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GUIDANCE ON THE RELATIONSHIP BETWEEN THE 15 PERCENT RATE-OF-PROGRESS PLANS AND OTHER PROVISIONS OF THE CLEAN AIR ACT

Guidance on the Relationship Between the 15 Percent Rate-of-Progress Plans and Other Provisions of the Clean Air Act

Ozone/Carbon Monoxide Programs Branch

U.S. Environmental Protection Agency
Office of Air Quality Planning and
Standards
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ACRONYMS AND ABBREVIATIONS

Act	Clean Air Act
BACT	Best Available Control Technology
CAAA	1990 Clean Air Act Amendments
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CTG	Control Techniques Document
EIP	Economic Incentive Program
EKMA	Empirical Kinetic Modeling Approach
EPA	U.S. Environmental Protection Agency
ETPS	Emissions Trading Policy Statement
FMVCP	Federal Motor Vehicle Control Program
FR	Federal Register
HAP	Hazardous Air Pollutant
HUD	U.S. Department of Housing and Urban Development
I/M	Inspection and Maintenance
MACT	Maximum Achievable Control Technology
MMBtu	Million British Thermal Units
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standard for Hazardous Air Pollutants
NO_x	Nitrogen Oxides
NSPS	New Source Performance Standard
NSR	New Source Review
PSD	Prevention of Significant Deterioration
psi	pounds per square inch
RACT	Reasonably Available Control Technology
RCRA	Resource Conservation and Recovery Act
RVP	Reid Vapor Pressure
SOCMI	Synthetic Organic Chemicals Manufacturing Industry
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
TCM	Transportation Control Measures
tpy	tons per year
UAM	Urban Airshed Model
VMT	Vehicle Miles Travelled
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

Section 182(b)(1) of the Clean Air Act (Act) requires all ozone nonattainment areas classified as moderate and above to submit a State implementation plan (SIP) revision by November 15, 1993, which describes, in part, how the areas will achieve an actual volatile organic compound (VOC) emissions reduction of at least 15 percent during the first 6 years after enactment of the Clean Air Act Amendments of 1990 (CAAA) (i.e., up to November 15, 1996). In addition, the SIP revision must describe how any growth in emissions from 1990 through 1996 will be fully offset. The portion of the SIP revision that illustrates the plan for the achievement of these emissions reductions is subsequently defined in this document as the "rate-of-progress plan."

It is important to note that section 182(b)(1) also requires the SIP for moderate areas to provide for reductions in VOC and nitrogen oxides (NO_x) emissions "as necessary to attain the national primary ambient air quality standard for ozone" by November 15, 1996. This requirement can be met through the use of EPA-approved modeling techniques and the adoption of any additional control measures beyond those needed to meet the 15 percent emissions reduction requirements. States with intrastate moderate ozone nonattainment areas will generally be required to submit attainment demonstrations with their SIP revisions due by November 15, 1993 [such areas choosing to use the Urban Airshed Model (UAM) to prepare their attainment demonstrations will be allowed to submit attainment demonstrations by November 15, 1994]. States choosing to run UAM for their intrastate moderate areas must submit by November 15, 1993, their rate-of-progress plan and a committal SIP addressing the attainment demonstration. The committal SIP subject to a section 110(k)(4) approval would include, at a minimum, evidence that grid modeling is well under way and a commitment, with schedule, to complete the modeling and submit it as a SIP revision by November 1994. The completed attainment demonstration would include any additional controls needed for attainment.

The purpose of this document is to provide guidance for determining the creditability of emissions reductions toward meeting the 15 percent VOC emissions reduction requirements of Section 182(b) of the Act. This document provides technical guidance to support the policy presented in the "General Preamble: Implementation of Title I of the CAAA of 1990" (57 FR 13498). The document discusses the creditability of emissions reductions associated with programs implemented both prior to enactment of the CAAA, and programs that will be implemented to comply with the requirements of the CAAA. The programs addressed in this document include the following:

- New source review (NSR).
- Hazardous air pollutant (HAP) standards.
- New source performance standards (NSPS).
- Controls required for mobile sources.
- Controls required for stationary sources of oxides of nitrogen (NO_x).
- Economic incentive programs (EIP's).
- Operating permit programs.

Sections 182(b)(1)(C) and 182(b)(1)(D) of the Act specify in general terms which emissions reductions are creditable toward the 15 percent VOC emissions reduction requirements and which reductions are not. Section 182(b)(1)(D) does not specifically limit the creditability of emissions reductions associated with the programs discussed in this guidance document toward the 15 percent requirements; therefore, emissions reductions associated with the programs outlined above are generally creditable. However, some additional limitations do exist, to the extent that emissions reductions associated with the programs outlined above are not quantifiable, real, enforceable, replicable, accountable, and occur by November 15, 1996.

There is uncertainty inherent in projecting new source growth, and in determining the amount of the emissions reductions from offsets that will be needed to offset minor source growth. Therefore, only additional, actual, permanent, and enforceable emissions reductions resulting after 1990 from an offset that are not used to offset minor source growth will be creditable in the milestone compliance demonstration due in February 1997 for serious and above areas. States must use caution to avoid the double-counting of emissions reductions and must be careful to distinguish between credits toward the 15 percent VOC emissions reduction requirements, NSR offset credits and netting credits, and credits used for emissions trading in an EIP. Banked emissions reduction credits can be used to offset new source growth, but preenactment banked emissions reductions are not creditable toward the 15 percent VOC emissions reduction requirements. Other reductions that are not creditable toward the 15 percent VOC emissions reduction requirements include those used to create growth allowances in U.S. Department of Housing and Urban Development (HUD) zones.

Reductions in VOC emissions associated with requirements for the control of HAP's under section 112 of the Act are generally creditable toward the 15 percent VOC emissions reduction requirements. (Note that not all HAP's are VOC's. See p. A-9 for the definition of VOC.) Most section 112 VOC reductions credited toward the 15 percent VOC emissions reduction requirements will occur through the promulgation of maximum achievable control technology (MACT) standards, national emission

standards for hazardous air pollutants (NESHAP), and the use of the early reductions program. Volatile organic compound reductions from section 112(g) modifications are creditable toward the 15 percent VOC emissions reduction requirements if a source demonstrates that an increase in emissions of one pollutant has been offset by a greater decrease in the same or an equivalent pollutant. However, a State must adequately account for the simultaneous growth associated with modified sources that net out of the section 112(g) requirements because their net emissions do not exceed de minimis emissions levels. The section 112(f) standards (residual risk standards to protect public health) are not likely to be promulgated in time for credit toward the 15 percent requirements.

Reductions in VOC emissions achieved by stationary sources that become subject to a section 111 NSPS after 1990 are creditable toward the 15 percent VOC emissions reduction requirements. States must use caution to avoid the double-counting of emissions reductions associated with an NSPS and those achieved through the emissions offset or netting provisions of the NSR rules. Additionally, existing sources that are modified to become subject to an NSPS may already be subject to reasonably available control technology (RACT) rules. Only the incremental emissions reduction between the allowable emissions specified by the two requirements is creditable toward the 15 percent VOC emissions reduction requirements.

States may credit most emissions reductions gained through mobile source programs toward the 15 percent VOC emissions reduction requirements. Exceptions include those reductions achieved under Federal motor vehicle control program (FMVCP) tailpipe or evaporative regulations promulgated before 1990 and specified Federal Reid vapor pressure (RVP) limits for gasoline (55 FR 23666, June 11, 1990). Additionally, improvements resulting from corrections to deficient inspection and maintenance (I/M) programs are not creditable. Reductions obtained through implementation of other mobile source programs are generally creditable, as long as the reductions are quantifiable, real, enforceable, replicable, accountable, and occur by November 15, 1996. States may also secure credit for RVP limits that are more stringent than the minimum Federal requirements. States will be able to quantify the future emissions reductions resulting from the implementation of most mobile source control measures through the use of the MOBILE5a model.

Nitrogen oxide emissions reductions occurring in the 1990-1996 period may not be substituted for VOC emissions reductions for the 15 percent rate-of-progress requirements. However, section 182(b)(1)(A) states that NO_x emissions reductions can be used in combination with VOC emissions reductions to achieve

attainment of the ozone national ambient air quality standard (NAAQS). Additionally, NO_x emissions reductions occurring in the 1990-1996 period, in excess of growth, may be considered as substitutes for VOC emissions reductions for the post-1996 rate-of-progress requirements. Consequently, States should present their NO_x inventories in their rate-of-progress plan in addition to their VOC inventories. The EPA expects to issue guidance in the fall of 1993 covering substitution of NO_x for VOC emissions reductions for the post-1996 period.

On February 23, 1993, EPA published a proposed rulemaking discussing requirements for EIP's (58 FR 11110). This proposal also represents EPA's interim policy on EIP's. The proposed rulemaking anticipates that certain EIP strategies will be based on a quantifiable emissions limit while others will depend strictly on marketplace forces to reduce emissions. Thus, the amount of emissions reductions associated with an EIP program that will be creditable toward the 15 percent rate-of-progress plan requirements will vary depending on the nonattainment area and the form of the EIP proposed. The EPA is presently proposing the introduction of two factors, rule compliance and program uncertainty, to address the uncertainty of quantifying creditable emissions reductions from EIP's. The rule compliance factor is intended to address the issue of less-than-complete compliance and the program uncertainty factor is intended to address the inherent uncertainty in future market response. Additionally, EPA is considering the requirement of program audit provisions to track actual emissions reductions from an EIP; if a State employs a market-response EIP, the program audit provisions would include reconciliation procedures to compare the projected emissions reductions credited in the SIP with the actual emissions reductions. Furthermore, the proposed EIP regulation would require contingency measures to make up for any shortfall identified between the actual and the projected emissions reductions for any market-response EIP. States must take care to distinguish between the rate-of-progress base year inventory and the EIP baseline inventory, and must carefully consider the consistency in emissions quantification procedures used in the rate-of-progress plan and the EIP. States should consult with the appropriate EPA Regional Office in determining the amount of credit from an EIP. The resulting emissions reductions must occur by November 15, 1996.

A large portion of the rate-of-progress plans--and the attainment plan--will be implemented through the Title V operating permit program. A State may rely on its regulatory programs alone in its rate-of-progress plan to demonstrate that sufficient emissions reductions will occur to meet the 15 percent emissions reductions requirement.

The EPA recognizes that some of the new Control Techniques Documents(CTG) documents and Federal regulations for other programs (e.g., NSPS, NESHAP's, and MACT) may not be promulgated in time to be used by States to develop and adopt control measures for their 15 percent rate-of-progress plans. The EPA is currently investigating whether and under what circumstances a State may be able to take credit for unadopted control measures in their 15 percent rate-of-progress plans. Further guidance from EPA may be forthcoming.

1.0 INTRODUCTION

Section 182(b)(1) of the Act requires all ozone nonattainment areas classified as moderate and above to submit a SIP revision by November 15, 1993, which describes, in part, how the areas will achieve an actual VOC emissions reduction of at least 15 percent during the first 6 years after enactment of the CAAA (i.e., up to November 15, 1996). In addition, the SIP must describe how any growth in emissions from 1990 through 1996 will be fully offset. Emissions and emissions reductions shall be calculated on a typical weekday basis for the "peak" 3-month ozone period (generally June through August). The 15 percent VOC emissions reduction, net of growth, required by November 15, 1996 is defined within this document as "rate of progress."[1] Furthermore, the portion of the SIP revision that illustrates the plan for the achievement of the emissions reductions is subsequently defined in this document as the "rate-of-progress plan."

It is important to note that section 182(b)(1) also requires the SIP for moderate areas to provide for reductions in VOC and NO_x emissions "as necessary to attain the national primary ambient air quality standard for ozone" by November 15, 1996. This requirement can be met through the use of EPA-approved modeling techniques and the adoption of any additional control measures beyond those needed to meet the 15 percent emissions reduction requirements. States with intrastate moderate ozone nonattainment areas will generally be required to submit attainment demonstrations with their SIP revisions due by November 15, 1993 (such areas choosing to use UAM to prepare their attainment demonstrations will be allowed to submit

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[1]The U.S. Environmental Protection Agency (EPA) recognizes that the Act terms, for both the 15 percent VOC emissions reduction requirement of section 182(b)(1) and the section 182(c)(2)(B) requirement for 3 percent per year VOC emissions reductions averaged over each consecutive 3-year period from November 15, 1996 until the attainment date, as reasonable further progress (RFP) requirements. However, because the Act requires SIP revisions for the 15 percent reduction to be submitted in 1993 and SIP revisions for the 3 percent per year reductions to be submitted in 1994, EPA believes that it would be clearer, within the context of both the 15 percent rate-of-progress plan and post-1996 rate-of-progress plan guidance documents that EPA is producing, to create distinct labels for these two seemingly similar reductions. The 1994 SIP revisions describing the requirement for 3 percent VOC emissions reductions averaged over each consecutive 3-year period from November 15, 1996 until the attainment date, constitute the "post-1996 rate-of-progress plan."

attainment demonstrations by November 15, 1994). States choosing to run UAM for their intrastate moderate areas must submit by November 15, 1993, their rate-of-progress plan and a committal SIP addressing the attainment demonstration. The committal SIP subject to a section 110(k)(4) approval would include, at a minimum, evidence that grid modeling is well under way and a commitment, with schedule, to complete the modeling and submit it as a SIP revision by November 1994. The completed attainment demonstration would include any additional controls needed for attainment.

