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Environmental Protection
Agency

Office of Air Quality
Planning and Standards
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Air

EPA

NOx POLICY DOCUMENTS FOR THE CLEAN AIR ACT OF 1990

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INTRODUCTION

Title I of the Clean Air Act Amendments of 1990 contains many new and revised requirements for areas that have not attained the air quality standards for criteria pollutants including ozone and nitrogen dioxide. The EPA developed a guidance document, called the General Preamble to Title I to assist States regarding the interpretation of the various provisions of Title I. The general preamble was published on April 16, 1992.

On November 25, 1992, EPA proposed additions to the original General Preamble where it did not cover certain provisions regarding nitrogen dioxide (the control of which is referred to as nitrogen oxides(NOx)). This document includes a copy of the November preamble and several other guidelines and policy memorandum which EPA wrote to explain NOx policy in the Act. The guidelines and memorandums can be grouped as follows:

-Questions and answers that cover such issues as dispersion modeling, deadlines for implementing NOx RACT rules, and NOx RACT Committal SIPs, (RACT means Reasonably Available Control Technology)
-Fuel Switching to meet the RACT requirements for Nitrogen Oxides
-Relationship of NOx RACT requirements to requests for redesignation to attainment for ozone and carbon monoxide
-NOx Substitution Guidance
-Requests for NOx RACT exemptions under Section 182(f) of the Act
-NOx RACT for repowering of utility boilers
-Cost-effective estimates for NOx RACT
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Document 1 (D-1)

State Implementation Plan; Nitrogen Oxides Supplement to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990
(11-25-92, 57 FR 55620)

This action supplements the original General Preamble (April 16, 1992) by adding provisions concerning emissions of nitrogen oxides (NOx). Specifically, the General Preamble did not include a discussion of the new NOx provisions with respect to the following topics: RACT, NSR, interaction of titles I and IV, ozone transport regions, section 185B report, and Section 182(f).

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[FRL-4530-5]

State Implementation Plans; Nitrogen Oxides Supplement to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990

AGENCY: Environmental Protection Agency (EPA).

ACTION: Supplement to the general preamble for future proposed rulemakings.

SUMMARY: The General Preamble for implementation of title I of the Clean Air Act (CAA) Amendments which was published on April 16, 1992 (57 FR 13498), does not address several new provisions of the amended CAA concerning emissions of nitrogen oxides (NO_x). Specifically, the April 16, 1992 General Preamble does not include a discussion of the new NO_x provisions with respect to the following topics: reasonably available control technology (RACT), new source review (NSR), interaction of Title I and IV, ozone transport regions, section 185B report, and section 182(f). The purpose of this NO_x supplement to the General Preamble is to provide guidance on implementation of these NO_x provisions.

As State plan submittals are received, EPA will publish **Federal Register** proposals inviting comment on whether the submittals should be approved. Each proposal inviting comment will state the address and closing date for submittal of comments to the appropriate EPA Regional Office.

FOR FURTHER INFORMATION CONTACT: Mr. Doug Grano, Strategies and Policy Section, Ozone/CO Programs Branch, MD-15, at (919) 541-3292, U.S. EPA Research Triangle Park, NC 27711.

SUPPLEMENTARY INFORMATION:

Note: In accordance with 1 CFR 5.9(c), this document is published in the Proposed Rules category

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1. Introduction

1.1 General Preamble to Title I

Title I of the CAA Amendments of 1990 contains many new and revised requirements for areas that have not attained the national ambient air quality standards (NAAQS) for ozone, carbon monoxide (CO), particulate matter (PM-10), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and lead. The EPA developed a guidance document, called the General Preamble to title I, to assist States regarding the interpretation of the various provisions of title I, as amended. The General Preamble was published April 16, 1992 (57 FR 13498).

The General Preamble principally describes EPA's preliminary views on how EPA should interpret various provisions of title I, primarily those concerning State implementation plan (SIP) revisions required for nonattainment areas. Although the General Preamble includes various statements that States must take certain actions, these statements are guidance made pursuant to EPA's preliminary interpretations, and thus do not bind the States and the public as a matter of law. In the near future, EPA will (i) begin to take action, pursuant to notice-and-comment rulemaking, on SIP revisions submitted by the States, and (ii) issue rules, pursuant to notice-and-comment rulemaking, on various title I provisions. During the comment periods for these subsequent actions, members of the public will have the opportunity to comment on the relevant issues.

The EPA's interpretation of the title I provisions will provide a basis for subsequent approval or disapproval of SIP submittals concerning NAAQS nonattainment areas. While this Preamble contains guidance on the interpretation of the majority of the title I SIP requirements, unique circumstances or as yet unrecognized issues are likely to cause case-by-case exceptions to arise. The EPA intends to provide the public with a formal opportunity to comment on the provisions of this Preamble and other issues that may arise during subsequent rulemakings that take action on SIP revisions submitted by the States under title I and that set out EPA policy on various aspects of title I.

The General Preamble focuses primarily on the SIP submissions required for nonattainment areas under part D of the amended CAA. It discusses specific issues concerning the proper interpretation of the title I requirements for areas designated nonattainment (and, for some pollutants, classified) under part D, title I, as well as the proper treatment of nonattainment areas that fall outside of the classification schemes. The General Preamble discusses requirements for the SIP submissions required for ozone, CO, PM-10, SO_2, NO_2, and lead nonattainment areas. In addition, the Preamble discusses interpretation issues that have arisen concerning redesignations to attainment, some general SIP requirements, and EPA action on SIP submissions, as well as

the various types of possible State failures to meet certain requirements and the consequent sanctions and Federal implementation plans (FIPs).

The General Preamble also sets forth EPA's interpretation of the various provisions in the amended Act which change NSR requirements for new and modified sources in nonattainment areas. The discussion includes EPA's intended interpretation of the minimum changes all States must make in their SIPs in order to comply with the amended NSR requirements and the deadlines for making these changes.

The EPA encourages States to refer to the General Preamble as their SIPs are revised to meet the CAA requirements.

1.2 Supplement to the General Preamble to Title I

The General Preamble published on April 16, 1992 does not address several new provisions of the amended CAA concerning emissions of oxides of nitrogen (NO_x). Specifically, the General Preamble does not include a discussion of the new NO_x provisions with respect to the following topics: RACT, NSR, interaction of titles I and IV, ozone transport regions, section 185B report, and section 182(f). The purpose of this supplement to the General Preamble to title I is to provide guidance on implementation of these NO_x provisions.

1.3 New NO_x Requirements

Section 182(f) requires States to apply the same requirements to major stationary sources of NO_x as are applied to major stationary sources of volatile organic compounds (VOC). As described in sections 3 and 4 of this document, the new NO_x requirements are RACT and NSR for major stationary sources in certain ozone nonattainment areas and throughout any ozone transport region.

The RACT requirements are in section 182(b)(2). The NSR requirements are in section 182(a)(2)(C) and in other provisions in section 182. The RACT and NSR requirements for major sources in attainment/unclassified portions of ozone transport regions originate in section 184(b)(2).

1.4 NO_x for VOC Substitution

Under section 182(c)(2)(C), NO_x Control, the Administrator must issue guidance concerning the conditions under which NO_x control may be substituted for the VOC control required to meet the post-1996 VOC emissions reductions progress requirements or may be combined with VOC control in order to maximize the reduction in ozone air pollution for purposes of meeting those requirements. In order to substitute NO_x reductions for VOC, the State must demonstrate to EPA, consistent with the EPA guidance, that the NO_x reductions would result in reductions in ambient ozone concentrations at least equivalent to that which would result from the amount of VOC emission reductions otherwise required.

In accordance with guidance to be issued by EPA, a State may demonstrate to the Administrator that the NO_x substitution is justified. The EPA will make a formal determination on any State request when the Administrator approves a plan or plan revision. The EPA's decision will be based on the documentation provided by the State and application of the EPA guidance. The EPA encourages the States to consult with the appropriate EPA Regional Office during the development of the demonstration and plan revision to ensure that any such substitution is approvable and that any required rules can be adopted in a timely manner. If NO_x reductions are to be substituted for the required post-1996 VOC reductions, the NO_x emissions must meet the guidance required under section 182(c)(2)(C) and must meet the same creditability constraints dictated by sections 182(b)(1) (C) and (D) as apply to VOC emission reductions.

1.5 Section 185B Report

Under section 185B, the Administrator, in conjunction with the Nation Academy of Sciences, is to conduct a study on the role of ozone precursors in tropospheric ozone formation. The study must examine the role of NO_x and VOC emission reductions, the extent to which NO_x reductions may contribute (or be counterproductive) to achieving attainment in different nonattainment areas, the sensitivity of ozone to the control of NO_x, the availability and extent of controls for NO_x, the role of biogenic VOC emissions, and the basic information required for air quality models.

A draft version of the section 185B report is to be made available for a 30-day public comment period, and a final report submitted to Congress. The EPA is to use all available information as well as develop additional information in conducting the study. The National Research Council announced the completion of the NAS portion of this report on December 13, 1991. The section 185B report will include an EPA report addressing the availability and extent of NO_x controls. The section 185B report will also provide EPA perspectives on key ozone control strategy issues addressed by the National Research Council, emphasizing the NO_x issues as directed by section 185B.

1.6 Section 182(f) Demonstration

Section 182(f) outlines a process and conditions under which the NO_x NSR and RACT requirements would not apply. These provisions are found in section 182(f), paragraphs (1) and (2). Section 6 of this supplement to the General Preamble provides general information regarding the circumstances under which the NSR and RACT NO_x requirements would not apply. The EPA is preparing a separate guideline document to further detail these provisions.

1.7 Attainment of the Ozone NAAQS

In certain areas, a State may require NO_x controls more restrictive than those provided by the NSR and RACT provisions under section 182(f). Section 182(b)(1)(A), for example, requires the State to submit a plan that provides for specific annual reductions in emissions of VOC and NO_x "as necessary to attain the national primary ambient air quality standard for ozone by the attainment date applicable." The requirement for specific annual reductions would not apply as to NO_x reductions for those areas for which the Administrator determines that additional reductions of NO_x would not contribute to attainment (section 182(b)(1)(A)(i)).

2. Applicability and Due Dates for NSR and RACT Rules

2.1 Marginal Ozone Nonattainment Areas

The section 182(f) NO_x provisions for NSR apply to all ozone nonattainment areas with a classification of marginal or higher. The RACT provisions do not apply to marginal ozone nonattainment areas except in ozone transport regions.

Section 182(f), read in conjunction with the section 182(a)(2)(C) and other NSR related provisions in section 182, requires State NSR plans to apply to major stationary sources of NO_x, the same requirements that govern major stationary sources of VOC emissions (as defined in sections 302 and 182 (c), (d), and (e)) in ozone nonattainment areas and in other areas located in ozone transport regions. Section 182(a)(2)(C) requires States to adopt and submit revised NSR regulations for all ozone nonattainment areas classified as marginal or above which incorporate (1) the new provisions of the amended CAA and (2) correct existing regulations to incorporate all NSR provisions in effect immediately before the date of enactment. The statutory NSR permit

requirements for ozone nonattainment areas are generally contained in the Act under section 172(c)(5), revised section 173, and in various provisions spread throughout newly enacted subpart 2 of part D. These are the minimum requirements that States must include in an approvable SIP.

2.2 Moderate, Serious, Severe and Extreme Ozone Nonattainment Areas

The section 182(f) NO_x provisions for NSR and RACT apply in all ozone nonattainment areas classified moderate or higher.

2.3 Ozone Transport Region

The section 182(f) NO_x provisions for NSR and RACT apply throughout an ozone transport region. That is, areas designated as attainment/unclassified, as well as ozone nonattainment areas, must meet the NSR and RACT requirements for NO_x.

Section 176A allows the Administrator to establish a transport region covering multiple States whenever interstate transport of pollutants contributes significantly to violations of NAAQS. Section 184(a) specifically created at enactment by operation of law an ozone transport region comprising the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont, and the Consolidated Metropolitan Statistical Area that includes the District of Columbia. Section 184(b) contains the specific requirements for States in ozone transport regions. If other ozone transport regions are established under section 176A, States in these regions must also adopt and implement these controls.

Section 184(b)(2) requires major sources of VOC in ozone transport regions to be subject to the same requirements that apply to major sources in ozone areas classified as moderate (section 182(b)). Thus, the State must adopt rules to apply the NSR and RACT provisions for ozone to major VOC sources Statewide, unless a portion of the State has been excluded from the transport region under section 176(a)(2). Section 182(f) specifies that the subpart 2 provisions applicable to VOC major sources shall also apply to NO_x major sources. Therefore, section 182(f) requires that the RACT and NSR provisions be applied to major NO_x sources throughout the transport region.

2.4 Major Stationary Source

2.4.1 Ozone Nonattainment Areas

Section 182(f) specifies that major stationary sources of NO_x are to be defined according to the definitions in sections 302 and 182(c), (d), and (e). In ozone nonattainment areas these definitions for NO_x are the same as for VOC and, as such, vary from 10 to 100 tons per year according to the classification of the ozone nonattainment area. In addition, the same offset ratios that apply to major VOC sources apply to major NO_x sources. For further information on these definitions, refer to the April 16, 1992 General Preamble.

2.4.2 Ozone Transport Regions

The EPA believes that the section 184(b)(2) provision providing that a major stationary source is one with a potential to emit at least 50 tons per year is specifically limited to VOC sources because section 182(f) does not refer to the section 184 definition in describing the major stationary source definitions applicable for NO_x purposes.

For portions of an ozone transport region designated attainment/unclassified, a major stationary NO_x source is defined by section 302(j) as 100 tons per year. Therefore, for purposes of applying section 182(f) requirements to NO_x sources in ozone attainment/unclassified areas in the ozone transport region, as well as in marginal and moderate ozone nonattainment areas, a major stationary source for NO_x will be defined as any stationary source that emits or has the potential to emit 100 tons per year or more of NO_x.

In the case of serious, severe, or extreme ozone nonattainment areas within the transport region, the lower threshold definitions of major stationary source and other NSR requirements apply to NO_x sources. Also, State rules must ensure that NO_x offsets (as with VOC offsets) will be consistent with any State or regional attainment strategies.

2.5 General Due Dates for NSR and RACT Rules

2.5.1 NSR

The amended CAA requires States to adopt SIP revisions subject to EPA approval that incorporate the new preconstruction permitting requirements for new or modified sources that were discussed in the preceding sections. New rules for ozone nonattainment areas must be submitted by November 15, 1992. The EPA has previously announced its interpretation that the new NSR requirements did not go into effect with passage of the 1990 CAA Amendments, but rather become effective in accordance with the schedule for State adoption of SIP revisions. For further information, refer to the April 16, 1992 General Preamble to title I, appendix D.

2.5.2 RACT

Section 182(b)(2) requires submittal of RACT rules for major stationary sources of VOC emissions (not covered by a pre-enactment control techniques guideline (CTG) document or a post-enactment CTG document) by November 15, 1992. There were no NO_x CTGs issued before enactment and EPA has not issued a CTG document for any NO_x sources since enactment. As discussed in § 2.6.2. States, in their RACT rules, will be expected to require final installation of the actual NO_x controls by May 31, 1995 from those sources for which installation by that date is practicable.

2.5.3 Ozone Transport Region

States within the Northeast ozone transport region established by section 184(a) must revise their SIPs to include the NRS and RACT measures by November 15, 1992. In the case of a State subsequently included in a transport region under section 176A, the measures must be submitted within 9 months of the area's inclusion in a transport region.

Because States in a transport region are generally subject to the moderate area requirements, EPA believes that the schedule for implementing these RACT rules in the ozone transport region should be consistent with the requirements of section 182(b)(2). Therefore, States, in their RACT rules, will be expected to require final installation of the actual NO_x controls by May 31, 1995 from those sources for which installation by that date is practicable.

2.6 Alternative Schedules for NO_x RACT Rules

2.6.1 Section 110(k) Conditional Approval

Under section 110(k)(4), the Administrator may approve a plan revision based on a commitment by the State to adopt specific enforceable measures by a specified date but not later than 1 year after the date of EPA approval of the plan revision that incorporated that commitment. If EPA finds that the State fails to meet the commitment within that period, the conditional approval would be converted into a disapproval. The time periods culminating in imposition of sanctions and/or Federal implementation plans (FIPs), pursuant to

sections 179 and 110(c), respectively, do not begin to run until the conditional approval is converted to a disapproval.

Section 182(f) provides States an opportunity to demonstrate to EPA that some or all of the new NO_x requirements should not apply. The EPA has determined that, as a technical matter, photochemical grid modeling is the only reliable tool to justify an areawide exemption from the NO_x requirements (or relaxation of otherwise required NO_x reductions). Therefore, States must include in such demonstrations photochemical grid modeling analyses that consider various control strategies with and without NO_x reductions. For a variety of ozone nonattainment areas, however, photochemical grid modeling either has not been utilized previously, or, if utilized, has not adequately considered the effects of NO_x emissions reductions. The EPA recognizes that, while efforts to conduct photochemical grid modeling are underway in many States, the time needed to establish and implement a modeling protocol and to interpret the model results will, in a variety of cases, extend beyond the November 15, 1992 deadline for submission of NO_x rules.

Because Congress clearly intended to allow States the opportunity to show that they qualify to opt out of (or specifically tailor) the new NO_x requirements and because modeling is necessary to reliably determine whether NO_x emission reductions will contribute or be counterproductive to achievement of ozone attainment, a State could, as a means of meeting the November 15, 1992 deadline for submittal of NO_x RACT rules, submit under section 110(k)(4) a commitment to adopt the NO_x RACT rules no later than one year after the date of EPA approval of the commitment. Decisions to grant conditional approval will be made by EPA on a case-by-case basis, and will be limited to instances where the State documents that (1) credible photochemical grid modeling is not available or did not consider the effects of NO_x reductions and (2) the State submits progress reports on the modeling showing the program is on schedule while the committal SIP is being reviewed by EPA. The committal SIP will be disapproved if the modeling activities are not well underway as of the date of EPA final action. The committal SIP must also require the State to adopt NO_x RACT rules according to a specific schedule and within one year of EPA approval.

2.6.2 Phase-in of Controls Beyond May 1995

As discussed above, the statute requires the implementation of RACT as expeditiously as practicable but no later than May 31, 1995. Depending on the source category, the number of potentially affected sources ranges from tens to thousands. In the past, NO_x controls for older sources were not required on a national scale and, thus, control equipment manufacturers have not supplied NO_x controls at the rate needed to meet the May 31, 1995 deadline. It is possible, therefore, that the control equipment will not be available in all cases to meet the demand. As described in more detail below, if a State demonstrates that installation of all controls by May 31, 1995 is not practicable for all the affected sources, for example, due to equipment unavailability or system reliability, EPA would consider approving rules that define RACT as a phased program extending beyond that date for those sources for which the application of the controls by May 31, 1995 is impractical.

States, in their RACT rules, will be expected to require final installation of the actual NO_x controls by May 31, 1995 from those sources for which installation by that date is practicable. For the remaining sources, the rule should define RACT itself as a stage-by-stage program of measures, ranging, perhaps, from preliminary set-up measures in the first year or so to fully installed and operating control equipment as the end-stage. The rule must also include clearly specified compliance milestones that represent the most expeditious schedule practicable toward final compliance. Under this approach, the portion of the schedule that can practically be implemented by May 31, 1995, must be implemented by that date and the other portions of the schedule leading toward (and including) final installation of controls must be implemented as soon as those steps become practicable (and hence will supplement the initial RACT at those later times). Further, given the need for many moderate nonattainment areas to demonstrate attainment by 1996, States should make every effort to ensure that the actual controls for any source which causes or contributes to a moderate area's nonattainment status are installed prior to the 1996 ozone season.

2.7 Section 182(f) Demonstration

The NSR and RACT provisions for NO_x described above do not apply in those areas for which the Administrator makes a determination, pursuant to section 192(f) (1) or (2), that all or some of the NO_x provisions are not required. Refer to section 6 of this document for further information.

3. New Source Review

3.1 General NSR Requirements

The NSR requirements are detailed in section III.G of the General Preamble to title I. The NSR provisions include, but are not limited to, requirements that a new or modified major stationary source will apply controls representing lowest achievable emission rate (LAER) and that the source will obtain an emission offset prior to operation. Unless otherwise noted, the requirements detailed in section III.G of the General Preamble to title I for major VOC sources must also be applied for major NO_x sources.

3.2 NSR in Submarginal Areas

Nonclassified ozone areas consist of transitional, submarginal, and incomplete/no data areas. As described in section III.A.7 of the General Preamble to title I, all nonattainment areas, including submarginal, transitional and incomplete/no data areas, are required to adopt NSR programs meeting the requirements of section 173 as amended. However, the NO_x requirements of section 182(f) do not apply in these areas for ozone, except in the ozone transport region This is because section 182(f) applies only to those NO_x sources located in areas subject to requirements of subpart 2 of part D of title I. That group consists only of sources located in the ozone transport region per section 184 and in areas classified under Table 1 of section 181(a), which does not include the submarginal and incomplete/no data areas located outside the transport region.

3.3 NSR in Marginal Areas

Marginal areas outside of the ozone transport region that expect to attain by November 1993 might not realize a benefit from NO_x NSR requirements due to the lag time between regulation adoption and implementation within a source. Adoption of NSR rules by November 1992 would provide a 1 year period where new or modified sources would be subject to the rules. In contrast, even with an approved preconstruction permit, construction and startup of major new sources or major modifications may take 1 to 2 years, or more, depending on the complexity and size of the project. Thus, any emission benefit from offsets or avoided emission

increases might not be realized until well after the attainment deadline.

As described in section 6 of this supplement to the General Preamble, if specific NO_x reductions do not contribute to attainment, States may request an exemption from the NO_x requirements under the section 182(f)(2) excess reductions provision. However, if these areas obtain such an exemption based on the limited effect of NO_x reductions between 1992 and 1993, but then do not attain by the end of 1993, these areas would then be subject to the nonattainment NSR requirements of the CAA and would need a pre-construction permitting program to meet these requirements.

Alternatively, States could apply the full range of NSR requirements to prospective new or modified major sources for which complete permit applications are submitted after November 15, 1992. Because of the lead time involved, it is unlikely that many such sources will have received permits and made substantial investments in LAER controls prior to the November 1993 marginal area attainment date. At that time, if the area has achieved attainment and meets EPA redesignation criteria, the State could request redesignation and, following approval, the State permit program could be revised to delete any superfluous requirements.

3.4 VOC and NO_x Emissions

The EPA finds nothing in the statutory language to suggest that emissions of VOC and NO_x are to be added together for part D NSR applicability purposes. That is, VOCs and NO_x are to be considered separately for purposes of determining whether a source is subject to the permit requirements.

3.5 Prevention of Significant Deterioration (PSD)

Because NO_x emissions also contribute to ambient concentrations of nitrogen dioxide, for which a NAAQS has been set, the PSD provisions of part C apply to major stationary sources of NO_x in all areas designated attainment or unclassifiable for nitrogen dioxide. Further, as described in section 3 of this supplement, NO_x NSR is required in certain ozone nonattainment areas and the ozone transport region. In many areas, both the nonattainment NSR and the PSD requirements apply. The major stationary source thresholds defined in the PSD rules continue to apply when determining PSD applicability. Where a source must meet both the LAER and Best Available Control Technology (BACT) requirements for NO_x, the more stringent LAER requirement satisfies the BACT requirement.

3.6 NSR Offset Commitment

Some sources have expressed the concern that the delay in adopting RACT rules for utility boilers and other stationary sources may hinder efforts by new or modifying NO_x sources to secure offsets. Their fear is that the uncertainty over the eventual RACT limit may lead existing NO_x stationary sources—the easiest source of offsetting credits—to retain for their own use otherwise surplus NO_x emissions reductions. Thus, until RACT levels are established, there may be a scarcity of NO_x offsets available to fund growth in these nonattainment areas. For this reason, EPA will approve NSR SIP revisions which require NO_x offsets for new and modifying sources in ozone nonattainment areas, but which allow sources to secure the offset at any time up until the source commences operation. By delaying the offset requirement through the construction period, States will allow sources more time to secure offsets and, thus, enabling sources to wait out any initial uncertainties with the NO_x emissions reduction market.

Under existing EPA policy, sources must identify and secure offsetting emissions reductions as a condition for receiving a new source review preconstruction permit. See 40 CFR 51.165, appendix S. Most States have incorporated this requirement into their nonattainment preconstruction review program by requiring the offset to be in effect and secured by a federally enforceable permit condition prior to the issuance of the permit to construct the modification or new source. However, the amended CAA is not so restrictive. Section 173(a) states that offsetting emissions reductions must be "federally enforceable before [the NSR] permit may be issued." However, both sections 173(a)(1) and (c) explicitly state that the offsetting emissions reductions only need to be in effect by the time a new or modified source "commences operation." If States wish to take advantage of this statutory language and issue permits to sources on the basis of an enforceable commitment to secure the offset by the time the source is ready to commence operations, EPA will not object. However, EPA will require that permits issued in this manner contain federally enforceable provisions that expressly prohibit the commencement of any actual operations until such time as the necessary offsetting emissions reductions have been identified, approved, and secured with appropriate permit restrictions on the source providing the restriction.

4. Reasonably Available Control Technology

4.1 Background

On a nationwide basis, stationary source NO_x emissions originate primarily from four types of sources: Utility boilers, gas turbines, internal combustion engines, and industrial boilers. Approximately 85 percent of stationary source NO_x emissions are accounted for by these sources, with utility boilers contributing almost 60 percent of the total stationary source emissions. Other source categories can be important in individual areas.

Section 182(b) refers to CTGs and CTG documents that have been or will be developed to assist in the determination of RACT for several categories of VOC sources. However, neither CTG documents nor CTGs themselves have been issued for NO_x sources and the CAA does not require NO_x CTGs.

4.2 General Definition of RACT

The EPA has defined RACT as the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility (44 FR 53762; September 17, 1979). Although EPA historically has recommended source-category-wide presumptive RACT limits, and plans to continue that practice, decisions on RACT may be made on a case-by-case basis, considering the technological and economic circumstances of the individual source. The EPA will make data from NO_x RACT determinations available through a clearinghouse required by section 108(h).

RACT may require technology that has been applied to similar, but not necessarily identical, source categories. Presumptive RACT limits are based on capabilities which are general to an industry, but may not be attainable at every facility.

An extensive research and development program should not be necessary before a RACT control technology can be applied to a source. This does not, however, preclude requiring a short-term evaluation program to permit the application of a given technology to a particular source.

4.3 Relation to ACTs

Section 183(c) requires the Administrator to issue alternative control technique documents (ACTs) by November 1993 that identify alternative

controls for all categories of stationary sources of VOCs and NO_x that emit more than 25 tons per year. Through the ACT documents, EPA will provide information on the full range of NO_x control technologies for categories of stationary sources that emit or have the potential to emit 25 tons per year or more of NO_x.

Similar to the CTGs issued for VOC source categories, the ACTs will contain extensive background information on control technologies, costs, availability, etc., that can be used by States in making RACT determinations. However, unlike the CTGs, the ACTs will not established a presumptive RACT.

4.4 Relation to Title IV

Coal-fired utility boilers located in nonattainment areas must meet the NO_x RACT requirements of section 182(f), as well as any other applicable requirements of title I of the Act, and the NO_x requirements of section 407 under the acid rain program in title IV of the Act. The NO_x RACT requirements for certain electric utility boilers are discussed in § 4.6 of this document. As required under section 407, EPA will promulgate regulations to limit emissions from coal-fired boilers. Utilities should plan to meet the most stringent requirements applicable under the Act.

4.5 Relation to VOC RACT Policies

Over the last 15 years, EPA has provided guidance on what constitutes RACT for stationary sources. During these years considerable information and definitions have been provided by EPA concerning RACT. While this guidance has been largely directed at application within the VOC program, much of the guidance is also applicable to RACT for stationary sources of NO_x.

4.6 RACT for Certain Electric Utility Boilers

The EPA has determined that, in the majority of cases, RACT will result in an overall level of control equivalent to the following maximum allowable emission rates (pounds of NO_x per million Btu) for utility boilers:

(a) 0.45 for tangentially fired, coal burning;

(b) 0.50 for dry bottom wall fired (other than cell burner), coal burning;

(c) 0.20 for tangentially fired, gas/oil burning, and

(d) 0.30 for wall fired, gas/oil burning;

Compliance with these limits may be determined on a continuous basis through the use of a 30 day rolling average emission rate, calculated each operating day as the average of all hourly data for the proceeding 30 operating days. As described below, EPA believes that the above emission rates are appropriate for application to groups of boils on an areawide average, Btu-weighted basis.

The EPA expects States, to the extent practicable, to demonstrate that the variety of emissions controls adopted are consistent with the most effective level of combustion modification reasonably available for its individual affected sources. However, EPA encourages States to structure their RACT requirements to inherently incorporate an emissions averaging concept (i.e., installing more stringent controls on some units in exchange for lesser control on others). Therefore, in the interest of simplifying State RACT determinations and enhancing the ability of States to adopt market-based trading systems for NO_x, the State may allow individual owners/operators in the nonattainment area (or, alternatively, Statewide within an ozone transport region) to have emission limits which result in greater or lesser emission reductions so long as the areawide average emission rates described above are met on a Btu-weighted basis.

In general, EPA considers RACT for utilities to be the most effective level of combustion modification reasonably available to an individual unit. This implies low NO_x burners, in some cases with overfire air and in other instances without overfire air; flue gas recirculation; and conceivably some situations with no control at all. The actual NO_x emission reduction that can be achieved on a specific boiler depends on a number of site-specific factors including, but not limited to, furnace dimensions and operating characteristics, fuel type and characteristics, design and condition of burner controls, design and condition of stream control systems, and fan capacity. The combustion modification technology must be custom-designed for each boiler application. The ease of retrofitting varies substantially from one boiler to another. Combustion modifications may also include: Low excess air, biased burner firing, burners out of service, reduce air preheat, and steam/water injection.

4.7 RACT for Other Utility Boilers and Source Categories

For source categories and utility boilers other than the electric utility boilers specified above, EPA is not recommending a specific RACT level in this document. In general, EPA expects that NO_x RACT for these other sources will be set at levels that are comparable to the RACT guidance specified above for certain electric utility boilers. Comparability shall be determined on the basis of several factors including, fc example, cost, cost-effectiveness, and emission reductions.

4.8 Enforceability

The SIP measures must be converted into a legally-enforceable vehicle (e.g., ε regulation). The regulations or other measures must meet EPA's criteria regarding the enforceability of SIPs and SIP revisions. Guidance on enforceability requirements has been provided to Regional Offices in various memoranda (see Bauman/Biondi and Potter/Adams/Blake memoranda listed in Section III.D.6. of the General Preamble to title I).

In cases where States adopt an areawide averaging rule for a group of sources, the emission limits, emission quantification methods, and monitoring and recordkeeping requirements applicable to each owner/operator in the group must be clearly specified. In addition, the rule must specify appropriate penalties for violation of th various requirements.

5. Emissions Trading and Economic Incentive Programs

5.1 Emission Trading Policy Statemen

Since 1976 EPA has developed severa emissions trading programs to allow industry and States more flexibility in meeting statutory requirements of the Clean Air Act. The bubble, offset, netting and banking programs, discusse in EPA's Emissions Trading Policy Statement (ETPS) (51 FR 43812, December 4, 1986) each entail the creation, storage and/or use of emission reduction credits. Only emission reductions which are surplus, quantifiable, federally, enforceable, and permanent may be used in an emissions trade

5.2 Economic Incentive Programs

The EPA encourages the development of economic incentive programs (EIPs) that increase flexibility and stimulate the use of more cost-effective control strategies while providing incentives to develop and implement innovative emission reduction technology and strategies beyond those specifically mandated through standards and regulations. The use of economic incentives is explicitly allowed for in the general SIP requirements (section 110(a)(2)(A)), the general provisions for nonattainment SIPs (section 172(c)(6)), and the system of regulations for controlling emissions from consumer and commercial products (section 183(e)(4)). Beyond these general

authorities, the use or consideration of an economic incentive program is mandated in certain cases. Section 182(g) of the CAA calls for EPA to publish economic incentive rules for mandatory EIPs by November 15, 1992.

It is expected that the EIP rules (which will also serve as EPA's guidance for discretionary programs) will be broadly applicable to any type of EIP, and will provide flexibility to States in the development of market-based, innovative programs for stationary, area, and mobile sources. The EIP rules will require EIPs submitted by States to EPA for approval as part of a SIP to contain design features that will ensure that (1) emissions reductions credited to the program will be quantifiable and consistent with SIP attainment and reasonable future progress demonstrations, as applicable; (2) any credited emissions reductions will be surplus to reductions required by, and credited to, other implementation plan provisions to avoid double counting of reductions; (3) programs are federally enforceable and credited reductions will be permanent within the timeframe specified within the program; and (4) no interference with other requirements of the CAA will occur. The proposed rules will identify key program provisions which must generally be included to ensure that the above requirements will be met. However, it is not expected that the rules will limit flexibility and innovation beyond those constraints that are necessary to meet these requirements.

5.3 Geographic Limitations

Offset programs should be subject to the geographic limitations contained in section 173(c)(1) for new or modified major stationary sources. Section 173(c)(1) stipulates that emissions offsets generally must be obtained by the same source or other existing sources in the same nonattainment area. However, the statutory provision does allow offsets to be obtained in another nonattainment area under two specific conditions.

First, the other nonattainment area must have an equal or higher nonattainment classification than the nonattainment area in which the source would construct. In applying this provision, the other nonattainment area must have an equal or higher nonattainment classification for the same pollutant. For example, a proposed major new source of NO_x seeking to locate in a nonattainment area classified as Serious for ozone could possibly obtain emission offsets in another ozone nonattainment area if such area were designated Serious, Severe or Extreme for ozone.

