursors. EPA has developed the following options and rationale for addressing each precursor in the NSR program and has requested comments and suggestions regarding each.

- SO_2: As a significant contributor to $PM_{2.5}$ nonattainment across the country, SO_2 is proposed to be regulated as a $PM_{2.5}$ precursor for all NSR programs.
- NO_x: NO_x is proposed to be regulated as a $PM_{2.5}$ precursor for all NSR as a presumed significant contributor to ambient $PM_{2.5}$ concentrations. However, states could exempt NO_x from the $PM_{2.5}$ NSR program.

What is $PM_{2.5}$ and where does it come from?

Small particles are more likely to reach and impact deep lung tissues. The EPA has decided to regulate $PM_{2.5}$ (i.e., the fraction of particles with a nominal aerodynamic diameter of 2.5 micrometers or less) as a surrogate to control small particle emissions. The 2.5 micrometer threshold was selected based on a sampler cut point as defined by a sampling method not toxicological data about tissue impact.

$PM_{2.5}$ includes, but is not limited to, soot from diesel engines and organic compounds or metals condensed from incomplete combustion. $PM_{2.5}$ can also be formed from the reactions of gases in the atmosphere creating condensable vapors.

- VOC: The role of VOC in $PM_{2.5}$ concentrations is extremely complex; therefore, VOC is proposed to not be regulated as a precursor for all NSR. However, states can regulate VOC (or a subset of VOC) in the $PM_{2.5}$ NSR program. High molecular weight VOC (with 25 carbon atoms or more and low vapor pressure) is proposed to be regulated as $PM_{2.5}$ direct emissions.

- Ammonia: NH_3 is proposed to be regulated as a $PM_{2.5}$ precursor in a nonattainment area on a case-by-case basis. NH_3 is not to be regulated as a $PM_{2.5}$ precursor in attainment or unclassifiable area (i.e., PSD or minor NSR)

Summary of NSR Program Elements and Proposed Options

NSR PROGRAM ELEMENTS	PROPOSED STANDARDS AND METHODOLOGIES
NSR APPLICABILITY	Condensable PM shall be included in PM_{10} and therefore $PM_{2.5}$ and MUST be included in NSR applicability determination (will have significant ramifications for facilities)
MAJOR SOURCE FOR $PM_{2.5}$	PSD: 100 tons per year [tpy] for sources on list of 28; 250 tpy for others* NA NSR: 100 tpy for all source categories* No serious or moderate nonattainment classifications
SIGNIFICANT EMISSIONS RATE (SER) FOR DIRECT $PM_{2.5}$	• (Option 1 - Preferred) 10 tpy (based on similar method as setting TSP and PM_{10})* • (Option 2) Comments requested on setting the SER between 5 tpy to 15 tpy*
SER FOR PRECURSORS	• (Option 1 - Preferred) Use SER for those pollutants already in NSR program (i.e., NO_x: 40 tpy, SO_2: 40 tpy, VOC: 40 tpy)* States will set SER for ammonia, if necessary • (Option 2) Set SER at same level as $PM_{2.5}$ SER (i.e., 10 tpy)*
BACT AND LAER	Applicable to $PM_{2.5}$ and any included precursors
$PM_{2.5}$ PSD INCREMENTS	Developing $PM_{2.5}$ PSD increments on separate administrative track. Until complete, use PM_{10} PSD increments
MODELING FOR $PM_{2.5}$	Significant Impact Level for $PM_{2.5}$ direct is warranted; however, limited capabilities of existing models ($PM_{2.5}$ direct has immediate impact, precursors have impact further downwind) make it difficult to establish the Significant Impact Level. EPA is requesting comments and suggestions for implementation strategies.*
PRECONSTRUCTION MONITORING	• (Option 1 - Preferred) Require preconstruction monitoring for all major sources of $PM_{2.5}$ direct and precursors, but on a case-by-case basis allow sources to satisfy these requirements by demonstrating the existing $PM_{2.5}$ network is sufficient* • (Option 2) Exempt all $PM_{2.5}$ sources from doing monitoring by determining the existing $PM_{2.5}$ network is sufficient* • (Option 3) Use Significant Monitoring Concentration to exempt sources from pre-construction monitoring – could be used in combination with other options* • (Option 4) Use of the available large PM_{10} data record, combined with the recent $PM_{2.5}$ acquired ambient measurements, may provide a monitoring database that is sufficiently distributed to provide representative ambient measurements for most applicants* • (Option 5) Allow a reviewing authority to exempt an applicant from preconstruction monitoring for any pollutant for which a Significant Monitoring Concentration has not been established*
NA NSR OFFSETS	Direct $PM_{2.5}$: At least 1:1* Precursor: At least 1:1 (must offset with same precursor)* If have interprecursor trading, could be different ratio • (Option 1) States develop own interprecursor trading rule in the State Implementation Plan (SIP)* • (Option 2) Review individual trades as part of NSR permitting*

* EPA has explicitly requested comments and/or suggestions regarding this issue.

Transition Period – PSD Program

PSD requirements become effective for a new NAAQS upon the effective date. For delegated states, this is immediate. However, for SIP-approved states, the state has three years to modify the SIP. EPA requests comment on three options to govern during the three-year SIP modification period:

- Option 1: Continue to implement 1997 Guidance to use PM_{10} program as surrogate. However, states must demonstrate compliance with the $PM_{2.5}$ NAAQS and also include condensable PM in determining applicability.
- Option 2: Update the 1997 Guidance to include proposed provisions or amend 40 CFR part 51 Appendix S to state that 40 CFR 52.21 would apply.
- Option 3: SIP-approved states request delegation of 40 CFR 52.21 ($PM_{2.5}$ only). If desired, states could revise the SIP later.

NA NSR Transition

Nonattainment area designations became effective on April 5, 2005. States will no longer be able to permit PM_{10} as a surrogate for $PM_{2.5}$ as current guidance suggests. States must implement a transitional $PM_{2.5}$ NA NSR program under 40 CFR part 51 Appendix S until the SIP can be revised. The transitional major NA NSR program should use 40 CFR part 51 Appendix S.

EPA is requesting comments/suggestions as to whether NA NSR applicability to precursors should be stayed during SIP development period.

Additional Issues

The proposed rule also addresses the following issues, among others:

- Reasonably available control measures (RACM) and reasonably available control technology (RACT) for sources in $PM_{2.5}$ nonattainment areas (70 FR 66016)
- Selection of stationary source test method for $PM_{2.5}$ (70 FR 66049)

Please see the Federal Register notice for further details.

How to Comment

Comments are due by *January 3, 2006*.
Comments must be postmarked by the last day of the comment period and sent directly to the Docket Office:
Air Docket
Environmental Protection Agency
Mail Code 6102T
1200 Pennsylvania Ave. NW
Washington, D.C. 20460
Attn: Docket ID No. OAR-2003-0062
Comments can also be submitted electronically, by fax, or through hand-delivery/courier.
A public hearing will be held prior to the close of the comment period.

For further questions concerning this rule and other air quality management issues, please contact Yousheng Zeng, Ph.D., P.E. using the following contact information.

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