Section 182(c)(2) requires all ozone nonattainment areas classified as serious and above to submit a SIP revision by November 15, 1994 which describes, in part, how each area will achieve additional VOC emissions reductions of 3 percent per year averaged over each consecutive 3-year period from November 15, 1996 until the area's attainment date. It is important to note that section 182(c)(2)(C) allows for actual NO_x emissions reductions (exceeding growth) that occur after the base year of 1990 to be used to meet post-1996 emissions reduction requirements for ozone nonattainment areas classified as serious and above, provided that such NO_x reductions meet the criteria outlined in forthcoming substitution guidance. The portion of the SIP revision (due in 1994) that illustrates the plan for the achievement of these post-1996 reductions in VOC or NO_x is subsequently defined in this document as the "post-1996 rate-of-progress plan." This plan must also contain an attainment demonstration based on photochemical grid modeling. The EPA plans to distribute a separate guidance document on the development of the post-1996 rate-of-progress plan in 1993.

Demonstrating achievement of the 15 percent VOC emissions reductions by November 15, 1996, and then subsequently demonstrating achievement of the 3 percent per year VOC emissions reductions averaged over each consecutive 3-year period from November 15, 1996 until the attainment date, are termed milestone demonstrations. Achievement of the milestones must be demonstrated within 90 days of the milestone date (e.g., the 15 percent VOC emissions reductions must be demonstrated by February 13, 1997). The EPA is currently developing a rule which will describe the information and analysis required for the milestone compliance demonstrations. The rule is scheduled for promulgation in the summer of 1994. The rule will also address summary data needs, detailed reporting requirements, and consequences of submitting an inadequate demonstration (in terms of documentation) as well as consequences of failure to demonstrate the 15 percent VOC emissions reduction requirements, net of growth.

Section 182(a)(3)(A) requires the States to submit periodic inventories starting 3 years after submission of the base year

inventory required by section 182(a)(1), and every 3 years thereafter until the area is redesignated to attainment. The EPA recommends that States synchronize their schedules for developing the periodic inventories so that the second periodic inventory (which would be due no later than November 15, 1998) is submitted by February 13, 1997 and addresses emissions in 1996. By accelerating preparation and submittal of the 1996 periodic inventory, the milestone demonstration that is due for serious and above areas by February 13, 1997 can be based on this periodic inventory. If similarly accelerated, future periodic inventories would then also coincide with subsequent milestone demonstrations. The periodic inventory is to be based on actual emissions and will cover VOC, NO_x, and carbon monoxide (CO) emissions sources. Like the base year inventory, the periodic inventory is to be determined using typical peak ozone season weekday emissions.

1.1 Purpose

The purpose of this document is to provide guidance for determining the creditability of emissions reductions toward meeting the 15 percent VOC emissions reduction requirements of Section 182(b) of the Act. This document provides technical guidance to support the policy presented in the "General Preamble: Implementation of Title I of the CAAA of 1990" (57 FR 13498). The document discusses the creditability of emissions reductions associated with programs implemented both prior to enactment of the CAAA, and programs that will be implemented to comply with the requirements of the CAAA. The programs addressed in this document include the following:

- New source review (NSR).
- Hazardous air pollutant (HAP) standards.
- New source performance standards (NSPS).
- Controls required for mobile sources.
- Controls required for stationary sources of oxides of nitrogen (NO_x).
- Economic incentive programs (EIP's).
- Operating permit program.

This document is intended to assist the States in preparing the rate-of-progress plans that will demonstrate how the area will achieve the 15 percent VOC emissions reduction requirements from November 1990 to November 1996. In order for a State to comply with the 15 percent requirements, it will need to demonstrate that it will achieve the necessary emissions reductions needed to meet its 1996 target level of emissions. There are three components that comprise the emissions reductions to meet the 1996 target level:

- The 15 percent VOC emissions reduction calculated from the adjusted base year inventory.
- The noncreditable emissions reductions (i.e., RVP limits specified in 55 FR 23666, pre-1990 FMVCP, and corrections to RACT rule and I/M programs).

- The offset of 1990-1996 emissions growth.

This document is not intended to directly address either rate-of-progress tracking or the final milestone compliance demonstration. Additional guidance to address tracking and the milestone compliance demonstration will be developed in the future. Furthermore, this guidance addresses many programs and procedures that are addressed more fully in other guidance documents. This guidance is not intended to supersede those guidance documents; rather, it is intended to pull together the relative material as it pertains to the development of the rate-of-progress plan. In addition, this document is not intended to be a policy statement; rather, it is intended to reiterate the regulations and policies set forth specifically for those programs described herein. Readers are referred to rulemakings and policy statements for details concerning the development of regulations and policies.

1.2 Creditability of Emissions Reductions Associated With RACT Rules and Rule Effectiveness Improvements Toward the 15 Percent Requirements

The creditability of emissions reductions associated with RACT rules and rule effectiveness improvements are not discussed in this document because they have been previously discussed in two other documents concerning the 15 percent rate-of-progress plan requirements. The creditability of emissions reductions associated with RACT rule fix-ups and catch-ups and rule effectiveness improvements are discussed in the document entitled Guidance on the Adjusted Base Year Emissions Inventory and the 1996 Target for the 15 Percent Rate-of-Progress Plans, EPA-452/R-92-005, October 1992. The creditability of rule effectiveness improvements associated with non-CTG RACT rules, rule effectiveness improvements, and the quantification of emissions reductions from rule effectiveness improvements are discussed in the document entitled Guidance on Growth Factors, Projections, and Control Strategies for the 15 Percent Rate-of-Progress Plans, EPA-452/R-93-002, March 1993. This document also discusses the development status of new CTG documents. The EPA recognizes that some of the new CTG documents may not be promulgated in time to be used by States to develop new RACT rules for their rate-of-progress plans. The EPA is currently investigating whether and under what circumstances a State may be able to take credit for unadopted RACT rules in its 15 percent rate-of-progress plans. Further guidance may be forthcoming.

2.0 RELATIONSHIP BETWEEN THE 15 PERCENT VOC EMISSIONS REDUCTION REQUIREMENTS AND NEW SOURCE REVIEW PROGRAMS

This section of the document describes the new or revised NSR nonattainment permit program requirements under Part D of the Act, and the creditability of emissions reductions associated with NSR permitting toward the 15 percent VOC emissions reduction requirements. States should be aware that EPA intends to issue revisions to the existing Part D regulations setting forth in more detail the new or revised requirements for an approvable NSR program.

2.1 Core Requirements of the Part D New Source Review Program

The Act requires new major stationary sources and major modifications to stationary sources to obtain an air pollution permit before initiating construction. Permits for sources located in nonattainment areas are known as nonattainment area or Part D permits, while permits for sources located in attainment areas are known as prevention of significant deterioration (PSD) or Part C permits. The NSR program is the program under which these permit reviews are implemented.

The CAAA contain several provisions that changed the Part D requirements of Title I of the Act. These provisions mandate lower emissions thresholds for the definition of a major source and establish more stringent offset ratios for new major sources located in ozone nonattainment areas (Table 1). Prior to the enactment of the CAAA, a new source was considered major if it emitted, or had the potential to emit, 100 tons per year (tpy) or more of VOC or NO_x. However, the CAAA lowered the emissions thresholds for serious, severe, and extreme nonattainment areas to the potential to emit 50, 25, or 10 tpy or more of VOC or NO_x, respectively. The amendments also lowered the emissions threshold for defining major new VOC sources in ozone transport regions. The emissions thresholds and minimum emissions offset requirements for major new sources in nonattainment areas and ozone transport regions are presented in Table 1. The CAAA also establish special and complex requirements for major modifications including new thresholds in serious, severe, and extreme ozone nonattainment areas and ozone transport regions. The requirements for major modifications in nonattainment areas and ozone transport regions are presented in Table 2. The CAAA also establish new sanctions and provisions that retain existing construction bans in some cases.

TABLE 1. MAJOR SOURCE THRESHOLDS AND MINIMUM EMISSIONS OFFSET RATIO REQUIREMENTS FOR OZONE NONATTAINMENT AREA CLASSIFICATIONS

Nonattainment Area	VOC (tpy)[2]	NO_x (tpy)[2]	Minimum Emissions Offset Ratio Required
Extreme	10	10	1.5 to 1[3]
Severe	25	25	1.3 to 1[3]
Serious	50	50	1.2 to 1
Moderate	100	100	1.15 to 1
Moderate, in an ozone transport region	50	100	1.15 to 1
Marginal	100	100	1.1 to 1
Marginal, in an ozone transport region	50	100	1.15 to 1
All other nonattainment areas, outside of an ozone transport region[4]	100	100	>1.0 to 1
All other nonattainment areas, in an ozone transport region[4]	100	100	1.15 to 1
Attainment, in an ozone transport region	50	100	1.15 to 1

[2] tpy = tons per year
[3] The minimum ratio is reduced to 1.2 if the applicable State implementation plan requires all major sources of VOC and NO_x emissions to use best available control technology (BACT).
[4] The other nonattainment areas are submarginal, transitional, and incomplete/no data.

TABLE 2. MAJOR MODIFICATION THRESHOLDS FOR OZONE NONATTAINMENT AREA CLASSIFICATIONS

Ozone Nonattainment Area	VOC (tpy)[5]	NO_x (tpy)[5]
Extreme	0	0
Severe	25[6]	25[6]
Serious	25[6]	25[6]
Moderate	40	40
Moderate, in an ozone transport region	40	40
Marginal	40	40
Marginal, in an ozone transport region	40	40
All other nonattainment areas, outside of an ozone transport region[7]	40	40
All other nonattainment areas, in an ozone transport region[7]	40	40
Attainment, in an ozone transport region	40	40

[5] tpy = tons per year
[6] Net increase of 25 tons when aggregated with all other net increases in emissions from the source over any period of 5 consecutive calendar years, which includes the calendar year in which such increase occurred.
[7] The other nonattainment areas are submarginal, transitional, and incomplete/no data.

The core requirements of the revised Part D NSR program are as follows:

- Emissions offsets - ensures more than equivalent offsetting emissions reductions for proposed emissions increases.

- Lowest achievable emissions rate - ensures emissions are controlled to the greatest extent possible.

- Statewide source compliance - ensures that an applicant is in compliance, or on a schedule toward compliance, with the Part D requirements at all of its sources owned or operated in the State.

- Assurance of adequate plan implementation - ensures the applicable implementation plan is being adequately implemented before a permit is issued.

- Analysis of alternatives - the evaluation of alternative locations, sizes, production processes, and environmental control techniques before a permit is issued.

Of these core requirements, the emissions offsets requirement is the most relevant to the discussion in this guidance because it mandates emissions reductions that are greater in quantity than the proposed emissions increases. The creditability of these offsets toward the 15 percent VOC emissions reduction requirements is discussed along with the creditability of reductions mandated under other titles of the Act toward the NSR offsets.

2.2 Emissions Offsets

Emissions offsets are the principal regulatory mechanism for accommodating major new source growth without jeopardizing the Act's mandate for progress toward attainment of the ozone NAAQS. Many of the requirements for emissions offsets are already included in 40 Code of Federal Regulations (CFR) 51.165 and the Emissions Trading Policy Statement (ETPS). (See reference 1.) States should be aware that most of the offset requirements existed before the CAAA and that 40 CFR 51.165 and ETPS requirements must still be met. States should also be aware that the NSR Update Rulemaking and any policy changes to the ETPS will supersede guidance contained herein regarding NSR permitting. Therefore, NSR permitting information contained in this guidance is for background purposes only, and States should develop and conduct their NSR permitting programs in accordance with the guidance and requirements contained in the forthcoming NSR regulations and the Title I General Preamble. (See reference 2.)

Emissions Offset Requirements

Major stationary sources seeking to satisfy the requirements of section 173(a)(1)(A) of the Act must obtain "sufficient offsetting emissions reductions...so as to represent reasonable further progress" as part of the requirements to obtain a Part D NSR permit. Section 182 of the Act prescribes specific minimum offset ratios for VOC and NO_x emissions from sources in ozone nonattainment areas. The minimum offset ratio requirements are presented in Table 1. In the case of severe and extreme areas, section 182(c)(10) allows the minimum offset ratio to be reduced to a ratio of 1.2 to 1 if the applicable SIP requires all existing major sources in such nonattainment areas to use best available control technology (BACT) for the control of VOC and NO_x emissions. Certain criteria must be met for emissions reductions to be creditable toward the emissions offsets. These criteria are discussed in detail in the following sections of this document.

Emissions reductions projected to occur from the offset requirements are not creditable toward the 15 percent rate-of-progress plan requirements due to the inherent uncertainty in projecting new source growth, and in determining the amount of the emissions reductions from offsets that will be needed to offset minor source growth. However, any additional, actual, permanent, and enforceable emissions reductions resulting after 1990 from an offset that is not used to offset minor source growth will be creditable in the milestone compliance demonstration due in February 1997 for serious and above areas.