The second condition is that the emissions from such other nonattainment area must contribute to a violation of the NAAQS in the nonattainment area in which the source would construct. The showing that such contribution from sources in another nonattainment area exists should be acknowledged and verified by the permitting authority.

5.4 Relation to Title IV Required Reductions

Section 407 of title IV of the Clean Air Act requires the EPA to establish annual average NO_x emission limits for certain electric utility boilers and allows the averaging of emissions between affected boilers in order to meet the emission limits as a group. NO_x emission reductions at these utilities which result from the title I program may be used for purposes of meeting the title IV NO_x requirements. Further, as discussed below, NO_x emission reductions resulting from the title IV program may be considered for purposes of meeting certain title I requirements, under appropriate conditions.

To receive title I SIP credit for use under an EIP or for purposes of banking, bubbling, or netting, emission reductions from the title IV program must be surplus to the title I requirements, enforceable, quantifiable, and permanent. Only those title IV emission reductions that exceed any applicable title I requirements (e.g., RACT) would be surplus. To be enforceable for title I purposes, the title IV emission reductions must be part of an approved SIP or federally enforceable operating permit. To be quantifiable for title I purposes, emission reductions must be measurable or predictable on a timeframe appropriate for the purposes of title I, generally one hour or twenty-four hour levels on a typical high ozone day. Emission reductions at title IV boilers which are part of an approved title IV averaging group are creditable for purposes of banking, bubbling or netting under title I only to the extent that the emissions reductions at any boiler, subgroup of boilers or the entire group of boilers are surplus to their individual and combined title I emission limitations, enforceable, quantifiable and permanent and take place in a single attainment or nonattainment area.

For purposes of establishing emission offset credits, additional requirements apply. Section 173(c)(2) states that "Emission reductions otherwise required by this Act shall not be creditable as emissions reductions for purposes of any such offset requirement." This condition prevents emission reductions otherwise required by the Act from being credited for purposes of satisfying the part D NSR offset requirement. For example, reductions required to meet MACT or acid rain limitations pursuant to statutory requirements are not creditable for NSR emissions offsets.

The statutory language does allow reductions that are achieved indirectly pursuant to a requirement of the CAA (incidental emission reductions), as well as other reductions which exceed requirements of the CAA, to be credited if they meet the other criteria for offsets. Thus, reductions achieved that exceed the requirements of both title IV and any applicable title I requirements are creditable for purposes of offsets. Emission reductions at title IV boilers which are part of an approved title IV averaging group are creditable for purposes of offsets under title I only to the extent that the emissions reductions at any boiler, subgroup of boilers or the entire group of boilers are enforceable, quantifiable and permanent; are surplus to their individual and combined title I and title IV emission limitations; and take place in a single attainment area (within an ozone transport region) or a single nonattainment area. Such emissions reductions may be considered as creditable reductions if all other conditions for a creditable offset are met.

6. Section 182(f) Applicability Guidance

6.1 Background

Section 182(f)(1) states that the new NO_x requirements shall not apply where any of the following tests is met:

(1) In any area, the net air quality benefits are greater without NO_x reductions from the sources concerned;

(2) In a nontransport region, additional NO_x reductions would not contribute to ozone attainment in the nonattainment area; or

(3) In a transport region, additional NO_x reductions would not produce net ozone benefits in the transport region.

In addition, section 182(f)(2) states that the application of the new NO_x requirements may be limited to the extent necessary to avoid excess reductions of NO_x.

6.2 Administrative Procedures

A State may demonstrate to the Administrator that the new NO_x requirements should not apply. The State's demonstration is not required to be a SIP revision itself. However, the demonstration should accompany a SIP revision that addresses the NO_x requirements of section 182(f). The EPA

will accept or reject the demonstration as part of the rulemaking process on the accompanying SIP revision.

The EPA's decision will be based on the demonstration provided by the State and application of the guidance contained in the relevant EPA document. The EPA encourages the States to consult with the appropriate EPA Regional Office during the development of the documentation and plan revision. This is necessary to ensure that the documentation provided by the State is likely to be approved and that any required rules can be adopted in a timely manner.

Section 182(f)(3) also provides that a person (including a State) may petition the Administrator for a NO_x exemption at any time after the final section 185B report is submitted to Congress. The petition may be made with respect to any nonattainment area or any portion of an ozone transport region. The EPA is required to grant or deny a petition within 6 months. The EPA's decision will be based on the documentation provided by the petitioner, the State's recommendation, and application of the EPA guidance. The EPA does not intend to delegate this authority to the States.

As noted above, the petitions may be submitted to EPA after the final section 185B report is sent to Congress. The Section 185B report must be prepared by EPA, in conjunction with the National Academy of Sciences, and was mandated by Congress in order to improve understanding of many aspects of the roles of NO_x and VOC in ozone formation. Section 182(f) requires EPA, in its review of a petition, to "consider the study required under section 185B." Thus, the petition opportunity is linked to consideration of a portion of the section 185B study. EPA is preparing a separate guidance document to specifically describe acceptable methods to demonstrate cases where an exemption from the NO_x requirements is appropriate (exemption guidance). The exemption guidance includes consideration of the National Academy of Sciences portion of the section 185B study. Further, in formulating the exemption guidance, EPA will address relevant issues that are being examined in the section 185B study, in particular, the extent to which NO_x reductions may contribute (or be counterproductive) to achievement of attainment in different ozone nonattainment areas.

While the amended CAA provides a person the opportunity to petition EPA under section 182(f)(3) after EPA submits the section 185B report to Congress, the statute also mandated the submittal of the report to Congress by February 15, 1992. In this sequence of events, Congress clearly intended that petitions could be submitted to EPA well before the November 15, 1992 statutory deadline for adoption of the NO_x rules by States. In fact, the report was not provided to Congress within the intended timeframe and, therefore, major stationary sources could be subject to the NO_x rules without an opportunity to demonstrate through the petition process that the rules should not apply. EPA does not believe that Congress intended this result. In any event, section 182(f)(3) indicates that the Administrator may consider and act on petitions after submission of the section 185B report to Congress. That language prescribes a specific time after which the Administrator must make the required petition determinations. However, nothing in that section expressly prohibits the Administrator from exercising his discretion and considering a petition prior to submission of the report to Congress, so long as the Agency considers, in its review of the petition, the relevant issues examined by the section 185B study. Therefore, EPA has decided to act, within 6 months of receipt, on any petition under section 182(f)(3) that is received after the issuance of EPA's exemption guidance. In light of these unforeseen circumstances, EPA believes this solution best implements what Congress originally intended.

Since there may be multiple petitions for a given area and the SIP is primarily a State responsibility, a copy of any petition (other than from the State itself) should be provided to the State at the same time it is submitted to the Administrator. The EPA will provide the State a 3-month period to provide a recommendation to EPA regarding the area. This 3-month period runs concurrent with the required 6-month period noted above. A copy of the petition should also be submitted to the relevant EPA Regional Office and EPA's Office of Air Quality Planning and Standards.

The EPA encourages any petitioner to consult with the State air quality agency and the appropriate EPA Regional Office during the development of a section 182(f) demonstration. This is necessary to ensure that the documentation provided (1) meets EPA guidance, (2) does not conflict with similar analyses by the State, and (3) is likely to be accepted by the State and EPA. The EPA's decision would be based on the demonstration provided by the petitioner, the State's recommendation, and application of EPA guidance.

If EPA grants a petition, some or all of these title I NO_x requirements would no longer apply. However, States remain free to impose NO_x restrictions on oth bases. For example, States may choos in certain circumstances to reduce NC emissions for purposes of ozone maintenance planning, visibility protection, PM-10 control, acid deposition control or other environmental protection. If, however, the EPA finds that NO_x reductions are counterproductive to the extent that, f example, they delay ozone attainment, the State would have to justify how th SIP continues to be adequate for achieving ozone attainment given its NO_x reductions. That is because the statute does not permit EPA to approv a SIP revision that would "interfere with" meeting any requirement of the Act (section 110(l)).

6.3 Ozone Transport Region Attainment/Unclassified Areas

The Act does not clearly state whether or not portions of a transport region that are attainment/unclassified can opt-out of the NO_x requirements. The section 182(f)(1)(B) exemption provision specifically applies only to nonattainment areas within a transport region. The section 182(f)(1) net air quality benefit test is available to any area; however, it is a high hurdle and this is especially true in rural areas. Thus, while a severely polluted area might be able to avoid NO_x reductions, the Act could be interpreted to require NO_x reductions in the surrounding attainment area.

An alternative reading of the Act can be found under section 184(b)(2). This provision states that the attainment/unclassified portions of the transport region must meet "the requirements which would be applicable to major stationary sources if the area were classified as a moderate nonattainment area." Thus, the Act could be interpreted to provide the same section 182(f)(1)(B) exemption process for these attainment/unclassified areas, since they would be treated as moderate nonattainment.

It is unlikely that Congress intended more stringent requirements for the attainment/unclassified portions of an ozone transport region than would apply to the more severely polluted portions. Therefore, EPA interprets the section 182(f)(1)(B) provision to apply to any portion of an ozone transport region.

6.4 Relation to the SIP

Where a petition for an exemption (section 182(f)(1)) or excess reductions determination (section 182(f)(2)) is granted by EPA prior to adoption and submittal of the State's rules, the State

may simply choose not to submit the rules. If a petition is granted after submittal of the rules, but prior to EPA approval, the State may choose to withdraw the rules and preclude further EPA action. In a case where a petition is granted ("exempted area") after EPA approves of the NO_x rules, the SIP would need to be modified to rescind the NO_x rules. In an exempted area, the NO_x RACT and/or NSR rules may be rescinded at any time through a SIP revision, provided such rescission would not interfere with attainment or reasonable further progress (section 110[l]).

Following application of a photochemical grid model that is required for serious and above areas to support the attainment demonstrations due by November 1994, a State must select and adopt a control strategy that provides for attainment as expeditiously as practicable, but no later than the date prescribed in section 181. This decision must be addressed by a State whether or not an area was exempted from the November 1992 submittal of NO_x RACT and/or NSR rules and may result in revision of the previously adopted rules. In some instances the NO_x RACT and NSR requirements already adopted may need to be supplemented with additional or more advanced NO_x controls in order for the area to attain the NAAQS.

In other cases, an area initially exempted may choose, based on the new photochemical grid modeling results, to adopt certain NO_x reduction rules in order to attain and/or meet reasonable further progress requirements through NO_x substitution. The area would be removed from "exempt" status since NO_x reductions were subsequently found to be beneficial in their ozone attainment plan. Consequently, the area would have to adopt the NO_x RACT and NSR rules except to the extent modeling shows that the controls beyond those chosen are "excess reductions." Credit for NO_x substitution would be granted only if in accordance with the EPA guidance. In any event, these changes must be submitted as a SIP revision and must provide for attainment as expeditiously as practicable and meet reasonable further progress requirements.

Alternatively, for an area that adopted the NO_x RACT and NSR rules as required by section 182 (i.e., not exempt), a State may choose to revise some or all of those rules to require less NO_x stationary source controls. This action would be based on the application of a photochemical grid model showing that the subject NO_x controls result in excess emission reductions, as determined using the section 182(f) tests set forth at the beginning of this section. The revisions must be submitted as a SIP revision and the SIP must demonstrate attainment as expeditiously as practicable.

7. Control Technology Information

7.1 Alternative Control Technique (ACT) Documents

Section 183(c) requires the Administrator to issue ACT documents by November 1993 that identify alternative controls for all categories of stationary sources of VOCs and NO_x that emit more than 25 tons per year. Through the ACT documents, EPA will provide information on the full range of NO_x control technologies for categories of stationary sources that emit or have the potential to emit 25 tons per year or more of NO_x. While the ACT documents will not contain presumptive RACT emission limits, they will contain extensive background information on control technologies, costs, etc., that can be used by States in making RACT determinations. The EPA will issue ACT documents for specific source categories as they are completed.

7.2 Section 185B Report

The report required by section 185B will include information on the availability and extent of controls for NO_x.

7.3 Section 108(h) Clearinghouse

Under section 173(d), the States must provide that the control technology information from permits issued under section 173 be promptly submitted to EPA's RACT/BACT/LAER clearinghouse, to other States, and to the general public.

8. NO_x Reductions Needed to Attain the Ozone NAAQS

8.1 Attainment Demonstration

As described in Sections III.A.3 and III.A.4 of the General Preamble to title I, States must provide a SIP for moderate and above classified ozone nonattainment areas that includes specific annual reductions in VOC and NO_x emissions as necessary to attain the NAAQS. This requirement supplements the RACT and NSR requirements described above. The requirement for specific annual reductions would not apply as to NO_x reductions for those areas for which the Administrator determines that additional reductions of NO_x would not contribute to attainment (section 182(b)(1)(A)(i)).

8.2 Advanced Control Technologies

In certain areas, States may require NO_x controls based on advanced control technologies; i.e., control technologies that reduce emissions beyond RACT or title IV requirements. For example, advanced controls would be required as part of a serious ozone nonattainment area's 1994 SIP if modeling found such controls to be necessary to provide for expeditious attainment of the ozone NAAQS. In order to avoid or minimize potentially incremental or repetitive control requirements, States and regulated sources should consider in advance the implications of all relevant requirements.

8.3 Transported Pollutants

In developing their control strategies, States need to consider the transport of pollutants into downwind areas and resultant impacts on the ability of such areas to attain the ozone NAAQS as required. For further discussion of this issue, refer to the General Preamble published April 16, 1992.

9. Other NO_x Related Provisions in Title I

9.1 Contingency Measures

The contingency measures for serious and above ozone nonattainment areas are required by section 182(c)(9) to be adequate to correct any shortfall in meeting an emission reduction milestone (e.g., the 15 percent reduction required by late 1996). If the strategy for an area relies on NO_x reductions in addition to VOC reductions, the State should also submit NO_x contingency measures. These measures are described in section III.A.2.c. of the General Preamble to title I.

9.2 Rule Effectiveness

The same criteria apply for NO_x as for VOC. Refer to section III.A.3.(a)(4) of the General Preamble to title I.

10. Other Requirements

10.1 Executive Order 12291

Under Executive Order 12291, EPA is required to judge whether an action is "major" and, therefore, subject to the requirement of a regulatory impact analysis. The Agency has determined that this action is exempt from classification as "major" because it is a compilation of interpretive rule and general statements of policy as defined in the Administrative Procedure Act (APA).

10.2 Regulatory Flexibility Act

Whenever the Agency is required by section 553 of the APA or any other law

to publish general notice and proposed rulemaking for any proposed rule, the Agency shall propose and make available for public comment an initial regulatory flexibility analysis. The regulatory flexibility requirements do not apply for the NO_x Supplement to the General Preamble because it is not a regulatory action in the context of the APA or the Regulatory Flexibility Act.

Dated: October 27, 1992.

William K. Reilly,

Administrator.

[FR Doc. 92-27548 Filed 11-24-92; 8:45 am]

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D-2

Questions and Answers on Nitrogen Oxides Emission Policy
(2-2-93)

On November 25, 1992, the NOx supplement to the April 16, 1992 General Preamble was published. As the States incorporated this guidance into their rule development process, policy questions rose. This memorandum responds to several NOx questions involving modeling, the deadline for implementing NOx RACT rules, and EPA policy on NOx RACT committal SIPs. It also announces the formation of a NOx policy work group, and includes a list of group members.

February 2, 1993

MEMORANDUM

SUBJECT: Questions and Answers on Nitrogen Oxides (NOx) Emissions Policy

FROM: G. T. Helms, Chief
Ozone/Carbon Monoxide Programs Branch (MD-15)

TO: Air Branch Chiefs, Regions I-X

On November 25, 1992, the NOx supplement (57 FR 55620) to the General Preamble (57 FR 13498, April 16, 1992) was published. As the States incorporate this guidance into their rule development process, policy questions have arisen.

In order to address these questions, the various Headquarters and Regional offices have formed a NOx policy work group (a list of work group members is attached). In order to disseminate the group's consensus on these questions, I will be issuing a series of questions and answers. The first of these is attached. I ask that you provide this information to the appropriate State and local agencies in your Region. This is intended to guide you and your States during the development of NOx rules. It is only guidance and deviations are always permitted so long as adequate technical rationale is contained in the State plan.

Staff questions on this material may be directed to Doug Grano at (919) 541-3292.

Attachment

cc: Air Division Directors, Regions I-X
NOx Policy Work Group Members
Kent Berry
John Seitz
Lydia Wegman
John Bachmann
Doug Grano
John Silvasi
Laurel Driver
Bill Neuffer

Interpretation of NOx Policy

1. Q: What are the definitions of "credible" and "available" modeling as used in section 2.6.1 of the NOx supplement to the General Preamble?

A: "Credible" means modeling that is consistent with Environmental Protection Agency (EPA) guidance. Application of the urban airshed model (UAM) should be consistent with techniques specified in the EPA document, "Guideline on Air Quality Models (Revised)" and related guidance. Further, for consideration of the effects of NOx emissions reductions on the Ozone Transport Region as a whole, "credible" modeling includes use of EPA's "Regional Ozone Modeling for Northeast Transport" study (June 1991). When more recent regional oxidant model and/or UAM studies have been completed and are available, they should be used. The EPA may, on a case-by-case basis, approve alternate photochemical grid models following the procedures outlined in EPA's "Guideline on Air Quality Models."

Less sophisticated models, such as Empirical Kinetic Modeling Approach, lack the detailed treatment and consideration of physical orientation of NOx sources and dispersion of their plumes. Further, since trajectory models only address a limited number of trajectories, they cannot assess whether NOx control contributes to attainment at all locations in an ozone nonattainment area. Therefore, such models are insufficient and not "credible" for the section 182(f) demonstration.

"Available" means the modeling results are publicly available for review.

2. Q: For purposes of installation of control equipment after May 31, 1995, could a State establish the post-May 31, 1995 schedule:

- in the initial submittal of the RACT rule?

- at a later date consistent with criteria specified in the initial RACT rule? or

- in a subsequent SIP revision?

A: As described in section 2.6.2 of the NOx supplement to the General Preamble, if a State demonstrates that installation of all controls by May 31, 1995 is not practicable for all the affected sources, EPA would consider approving rules that define RACT as a phased program extending beyond that date for those sources. The EPA is in the process of developing guidance to define such "impracticable" situations. The guidance below describes the regulatory process to manage these cases.

In such cases, the rule should define RACT itself as a

stage-by-stage program of measures which are implemented over time. The portion of the schedule that can practically be implemented by May 31, 1995 must be implemented by that date. The other portions of the schedule leading toward (and including) final installation of controls must be implemented as soon as those steps become practicable (and, hence, will supplement the initial RACT at those later times).

Alternatively, the State may establish criteria in the initial or in a revised RACT rule that set a replicable procedure for the State to determine, on a source-specific basis, where final installation of controls may occur after May 31, 1995. The criteria must be consistent with EPA guidance on this subject. Replicable procedure is described in EPA's emissions trading policy statement (51 FR 43850, December 4, 1986).

Where a State initially adopted a RACT rule that required installation of all controls by May 31, 1995, the State could, in cases that are consistent with EPA guidance, revise the rule at a later time. The revised rule could allow installation of certain controls after May 31, 1995 on a source-specific basis. Under section 110(l), EPA could consider approval of the revision as long as the revision provides for implementing the controls as soon as practicable and does not interfere with reasonable further progress or attainment.

3. <u>Q: When should EPA approve a NOx RACT committal State implementation plan (SIP)?</u>

A: The NOx RACT committal SIP must be consistent with requirements outlined in the July 22, 1992 memorandum from Michael Shapiro to the Regional Air Directors and should include:

1. An introductory section describing the reason for the committal SIP instead of a full SIP submittal.

2. Documentation that credible photochemical grid modeling is not available or did not consider the effects of NOx reductions.

3. Identification of resources to complete the photochemical grid modeling.

4. A schedule outlining the milestones that have been and will be achieved toward completion of the modeling activities and the NOx RACT rules. The schedule should include milestones and completion dates for the following:

   - completion date of the modeling protocol(s);

   - completion date of modeling runs in each

nonattainment area;

- submittal of final modeling results to EPA;

- submittal of draft NOx RACT rules to EPA for comment;

- dates for public notice and hearing on the rules; and

- date for final submittal of the rules to EPA (no later than 12 months after EPA's final approval of the committal SIP).

5. The schedule should also include the submittal to EPA of periodic (at least quarterly) progress reports on the modeling and NOx RACT rule development showing that the program is on schedule.

4. <u>Q: Existing solid waste incineration units will be regulated under section 129(b) of the Clean Air Act (Act) on a later timeframe than the reasonably available control technology (RACT) requirement. Can the RACT rules be delayed in order to be consistent with the section 129 rulemaking?</u>

A: Section 129 of the Act requires that NOx limits be set for new and existing solid waste incinerators. Section 129(b)(2) requires that these limits go into effect no later than 5 years after the guidelines are promulgated by EPA. As these guidelines have not yet been proposed, it is unlikely that the guidelines will become final until after 1993. Thus, the section 129 NOx limits may not be effective until sometime after 1998.

States want to avoid adopting NOx RACT limits that are effective in 1995, knowing that potentially conflicting section 129 NOx limits may be required only a few years later for the same units. This issue is similar to a general concern for any major NOx source category: the 1995 RACT limits might conflict with SIP limits that are determined necessary after completion of an area's 1994 attainment demonstration. The post-attainment demonstration controls would be scheduled for installation sometime prior to the attainment deadline (e.g., 1998 for serious nonattainment areas).

A State must meet all requirements of the Act. Therefore, EPA cannot approve a State strategy to defer the RACT requirement so that it might coincide with control decisions under section 129; nor can EPA guarantee that a NOx RACT limit would also meet a section 129 limit. However, it now appears that the timing of the section 129 requirements may coincide with the timing for installation of controls resulting from the post-attainment demonstration. That is, State decisions on control requirements for solid waste incinerators are likely to be necessary in 1994 due to both section 129 and the attainment demonstration.

D-3

Fuel Switching to Meet the Reasonably Available Control Technology Requirements for Nitrogen Oxides (July 30, 1993)

Under the Clean Air Act, States are required to adopt rules to control emissions from major stationary sources of NOx. Typically, those controls have involved modifications to combustion equipment, such as installation of low NOx burners.

The new EPA policy allows States to adopt rules that permit utilities to control NOx emission by switching to cleaner fuels during the summertime ozone season. It stipulates that the NOx emission reductions must be equal to or greater than emission reductions that would have occurred had there been no switch to the cleaner fuel.

Fuel Switching to Meet the Reasonably Available Control Technology Requirements for Nitrogen Oxides

July 30, 1993

Ozone/Carbon Monoxide Programs Branch
Air Quality Management Division
Office of Air Quality Planning and Standards
Environmental Protection Agency
Research Triangle Park, North Carolina

Thursday, August 5, 1993

This week EPA announced a new policy that will allow electric power utilities to switch to natural gas in the summertime to meet requirements for reducing emissions of nitrogen oxide (NOx). NOx combines with emissions of volatile organic compounds (VOCs) in the presence of heat and sunlight to form ground-level ozone, or smog. NOx is also a prime ingredient in the formation of acid rain.

Under the Clean Air Act, States are required to adopt rules to control emissions from major stationary sources of NOx. Typically, those controls have involved m[illegible]ations to combustion equipment, such as installation of low NOx burners.

The new EPA policy allows States to adopt rules that permit utilities to control NOx emiss[illegible] by switching to cleaner fuels during the summertime ozone season. It stipulates that the NO[illegible]ssion reductions must be equal to or greater than emission reductions that would have occurred had there been no switch to natural gas. In many cases, this fuel switching will be a much more cost-effective way of controlling NOx emissions than traditional "add-on" controls.

Besides providing more cost-effective options for reducing smog, the policy also offers substantial pollution prevention and global warming benefits. It is not clear how many utilities will switch to natural gas during the summer months. If, however, a large 600 megawatt coal-fired utility boiler switched to natural gas for seven months of the year, it would reduce carbon dioxide emissions by an estimated one million tons per year, emissions of sulfur dioxide by an estimated 20,000 tons per year, and emissions of particulate matter by 40 tons per year. It would also reduce mercury and other air toxics emissions.

The policy was announced in a July 30, 1993, memorandum from Acting Assistant Administrator for Air and Radiation Michael H. Shapiro to EPA regional office air programs.

July 30, 1993

MEMORANDUM

SUBJECT: Fuel Switching to Meet the Reasonably Available Control Technology (RACT) Requirements for Nitrogen Oxides (NOx)

FROM: Michael H. Shapiro
Acting Assistant Administrator
for Air and Radiation (ANR-443)

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

I. Purpose

The purpose of this memorandum is to provide guidance to States on the use of fuel switching to meet the NOx RACT requirements. As described below, States can meet the NOx RACT requirements by adopting rules which use a long-term emissions averaging approach in a manner consistent with the Environmental Protection Agency's (EPA's) interim guidance for economic incentive programs (EIP's). The EIP guidance was published in the Federal Register (58 FR 11110, February 23, 1993).

II. Background

Title I of the Clean Air Act (Act) Amendments of 1990 contains new requirements for areas that have not attained the national ambient air quality standards (NAAQS). These new requirements include application of RACT on existing major stationary sources of NOx in certain areas that have not attained the ozone NAAQS and in the ozone transport region. The EPA guidance on these requirements is contained in 57 FR 55620, November 25, 1992.

The EPA guidance identifies presumptive RACT for certain types of electric utility boilers in pounds of NOx per million British thermal units (Btu) on a 30-day rolling average:

1. 0.45 for tangentially-fired coal burning.

2. 0.50 for dry bottom, wall-fired (other than cell burner) coal burning.

3. 0.20 for tangentially-fired gas/oil burning.

4. 0.30 for wall-fired gas/oil burning.

For other source categories, the EPA guidance states that NOx RACT may be set at levels that are comparable to the above levels for certain utility boilers.

The EIP guidance is intended to stimulate the adoption of incentive-based, innovative programs that will assist States in meeting air quality goals through flexible approaches which allow for less costly control strategies and which provide stronger incentives for the development and implementation of innovative emissions reductions technology. As described in that guidance, long-term emissions averaging programs can be used by States to meet the Act's RACT requirements. Key provisions of the EIP guidance, with respect to the use of fuel switching to meet the NOx RACT requirements, are described below.

III. Definitions

A. Fuel Switching

As used in this guidance, fuel switching refers to instances where a unit historically burned one primary fuel, such as coal, and under a "fuel switching" program the unit would burn a cleaner fuel, such as natural gas, during the ozone season and may switch back to the "historic" fuel for some or all of the non-ozone season.

B. Base Year Fuel

For purposes of this guidance, the historical fuel refers to the fuel that a unit primarily used during calendar year (CY) 1990. The EPA believes that CY 1990 is appropriate since many Act requirements (such as reasonable further progress) stem from this date. States are required to develop a comprehensive 1990 inventory, and the CY 1990 inventory is likely to be the most accurate information readily available. Further, since this guidance utilizes an annual emissions equivalency (described below), the historical fuel needs to be based on an annual period.

More precisely, the historical fuel is defined as the fuel burned most, on a Btu-weighted basis, during CY 1990. Where CY 1991 or CY 1992 is demonstrated to be more representative of historic actual operating conditions, those years may be used. For example, where a unit burned 90 percent coal during 1990-1992, that unit is considered subject to the presumptive NOx RACT limits for coal-fired units; if the same unit used 60 percent gas in later years, it would still be subject to the presumptive NOx RACT limits for coal-fired units.

C. Ozone Season

For purposes of this guidance, the ozone season generally means the period of time that ozone monitoring is required for an area as defined in 40 CFR part 58, appendix D, section 2.5.

D. Presumptive NOx RACT

For purposes of this guidance, presumptive NOx RACT means the more stringent of the requirements:

1. adopted by the State into the State implementation plan (SIP) to meet the NOx RACT requirements, or

2. defined in EPA's guidance published in 57 FR 55620, November 25, 1992.

IV. NOx RACT for Fuel Switchers

Limited data indicate that, in some cases, a switch to natural gas from coal could result in emissions in the 0.10 to 0.40 (pounds of NOx per million Btu) range as compared to the EPA presumptive NOx RACT emissions rates for gas/oil of 0.20 to 0.30 and for coal of 0.45 to 0.50. This is a relatively broad range and is based on very little data. The EPA has determined that there is not enough data available to establish a presumptive NOx RACT level for a fuel-switcher category.

As a result, units that switch, for example, from coal (historic fuel) to gas could fall under either the presumptive coal or gas/oil NOx RACT limits. However, if fuel-switcher units were required to meet the presumptive gas RACT limits, those units would face the costs of both fuel switching and add-on controls, which would remove an important incentive for coal units to switch to gas. In these cases, EPA believes that the presumptive RACT limits for coal are appropriate for establishing the program baseline in an EIP because it is consistent with the EIP guidance, data are not available to set a fuel switcher presumptive NOx RACT level, there are clear environmental benefits (noted below) when units switch to clean fuels, and fuel switching might only occur under a coal baseline.

V. Fuel Switching to Meet NOx RACT Through Long-Term Averaging

A. EIP Approach

State rules which allow fuel switching to meet the NOx RACT requirements are approvable where the rules are consistent with the EIP guidance for long-term averaging and the guidance in this memorandum. This approach is applicable to utility boilers as well as any other source subject to the NOx RACT requirements. Any source which meets the NOx RACT requirements through a long-term averaging EIP must also meet all other relevant Act requirements.

B. Emissions Limitation Requirements

The State rules must include emissions limits on both an annual and ozone season basis, as described below.

C. Annual Emissions Limit

The EIP guidance provides States with the flexibility to meet new RACT requirements, such as the NOx RACT requirements, through an EIP that yields reductions in emissions at least equivalent to those which would result from unit-by-unit compliance with the presumptive RACT limit for that source category. Under a long-term emissions averaging EIP to meet NOx RACT, annual emissions of NOx must be less than or equal to annual emissions that would result from compliance with presumptive NOx RACT. The specific calculation methodology for determining annual equivalence is described in the enclosed appendix to this guidance.

D. Ozone Season Emissions Limit

An EIP that uses long-term emissions averaging to meet the RACT requirements must include long-term emissions requirements, as described above, and other requirements to show that the EIP is equivalent to the presumptive RACT on a short-term basis. For purposes of NOx RACT, a short-term emissions limit, in conjunction with an annual emissions limit, satisfies these EIP requirements. The short-term emissions limit must be applicable in the ozone season and at least as stringent as the presumptive NOx RACT limit. The more stringent of the State-adopted or EPA presumptive NOx RACT must be required during the ozone season.

As discussed in the long-term averaging section of the EIP guidance, a 24-hour averaging time is generally used to construct attainment demonstrations in ozone nonattainment plans. Accordingly, EPA believes that daily emissions limits should be considered in the development of the EIP short-term emissions limit requirements.

VI. EIP Cost/Environmental Considerations

In general, the EIP guidance indicates (58 FR 11121) that savings in compliance costs can result from EIP's and that consideration might be given to the sharing of that benefit between the regulated sources and the environmental goals of the Act. The EIP guidance also states (58 FR 11117) that new RACT requirements must be based on an analysis that considers the incentive mechanism upon which the EIP is based. The EPA's assessment of these issues for fuel switching is summarized below.

A. Fuel-Switching Cost Considerations

In general, a fuel-switching program would provide new flexibility to States and industry in meeting certain Act requirements, including the NOx RACT requirements. Fuel switching is a viable option for units where natural gas is readily available since the price of natural gas in the ozone season may be competitive with other fuels. While still meeting the Act requirements, industry could, in some cases, avoid much of the initial capital and operating costs associated with combustion modifications.

As described above, fuel switching is expected to reduce the cost to industry of meeting the NOx RACT requirements in some cases. In other cases, the cost of a fuel-switching program may exceed the cost of compliance with a presumptive RACT technology such as a low-NOx burner and overfire air. The costs of a fuel-switching program to industry will vary greatly from unit to unit due to the availability of gas, price of gas, extent of needed modifications to the boiler, and monitoring requirements.

B. Fuel-Switching Environmental Considerations

The EPA has considered the relative environmental benefits for fuel switching and presumptive NOx RACT. In terms of the primary purpose of NOx RACT, that is reducing ozone effects in areas of high concentrations, it is clear that the increased NOx emissions reductions due to burning a cleaner fuel during the ozone season would be much more effective than lesser emissions reductions at the presumptive NOx RACT levels, which would be evenly spread over an entire year. The use of natural gas instead of coal could also substantially reduce annual and summertime emissions of sulfur dioxide (SO_2), carbon dioxide (CO_2), PM-10 (particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers), and associated toxic emissions such as mercury. Further, emissions reductions of these pollutants may be especially effective in the summer with respect to reducing regional haze and sulfate-related PM-10, both of which tend to peak in the summer. Thus, the potential

benefits that go beyond the title I ozone and NOx RACT goals include helping attain/maintain the NAAQS for SO_2 and PM-10, reducing mercury and other air toxic emissions, improving visibility, and cutting emissions of CO_2, a global warming gas.

The EPA has also considered evidence suggesting that, for certain ecosystems, reductions in nitrogen deposition that occur only during the summer would be less effective at reducing acid deposition and nutrient impacts than reductions that occur uniformly throughout the year. It is not possible at this time to fully determine or quantify this relative ecological impact. Moreover, due to the inherent limits on the amount of fuel switching that can occur and the effect of titles II and IV NOx reductions, wintertime nitrogen deposition would be projected to decrease in most areas regardless of fuel switching. In contrast, the ozone related and many of the additional potential benefits of fuel switching noted above are well known and quantifiable. In EPA's judgment, substantial additional ozone reductions occur from fuel switching; this benefit and the accompanying improvements in visibility, PM-10, air toxics, and global warming that also occur from fuel switching clearly outweigh the reduced wintertime benefits.