The following example illustrates the creditability of emissions reductions in a milestone compliance demonstration. If a new source locating in a serious area proposes an allowable VOC emissions rate of 120 tpy, the source would be required to obtain offsets amounting to 144 tpy of actual emissions reductions. The entire 144 tpy actual emissions reduction will not be creditable toward the milestone compliance demonstration for the 15 percent VOC emissions reduction requirements because of the increase in allowable emissions from the new source. The allowable new source emissions increase is subtracted from the 144 tpy reductions obtained through the offset requirement to determine the amount of credit. Therefore, the State could credit only 24 tpy of reductions toward the 15 percent VOC emissions reduction requirements in the milestone compliance demonstration.

Creditability of Emissions Reductions

New section 173(c)(2) of the Act prevents emissions reductions otherwise required by the Act from being credited toward satisfying the Part D emissions offset requirement. This stipulation should not be confused with mandated emissions

reductions that are creditable toward the 15 percent VOC emissions reduction requirements. For example, RACT "catch-up" VOC reductions under section 182(b)(2)(B) and (C) are not creditable toward emissions offset requirements, but are creditable toward the 15 percent VOC emissions reduction requirements. Likewise, VOC emissions reductions required under section 112 of the Act, are not creditable toward emissions offsets but may be creditable toward the 15 percent VOC emissions reduction requirements. For example, proposed new or modified major sources seeking emissions offsets may not use emissions reductions required by sections 112(d), 112(h), and 112(j) of the Act. Similarly, an early reductions program that meets the minimum specifications as described in section 112(i)(5) of the Act are not creditable toward emissions offsets.

However, emissions reductions which are excess and incidental to the emissions reductions associated with the requirements of the Act are creditable toward emissions offsets as long as the requirements of section 173(c)(1) are met. For example, any emissions reductions in excess of those required by section 112 regulations are creditable toward emissions offsets. In the case of early reductions, any emissions reductions in excess of 90 percent (for VOC) may be considered surplus and, therefore, creditable if all other applicable requirements are met. Additionally, incidental emissions reductions are also creditable toward emissions offsets. For example, any reductions in nonhazardous VOC emissions that result from the MACT standards under section 112(d)(1) are creditable (i.e., if not otherwise required by the SIP). Incidental emissions reductions also include any reductions pursuant to a State requirement that is more stringent than the requirements of the Act. Creditability of section 112 reductions toward the 15 percent VOC emissions reduction requirements is discussed in the next section of this document.

States must use caution to avoid double-counting of reductions toward the offset requirements (i.e., granting credit for the same emissions reduction twice). For example, an emissions reduction already credited toward the 15 percent VOC emissions reduction requirements in the State's SIP, regardless of how the reduction was actually obtained, cannot be used for offsetting purposes. States must keep careful records to avoid double-counting of reductions toward the 15 percent VOC emissions reduction requirements. For example, excess emissions reductions resulting from the section 112(i)(5) early reductions program are potentially creditable toward the NSR emissions offsets. A source that reduces the emissions of a hazardous VOC from 10 tpy to 0.5 tpy would qualify for a section 112 early reduction exemption because emissions would be reduced by 95 percent. Because the total reduction exceeds the 90 percent reduction required by section 112(i)(5), 5 percent of the total reduction (0.5 tpy) would be available for emissions offset credit. The

State in this case must be careful not to credit the entire 9.5 tpy early reduction toward the 15 percent VOC emissions reduction requirements and then credit the 0.5 tpy emissions offset toward the 15 percent VOC emissions reduction requirements. This would, in effect, produce a 10 tpy reduction on paper when only a 9.5 tpy reduction actually occurred. Only the actual reduction of 9.5 tpy could be credited toward the 15 percent VOC emissions reduction requirements (or alternatively, 9.0 tpy could be credited toward the 15 percent VOC emissions reduction, with 0.5 tpy credited toward the emissions offset requirements).

Creditability of Banked Emissions Reduction Credits

The use of preenactment banked emissions for offsetting must be treated as growth in the 15 percent rate-of-progress plan. States may use the preenactment banked emissions reduction credits for offsetting purposes as long as the credits meet all other offset creditability criteria. For VOC and NO_x offsets, such reductions must be used in accordance with the offset requirements established for the different ozone nonattainment area classifications. Existing EPA policy [40 CFR 51.165(a)(3)(ii)(C)(1)] prohibits the use of certain preenactment banked emissions credits in the absence of an EPA-approved attainment plan. The prohibitions apply to reductions achieved by shutting down existing sources or permanently curtailing production or operating hours.

Preenactment banked emissions reductions may be used to offset new source growth, but these banked emissions are not creditable toward the 15 percent VOC emissions reduction requirements. For example, if a State chooses to use banked VOC emissions reductions to offset new source growth of 200 tpy in a serious nonattainment area, it must obtain offsetting emissions of 240 tpy from its bank to meet the offset requirement of 1.2 to 1. Although the bank has been reduced by 240 tpy, the additional emissions resulting from the new source are 200 tpy. To ensure that the nonattainment area will meet the 15 percent VOC emissions reduction requirements, this 200 tpy emissions increase must be compensated for by reductions from existing sources.

Minor Source Growth

A State must demonstrate in its 15 percent rate-of-progress plan that it has achieved the emissions reductions needed to meet its target level of emissions for each milestone date. Therefore, a State will need to implement control measures that will offset new source growth. New source growth not only results from new or modified major stationary sources, but also from minor sources. This minor source growth must also be taken

into account to ensure that the 15 percent rate-of-progress requirements are achieved. Emissions increases from minor sources must be offset by emissions reductions at existing sources. However, EPA has not yet resolved whether the State or the source should accept the burden of compensating for minor source growth. Readers are encouraged to review the final NSR regulations, when published, for guidance regarding minor source growth.

Geographic Location of Offsets

Section 173(c)(1) of the Act specifies that a proposed major new or modified source must generally obtain emissions offsets from the source itself or from other existing sources in the same nonattainment area. However, sources are allowed to obtain offsets from other nonattainment areas if two criteria are satisfied. First, the other nonattainment area must have an equal or higher nonattainment classification than the nonattainment area in which a proposed source is to be constructed or modified. This criterion is only met in cases where the other nonattainment area has an equal or higher nonattainment classification for the same pollutant. For example, a major new source of VOC or NO_x proposing to locate in a serious ozone nonattainment area could obtain offsets in another ozone nonattainment area classified as serious, severe, or extreme. Second, emissions from the other nonattainment area must contribute to a violation of the NAAQS in the nonattainment area in which a proposed source would construct or be modified. The permitting authority should acknowledge and verify any demonstration made to meet the second criteria.

In cases where offsets are obtained in a nonattainment area other than the area where a proposed major source would be constructed or modified, a State may credit the offset emissions reductions toward the 15 percent VOC emissions reduction requirements for the nonattainment area in which the reductions occurred. However, the emissions increase associated with the proposed major source must be treated as growth in the nonattainment area in which the increase occurred, and must be controlled to meet the 15 percent VOC emissions reduction requirements. For example, if a new source proposes allowable emissions of 120 tpy in serious nonattainment area A and proposes actual emissions offsets of 144 tpy in serious nonattainment area B, the State can credit a reduction of 144 tpy toward the 15 percent VOC emissions reduction requirements for area B. The State must then debit the actual emissions increase of 120 tpy from the proposed new source against the 15 percent VOC emissions reduction requirements for area A.

Timing of Offsets

New section 173(c)(1) of the Act also specifies that any offsets obtained by a proposed major new or modified source in conjunction with the issuance of a permit must be in effect and enforceable by the time the proposed source commences operation. This new condition clarifies an existing requirement under section 173(a) that simply stipulates offsets must be "legally binding" before a permit may be issued. The new condition emphasizes that the obtained offsets must be federally enforceable before the permit can be issued to the proposed source. The offsets are generally made federally enforceable through a permit condition made by the permitting authority to the permit for the source(s) where the offsets are to be obtained. States should be aware that problems may exist in making off-site offsets federally enforceable. Additionally, States must also ensure that the required emissions reductions actually occur no later than the date on which the proposed source would commence operation. These conditions must be met before States can claim offset credits. These conditions must also be met if emissions reductions associated with an offset are to be creditable toward the 15 percent emissions reduction requirements in a milestone compliance demonstration.

Offset and Rate-of-Progress Baselines

Changes in section 173(a)(1) support current EPA requirements that the calculation of the emissions baseline for offset credits be consistent with the calculation of the emissions baseline for the rate-of-progress plan. The EPA's current policy concerning the baseline for emissions offsets provides that the offset baseline is the allowable emissions limit under the applicable SIP in effect at the time the proposed source files its permit application. However, the offset baseline is based on actual emissions if the State's rate-of-progress plan and attainment demonstration are based on actual emissions, or if the SIP does not contain an allowable emissions limitation for the proposed source or source category.

States that based their previous rate-of-progress plan and attainment demonstration on actual emissions should comply with the new offset provisions with little difficulty. Most States historically used yearly assessments of net actual emissions reductions to track rate-of-progress emissions reductions because actual emissions reductions correlate better with improvements in ambient air quality than allowable emissions reductions. States that based their plans on allowable emissions can still obtain offset credits for reductions in allowable emissions as necessary to conform with the requirements of section 173(a)(1). However, such offset credits will be deemed inadequate if, by definition, a real reduction in actual emissions does not occur at the offsetting source that equals or exceeds the amount of offset

provided to the proposed source. Furthermore, States should realize that if these offsets do not correspond to real emissions reductions, then States will not be likely to achieve the necessary emissions reductions for milestone compliance.

2.3 Creditable Emissions Reductions for Netting

Except for the additions of the provisions of sections 182(c)(6)-(8) to Title I of the Act, the CAAA generally do not affect EPA's current procedures for netting emissions decreases and increases. Netting should still be determined in a manner consistent with EPA's current NSR rules (40 CFR 51.165) and the ETPS for the purpose of determining whether a proposed source or modification is subject to the NSR requirements. Netting preenactment reductions with post-enactment emissions increases can still be conducted to the extent allowed under State rules. However, because preenactment emissions reductions represent emissions that are not included in the 1990 base year inventory, States must consider such post-enactment increases as growth even though, for NSR applicability purposes, the source's net emissions change is de minimis (note, if netting includes post-enactment decreases, then growth equals post-enactment increases minus post-enactment decreases). States should be aware that post-enactment net growth from minor modifications to major sources could significantly affect the rate-of-progress plan and attainment demonstration. As discussed previously with regard to minor source growth, EPA has yet to resolve who should accept the burden of compensating for such growth.

States must use caution to avoid double-counting of reductions toward the netting requirements. An emissions reduction is creditable for netting purposes only if the relevant reviewing authority has not relied on the reduction in issuing a NSR permit for the source, and the permit is still in effect when the increase in actual emissions from the proposed major modification occurs. (See reference 3.) For example, an emissions reduction obtained through an offset at a modified source cannot also be used for netting purposes. Additionally, States must keep careful records to avoid double-counting of reductions toward the 15 percent VOC emissions reduction requirements. For example, all reductions resulting from the section 112 early reductions program are also potentially creditable toward the NSR netting requirements. A source that reduces the actual emissions of a hazardous VOC from 10 tpy to 0.5 tpy would qualify for a section 112 early reduction exemption because emissions would be reduced by 95 percent. Because the early reduction is creditable for netting purposes, the 9.5 tpy reduction would be available for either netting credit or as a credit against the 15 percent VOC emissions reduction requirements. However, the State in this case must be careful not to credit the 9.5 tpy section 112 early reduction toward the 15 percent VOC emissions reduction requirements and also allow a 9.5 tpy netting credit. This would, in effect, produce a 19 tpy reduction on paper when only a 9.5 tpy reduction actually occurred.

Emissions reductions creditable to the 15 percent VOC emissions reduction requirements are not necessarily creditable for netting purposes, or vice-versa. For example, an offset previously obtained by a modifying source may be creditable toward the 15 percent VOC emissions reduction requirements, but would not be creditable for netting purposes. However, the restrictions regarding the creditability of reductions for netting purposes are somewhat more lenient than those for offsets. For example, early reductions under section 112(i)(5) may be creditable for netting purposes, whereas such reductions could not be used for offsetting purposes.

2.4 Growth Allowances

The CAAA sharply limit the opportunities for States to set up new growth allowances in nonattainment areas and voids certain existing growth allowances. Sections 172(c)(4) and 173(a)(1)(B) of the Act limit new growth allowances to only those portions of a nonattainment area that have been formally targeted for economic growth by the Administrator, in consultation with the Secretary of HUD. Emissions reductions used to create growth allowances in a HUD zone are not creditable toward the 15 percent VOC emissions reduction requirements because the reductions must be surplus, enforceable, permanent, and quantifiable to be creditable toward the 15 percent VOC emissions reduction requirements. Emissions reductions obtained to create growth allowances are not surplus or permanent, since the reductions may be used to offset future growth. In situations where the emissions reductions exceed the enforceable growth allowances in absolute quantity, the surplus reductions can be credited toward the 15 percent VOC emissions reduction requirements.

New section 173(b) of the Act invalidates, by operation of law, any existing growth allowances in any nonattainment area that either (1) received a notice that the SIP was substantially inadequate under section 110(a)(2)(H)(ii) of the Act, or (2) receives a notice of inadequacy under new section 110(k)(1) of the Act. Where growth allowances are no longer valid or established, a proposed major new or modified source in a nonattainment area is required to obtain emissions offsets on a case-by-case basis in order to obtain construction approval. (This was discussed previously in the emissions offsets section of this document.)

2.5 Construction Bans

The CAAA repeal most of the federally imposed construction bans established in nonattainment areas prior to November 15, 1990, under section 110(a)(2)(I) of the Act. However, new section 110(n)(3) of the Act also preserves certain preenactment construction bans imposed by virtue of a finding that the SIP for the area did not contain an adequate NSR permitting program as

required by section 172(b)(6) of the Act. The retained construction bans remain in effect until the EPA determines that the SIP meets the new Part D permit requirements.

Construction bans can, in effect, be imposed under section 173(a)(4) of the Act if the Administrator determines that the SIP for the Part D requirements is not being adequately implemented for the nonattainment area where new or modified sources are proposed. Section 173(a)(4) stipulates that a permit cannot be issued to a new or modified major source in a nonattainment area if the SIP is not adequately implemented.

Section 113(a)(5) of the Act provides that EPA may prohibit the construction or modification of any specific major stationary source in any area, including an attainment area, and may take other enforcement actions against States as allowed by the Act. The EPA may apply section 113(a)(5) whenever the Administrator finds, on the basis of available information, that a State is not acting in compliance with any requirement or prohibition of the Act (or approved SIP meeting the requirements of the Act) relating to construction of new sources or the modification of existing sources. Upon such a finding, the Administrator has the option of issuing an order that prohibits the construction or modification of any major stationary source in any area to which such requirement applies.

Construction bans do not necessarily prevent minor source growth and de minimis increases at major sources. Therefore, States with nonattainment areas subject to construction bans must still track emissions increases and decreases for the milestone compliance demonstration.

2.6 Tribal Lands

Section 301(d) of the Act grants EPA the authority to treat Indian tribes in certain respects as States and specifically to allow Tribes to develop tribal implementation plans for achieving the NAAQS on tribal lands. Like SIP's, these plans must include all implementation requirements specified in the Act including complete NSR programs for constructing or modifying existing sources located on tribal lands. Further guidance on the provisions of the Act, including the 15 percent VOC emissions reduction requirements, for which Indian tribes are to be treated as States will be provided as part of a separate rulemaking required by section 301(d)(2) of the Act.

2.7 NO_x Requirements

Section 182(f) of the Act specifies requirements for NO_x that apply to major new and modified sources in ozone nonattainment areas and ozone transport regions. This section reflects a new directive that NO_x reductions are required in ozone nonattainment areas, with certain exceptions. As a result, States are generally required to apply the same requirements to major stationary sources of NO_x as are applied to major stationary sources of VOC. However, the emissions threshold at which a stationary source becomes major does differ for NO_x and VOC sources in marginal and moderate ozone transport regions (100 tpy NO_x rather than 50 tpy VOC). Section 182(f) also specifies that the new NO_x requirements shall not apply where any of the following tests is met:

- In any area where the net air quality benefits are greater without NO_x reductions from the applicable sources.

- In an ozone transport region where additional NO_x reductions would not produce net ozone benefits in the transport region.

- In nonattainment areas not located within an ozone transport region where additional NO_x reductions would not contribute to ozone attainment.

If a State wishes to be exempt from some or all of the NO_x requirements of the Act, the State must demonstrate to the satisfaction of EPA that at least one of the three exemptions apply. This demonstration must be based on photochemical modeling and must consider various control strategies with and without NO_x reductions. Further details on the NO_x exemption are provided in a supplement to the General Preamble for implementation of the Title I NO_x requirements. (See reference 4.) The EPA anticipates releasing guidance on the substitution of NO_x for VOC emissions reductions in the fall of 1993 for the post-1996 rate-of-progress requirements.

3.0 RELATIONSHIP BETWEEN THE 15 PERCENT VOC EMISSIONS REDUCTION REQUIREMENTS AND PROVISIONS FOR CONTROLLING HAZARDOUS AIR POLLUTANTS

This section of the document describes the creditability of emissions reductions associated with the new or revised HAP requirements of section 112 of the Act. The creditability of emissions reductions associated with Resource Conservation and Recovery Act (RCRA) air emissions standards and EPA's 33/50 program are also discussed. The purpose of this section is to provide States with guidance on how emissions reductions that occur under programs to control HAP's can be used to achieve a portion of the 15 percent VOC emissions reduction requirements.

3.1 National Emission Standards for Hazardous Air Pollutants

Prior to enactment of the CAAA, EPA either promulgated or initiated development of NESHAP's to control HAP's under section 112 of the Act. The NESHAP's apply to both new and existing sources that exceed the exemption criteria specified in an NESHAP regulation. Some of the HAP emissions for which EPA has promulgated NESHAP's are also classified as VOC's. (See p. A-9 for the definition of VOC.) The NESHAP's which also control VOC emissions are as follows:

- Vinyl chloride production plants.
- Benzene emissions from equipment leaks.
- Benzene emissions from benzene storage vessels.
- Benzene emissions from coke by-product recovery plants.
- Benzene emissions from benzene transfer operations.
- Benzene waste operations.

The EPA proposed a NESHAP for coke oven batteries in 1987. However, on December 4, 1992, EPA withdrew the proposal (57 FR 57403) and proposed a new NESHAP for coke oven batteries (57 FR 57534). The NESHAP is expected to be promulgated in the spring of 1993. In addition, EPA proposed an hazardous organic NESHAP (HON) on December 31, 1992 (57 FR 62608). The final rule is expected to be promulgated in late 1993 or early 1994. The proposed rule would regulate the emissions of organic HAP's, all of which are classified as VOC's, from synthetic organic chemicals manufacturing industry (SOCMI) processes and from equipment leaks in non-SOCMI processes. The EPA is also preparing an NESHAP to control HAP's from ship building and ship repair operations. The NESHAP is planned for promulgation in 1994.

Reductions in VOC emissions associated with sources that were in compliance with an NESHAP prior to enactment of the CAAA are not creditable toward the 15 percent VOC emissions reduction requirements. Reductions in VOC emissions associated with existing sources which have complied with an NESHAP promulgated

after November 15, 1990 and before the deadline for submittal of the rate-of-progress plans (i.e., November 15, 1993), are creditable. However, care must be taken to ensure that emissions reductions associated with an NESHAP are not double counted. For example, sources located in ozone nonattainment areas that become subject to an NESHAP after November 15, 1990 may also be subject to a RACT rule in existence prior to November 15, 1990. For these cases, only the incremental emissions reduction between the allowable emissions required by the NESHAP and RACT rule is the emissions reduction creditable toward the 15 percent VOC emissions reduction requirements.

The EPA recognizes that some of the new NESHAP's may not be promulgated in time to be used by States for their 15 percent rate-of-progress plans. The EPA is currently investigating whether and under what circumstances a State may be able to take credit for unadopted NESHAP's in its 15 percent rate-of-progress plans. Further guidance may be forthcoming.

The CAAA revised section 112 of the Act which changed procedures for developing standards for controlling HAP's. The new programs for controlling HAP's under section 112 are discussed in sections 3.2 through 3.5 of this document.

3.2 Maximum Achievable Control Technology Standards

Section 112(d)(1) of the amended Act requires the promulgation of regulations establishing emissions standards for categories and subcategories of major sources and area sources of 189 HAP's. The emissions standard for a new or existing source in a particular category or subcategory must be based on the maximum degree of reduction that the Administrator determines is achievable through the application of MACT. Maximum achievable control technologies include, but are not limited to:

- Process changes, materials substitution, or other modifications.
- Enclosed systems or processes.
- Collection, capture, or treatment systems.
- Design, equipment, work practice, or operational standards.
- Combinations of the above.

The determination of MACT considers the cost of achieving such emissions reductions and any non-air quality health and environmental impacts and energy requirements. Section 112(d)(3) states that MACT standards for new sources must not be less stringent than the control achieved by the best controlled

similar source. The MACT standards for an existing source cannot be less stringent than the achievable emissions limitation of the top 12 percent of existing sources, except in cases where the source achieves the lowest achievable emissions rate (as defined under section 171 of the Act) applicable to the source category for those source categories with more than 30 sources. For source categories containing less than 30 sources, MACT standards must be no less stringent than the emissions limitation achieved by the best performing 5 sources. Where achievable, MACT may include the prohibition on the emissions of a HAP.

The emissions standards, or MACT standards, must be promulgated no later than the dates outlined in sections 112(c) and 112(e) of the Act. The schedule mandated in section 112(e)(1) is as follows:

- November 15, 1992: emissions standards for not less than 40 categories and subcategories (not counting coke oven batteries) shall be promulgated.

- December 31, 1992: emissions standards for coke oven batteries shall be promulgated.

- November 15, 1994: emissions standards for 25 per centum of the listed source categories and subcategories shall be promulgated.

- November 15, 1997: emissions standards for an additional 25 per centum of the listed source categories and subcategories shall be promulgated.

- November 15, 2000: emissions standards for all source categories and subcategories shall be promulgated.

As required under section 112(c), additional schedules are provided for area sources, previously regulated source categories, additional source categories not listed under sections 112(c)(1) or 112(c)(3), and specific HAP's. By November 15, 2000, emissions standards must be promulgated for sufficient categories and subcategories of area sources to ensure that area sources representing 90 percent of the area source emissions of the 30 HAP's that present the greatest threat to public health in the largest number of urban areas are subject to regulation. Emissions standards for additional source categories identified on or before November 15, 1998, must be promulgated by November 15, 2000. Emissions standards for additional source categories identified after November 15, 1998, must be promulgated within 2 years of identification of the additional source category. By November 15, 2000, emissions standards must be promulgated for categories and subcategories of sources that emit alkylated lead compounds, polycyclic organic matter, hexachlorobenzene, mercury, polychlorinated biphenyls, 2,3,7,8-tetrachlorodibenzofurans, and

2,3,7,8-tetrachlorodibenzo-p-dioxin, assuring that sources accounting for not less than 90 per centum of the aggregate emissions of each such pollutant are subject to such standards.

Many of the 189 HAP's listed under section 112(b)(1) are VOC's. Any emissions reduction of a hazardous VOC resulting from the application of a MACT standard is creditable toward the 15 percent VOC emissions reduction requirements for ozone nonattainment areas. Any incidental emissions reduction of a nonhazardous VOC resulting from the application of a MACT standard is also creditable toward the 15 percent VOC emissions reduction requirements. Crediting of MACT emissions reductions toward the 15 percent VOC emissions reduction requirements should not be confused with crediting such reductions toward NSR emissions offsets. Discussion regarding the creditability of MACT reductions toward NSR emissions offsets is discussed earlier in this document. It is important to note that some sources will be subject to both MACT and RACT rules. Because only the more stringent of the two standards will apply in these cases, States should be aware that double-counting of the VOC reductions from these two programs must not occur.

The EPA recognizes that some of the new MACT standards may not be promulgated in time to be used by States for their 15 percent rate-of-progress plans. The EPA is currently investigating whether and under what circumstances a State may be able to take credit for unadopted MACT standards in its 15 percent rate-of-progress plans. Further guidance may be forthcoming.

3.3 Early Reduction Program

As a temporary alternative to complying with an applicable MACT standard, an existing source may elect to comply with the early reduction requirements of section 112(i)(5). By electing to achieve early reductions, an existing source may, under certain conditions, meet an alternative emissions limit in lieu of meeting an otherwise applicable MACT standard. The alternative emissions limit expires 6 years after the otherwise applicable MACT standard compliance date, at which time the source must comply with the MACT requirement. Except as follows, to obtain the MACT compliance extension the reduction must be achieved before the otherwise applicable MACT standard is first proposed. A source may also obtain an extension if it makes an enforceable commitment to achieve such reduction before the proposal of the MACT standard, and it achieves the early reduction after the proposal of the applicable MACT standard, but before January 1, 1994.

The early reduction program requires a source to achieve HAP emissions reductions of at least 90 percent for VOC. The emissions reduction must be determined from a comparison of the

actual post-control emissions with the actual and verifiable emissions in a base year not earlier than 1987. A base year of 1985 or 1986 can be used by a source if its emissions data are based on information received by the Administrator prior to November 15, 1990, pursuant to an information request issued under section 114 of the Act.

Hazardous VOC emissions reductions under the early reduction program are creditable toward the 15 percent VOC emissions reduction requirements if the reductions occur after the 1990 base year. Because a source can credit reductions prior to 1990 under the early reduction program, the entire 90 percent early reduction may not be creditable toward the 15 percent VOC emissions reduction requirements.

States should be aware that EPA is developing a policy regarding potential conflicts between the early reduction program and the RACT requirements. (See reference 5.) The interaction between the early reduction program and RACT requirements causes concern because the prospect of applying RACT requirements to sources that already made early reductions would effectively limit the attractiveness of, and therefore participation in, the early reduction program. Additionally, States should also be aware that early reductions must be taken prior to November 15, 1996, to be credited toward the 15 percent VOC emissions reduction requirements. Guidance regarding the creditability of section 112 early reductions toward the post-1996 reduction requirements is presently under development within EPA. Readers interested in further details regarding the section 112 early reduction program are referred to the final regulations published in the Federal Register. (See reference 6.)

3.4 Construction, Reconstruction, and Modifications of Major Sources

Section 112(g)(2) of the Act stipulates that (after the effective date of a permit program under Title V in any State) the construction, reconstruction, or modification of a major source cannot commence unless the permitting authority under the established permit program determines that MACT will be achieved. Volatile organic compound emissions reductions achieved under section 112(g)(2) can be credited toward the 15 percent VOC emissions reduction requirements.