C. Conclusion

The above environmental and cost considerations are important in interpreting the EIP guidance for the use of fuel switching to meet NOx RACT. Based on these considerations, EPA believes that, in cases where fuel switching results in a lower cost to the source, requiring further environmental benefits would not be necessary for fuel switching. Moreover, the potential cost savings may need to be preserved to provide some incentive to sources to achieve these substantial environmental benefits.

VII. Enforcement

Each affected source in a long-term averaging program must comply with all requirements imposed by the program. Each long-term averaging program must:

1. Specify credible, workable, replicable and otherwise fully enforceable methodologies for appropriately determining compliance at all emissions units participating in the averaging program, including methodologies for quantifying emissions, where appropriate.

2. Require recordkeeping and reporting, consistent with the required compliance determination methodologies, including emissions quantification methodologies sufficient for determining and documenting compliance with the program. These requirements must contain a mechanism for determining required data, including

emissions at subject emissions units when data are missing, inadequate, or erroneous. This mechanism must ensure that owners of emissions units have a strong incentive to properly perform monitoring, recordkeeping, and reporting in the first instance.

3. Provide adequate civil and criminal sanctions for failure to comply with applicable program requirements, including emissions limitations and monitoring, recordkeeping, and reporting requirements. The program regulatory requirements and enforcement authorities must preserve the level of deterrence to noncompliance, at both the State and Federal levels, which would have otherwise applied in the absence of the averaging program.

VIII. Projected Results and Audit Procedures

A SIP revision that contains an EIP must include projections of the emissions reductions the State expects to achieve through implementation of the program. All EIP submittals must include documentation which clearly states how sources in an EIP are or will be addressed in the emissions inventory, reasonable further progress (RFP) plan (i.e., where the 3 percent RFP plan includes NOx substitution for required volatile organic compounds reductions) and attainment or maintenance plan, as applicable.

All EIP's must also contain program audit procedures designed to evaluate program implementation and track program results in terms of the actual emissions reductions obtained during program implementation. The program audit provisions must include a State commitment to ensure timely implementation of programmatic revisions or other measures which the State, in response to the audit, deems necessary for the successful operation of the program.

IX. Emissions Reduction Credits (ERC)

Annual emissions reductions achieved through the EIP that exceed the annual emissions reductions that would result from compliance with presumptive RACT may be used to establish ERC. However, this guidance does not address establishing or trading of seasonal ERC.

OAQPS:AQMD:OCPMB:DGRANO:MBINGHAM:13392:7/29/93
FILE:FUELSWJY.BA2: DISK:DGRANO.JK

i = 100% coal
j = wall-fired utility boiler
assume presumptive coal RACT = 0.5 (pounds NOx/MMBtu)

if historic (CY-90) production rates = 3 X 10^6 MMBtu/year
then the emissions cap is:
(3 X 10^6) X (0.5) = 1.5 million pounds or <u>750 tons NOx/year</u>

Annual emissions must, therefore, not exceed 750 tons for all future years.

c. <u>Multiple Fuel Emissions Averaging Example</u>

$\Sigma_{i=1\to N}\Sigma_{j=1\to M}RACT_{ij}$ X Annual Heat $Input_{ij}$ ≥
Total Annual Actual NO_x Emissions

i = 75% coal; 25% oil
j = wall-fired utility boiler
assume presumptive coal RACT = 0.5 (pounds NOx/MMBtu)
assume the State has determined that the low NOx burner technology designed for coal will result in a 0.35 emissions rate when burning oil

if 1996 actual annual heat input (coal) = 3 X 10^6 MMBtu and
1996 actual annual heat input (oil) = 1 X 10^6 MMBtu

then actual 1996 annual emissions could not exceed:
(0.5) X (3 X 10^6) = 1.5 million pounds <u>plus</u>
(0.35) X (1 X 10^6) = 0.35 million pounds
which = 1.85 million pounds or <u>925 tons NOx</u>

d. <u>Multiple Fuel Emissions Cap Example</u>

Emissions Cap = $\Sigma_{i=1\to N}\Sigma_{j=1\to M}$Historical Production $Rate_{ij}$ X $RACT_{ij}$

i = 66.6% coal; 33.3% oil
j = wall-fired utility boiler
assume presumptive coal RACT = 0.5 (pounds NOx/MMBtu)
assume the State has determined that the low NOx burner technology designed for coal will result in a 0.35 emissions rate when burning oil

if historic (CY 1990) production rates for coal = 2 X 10^6 MMBtu/year and
historic (CY 1990) production rates for oil = 1 X 10^6 MMBtu/year,

then the emissions cap is:

$(2 \times 10^6) \times (0.5) = 1$ million pounds <u>plus</u>

$(1 \times 10^6) \times (0.35) = 0.35$ million pounds

which = 1.35 million pounds or <u>675 tons NOx</u>

Annual emissions must, therefore, not exceed 675 tons for all future years.

Appendix: Annual Equivalency Calculation Methodology

A. Emissions Averaging or Emissions Cap

As described below, a long-term averaging EIP may use either an emissions averaging or emissions cap basis to establish annual equivalency. Under emissions averaging, if production increases, emissions may increase proportionately; and if production decreases, emissions must decrease accordingly. Shutdowns and curtailments do not provide credit under an emissions averaging program. Where an emissions cap is set, actual emissions must be within the emissions cap for all appropriate averaging periods in the future. Shutdowns and curtailments may provide credit under an emissions cap under circumstances that will be described in future guidance.

Both of these options assume that the State has determined a RACT emissions rate value for each fuel i (up to N fuels) burned in equipment j (for M types of equipment). The constraints in this guidance presume that RACT is designated as an emissions rate per unit of production (in this case heat input). The RACT may also be designated as a percent reduction from representative historical emissions rates.[1] If a source wishes to implement a long-term average percent reduction, the values must be converted to emissions rate limits per unit of production.

Note, where multiple fuels are used in the base year, EPA generally expects the presumptive RACT to be applicable to the one primary fuel, and that different emissions rate limits would be used for other fuels. For example, where coal has been historically used 80 percent and oil 20 percent of the time in a wall-fired boiler, the EPA presumptive RACT emissions limit of 0.5 (pounds of NOx per million Btu) might be used in the coal-fired portion of the calculation; however, the EPA presumptive RACT of 0.30 for oil might not be appropriate for the oil-fired portion of the calculation since the presumed low NOx burner technology designed to meet 0.5 when burning coal might not be designed to meet 0.3 when burning oil. In this example, 0.35 might be more appropriate to include in the oil-fired portion of the calculation; the State needs to determine the appropriate emissions rate for the secondary fuel(s), considering the control equipment designed to meet the primary fuel limit.

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[1] Generally speaking, the term "historical" means calendar year 1990 unless another 12-month period is more representative of normal source operation. This alternative 12-month period must fall between January 1990 and December 1992.

B. Emissions Averaging

Emissions averaging allows an emissions unit to use a production-weighted average to meet the prescribed emissions rate limitation (in this case the presumptive RACT limit) on an annual basis. Actual annual emissions in each future compliance period (mass per year) must be less than the emissions that would have occurred if the presumptive RACT limit was met.

If RACT is designated as an emissions rate limitation, then mathematically the constraint that must be met for every annual compliance period in the future is as follows:

$$\Sigma_{i=1\to N}\Sigma_{j=1\to M}RACT_{ij} \text{ X Annual Heat Input}_{ij} \geq \text{Total Annual Actual } NO_x \text{ Emissions}$$

Where $RACT_{ij}$ generally equals the lowest federally enforceable emissions rate limitation that applies to unit j using fuel i. There are limited exceptions to this generalization where an emissions rate lower than $RACT_{ij}$ would apply (e.g., see the baseline section of the EIP guidelines). Further guidance is expected to be released on this soon.

C. Emissions Cap

An emissions cap is an averaging approach that imposes a limit on annual mass emissions from an emissions unit. The cap is set using historical production rates and RACT emissions rate limitations as shown below:

$$\text{Emissions Cap} = \Sigma_{i=1\to N}\Sigma_{j=1\to M}\text{Historical Production Rate}_{ij} \text{ X } RACT_{ij}$$

Where $RACT_{ij}$ is defined the same as above.

D. Example Determinations of Annual Equivalency

a. Single Fuel Emissions Averaging Example

$$\Sigma_{i=1\to N}\Sigma_{j=1\to M}RACT_{ij} \text{ X Annual Heat Input}_{ij} \geq \text{Total Annual Actual } NO_x \text{ Emissions}$$

i = 100% coal
j = wall-fired utility boiler
assume presumptive coal RACT = 0.5 (pounds NOx/MMBtu)

if 1996 actual annual heat input = $4 \text{ X } 10^6$ MMBtu
then actual 1996 annual emissions could not exceed:
$(0.5) \text{ X } (4 \text{ X } 10^6)$ = 2 million pounds or 1000 tons NOx

b. Single Fuel Emissions Cap Example

D-4

SIP Requirements for Areas Submitting Requests for Redesignation to Attainment of Ozone and CO NAAQS on or after November 15, 1992 (September 17, 1993)

This memorandum addresses State requests to redesignate from nonattainment to attainment of the ozone and CO NAAQS under section 107. It also allows NOx RACT exemptions for areas redesignating to attainment.

September 17, 1993

MEMORANDUM

SUBJECT: State Implementation Plan (SIP) Requirements for Areas Submitting Requests for Redesignation to Attainment of the Ozone and Carbon Monoxide (CO) National Ambient Air Quality Standards (NAAQS) on or after November 15, 1992

FROM: Michael H. Shapiro
Acting Assistant Administrator
for Air and Radiation (ANR-443)

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

I. Purpose

The purpose of this memorandum is to address State requests to redesignate from nonattainment to attainment of the ozone and CO NAAQS under section 107. Specifically at issue are requests submitted on or after November 15, 1992 where outstanding Clean Air Act (Act) requirements have not been met. This memo provides guidance on the statutorily-mandated control programs that must be in the EPA-approved SIP if EPA is to approve the redesignation request. The Act's requirements for redesignation and a list of EPA's redesignation policy and guidance are included in Attachments A and B. In the future, further guidance may be provided for redesignations submitted after November 15, 1993.

II. Policy Summary

Section 107(d)(3)(E)(v) of the Act as amended (amended Act) provides that the State must have met all applicable requirements of section 110 and part D in order to be redesignated. Furthermore, section 107(d)(3)(E)(ii) provides that the State must have a fully-approved SIP for the area seeking redesignation.

The EPA is interpreting these section 107 provisions to require satisfactory completion of the current Act planning requirements. Specifically, before EPA can act favorably upon any State redesignation request, the statutorily-mandated control programs of section 110 and part D (that were due prior to the time of the redesignation request) must have been adopted by the State and approved by EPA into the SIP.

Thus, with respect to redesignation requests submitted on or after the Act's deadline for submittal of the required programs, States must generally adopt and provide for implementation of their regulations for all of the programs that were due. States must submit these plans to EPA for incorporation into the SIP.[1] This would include such requirements as emissions inventories and/or emission statements. Such requirements must be met in order for the area to have a fully-approved SIP that meets all requirements applicable to the area under section 110 and part D.

The amended Act, however, also provides that upon redesignation, a State may move measures from the implemented SIP to the contingency plan portion of the SIP if the State demonstrates that such measures are not needed for maintaining the NAAQS. Many areas sought redesignation at or about the same time they were required to adopt and implement the requirements due on November 15, 1992. In many instances, the State will be able to immediately move these measures to the contingency plan without implementation.

III. Exceptions to Policy

The EPA decided to review the requirements to determine if something less than full adoption of these regulations would be acceptable under the Act for areas seeking redesignation. Exceptions to this policy on the States' need to complete the full planning and adoption process for the November 15, 1992 mandated programs are very limited. The language in the Act allows a degree of flexibility in only four program areas. These are: (1) basic inspection and maintenance (I/M), (2) annual

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[1]Note that this represents a departure from earlier guidance for part D new source review (NSR) regulations.

updates of vehicle miles traveled (VMT) forecasts and annual estimates of actual VMT for CO nonattainment areas, (3) nitrogen oxides (NOx) reasonably available control technology (RACT), and (4) small business programs (SBP).

These exceptions are only applicable in areas for which EPA approves a redesignation. The States should be aware that if EPA denies a redesignation request, rules submitted in accordance with this guidance may also be disapprovable. Finally, because EPA anticipates issuing onboard regulations by January 1994, States seeking redesignation of areas classified as moderate may have some flexibility with respect to the Stage II requirement.

Our guidance for State submittals covering these four programs is described in the following paragraphs.

Basic I/M

For areas where maintenance plans do not rely on implementation of a basic I/M program immediately following redesignation, the I/M component of the SIP should include:

1. Legislative authority for basic I/M such that implementing regulations can be adopted without any further legislative action.

2. A provision in the SIP providing that basic I/M be placed in the contingency measures portion of the maintenance plan upon redesignation.

3. An enforceable schedule and commitment by the Governor or his designee for adoption and implementation of a basic I/M program upon a specified, appropriate triggering event.

Note that, for purposes of consideration of a redesignation request submitted after November 15, 1992, the commitment as described in the I/M regulation (see 57 FR 52950, November 5, 1992) is not sufficient to meet the Act's requirement for a fully-approved SIP.

In addition, please note that, EPA's final I/M regulations in 40 CFR part 51 require a fully-adopted I/M program by November 15, 1993. At this time, our preliminary interpretative guidance on basic I/M in this memo is not discussed in the I/M regulations. Therefore, EPA is proceeding to establish this interpretation through regulatory action, thus enabling EPA to accept legislative authority and a commitment to adopt and implement basic I/M regulations for those areas being redesignated to attainment.

VMT Forecasting

The VMT forecasting SIP for CO should include:

1. Annual forecasts of VMT (i.e., average daily VMT for the peak 3-month CO seasons for 1993, 1994, and 1995 in moderate areas above 12.7 ppm, and until 2000 in serious areas).

2. An enforceable commitment by the Governor or his designee to estimate actual annual VMT for each of these years (by September 30 of the following year) and to update the forecast of the VMT in the remaining years.

3. A request that the commitment be moved to the contingency plan portion of the SIP upon redesignation, becoming a contingency provision triggered by a specified triggering event.

4. Adopted contingency measures to reduce CO emissions. The implementation of such measures is contingent upon either: (a) an annual estimate of actual VMT or updated forecast of VMT exceeding the previous forecast for that year, or (b) the area failing to attain by the CO attainment deadline. These contingency measures must meet the requirements of section 187(a)(3) as interpreted by the April 16, 1992, "General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990," including the requirement that no further action by the State is needed for them to take effect.

NOx RACT

Section 182(f) provides that States may request an exemption from the NOx RACT requirements. The NOx RACT requirements of section 182(f) do not apply if additional reductions of NOx would not contribute to attainment.[2] In an area that did not implement the section 182(f) NOx requirement but did meet the ozone standard, as demonstrated by adequate monitoring data consistent with EPA guidance, it is clear that the additional NOx reductions required by section 182(f) would not contribute to attainment, although they might contribute to maintenance. Therefore, EPA believes that if a State submits a redesignation request along with a section 182(f) exemption request based on monitoring data demonstrating attainment of the ozone NAAQS, further documentation is not required. The State may follow one of two

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[2]Note that the section 182(f) exemption for NOx RACT and NSR requirements described in this section is applicable only for States outside an ozone transport region, since only those States fall under the section 182(f) "contribute to attainment" provision.

approaches in making such a submittal:

1. Submit a redesignation request along with a section 182(f) exemption request based solely upon monitoring data showing that the area's air quality is meeting the ozone NAAQS; and submit a maintenance plan SIP revision, which includes a NOx RACT program as a contingency measure. In lieu of adopted NOx RACT rules, such a NOx RACT program may consist of an enforceable schedule and commitment by the Governor or his designee to adopt and implement the NOx RACT rules upon a specified, appropriate triggering event.

2. An exemption request based on both ambient monitoring and urban airshed modeling consistent with EPA guidance that shows additional NOx reductions would not contribute to attainment in the area. In this case, NOx RACT rules do not have to be included as a contingency measure of the maintenance plan.

SBP

For several reasons, the Act can be interpreted as not requiring the section 507 SBP submittal in order for EPA to approve a redesignation request. The SBP submittal is required regardless of whether there are any designated nonattainment areas within the State. In addition, the SBP is not a control measure intended to contribute to the emission reductions achieved by an area; rather it is a service provided to help small businesses comply with requirements of the Act. For the above reasons, EPA is interpreting the SBP as not being an applicable requirement for any specific nonattainment area that is seeking redesignation. However, EPA will continue to ensure that States make SBP submittals in a timely fashion.

Stage II Vapor Recovery

Stage II vapor recovery remains an applicable requirement for moderate ozone nonattainment areas until EPA promulgates onboard vapor recovery regulations. Section 202(a)(6) of the Act provides that once onboard regulations are promulgated, the Stage II regulations required under section 182(b)(3) are no longer applicable for moderate ozone nonattainment areas. Therefore, final redesignation for a moderate nonattainment area that occurs after EPA's onboard regulations are promulgated does not have to include a Stage II SIP control program. For redesignation requests that are submitted before EPA promulgates onboard rules and that do not include Stage II rules for moderate areas, Regional Offices may prepare rulemaking actions proposing to approve the redesignation, if appropriate, as long as final approval occurs after EPA promulgates onboard regulations.

IV. Coordination of SIP Submittals and Redesignation Requests

If the State elects to follow the approach above, the State should submit the SIP control program as described above along with the redesignation request and maintenance plan. The EPA will review the required SIP submittal(s) against EPA policy and guidance and in coordination with the redesignation request and maintenance plan. Approvability of the redesignation is directly related to the approvability of the SIP submittals (i.e., EPA is precluded from approving a redesignation to attainment if the SIP is not approvable).

As a general policy, a State may not relax the adopted and implemented SIP for an area upon the area's redesignation to attainment. States should continue to implement existing control strategies in order to maintain the standard. However, section 175A recognizes that States may be able to move SIP measures to the contingency plan upon redesignation if the State can adequately demonstrate that such action will not interfere with maintenance of the standard. The type of demonstration necessary is dependent upon the pollutant for which the area has been redesignated to attainment.

In order to make such a demonstration for an area redesignated to attainment for CO, EPA believes that the State could submit a revised control strategy demonstration showing that the measure is not necessary to maintain the standard. For ozone, the State would need to submit an attainment modeling demonstration consistent with EPA's current "Guideline on Air Quality Models," showing that the control measure is not needed to maintain the standard. The EPA intends to be very cautious in approving such revisions in cases where the control measures were implemented during the time the area attained the standard; the State's demonstration should indicate an ample margin of safety with respect to maintenance of the standard.

V. Conclusion

In summary, full adoption of all of the statutorily-required programs, as well as a schedule and an enforceable commitment for an implementation date, are necessary for redesignation to attainment from nonattainment for ozone or CO if the redesignation request is submitted after the statutory due date for the program. The few exceptions to this requirement are basic I/M, annual updates of VMT forecasts, and estimates of actual VMT, NOx RACT, and SBP.

If you have any questions, please contact Sharon Reinders at (919) 541-5284, or Annie Nikbakht at (919) 541-5246.

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This memorandum has been under development for several months. It has been coordinated with OGC (Jan Tierney, Rich Ossias), OMS (John Chamberlin, Al Mannato), Regional Air Division Directors and Air Branch Chiefs, NSR (Mike Sewell, David Solomon), and TSD (David Misenheimer).

Attachment A

Criteria For Redesignation Under Section 107(d)

Section 107(d)(3)(E) of the Act states five criteria that must be met before the Administrator may redesignate an area to attainment. The criteria are:

1. The EPA has determined that the NAAQS have been attained.

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

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

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

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

Attachment B

The EPA policies for implementing section 107 of the Act for redesignations are contained in the following memorandums.

1. "Procedures for Processing Requests to Redesignate Areas to Attainment," John Calcagni, Director, Air Quality Management Division, September 4, 1992.

2. "State Implementation Plan (SIP) Actions Submitted in Response to Clean Air Act (CAA) Deadlines," John Calcagni, Director, Air Quality Management Division, October 28, 1992.

3. "Contingency Measures for Ozone and Carbon Monoxide (CO) Redesignations," G. T. Helms, Chief, Ozone/Carbon Monoxide Programs Branch, June 1, 1992.

4. "Maintenance Plans for Redesignation of Ozone and Carbon Monoxide Nonattainment Areas," G. T. Helms, Chief, Ozone/Carbon Monoxide Programs Branch, April 30, 1992.

In the event that EPA does not approve the redesignation, the applicable I/M program requirements and guidance can be found in 57 FR 52950, November 5, 1992 and in 40 CFR part 51. The applicable VMT forecast guidance is described in the document entitled, "Section 187 VMT Forecasting and Tracking Guidance," January 1992.

D-5

NOx Substitution Guidance
(December, 1993)

Title I of the Clean Air Act (Act) mandates a 15% reduction of volatile organic compound (VOC) emissions from the 1990 base inventory by November, 1996 in all ozone nonattainment areas classified moderate and above. Areas classified serious and above must achieve the 3 % per year VOC reductions past November, 1996 as part of the reasonable further progress (RFP) provision in the Act. However, the Act allows the post-1996 RFP plan to accommodate a less than 3 % per year VOC reduction if it can be demonstrated that substitution of NOx emission reductions (for VOC reductions) yields equivalent ozone reductions.

This guidance is designed to introduce greater flexibility in developing ozone attainment strategies by utilizing NOx emission reductions for meeting RFP requirements after 1996.

NOx SUBSTITUTION GUIDANCE

December, 1993

Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina 27711

Section 1: Background

Title I of the Clean Air Act Amendments (CAAA) mandates a 15% reduction of volatile organic compound (VOC) emissions from the 1990 base inventory by November, 1996 in all ozone nonattainment areas classified moderate and above. Areas classified serious and above must achieve the 3% per year VOC reductions past November, 1996 as part of the reasonable further progress (RFP) provisions (§ 182 [c][2][B]). However, Section 182 (c)(2)(C) allows the post-1996 RFP plan to accommodate a less than 3% per year VOC reduction if it can be demonstrated that substitution of NOx emission reductions (for VOC reductions) yields equivalent ozone reductions. Underlying this substitution provision is the recognition that NOx controls may effectively reduce ozone in many areas, and that the design of strategies is more efficient when the characteristic properties responsible for ozone formation and control are evaluated for each area.

The purpose of this document is to provide a procedure that can be applied to meet the post-1996 Section 182(c)(2)(B) RFP requirement as well as the Section 182 (c)(2)(C) equivalency demonstration requirements. The intent of this guidance is to facilitate implementation of the most effective ozone precursor control strategies, while meeting the intent of the CAA RFP provisions.

The guidance consists of two basic steps that are established in Sections 2 and 3 of this document. First, an equivalency demonstration requires that cumulative RFP emission reductions must be consistent with the NOx and VOC emission reductions determined in the ozone attainment modeling demonstration. Second, specified reductions in NOx and VOC emissions should be accomplished in the interim period between 1996 and the attainment date, consistent with the continuous RFP emission reduction requirement. Section 4 provides the legal rationale underlying this guidance and the guidance is summarized in Section 5.

Section 2: Test for Equivalency - Use of Strategies Aimed at the Mandated Attainment Year

[The condition for demonstrating equivalency is that State-proposed emission control strategies must be consistent with emission reductions required to demonstrate attainment of the ozone NAAQS for the designated year of attainment.]

The provision for NOx substitution recognizes that a VOC-only control pathway may not be the most effective approach for effecting attainment in all areas. Consequently, NOx reductions are placed on a near equal footing with VOC through substitution. This document establishes two conditions pursuant to both the substitution and RFP provisions in the Act. The first condition requires that control strategies incorporating NOx emission reduction measures must demonstrate that the ozone NAAQS will be attained within time periods mandated by the Act. This condition reflects the Title I provision for gridded photochemical model demonstrations (Section 182(c)).

The second condition, addressed below in Section 3, maintains the requirement for periodic emission reductions in order to realize progress toward attainment. Flexibility is introduced by allowing VOC and NOx reductions rather than VOC reductions alone. A third condition exists in which the periodic emission reductions must be consistent with the model attainment demonstration.

The basis for equivalency is the ability of a given control strategy (i.e., any particular mix of NOx and VOC emission reductions) to effect attainment of the ozone NAAQS by the designated attainment year. Section 182(c) of the CAA requires that State implementation plans (SIPs) for serious and above nonattainment areas include a demonstration of attainment of the ozone National Ambient Air Quality Ambient Standard (NAAQS) with gridded photochemical modeling. These SIP revisions are due by November 15, 1994 and provide the framework for demonstrating equivalent ozone reductions through the substitution of NOx emission reductions for VOCs. Model application procedures for demonstrating attainment are provided in EPA's Guideline for Regulatory Application of the Urban Airshed Model, (EPA-450/4-91-013).

This modeling requirement already exists as a Title I provision for areas classified serious and above. Due to the flexibility described below in Section 3.0 which permits virtually any set of NOx and VOC RFP reductions in years prior to the attainment date, a linkage to the attainment year control strategy is required. This linkage provides assurance that the RFP reductions are consistent with the SIP attainment demonstration. States are required to justify substitution by illustrating "consistency" between the cumulative emission

changes emerging from the RFP/substitution proposal and the emission reductions in the model attainment demonstration (or comparable modeling analysis). The EPA will approve substitution proposals on a case-by-case basis. Generally speaking, any reasonable substitution proposal will be approved. Linkage to the modeling demonstration provides a screen to remove unrealistic (and inefficient) substitution proposals.

Section 3: Reasonable Further Progress (RFP) Requirements

[The condition for meeting the RFP emissions reduction provision is that the sum of all creditable VOC and NOx emission reductions must equal 3% per year averaged every three years.]

The RFP provisions require periodic emissions reductions until attainment is reached. In the absence of the NOx substitution provision, an area classified serious or above would be required to reduce VOC emissions after 1996 an average of 3% per year every three year period until attainment. This guidance maintains the 3% per year emissions reduction requirement. However, no specified set of VOC or NOx controls is mandated. Reasons for not requiring specific "exchange" rates among VOC and NOx emissions include:

1. The strong likelihood that optimum "exchange" rates vary from year to year and across a geographic area as an area's emissions distribution and atmospheric chemistry change over time;

2. Uncertainty in modeling analyses, particularly when attempting to ascertain responses from small percentage perturbations in emissions; and

3. Resource limitations associated with modeling specific control measures during interim years before attainment dates.

Any combination of VOC and NOx emission reductions which totals 3% per year, and meet other SIP consistency requirements described in this document are allowed. These requirements ensure that the cumulative RFP reductions are consistent with the emission reduction measures identified in the model attainment demonstration. A percentage basis rather than a mass basis is used for calculating the RFP emission reductions. A percentage basis is applied to avoid "absurd" calculations. For example, substitution of NOx reductions for VOC on a ton for ton basis could yield calculated NOx reduction requirements which exceed the available NOx inventory in cases where the base VOC inventory greatly exceeds the NOx inventory. To illustrate, a 50% VOC reduction is analogous to a 100% NOx reduction assuming the VOC inventory is twice the NOx inventory and substitution is based on mass rather than percentage equivalency. The percentage basis also is consistent with the RFP "percent" reduction requirement, therefore buoying the legal justification underlying this guidance.

The calculation to determine yearly VOC and NOx emission reduction totals must be based on typical summer day inventories (same basis used for RFP and modeling inventories). Specific details regarding calculation procedures and emission inventory definitions are found in separate documents, including EPA's forthcoming Guidance on the Post-1996 Rate-of-Progress Plan and the Attainment Demonstration. The following equation generally describes the method to calculate the total 3% per year emission reductions:

$$R_V/VOCBASE + R_N/NOxBASE >= 0.03$$

where; R_V = typical summer day VOC reductions in mass units

R_N = typical summer day NOx reductions in mass units

VOCBASE = the mass of anthropogenic VOC emissions in the 1990 adjusted base inventory, and

NOxBASE = the mass of anthropogenic NOx emissions in the 1990 adjusted base inventory

[note, the cumulative mass reductions are not constrained to 3% per year so that RFP reductions greater than 3% per year are not discouraged.]

The values of R_V and R_N include only the creditable emission reductions from the nonattainment area of concern. For instance, VOC or NOx reductions from the pre-enactment Federal Motor Vehicle Control Program (FMVCP), which are not creditable toward the 3% per year requirement are not included. Potential "creditable" NOx emission reductions which are available for substitution purposes are described in EPA's forthcoming Guidance on the Post-1996 Rate-of-Progress Plan and the Attainment Demonstration.

The attainment strategy requirements must be met in addition to the RFP condition. Total emission reductions are determined by the attainment demonstration, implying that reductions averaging greater than 3% per year averaged from 1996 to the specified attainment year are required if shown to be necessary by the model demonstration. The 3% per year RFP requirement is thus a minimum requirement. Further, the NOx emission reductions credited toward RFP may be capped by the cumulative reductions dictated by the model demonstration. For example, an approved control strategy emerging from a model demonstration for a serious area might show reductions of 6% NOx and 80% VOC, relative to 1990 emissions, are needed by 1999. Assuming zero creditable NOx emission reductions from 1990 through 1996, NOx reductions averaging 2% per year over the 3 years from 1996 to

1999 represent a cap on the NOx RFP reductions. The reason for linking the RFP reductions to the attainment strategy is to avoid RFP reductions which are not consistent with the model demonstration. Note that the sum of emissions totalling 3% per year are required to meet the basic RFP provisions -- they are not capped by the attainment demonstration. Thus, cases might exist where VOC reductions from the RFP provisions might exceed the cumulative VOC emission reductions in the attainment strategy. Such cases do not conflict with the attainment demonstration since additional VOC reductions will not increase peak ozone. On the other hand, the NOx cap is necessary because NOx reductions have the potential for increasing peak ozone.

Section 4: Discussion of Equivalency

[The following discussion provides the legal rationale underlying the interpretation of "equivalency" and the linkage between the RFP and NOx substitution provisions within the Act.]

"Equivalency" is not defined strictly in the context of, "What specified level of NOx reductions, compared to VOC, results in equivalent ozone reduction?" Instead, any combination of VOC and NOx reductions is "equivalent" so long as the reductions are consistent with those identified as necessary to attain the NAAQS in the modeling demonstration and provide for steady progress in leading to the emission reductions identified as necessary to attain the NAAQS by the specified attainment year.

In allowing a combination of NOx and VOC controls or the substitution of NOx emissions reductions for VOC emissions reductions, Section 182(c)(2)(C) of the statute states that the resulting reductions "in ozone concentrations" must be "at least equivalent" to that which would result from the 3% VOC reductions required as a demonstration of reasonable further progress (RFP) under Section 182(c)(2)(B). This provision could be interpreted to mean that the amount of NOx reductions appropriate for substitution purposes is an amount which, when compared to predicted VOC reductions, results in the same reductions in ozone concentrations that the VOC reductions would achieve in that area. However, such an interpretation could result in a demonstration showing that very small NOx reductions provide an adequate substitute for large VOC reductions. This is because under some conditions substantial VOC reductions produce only small - even insignificant - reductions in ozone concentrations, while minimal NOx reductions under the same conditions may produce the same degree of ozone reductions. EPA believes Congress would not have intended States to meet the Act's progress requirements with emissions reductions that would produce only minimal improvement in ozone concentrations.

The second sentence of Section 182(c)(2)(C) requires EPA to issue guidance "concerning the conditions under which NOx control may be substituted for [or combined with] VOC control." In particular, the Agency is authorized to address in the guidance the appropriate amounts of VOC control and NOx control needed, in combination, "in order to maximize the reduction in ozone air pollution." Further, the Act explicitly provides that the guidance may permit RFP demonstrations which allow a lower percentage of VOC emission reductions. The implicit assumption under that language is that such lesser levels of VOC reductions would be allowed only because of the correspondingly higher percentage of NOx emission reductions to be authorized as a full or partial substitution for the otherwise required VOC reductions. In light of the entire set of language and

Congress's evident intent under this subsection to maximize the opportunity for ozone reductions, EPA believes that Section 182(c)(2)(C) confers on the Agency the discretion to select, for purposes of determining equivalent reductions, a percentage of NOx emission reductions which is reasonably calculated to achieve both the ozone reduction and attainment progress goals intended by Congress. Nothing in the Act or in the legislative history directly addresses the case where NOx reductions that are substituted for VOC reductions, and which meet the plain grammatical meaning of "equivalency," nonetheless result in insignificant ozone reductions. To avoid such a result and give meaningful effect to what Congress likely intended regarding the substitution provision, EPA has decided to rely in its NOx substitution guidance on the only point of reference provided by Congress concerning what may constitute an appropriate quantitative reduction target for RFP purposes, namely the 3 percent per year required under Section 182(c)(2)(B). Under that approach, EPA would approve substitutions of NOx for VOC that would ensure that the sum of the respective creditable percent reductions of each of these pollutants areawide, averaged over 3 years, would be no less than 3 percent from the baseline.

As additional evidence that Congress was concerned with getting more than minimal reductions in ozone concentrations through substitution, EPA notes that the RFP demonstration described in Section 182(c)(2)(B) focuses on reductions of a specified quantity of VOC emissions per year. (Similarly, the 15 percent RFP reductions required for Moderate ozone nonattainment areas focuses on reductions of that specific quantity of VOC emissions per year.) By contrast, the alternative RFP demonstration in Section 182(c)(2)(C) allows flexible VOC/NOx emission reduction strategies, but only so long as the overall quantitative reduction in ozone concentrations is equivalent to the amount which, for Serious ozone nonattainment areas, Congress initially determined must be met (i.e., the ozone concentrations achieved by VOC reductions of 3 percent per year) in order to ensure expeditious progress towards attainment. In this regard the House Committee Report states: "NOx reductions may not be substituted for VOC reductions in a manner that delays attainment of the ozone standard or that results in lesser annual reductions in ozone concentration than provided for in the attainment demonstration." H.R. Resp NO. 490, 101st Cong., 2d Sess. 239 (1990).

Section 5: Summary

The RFP requirements under Section 182(c)(2)(B) of the CAA are intended to insure that the SIP "provide for such specific annual reductions in emissions of VOC and NOx as necessary to attain the NAAQS for ozone by the applicable attainment date." This language is interpreted to mean that, to meet the RFP requirement, it is necessary to show that steady progress is being made toward implementing measures called for in an area's attainment strategy. Further, the Act also specifies minimal annual percentage reductions in creditable emissions which must be realized in an RFP program. Section 182(c)(2)(C) increases the flexibility in which the annual emission reductions can be derived by allowing NOx emission reductions substitution for VOC after 1996. The recommended procedure responds to these concerns by imposing two requirements.

1. Establish a strategy incorporating reductions in VOC and/or NOx sufficient to meet the NAAQS within timeframes specified by the Act. This is to be done using approved photochemical grid models in a manner consistent with published Agency guidance on the use of such models in attainment demonstrations. In the context of the NOx substitution guidance, the purpose of this first step is to establish an ultimate target toward which the RFP program is aimed.

2. For interim years, any mix of annual reductions in VOC and NOx is permissible so long as it reflects

   (a) a logical step toward implementing the attainment strategy identified in (1), and

   (b) results in a combined annual VOC and NOx reduction of 3% per year.

The requirement for continuous VOC emission reductions amounting to 3% per year has been modified to allow flexibility in the mix of VOC and NOx emission reductions, while maintaining a 3% per year reduction in the <u>sum</u> of NOx and VOC emissions. A principal assumption underlying this guidance is that optimum control strategy designs may differ among various nonattainment areas.

The NOx substitution provision permits greater flexibility for States in designing effective emissions control strategies. Furthermore, because the test for equivalency is identical to the NAAQS attainment test for serious and above areas, the demonstration imposes negligible additional resource burdens for those areas already required to perform gridded photochemical modeling.

D-6

Guideline for Determining the Applicability of NOx Requirements Under Section 182(f) (December, 1993)

The Clean Air Act (Act) includes provisions in section 182(f) to control emissions of nitrogen oxides (NOx) in certain ozone nonattainment areas and ozone transport regions. Section 182(f) also specifies circumstances under which the new NOx requirements would be limited or would not apply. This document describes EPA's views on how EPA should interpret section 182(f) and the circumstances under which EPA would determine that the new NOx requirements would be limited or would not apply.

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

16 DEC 1993

MEMORANDUM

SUBJECT: Guideline for Determining the Applicability of Nitrogen Oxide Requirements under Section 182(f)

FROM: John S. Seitz, Director
Office of Air Quality Planning and Standards (MD-10)

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

I am attaching a copy of the subject policy document for dissemination to State and local air pollution control agencies. Section 182(f) of the Clean Air Act (Act) contains the requirement for application of reasonably available control technology and new source review for major sources of nitrogen oxides (NOx) in ozone nonattainment areas classified moderate or above and in the Ozone Transport Region. Section 182(f) also contains provisions for exempting areas from these NOx requirements. This guideline, although not specifically required by the Act, indicates how the Environmental Protection Agency expects to handle the exemption provision.

Questions on this document should be referred to Doug Grano (919-541-3292) or John Silvasi (919-541-5666) of this office. Please distribute this document to the State and local agencies in your Region.

Attachment

cc: NOx Work Group Members
Kent Berry

GUIDELINE FOR DETERMINING THE APPLICABILITY OF NITROGEN OXIDES REQUIREMENTS UNDER SECTION 182(F)

DECEMBER 1993

U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Air Quality Management Division
Research Triangle Park, NC 27711

GUIDELINE FOR DETERMINING THE APPLICABILITY OF NITROGEN OXIDES REQUIREMENTS UNDER SECTION 182(f)

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CHAPTER 1

INTRODUCTION

1.1 General

The Clean Air Act (CAA), as amended in 1990, includes new provisions in section 182(f) to control emissions of nitrogen oxides (NOx) in certain ozone nonattainment areas and ozone transport regions. Section 182(f) also specifies circumstances under which the new NOx requirements would be limited or would not apply. This document describes EPA's preliminary views on how EPA should interpret section 182(f) and the circumstances under which EPA would determine that the new NOx requirements would be limited or would not apply.

Although this document includes various statements that States or petitioners must take certain actions, these statements are guidance made pursuant to EPA's preliminary interpretations, and thus do not bind the States and the public as a matter of law. The EPA's interpretation of the section 182(f) provisions will provide a basis for subsequent EPA approval or disapproval of requests for exemption from the new NOx requirements. While this document contains guidance on the interpretation of the section 182(f) provisions, unique circumstances or as yet unrecognized issues are likely to cause case-by-case exceptions to arise. The EPA intends to provide the public with an opportunity to comment on any exemption requests received by the Agency.

1.2 Nitrogen Oxides Supplement to the General Preamble for Implementation of Title I of the Clean Air Act

The new NOx requirements, which are summarized below, are described in detail in EPA's Nitrogen Oxides Supplement to the General Preamble for Implementation of Title I of the Clean Air Act. This guidance was published in the Federal Register on November 25, 1992 (57 FR 55620).

Section 182(f) requires States to apply the same requirements to major stationary sources of NO_x as are applied to major stationary sources of volatile organic compounds (VOC). The new NOx requirements are reasonably available control technology (RACT) and new source review (NSR). These requirements apply to major stationary sources in certain areas that are designated nonattainment for the ozone national ambient air quality standard (NAAQS) and in an ozone transport region.

The RACT requirements are in section 182(b)(2). This section requires RACT for major NOx stationary sources in ozone nonattainment areas classified moderate and above as well as in an ozone transport region. States are required to submit

regulations for RACT by November 15, 1992 and sources are required to achieve compliance with RACT by May 31, 1995. The EPA has defined RACT as the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility (44 FR 53762; September 17, 1979).

The NSR requirements are in section 182(a)(2)(C). This section requires States to adopt revised NSR regulations in ozone nonattainment areas classified marginal and above as well as within an ozone transport region. States are required to submit regulations for NSR by November 15, 1992. NSR provisions require major new or modified stationary sources to comply with control technology that represents the lowest achievable emission rate and requires the sources to obtain emission offsets.

The RACT and NSR requirements for major sources in attainment/unclassified portions of the northeast ozone transport region originate in section 184(b)(2).

1.3 Section 185B Report

Under section 185B, the Administrator, in conjunction with the National Academy of Sciences (NAS), conducted a study on the role of ozone precursors in tropospheric ozone formation. The section 185B study must examined the role of NO_x and VOC emissions, the extent to which NO_x reductions may contribute or be counterproductive to achieving attainment in different nonattainment areas, the sensitivity of ozone to the control of NO_x, the availability and extent of controls for NO_x, the role of biogenic VOC emissions, and the basic information required for air quality models. The EPA announced in the February 26, 1993 Federal Register a 30-day public comment period on the draft section 185B report. The final report was submitted to Congress on July 30, 1993. The National Research Council announced the completion of the December 1991 NAS report, Rethinking the Ozone Problem in Urban and Regional Air Pollution. The final section 185B report incorporates this NAS report along with a recent EPA report addressing the availability and extent of NOx controls. In addition, the section 185B report also provides EPA perspectives on key ozone control strategy issues addressed by the National Research Council, emphasizing the NOx issues as directed by section 185B.

In making a determination under section 182(f) that the NOx requirements do not apply, or may be limited, the EPA must consider the section 185B study. This section 182(f) document includes consideration of EPA's section 185B report to Congress, including the December 1991 NAS report.

1.4 Application of Section 182(f) Requirements

Section 182(f)(1) provides that the new NOx requirements shall not apply if the Administrator determines that any one of the following tests is met:

(1) in any area, the net air quality benefits are greater in the absence of NO_x reductions from the sources concerned;

(2) in nonattainment areas not within an ozone transport region, additional NO_x reductions would not contribute to ozone attainment in the area; or

(3) in nonattainment areas within an ozone transport region, additional NO_x reductions would not produce net ozone air quality benefits in the transport region.

Further, section 182(f)(2) states that the application of the new NOx requirements may be limited to the extent necessary to avoid excess reductions of NOx as determined by applying tests similar to tests (1)-(3) above.

As described in this document, the "net air quality benefits" test and the "excess emissions" provision may be applied in an ozone transport region or outside the transport region; the "contribute to attainment" test may only be applied outside of an ozone transport region; and the "net ozone benefits" test may only be applied within an ozone transport region. Where any one of the tests is met (even if another test is failed), the section 182(f) NOx requirements would not apply or, under the excess reductions provision, a portion of these requirements would not apply.

CHAPTER 2

ADMINISTRATIVE PROCEDURES

2.1 Processing with the State Implementation Plan (SIP) Revision

A State may, at any time, demonstrate to the Administrator that the new NOx requirements should not apply. For example, a State may submit a demonstration under section 182(f) along with, or as a revision to, the SIP at the time the NOx RACT rules are due; or a State may choose to submit the section 182(f) demonstration at a later date along with or as part of a separate SIP revision. The State's demonstration is not required to be a SIP revision itself.

The EPA will approve or disapprove the State's demonstration when the Administrator approves a plan or plan revision. The EPA will consider the section 185B report and will base its decision on the demonstration and supporting information provided by the State. Such demonstration and information should be in sufficient detail for EPA to determine that the exemption request is consistent with the guidance contained in this section 182(f) document. The EPA encourages the States to consult with the appropriate EPA Regional Office during the development of the documentation. This is necessary to ensure that the documentation provided by the State is likely to be approved and that any required rules can be adopted in a timely manner. NOx RACT and/or NSR rules that have been submitted or were previously approved by EPA would continue to be processed for approval or continue to be enforced while EPA considered the section 182(f) demonstration.

2.2 Petition

Section 182(f)(3) provides that a person (including a State) may petition the Administrator for a NO_x exemption at any time after the final section 185B report is submitted to Congress. The petition may be made with respect to any nonattainment area or any ozone transport region. The EPA must grant or deny a petition within 6 months after its filing.

Since an individual petition is likely to affect the SIP planning process which is primarily a State responsibility, EPA believes it is reasonable to require the petitioner to provide a copy of the petition and demonstration to the State or States which have jurisdiction over the source or sources covered by the petition at the same time it is submitted to the Administrator (where a petition under section 182(f)(3) is being submitted by a person other than the State itself). Where additional States may be affected by the petition, the State receiving the petition should coordinate with the other States as necessary. In some cases there may be multiple petitions for a given area. In other

cases a single petition may have multi-State implications. Shortly after EPA receives a petition, the Agency will announce its receipt and availability for public review in the Federal Register. The EPA will provide the State(s) a 3-month period to make a recommendation to EPA regarding the petition. This 3-month period will run concurrently with the 6-month review period required under section 182(f)(3). The petitioner should submit the petition and demonstration to the Administrator through the appropriate EPA Regional Office.

The EPA encourages any petitioner to consult with the State air quality agency and the appropriate EPA Regional Office during the development of a section 182(f) demonstration. This is necessary to ensure that the documentation provided (1) meets EPA guidance, (2) does not conflict with similar analyses by the State, and (3) is likely to be accepted by the State and EPA. The EPA's decision to grant or deny a petition will include consideration of the section 185B report and will be based on the demonstration provided by the petitioner, the State's recommendation, and the provisions of section 182(f). As noted above, this document sets forth EPA's preliminary interpretations of the section 182(f) provisions.

The EPA will provide notice of its final action on a petition and the rationale for that action in a letter to the petitioner within the 6 month period. In addition, EPA will publish a notice describing the petition and EPA's determination in the Federal Register. If EPA denies a petition, the petitioner may supplement or revise the original petition at a later date. Any revised petition would begin a new 6 month period.

If EPA grants a petition, the section 182(f) NO_x requirements or portions of those requirements, would no longer apply to those sources or areas, as described in EPA's approval action. However, States remain free to adopt NO_x restrictions for other reasons. For example, a State may determine that NOx reductions are needed for purposes of ozone maintenance planning, ozone attainment in separate downwind nonattainment areas, visibility protection, PM-10 control strategy, acid deposition program or other environmental protection. The EPA could approve certain NOx restrictions in a SIP revision despite granting a petition under section 182(f), so long as the NOx restrictions would not interfere with meeting any applicable requirement concerning attainment and reasonable further progress or any other applicable requirement of the CAA [see section 110(l)].

Section 182(f)(3) states that a person may petition the Administrator for a determination under section 182(f) at any time after the final report under section 185B is submitted to Congress. The final section 185B report was sent to Congress by the Administrator on July 30, 1993. Section 182(f)(3) also

requires the Administrator to grant or deny such a petition within 6 months after its filing with EPA.

CHAPTER 3

NET AIR QUALITY BENEFIT

3.1 Demonstration

This demonstration applies to specific sources in an ozone nonattainment area or in an ozone transport region. It must show that NO_x reductions from the sources seeking the exemption would be counter-productive overall, considering the net air quality benefits. Congress specified in this "test" for specific sources a higher hurdle than in the other tests for areawide exemptions: the demonstration must show a beneficial impact from the avoidance of the NOx controls.

The procedure for this test is to first project areawide baseline conditions that may be expected at the attainment deadline (section 8.3). Then, analyses are conducted for 2 scenarios (section 3.4): with and without NOx reductions at the sources concerned. As described in section 8.2, multi-year analyses may also be conducted.

3.2 Factors

Unlike the tests described in chapters 4 and 5, the CAA does not limit this test to consideration of ozone impacts. Instead, this test is based on a broader set of air quality impacts considered in the CAA. There are many air quality impacts explicitly addressed in the CAA, both health and welfare related, that may be directly or indirectly related to NOx emissions. These impacts include ozone, nitrogen dioxide, and particulate matter formation, visibility impairment, acid deposition, air toxics formation, and nitrogen deposition in nutrient-sensitive areas.

Due to the number and variety of impacts, it is generally impractical or impossible to compare effects quantitatively from one of these factors to those from another factor or among several factors. For example, there is no readily available scale to use to compare nitrogen dioxide impacts with acid deposition impacts and/or visibility impacts. Thus, in order to describe a method for determining the "net air quality benefit," a distinction must be made regarding which of the many factors can and should be analyzed.

The EPA has concluded that the factors considered for the purposes of section 182(f) must be consistent with the requirements of the CAA. Thus, although "air quality impacts" could potentially be defined in a very broad manner, EPA has concluded that the air quality impacts considered under section 182(f) must related directly to goals, standards, or mandates that are explicitly addressed in the CAA. Therefore, the test

for net air quality benefits must assure that a decision to grant an exemption would not interfere with the achievement of the specific programs or goals mandated in the CAA.

The primary test should be the effect the exemption would have on attainment of the primary NAAQS for the criteria pollutants. The primary NAAQS are set by the Administrator to assure protection of the public health with an "adequate margin of safety;" EPA has, thus, concluded that this test should focus specifically on the effect of an exemption on the numbers of exceedances of the primary NAAQS. A petitioner should model the "NOx control" vs. "no NOx control" scenarios to assess the impact the NOx controls would have on the numbers of exceedances of the primary NAAQS, as described elsewhere in this document.

Secondary tests, as needed, can extend to the (qualitative or quantitative) consideration of other air quality impacts that are explicitly recognized in the CAA. These could include, for example, the welfare effects which EPA has considered and deemed necessary to protect against in setting secondary NAAQS for the criteria pollutants. A petitioner could also consider any other air quality effects that are explicitly addressed in the CAA through goals, standards or mandates, for example, visibility or air toxics emissions.

The CAA requires the NAAQS to be attained as expeditiously as practicable and the CAA includes deadlines for rule adoption, submittal of control strategies, and attainment of the primary national ambient air quality standards (NAAQS). Thus, the impacts on attainment of the primary NAAQS must be a primary concern to this net air quality benefit test. In contrast, impacts on nutrient-sensitive areas is an important environmental issue that is addressed in the CAA, but does not have the same detailed set of requirements and deadlines stated in the CAA as do the NAAQS; thus, it should generally be a secondary concern to this net air quality benefit test. Further, EPA is not aware of any conflicts between the section 182(f) exemption and the requirements of section 407, concerning acid deposition, that might be considered in this analysis; i.e., granting a section 182(f) exemption would not relieve, conflict with, or otherwise affect a source's obligation or ability to achieve NOx reductions consistent with the section 407 requirements. In cases where NOx reductions from a utility subject to section 407 would be counterproductive to the net air quality benefit, EPA encourages the State and utility to use the emission averaging provisions of section 407 to achieve the required NOx reductions at a location where they are not counterproductive to the net air quality benefit. If any statutory conflicts are documented, they could be considered on a case-by-case basis.

In all cases, the method for consideration of the net benefits must be related primarily to "air quality" since section

182(f) specifically requires a determination of the "air quality" benefits. Thus, simpler tests, such as a "net emissions" test, should not be relied upon since changes in emissions are not necessarily directly related to changes in air quality. In general, air quality impacts can be best determined by use of air quality dispersion models. However, at the present time, there are no EPA-recommended air quality dispersion models for simulation of nitrate (particulate) formation or comparison among ozone, nitrogen dioxide, and/or PM-10 NAAQS impacts in a single nonattainment area.

In order to use air quality dispersion modeling whenever possible and to avoid conflicts with other requirements of the CAA, the methods described below should be used to determine the net air quality benefit over an appropriate geographic area (see section 3.3) which includes the ozone nonattainment areas encompassing or nearby the sources concerned. These methods include a primary consideration of the primary NAAQS air quality benefits and secondary consideration of other air quality benefits.

Ozone Nonattainment Areas

For areas that are nonattainment only for ozone, the effects of NOx reductions on ozone concentrations should be quantified with currently available air quality modeling techniques (see chapter 7). The net air quality benefit should be based on a comparison of the geographic area exposed to concentrations above the ozone NAAQS with and without NOx reductions from the sources concerned.

Where Urban Airshed Model (UAM) results are available, population exposure to concentrations above or near the NAAQS may be used instead of the geographic area exposure factor. The Regional Oxidant Model (ROM) results for NOx reduction scenarios over major emissions/population centers should not be used quantitatively for population exposure analyses. This is because ROM results have their largest associated uncertainties in areas where there is an inhomogeneous mix of emissions from major sources. Since such areas also tend to have greatest populations, use of the ROM, by itself, to estimate population exposure may have considerable associated uncertainty.

It is important to note that EPA believes that photochemical grid models such as UAM and ROM are not sufficient to assess incremental changes to areawide ozone concentrations from emissions reductions at a single or group of small sources. Emission changes should amount to some significant fraction of base emissions before modeling results with ROM or UAM can be interpreted with sufficient confidence that the results are not lost in the noise of the model and the input data.

The EPA has reservations with respect to modeling NOx reductions at a single source or group of sources unless the modeling includes at least 10% of the domain-wide emissions. Thus, this exemption analysis is appropriate for groups of large emitters or for consideration of entire source categories, rather than emission reductions at a single or group of small sources. However, EPA will consider on a case-by-case basis an analysis that considers less than a 10% change in the domain-wide emissions. In such cases, the analysis of a small portion of the emissions would show only a small difference in ozone concentration, if any, between the with NOx and without NOx scenarios, and, therefore, consideration of secondary factors (described below) is particularly important in order to show a net air quality benefit.

In some cases, the amount of emission reductions assumed in the modeling analysis could be very large; thus, there may be cases where the analysis does not result in any values above the NAAQS for any pollutant and, thus, there would not be a comparison of area or population exposed. This could occur even though the difference in ozone concentration between the two scenarios is large. In such cases, the petitioner should look to the factors considered in the secondary test, such as welfare effects or other air quality effects addressed by the CAA.

Areas Nonattainment for Both Ozone and Nitrogen Dioxide

For areas that are nonattainment for both ozone and nitrogen dioxide, NOx reductions clearly are needed to provide for attainment of the nitrogen dioxide standard, while either NOx or VOC reductions (or both) might best provide for attainment of the ozone standard. In such cases EPA would not make a finding of a net air quality benefit since the CAA requires the NAAQS for nitrogen dioxide to be met as expeditiously as practicable.

Areas Nonattainment for Both Ozone and PM-10

For areas that are nonattainment for both ozone and PM-10, a determination is first needed if the secondary nitrates formed from NOx emissions contribute significantly to the PM-10 NAAQS violation(s) in the specific nonattainment area. This significance determination is needed since, especially in the eastern United States, EPA expects that the nitrate portion of measured PM-10 will be found to be insignificant in many cases. Where sufficient and reliable data exist to determine the nitrate contribution to ambient PM-10 concentrations, this determination may be limited to those NOx emissions sources subject to the section 182(f) requirements. Where the contribution is insignificant (see below), then the net air quality determination should be based primarily on the ozone impacts. Where the contribution is significant, EPA would not make a finding of a net air quality benefit since the CAA requires the NAAQS for PM-

10 to be met as expeditiously as practicable. For this purpose, EPA intends to use its definition of a significant contribution to a PM-10 nonattainment area which is 1.0 microgram per cubic meter (nitrate and associated materials) for the annual standard and 5 micrograms per cubic meter for the 24-hour standard (40 CFR 51.165).

Areas Nonattainment for Ozone and Carbon Monoxide, Lead or Sulfur Dioxide

For carbon monoxide, lead, and sulfur dioxide, EPA is not aware of any significant impacts from NOx reductions. Therefore, the net air quality benefits determination should be primarily based on the ozone modeling analysis described above for areas nonattainment for only ozone.

As noted above, equal consideration of all NOx impacts is generally impractical in this net air quality benefit test because of the lack of scales to compare the impacts among the various factors. Nevertheless, additional factors explicitly addressed in the CAA such as those listed below must be considered at least on a qualitative basis in addition to any information developed from the NAAQS analyses. Consideration of the factors below is especially important in cases where the analyses on the NAAQS pollutants cannot clearly determine the net air quality benefit. In any case, EPA believes the amended CAA places a substantial burden on the applicant to provide a clear showing that NOx reductions would be counterproductive overall, considering the net air quality benefits. Additional factors to determine net air quality benefit may include but are not limited to:

1. Effects associated with long-term exposures to plants, animals, and materials.

2. Visibility impairment, long-term and episodic acid deposition, air toxics, and deposition of nitrogen in nutrient-sensitive watersheds.

3.3 Geographic Scope

In contrast to the other section 182(f) tests, the net air quality benefit test is not specifically limited to an ozone nonattainment area or ozone transport region and may be directed at a specific set of sources. Thus, a very broad geographic area should be considered. The area may, in some cases, extend beyond an ozone nonattainment area or ozone transport region. In addition, the area must not be so small that downwind impacts from NOx emissions are not fully considered. Sufficient area is needed to allow for completion and consideration of the various chemical transformations of NOx and interaction with other pollutants. At a minimum, the geographic area should include the

ozone nonattainment area(s) encompassing or nearby the sources concerned. For example, petitioning sources located in attainment portions of the ozone transport region should analyze their impact on nearby nonattainment areas and should consider other factors, such as visibility impacts throughout the surrounding area.

3.4 Scenarios

Section 182(f) states, for this test, that EPA must determine that the net air quality benefits are greater in "the absence of reductions of oxides of nitrogen from the sources concerned." The procedure for this test is to first project areawide baseline emissions that may be expected at the attainment deadline (see sections 3.3 and 8.3). (As described in section 8.3, multi-year analyses may also be conducted.) Second, the projected baseline emissions are held constant, except for the subject individual sources. Then, the air quality analyses are conducted for these two scenarios:

1. the projected baseline emissions of VOC and NOx (without NOx reductions from the sources concerned) and

2. the projected baseline emissions of VOC and NOx emissions including NOx reductions at all emission sources subject to the NOx NSR and RACT provisions of section 182(f).

With respect to new major sources, the two scenarios should take into account application of the section 182(f) NSR requirements as described in section 8.5.

3.5 Sources

For this net air quality benefit test, the CAA refers to "reductions of oxides of nitrogen from the sources concerned." For purposes of this analysis, "the sources concerned" are defined as the sources that would be exempted from the section 182(f) NOx requirements by the petition or State request. The sources concerned may be identified in any of the following ways: (1) specific individual sources, (2) one or more source categories, or (3) a geographic area containing a group of sources. As described in section 3.4, the sources concerned must be analyzed together with other NOx and VOC sources in the area; these other NOx sources should take into account application of the section 182(f) RACT and NSR requirements (as part of the areawide baseline conditions expected at the attainment deadline year) since those NOx reductions are not the subject of the exemption request.

CHAPTER 4

CONTRIBUTE TO ATTAINMENT

4.1 Demonstration

This demonstration applies only to ozone nonattainment areas that are not within an ozone transport region. The demonstration must show that additional NOx reductions would not contribute to ozone attainment in the area.

The procedure for this test is to utilize a photochemical grid model (see chapter 7) to simulate several episode cases over the nonattainment area under conditions that may be expected at the attainment deadline (see section 8.2) considering three emission reduction scenarios (see section 8.3): (1) substantial VOC reductions; (2) substantial NOx reductions; and (3) both the VOC and NOx reductions. If the areawide predicted maximum 1-hour ozone concentration for each day modeled under scenario (1) is less than or equal to that from scenarios (2) and (3) for the same day, then the test is passed and the section 182(f) requirements would not apply.

4.2 Episodes to Consider

In most ozone nonattainment areas it is likely that portions of the area would benefit from NOx reductions and other portions would not for each modeled day. The EPA believes it is appropriate to focus this analysis on the areawide maximum 1-hour predicted ozone concentration since this value is critical to the attainment demonstration. In contrast, it should not be necessary to examine the maximum 1-hour ozone concentrations at each point modeled in the area since these points are not necessarily important to development of the attainment demonstration and since this is the only one of the section 182(f) tests which is not keyed to net benefits.

In certain ozone nonattainment areas it is possible that NOx emission reductions may help to reduce the areawide maximum predicted ozone concentration under some meteorological conditions but not under others. The phrase "would not contribute to attainment" could be interpreted to mean that NOx emission reductions would not help reduce (1) any areawide maximum 1-hour predicted ozone concentration, (2) the majority of areawide maximum 1-hour predicted ozone concentrations, or (3) the most severe areawide maximum 1-hour predicted ozone concentration.

The EPA believes that the "majority" option is not appropriate since this is the only one of the section 182(f) tests which is not keyed to net benefits. Furthermore, (1) an area may need to demonstrate attainment under multiple

meteorological conditions, (2) generally a small number of episodes will be modeled and (3) the NAAQS is based on multiple exceedances rather than a single, most severe value. For the above reasons, EPA believes this determination should be based on each areawide maximum 1-hour predicted ozone concentration modeled in accordance with this guidance (chapter 7). Thus, all of the areawide maximum 1-hour predicted ozone concentrations modeled must be greater with NOx reductions at the sources concerned than without the reductions, or no exemption would be granted. An area is not required to model all past exceedances; only those episodes selected for modeling in accordance with EPA guidance (chapter 7) need to be considered.

4.3 Geographic Scope

This demonstration focuses on attainment of the ozone NAAQS "in the area." The EPA interprets this to mean, at a minimum, in the nonattainment area. In contrast to the provision for transport regions, which is likely to consider several attainment and nonattainment areas in the section 182(f) analysis, this demonstration is limited to consideration of the effects in a single nonattainment area due to NO_x emissions reductions from sources in the same nonattainment area. However, since the effects of an attainment strategy may extend beyond the designated nonattainment area and since photochemical grid modeling is necessary for this demonstration and is likely to use a modeling domain larger than the nonattainment area, EPA encourages States/petitioners to include consideration of the entire modeling domain.

States should consider imposition of the NOx requirements if needed to avoid adverse impacts in downwind areas, either intra- or inter-State. States need to consider such impacts since they are ultimately responsible for achieving attainment in all portions of their State (see generally section 110) and for ensuring that emissions originating in their State do not contribute significantly to nonattainment in, or interfere with maintenance by, any other State [see section 110(a)(2)(D)(i)(I)].

4.4 Applicability to Areas Requesting Redesignation to Attainment

In some cases, an ozone nonattainment area might attain the ozone standard, as demonstrated by 3 years of adequate monitoring data, without having implemented the section 182(f) NOx provisions over that 3-year period. Where the State submits a request for redesignation to attainment along with necessary supporting documentation and where NOx RACT and NSR requirements were not implemented over that 3-year period, it is clear that the section 182(f) language is met since "additional reductions of oxides of nitrogen would not contribute to attainment." That is, since attainment has already occurred, additional NOx

reductions could not improve the area's attainment status and, therefore, the section 182(f) demonstration could be approved. Additional guidance on this subject is contained in a September 17, 1993 memorandum from Michael Shapiro to the EPA Regional Offices regarding requests for redesignation to attainment.

The section 182(f) demonstration would not be approved if there is evidence, such as photochemical grid modeling, showing that the NOx exemption would interfere with attainment or maintenance in downwind areas. As noted above, section 110 prohibits such impacts.

CHAPTER 5

NET OZONE AIR QUALITY BENEFIT

5.1 Demonstration

This demonstration applies in an ozone transport region. It must show that additional NO_x reductions would not produce net ozone benefits in the transport region. In this test the net benefit must be demonstrated on a regionwide basis. Regionwide includes all portions of the ozone transport region in which impacts from NOx emissions from the area seeking the exemption can be determined by the photochemical grid model.

The procedure for this test is to utilize a photochemical grid model (see chapter 7) to simulate conditions that may be expected at the attainment deadline (see section 8.3) considering three emission reduction scenarios (section 8.4): (1) substantial (se section 8.4) VOC reductions; (2) substantial NOx reductions; and (3) both the VOC and NOx reductions. The net ozone benefit may be determined by comparing the ozone concentrations modeled in scenario (1) with results modeled from scenarios (2) and (3). If the exposure to ozone concentrations from scenario (1) is less than or equal to the exposure to ozone concentrations from scenarios (2) and (3), then the section 182(f) net ozone benefits demonstration could be approved. As described in section 8.3, multi-year analyses may also be conducted.

5.2 Factors

The ozone NAAQS is set at 0.12 parts per million (ppm). In defining "net ozone benefit," however, EPA recognized that various forms of expression could be considered with respect to ozone impacts. These forms include the 1-hour 0.12 ppm NAAQS, a 1-hour value less than 0.12 ppm, an 8-hour value set lower than 0.12 ppm, and a seasonal value set lower than the 0.12 ppm value. However, ozone concentrations with different averaging periods and values cannot readily be compared to each other. For example, it is difficult to compare a set of 1-hour ozone peak concentrations above 0.12 ppm against a set of 8-hour ozone peak concentrations above 0.06 and determine which results are more beneficial.

The EPA believes it is reasonable to focus the net ozone benefits test on the 1-hour 0.12 ppm ozone NAAQS, where possible for the following reasons: (1) the 0.12 ppm ozone NAAQS has been set by the Administrator as the level necessary to protect the most sensitive individuals from adverse health effects with an "adequate margin of safety;" (2) ozone concentrations with different averaging periods and values cannot readily be compared to each other, (3) the purpose of the various section 182

provisions is primarily to attain the ozone NAAQS, and (4) it is important for this guidance document to avoid any conflicts (as noted in chapter 3) with the section 182 requirements. Therefore, the averaging time to be used should be the one-hour daily maximum ozone concentration and the analysis should focus on values above the 0.12 ppm NAAQS level. Specifically, the net ozone benefits test focuses on the total geographic area exposed to ozone concentrations above the 0.12 ppm NAAQS level.

Where Urban Airshed Model (UAM) results are available, population exposure to concentrations above or near the ozone NAAQS may be used, instead of the geographic area exposure factor. The Regional Oxidant Model (ROM) results for NOx reduction scenarios over major emissions/population centers should not be used quantitatively for population exposure analyses. This is because ROM results have their largest associated uncertainties in areas where there is an inhomogeneous mix of emissions from major sources. Since such areas also tend to have greatest populations, use of the ROM, by itself, to estimate population exposure may have considerable associated uncertainty.

Depending on the amount of NOx and VOC reductions selected for each scenario, the model results in some cases might show all scenarios to be below the 0.12 ppm ozone NAAQS level. In such cases some might argue that there is no ozone benefit and, thus, the NOx requirements should not apply. The EPA does not agree with such an interpretation because the CAA specifies "net ozone" rather than "ozone attainment" for this test. In fact, a "net" ozone test is necessary to integrate the benefits and disbenefits of NOx reductions that are likely to vary from grid to grid in a given analysis area. That is, NOx reductions may reduce hourly ozone concentrations in some locations and increase hourly ozone concentrations in other locations within the same modeling domain. Therefore, a broader factor is needed than the areawide 0.12 ppm where the modeled scenarios show all values below the ozone NAAQS.

Consideration of ozone air quality impacts other than the primary NAAQS values is appropriate as a secondary factor. Thus, values such as the following are appropriate for consideration where no conclusion can be drawn through the above analysis based on the ozone NAAQS values: effects associated with long-term exposures to ecosystems, crops, animals, and materials.

5.3 Attainment/Unclassified Portions

The section 182(f)(1)(B) demonstration explicitly refers to nonattainment areas within an ozone transport region. The CAA does not clearly state whether or not portions of ozone transport regions that are attainment/unclassified can make the net ozone benefit demonstration. The section 182(f)(1) net air quality

benefit test is available to any area; however, as noted previously it is a higher hurdle. Thus, while a severely polluted area might be able to demonstrate that NO_x reductions do not apply because the "net ozone benefits" test is satisfied, the CAA could be interpreted to require NO_x reductions in the surrounding attainment area because that area cannot meet the same test. It is unlikely that Congress intended such a result.