Major sources proposing physical or operational changes resulting in HAP emissions increases that exceed a de minimis amount may be exempted under section 112(g)(1) from being regarded as a modification if the emissions increase will be offset by an equal or greater emissions reduction of a more hazardous pollutant. The offset must be an internal offset and should not be confused with NSR emissions offsets. It should be noted that the HAP's that account for the increase and offset do

not have to be VOC's. For example, under Section 112(g)(1)(B), EPA may determine that mercury compound emissions are relatively more hazardous than styrene emissions. A hypothetical source proposing to increase emissions of styrene, which is both a HAP and a VOC, may propose to offset such an emissions increase with a reduction in the emissions of mercury compounds, which are HAP's, but not VOC's. A source proposing such an offset, while reducing HAP emissions, would actually produce an increase in total VOC emissions. Thus, States should be aware that offsets claimed under section 112(g)(1) will not necessarily result in a reduction in VOC emissions. In contrast, a hypothetical source proposing to increase emissions of methyl chloroform, which is not a VOC, could propose to offset with a reduction in vinyl chloride emissions, a VOC. Another source may propose to offset an emissions increase in styrene with a reduction of vinyl chloride that exceeds the increase in styrene. Net VOC emissions reductions that are obtained through section 112(g)(1) offsets can be credited toward the 15 percent VOC emissions reduction requirements as long as such reductions are real, permanent, and enforceable. States should be aware that guidance regarding these offsets is presently being prepared by EPA.

3.5 Additional Emissions Standards Available under Section 112 of the Act

Standard to Protect Public Health and the Environment

Section 112(f) of the Act allows the Administrator to promulgate more stringent standards than established under section 112(d) for a source category or subcategory if such standard is required to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect. Sections 112(f)(1)(A)-(D) of the Act describe the elements that EPA must include in investigating the need for more stringent standards. The Administrator is required to promulgate such standards within 8 years of the promulgation of the original MACT standard. However, no standards are anticipated under section 112(f) before November 15, 2000.

Work Practice Standards and Other Requirements

Section 112(h) of the Act allows the Administrator to promulgate design, equipment, work practice, or operational standards if the prescription or enforcement of an emissions standard is not feasible. To the extent that such standards are adopted and emissions reductions in VOC are required and quantifiable before November 15, 1996, such reductions are creditable toward the 15 percent VOC emissions reduction requirements.

Equivalent Emissions Limitation by Permit

In the event the Administrator fails to promulgate MACT standards by the dates specified in sections 112(e)(1) and (3), section 112(j) of the Act requires the permitting authority to issue source operating permits that contain emissions limitations deemed equivalent to the limitation that would have applied to the source had the MACT standard been issued. To the extent that such emissions limitations are adopted in an approved permit and emissions reductions in VOC are required before November 15, 1996, such reductions are creditable toward the 15 percent VOC emissions reduction requirements.

State and Local Standards

Section 112(l) allows State and local agencies to request delegation of section 112 implementation and enforcement authority from EPA. To the extent that such programs are approved and emissions reductions in VOC are required before November 15, 1996, such reductions are creditable toward the 15 percent VOC emissions reduction requirements.

3.6 Other EPA Programs

Hazardous Waste Treatment, Storage, and Disposal facilities (TSDF's) regulated under Subtitle C of the Solid Waste Disposal Act may be required to meet Resource Conservation and Recovery Act (RCRA) air emissions standards. Section 112(n)(7) mandates that requirements promulgated under section 112 be consistent with the applicable RCRA rules. Volatile organic compound emissions reductions achieved under the RCRA rules may be creditable toward the 15 percent VOC emissions reduction requirements. Because the VOC emissions reduction may qualify as a RCRA reduction and a MACT reduction, States should take care to avoid crediting such an emissions reduction twice. Similarly, the 33/50 Project (Industrial Toxics Project) is designed to reduce the emissions of air toxics. Under this program, sources are encouraged to voluntarily reduce toxics releases. Again, States should avoid crediting VOC emissions reductions claimed under this program twice, because such reductions may qualify under the early reduction requirements of section 112(i)(5). States should be aware that reductions under voluntary programs such as the 33/50 Project must be made enforceable and permanent to be creditable toward the 15 percent VOC emissions reduction requirements.

4.0 RELATIONSHIP BETWEEN THE 15 PERCENT VOC EMISSIONS REDUCTION REQUIREMENTS AND NEW SOURCE PERFORMANCE STANDARDS

Under the authority of Section 111 of the Act, the EPA Administrator was required to publish a list of categories of stationary sources that cause or contribute significantly to air pollution which may reasonably be anticipated to endanger public health or welfare, and to promulgate standards of performance for new stationary sources in the listed categories. The standards are typically called NSPS. The EPA has promulgated NSPS regulations for several VOC source categories. The purpose of the NSPS is to require the application of uniform performance standards for new, modified, or reconstructed sources within a source category, which commence construction or modification after the publication of the regulations (or, if applicable, proposed regulations). The NSPS are based on performance standards which reflect the best technological system of continuous emissions reduction which (taking into consideration the cost of achieving such emissions reduction, and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated. A performance standard is based on an emissions limit or control efficiency that can be achieved by demonstrated control technology. An NSPS can be based on a design, equipment, work practice, or operational standard, or a combination thereof, if it is impractical to enforce a performance standard.

For the categories of major stationary sources that EPA listed before the date of enactment of the CAAA, EPA is required to propose NSPS regulations for at least 25 percent of the source categories by November 15, 1992; 50 percent of the source categories by November 15, 1994; and for the remaining source categories by November 15, 1996. The EPA has the authority to add source categories to the list of categories for which NSPS may be warranted.

Reductions in VOC emissions associated with stationary sources that become subject to an NSPS after November 15, 1990 and before November 15, 1996 are creditable toward the 15 percent VOC emissions reduction requirements. However, care must be taken to ensure that emissions reductions associated with an NSPS are not double-counted under the emissions offset or netting provisions of the NSR rules. In addition, existing sources that become subject to an NSPS as a result of modification or reconstruction may already be subject to RACT rules. The incremental emissions reduction between the allowable emissions required by the NSPS and RACT rules is the emissions reduction creditable toward the 15 percent VOC emissions reduction requirements. The EPA is currently developing guidance on how much credit States may take in their 15 percent rate-of-progress plans for NSPS promulgated between the date of their plan submittals and November 15, 1996.

The EPA has promulgated NSPS to control VOC emissions from sources in the following source categories:

- Bulk gasoline terminals.
- Municipal waste combustors.
- On-shore natural gas processing plants: VOC equipment leaks.
- Petroleum dry cleaners.
- Petroleum refineries: equipment leaks.
- Petroleum refinery wastewater systems.
- Polymer manufacturing.
- Publication rotogravure printing.
- Rubber tire manufacturing.
- Storage vessels for petroleum liquids.
- Storage vessels for volatile organic liquids.
- Synthetic fiber production.

- Surface coating operations:
  - Automobiles and light-duty trucks.
  - Beverage cans.
  - Flexible vinyl and urethane coating and printing.
  - Large appliances.
  - Magnet tape.
  - Metal coil.
  - Metal furniture.
  - Plastic parts for business machines.
  - Polymeric coating of supporting substrates.
  - Pressure sensitive tapes and labels.

- SOCMI air oxidation unit processes.
- SOCMI distillation unit operations.
- SOCMI equipment leaks.

5.0 RELATIONSHIP BETWEEN THE 15 PERCENT VOC EMISSIONS REDUCTION REQUIREMENTS AND MOBILE SOURCE PROVISIONS

The CAAA require a combination of national and area-specific emissions control measures to reduce motor vehicle emissions. The following sections present the various mobile source programs and indicate which mobile source reductions qualify as creditable emissions reductions toward the 15 percent VOC emissions reduction requirements. In addition, the reader is referred to the appropriate program development rules and/or guidance.

The majority of the mobile source measures mentioned below are included in the MOBILE5a emissions factor model. By using MOBILE5a, States will be able to model the future emissions reductions from specific mobile source programs that they plan to implement. A MOBILE5a user's guide will provide instructions on how to model the effects of these programs. Where a measure is not included in the MOBILE5a model, it is indicated below.

5.1 Federal Motor Vehicle Control Program (FMVCP)

Tailpipe/extended useful life standards have been established for certification of light-duty vehicles and light-duty trucks, which revise previously established standards under the pre-1990 FMVCP. These standards, known as Tier 1 standards, are to be implemented in phases, beginning with model year 1994. The final rules, published in the Federal Register, (see reference 7), describe new measurement techniques on which to base the standards. A new Federal evaporative test procedure will be mandated for hot-soak and diurnal emissions, running losses, and resting losses. Emissions reductions due to implementation of pre-1990 FMVCP regulations cannot be credited toward the 15 percent VOC emissions reduction requirements. However, emissions reductions resulting from implementation of post-1990 FMVCP regulations can be creditable toward the 15 percent VOC emissions reduction requirements.

5.2 Reid Vapor Pressure (RVP)

The Act mandates that EPA promulgate regulations pertaining to the handling of gasoline with an RVP in excess of 9.0 pounds per square inch (psi) during the peak ozone season. The Phase II volatility rulemaking, published June 11, 1990 in the Federal Register (see reference 8), establishes State RVP standards for 1992 and subsequent years. This regulation specifies RVP limits of 9.0 psi or 7.8 psi for each State. However, a Federal RVP limit below 9.0 psi cannot be required in the attainment areas within each State, unless an area is a former nonattainment area, as stipulated in a December 12, 1991 rulemaking. (See reference 9.)

Like the pre-1990 FMVCP emissions reductions, the reductions in emissions that result from implementation of the required RVP limits cannot be credited toward the 15 percent VOC emissions reduction requirements. However, if a nonattainment area establishes an RVP limit below the Federal limit, reductions resulting from the lowered RVP limit will be creditable. The EPA guidance document entitled Enforcement of Volatility Regulations - Questions and Answers, (see reference 10), addresses questions concerning how the Agency intends to implement and enforce the gasoline volatility regulations. The EPA is currently developing guidance on whether emissions reduction credit will be allowed when a nonattainment area's projected actual RVP in 1996 will be below its 1996 RVP limit.

5.3 Reformulated Gasoline

Section 211(k) of the Act requires certain ozone nonattainment areas to use reformulated gasoline beginning January 1, 1995. This requirement applies to the nine ozone nonattainment areas having a 1980 population in excess of 250,000, and having the highest ozone design value during the period 1987 through 1989. This provision also affects any area that is reclassified to a severe nonattainment area 1 year after reclassification. States are permitted to opt-in to the reformulated gasoline program upon formal notice to EPA. Proposed regulations for the reformulated gasoline program were published in the Federal Register on April 16, 1992. (See reference 11.) To the extent that this measure results in quantifiable VOC emissions reductions before 1996, these reductions will be creditable toward the 15 percent VOC emissions reduction requirements.

5.4 Stage II Vapor Recovery Control[8]

The CAAA require that owners or operators of gasoline dispensing systems in particular nonattainment areas install gasoline dispensing pump vapor control devices, or Stage II controls. These systems control VOC vapor releases, as well as benzene and other toxics, during motor vehicle refueling. The CAAA mandate that all moderate and above ozone nonattainment areas and all areas in an ozone transport region must implement a Stage II program. According to the CAAA, EPA was directed to establish regulations mandating the installation of on-board vapor recovery systems, after consultation with the Department of Transportation regarding the safety of the systems. In early 1992, EPA published its decision against promulgating on-board

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[8] Although Stage II vapor recovery control systems for gasoline service stations are discussed under the heading of mobile source provisions in this document, the emissions from gasoline service stations are generally inventoried as an area source.

vapor recovery standards (57 FR 13220, April 15, 1992). This decision had the effect of removing the possibility of a Stage II exemption for moderate areas as provided in the Act. However, on January 22, 1993, the District of Columbia Circuit of the United States Court of Appeals ruled that EPA's decision not to require on-board vapor recovery controls be set aside and on-board vapor recovery standards be promulgated pursuant to section 202(a)(6) of the Act. The EPA is currently studying a schedule for complying with the court's ruling.

When on-board rules are promulgated, a State may withdraw its Stage II rules for moderate areas from the SIP consistent with its obligation under sections 182(b)(3) and 202(a)(6), so long as withdrawal does not interfere with any other applicable requirement of the Act. A March 9, 1993 memorandum from John S. Seitz, Director, Office of Air Quality Planning and Standards, to U.S. Environmental Protection Agency Regional Air Division Directors, regarding "Impact of the Recent On-Board Decision on Stage II Requirements in Moderate Nonattainment Areas," notes that EPA has recently issued findings of failure to submit Stage II rules covering about 20 moderate ozone nonattainment areas. This memorandum also discusses the implications if a State does not submit complete Stage II rules within 18 months of the findings letter. Furthermore, the memorandum briefly discusses the consequences of moderate area failures to submit approvable 15 percent rate-of-progress plans or to attain the ozone NAAQS by 1996. Given the significant contribution that Stage II can provide to achievement of these requirements, and the consequences of failure to meet these requirements, States have compelling reasons to submit their Stage II rules and maintain them even after an on-board rule has been promulgated. Further guidance on Stage II requirements for moderate nonattainment areas seeking redesignation will be forthcoming.