An alternative reading of the CAA can be found through section 184(b)(2). This provision states that the attainment/ unclassified portions of the transport region must meet "the requirements which would be applicable to major stationary sources if the area were classified as a moderate nonattainment area." Thus, the CAA could be interpreted to provide the same section 182(f)(1)(B) demonstration process for these attainment/ unclassified areas, since they should be treated as moderate nonattainment areas for the purpose of applying the section 182(f) requirements and moderate nonattainment areas in the transport region are eligible to meet the "net ozone benefits" test.

Even without that language, EPA would be inclined to allow an attainment/unclassified area in a transport region to satisfy the "net ozone benefits" test. It would be absurd, and therefore it is unlikely that Congress intended to apply more stringent requirements in the attainment/unclassified portions of the transport region than would apply to the more severely polluted portions. Congress apparently did not intend any lesser requirements to apply in the attainment/unclassified portions of the transport region. The EPA believes that it is appropriate to extend the section 182(f) provision beyond the boundaries of a nonattainment area into adjacent attainment/unclassified areas which are part of the same section 182(f) demonstration. Thus, where a State/petitioner demonstrates that NOx reductions would not produce net ozone benefits in the transport region, then the section 182(f) NOx requirements would not apply to those sources or areas as described in EPA's approval action. Such a demonstration must include all portions of the ozone transport region in which impacts from NOx emissions from the area seeking the exemption can be determined by the photochemical grid model.

CHAPTER 6

EXCESS EMISSIONS REDUCTIONS

6.1 General

Section 182(f)(2) provides the flexibility to limit the scope of the NOx NSR and RACT requirements. Application of the NOx NSR and/or RACT requirements can be limited to the extent that any portion of those reductions are demonstrated to result in "excess reductions." The tests for demonstrating excess reductions are generally the same as in section 182(f)(1): net air quality benefit, contribute to attainment and net ozone benefit. However, in this case, the demonstration must show that a portion of the otherwise required NOx reductions are either counterproductive to the net air quality, do not contribute to attainment, or do not provide a net ozone benefit [depending on the section 182(f) test applied].

As described below, for the contribute to attainment or net ozone tests, the excess reductions test must show that certain NOx reductions are in excess of the reductions specified in either the attainment demonstration required by section 182 and contained in the approved SIP or an attainment demonstration adopted by the State to meet the section 182 attainment demonstration requirement and submitted to EPA for approval. The excess emission reductions may be described, for example, as (1) an areawide across-the-board tonnage reduction; (2) emissions attributed to specific sources; or (3) emissions from a geographic portion of the nonattainment or transport area.

6.2 Demonstration

The "contribute to attainment" and "net ozone benefit" tests described in chapters 4 and 5 both require an areawide or regional analysis. In such areawide/regional analyses, NOx emission reductions at a large number of sources are considered. These analyses are appropriate to determine in a directional manner whether or not NOx reductions are expected to be beneficial with respect to the air quality in the area/region. The analyses described in chapters 4 and 5 may be less precise than an attainment demonstration required under section 182(c).

The EPA believes that the excess reductions provision requires a more precise analysis; specifically an analysis which is based on the attainment demonstration. That is, the excess reductions provision must be more than a directional finding on an areawide basis. Under the excess reductions provision, an analysis is needed to show that a specific portion of the total areawide NOx emissions is not beneficial under one of the three tests. Thus, individual or groups of sources may petition to show that, while NOx reductions may be beneficial directionally

in the area, NOx reductions from their specific sources are not beneficial and, thus, should be exempt from the NOx requirements.

Without providing some constraints in this guidance document, the excess reductions provisions could undermine the section 182(f) requirements, since each individual emission source could theoretically petition for an exemption with the argument that their small contribution to the overall ozone problem is inconsequential. Such a petition might be considered consistent with the analyses required in chapters 4 and 5, since an exemption may be granted where the modeled NOx reductions show no impact on ozone concentrations. Certainly, if EPA allowed very small amounts of NOx reductions to be modeled individually, this interpretation would create a significant loophole. Congress would not have intended, and therefore EPA does not accept the argument, that the owner/operator of one car or one small boiler can be excused from the CAA requirements because their emissions, viewed alone, are small. Considered together with other small contributions, the emissions may be important to attainment. That is, emissions from one car or one commercial boiler would not change the areawide ozone concentration, yet together with other cars or boilers, they may be critical to the area's attainment strategy. Furthermore, as previously described in this document, ozone air quality models should not be applied solely to determine the incremental effect of small sources as such emissions could be lost in the noise of the air quality model and emissions inventory uncertainties when considered alone.

For the above reasons, EPA has determined that the excess reductions demonstration for the "contribute to attainment" or "net ozone benefits" tests must be tied to the area's SIP attainment demonstration. Thus, this test must show that the excess reductions are reductions in excess of those specified in the attainment demonstration required by section 182 and either contained in the approved SIP or as adopted by the State to meet the section 182 attainment demonstration requirement and submitted to EPA for approval. This tie to the attainment demonstration assures that an excess reductions petition would not arbitrarily be based on small emissions and would not undermine the State's control strategy.

In contrast, the "net air quality benefit" test discussed in chapter 3 is intended to address an individual or small number of sources and already has an adequate constraint. The net air quality benefit test requires a showing that NOx reductions specifically from the sources concerned are counterproductive. The net air quality benefit test imposes a higher hurdle than the other two tests and EPA believes this higher hurdle is adequate for purposes of the excess emissions test as well.

CHAPTER 7

MODELING TECHNIQUES

7.1 Photochemical Grid Modeling

As described in chapters 3-6, photochemical grid modeling is generally needed to document cases where NOx reductions are counterproductive to net air quality (chapter 3), do not contribute to attainment (chapter 4), do not show a net ozone benefit (chapter 5), or include excess reductions (chapter 6). As described below, the Urban Airshed Model (UAM) or, in an ozone transport region, the Regional Oxidant Model (ROM) are acceptable models for these purposes.

The EPA investigated the feasibility and acceptability of applying relatively inexpensive screening techniques to evaluate if NOx control measures are likely to be beneficial with respect to attainment of the ozone NAAQS (Langstaff and Scheffe, 1991). However, EPA determined that, as a technical matter, photochemical grid modeling is the only reliable tool to justify an areawide exemption from the NOx requirements.

The EPA's reliance on photochemical grid models is supported by the recently published findings of the NAS on tropospheric ozone (December 1991). The NAS report concluded that three-dimensional or grid-based ozone air quality models are currently the best available models for representing the chemical and physical processes of ozone formation. The report provides a list of such models (Table 10-1), including UAM and ROM. The NAS report also states that "ROM is the only regional model available for assessment of control strategies for urban and rural ozone in the eastern United States" (page 365).

The 1990 CAA requires the use of gridded models in many ozone nonattainment areas. In 1990, EPA released an updated version of the UAM, reflecting numerous advances in photochemistry and numerical solution techniques which emerged during the 1980s. An extensive multi-volume UAM User's Manual was prepared to facilitate operation of the UAM. Guidance on regulatory application of the UAM was completed in July 1991. Several efforts are underway to improve pre- and post-processing UAM capabilities and train the States in applying the model.

The EPA encourages applications of advanced modeling methods where they are found to be more appropriate. Such methods may be acceptable on a case-by-case basis after (1) preparation of a modeling protocol, (2) proper testing and evaluation, and (3) approval by the appropriate EPA Regional Office.

Less sophisticated models, such as EKMA, lack the detailed treatment/consideration of physical orientation of NOx sources

and dispersion of their plumes. Further, since trajectory models only address a limited number of trajectories, they cannot assess whether NOx control contributes to attainment at all locations in an ozone nonattainment area. Therefore, such models are insufficient and not acceptable for the section 182(f) demonstration.

7.2 Urban Airshed Model

UAM results are acceptable for the purpose of the section 182(f) demonstrations. Application of UAM should be consistent with techniques specified in the EPA "Guideline on Air Quality Models (Revised)." Further, application of UAM should also be consistent with procedures contained in the EPA "Guideline for Regulatory Application of the Urban Airshed Model" (July 1991). Thus, episode selection for the section 182(f) demonstration should be consistent with the UAM guidance for SIP attainment demonstrations. An assessment of the model's performance and a copy of the modeling protocol should be included in the analysis for informational purposes.

7.3 Regional Scale Modeling

In an ozone transport region, the net ozone benefits test should be met by use of regional scale modeling. Regional scale modeling is needed since the section 182(f) language explicitly refers to net ozone benefits "in such region." Regionwide or regional scale modeling includes all portions of the ozone transport region in which impacts from NOx emissions from the area seeking the exemption can be determined by the photochemical grid model. Prior to the availability of ROM and/or UAM results supporting the section 182(c) attainment demonstrations, the EPA's "Regional Ozone Modeling for Northeast Transport" study (June 1991) is an acceptable basis for this demonstration. When more recent ROM and/or UAM regionwide studies for the Northeast Ozone Transport Region have been completed and are available, they must be used for any section 182(f) demonstration.

Where UAM studies have been completed and are available, ROM results are acceptable for evaluating effects outside of the UAM modeling domains established pursuant to attainment demonstration requirements for section 182. Thus, ROM results are acceptable for evaluating effects in portions of a transport region outside of the UAM modeling domain for the purpose of a section 182(f) demonstration. It is not appropriate, however, to use ROM to assess the effects in an individual city outside of any UAM domain. ROM is most suitable for assessing composite impacts over large areas (which may include individual cities) where UAM results are unavailable. Results of available ROM applications are archived on the EPA's Gridded Model Information Support System (GMISS).

7.4 Model Results and SIP Interface

Where a petition for an exemption [section 182(f)(1)] or excess reductions determination [section 182(f)(2)] is granted by EPA prior to adoption and submittal of the State's rules, the State may simply choose not to submit the NOx rules. If a petition is granted after submittal of the NOx rules, but prior to EPA approval, the State may choose to withdraw the rules and preclude further EPA action. In a case where a petition is granted ("exempted area") after EPA approves of the NO_x rules, the SIP would need to be modified through a SIP revision to rescind the NO_x rules provided such rescission would not interfere with attainment or reasonable further progress [section 110(l)].

Following application of a photochemical grid model that is required for serious and above areas to support the attainment demonstrations due by November 1994, a State must select and adopt a control strategy that provides for attainment as expeditiously as practicable, but no later than the date prescribed in section 181. This decision must be addressed by a State whether or not an area was exempted from the November 1992 submittal of NO_x RACT and/or NSR rules and may result in revision of the previously adopted rules. In some instances the NO_x RACT and NSR requirements already adopted may need to be supplemented with additional or more advanced NO_x controls in order for the area to attain the NAAQS.

In other cases, an area initially exempted may choose, based on the new photochemical grid modeling results, to adopt certain NO_x reduction rules in order to attain and/or meet reasonable further progress requirements through NO_x substitution. The area would be removed from "exempt" status since NOx reductions were subsequently found to be beneficial in their ozone attainment plan. Consequently, the area would have to adopt the NO_x RACT and NSR rules except to the extent modeling shows that the controls beyond those chosen are "excess reductions" (chapter 6) or are counterproductive to the net air quality (chapter 3). Credit for NO_x substitution would be granted only if in accordance with the EPA guidance. In any event, these changes must be submitted as a SIP revision and must provide for attainment as expeditiously as practicable and meet reasonable further progress requirements.

Alternatively, for an area that adopted the NO_x RACT and NSR rules as required by section 182 (i.e., not exempt), a State may choose to revise some or all of those rules to require less NO_x stationary source controls. This action would be based on the application of a photochemical grid model showing that the subject NO_x controls result in excess emission reductions, as determined using the section 182(f) tests set forth at the beginning of this section. The revisions must be submitted as a

SIP revision and the SIP must demonstrate attainment as expeditiously as practicable.

7.5 Other Analytical Techniques

Guidelines on analytical techniques for assessing other air quality impact factors, such as acid deposition, population exposure or visibility, are not readily available. Therefore, EPA encourages petitioners to consult with the State and EPA Regional Office to agree on an acceptable methodology on a case-by-case basis.

CHAPTER 8

EMISSIONS ANALYSIS

8.1 General

As described in chapters 3-6, photochemical grid modeling is needed to document cases where NOx reductions are counterproductive to net air quality (chapter 3), do not contribute to attainment (chapter 4), do not show a net ozone benefit (chapter 5), or include excess reductions (chapter 6). Application of these models requires the use of a representative emissions inventory. This chapter describes the emission inventory requirements for the various section 182(f) demonstrations.

8.2 Biogenic Volatile Organic Compound (VOC) Emissions

The NAS report states that, in some cases, "without control of NOx emissions, this VOC background should be able to generate ozone concentrations that exceed the NAAQS concentration of 120 ppb" (page 244). Biogenic emissions can influence both the nature (i.e., VOC or NOx) and extent of required emissions controls. Therefore, inclusion of biogenic emissions are necessary inputs to model applications which assess the roles of VOC and NOx in ozone formation for purposes of section 182(f). In estimating biogenic emissions, the most recent version of the Biogenic Emissions Inventory System (BEIS) (available through the EPA Regional Offices) should be used.

8.3 Years to Analyze

In general, the purpose of the section 182(f) requirements for NOx is related to attainment of the ozone standard. This suggests an analysis that is focussed on the time that attainment of that standard is required. In addition, other sections of the CAA require moderate and above ozone nonattainment areas to develop modeling analyses which demonstrate attainment by the appropriate statutory deadline; to the extent that such modeling analyses are already underway, they could be useful for the section 182(f) demonstration also.

Considering these points, EPA believes that the 182(f) demonstrations should, at a minimum, reflect conditions expected at the time the subject area is required to attain the ozone standard. For example, in a serious ozone nonattainment area, the year would be 1999. As described in section 8.5, the conditions should also be consistent with assumptions contained in the SIP. Thus, base year emissions would be projected to the year reflecting the attainment deadline and would include growth in VOC and NOx emissions as well as CAA-mandated VOC emission reductions. Specific emission scenarios with and without NOx

reductions would be built upon this projected emissions baseline as described elsewhere in this document. In addition, as described later in this section, multi-year analyses may also be conducted.

In an ozone transport region, a section 182(f) demonstration would likely cover an area which includes ozone nonattainment areas of more than one classification, and thus more than one attainment deadline. For example, a metropolitan area may have a higher classification than a nearby rural nonattainment area. For these areas, it is possible that NOx reductions may be beneficial to attainment in the near term with respect to the rural nonattainment area (and lesser classification deadline) but, at the same time or in a longer timeframe, NOx reductions might be shown to be not beneficial when considering the area as a whole (since NOx reductions are generally expected to be more beneficial in rural areas). In order to determine whether the NOx reduction requirements should apply, EPA believes that, at a minimum, the section 182(f) demonstration should reflect conditions expected at the latest attainment deadline for the area as a whole. In addition, States should consider imposition of the NOx requirements if needed to avoid adverse impacts in downwind areas, either intra- or inter-State. States need to consider such impacts since they are ultimately responsible to provide for attainment in all portions of their State and must not contribute significantly to nonattainment in, or interfere with maintenance by, any other State.

Alternatively, the State/petitioner may include a multi-year analysis in its section 182(f) demonstration. This is appropriate for areas demonstrating either a net air quality benefit or a net ozone benefit. In these demonstrations, the analysis may include periodic assessments of the effects of NOx reductions and integrate those effects to arrive at a finding on whether or not NOx reductions are beneficial. For example, an area may develop geographic area exposure analyses for each year or for every third year up to the attainment year and assess the overall impact of NOx reductions from that information.

8.4 Scenarios to Compare

For the contribute to attainment and net ozone benefit tests, the projected emissions should, at a minimum, consider three scenarios which vary emission reductions from anthropogenic sources: (1) substantial VOC reductions; (2) similar NOx reductions; and (3) both the VOC and NOx reductions. Total emissions to model include both anthropogenic and biogenic emissions.

In contrast to the net air quality demonstration (chapter 3) which focuses on the scenario "in the absence of reductions of oxides of nitrogen from the sources concerned," the contribute to

attainment and net ozone benefit demonstrations concern an unspecified "additional reductions" of NOx. Thus, while the net air quality benefit test must focus on NOx reductions due to NSR and RACT, the other demonstrations may more broadly consider NOx reductions, including reductions that employ advanced control technology (i.e., beyond RACT). The application of the VOC and NOx reductions should be as source category specific as possible, rather than across-the-board, in order for the results to be most useful.

In the first scenario the demonstration should use the VOC reductions needed to attain (demonstrated by EKMA or UAM analyses). Alternatively, if the attainment demonstration has not been completed, the demonstration may use some other substantial VOC reduction. Reductions associated with attainment are appropriate for the reasons described above. In any case, the VOC reductions should be substantial and documented as reasonable to expect for the area due to the CAA requirements. For example, a minimum of a 40% anthropogenic VOC reduction areawide from the 1990 emission inventory may be reasonable to expect for serious areas, considering motor vehicle emission controls, inspection/maintenance, reasonable further progress and other CAA requirements.

In the second scenario, NOx reductions should be modeled without any VOC reductions above the attainment year baseline. The level of NOx reductions should reflect the same percent reduction of anthropogenic VOC emissions in scenario (1) above. It is important to model this case since NOx reductions, instead of additional VOC reductions, may show a clearer benefit.

In the third scenario, a similar level of NOx reductions would be modeled along with the level of VOC reductions chosen. That is, if a 40% VOC reduction is chosen in scenario (1), then the model for scenario (3) would simulate a 40% VOC reduction and approximately a 40% NOx reduction. It would be inappropriate to select a high level of VOC reductions and a low level of NOx reductions since this could artificially favor a finding that NOx reductions are not beneficial; the two levels should be similar.

8.5 Consistency with the SIP

Any section 182(f) demonstration must include a showing that the exemption request uses assumptions that are consistent with requirements of the SIP and the CAA. It is possible that a petition could demonstrate that, under some circumstances, NOx reductions are not needed to attain the ozone standard. However, unless the State actually adopts those particular circumstances into its SIP, there is no assurance that the petition's analysis is valid. That is, if the assumptions contained in the petitioner's demonstration are not valid, the conclusions are similarly not valid and EPA would not approve the petition. The section 182(f) petition process should not undermine the State's

implementation plan. The petition should reflect measures consistent with mandatory CAA requirements, federally-approved SIP requirements, and recent SIP revisions adopted by the State and submitted to EPA for approval. The EPA encourages petitioners to coordinate these analyses with the appropriate State(s) as they are being developed.

8.6 New Source Review

The section 182(f) exemption provisions center on the effect on ozone concentrations due to NOx emission reductions. With respect to RACT, which involves emissions reductions from existing sources, this is a perfect fit. In the case of new or modified sources, however, other factors should be considered. Even after the application of on-site controls appropriate for a major new or modified source, the source will, considered alone, result in major increases in NOx emissions. However, the NSR offset provisions would require the new source to obtain emission reductions from other sources so as offset any emissions increase associated with the new source.

To take into account the full impact of the NSR program, the term "NOx reductions" must be carefully interpreted. When considering the air quality impacts in chapters 3-6 of this document "with NOx reductions" or with "substantial NOx reductions," the analysis should reflect a zero emissions increase from stationary sources after November 15, 1992 due to the NSR offset requirement; when considering the "without" NOx reductions scenarios, the analysis should include NOx emission increases after November 15, 1992 due to new or modified stationary sources of NOx, many of which would be subject to the best available control technology requirement through the prevention of significant deterioration program, but not to offsets.

D-7

Nitrogen Oxides (NOx) Reasonably Available Control Technology for the Repowering of Utility boilers (March 9, 1994)

This memorandum provides guidance on the determination of NOx RACT in cases where a utility commits to repower its boiler in the near future.[1] The guidance is intended primarily for use by State and local air pollution control agencies as they develop and adopt NOx RACT rules for incorporation into their State implementation plans as required under section 182 of the Clean Air Act. The guidance is generally applicable to other source categories including turbines and process heaters.

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[1]"Repowering" is defined in section 402 of the Act and generally means the replacement of an existing boiler with a technology capable of controlling multiple combustion emissions simultaneously with improved boiler or generation efficiency and with significantly greater waste reduction relative to the performance of technology in widespread commercial use as of November 15, 1990.

March 9, 1994

MEMORANDUM

SUBJECT: Nitrogen Oxides (NOx) Reasonably Available Control Technology (RACT) for the Repowering of Utility Boilers

FROM: John S. Seitz, Director
Office of Air Quality Planning and Standards (MD-10)

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

This memorandum provides guidance on the determination of NOx RACT in cases where a utility commits to repower[1] its boiler in the near future. The guidance is intended primarily for use by State and local air pollution control agencies as they develop and adopt NOx RACT rules for incorporation into their State implementation plans (SIP's) as required under section 182 of the Clean Air Act as amended in 1990 (Act).

Several States have included specific provisions in their proposed NOx RACT rules for utilities which intend to repower their boilers in the near future and that will meet emissions limitations based on advanced control technologies. The following specific issues are addressed in this memorandum:

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[1] "Repowering" is defined in section 402 of the Act and generally means the replacement of an existing boiler with a technology capable of controlling multiple combustion emissions simultaneously with improved boiler or generation efficiency and with significantly greater waste reduction relative to the performance of technology in widespread commercial use as of November 15, 1990.

1. Must sources which intend to repower meet the May 31, 1995 RACT compliance date?

2. How will the RACT requirements be met for the interim period between 1995 and 1999?

3. Are repowering provisions applicable to other source categories?

Must sources which intend to repower meet the May 31, 1995 RACT compliance date?

The Act requires RACT to be implemented at major NOx sources by May 31, 1995 [see section 182(b)(2)(C) and 182(f)]. Utility boilers that are intended to be repowered are subject to the same requirement to implement RACT by May 31, 1995. However, the State's determination of what constitutes RACT could include consideration of a utility's commitment to repower. In that case, the State's RACT analysis would focus on the technical and economic feasibility of controls available over the interim period between May 31, 1995 and the repowering date. If a State wants to incorporate into its NOx RACT rules a procedure for utilities that intend to repower, the rules must meet the requirements described below.

1. The SIP revision must require the utility to submit to the State an enforceable commitment to repower and an analysis that defines RACT for the unit for the interim period of time between May 31, 1995 and the date the unit will be repowered ("interim RACT").

2. The commitment must include the date by which the utility will repower, as well as compliance dates for the following repowering milestones: (a) the date by which contracts for the repowering project will be awarded, or by which orders will be issued for the purchase of component parts to accomplish the repowering project; (b) the date of initiation of on-site construction or installation for the repowering project; and (c) the date by which on-site construction of the repowered unit is completed.

3. The State must adopt and submit the commitment to repower and the interim RACT requirements to the Environmental Protection Agency (EPA) by November 15, 1994 as a source-specific SIP revision. A SIP revision is needed to make the commitment and interim RACT requirements federally enforceable. As an alternative to a source-specific SIP revision, States may make the repowering and the interim RACT requirements enforceable by including them directly in the NOx RACT rule for a boiler type. In this case, the State must justify, when the rule is formally submitted to EPA, that the interim requirements constitute RACT for the given boiler type.

4. The SIP revision must require that the utility boiler complies with the interim RACT requirements by May 31, 1995.

5. The SIP revision must require that the utility boiler be repowered no later than May 31, 1999 and must meet all applicable SIP and Federal requirements. For example, if a State adopts NOx emissions limits for utility boilers for purposes of attaining the ozone standard, the repowering source must meet those emissions limits consistent with the SIP timeframes. Further, the repowering source must meet any applicable Federal new source requirements consistent with EPA guidance and regulations.

How will the RACT requirements be met for the interim period between 1995 and 1999?

In the interim RACT analysis, the utility should document the cost, cost effectiveness, and emissions reductions of all technologically feasible controls. In the determination of cost effectiveness, however, the utility may annualize controls over the period of time between May 31, 1995 and the date the unit will be repowered, to the extent it is shown that the controls installed to meet the May 31, 1995 deadline have no usefulness once the unit is repowered.

For example, if a wall-fired coal boiler is going to be repowered to a combined-cycle turbine, then low-NOx burners may be assumed to have no useful life beyond the date that the facility is committing to repower. Thus, in the determination of the cost effectiveness of the low-NOx burners, costs could be annualized over a shorter period of time than their normal useful life. In some cases, the shorter period could result in cost effectiveness for the low-NOx burners that is so high it would be considered economically infeasible.

On the other hand, if certain controls will be useful once the unit is repowered, the cost of these controls cannot be annualized over a shortened period of time. For example, reburn at a cyclone boiler might be considered for purposes of determining the interim RACT requirement. In this case, the cost of installing a natural gas pipeline for the cyclone boiler could not be annualized over a shortened period of time if the boiler is going to be repowered to a combined-cycle turbine that will utilize natural gas. That is, only the cost of installing the pipeline early can be attributed to the cost to meet RACT by May 31, 1995. Therefore, it is important that the State require that the facility's analysis describe the repowering project in detail so the effects on the useful life of RACT controls can be correctly evaluated.

In some cases, all combustion modifications and add-on controls might be shown to be technically or economically infeasible for the interim RACT requirement. In such cases,

other techniques should be considered, such as derating or boiler tune-ups, to achieve NOx emissions reductions in the interim period.

As described above, the State must adopt and submit by November 15, 1994 a commitment to repower a utility boiler as well as interim RACT requirements for that boiler as a SIP revision. Thus, the commitment and interim RACT requirements would be enforceable by the State and, upon approval, by EPA. If the commitment were not enforceable, then the NOx RACT determination would not be valid since it relies on the repowering commitment.

Are repowering provisions applicable to other source categories?

States may extend the guidance contained above to other source categories, including stationary internal combustion engines, gas turbines, and process heaters.

In summary, this guidance provides that, under certain circumstances, States may meet the amended Act's NOx RACT requirements by adopting rules which establish "interim RACT" requirements for sources that must be implemented by May 31, 1995, and establish a near term date by which the source will meet emissions limitations based on advanced control technologies, such as in the case of utility repowering. If you have questions on this memorandum, please contact Doug Grano of my staff at (919) 541-3292.

cc: Kent Berry
NOx Work Group

D-8

Cost-Effective Nitrogen Oxides (NOx) Reasonably
Available Control Technology
(3-16-94)

This memorandum provides guidance for determining NOx RACT as it relates to nonutility sources and utility boilers which were not addressed by the Environmental Protection Agency's (EPA's) previous guidance. The NOx supplement to the general preamble (November 25, 1992, 57 FR 55625) identifies emission rates that presumptively meet the NOx RACT requirement for tangential and dry bottom wall-fired utility boilers. The guidance goes on to state that, for other major NOx sources, EPA expects that NOx RACT will be set at levels that are "comparable" to the levels specified for tangential and dry bottom wall-fired utility boilers. The guidance states that: "Comparability shall be determined on the basis of several factors including, for example, cost, cost-effectiveness, and emission reductions." This memorandum primarily addresses <u>one</u> of the factors in a NOx RACT determination--cost effectiveness--and provides guidance on how to determine which control techniques are of "comparable cost-effectiveness for NOx RACT." In addition, this memorandum provides limited discussion of other factors, including emission reductions.

March 16, 1994

MEMORANDUM

SUBJECT: Cost-Effective Nitrogen Oxides (NOx) Reasonably Available Control Technology (RACT)

FROM: D. Kent Berry, Acting Director
Air Quality Management Division (MD-15)

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

This memorandum provides guidance for determining NOx RACT [required by section 182(f) of the Clean Air Act (Act)] as it relates to nonutility sources and utility boilers which were not addressed by the Environmental Protection Agency's (EPA's) previous guidance. The document entitled, "State Implementation Plans; Nitrogen Oxides Supplement to the General Preamble; Clean Air Act Amendments of 1990 Implementation of Title I; Proposed Rule," (NOx supplement) (November 25, 1992, 57 FR 55625) identifies emission rates that presumptively meet the NOx RACT requirement for tangential and dry bottom wall-fired utility boilers. The guidance goes on to state that, for other major NOx sources, EPA expects that NOx RACT will be set at levels that are "comparable" to the levels specified for tangential and dry bottom wall-fired utility boilers. The guidance states that: "Comparability shall be determined on the basis of several factors including, for example, cost, cost-effectiveness, and emission reductions." This memorandum primarily addresses <u>one</u> of the factors in a NOx RACT determination--cost effectiveness--and provides guidance on how to determine which control techniques are of "comparable cost-effectiveness for NOx RACT." In addition, this memorandum provides limited discussion of other factors, including emission reductions.

It should also be noted that, in certain areas, States may require NO_x controls based on advanced control technologies; i.e., control technologies that reduce emissions beyond RACT or title IV (acid rain) requirements. For example, advanced controls would be required as part of a serious ozone nonattainment area's 1994 State implementation plan if modeling found such controls to be necessary to provide for expeditious attainment of the ozone national ambient air quality standards. In order to avoid or minimize potentially incremental or repetitive control requirements, States and regulated sources should consider in advance the implications of all relevant requirements.

In general, the actual cost, emission reduction, and cost-effectiveness levels that an individual source will experience in meeting the NOx RACT requirements will vary from unit to unit and from area to area. These factors will differ from unit to unit because the sources themselves vary in age, condition, and size, among other considerations. The EPA's general RACT guidance urges States to judge the feasibility of imposing specific controls based on the economic and technical circumstances of the particular unit being regulated. In many cases, these factors are not the same in all States since the specific NOx RACT emission limitations and averaging times will differ from State to State. The EPA's presumptive NOx RACT levels for certain utility boilers are based on capabilities and problems which are general to the industry on a national basis. States may adopt statewide NOx RACT levels which are more stringent than the EPA levels based on statewide industry conditions. For these reasons, a single cost, emission reduction, or cost-effectiveness figure cannot fully describe the NOx RACT requirement. Thus, the information provided in this memorandum does not prescribe a single cost-effectiveness figure, but rather provides additional guidance which States may use as they make NOx RACT determinations.

For NOx RACT, cost effectiveness is a figure in dollars per ton of NOx emissions reductions per year. In order to clarify the "comparable cost-effectiveness for NOx RACT" referred to in the NOx supplement, EPA reviewed the December 1992 EPA/Northeast States for Coordinated Air Use Management (NESCAUM) report (EPA/NESCAUM report) on utility boilers entitled, "Evaluation and Costing of NOx Controls for Existing Utility Boilers in the NESCAUM Region" (EPA 453/R-92-010). This report identifies various NOx control technologies for existing utility boilers and their associated costs, cost effectiveness, and emission reductions. As described below, EPA has extracted from the report the cost effectiveness of controls that are expected to meet the EPA's presumptive NOx RACT for tangential and dry bottom wall-fired utility boilers at least cost. These cost figures generally define the "comparable cost-effectiveness for NOx RACT" referred to in the NOx supplement.

The November 1992 NOx supplement to the General Preamble

specifies the following areawide presumptive NOx RACT emission limits (lbs NOx per million Btu determined on a rolling 30-day average) for utility boilers:

Coal:	tangential--0.45	wall--0.50
Gas/Oil:	tangential--0.20	wall--0.30

Technologies available to meet these NOx RACT levels are described in section 4 of the EPA/NESCAUM report. Section 5 of that report describes the cost algorithm used, which includes consideration of process capital equipment, total plant cost and investment, fixed and variable operating cost, total capital requirement and consumable costs. The cost-effectiveness figures in the report are based on data from different geographic regions and represent a variety of averaging times. The EPA believes the data are appropriate to use with respect to the EPA presumptive NOx RACT 30-day rolling average or to a daily average.

As described in tables 1-4 and 1-5 of the EPA/NESCAUM report, the combustion-modification technologies available to meet EPA's presumptive NOx RACT levels show a range of cost effectiveness of about $160 to $5100 per ton; and the post-combustion technologies, excluding selective catalytic reduction, show a range of about $320 to $5200 per ton. These are national estimates based on constant 1991 (1st quarter) dollars. Some States may need to make regional adjustments to this range to reflect prevailing installation and operating labor costs which are higher or lower than the national average. The data indicate that some coal burning wall-fired boilers can meet EPA's presumptive NOx RACT levels by application of low NOx burners at a cost effectiveness as low as $160 per ton. The data also indicate that certain tangentially-fired utility boilers may approach a cost-effectiveness level of $1300 per ton in order to meet the EPA presumptive NOx RACT levels. Application of selective catalytic reduction to utility boilers does not appear necessary in order to meet the EPA presumptive NOx RACT levels.

In determining the NOx RACT comparable cost-effectiveness level, EPA believes that it is appropriate to focus on the <u>range</u> of cost effectiveness. The range is appropriate due to the variability of the actual cost effectiveness that is expected from unit to unit. Therefore, NOx technologies with a cost-effectiveness range that overlaps the $160 to $1300 range should, at a minimum, be considered by States in the development of their NOx RACT requirements.

In some cases, States will need to consider a broader cost-effectiveness range. For example, where States adopt NOx RACT requirements that are more stringent than the EPA's presumptive RACT, the associated control technologies may result in higher cost-effectiveness figures and, thus, States should expect to apply a broader cost-effectiveness range. In addition, since the

EPA's presumptive RACT levels are expected to be met by a majority of (but not all) sources, States should expect some sources to experience higher cost-effectiveness levels in order to meet the NOx RACT requirements.

While cost effectiveness, as described above, is an important consideration, it must be noted that other factors should be integrated into a RACT analysis. For example, emission reductions and environmental impact should be considered. Regarding emission reductions, a comparison of uncontrolled NOx emission levels (from the EPA/NESCAUM report) with EPA's presumptive RACT levels indicates that the utility boilers are expected to achieve emission reductions of about 30 to 50 percent. If control technologies in the $160 to $1300 range are inadequate to achieve emission reductions in the 30 to 50 percent range, then the State should consider alternate technologies which achieve those reduction levels. For example, if a RACT analysis indicates that a cost effectiveness of $2000 per ton is necessary to achieve emission reductions in the 30 to 50 percent range, the State may need to adopt that requirement in order to achieve comparable emission reductions, consistent with EPA's guidance.

The environmental impact of various control technologies should be included in the RACT determination in some cases. For example, sources that operate intermittently, but whose peak operating times coincide with the peak ozone periods, should be considered separately from sources with relatively constant year-round emissions. In addition, where an otherwise acceptable control technology might significantly increase carbon monoxide (CO) emissions in a CO nonattainment area, the State should consider alternate technologies.

Questions concerning this memorandum can be addressed to John Silvasi at (919) 541-5666; questions on specific technologies and costs can be addressed to Bill Neuffer at (919) 541-5435.

D-9

Nitrogen Oxides Questions from the Ohio EPA
(3-30-94)

This memorandum addresses the NOx reasonably available control technology (RACT) issues raised in a November 30, 1993 memorandum from Richard Schleyer, EPA Region V, to John Silvasi. The issues include the following: Seasonal NOx RACT rules; 30 day rolling average; NOx emission trading; Fuel switching; and NOx compliance schedules.

3-30-94

MEMORANDUM

SUBJECT: Nitrogen Oxides (NOx) Questions from Ohio EPA

FROM: Tom Helms, Chief
Ozone/Carbon Monoxide Programs Branch

TO: Air Enforcement Branch
Region V

This memorandum addresses the NOx reasonably available control technology (RACT) issues raised in a November 30, 1993 memorandum from Richard Schleyer, EPA Region V, to John Silvasi, Office of Air Quality Planning and Standards. These issues were discussed and resolved by the NOx Work Group.

Question 1:

Can the NOx RACT rules be made applicable only during the summer months since ozone is a summer problem? If not, why not?

Answer 1:

The EPA's RACT guidance for volatile organic compounds (VOC) states that seasonal controls are generally not allowed (EPA clarification to Appendix D of the November 24, 1987 Federal Register, "Issues Relating to VOC Regulations Cutpoints, Deficiencies, and Deviations," revised 1-1-90). As stated in the NOx Supplement to the General Preamble (57 FR 55625, November 25, 1992), the VOC RACT guidance is generally applicable to NOx RACT. Thus, the limitation on seasonal controls also applies to NOx RACT.

The EPA's definition of RACT is "The lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility" (44 FR 53762, September 17, 1979). Thus, RACT is not generally a function of season or other temporal factors. There are limited exceptions, however, in the VOC and NOx programs where seasonal controls are allowed. For example, EPA has developed RACT guidance for seasonal controls concerning cutback asphalt (VOC) and fuel switching (NOx).

Question 2:

Comments have been received that a 30-day rolling average should be allowed using stack tests. The Ohio EPA is not aware of any method other than use of a continuous emissions monitor (CEM) where a 30-day rolling average is possible. Is there any other method possible?

Answer 2:

This issue should be addressed in the context of the enhanced compliance monitoring rulemaking, which is in process.

Question 3:

If a source is subject to a federally enforceable permit to install, which requires best available control technology (BACT), would the facility have to submit a RACT study or meet any of the other requirements contained in Ohio's NOx RACT rules?

Answer 3:

RACT requirements can, in some cases, be more stringent than the lowest achievable emission rates (LAER) or BACT (see February 28, 1990 memorandum from John Calcagni to Regional Offices). Therefore, where a source has already installed BACT or LAER, the State would still need to complete an analysis to show that BACT or LAER is at least as stringent as RACT in that case. If RACT is more stringent, then the RACT requirements would apply.

Question 4:

Is one-source trading allowed? For example, if a source uses selective non-catalytic reduction to control NOx, could the source simply turn-on and turn-off this control device, as necessary, to comply with NOx RACT?

Answer 4:

Once a State sets a NOx RACT emission rate limit for a source category, individual sources are generally free to meet that limit in a variety of ways. Where a State adopts a NOx RACT emission rate limit with a long averaging time, such as 30 days, a source with a continuous emission monitor could conceivably turn-on and turn-off very stringent controls on, for example, alternate days and still meet the RACT limit. States should, however, avoid adopting RACT rules which could result in sources maximizing their emissions on high ozone potential days, thus jeopardizing attainment.

Questions 5 & 9:

Will partial switching to natural gas (co-firing gas and coal) need a SIP revision? Are site-specific SIP revisions needed if a source is complying with NOx RACT using fuel switching?

Answer 5:

Individual sources that switch to natural gas do not need source-specific SIP revisions as long as the statewide NOx RACT rules allow such switching and are consistent with EPA guidance (July 30, 1993 memorandum from Michael H.

Shapiro to Regional Offices on fuel switching to meet the NOx RACT requirements). If there is no such statewide rule, then a SIP revision would be needed to meet the NOx RACT requirements.

Question 6:

Can major NOx sources that only operate outside the ozone season be exempt from NOx RACT?

Answer 6:

The RACT requirement applies to major stationary sources, considering potential annual emissions. However, major NOx sources which are prohibited from operating during the ozone season might qualify for an exemption from the NOx requirements under section 182(f) of the amended Act. The EPA would consider a petition requesting such an exemption.

Question 7:

Will compliance schedule changes up to April 1, 1996 be allowed without a SIP revision?

Answer 7:

Sources that do not meet milestones contained in the State's NOx RACT rule would be subject to enforcement actions.

Question 8:

Is switching from (1) coal to oil or (2) oil to natural gas allowed under the fuel switching program? If yes, what limits would apply in either case?

Answer 8:

The EPA's guidance on fuel switching to meet NOx RACT (referenced in answer 5) is not limited to coal to natural gas switches. That guidance would need to be applied in each case to determine the applicable emission limits.

Question 10:

Are site-specific SIP revisions needed if a source is complying with NOx RACT using an emissions trading program?

Answer 10:

Individual sources that comply with NOx RACT through an emissions trading program do not need source-specific SIP revisions as long as the statewide NOx RACT rules provide for such a trading program and are consistent with EPA guidance (reference forthcoming NOx trading guidance memo). If there is no such statewide rule, then a SIP revision would be needed to meet the NOx RACT requirements.

cc: Air Branch Chiefs
NOx Work Group

D-10

Section 182 (f) NOx Exemptions-Revised Process and Criteria
(5-27-94)

This memorandum presents updated guidance on how EPA reviews and processes requests for exemption from the NOx RACT requirements under section 182(f) of the Clean Air Act (Act). It also revises certain guidance previously issued concerning NOx exemptions for areas outside the ozone transport region that have air quality monitoring data showing attainment.

May 27, 1994

MEMORANDUM

SUBJECT: Section 182(f) Nitrogen Oxides (NO_x) Exemptions--Revised Process and Criteria

FROM: John S. Seitz, Director
Office of Air Quality Planning and Standards (MD-10)

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

This memorandum revises the process the Environmental Protection Agency (EPA) currently intends to follow for granting exemptions from control requirements for NO_x under section 182(f) of the Clean Air Act (Act).[1] It also revises certain guidance previously issued concerning NO_x exemptions for areas outside the ozone transport region that have air quality monitoring data showing attainment.[2]

The guidance in this memorandum applies to marginal and above ozone nonattainment areas because the section 182(f) exemption is directed at major NO_x stationary sources only in

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[1]"Guideline for Determining the Applicability of Nitrogen Oxide Requirements under Section 182(f)," from John S. Seitz, Director, Office of Air Quality Planning and Standards, to the Regional Division Directors, December 16, 1993, Chapter 2, Administrative Procedures.

[2]"State Implementation Plan (SIP) Requirements for Areas Submitting Requests for Redesignation to Attainment of the Ozone and Carbon Monoxide (CO) National Ambient Air Quality Standards (NAAQS) on or after November 15, 1992," from Michael H. Shapiro, Acting Assistant Administrator for Air and Radiation, to the Regional Division Directors, September 17, 1993 [NO_x reasonably available control technology (RACT) discussion on pages 4-5] and December 1993 guideline at section 4.4.

marginal and above ozone nonattainment areas. The guidance does not address nonclassifiable ozone nonattainment areas (i.e., transitional, submarginal, or incomplete/no data areas). However, the EPA's conformity rules[3,4] also reference the section 182(f) exemption process as a means for exempting affected areas from NO_x conformity requirements.[5] Moreover, under these rules, conformity applies in all nonattainment and maintenance areas, including the nonclassifiable nonattainment areas. Therefore, corresponding guidance is needed for the application of the section 182(f) NO_x exemption referenced in the conformity rules in these nonclassifiable areas. The guidance document entitled "Conformity; General Preamble for Exemption from Nitrogen Oxides Provisions," to be published in the Federal Register, addresses how EPA generally intends to act on requests for NO_x conformity exemption determinations for those areas, and should be consulted for those purposes along with this guidance.

Ozone nonattainment areas that are granted areawide section 182(f) exemptions under the approach described in this memorandum will also be exempt from the NO_x conformity requirements. However, since the conformity requirements apply on an areawide basis, a section 182(f) exemption for an individual source (or group of sources) within the nonattainment or maintenance area would not provide a sufficient basis to exempt the entire nonattainment or maintenance area from the NO_x conformity requirements.

Section 182(f) requires States to apply the same requirements to major stationary sources of NO_x as are applied to major stationary sources of volatile organic compounds. The

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[3]"Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Funded or Approved under Title 23 U.S.C. of the Federal Transit Act," November 24, 1993 (58 FR 62188).

[4]"Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule," November 30, 1993 (58 FR 63214).

[5]The section 182(f) exemption is explicitly referred to and is described in similar language in 40 CFR 51.394(b)(3)(i), the "Applicability" section of the transportation conformity rule, and in the preamble (see 58 FR 62197, November 24, 1993). The language is repeated in the provisions of the rule regarding the motor vehicle emissions budget test [section 51.428(a)(1)(ii)] and the "build/no-build" test [sections 51.436(e), 51.438(e)], although section 182(f) of the Act is not specifically mentioned. In the general conformity rule, the section 182(f) NOx exemption is referred to in section 51.852 (definition of "Precursors of a criteria pollutant") and is discussed in the preamble (see 58 FR 63240, November 30, 1993).

requirements are RACT and new source review (NSR). The NO_x RACT is required in ozone nonattainment areas classified as moderate and above, as well as in all areas within an ozone transport region. The NSR rules are required in ozone nonattainment areas classified as marginal and above, as well as all areas within an ozone transport region. Section 182(f) also specifies circumstances under which the new NO_x requirements would be limited or would not apply.

Under section 182(f)(1)(A), an exemption from the NO_x requirements may be granted for nonattainment areas outside an ozone transport region if EPA determines that "additional reductions of [NOx] would not contribute to attainment" of the ozone NAAQS in those areas. The EPA has indicated that in cases where a nonattainment area is demonstrating attainment with 3 consecutive years of air quality monitoring data, without having implemented the section 182(f) NO_x provisions, it is clear that this test is met since "additional reductions of [NOx] would not contribute to attainment" of the NAAQS in that area. Under this revised guidance, a State may submit a petition for a section 182(f) exemption based on air quality monitoring data showing attainment of the ozone NAAQS without also having to submit a redesignation request or a maintenance plan with that petition.[6,7] The EPA's approval of the exemption, if warranted, would be granted on a contingent basis (i.e., the exemption would last for only as long as the area's monitoring data continue to demonstrate attainment).

If it is subsequently determined by EPA that the area has violated the standard, the section 182(f) exemption, as of the date of the determination, would no longer apply. The EPA would notify the State that the exemption no longer applies, and would also provide notice to the public in the Federal Register. A determination that the NO_x exemption no longer applies would mean that the area would thereafter have to address any NO_x NSR or NO_x RACT requirements that may be applicable under section 182(f). Similarly, while existing transportation plans, transportation

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[6]For purposes of the NOx exemption test in section 182(f)(1)(A) for areas outside an ozone transport region, EPA is interpreting the term "contribute to attainment" to mean that the State (or petitioner) need only show whether additional reductions of NOx would contribute to attainment of the ozone NAAQS, and not whether such reductions would contribute to attainment and maintenance.

[7]The section 182(f) exemption does not affect EPA's requirements for maintenance plans; the maintenance plan required for redesignation must still address NO_x in accordance with EPA guidance.

improvement plans and past conformity determinations would not be affected by a determination that the exemption no longer applies, new conformity determinations would have to observe the NO_x requirements of the conformity rule. The State must continue to operate an appropriate air quality monitoring network, in accordance with 40 CFR part 58, to verify the attainment status of the area. The air quality data relied on for the above determinations must be consistent with 40 CFR part 58 requirements and other relevant EPA guidance and recorded in EPA's Aerometric Information Retrieval System (AIRS).

Section 182(f) contains very few details regarding the administrative procedure for acting on NO_x exemption requests. The absence of specific guidelines by Congress leaves EPA with discretion to establish reasonable procedures, consistent with the requirements of the Administrative Procedure Act (APA).

The EPA believes that section 182(f) sets up two separate procedures by which the Agency may act on NO_x exemption requests. Section 182(f)(1) and (2) direct that action on NO_x exemption determination requests should take place "when [EPA] approves a plan or plan revision." This language appears to contemplate that exemption requests submitted under these paragraphs are limited to States, since States are the entities authorized under the Act to submit plans or plan revisions. By contrast, section 182(f)(3) provides that "person[s]"[8] may petition for a NO_x determination "at any time" after the ozone precursor study required under section 185B of the Act is finalized,[9] and gives EPA a limit of 6 months after filing to grant or deny such petitions. Although section 182(f)(3) references 182(f)(1), there are certain key differences in the language. First, individuals may submit petitions under paragraph (3) "at any time" (i.e., even when there is no plan revision from the State pending at EPA). Second, the specific timeframe for EPA action established in paragraph (3) is substantially shorter than the timeframe usually required for States to develop and for EPA to take action on revisions to a SIP. These differences strongly suggest that Congress intended the process for acting on personal petitions to be distinct--and more expeditious--from the plan-revision process intended under paragraph (1). Thus, EPA believes that paragraph (3)'s reference to paragraph (1) encompasses only the substantive tests in paragraph (1) [and, by extension, paragraph (2)], not the requirement in paragraph (1) for EPA to grant exemptions only when acting on plan revisions.

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[8]Section 302(e) of the Act defines the term "person" to include States.

[9]The final section 185B report was issued July 30, 1993.

The requirements of the APA apply with respect to the type of notice which must be provided regarding EPA action on NO_x exemption determinations. Notice-and-comment rulemaking is required by the APA when EPA action involves not just factual, but also policy and legal considerations that will apply as a general matter and, thus, is legislative in nature. Conversely, when EPA action can properly be described as party specific in nature, involving consideration of primarily factual evidence, notice-and-comment rulemaking is not required by the APA. In such a case, the EPA action could consist of the issuance of an order [see 5 U.S.C. sections 551(4)-(7) and 553]. Given these requirements of the APA, EPA believes that under either of the procedures established in section 182(f), where the request is for an entire area to be exempted from the NO_x requirements, the EPA must go through notice-and-comment rulemaking to grant or deny the petition. Where a petition is submitted for an exemption determination relating to an individual source (or group of sources) under subsection 182(f)(3), EPA may grant or deny the petition through an order transmitted by letter to the affected source (or sources). The EPA will also provide the public with notice in the Federal Register of the receipt and availability of the petition, as well as of the EPA's final determination.

Attachment I of this memorandum is the step-by-step administrative procedure for processing areawide petitions. Attachment II is the procedure for processing petitions relating to an individual source (or group of sources).

Section 182(f)(3) requires that EPA grant or deny a petition, whether areawide or source specific, within 6 months after its filing. Where the rulemaking process is followed (for areawide petitions), EPA is aware that the 6-month requirement may be infeasible in some cases. However, courts have ruled that even in instances, such as the one presented here, where a prescribed timeframe for EPA action apparently conflicts with the requirement to provide the public with adequate opportunity for notice and comment, the notice requirement must be met. Therefore, EPA will process areawide exemption requests by rulemaking as expeditiously as practicable, with the intent of meeting the 6-month deadline.

As noted earlier, petitions submitted under section 182(f)(3) are not required to be submitted as SIP revisions. Consequently, the State is not required under the Act to hold a public hearing in order to petition for an areawide NO_x exemption determination [see section 110(a)(1) and (2)]. For similar reasons, if the State is submitting an areawide petition under subsection 182(f)(3), it is unnecessary to have the Governor submit the petition. However, because of the need for consistency with the AIRS data and the requirements of 40 CFR

part 58, EPA believes that, particularly in cases where the NO_x exemption request (including a request for exemption from the NO_x requirements of the conformity rules) is based on monitoring data, if such data are contained in a petition submitted by a person other than the State, the petition should be coordinated with the State air agency.

The Federal Register notice of EPA approval or disapproval of a State's petition must be signed by the Administrator. This is not a SIP action or a redesignation action. Consequently, this action is not delegated and must undergo Headquarters review. If some or all types of petition actions become delegated, notification will be provided.

Where there is a conflict, this guidance supersedes guidance contained in EPA's September 17, 1993 memorandum and in sections 2.2 and 4.4 of EPA's December 16, 1993 document. Please contact Doug Grano (919) 541-3292 or Kimber Scavo (919) 541-3354 regarding any questions.

Attachments

cc: Tom Helms
Steve Hitte
Robert Kellam
Phil Lorang
Rich Ossias
Joe Tikvart
Lydia Wegman

Attachment I
(Rulemaking for Areawide Petition)[1]

(1) The petition is sent to the appropriate Regional Offices (RO's) and States by the petitioner.

(2) The RO sends copies of the petition to Headquarters (HQ) Offices for technical and legal review. These offices are: Ozone/Carbon Monoxide Programs Branch, AQMD (Doug Grano); Source Receptor Analysis Branch, TSD (Ned Meyer); Office of Mobile Sources (Kathryn Sargeant); and Office of General Counsel (Mike Prosper). *(The petition should be sent immediately upon receipt.)*

(3) The RO evaluates the demonstration and makes the initial determination as to whether the petition should be granted or denied along with the supporting rationale. The RO should consult with the above HQ Offices and affected States.

(4) The RO prepares a Federal Register (FR) notice for the Administrator's signature that proposes to grant or deny the petition. A notice that proposes to grant an exemption on a contingent basis (for areas outside the ozone transport region that have air quality monitoring data showing attainment) must also propose that the exemption would no longer apply if EPA subsequently determines that a violation of the ozone standard has occurred. That proposal must specify that the NO_x requirements of the conformity rules would apply to new conformity determinations, and the amount of time the State would have to submit any applicable section 182(f) NO_x NSR and/or RACT rules in the event that EPA determines at some future time that a violation occurred.

The evaluation under step 3 above must be included in either the FR notice or a technical support document that is included in the docket. *(The RO should prepare and complete the FR proposal within 2 months after receipt, taking into account any HQ comments on the petition or the RO evaluation.)*[2]

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[1]This process assumes no delegation to the Regional Administrator.

[2]Petitions that are based on an area having data indicating that it has already attained the ozone standard should generally be processed in less time.

(5) The FR proposal is sent to HQ reviewers for concurrence. *(HQ should finish the review within 1 month after receipt.)*

(6) After any revision and concurrence by HQ reviewers, the FR proposal is sent to the Administrator for signature and is then published. *(There should be at least 1 month for a formal comment period after FR publication.)*

(7) The RO prepares a FR notice of final rulemaking that addresses comments received and takes final action to grant (fully or on a contingent basis) or to deny the petition. The RO sends the notice to the HQ reviewers noted above under Step 2. *(HQ should finish the review within 1 month after receipt.)*

(8) After any revision and concurrence by HQ reviewers, the FR final notice is sent to the Administrator for signature and is then published.

Attachment II[1]

[Letter of Approval/Denial for Individual Source (or Group of Sources) Petition]

(1) The petition is sent to the affected States and RO's by the petitioner.

(2) The RO prepares a FR notice of availability and sends it directly to the FR after Regional Administrator signature. This notice does not indicate EPA's intended action. The EPA notice should solicit comments. However, because the action is not a rulemaking, there is no obligation on EPA's part to respond to the comments when taking final action. The EPA provides affected States a 3-month period to make a recommendation to EPA.

(3) The RO sends a copy of the petition to the HQ Offices listed in Attachment I, Step 2.

(4) The RO makes the initial determination as to whether the petition should be granted or denied in consultation with affected States. The determination is incorporated by the RO into a letter for signature of the Administrator, along with the supporting rationale.

(5) The draft letter is sent to HQ reviewers for concurrence.

(6) After concurrence by HQ reviewers, the final letter is prepared by the RO and sent to the Administrator for signature ("cc" to the affected States).

(7) The RO prepares a second FR notice that includes the letter signed by the Administrator to the petitioner and sends the notice directly to the FR after Regional Administrator signature.

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[1]This process assumes no delegation to the Regional Administrator.

D-11

Conformity: General Preamble for Exemption from Nitrogen Oxides Provisions (6-17-94 FR; 59 FR 31238)

This General Preamble clarifies how EPA believes that nonclassifiable (i.e., submarginal, transitional, and incomplete/no data) ozone nonattainment areas which are outside the Northeast ozone transport region and have ambient monitoring data demonstrating attainment of the national ambient air quality standard for ozone may be exempted from the conformity rules' nitrogen oxides (NOx) requirements. This notice also references a recent memorandum which states EPA's preliminary interpretation for such ozone nonattainment areas which are classified as marginal or above.

ENVIRONMENTAL PROTECTION AGENCY

[FRL-5000-3]

Agency Information Collection Activities Under OMB Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: In compliance with the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*), this notice announces that the Information Collection Request (ICR) abstracted below has been forwarded to the Office of Management and Budget (OMB) for review and comment. The ICR describes the nature of the information collection and its expected cost and burden; where appropriate, it includes the actual data collection instrument.

DATES: Comments must be submitted on or before July 18, 1994.

FOR FURTHER INFORMATION CONTACT: For further information, or a copy of this ICR contact Sandy Farmer at EPA, (202) 260-2740.

SUPPLEMENTARY INFORMATION:

Office of Solid Waste and Emergency Response

Title: Collection of Economic and Regulatory Support Data Under RCRA (ICR No. 1641.01). This ICR requests approval for a new collection.

Abstract: EPA's Office of Solid Waste (OSW) is requesting approval for a generic clearance to collect economic and regulatory impact data through surveys, interviews, or focus group meetings with industry or other parties in support of the Resource Conservation and Recovery Act (RCRA) rulemaking actions.

RCRA, as amended by the Hazardous and Solid Waste Amendments, requires EPA to establish a national regulatory program to ensure that hazardous waste is managed in a manner protective of human health and the environment. EPA is authorized under sections 2002 and 3007 of RCRA to collect information from industry and other parties when necessary to carry out its regulatory responsibilities.

The information collected will be used to assess the costs and benefits of various potential regulatory and nonregulatory actions.

The first collection to be administered under the generic clearance, the Hazardous Waste Identification Rule (HWIR) Expert Elicitations, is included in this ICR. Information will be collected through interviews (expert elicitations) with hazardous and industrial solid waste experts to support development of alternative approaches for hazardous waste identification. The Agency will conduct two sets of expert elicitations, one for each HWIR regulatory option: Contaminated Soil and Sediment Media; and Contaminated Debris.

Burden Statement: The public reporting burden for this generic collection is estimated to average 3 hours per response and the burden for the HWIR Expert Elicitations collection ranges from 15 minutes to 1.5 hours per respondent. These estimates include all aspects of the information collection including the time for reviewing instructions, searching existing data sources, gathering the data needed, and completing and reviewing the collection of information.

Respondents: Hazardous waste generators, scientists, industry experts, and treatment, storage and disposal facilities.

Estimated Number of Respondents: 3,000.

Estimated Number of Responses per Respondent: 1.4.

Estimated Total Annual Burden on Respondents: 12,780 hours.

Frequency of Collection: On Occasion.

Send comments regarding the burden estimate, or any other aspect of this collection of information, including suggestions for reducing the burden, to:

Sandy Farmer, U.S. Environmental Protection Agency, Information Policy Branch (2136), 401 M Street, SW., Washington, DC 20460.

and

Jonathan Gledhill, Office of Management and Budget, Office of Information and Regulatory Affairs, 725 17th Street, NW., Washington, DC 20503.

Dated: June 13, 1994.

Paul Lapsley,

Director, Regulatory Management Division.

[FR Doc. 94-14819 Filed 6-16-94; 8:45 am]

BILLING CODE 6560-50-F

[FRL-4998-6]

Conformity; General Preamble for Exemption From Nitrogen Oxides Provisions

AGENCY: Environmental Protection Agency (EPA).

ACTION: General preamble for future proposed rulemakings.

SUMMARY: This General Preamble clarifies how EPA believes that nonclassifiable (i.e., submarginal, transitional, and incomplete/no data) ozone nonattainment areas which are outside the Northeast ozone transport region and have ambient monitoring data demonstrating attainment of the national ambient air quality standard for ozone may be exempted from the conformity rules' nitrogen oxides (NO_x) requirements. This notice also references a recent memorandum which states EPA's preliminary interpretation for such ozone nonattainment areas which are classified as marginal or above.

Clarification of EPA policy for areas with monitoring data which demonstrates attainment is particularly important because many areas already have such data and appear to qualify for exemption from the conformity NO_x requirements.

In order to avoid repetition, this General Preamble describes guidance on NOx exemptions with respect to the transportation conformity rule. However, this guidance for transportation conformity is intended to also apply with respect to general conformity.

This General Preamble explains EPA's policy generally for future notice-and-comment rulemakings taking action on requests for NOx exemptions for specific areas. It contains EPA's preliminary interpretations of relevant provisions of the Clean Air Act and the conformity rules. The interpretations contained herein are not binding as a matter of law until final rulemaking action is taken on each specific area. Opportunity for public comment on NOx exemption determinations made by EPA will be provided separately for each area during these individual rulemakings.

FOR FURTHER INFORMATION CONTACT: For issues related to transportation conformity, Kathryn Sargeant, Emission Control Strategies Branch, Emission Planning and Strategies Division, U.S. Environmental Protection Agency, 2565 Plymouth Road, Ann Arbor, MI 48105. (313) 668-4441. For issues related to redesignation, David Cole, (919) 541-5565, and for issues related to general conformity and NOx RACT and NSR, Doug Grano, (919) 541-3292, Ozone/CO Programs Branch (MD-15), Air Quality Management Division, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

SUPPLEMENTARY INFORMATION:

I. Background

A. Transportation Conformity Rule

The transportation conformity final rule, entitled "Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans of

Transportation Plans, Programs, and Projects Funded or Approved Under title 23 U.S.C. or the Federal Transit Act," was published in the **Federal Register** on November 24, 1993 (58 FR 62188). This action was required under section 176(c)(4) of the Clean Air Act, as amended in 1990.

Conformity to an implementation plan is defined in the Clean Air Act as conformity to an implementation plan's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards and achieving expeditious attainment of such standards. In addition, Federal activities may not cause or contribute to new violations of air quality standards, exacerbate existing violations, or interfere with timely attainment or required interim emission reductions towards attainment. The transportation conformity final rule establishes the process by which the Federal Highway Administration and the Federal Transit Administration of the United States Department of Transportation and metropolitan planning organizations determine the conformity of highway and transit projects. Under the rule, conformity applies in nonattainment and maintenance areas.

The transportation conformity rule requires ozone nonattainment and maintenance areas to perform a regional emissions analysis of motor vehicle NOx emissions in order to determine the conformity of transportation plans and programs. This analysis must demonstrate that the NO_x emissions which would result from the transportation system if the proposed transportation plan and program were implemented are within the total allowable level of NO_x emissions from highway and transit motor vehicles ("motor vehicle emissions budget"), as identified in a submitted or approved attainment demonstration or maintenance plan.

Until an attainment demonstration or (for nonclassifiable areas) a maintenance plan is approved by EPA, the regional emissions analysis of the transportation system must also satisfy the "build/no-build test." That is, the analysis must demonstrate that emissions from the transportation system if the proposed transportation plan and program were implemented would be less than the emissions from the transportation system if only the previously applicable transportation plan and program were implemented. Furthermore, the regional emissions analysis must show that emissions from the transportation system if the transportation plan and program were implemented would be lower than 1990 levels by any nonzero amount.

The transportation conformity rule as currently written provides for an exemption from these requirements with respect to NO_x if the Administrator determines under section 182(f) of the Clean Air Act that additional reductions of NO_x would not contribute to attainment. This exemption is explicitly referred to and is described in similar language in § 51.394(b)(3)(i) (the "Applicability" section of the rule) and in the preamble (58 FR 62197, November 24, 1993). The language is repeated in the provisions of the rule regarding the motor vehicle emissions budget test (§ 51.428(a)(1)(ii)) and the "build/no-build" test (§§ 51.436(e), 51.438(e)), although Clean Air Act section 182(f) is not specifically mentioned.

Section 182(f) of the Clean Air Act contains requirements for—and in some cases, exemptions for—major stationary NO_x sources in marginal and above ozone nonattainment areas and in an ozone transport region. EPA guidance for application of section 182(f) in these areas is briefly described and referenced in the next section of this preamble. Because the transportation conformity rule covers all nonattainment areas—including nonclassifiable ozone nonattainment areas (*i.e.*, submarginal, transitional, incomplete/no data areas) that are not necessarily covered under section 182(f)—corresponding guidance is needed for applying in these nonclassifiable ozone nonattainment areas the section 182(f) NO_x exemption referenced in the transportation conformity rule. This guidance is described below (section II, "EPA Policy") and is consistent with the existing guidance that applies to the marginal and above areas outside an ozone transport region. The substantive test for a NO_x exemption is the same in both sets of areas, but in nonclassifiable ozone nonattainment areas the effect of a NO_x exemption is limited solely to the issue of whether such areas may be exempted from meeting the NO_x requirements of the transportation conformity rule.

B. General Conformity

On November 30, 1993 (58 FR 63214), EPA published the general conformity final rule, entitled "Determining Conformity of General Federal Actions to State or Federal Implementation Plans." This action was required under section 176(c)(4) of the Clean Air Act, as amended in 1990.

Like the transportation conformity rule, the general conformity rule exempts an area from considering NO_x emissions if the area has been exempted under section 182(f) of the Clean Air Act (see definition of "precursors of a criteria pollutant," 58 FR 63248).

In order to avoid repetition, this General Preamble describes guidance on NO_x exemptions with respect to the transportation conformity rule However, this guidance for transportation conformity is intended to also apply with respect to general conformity.

C. Section 182(f) of the Clean Air Act

Section 182(f) of the Clean Air Act requires states to apply the reasonably available control technology (RACT) and new source review (NSR) requirements that apply to major stationary sources of volatile organic compounds to major stationary sources of NO_x as well. NO_X RACT is required in moderate and above ozone areas, as well as in all areas within an ozone transport region. NO_X NSR regulations are required in marginal and above ozone areas, as well as in all areas within an ozone transport region.

Clean Air Act section 182(f)(1)(A) states that, for nonattainment areas not within an ozone transport region (as established under Clean Air Act section 184), these NO_X requirements shall not apply if the Administrator determines that additional reductions of NO_X would not contribute to attainment of the national ambient air quality standard (NAAQS) for ozone in the area Furthermore, for areas within an ozone transport region, section 182(f)(1)(B) states that these stationary source NO_x requirements shall not apply if additional NO_X reductions would not produce net ozone air quality benefits in the region.

EPA issued limited guidance on section 182(f) exemptions in a September 17, 1993 memo from Michael H. Shapiro, Acting Assistant Administrator for Air and Radiation to the Regional Air Division Directors entitled, "State Implementation Plan (SIP) Requirements for Areas Submitting Requests for Redesignation to Attainment of the Ozone and Carbon Monoxide (CO) National Ambient Air Quality Standards (NAAQS) on or after November 15, 1992." EPA issued more extensive guidance in a December 1993 document entitled, "Guideline for Determining the Applicability of Nitrogen Oxide Requirements under section 182(f)." Most recently, EPA has clarified and, in part, revised its guidance in a May 27, 1994 memorandum from John S. Seitz Director of the Office of Air Quality Planning and Standards, to Regional Air Division Directors, "Section 182(f) NO_x

Exemptions—Revised Process and Criteria." All of these guidance documents are available by request from the contacts listed above.

Taken together, these guidance documents state that if an area (not within an ozone transport region) has attained the ozone standard, as demonstrated by adequate monitoring data consistent with EPA guidance, it is clear that additional NO_X reductions would not contribute to attainment. Therefore, such an area would meet the test under section 182(f)(1)(A) for an exemption from NO_X NSR and RACT requirements.

II. EPA Policy

A. Transportation Conformity and Section 182(f) Exemptions

The transportation conformity rule states that its NO_X provisions do not apply when the Administrator has determined under section 182(f) of the Clean Air Act that "additional reductions of NO_X would not contribute to attainment." Although two other passages of the transportation conformity rule use this language (which is borrowed from section 182(f)(1)(A)'s test for areas outside an ozone transport region) without specifically referring to section 182(f), EPA believes there is no appropriate basis to interpret this identical language differently under the transportation conformity rule than under the Clean Air Act. Consequently, EPA believes this common language should be interpreted similarly for purposes of both section 182(f) and conformity NO_X exemptions. Therefore, EPA is providing guidance which would exempt nonclassifiable ozone nonattainment areas outside an ozone transport region from the conformity rule's NO_X provisions on the same substantive basis as the applicable section 182(f) test.[1]

The transportation conformity rule applies to all nonattainment and maintenance areas, and does not distinguish between nonclassifiable nonattainment and other nonattainment areas. Consequently, EPA interprets the transportation conformity rule's reference to the need for nonattainment areas to obtain a section 182(f) exemption in order to be relieved of the NO_X conformity requirements to include nonclassifiable ozone nonattainment areas (*i.e.*, submarginal, transitional, incomplete/no data areas), even though such areas are not subject to Clean Air Act section 182(f) itself. This means that ozone nonattainment areas, including nonclassifiable ozone nonattainment areas, can only be exempted from the NO_X provisions of the transportation conformity rule if EPA determines that the area satisfies the substantive test required for an areawide section 182(f) exemption, through a process similar to that required for section 182(f) exemptions which are not related to conformity.