Emissions reductions resulting from the post-1990 implementation of a Stage II program will be creditable toward the 15 percent VOC emissions reduction requirements. Two documents are available to guide States in developing and implementing acceptable Stage II programs. Technical information on Stage II programs is available in a 1991 document entitled, Technical Guidance - Stage II Vapor Recovery Systems for Control of Vehicle Refueling Emissions at Gasoline Dispensing Facilities. (See reference 12.) A second report entitled, Enforcement Guidance for Stage II Vehicle Refueling Control Programs (see reference 13), establishes the minimum requirements for an acceptable Stage II program.

5.5 Clean Fuel Vehicle Program for Fleets

The clean fuel fleet vehicle program requires a specified percentage of fleet vehicles purchased in model year 1998 to be clean-fueled vehicles. Thirty percent of new centrally-fueled

fleet vehicles in serious and above nonattainment areas with a 1980 population of 250,000 or more must meet standards of 0.075 gram of VOC per mile and 0.2 gram of NO_x per mile. The percentages increase to 50 percent in 1999, and 70 percent in 2000. Beginning in model year 1996, California will establish a pilot test program requiring 150,000 clean fuel cars to be sold which meet a standard of 0.125 gram of VOC per mile. Other cities can opt-in to the clean fuel fleet program. In the event that a nonattainment area implements a clean fuel fleet program that achieves emissions reductions before 1996, such reductions may be creditable toward the 15 percent VOC emissions reduction requirements. The effects of the clean fuel fleet program on future emissions are presently not modeled in MOBILE5a.

The EPA promulgated a final rule entitled, "Clean Fuel Fleet Credit Programs, Transportation Control Measure Exemptions and Related Provisions," (58 FR 11888, March 1, 1993). In addition, a notice of proposed rulemaking on conversion standards is expected to be released in early summer of 1993.

5.6 Inspection and Maintenance (I/M) Program

Final regulations establishing minimum performance standards for I/M programs were published on November 5, 1992 in the Federal Register. (See reference 14.) Marginal ozone nonattainment areas with current or previously required I/M programs are required to submit SIP revisions necessary to meet EPA's basic I/M program standards. Moderate ozone nonattainment areas must implement a basic I/M program regardless of whether an I/M program was previously required. For areas classified as serious and above with a 1980 population of 200,000 or more, an enhanced I/M program must be implemented. The enhanced I/M program must meet higher performance standards than the basic I/M program. Guidance on the costs and benefits of enhanced I/M programs has been released by EPA in draft form. (See reference 15.)

Corrections to existing I/M programs are necessary if the area's I/M program fails to meet the more stringent of: EPA's performance standard, or the standards of the nonattainment area's current SIP. Emissions reductions achieved as a result of corrections to deficiencies in existing I/M programs will not be creditable toward the 15 percent VOC emissions reduction requirements. However, any emissions reductions resulting from additional I/M program requirements of the Act (such as enhanced I/M), or any improvements not mandated by the Act that a State chooses to make in its SIP are creditable toward the 15 percent VOC emissions reduction requirements.

5.7 On-Board Diagnostic Systems

The EPA has promulgated regulations that will require on-board diagnostic systems in all light-duty vehicles and light-duty trucks beginning in model year 1994. These systems monitor emission-related components for malfunctions or deterioration before such events cause emissions increases. The final rule, published February 19, 1993, (see reference 16), discusses EPA's regulatory approach. Because on-board diagnostic systems are considered part of a State's I/M program, emissions reductions resulting from the use of these systems will be accounted for when modeling the nonattainment area's I/M program in MOBILE5a. These reductions are therefore creditable toward the 15 percent VOC emissions reduction requirements.

5.8 Transportation Control Measures (TCM's)

Transportation control measures are strategies to both reduce vehicle miles travelled (VMT), and decrease the amount of emissions per VMT. According to the Act, TCM's have been identified as an essential element of control strategies for many nonattainment areas. A listing of some of the possible measures to be implemented is found in section 108(f) of the Act. These measures describe strategies to reduce vehicle trips, induce changes in the type of vehicles used, shift travel time, and/or improve traffic flow.

When a TCM results in a measurable decrease in VMT, the emissions reductions that result from the reduced VMT can be calculated by multiplying this lower VMT value by the MOBILE5a emissions factor. The TCM's may also affect other components that are factored into the MOBILE5a model. Further guidance by EPA is forthcoming describing the methods to quantify the emissions reductions achieved as a result of TCM's.

Emissions reductions resulting from TCM's are creditable if the TCM is not already federally mandated (e.g., the employee trip reduction program required under section 182(d)(1)(B) for severe and extreme ozone nonattainment areas), or is not part of an already existing SIP. As with all other emissions reductions, emissions reductions associated with TCM's are only creditable to the 15 percent rate-of-progress plan if they are quantifiable, real, enforceable, replicable, accountable, and occur by November 15, 1996.

Two EPA documents provide guidance on identifying, evaluating, implementing, monitoring and enforcing TCM's: Transportation Control Measures: State Implementation Plan Guidance, (see reference 17), and Transportation Control Measure Information Documents. (See reference 18.)

6.0 RELATIONSHIP BETWEEN THE 1993 ATTAINMENT DEMONSTRATION PLAN AND NO_x REQUIREMENTS

Nitrogen oxide emissions reductions occurring in the period 1990-1996 may not be substituted for VOC emissions reductions for the rate-of-progress requirements. However, section 182(b)(1)(A) of the Act stipulates that the revised SIP "shall provide for such specific annual reductions in emissions of volatile organic compounds and oxides of nitrogen as necessary to attain the national primary ambient air quality standard for ozone by the attainment date applicable under this Act." (Additionally, CO emissions reductions can also be used to facilitate attainment of the ozone NAAQS.) The purpose of this section is to address the use of NO_x emissions reduction requirements as an option available to States for achieving attainment of the ozone NAAQS.

Section 407(b) of the Act (under the Acid Rain provisions) includes NO_x emissions limits for coal-fired boilers. The schedule for issuing regulations that establish the emissions limitations are as follows:

- May 15, 1992: tangentially fired boilers and dry bottom wall-fired boilers.
- January 1, 1997: wet bottom wall-fired boilers, cyclones, units applying cell burner technology, and all other types of utility boilers.

The maximum allowable emissions rates for tangentially fired boilers and dry bottom wall-fired boilers were established by the Act as 0.45 pounds per million British thermal units (lb/MMBtu) and 0.50 lb/MMBtu, respectively. The maximum allowable emissions rates for the remaining boilers will be based on the degree of reduction achievable through the retrofit application of the best system of continuous emissions reduction.

As indicated previously, section 182(b)(1)(A) allows NO_x reductions to be used in conjunction with VOC emissions reductions only for purposes of attaining the ozone NAAQS, not for meeting the 15 percent rate-of-progress requirement. This is particularly important for moderate areas, which must attain the ozone NAAQS by November 15, 1996. Moderate areas proposing to use NO_x reductions to achieve ozone attainment must establish in their attainment demonstration-with the use of a model-that such reductions will result in attainment. Intrastate moderate areas will generally utilize the Empirical Kinetic Modeling Approach (EKMA) model for the modeling demonstrations; however, moderate areas may choose to use the UAM. Attainment demonstrations for moderate areas are due by November 15, 1993, unless a photochemical grid model (such as UAM) is employed, in which case the attainment demonstration is due by November 15, 1994.

In accordance with section 182(c)(2)(C), substitution of NO_x emissions reductions for VOC reductions is allowable in serious and above areas for the post-1996 VOC emissions reduction requirements. Further details regarding NO_x substitution will be addressed in the forthcoming guidance for preparing the post-1996 rate-of-progress plan. States are required to present their NO_x emissions inventories along with their VOC emissions inventories in their rate-of-progress plan submittals (e.g., base year inventory, periodic inventories, modeling inventories). Readers interested in further details regarding the Title I NO_x requirements are referred to the NO_x supplement to the General Preamble. (See reference 19.) The EPA anticipates releasing guidance on the substitution of NO_x for VOC emissions reductions in the fall of 1993.

7.0 RELATIONSHIP BETWEEN THE 15 PERCENT VOC EMISSIONS REDUCTION REQUIREMENTS AND ECONOMIC INCENTIVE PROGRAMS

7.1 Background

Section 182(g)(4)(B) of the Act requires EPA to promulgate rules for EIP's. A State with an extreme ozone nonattainment area must submit an EIP if it fails to submit a milestone compliance demonstration or fails to meet an applicable rate-of-progress milestone. Such programs are also identified as an explicit option upon such failures in serious and severe ozone nonattainment areas. Additionally, the Act explicitly allows the use of EIP's in the general SIP requirements [section 110(a)(2)], the general provisions for nonattainment area SIP's [section 172(c)(6)], and in the system of regulations for controlling emissions from consumer or commercial products [section 183(e)(4)].

On February 23, 1993, EPA proposed a rule for implementing EIP's (58 FR 11110). The purpose of this section is to discuss the proposed EIP rule, and to address the creditability of emissions reductions under EIP's toward the 15 percent VOC emissions reduction requirements, net of growth, and toward attainment demonstrations. The proposed EIP rule serves as interim guidance for both mandated (statutory) and discretionary EIP's and addresses some of the general issues associated with the design and implementation of EIP's. The following discussion of the proposed rule reflects EPA's interim guidance for EIP's. The final EIP rule, when promulgated, may differ from this discussion.

Economic incentive programs are intended to result in the timely reduction of emissions through the development and implementation of methods less costly than traditional command-and-control methods for meeting air pollution goals. The following three broad types of programs were highlighted in the Act and discussed in the proposed rule:

- Marketable permits or marketable emissions limits - emissions sources may achieve their permitted emissions limits either directly or by purchasing emissions credits from other sources.

- Emissions fees - emissions sources have a direct economic incentive to reduce emissions to the point where the cost of abating emissions equals the emissions fees.

- Mobile source programs - programs to reduce vehicle emissions or VMT, including TCM's.

The Act does not limit EIP's to these three general categories. Other programs could potentially include public awareness campaigns, capital grants for technological innovation or implementation, information programs that encourage consumers to purchase less polluting products, credit for early reductions, and adjustments in building codes or zoning ordinances. A combination of EIP's may enhance the ability of the general program to reduce emissions on schedule, while reducing the costs of emissions reductions on individual sources.

The EPA's proposed rule is intended to ensure that EIP's will result in real and quantifiable emissions reductions, and that such reductions will be surplus to reductions required by, and credited to, other SIP provisions to avoid double-counting of emissions reductions. Additionally, the rules are intended to provide that such programs contain adequate and appropriate compliance requirements to ensure that programs are enforceable and that reductions are permanent. The rules are not intended to limit the flexibility and innovation of such programs.

The EPA's proposed rule classifies economic incentive strategies into three broad regulatory categories: emissions limiting, market response, and directionally sound. These categories, which are discussed in more detail in the following paragraphs, are based on whether a quantifiable emissions-related requirement is directly specified as an integral element of the program, or whether the program depends upon marketplace decisions, made in response to a programmatic incentive, to produce the intended emissions-related objective of the program. Further, the categorization is a function of whether or not the results of the program are quantifiable.

Emissions limiting strategies directly specify the total amount of emissions that may be produced by the affected sources, the limit on emissions-related parameters such as emissions per unit of production, or a specified amount of emissions reduction that must be achieved by affected sources. A marketable emissions allowance program with aggregate total emissions limitations is an example of such a program. If every affected source in such a program complies with its emissions limit (net of any traded emissions credits), the program will necessarily achieve the specified emissions requirement. Emissions limiting strategies are generally creditable toward the 15 percent rate-of-progress requirement provided other conditions specified elsewhere are met.

Market response strategies create one or more economic incentives for an affected source to reduce emissions, without directly specifying a required emissions-related target for individual sources or for all sources in the aggregate. An emissions fee program is an example of a market response strategy. In such a program, each source must pay a fee on each unit of actual emissions. The response to the incentive, in terms of actions which affect emissions levels, will be determined by each source. Thus, each source has flexibility in determining its level of emissions, but must not exceed any limitation imposed by other regulatory requirements. In developing such a program, a State must project the aggregate response to the incentive, and subsequently compare the projected emissions with the actual emissions from affected sources.

Inherent in programs based on market response strategies is the consequence that actual emissions from affected sources may differ from the projected level even if every affected source is in full compliance with the EIP requirements. Thus, programs using a market response strategy must contain reconciliation procedures that compare projected emissions with actual emissions. Any shortfall identified by the reconciliation procedure must be made up through a revision of certain parameters of the EIP (e.g., increase the fee or include more sources), or by invoking part of the general SIP contingency plan or a program-specific contingency. Market response strategies may be used in some instances to provide credit toward the 15 percent rate-of-progress requirements. The next section contains additional discussions on the creditability of market response strategies.

Directionally sound strategies do not yield quantifiable emissions reductions creditable toward the emissions reductions required to meet rate-of-progress requirements or for attainment demonstrations. A public awareness campaign is an example of a directionally sound strategy. Such strategies may be included in an area's attainment plan, without credit, or in a maintenance plan if the approach contributed to the area achieving attainment. Emissions reductions from such programs are not creditable because the program lacks one or more of the basic program elements, such as an emissions baseline or adequate quantification procedures. However, a State may want to pursue such a strategy as a part of its overall program to attain and maintain the NAAQS.