Thus, for nonclassifiable ozone nonattainment areas outside the Northeast ozone transport region, EPA will consider requests for determinations that additional NO_X reductions would not contribute to attainment if such areas already have air quality data that demonstrate attainment of the ozone standard, that are consistent with 40 CFR part 58 requirements, and that are recorded in EPA's Aerometric Information Retrieval System (AIRS). Once made, this determination would relieve an area of the transportation conformity rule's NO_X provisions. A more thorough explanation of the conditions and process for obtaining the 182(f) exemption is given in the May 27, 1994 Seitz memorandum.

B. Condition on NO_X Exemptions for Areas Outside the Ozone Transport Region With Monitoring Data Demonstrating Attainment

If a NO_X transportation conformity exemption request is based solely on monitoring data demonstrating attainment, EPA's approval of the exemption, if otherwise warranted, will be granted on a contingent basis, *i.e.*, the exemption would last for only as long as the area's monitoring data continues to demonstrate attainment. If subsequently it is determined that the area has violated the standard, the exemption, as of the date of the determination, would no longer apply. EPA would notify the state that the exemption no longer applies, and would also provide notice to the public in the **Federal Register**. Existing transportation plans and TIPs and past conformity determinations will not be affected by a determination that the NO_X exemption no longer applies, but new conformity determinations would have to observe the NO_X requirements of the conformity rule. The State must continue to operate an appropriate air quality monitoring network, in accordance with 40 CFR part 58, to verify the attainment status of the area. The air quality data relied on for the above determinations must be consistent with 40 CFR part 58 requirements and other relevant EPA guidance and recorded in EPA's Aorometric Information Retrieval System (AIRS).

C. Areas Inside an Ozone Transport Region

Section 182(f) of the Clean Air Act provides a different test for exempting areas in an ozone transport region from NO_X requirements (see section I.C. of this preamble). In particular, that test requires a demonstration that shows additional NO_X reductions would not produce net ozone benefits in the transport region as a whole. Since the requirement for meeting this test is substantially different from that needed to meet the contribute-to-attainment test in section 182(f)(1)(A), and since the language in the conformity rule clearly does not reflect the language of the test provided for areas in an ozone transport region, the determination of how such areas would qualify for an exemption from the rule's NO_X requirements merits more consideration before EPA can issue appropriate guidance. Today's guidance therefore applies only to NO_X exemptions for areas outside the Ozone Transport Region.

[1] As explained in footnote 6 of the May 27, 1994 memorandum from John Seitz, referenced above, for purposes of the NO_X exemption test, EPA is interpreting the term "contribute to attainment" to mean that the State (or petitioner) need only show whether additional NO_X reductions would contribute to attainment, not whether such reductions would contribute to attainment and maintenance. EPA believes that Congress could reasonably have believed it appropriate to require that States impose reasonably available control technology (RACT) and new source review (NSR) requirements on NO_X sources for areas in nonattainment, but that the States could be left to decide for themselves whether to impose these NO_X controls or other measures for maintenance purposes, even if these controls could "contribute" to maintenance. EPA believes this rationale also applies in the conformity context, where EPA believes it is reasonable to allow States that have attained the NAAQS to decide for themselves how best to ensure maintenance of the standard. And, as explained below, EPA has conditioned the monitoring-based section 182(f) and conformity exemptions on continued monitoring data that do not show violations of the NAAQS. This will provide an additional incentive for States to track NO_X emissions (and limit such emissions, where necessary) to ensure that future violations do not occur.

EPA notes that its conclusion regarding the relevance of maintenance may well be different for other Clean Air Act provisions where the test is whether emissions reduction measures are "necessary" for attainment, even if maintenance is not explicitly mentioned. See section 211(c)(4)(C) (allowing States to overcome federal preemption of State fuel controls where "necessary" to achieve a NAAQS) and section 184(c) (providing for EPA approval of ozone transport commission recommendations of additional control measures "necessary" to bring any area in the region into attainment). It may make less sense to disregard maintenance to disallow more stringent fuel controls under section 211 or to disapprove additional controls under section 184 where these measures not only contribute to but are "necessary" for maintenance. The rationale that the State might appropriately retain discretion to choose other options to ensure maintenance makes less sense when the specific measures in question are "necessary."

As noted previously, requests for conformity NO_X exemptions must consider the nonattainment area as a whole. With respect to transportation conformity, NO_X exemptions will not be granted for portions of nonattainment areas. Therefore, nonattainment areas with portions both inside and outside the Ozone Transport Region will be treated for purposes of such exemption requests as areas inside the Ozone Transport Region, and for the present time, will not be eligible for an exemption based on monitoring data as described in this notice.

EPA will give further consideration to areas in the Ozone Transport Region, and if EPA does propose to exempt some of these areas, they will be addressed in state-specific rulemaking notices unless another general preamble providing guidance for such areas is published first.

III. Process for Receiving a NO_X Exemption Based on Monitoring Data for Nonclassifiable Areas

EPA believes that section 182(f) sets up two separate procedures by which EPA may act on NO_X exemption requests. Subsections 182(f) (1) and (2) direct that action on NO_X exemption determination requests should take place "when [EPA] approves a plan or plan revision." This language appears to contemplate that exemption requests submitted under these paragraphs are limited to states, since states are the entities authorized under the Act to submit plans or plan revisions. By contrast, subsection 182(f)(3) provides that "person[s][2]" may petition for a NO_X determination "at any time" after the ozone precursor study required under section 185B of the Act is finalized,[3] and gives EPA a limit of six months after filing to grant or deny such petitions. Although subsection 182(f)(3) references section 182(f)(1), EPA believes that paragraph (f)(3)'s reference to paragraph (f)(1) encompasses only the substantive tests in paragraph (f)(1) (and, by extension, paragraph (f)(2)), not the requirement in paragraph (f)(1) for EPA to grant exemptions only when acting on plan revisions.

Accordingly, petitions submitted under subsection 182(f)(3) are not required to be submitted as state implementation plan (SIP) revisions. Consequently, the state is not required under the Act to hold a public hearing in order to petition for an areawide NO_X exemption determination under section 182(f)(3) (see Clean Air Act sections 110(a) (1) and (2)). For similar reasons, if the state is submitting an areawide petition under subsection 182(f)(3), it is unnecessary to have the Governor submit the petition. However, because of the need for consistency with the AIRS data and the requirements of 40 CFR part 58, EPA believes that, particularly in cases where the NO_X exemption request (including a request for exemption from the NO_X requirements of the conformity rules) is based on monitoring data, if such data is contained in a petition submitted by a person other than the state, the petition should be coordinated with the state air agency. Lack of endorsement by the state air agency will require more scrutiny by EPA, and therefore EPA's processing of the petition will likely take more time.

EPA will grant or deny a petition for an areawide NO_X transportation conformity exemption through a full rulemaking process. This may involve a direct final rule or a notice of proposed rulemaking followed by a final rule. Either process allows opportunity for public comment. For areas which are relying on monitoring data which demonstrates attainment, the notice and comment will provide opportunity for comment on the preliminary interpretations contained in this General Preamble. These rulemakings will also offer opportunity for comment on the appropriateness of using monitoring data which is consistent with the requirements in 40 CFR part 58 and consistent with the data recorded in AIRS as the basis of EPA's approval and rescission of the contingent NO_X exemption. If EPA issues a final rulemaking concluding that it will use such air quality monitoring data in making subsequent determination that an area has violated the standard, no further notice and comment will be required in order to rescind the NO_X exemption in the event that such data subsequently indicates that a violation has occurred.

EPA is preparing a delegation of authority to Regional Administrators to make determinations under section 182(f) for areas which are outside the Ozone Transport Region and which have three years of monitoring data demonstrating attainment. This delegation would allow the rulemaking for 182(f) determinations to be conducted by EPA's regional offices.

IV. Effect of a NO_X Transportation Conformity Exemption on Transportation Planning

This section applies to both classified and nonclassifiable areas.

Once EPA makes a finding under a separate notice which grants a NO_X transportation conformity exemption, an area is relieved of the transportation conformity rule's requirements for regional analysis of NO_X emissions

However, EPA plans to amend the transportation conformity rule to require that once an area's maintenance plan is approved, any previously approved NO_X conformity exemption no longer applies. The area must then demonstrate as part of its conformity determinations that the transportation plan and TIP are consistent with the motor vehicle emissions budget for NO_X where such a budget is established by the maintenance plan. As currently written, none of the transportation conformity rule's NO_X requirements would ever apply to an area once such an area had received a NO_X transportation conformity exemption.

EPA believes that it is crucial for maintenance areas to demonstrate consistency with the maintenance plan's motor vehicle NO_X emissions budget because that budget represents the level of motor vehicle NO_X emissions needed for continued maintenance. However, the maintenance plan's NO_X motor vehicle emissions budget for the purposes of transportation conformity will not necessarily require annual NO_X emission reductions throughout the ten-year period.

EPA intends to promptly amend the conformity rule as stated above, so that NO_X motor vehicle emissions budgets in maintenance plans will begin to apply at the time or shortly after those plans are approved.

V. Administrative Requirements

Regulatory Flexibility Act

Whenever EPA is required by section 553 of the Administrative Procedures Act or any other law to publish general notice and proposed rulemaking for any proposed rule, EPA shall propose and make available for public comment an initial regulatory flexibility analysis

The regulatory flexibility requirements do not apply for this General Preamble because it is not a regulatory action in the context of the Administrative Procedures Act or the Regulatory Flexibility Act.

Dated: June 8, 1994.

Carol M. Browner,

Administrator.

[FR Doc. 94–14416 Filed 6–16–94; 8:45 am]

BILLING CODE 6560–50–P

[2] Section 302(e) of the Act defines the term "person" to include states.

[3] The final section 185B report was issued July 30, 1993

D-12

RACT and Innovative Control Technology Projects
(7-5-94 J. Seitz)

The Environmental Protection Agency has been asked to consider whether a State may define RACT for nitrogen oxides (NOx) as a phased program extending beyond May 31, 1995 for sources that are actively developing innovative control technology. Because of the important environmental benefits associated with encouraging innovative technology, EPA has determined that States may, in certain cases involving innovative technology, define NOx RACT as a stage-by-stage program of measures in order to accommodate the source's development and installation of the innovative controls. This memorandum provides guidance on how EPA would process and approve innovative such controls.

7-5-94

MEMORANDUM

SUBJECT: Reasonably Available Control Technology (RACT) and Innovative Control Technology Projects

FROM: John S. Sietz, Director
Office of Air Quality Planning and Standards (MD-10)

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

The Environmental Protection Agency (EPA) has been asked to consider whether a State may define RACT for nitrogen oxides (NOx) as a phased program extending beyond May 31, 1995 for sources that are actively developing innovative control technology. Because of the important environmental benefits associated with encouraging innovative technology, EPA has determined that States may, in certain cases involving innovative technology, define NOx RACT as a stage-by-stage program of measures in order to accommodate the source's development and installation of the innovative controls.

Section 182(b)(2)(C) of the Clean Air Act (Act), as amended in 1990, requires implementation of RACT as expeditiously as practicable but no later than May 31, 1995. Sources that are pursuing innovative control approaches that may not be available for installation and commercial operation by this date have sought to define NOx RACT as a phased program extending beyond May 31, 1995. The EPA's general guidance concerning the phase-in of controls beyond May 31, 1995 is stated in the NOx Supplement to the General Preamble, 57 FR 55623, November 25, 1992. The guidance provided in this memorandum is limited to those situations where the source is currently pursuing an innovative control technology strategy which promises to gain reductions beyond existing NOx RACT measures and for which the application of all or some of the controls by May 31, 1995 is impracticable. In such cases, States can incorporate a phased NOx RACT program into their State implementation plans (SIP's) by adopting a SIP rule that allows for alternative compliance plans and which meets the requirements contained in the NOx Supplement to the General

Preamble and this memorandum. The EPA expects that the additional time provided in this memorandum will not generally exceed 12 to 18 months beyond May 31, 1995 and, in no event, would exceed May 31, 1999.

For purposes of this guidance, innovative control technology means any system of air pollution control that has not been adequately demonstrated but which would have a substantial likelihood of achieving greater continuous emissions reductions than existing RACT. For instance, owners of internal combustion engines have sought additional time to finalize NOx control technologies that are currently under development and which should achieve greater and less costly reductions than the technology presently considered to be RACT. However, this new technology would not be economically feasible if these sources are also required to immediately install existing NOx RACT measures.

In 1980, during implementation of the Act Amendments of 1977, EPA faced a similar issue for printers and similar sources. At the time, several companies were developing low-solvent inks and coatings as a means of meeting a RACT standard. While this pollution prevention approach promised to provide greater environmental benefits than add-on controls, it was not reasonably available by the applicable deadline. The EPA resolved the issue by allowing States to enter into alternative compliance schedules with these sources, subject to a number of safeguards and limitations (see memorandum, from Richard G. Rhoads, Director, Control Programs Development Division, to Director, Air and Hazardous Materials Division, Regions I - X, dated April 25, 1980).

Similar to the printers' case noted above, EPA believes it is appropriate to allow sources developing innovative control technologies that promise greater emission reductions to phase-in those controls over a period extending beyond May 31, 1995. Under a phased-in approach, NOx RACT would be defined as a stage-by-stage schedule of compliance steps including implementation of all measures which can practicably be implemented by May 31, 1995, and subsequent implementation of other measures leading to full implementation of the innovative technologies. The EPA would regard all measures which are practicable for the affected source (or set of sources) to implement by May 31, 1995 as RACT as of that date. As other control measures become practicable to implement at later times, EPA would regard such measures as RACT as of those later dates. Thus, the SIP would require that available noninnovative control measures be implemented on schedules reflecting implementation as expeditiously as practicable, but no later than May 31, 1995, and would require that innovative technology be developed and installed on schedules reflecting the earliest practicable development dates. The following lists the criteria States must use in administering

a phased RACT program.

1. Phased compliance is only available to a source (or set of sources subject to single ownership) that is actively pursuing innovative control technologies that would not be available by May 31, 1995. The innovative technology must promise lower emissions levels than the existing State SIP developed NOx RACT measures and can consist of either innovative add-on controls, process changes, or pollution prevention strategies. The State must determine that the innovative technology under development by a source is technically sound and sufficiently developed to warrant a phased RACT approach. The EPA encourages States to consult with the EPA Regional Offices in making this determination.

2. The source and the State must agree to a specific phased RACT compliance plan which includes:

- An enforceable schedule of actions for making any initial reductions that are compatible with the overall innovative technology by a specified date reflecting installation as expeditiously as practicable, but no later than May 31, 1995; and

- An enforceable schedule of actions culminating in final installation and operation of the innovative control technology by a specified date. The schedule for the innovative technology must include clearly specified milestones reflecting development and installation of the technology as expeditiously as practicable. There must be a sufficient number of milestones to ensure that work on the development of innovative technology is being performed diligently and to enable the State and EPA to monitor the progress of the development effort.

3. The compliance plan must contain an enforceable schedule which requires the installation of existing NOx RACT measures by a specified date if the source fails to diligently meet the milestones contained in the phased RACT compliance plan or if the innovative technology program fails to achieve the required reduction levels.

4. The State must adopt and submit the compliance plan to the EPA as a source-specific SIP revision. A SIP revision is needed to make the requirements federally enforceable. As an alternative to a source-specific SIP revision, States may make the above phased RACT requirements for innovative technologies

enforceable by including them directly in the NOx RACT rule, applicable on a case-by-case basis.

All inquiries regarding this policy should be addressed to Tom Helms at (919) 541-5527.

D-13

Clarification of Policy for NOx Substitution
(8-5-94 J. Seitz)

The purpose of this memorandum is to clarify past guidance issued by the Environmental Protection Agency (EPA) on NOx substitution for the post-1996 rate-of-progress (ROP) plans. Specifically, this memorandum clarifies what the EPA will accept as evidence that NOx substitution for volatile organic compounds (VOC) redu2tions is a viable approach for meeting post-1996 ROP requirements prior to completion of modeling supporting an area's attainment demonstration.

August 5, 1994

MEMORANDUM

SUBJECT: Clarification of Policy for Nitrogen Oxides (NOx) Substitution

FROM: John S. Seitz, Director
Office of Air Quality Planning and Standards (MD-10)

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

The purpose of this memorandum is to clarify past guidance issued by the Environmental Protection Agency (EPA) on NOx substitution[1,2] for the post-1996 rate-of-progress (ROP) plans. Specifically, this memorandum clarifies what the EPA will accept as evidence that NOx substitution for volatile organic compounds (VOC) reductions is a viable approach for meeting post-1996 ROP requirements prior to completion of modeling supporting an area's attainment demonstration.

Background

When the NOx substitution guidance was developed, it was assumed that required modeling attainment demonstrations would generally be completed in a timely manner. Consequently, the policy assumes that information produced by the demonstrations

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[1]"Transmittal of NOx Substitution Guidance," memorandum from John S. Seitz, Director, Office of Air Quality Planning and Standards, to Air Division Directors, December 15, 1993.

[2]"Guidance on the Post-1996 Rate-of-Progress Plan and the Attainment Demonstration," U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, EPA-452/R-93-015, January 1994.

would be, in most cases, available to assist decision makers to reach sound decisions concerning NOx substitution to meet post-1996 ROP requirements.

Recent information from Regional Office modeling contacts indicates that it is likely that some areas may not complete their attainment modeling analyses by November 1994. Perhaps even more significant, very few modeling demonstrations are expected to be completed appreciably before the Act's November 15, 1994 deadline for submitting State implementation plan revisions reflecting ROP requirements and additional measures needed to attain the national ambient air quality standards (NAAQS). This latter possibility raises the likelihood that there may be insufficient time prior to November 1994 to take full advantage of information generated in the attainment demonstration modeling to support a ROP plan reflecting partial or full substitution of NOx for VOC reductions.

NOx Substitution Policy

The December 1993 NOx substitution guidance identifies several prerequisites for NOx to be substituted, in part or in full, for VOC reductions to satisfy ROP requirements. For purposes of this discussion, the most pertinent of these appears on pages 2 and 3, "States are required to justify substitution by illustrating 'consistency' between the cumulative emission changes emerging from the reasonable further progress/ substitution and the emission reductions in the model attainment demonstration (or comparable modeling analysis)." The guidance goes on to say on page 3 that, "The EPA will approve substitution proposals on a case-by-case basis. Generally speaking, any reasonable substitution proposal will be approved."

In the absence of a complete modeled attainment demonstration, the following prerequisites are consistent with the intent of the guidance on NOx substitution.

1. The NOx reasonably available control technology (RACT) regulations should be adopted and submitted to the EPA by the State seeking to substitute NOx for VOC to meet ROP requirements; EPA will have to approve the NOx RACT rules no later than the date of approval of the ROP plan featuring NOx substitution.

2. At least one of the two following conditions should be met: (a) modeling of at least one episode should have been completed with photochemical grid modeling which shows that NOx reductions are useful in reducing ozone concentrations; or (b) a regional modeling analysis supporting use of NOx controls to reduce ozone within the area under consideration for use of NOx substitution should be available.

The first prerequisite shows that, indeed, NOx controls are a part of the area's strategy to attain the ozone standard. The prerequisite in 2(a) is preferable to that in 2(b), and will take precedence, because it is more likely to reflect assumptions and inputs to be used in the attainment demonstration. In any event, either photochemical grid modeling or regional modeling results are needed to show that NOx control is useful in helping an area to attain the ozone NAAQS. It is only necessary to show this for one of the episodes selected for the attainment demonstration. This follows because the attainment strategy ultimately selected must show predicted ozone to be less than or equal to 120 parts per billion for all selected episodes.

Questions on this clarification may be directed to John Silvasi at (919) 541-5666, or Ned Meyer at (919) 541-5594.

cc: Doug Grano
Tom Helms
Steve Hitte
William Hunt
Ned Meyer
Rich Ossias
Kimber Scavo
Laurel Schultz
John Silvasi
Joe Tikvart
Lydia Wegman

D-14

De Minimis Values for NOx RACT
(1-1-95 T. Helms)

This memorandum presents information that is useful to persons reviewing RACT rules with respect to de minimis values for NOX RACT.

The RACT requirements apply to major stationary sources in certain ozone nonattainment areas and throughout an ozone transport region. A source generally consists of several units which emit pollutants to the atmosphere. The sum of emissions from all units at a facility determines if a unit is major and, thus, subject to the RACT requirements. However, certain units at a facility may be so small that it is clear that no controls are reasonably available for those units, although RACT would still apply at the other units within the facility.

Signed Copy Dated January 1, 1995

MEMORANDUM

SUBJECT: De Minimis Values for NOx RACT

FROM: G. T. Helms, Group Leader
Ozone Policy and Strategies Group (MD-15)

To: Air Branch Chief, Region I - X

This memorandum presents information that we think would be useful to you as you are reviewing RACT rules with respect to de minimis values for NOX RACT. It was extensively coordinated with the OGC and the NOx work group.

The RACT requirements apply to major stationary sources in certain ozone nonattainment areas and throughout an ozone transport region. A source generally consists of several units which emit pollutants to the atmosphere. The sum of emissions from all units at a facility determines if a unit is major and, thus, subject to the RACT requirements. However, certain units at a facility may be so small that it is clear that no controls are reasonably available for those units, although RACT would still apply at the other units within the facility.

Regulatory agencies have typically included exemptions for very small emission units in their VOC RACT rules. The reason for the exemptions is that control requirements at very small units are generally not reasonable, considering technological and economic feasibility. A 15 pound/day cut-off level first appeared in 1966 in Rule 66 which was adopted by Los Angeles County. The 3 pound/hour and 15 pound/day cut offs were subsequently adopted into the Code of Federal Regulations, 40 CFR part 51, Appendix B in 1971. After the first CTG's were issued, EPA developed model regulations for VOC RACT. This guidance appeared in April 1978 and included the 3 pound/hour and 15 pound/day exemptions for 15 VOC source categories. Unless specified differently in other guidance, the EPA continues to recommend these cut-off levels as criteria for regulatory agencies to consider as they adopt or revise their VOC RACT rules.

As a result of the new NOx RACT requirements in the Clean Air Act Amendments of 1990, regulatory agencies are required to develop and adopt NOx RACT rules. In the process of drafting these rules, many agencies have included exemptions for very small NOx emission sources for the same reason noted above for VOC rules. Unlike the VOC rules, however, there is no well-established precedent with respect to NOx. Further, the values adopted by the various agencies include a wide range of exempt sources. Thus, it is difficult to give a specific de minimis value or range of such values for NOx as for VOC. The purpose of

this memorandum is to provide technical data that may be used to evaluate NOx de minimis for various categories of sources.

Technical data on NOx de minimis levels is contained in attachments to this memorandum. The technical data are primarily derived from information contained in the recently completed NOx alternative control techniques (ACT) documents for four source categories as follows:

Stationary Gas Turbines
Internal Combustion Engines
Process Heaters
Boilers (Watertube Boilers; Firetube Boilers)

These ACT documents provide comprehensive data on the full range of potential NOx controls for each source category, including the economic and technological feasibility of various control processes.

In the evaluation of NOx de minimis levels, the following factors should be considered:

1. Emission rates for various source sizes (for example pound/hour).

2. Cost-effectiveness of controls.

3. Total emissions for a source category above various cut-off levels

4. Total number of sources in a category above various cut-off levels.

5. Exemptions contained in adopted State and local regulations.

6. Units which meet the Act definition of a major source should generally not be considered de minimis.

As a result of this review, EPA does not recommend specific de minimis values, but presents the attached factors as a guide in the development and review of State de minimis rules. In addition, we strongly recommend that de minimis values be based on more than one factor.

If you have any questions please contact Ted Creekmore of staff at 919-541-5699.

Attachment
cc: NOx Work Group Members, Sally Shaver

ATTACHMENT 1
TECHNICAL DATA THAT MAY BE USED TO DETERMINE A DE MINIMIS RACT RULE FOR PROCESS HEATERS

This information is from the "Alternative Control Techniques Documents--NOx Emissions from for Process Heaters, " EPA-453/R-93-015, February 1993.

Tables 1 lists the five criteria used to estimate de minimis values. Table 1 also includes emissions of de minimis sources as a percentage of overall emissions. Table 2 include emissions by size (MMBtu/hr) of source. Table 3 gives cost effectiveness for the various control measures and fuels burned by process heaters. Table 4 includes a listing of State de minimis rules.

TABLE 1

NOx De Minimis Rules--Process Heaters				
Emissions by Size	Cost Effect-ness Envelop	Number of Sources	Emission s of Sources	State Regulations (MMBtu/hr)
ND:NG 50 MMBtu/hr= 4.9 lb/hr MD--50 MMBtu/hr= 9.85 lb/hr[1] SEE TABLE 2	See table 3	50 MM Btu/hr(exem pts about 50% of sources)	About 20% of total Process Heater Emission s	MI <100 NJ NY DE <15 CA <5 See Table 4

Abbreviations
NG-Nitrogen Gas fired
ND-Natural Draft
MD-Mechanical Draft

[1]Emission factors for ND and MD process heaters are different. However they are the same for all capacity sizes of Process Heaters within each category.

TABLE 2--Emissions by Size of Process Heater

Model Capacity (MMBtu/hr)	Natural[2] Draft-Natural Gas lb/hr	Mechanical[3] Draft-Natural Gas lb/hr	Natural[4] Draft-Oil Dist/Resid lb/hr	Mechanical[5] Draft-Oil Dist/Resid lb/hr
5	.49	.99	1.0 2.1	1.6 2.7
50	4.9	9.85	10.0 21.0	16.0 26.0
69	6.7	13.6	13.8 29.0	22.1 37.2
135	13.2	26.6	27.0 56.7	43.2 72.9
100	9.8	19.7	20.0 42.0	32.0 54.0

[2]EF: .098 lb NOx MMBtu

[3]EF: .197 lb/MMBtu

[4]EF: .20/.42 lb/MMBtu

[5]EF: .32/.58 lb/MMBtu

TABLE 3--Cost Effectiveness Heat Inputs (MM BTU/hr)for $1300 per ton for Process Heaters

Type Control	Natural Draft-Natural Gas	Mechanical Draft-Natural Gas	Natural Draft-Oil Dist/Resid	Mechanical Draft-Oil Dist/Resid
LNB	75 (1430)	40(1330)	>69(1680)[6] <69(1190)	<135(658)[7] <135(477)
ULNB	50(1300)	<40(1,020)[8]	<69(892) <69(420)	<135(408) <135(245)
SNCR	>186(2930)[9]	263(1420)	>69(2350) <69(1230)	135(1340) <135(880)
SCR	X	>263(3710)	X	>135(4160) >135(2480)
LNB+FGR	X	>263(1720	X	<135(1170) <135(961)

[6]This entry means: For LNB only one heat capacity was given, 69 MMBTU/hr. For distillate oil the size of a process heater that would be cost-effective would probably be >69 MMBtu/hr since the data shows a cost of $1680 at 69. For residual oil, the size of a process heater that would be cost-effective would probably be <69 because the cost at 69(1190) is below 1300.

[7]This entry means: For LNB only one heat capacity was given, 135 MMBTU/hr. For distillate oil the size of a process heater that would be cost-effective would probably be <135 MMBtu/hr because the cost at 135($658) is less than $1300. For residual oil, the size of a process heater that would be cost-effective would also probably be <135 because the cost at 135($477) is below $1300.

[8]This entry means: For ULNB the lowest heat capacity given was 40 MM Btu/hr where the cost is $1040 per ton of NOx removal. Thus, ULNB is cost effective over the range of heat capacity given (40-263 MM Btu\hr). In fact, since $1300 is the target cost, a smaller process heater of <40 MM Btu/hr may be cost effective.

[9]This entry means: For SNCR the highest heat capacity given was 186 MM Btu/hr where the cost is $2980 per ton of NOx removed. Thus, SNCR is not cost effective over the range of heat capacity given (17-186).

LNB+SNCR	>186(3150)	>263(1860)	>69(2740) <69(1430)	135(1490) <135(942)
LNB+SCR	X	>263(5530)	X	>135(3620) >135(3190)

LNB--Low NOx Burner
UNLD--Ultra Low NOx Burners
SNCR--Selective Non-Catalytic Reduction
SCR--Selective Catalytic Reduction
LNB + FGR--LNB + Flue Gas Recirculation
X--No Data

TABLE 4--STATE PROCESS HEATER RULES--DE MINIMIS RULES

STATE/DATE	RULE	COMMENT
MI	< 100 MMBTU/hr	
NJ 11/17/93 3/25/94	Overall: 25 t/y < 137 lbs/d 5/15-9/15	
NY 11/17/93 3/28/94	Overall: 3 lbs/hr; 15 lbs/day	
CA 3/28/94 Some Districts	5 MMBtu/hr or 1 MM Btu/hr	Some Districts
DE	<15 MMBtu/hr Sources Operating only during the months November through March.	Annual capacity factor of less than 5%

ATTACHMENT 2
TECHNICAL DATA THAT MAY BE USED TO DETERMINE A DE MINIMIS RACT RULE FOR STATIONARY GAS TURBINES

This information is from the "Alternative Control Techniques Documents--NOx Emissions from Stationary Gas Turbines," EPA-453/R-93-007, January 1993, unless otherwise noted.

Tables 1 list five criteria used to estimate de minimis values. Table 2 include emissions by power output of gas turbines. Table 3 give cost effectiveness information for the natural gas and distillate oil fuels burned by gas turbines. Table 4 gives estimates of the size and relative power usage
of the four major source types. Table 5 includes a listing of State de minimis values.

TABLE 1

NOx De Minimis Rules--Stationary Gas Turbines				
Emissions by Size	Cost Effectness Envelop	Number of Sources	Emissions of Sources	State Regulations
			Percent of total power for gas turbines: Standby/emergency: 2 Oil and gas industry: 7 Independ. elect. pow.: 4 Utilities: 87	
Table 2	Table 3	Table 4	For De Minimis value of 4.4 MW (15MMBtu/hr), would exclude: Most standby/emergency, Many oil and gas, Some independ. elect. pow. Few utilities turbines[10]	Table 5

[10]4.4 MW de minimis for example purposes, not necessarily recommended.

TABLE 2
Stationary Gas Turbines
Uncontrolled/Controlled Emissions by Size of Gas Turbines
Control Method: Water Injection

Gas Turbine Model	Power[11] Output Megawatts (MMBtu\hr	Dist. Oil-- Uncontro lled lb/hr	Dist. Oil-- Control led lb/hr	Nat. Gas-- Uncont rolled lb/hr	Natural Gas-- Control led lb/hr
Saturn	1.1(3.4)	9.9	4.1	6.4	2.8
Centaur	3.3(11.3)	31.2	10.8	22.0	7.4
Taurus	4.5(15.4)	37.6	13.9	24.7	9.4
Mars T-12000	8.8(30.1)	107	24.9	69.4	17.0
LM2500	22.7(77.7	301	37.9	146	36.4
GT10	22.6(77.4	196	42.6	143	24.6
MS7001E	84.7(290)	822	243	544	154
MS7001F	161(551)	2190	417	1290	267

[11] 1MMBtu/hr equals .292 MW

TABLE 3--Stationary Gas Turbines
Gas Turbine Power Output Corresponding to $1300 per ton[12]

Type Control	Natural Gas Power Output--Megawatts (MMBtu/hr)	Light Distillate Fuel MMBtu/hr
Water Injection (WI)	17 (58.2)	12-14
Steam Injection	11 (37.7)	8-9
Selective Catalytic Reduction (SCR)[13]	42 ppm[14] 25 ppm[15]	42 ppm[16] 25 ppm[17]
WI + SCR	60 (205)	42-46
Dry Low NOx + SCR (9ppm)	11 (37.7)	No Reductions
Dry Low-NOx	4[18](11.7)	No Reductions

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[12]Boiler capacity is given in Megawatts (MW) with the equivalent MMBtu/hr that corresponds to an estimated cost of $1300 dollars per ton of NOx removed. Operating time is 8000 hrs/yr.

[13]Five year catalyst life assumed with the emission level for the combination of controls estimated at 9 ppmv.

[14]Least expensive controls $3,580 at 161 MW (549.5 MMBtu/hr) for control from 42 to 9ppmv.

[15]Least expensive controls at $6,980 at 83 MW (283.3 MMBtu/hr) for control from 25 to 9 ppmv.

[16]Least expensive controls $2649 per ton at 161 MW (549.5 Btu/hr) for control from 42 to 9 ppmv. Oil-fired cost effectiveness is approximately .74 of gas fired. Thus, $3,580 X .74 equals $2649.

[17]Least expensive controls $5165 per ton at 83 MW (283.3 Btu/hr) for control from 25 to 9 ppmv. Calculated as in footnote #7.

[18]Entire range below $1300; 4 MW is the lowest capacity plotted.