7.2 Creditability in SIP's

The creditability of emissions reductions obtained under EIP's toward the 15 percent VOC emissions reduction requirements, net of growth, and attainment demonstrations is a critical issue for States considering the implementation of such a program. The SIP credit given for traditional source-specific technology or

performance standards is based on detailed evaluations of the emissions reductions that will be achieved by complying sources. A factor is then used to account for the lower reductions that will result from an anticipated level of less-than-complete compliance, such as through the use of a rule effectiveness factor for stationary sources. Creditability of rule effectiveness improvements is discussed in sections 5.5 and 5.6 of the document entitled Guidance for Growth Factors, Projections, and Control Strategies for the 15 Percent Rate-of-Progress Plans. (See reference 20.) However, for market response strategies it is inherently not possible to specify, prior to the implementation of such a strategy, the exact emissions reductions that will be achieved even if all sources comply with all relevant requirements of the program.

In its proposed rule for EIP's, EPA addresses the components that must be included in an EIP if the emissions reductions projected by a State are to be given credit in a SIP. In order for projected emissions reductions from EIP's to be creditable in a SIP, the emissions reductions must be quantifiable (*i.e.*, credible, workable, and replicable); consistent with the SIP rate-of-progress and attainment requirements; surplus to reductions required by the current SIP requirements, the attainment demonstration, or any milestone demonstration; enforceable at the State and Federal levels; and permanent. These requirements for creditability are the same as for any emissions reduction for which a State seeks credit. In addition to these requirements for creditability, there are also requirements that are specific to emissions reductions from EIP's.

If a State is to receive credit for projected emissions reductions from an EIP program, the State must address the uncertainties in the projected emissions reductions from its EIP's. In order to do this, the State must specify, for each of its EIP's, the following elements: program uncertainty factor; rule compliance factor; program audit provisions; and, for market-response EIP's, reconciliation procedures.

The *rule compliance factor* is intended to discount the amount of emissions reductions credited in an implementation plan demonstration to account for less-than-complete compliance by the affected sources in an EIP.[9] The *program uncertainty factor* is intended to discount the amount of emissions reductions credited in an implementation plan demonstration to account for any strategy-specific uncertainties in an EIP. The EPA intends for these factors to address the issues of less-than-complete

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[9]The rule compliance factor is analogous to the rule effectiveness factor for stationary sources equipped with control devices.

compliance and the inherent uncertainties in future market response, respectively. Credit would, in certain cases, be taken at the beginning of an approved EIP, with the level of credit based on emissions reduction projections which incorporate these two discounting factors. In the proposed rule on EIP's, States would be required to develop and submit a justification for the values of these two discounting factors.

Program audit provisions are used to track actual emissions reductions from an EIP. If a State uses a market-response EIP, the program audit provisions must be accompanied by *reconciliation procedures* to compare the projected emissions reductions (which are credited emissions reductions in the SIP) with the actual emissions reductions. Additionally, market-response EIP's must have contingency measures developed to make up for any shortfall between projected and actual emissions reductions. These measures must be automatically executed if there is an emissions shortfall; the State may choose a specific measure(s) from the contingency measures in the EIP, but the measure must be able to go into effect without further action from the State. In the proposed rule on EIP's, EPA suggests that program audits and reconciliations be made at time intervals consistent with the rate-of-progress milestones and emissions inventory requirements, which are generally every 3 years.

States should consult with the appropriate EPA Regional Office concerning the creditability of emissions reductions from EIP's toward the emissions reductions required for the rate-of-progress requirements and the attainment demonstration. Reductions from EIP's must of course occur before the rate-of-progress milestone date to be creditable toward the 15 percent VOC emissions reduction requirements, net of growth.

7.3 Baseline Emissions in EIP's

Economic incentive programs incorporated in a SIP pursuant to section 182(g)(4) are designed to produce emissions reductions. In most cases, a State will want to credit that part of the emissions reductions not consumed by minor source growth (including minor sources increasing to major source size) toward the rate-of-progress plan requirements, or attainment demonstration, or both. Emissions reductions from EIP's creditable for either the rate-of-progress plan requirements and attainment demonstration must be fully consistent with the requirements specified by the Act and the EIP rule.

Many types of EIP's require an emissions level as a starting point for the program. The total emissions level used as a starting point in an EIP is referred to as the EIP baseline. For instance, a marketable allowance program with an emissions cap must initially allocate some level of allowable emissions to affected sources. After the program begins, affected sources may

adjust their emissions cap by buying or selling emissions allowances from other sources. All affected sources must periodically demonstrate that they are in compliance with their emissions cap, as adjusted by trading.

The proposed rule on EIP's would allow States flexibility in determining baseline emissions. The baseline, however, must be specified within the EIP as it is used as the basis for initializing the EIP incentive mechanism and projecting program results. Under certain circumstances, a State may choose to establish an EIP baseline different than actual 1990 emissions. In such cases, an EIP baseline may be established as a function of actual emissions, allowable emissions, a combination of actual and allowable emissions, or some other basis. A State may want to establish the EIP baseline based on a consideration of equity, economic conditions, or political viability. However, it should be noted that the State must use the 1990 actual base year inventory as the baseline for the State's rate-of-progress plan. This issue is discussed in the guidance document entitled Guidance on the Adjusted Base Year Emissions Inventory and the 1996 Target for the 15 Percent Rate-of-Progress Plans. (See reference 21.)

The only emissions reductions that will be creditable toward the 15 percent rate-of-progress requirements or attainment demonstration are those fully consistent with the applicable EPA policy on the demonstrations. If a State uses an EIP baseline different than the baseline used in its 15 percent rate-of-progress plan, the State must establish the relationship between emissions reductions from the EIP and emissions reductions creditable in its plan. For example, a State may decide to require a 15 percent reduction, net of growth, in actual emissions (measured against a 1990 actual emissions baseline) from a group of sources over the next five years. Alternatively, the State could choose to implement a marketable allowance program using an allowable emissions baseline. After initializing each source's emissions limit at 1990 allowable emissions, the State could require a 40 percent reduction, for example, in the emissions cap between 1990 and 1996. In order for the State to receive a 15 percent reduction creditable toward the rate-of-progress plan, the State would need to demonstrate that a 40 percent reduction in allowable emissions for a group of sources would result in a 15 percent reduction in actual emissions for those sources.

7.4 Quantification of Emissions

Economic incentive programs require the development and use of accurate, reliable, and replicable methods to quantify emissions, including baseline emissions. Such methods should include:

- Specification of quantification methods.
- Specification of averaging times.
- Accounting for shutdowns and production curtailments.
- Accounting for batch, seasonal, and cyclical operations.
- Determining emissions contribution for periods for which monitoring data were not gathered, or data are otherwise missing or have been demonstrated to be inaccurate.
- Accounting for travel mode choice options for TCM's.

The selected approach to emissions quantification should be the most effective for a particular source type. Potential approaches include direct measurement of emissions, either continuously or periodically; equations which are a function of process or control system parameters, ambient conditions, activity levels, and throughput or production rates; mass balance calculations which are a function of inventory, usage, or disposal records; EPA-approved emissions factors; or any combination of such approaches. The proposed EIP rule does not require the use of any particular quantification approach, but cautions that if emissions reduction credits are to be taken, the method for quantifying emissions must yield results which can be shown to have a level of certainty comparable to that for source-specific standards and traditional methods of control strategy development.

8.0 RELATIONSHIP BETWEEN THE 15 PERCENT VOC EMISSIONS REDUCTION REQUIREMENTS AND TITLE V (OPERATING PERMITS)

Title V of the Act requires States to develop and submit operating permit programs by November 15, 1993, to EPA for approval. Sources subject to the program must submit permit applications within 1 year of EPA's approval of the State program or, where the State program is not approved, within 1 year of EPA's promulgation of a permit program. The operating permit program should more efficiently implement the Act, providing improved enforcement and enhanced State air program resources.

The operating permit program is designed to streamline regulation of permitted sources by incorporating the various Act requirements (including preconstruction permit requirements) to which a source is subject into a single document. The program will eventually apply to the following sources, however, initially only major sources are covered:

- Major stationary sources, as defined in Table 1 of this document.
- Any other source, including an area source, subject to a HAP standard or regulation under section 112.
- Any source subject to an NSPS under section 111.
- Affected sources under the acid rain provisions of Title IV.
- Any source required to have a preconstruction review permit pursuant to the requirements of the PSD program under Title I, Part C, or the NSR program under Title I, Part D.
- Any other stationary source in a category EPA designates in whole or in part by regulation, after notice and comment.

Additionally, the operating permit program may be used to facilitate the use of market-based incentives for emissions reductions. Consequently, the operating permit program may be the primary implementing mechanism of EIP's, discussed in Section 7.0 of this document.

Key concepts of the operating permit program should be understood for States to effectively integrate permit programs into emissions reduction requirements such as the 15 percent rate-of-progress requirement. These concepts include:

- Operating permits must contain SIP requirements and reflect terms of preconstruction permits.

- Operating permits must ensure continued compliance by the source with all applicable requirements of the Act, which include all SIP requirements and permit limits necessary to meet a rate-of-progress requirement; however, meeting the NAAQS is not an applicable requirement except for "temporary" sources.

- States may implement a more extensive operating permit program than required to comply with the Act's requirements or schedules.

- The EPA must implement a Federal operating permit program in the event a State fails to satisfactorily develop or implement its program.

- The SIP will continue to be the mechanism for demonstrating attainment and maintenance of the NAAQS, and for demonstrating achievement of emissions reductions.

Thus, States may rely on their regulatory program alone in their rate-of-progress plan to demonstrate that sufficient emissions reductions will occur to meet the 15 percent emissions reduction requirement. That regulatory program will ultimately be implemented through the permit program at least for sources for which permits are required. Emissions controls that are not in a regulatory program but contained in a permit alone will not be creditable toward the 15 percent rate-of-progress requirement unless the permit itself is submitted as part of the SIP. Of course, the emissions reduction must occur prior to November 15, 1996 to be creditable toward the 15 percent emissions reduction requirements.

Readers interested in further details of the operating permit program are advised to refer to the final Title V regulations, published July 21, 1992 in the Federal Register. (See reference 22.)

8.1 Satisfying SIP Principles with Operating Permits

As stated above, the SIP continues to be the mechanism for demonstrating the attainment of the NAAQS, maintenance of the NAAQS once attainment occurs, and prescribed rates of progress. The SIP, and any implementing instruments, including permits, must adhere to principles discussed in the Title I General Preamble. (See reference 23.) These principles are: quantifiability, enforceability, replicability, and accountability. These four principles must be adhered to for any emissions reduction to be creditable toward the 15 percent VOC emissions reduction requirements.

State implementation plans generally contain enforceable emissions limits, recordkeeping, reporting, and testing requirements adequate to satisfy these principles. The four principles could be fulfilled by a combination of the SIP and operating permits. For example, operating permits could satisfy the principle of quantifiability because they are well suited to contain source-specific recordkeeping and reporting requirements and most source-specific measuring and monitoring requirements (e.g., the permit may specify a test method where one is not referenced in the SIP). The principle of enforceability and accountability could be satisfied by stipulating source-specific emissions limitations and control techniques in the operating permit. Future permits may be able to satisfy the principle of replicability, if they implement a replicable procedure by which a permit requirement is revised. This procedure would have been approved previously in the SIP.

8.2 Areas Requiring Emissions Reductions Less Than 15 Percent

Section 182(b)(1)(A)(ii) allows moderate, serious, and severe ozone nonattainment areas to reduce VOC emissions by less than 15 percent if the following conditions are met. First, the State must demonstrate that the area has a NSR program equivalent to the requirement in extreme areas [section 182(e)], except that a "major source" must include any source that emits, or has the potential to emit, 5 tpy of VOC. All major sources (down to those with emissions of 5 tpy of VOC or greater) in the area must be required to have RACT-level controls. The plan must also include all measures that can be feasibly implemented in the area, in light of technological achievability. To qualify for the lesser percentage, the State must demonstrate that the SIP includes all measures (both stationary and mobile) that are achieved in practice by sources in the same source category in nonattainment areas of the next higher classification.

If a moderate or above ozone nonattainment area chooses to meet the requirements of section 182(b)(1)(A)(ii) to get a "waiver" of the 15 percent provision, EPA interprets Title V to require operating permits for all VOC sources in that area that are considered major under this new definition of major source (i.e., new and existing sources that emit or have the potential to emit 5 tpy of VOC). This is because the definition of "major source" in Title V expressly refers to "major stationary source" as defined in Part D of Title I. Since, under the waiver provision of section 182(b)(1)(A)(ii), "major stationary source" would be defined as having the potential to emit 5 tons per year for the purposes of Title I, this would become the definition of major source for the purposes of Title V.

REFERENCES

1. 51 FR 43814. "Emissions Trading Policy Statement; General Principles for Creation, Banking and Use of Emission Reduction Credits." December 4, 1986.

2. 57 FR 13498. "General Preamble, Implementation of Title I, Clean Air Act Amendments of 1990." April 16, 1992.

3. New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Draft. October 1990.

4. 57 FR 55620. "State Implementation Plans; Nitrogen Oxides Supplement to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990." November 25, 1992.

5. "Early Reductions Program/Title I Interface," Memorandum from John S. Seitz, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, December 20, 1991.

6. 57 FR 61970. "National Emission Standards for Hazardous Air Pollutants; Compliance Extensions for Early Reductions." December 29, 1992.