TABLE 4--NUMBER OF SOURCES FOR STATIONARY GAS TURBINES[19]

Type of Source	Total Sources	Size Breakdown
Standby/Emergency Electric Power Generation	Estimated at 2% of total power use for 1985 (2000 MW)	Large number of turbine sales under 3.7 MW; operate on an as need basis; typically 75-200 hours\ yr. 1000 HP (.74 MW) is considered average horsepower.
Oil and Gas Industry	Estimated at 7% of total power use for 1985 (6000 MW)	Most turbines with .08 - 15 MW range (.27-51.4 MMBtu/hr) (107-20,100 HP) most operate continuously 8000 hrs/yr
Independent Electrical Power Producers	Estimated at 4% of total power use for 1985 (3600MW)	Range of turbines 1-100 MW; typically operate between 4000 and 8000 hours/yr
Electric Utilities-Peaking Units	Estimated at 87% of total power use for 1985 (89,000 MW)	Range of turbines 15-150 MW, most operate less than 2000 hours/yr

[19]Information from EPA-450/2-77-017a, Standards Support and Environmental Impact Statement Volume 1: Proposed Standards of Performance for Stationary Gas Turbines, September 1977.

TABLE 5--STATE BOILER DE MINIMIS RULES
STATIONARY GAS TURBINES[20]

STATE/DATE	RULE	COMMENT
LA 11/17/93	< 3 MW (10.3 MMBtu/hr)	
TX 11/17/93	< 10 MW (34.2 MMBtu/hr)	
NESCAUM 11/17/93	<25MMBtu/hr (7.3 MW)	maximum heat input rate
NJ 11/17/93 3/25/94	<30 MMBtu/hr Overall: 25 t/y < 137 lbs/d 5/15-9/15	Waived if following cond. present:[21]
NY 11/17/93 3/28/94	<10 MMBtu/hr (2.92 MW)	
CA 3/28/94 S. Coast Bay Area Kern County	 <.3 MW (1.0 MMBtu\hr) " <10 MW (29.2 MMBtu\hr)	
DE	<450 hp (1.2 MMBtu/hr) (.33 MW)[22]	
CN 3/28/94	<100 MMBtu/hr (29.2 MW)	
NH 3/28/94	< 25 MMBtu/hr	facility-wide heat input
MASS 3/28/94	< 25 MMBtu/hr	

[20]Generally, it is not clear whether these de minimis values refer to whole plants (NJ, NY) or individual units.

[21]1. Insufficient water supply or water of unsuitable quality; 2. No commercially available dry low-NOx combusters; 3. RACT is annual tune-up.

[22]1 HP equals .00074MW equals .00253 MMBtu/hr

ATTACHMENT 3
TECHNICAL DATA THAT MAY BE USED TO DETERMINE A DE MINIMIS RACT RULE FO
INTERNAL COMBUSTION ENGINES

This information is from the "Alternative Control Techniques Documents--NOx Emissions from Stationary Reciprocating Internal Combustion Engines," EPA-453/R-93-032, July 1993, unless otherwise noted.

Tables 1 list five criteria used to estimate de minimis values. Table 2 include emissions by size of engines. Table 3 give cost effectiveness information for the various types of IC engines. Table 4 lists numbers of sources by the different fuels burned. Table 5 includes a listing of State de minimis rules.

TABLE 1

NOx De Minimis Rules--Internal Combustion Engines				
Emissions by Size (hp)	Cost Effect-ness Envelop	Number of Sources	Emissions of Sources	State Regulat ions (MMBtu/ hr)
See Table 2	See Table 3	Table 4	Any De Minimis in the range of 100-350 HP Excludes about 95% of total emissions for spark ignition engines	DE <450 CA <50 Table 5
			Diesels--36% of emissions below De Minimis value	

TABLE 2--Emissions by Size of IC engines

Size Unit HP	SI: Rich-Burn[23] lb/hr	SI: Lean Burn[24] lb/hr	Gasoline[25] lb/hr	Diesel lb/hr[26]	Dual Fuel lb/hr[27]
100	3.48	3.7	1.14	2.65	
200	6.96	7.4	2.28	5.30	
500	17.4	18.5	5.70	13.23	
700				18.55	13
1000	34.75	37		26.5	18.7
1500					28

[23]EF = 13.9 t/y based on 8000 annual operating hours

[24]EF = 14.8 t/y based on 8000 annual operating hours.

[25]EF = 5.16 g/hp-hr from AP-42

[26]EF = 10.6 t/y based on 8000 annual operating hours.

[27]EF = 52.4 t/y based on 8000 annual operating hours.

TABLE 3
Cost Effectiveness Horsepower for $1300 per ton for IC Engines

Type Control	Spark Ignition (SI) (NG) Rich Burn	Lean Burn	SI Gaso-line[28]	Compression Ignition Diesel	Dual-Fuel
AF	200	700	ND		
IR	200	500	ND	250	700[29]
AF+IR	200[30]	700	ND		
NSCR or PSC	500-700		ND		
L-E Med	80[31]	200[32]	ND		> 1300[33]
L-E low	1000	900	ND		
SCR (low)	No Data	1400	ND	1900	3500

Abbreviations:

AF	Air/Fuel Adjustments
IR	Ignition Timing Retard
NSCR	Nonelectric Catalytic Reduction
PSC	Prestratified Charge
SCR	Selective Catalytic Reduction
L-E	Low Emission Combustion Design[34]
A/F+IR	Parametric
NG	Natural Gas

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[28]Assume cost effectiveness similar to Natural Gas SI engines.

[29]Entire range below $1300; 700 HP lowest plotted.

[30]More flexibility in adjusting engine than just IR or AF.

[31]Entire range below $1300; 80 is lowest HP plotted.

[32]Entire range below $1300; 200 is the lowest HP plotted.

[33]Least expensive controls cost $2200 per ton at about 7000 HP.

[34]Generally apply to new sources, not off the shelf technology for most existing sources.

TABLE 4--NUMBER OF SOURCES FOR IC ENGINES

Fuel Burned	Total Sources	Size Breakdown
Natural Gas	294,000 266,000 (90%) average HP is = 15	<_ 200 HP 94% of sources
Gasoline	64,100,000 63,000,000 (98%) average HP is 4	<_200 HP Almost 100% of sources Largest 40,000 sources averaged 150 HP
Diesel Oil[35]	606,000	545,000 <_ 350 HP or 90% 381,000 <_ 250 HP or 63%

[35]Duel Fuel Sources included with Diesel data.

TABLE 5--STATE IC RULES

STATE/DATE	RULE	COMMENT
LA 11/17/93	_> 300 hp	
TX 11/17/93	_> 150 hp Houston _> 300 hp Beaumont	
NESCAUM 11/17/93	_> 3 MM BTU/hr (1178 hp)[36]	
NJ 11/17/93 3/25/94	_> 500 hp; Overall: 25 t/y < 137 lbs/d 5/15-9/15	
NY 11/17/93 3/28/94	_> 225 hp for Severe Area _> 400 hp rest of State Overall: 3 lbs/hr; 15 lbs/day	
CN 3/28/94	3 MM BTU (1178 hp)	
CA 3/28/94 S. Coast	_> 50 bhp	
Ventura	_> 50 bhp	
San Diego	_> 200 bhp	
SF Bay Area	_> 250 bhp_	
S. Basin	_> 50 bhp	
NH 3/28/94	4.5 MMBTU (1768 hp)	
MASS 3/28/94	3 MMBTU (1178 hp) operate >1000 hrs per yr	
RI 3/24/94	> 400 hp	

[36]Conversion Factor: 392.7 HP/MM Btu/hr

ATTACHMENT 4
OVERVIEW OF BOILER CATEGORIES[37]

Class/Type Fuel	Capacity Range (MMBtu/hr)	Number of Boilers	Total Capacity (MMBtu/hr)	Percent of Total Capacity
Commercial Institut.	.4 - 10	1,295,130	1,374,690	31
Industrial	10 - 1500	506,930	3,107,440	69
Watertube	.4 - 1500	50,495	2,552,500	57
Firetube	.4 - 50	275,075	1,033,300	23
Cast Iron	.4 - 10	1,476,490	896,200	20
Coal		214,00	815,830	18
Residual		389,104	1,223,800	27
Distillate		244,206	433,600	10
Nat. Gas		954,350	2,008,500	47

[37]Data from EPA-600/7-79-178a, Population Characteristics of Industrial/Commercial Boilers in the U.S., August 1979.

ATTACHMENT 5
TECHNICAL DATA THAT MAY BE USED TO DETERMINE A DE MINIMIS RACT RULE FOR WATERTUBE BOILERS (REVISED 10/17/94)

This information is from the "Alternative Control Techniques Documents--NOx Emissions from Industrial/Commercial/Institutional (ICI) Boilers," EPA-453/R-94-022, March 1994, unless otherwise noted.

Tables 1 list five criteria used to estimate de minimis values. Table 2 include emissions by size of boilers. Table 3 give cost effectiveness information for the various fuels burned by watertube boilers. Table 4 lists numbers of sources by the different fuels burned. Table 5 includes a listing of State de minimis values.

TABLE 1

NOx De Minimis Rules--Watertube Boilers				
Emissions by Size (MMBtu/hr)	Cost Effectness Envelop	Number of Sources	Emissions of Sources	State Regulations (MMBtu/hr)
			Watertube boil. are about 6% of total ICI boilers About 30% of ICI boiler capacity	
Table 2	Table 3	Table 4	For de minimis value of 10 MMBtu/hr, this would exclude: NG: 33% DIST 56% RESID 28% COAL 0%	Table 5

Abbreviations:
NG Natural Gas; DIST Distillate Oil;
RESID Residual Oil;

TABLE 2
Watertube Boilers
Uncontrolled Emissions by Size of Boilers(lb/hr)

Size Unit MMBtu /hr	Coal[38]	Residual Oil[39]	Distillat Oil[40] 10--100/ >100	Natural Gas[41] <_100/ >100	
1	0.69	0.36	0.13	0.14	
5	3.45	1.80	0.65	0.70	
10	6.90	3.60	1.30	1.40	
100	69.0	36.00	13.00/ 21.00	14.00	
250	172	90.00	-----/ 52.50	-----/ 65.00	

[38]EF = 0.69 lb/MMBtu based on .70 Capacity factor or 5600 operating hours per year.

[39]EF = .36 lb/MMBtu

[40]EF = .13 lb/MMBtu, 10--100 MMBtu/hr; .21 lb/MMBtu, >100.

[41]EF = .14 lb MMBtu <_ 100 MMBtu/hr; .26 lb MMBtu >100.

TABLE 3--Watertube Boilers (Single Burners-Packaged)
Boiler Size Corresponding to $1300 per ton[42]

Type Control	Natural Gas .66C	Natural Gas .50C	Distill. Oil .66C	Distill. Oil .50C	Residual Oil .66C	Residual Oil .50C	Pul Coal .66/.50C
SNCR	ND	ND	ND	ND	ND	ND	250/250
SCR	[43]	[44]	[45]	[46]	140	[47]	[48]
OT+WI	10[49]	10[49]	ND	ND	ND	ND	ND
OT+SCA	ND	ND	ND	ND	ND	ND	ND
LNB	10	175	10	160	10	50	250/600
LNB+FGR	75	240	25	250	10	200	ND

Abbreviations:

.66C	.66 Capacity Factor	.50	.50 Capacity Factor
ND	No Data	Pul	Pulverized
SNCR	Selective NonCatalytic Reduction		
SCR	Selective Catalytic Reduction		
OT+WI	Oxygen Trim + Water Injection		
OT+SCA	OT + Staged Combustion Air		
LNB	Low NOx Burners		
LNB+FGR	Low Nox Burners + Fluid Gas Recirculation		

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[42]Boiler capacity is given in MM Btu/hr that corresponds to an estimated cost of $1300 dollars per ton of NOx removed. Capacity factor: .66/.50. Costs based on 10 percent interest and 10 year capital amortization in 1992 dollars. Does not include the impact of Continuous Emission Monitoring systems, required on larger source in some areas.

[43]Least expensive controls $1800 at 250 MM Btu/hr.

[44]Least expensive controls $3900 per ton at 250.

[45]Least expensive controls cost $2180 per ton at 250 MMBtu/hr.

[46]Least expensive controls cost $4100 per ton at 250 MMBtu/hr.

[47]Least expensive controls cost $2190 at 250 MMBtu/hr.

[48]Least expensive controls $3000/3700 at 750 MMBtu/hr.

[49]Entire range below $1300; 10 is lowest capacity plotted.

TABLE 4--NUMBER OF SOURCES FOR WATERTUBE BOILERS[50]

Fuel Burned	Total Sources	Size Breakdown
Coal: Pulverized	733	>250 MMBtu/hr--36% >100 " --100%
Natural Gas	18,291	>250 MMBtu/hr--3% >100 " --11% <10 " --33%
Distillate	8,000	>250 MMBtu/hr--1% >100 " --3% <10 " --56%
Residual Oil	15,953	>250 MMBtu/hr--2% >100 " --10% <10 " --28%

[50]Information from EPA-600/7-79-178a, Population and Characteristics of Industrial/Commercial Boilers in the U.S., August 1979. Includes both packaged and field-erected watertube boilers. Cost-effective data in Table 3 is only for single-burner packaged boilers.

TABLE 5--STATE BOILER DE MINIMIS RULES FOR INDUSTRIAL/COMMERCIAL BOILERS (INCLUDES WATERTUBE AND FIRETUBE)[51]

STATE/DATE	RULE	COMMENT
OH	<10 MMBtu/hr	
MI	<_100 MMBtu/hr	
LA 11/17/93	<_80 MMBtu/hr	
TX 11/17/93	<_100 MMBtu/hr	
NESCAUM 11/17/93	50--100 MBtu/hr case by case	
NJ 11/17/93 3/25/94	Overall: 25 t/y < 137 lbs/d 5/15-9/15	
NY 11/17/93 3/28/94	Overall: 3 lbs/hr; 15 lbs/day	
CN 3/28/94	< 5 MMBTU/hr	only tuneups required
CA 3/28/94 S. Coast	<_ 2 MMBtu/hr	Varies from 2-5 MMBtu/hr
Ventura	<_ 1 MMBtu/hr	1-5 MMBtu/hr
San Diego	<_ 5 MMBtu/hr	
SF Bay Area	<_ 1 MMBtu/hr	1-5 MMBtu/hr
S. Basin	<_ 5 MMBtu/hr	
NH 3/28/94	< 30 MMBTU	
MASS 3/28/94	< 20 MMBtu/hr (with PTE <25 TPY) operate >1000 hrs per yr	
MA 3/28/94	< 50MMBtu/hr	
RI 3/24/94	< 50 MMBtu/hr-only tuneups required	

[51]Generally, it is not clear whether these de minimis values refer to whole plants (NJ, NY) or individual units.

ATTACHMENT 6
TECHNICAL DATA THAT MAY BE USED TO DETERMINE A DE MINIMIS RACT RULE FOR FIRETUBE BOILERS

This information is from the "Alternative Control Techniques Documents--NOx Emissions from Industrial/Commercial/Institutional (ICI) Boilers," EPA-453/R-94-022, March 1994, unless otherwise noted.

Table 1 list five criteria used to estimate de minimis values. Table 2 include emissions by size of boilers. Table 3 give cost effectiveness information for the various fuels burned by watertube boilers. Table 4 lists numbers of sources by the different fuels burned. Table 5 includes a listing of State de minimis rules.

RECOMMENDATIONS

TABLE 1

NOx De Minimis Rules--Firetube Boilers				
Emissions by Size	Cost Effectness Envelop	Number of Sources	Emissions of Sources	State Regulations
			Firetubes boil. are about 15% of total ICI boil.; About 54% of ICI boil. capacity nationwide.	
Table 2	Table 3	Table 4	For Di minimis value of 25 MMBtu/hr, this would exclude: 99% of sources from NG, DIST, RESID. COAL?	Table 5

Abbreviations
NG Natural Gas; DIST Distillate Oil;
RESID Residual Oil;

TABLE 2
Firetube Boilers[52]
Uncontrolled Emissions by Size of Boilers(lb/hr)

Size Unit MMBtu /hr	Coal[53]	Residual Oil[54]	Distillat Oil[55]	Natural Gas[56]	
1	0.61	0.31	0.17	0.10	
5	3.05	1.55	0.85	0.50	
10	6.10	3.10	1.70	1.00	
100	61.0	31.00	17.00	10.00	
250	165.25	77.50	42.50	25.00	

[52]Based on .70 Capacity factor or 5600 operating hours per year.

[53]EF = 0.61 lb/MMBtu for tangential fired boilers.

[54]EF = .31 lb/MMBtu

[55]EF = .17 lb/MMBtu/hr.

[56]EF = .10 lb MMBtu.

TABLE 3--Firetube Boilers (Single Burners-Packaged)
Boiler Size Corresponding to $1300 per ton[57]

Type Control	Natural Gas .66C	Natural Gas .50C	Distill. Oil .66C	Distill. Oil .50C	Residual Oil .66C	Residual Oil .50C	Pul Coal .66/.50C
OT+WI	[58]	[59]	ND	ND	ND	ND	ND
OT+FGR	[60]	[61]	[62]	[63]	30	[64]	ND
LNB[65]	10	175	10	160	10	50	250/250
LNB+FGR	75	240	25	250	10	200	ND

Abbreviations:

.66C	.66 Capacity Factor	.50	.50 Capacity Factor
ND	No Data	Pul.	Pulverized
OT+WI	Oxygen Trim + Water Injection		
OT+FGR	OT + Fluid Gas Recirculation		
LNB	Low NOx Burners		

Range of Reductions:
OT + WF--15%(OT) + WR (55%)
OT + FGR-15% " + FGR (40%)

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[57]Boiler capacity is given in MM Btu/hr that corresponds to an estimated cost of $1300 dollars per ton of NOx removed. Capacity factor: .66/.50. Costs based on 10 percent interest and 10 year capital amortization in 1992 dollars. Does not include the impact of Continuous Emission Monitoring systems, required on larger source in some areas.

[58]Least expensive controls $2400 per ton at 33.5 MM Btu/hr.

[59]Least expensive controls $2890 at 33.5 MMBtu/hr.

[60]Least expensive controls $3000 at 33.5 MMBtu/hr.

[61]Least expensive controls $4080 at 33.5 MMBtu/hr.

[62]Least expensive controls $1500 at 33.5 MMBtu/hr.

[63]Least expensive controls $2150 at 33.5 MMBtu\hr.

[64]Least expensive controls $1460 at 33.5 MMBtu\hr.

[65]No cost estimates made, cost effectiveness estimated to be the same as for watertube units, page 6-22 of EPA-453/R-94-022.

TABLE 4--NUMBER OF SOURCES FOR FIRETUBE BOILERS[66]

Fuel Burned	Total Sources	Size Breakdown
Coal	26,328	>50 MMBtu/hr--0 25-50 " --1% <10 " --93% <1.5 " --73%
Natural Gas	126,923	>50 MMBtu/hr--0% 25-50 " --1% <10 " --92% <1.5 " --66
Distillate	48,141	>50 MMBtu/hr--0% 25-50 " --1% <10 " --92% <1.5 " --63
Residual Oil	73,683	>50 MMBtu/hr--0% 25-50 " --1% <10 " --92% <1.5 " --63%

[66]Informations form EPA-600/7-79-178a, Population and Characteristics of Industrial/Commercial Boilers in the U.S., August 1979.

TABLE 5--STATE BOILER DE MINIMIS RULES FOR INDUSTRIAL/COMMERCIAL BOILERS (INCLUDES FIRETUBE AND WATERTUBE)[67]

STATE/DATE	RULE	COMMENT
OH	<10 MMBtu/hr	
MI	<_100 MMBtu/hr	
LA 11/17/93	<_80 MMBtu/hr	
TX 11/17/93	<_100 MMBtu/hr	
NESCAUM 11/17/93	50--100 MBtu/hr case by case	
NJ 11/17/93 3/25/94	Overall: 25 t/y < 137 lbs/d 5/15-9/15	
NY 11/17/93 3/28/94	Overall: 3 lbs/hr; 15 lbs/day	
CN 3/28/94	< 5 MMBTU/hr	only tuneups required
CA 3/28/94 S. Coast	<_ 2 MMBtu/hr	Varies from 2-5 MMBtu/hr
Ventura	<_ 1 MMBtu/hr	1-5 MMBtu/hr
San Diego	<_ 5 MMBtu/hr	
SF Bay Area	<_ 1 MMBtu/hr	1-5 MMBtu/hr
S. Basin	<_ 5 MMBtu/hr	
NH 3/28/94	< 30 MMBTU	
MASS 3/28/94	< 20 MMBtu/hr (with PTE <25 TPY) operate >1000 hrs per yr	
MA 3/28/94	< 50MMBtu/hr	
RI 3/24/94	< 50 MMBtu/hr-only tuneups required	

[67]Generally, it is not clear whether these de minimis values refer to whole plants (NJ, NY) or individual units.

D-15

Scope of NOx Exemptions
(1-12-95 T. Helms)

This memorandum addresses the effects of EPA action to grant an exemption under section 182(f) of the Clean Air Act. Specifically, the issue was raised as to whether a NOx exemption can be made applicable only to NOx Reasonably Available Control Technology (RACT). As described below, where EPA grants a NOx exemption under section 182(f), the exemption applies to RACT, nonattainment New Source Review (NSR), conformity; and inspection/maintenance (I/M).

(Note: This has been modified for conformity--see 60 FR 57179, 11-14-95.)

Signed Copy Dated 1/12/95
MEMORANDUM

SUBJECT: Scope of Nitrogen Oxides (NOx) Exemptions

FROM: G.T. Helms, Group Leader
Ozone/Carbon Monoxide Programs Branch (MD-15)

TO: Air Branch Chiefs, Region I - X

This memorandum addresses the effects of EPA action to grant an exemption under section 182(f) of the Clean Air Act. It was coordinated with the Office of General Counsel (OGC) and NOx Work Group. Specifically, the issue was raised as to whether a NOx exemption can be made applicable only to NOx Reasonably Available Control Technology (RACT). As described below, where EPA grants a NOx exemption under section 182(f), the exemption applies to RACT, nonattainment New Source Review (NSR), conformity; and inspection/maintenance (I/M).

Section 182(f) provides three cases where the NOx requirements shall not apply: (1) net air quality benefits, (2) contribution to attainment, and (3) net ozone benefit. If EPA determines that any one of the three cases applies, the section 182(f) NOx requirements "shall not apply." The section 182(f) NOx requirements are RACT (section 182(b))[1] and nonattainment NSR (section 173)[2]. Thus, where one of the three cases applies and the exemption is granted by EPA, the affected sources are no longer required to meet either the NOx RACT or nonattainment NSR requirements.

In addition section 182(f) provides a separate mechanism to fine tune the NOx exemption. That is, under the "excess reductions" provision in section 182(f)(2), EPA may "limit the application of section 182(f) to the extent necessary to avoid achieving such excess reductions." Thus, where EPA grants a NOx exemption under the "excess reductions" provision, the exemption could be for RACT only and not NSR. Further, under this provision, an exemption could be granted for certain RACT categories while RACT could be applied to other categories.

Where EPA grants an areawide exemption under section 182(f), other effects apply beyond RACT and NSR. As stated in EPA's inspection and maintenance (57 FR 52950) and conformity rules (58 FR 62188 for transportation rules and 58 FR 63214 for general rules), certain NOx requirements do not apply where EPA granted

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[1]EPA discusses economic and technical feasibility guidance for determining NOx RACT in Section 4 of 57 FR 55624.

[2]EPA discusses Nonattainment NSR requirements which include Lowest Achievable Emission Reductions and emission offsets under 57 FR 55623.

an areawide exemption under section 182(f). This exemption automatically applies; i.e., a State does not need to request the application or granting of the inspection/maintenance or conformity exemptions.[3]

As Regional Offices develop and complete rulemaking actions on NOx exemption requests, the rulemaking notices should clearly state all the effects of the EPA action consistent with the requirements of the Administrative Procedure Act (APA). The APA requires, for example, rulemaking notices to include either the terms or substance of the proposed rule or a description of the subjects and issues involved [section 553(b)]. For example, the July 26, 1994 Federal Register for Ohio (59 FR 37948) describes the rulemaking effects as follows:

> This action exempts the Toledo and Dayton areas from the requirements to implement NOx RACT requirements, nonattainment area new source review for new sources and modifications that are major for NOx, and the applicable general and transportation conformity provisions for NOx.
>
> For the Toledo nonattainment area, a Basic I/M program is required. This approval allows the basic I/M NOx requirement to be omitted from the program. For the Dayton nonattainment area, the State has adopted an enhanced I\M program. Based on this approval, NOx emission reductions are not required of this program (however, the program shall be designed to offset NOx increases resulting from the repair of HC and CO failures).

The rulemaking actions should also note that EPA approval of a NOx exemption is granted on a contingent basis. That is, the exemption would last for only as long as the area continued to demonstrate attainment without NOx reductions from major stationary sources (or is redesignated to attainment). For example language regarding a monitoring based exemption, see 59 FR 37948. For example language regarding a modeling based exemption, see the November 28, 1994 Federal Register for Texas (59 FR 60713).

If you have any questions, please contact Ted Creekmore of my staff at 919-541-5699.

cc: Richard Ossias
Sally Shaver Phil Lorang
John Bachmann NOx Work Group Members

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[3]The section 182(f) exemption does not affect EPA's requirements for maintenance plans; the maintenance plan required for redesignation must still address NOx in accordance with EPA guidance.

D-16

Section 182(f) NOx Exemptions--Revised Process and Criteria
(2-8-95 J. Seitz)

This memorandum clarifies guidance previously issued concerning NOx exemptions under section 182(f) of the Clean Air Act (Act) and interstate transport of emissions under section 110(a)(2)(D) of the Act. It decouples NOx exemptions under section 182(f) from interstate transport of emissions under section 110(a)(2)(D), and reiterates policy in document 17 (D-17) under the office directors signature. The policy in D-17 states that, "where EPA grants a NOx exemption under section 182(f), the exemption applies to RACT, nonattainment new source review, conformity, and inspection/maintenance.

(Note: This guidance has been modified for conformity--see 60 FR 57179, 11-14-95.)

February 8, 1995

MEMORANDUM

SUBJECT: Section 182(f) Nitrogen Oxides (NOx) Exemptions--Revised Process and Criteria

FROM: John S. Seitz, Director
Office of Air Quality Planning and Standards (MD-10)

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

This memorandum clarifies guidance previously issued concerning NOx exemptions under section 182(f) of the Clean Air Act (Act) and interstate transport of emissions under section 110(a)(2)(D) of the Act.[1] First, the EPA believes that these two sections must be considered independently. Under section 182(f), an exemption from the NOx requirements may be granted for nonattainment areas outside an ozone transport region if EPA determines that "additional reductions of [NOx] would not contribute to attainment of the national ambient air quality standard for ozone in the area." The EPA believes that the term "area" means the "nonattainment area" and that EPA's determination is limited, as a legal matter, to consideration of the effects in the nonattainment area due to NOx emissions reductions from sources in the same nonattainment area. The EPA has separate authority under section 110(a)(2)(D) to require a State to reduce emissions from stationary and/or mobile sources where there is evidence showing that such emissions would contribute significantly to nonattainment or interfere with maintenance in other States. In some cases, then, EPA may grant an exemption from across-the-board NOx reasonably available control technology (RACT) controls under section 182(f) and, in a separate action, require NOx controls from stationary and/or mobile sources under section 110(a)(2)(D). The guidance

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[1] Guideline for Determining the Applicability of Nitrogen Oxide Requirements under Section 182(f), Office of Air Quality Planning and Standards, Air Quality Strategies & Standards Division, December 1993, Chapter 4, "Contribute to Attainment."

contained in this memorandum replaces the last paragraph of section 4.4 and supplements section 4.3 of the December 16, 1993 guidance.

Secondly, where EPA grants a NOx exemption under section 182(f), the exemption applies to RACT, nonattainment new source review, conformity, and inspection/maintenance. Further discussion of this issue may be found in a January 12, 1995 memorandum from G. T. Helms to the Regional Air Branch Chiefs.

cc: Rich Ossias

D-17

Letter from John Seitz, Director, Office of Air Quality Planning and Standards to Bruce Carhart, Executive Director, Ozone Transport Commission
(9-12-95)

The letter provided a formal response to Mr. Carhart's September 16, 1994 letter, which posed specific questions on interstate trading and new source review (NSR) under the nitrogen oxides (NOx) emissions budget concept. Major issues discussed are as follows:

-Geographical and Interstate Considerations

-New Source Review Considerations

Identical letters were sent to Mr. Jason Grumet, Northeast States for Coordinated Air Use Management and to Mr. James Hambright, Mid-Atlantic Regional Air Management Association

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

SEP 12 1995

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

Mr. Bruce Carhart
Executive Director
Ozone Transport Commission
444 N. Capitol Street, N.W., Suite 604
Washington, D.C. 20001

Dear Mr. Carhart:

The purpose of this letter is to provide a formal response to your September 16, 1994 letter, which poses specific questions on interstate trading and new source review (NSR) under the nitrogen oxides (NOx) emissions budget concept. The Environmental Protection Agency (EPA) is very supportive of the efforts of the Ozone Transport Commission, the Northeast States for Coordinated Air Use Management, and the Mid-Atlantic Regional Air Management Association to develop a flexible and vigorous market-based NOx emissions budget program that will reduce regional ozone concentrations in a cost-effective manner. We believe there are no major impediments to the development of a budget program in the Ozone Transport Region (OTR) that satisfies enforcement issues and meets the requirements of State implementation plans (SIP). In developing this guidance on your specific questions, we have been working closely with your organizations over the last several months on these and other NOx budget issues. Our response to each of these issues is outlined below.

Geographical and Interstate Considerations

Your letter asks the EPA to identify any geographical limitations related to trading within the OTR, specifically related to interzone and interstate trading under a NOx budget. In general, such trading may be unconstrained in the majority of cases; nevertheless, it is important that trading programs contain appropriate safeguards to assure that SIP requirements continue to be met for reasonable further progress (RFP) and/or attainment and maintenance plans during implementation of the trading program. In addition, appropriate provisions must be adopted for enforcement of interstate trading.

Trades could impact RFP requirements in serious and severe ozone nonattainment areas which choose to meet RFP through NOx substitution. However, the NOx RFP requirement might be met through implementation of the September 27, 1994 NOx Memorandum of Understanding (MOU) which calls for substantial NOx reductions. That is, in many areas the RFP portion of NOx reductions might be small compared to the overall NOx reductions from stationary sources in the nonattainment area.

The EPA views trades in areas with attainment or maintenance plans which include a regional strategy (such as the NOx MOU), as generally consistent with the regional concept in the SIP. However, the EPA is concerned that the cumulative effect of trades over the long term could create a situation that was not possible to foresee at the start of the trading program but needs correction. Therefore, the SIP trading program should include commitments for tracking of changes in the NOx emissions and, as needed, remodeling and revision of the SIP.

In evaluating the effect of trades on the attainment or maintenance plans, the EPA will place greatest emphasis on the overall effect of all trades, rather than examination of individual trades. Our initial analysis of this issue (August 1995 draft report by ICF Resources) is encouraging in this respect. It appears that broad geographic constraints on trading within the OTR, such as interzone limitations, may not be needed. In some cases, however, States might have information concerning the effects of NOx reductions in specific local areas. In such cases, States might choose to include in their trading program specific provisions governing NOx trades in those areas.

To assure an equitable and enforceable program, an interstate trading program needs a regional mechanism for the tracking of trades in order to avoid any double counting of emission reductions. Further, interstate trading should generally be founded upon SIP trading rules that are substantively identical so that an emission credit in one State is creditable in another State.

New Source Review Considerations

Regarding the NSR offset requirement for major new and modified stationary sources, the EPA's general policy is that credits for emissions reductions generated by stationary, mobile, or area sources may be used so long as they meet the offset provisions of section 173 of the Act and the EPA's NSR regulations. Where possible under section 173(c), the EPA intends that States have the flexibility to design market based programs that include provisions for NSR offsets. The specific provisions of section 173(c) could be built into a market based approach. For example, the "contribute to a violation of the national ambient air quality standard" provision of section 173(c)(1)(B) might be addressed upfront in the plan by specifying specific areas or zones in the plan area from which offsets could be obtained.

The EPA has decided to take a more flexible interpretation of section 173(c) as applied in the ozone attainment areas in the OTR than the initial position in our letter to you dated March 31, 1993. Section 184(b)(2) requires that new or modified major sources locating in ozone attainment areas in the OTR must meet the same NSR requirements as if the source were locating in a

Moderate ozone nonattainment area. For the OTR, the EPA believes that States have the flexibility to allow emissions reductions from ozone attainment areas in the OTR to be used as NSR offsets in ozone nonattainment areas classified as Moderate (or below), so long as the contributions test of section 173(c)(1)(B) is met. Also, the equal or higher classification" provisions of section 173(c)(1)(A) still apply.

Furthermore, the EPA understands that under consideration in the NOx Budget proposal is a "seasonal" budget program for the 5-month ozone season. The EPA is willing to discuss further the details of a program that allows emissions reductions below seasonal budget allocations as NSR offsets provided there is periodic reconciliation by the State(s) that the total increased emissions from new or modified sources in the budget area is sufficiently offset by actual emissions at the proper offset ratio.

Our collaborative efforts are clearly helping to develop a NOx trading program that will provide a significant step toward attainment of the ozone standard in a cost-effective manner. I look forward to continuing to work with you and your staff on this and other programs in the consultative phase of the ozone attainment efforts.

Sincerely,

John S. Seitz
Director
Office of Air Quality Planning
and Standards

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16. ABSTRACT

Copies of several guidelines and policy memorandum which EPA wrote to explain NOx policy in the Clean Air Act.

17. KEY WORDS AND DOCUMENT ANALYSIS

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