7. 56 FR 25724. "Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines: Gaseous and Particulate Emission Regulations for 1994 and Later Model Year Light-Duty Vehicles and Light-Duty Trucks; Final Rule." June 5, 1991.

8. 55 FR 23666. "Volatility Regulations for Gasoline and Alcohol Blends Sold in Calendar Years 1992 and Beyond." June 11, 1990.

9. 56 FR 64704. "Regulation of Fuels and Fuel Additives: Standards for Gasoline Volatility." December 12, 1991.

10. Enforcement of Volatility Regulations -- Questions and Answers, U.S. Environmental Protection Agency, Field Operations and Support Division of the Office of Mobile Sources, Ann Arbor, MI. May 1992.

11. 57 FR 13416. "Regulation of Fuels and Fuel Additives; Standards for Reformulated and Conventional Gasoline." April 16, 1992.

12. Technical Guidance - Stage II Vapor Recovery Systems for Control of Vehicle Refueling Emissions at Gasoline Dispensing Facilities, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC. 450/3-91-022a. 1991.

13. Enforcement Guidance for Stage II Vehicle Refueling Control Programs, U.S. Environmental Protection Agency, Office of Mobile Sources, Ann Arbor, MI. October 1991.

14. 57 FR 52950. "Inspection and Maintenance Program Requirements." November 5, 1992.

15. I/M Costs, Benefits, Impacts and Analysis, U.S. Environmental Protection Agency, Office of Mobile Sources, Ann Arbor, MI. Draft. February 1992.

16. 58 FR 9468. "Control of Air Pollution from New Motor Vehicles and New Motor Vehicle Engines; Regulations Requiring On-Board Diagnostic Systems on 1994 and Later Model Year Light-Duty Vehicles and Light-Duty Trucks." February 19, 1993.

17. Transportation Control Measures: State Implementation Plan Guidance, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC. September 1990.

18. Transportation Control Measure Information Documents, U.S. Environmental Protection Agency, Office of Mobile Sources, Ann Arbor, MI. March 1992.

19. Reference 4.

20. Guidance for Growth Factors, Projections, and Control Strategies for the 15 Percent Rate-Of-Progress Plans, EPA-452/R-93-002, U.S. Environmental Protection Agency, Office of Air Quality and Planning Standards, Research Triangle Park, NC. March 1992.

21. Guidance on the Adjusted Base Year Emissions Inventory and the 1996 Target for the 15 Percent Rate-of-Progress Plan, EPA-452/R-92-005, U.S. Environmental Protection Agency, Office of Air Quality and Planning Standards, Research Triangle Park, NC. October 1992.

22. 57 FR 32250. "State Operating Permit Program; Final Rules." July 21, 1992.

23. Reference 2.

APPENDIX A
DEFINITION OF TERMS

This appendix provides the specific definitions of EPA terms as they are used in this guidance. Different EPA programs sometimes use different definitions of the same term (e.g., major source). This appendix notes where conflicts occur in the definition of a term used in this guidance. These definitions are presented for the purposes of this guidance document only; the reader is advised to refer to specific regulations, policies, and sections of the Act to obtain complete definitions for the program or title of interest.

Allowable Emissions The emissions from a source based on either the maximum rated capacity of the source (unless the source is subject to a federally enforceable permit which restricts the operating rate, or hours of operation, or both) and the applicable emissions standards, or federally enforceable emissions limit.

Area Source Any stationary and nonroad sources that are too small and/or too numerous to be included in the stationary point source emissions inventories. For the purposes of section 112 of the Act, any stationary source of HAP's that is not a major source.

Attainment Demonstration Moderate and above ozone nonattainment areas must demonstrate that the reductions specified in the revised SIP will result in modeled air quality for the nonattainment area that achieves attainment by the applicable attainment date. This requirement can be met through the application of an EPA-approved model and EPA-approved modeling techniques described in the current version of the Guidance on Air Quality Models,[9] which is currently under revision. Two models are suggested: the UAM or EKMA. The EPA requires the submittal of attainment demonstrations employing UAM for serious and above areas and multi-State moderate areas as part of the SIP revision due by November 15, 1994. Attainment demonstrations based on EKMA for moderate nonattainment areas within a single State (intrastate moderate areas) must be submitted as part of the SIP revision due by November 15, 1993, unless the State chooses to use UAM, in which case the demonstration must be submitted as part of the SIP revision due by November 15, 1994.

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[9]Guidance on Air Quality Models (Revised), EPA-450/2-78-027R, July 1986 (currently under revision).

The use of EKMA is described in Guideline for Use of City-Specific EKMA in Preparing Ozone SIP's,[10] as well as the aforementioned guideline that is under revision. This document, and the appropriate Regional Office, should be consulted before an analysis is conducted with this modeling approach. The use of UAM is described in Guideline for Regulatory Application of the Urban Airshed Model.[11]

Attainment Determination The EPA must determine within 6 months after the applicable attainment date whether an area has attained the NAAQS for ozone. The attainment dates are as follows:

- Marginal areas -- November 15, 1993.
- Moderate areas -- November 15, 1996.
- Serious areas -- November 15, 1999.
- Severe areas -- November 15, 2005 (severe areas with a 1986-1988 ozone design value of 0.190 up to, but not including 0.280 parts per million have until November 15, 2007).
- Extreme areas -- November 15, 2010.

In making the attainment determination, EPA will use the most recently available, quality-assured air quality data covering the 3-year period preceding the attainment date. For ozone, the average number of exceedances per year after adjustment for missing data are used to determine whether the area has attained.

Basic Inspection and Maintenance (I/M) Programs requiring the inspection of vehicles including, but not limited to, measurement of tailpipe emissions, and mandating that vehicles with tailpipe emissions higher than the program cutpoints be repaired to pass a tailpipe emissions retest. Basic I/M programs must be at least as stringent as the requirements set out in section 182(a)(2)(B).

Directionally Sound Strategy An economic incentive strategy that does not specify a program baseline, nor adequate procedures to quantify emissions reductions.

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[10]Guideline for Use of City-Specific EKMA in Preparing Ozone SIP's, EPA-450/4-80-027, U.s. Environmental Protection Agency. 1980.

[11]Guideline for Regulatory Application of the Urban Airshed Model, EPA-450/4-91-013, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC.

Economic Incentive Program Allocated Baseline The initial level of emissions for sources affected by an EIP. The emissions reduction effect of the EIP's incentive strategy is measured from the EIP baseline. The EIP baseline year may be different than the 1990 base year inventory required under Title I. Further, the EIP baseline may be based on actual emissions, allowable emissions, a combination of actual and allowable emissions, or some other alternative.

Emissions Limiting Strategy An economic incentive strategy that directly specifies limits on total mass emissions, emission-related parameters (e.g., emission rates per unit of production, product content limits), or levels of emissions reductions relative to a program baseline that are required to be met by affected sources, while providing flexibility to sources to reduce the cost of meeting program requirements.

Enhanced Inspection and Maintenance (I/M) A program including, at a minimum, computerized emissions analyzers, on-road testing, denial of waivers for warranted vehicles or repairs related to tampering, a $450 cost waiver requirement for emissions-related repairs not covered by warranty, and inspection of the emissions control diagnostic system (when required by EPA). In addition, enforcement through registration denial, annual inspections, and centralized testing are required, unless less stringent measures can be proven fully effective by the State (or in the case of enforcement, more effective).

Housing and Urban Development (HUD) Zones A portion of a nonattainment area targeted for economic growth by the Administrator, in consultation with the Secretary of HUD. Growth allowances are restricted to HUD zones under the Act.

Incidental Emissions Reductions Reductions in the emissions of a pollutant caused by the mandatory reduction in the emissions of another pollutant.

Major Modification The Act has multiple definitions for major modifications depending on the nonattainment classification and the pollutant. Major modification thresholds are listed in Table 2 for both VOC and NO_x sources. The term major modification is used to determine whether the modification of an existing facility is subject to NSR requirements.

Major Stationary Source The Act has multiple definitions for major stationary sources depending upon the nonattainment classification and the pollutant. Section 302 of the Act defines a major stationary source as one that directly emits, or has the potential to emit, 100 tpy or more of any air pollutant. As exceptions to this rule, major stationary source emissions

thresholds, as defined in Part D of Title I of the Act, are listed in Table 1 for both VOC and NO_x sources.

Milestone Compliance Demonstration For serious and above classified nonattainment areas, demonstrating achievement of the 15 percent VOC emissions reduction over the 1990-1996 period, or demonstrating subsequent 3 percent VOC emissions reductions per year averaged over each consecutive 3-year period from November 15, 1996 until the attainment date. Section 182(g)(2) requires that within 90 days of the date on which an applicable milestone occurs (not including an attainment date on which a milestone occurs in cases where the standard has been attained), States with nonattainment areas must submit a demonstration that the milestone has been met (e.g., the 15 percent VOC emissions reduction is demonstrated by February 13, 1997). The EPA expects to release regulations pertaining to the requirements of the milestone demonstration in the Summer of 1993.

Market Response Strategy An economic incentive strategy that creates one or more incentives for affected sources to reduce emissions, without directly specifying limits on emissions or emission-related parameters that individual sources or even all sources in the aggregate are required to meet.

Modification With respect to section 112 of the Act, any physical change in, or change in the method of operation of, a major source which increases the actual emissions of any HAP emitted by such source by more than a de minimis amount or which results in the emissions of any HAP not previously emitted by more than a de minimis amount.

Netting The procedure of determining the net emissions increase associated with a modification combined with certain previous and prospective emissions changes at an existing major stationary source. If an existing major stationary source proposes a modification that will result in a significant net emissions increase, it will be subject to all applicable NSR requirements. Netting must take place at the same stationary source; emissions reductions used in netting cannot be traded between stationary sources.

1990 Adjusted Base Year Inventory Section 182(b)(1)(B) and (D) describes the inventory (hereafter referred to as the adjusted base year inventory) from which moderate and above ozone nonattainment areas must achieve a 15 percent reduction in VOC emissions by 1996. This inventory is equal to "the total amount of actual VOC or NO_x emissions from all anthropogenic (man-made) sources in the area during the calendar year of enactment," excluding the emissions that would be eliminated by FMVCP regulations promulgated by January 1, 1990, and RVP regulations (55 FR 23666, June 11, 1990), which require specific maximum RVP

levels for gasoline in particular nonattainment areas during the peak ozone season. The 1990 rate-of-progress base year inventory (defined below) removes biogenic emissions and emissions from sources listed in the base year inventory that are located outside of the nonattainment area. The adjusted base year inventory removes the emissions reductions from the FMVCP and RVP program from the 1990 rate-of-progress base year inventory. The adjusted base year inventory, which is due by November 15, 1992, is used to calculate the required 15 percent reductions.

Adjusted Base Year Emissions Inventory = Base Year Emissions Inventory, minus the following:

- **Biogenic source emissions.**
- **Emissions from sources outside of the nonattainment area boundary.**
- **Emissions reductions from the FMVCP.**
- **Emissions reductions from the RVP rules.**

1990 Base Year Inventory The 1990 base year inventory is an inventory of actual annual and typical weekday peak ozone season emissions that States use in calculating their adjusted and projected inventories, and in developing their control strategy. The base year inventory comprises emissions for the area during the peak ozone season, which is generally the summer months. It includes anthropogenic sources of NO_x and CO emissions, and both anthropogenic and biogenic sources of VOC emissions. Also included in the inventory are emissions from all stationary point sources and area sources as well as highway and nonroad mobile sources located within the nonattainment area, and stationary sources with emissions of 100 tpy or greater of VOC, NO_x, and CO emissions within a 25-mile wide buffer zone of the designated nonattainment area. The base year inventory contains off-shore sources located within the nonattainment area boundaries and off-shore stationary sources with emissions of 100 tpy or greater of VOC, NO_x, or CO emissions within the 25-mile wide buffer area. For nonattainment areas that will perform photochemical grid modeling (e.g., serious and above areas and multi-State moderate areas), emissions for the entire modeling domain, which is usually larger than the nonattainment area because ozone is an area-wide problem, are required in the modeling inventory. This modeling inventory could be submitted with the base year inventory, or the modeling inventory submittal could be in a separate package. It is important to note that the 1990 base year inventory serves as the starting point for all other inventories.

1990 Rate-of-Progress Base Year Inventory An accounting of all anthropogenic VOC, CO, and NO_x emissions in the nonattainment area. This emissions inventory is calculated by removing biogenic emissions and the emissions from sources that are

located outside of the nonattainment area from the base year inventory. This inventory is used in developing the adjusted base year inventory. It is also used as the basis from which to calculate the 1996 target level of emissions.

1996 Target Level of Emissions The 1996 target level of emissions is the maximum amount of ozone season VOC emissions that can be emitted by an ozone nonattainment area in 1996 for that nonattainment area to be in compliance with the 15 percent rate-of-progress requirements. It is calculated by first taking 15 percent of the adjusted base year inventory emissions. This emissions value is then added to the expected emissions reductions due to the FMVCP and RVP program, and from corrections to any deficient RACT rules and I/M programs. The summation of the 15 percent, the expected reductions from deficient I/M and RACT programs, and reductions from the FMVCP and RVP program are then subtracted from the 1990 rate-of-progress base year inventory to arrive at the 1996 target level of emissions. This target is used by States to design their 15 percent VOC emissions reduction control strategies. The projected control strategy inventory used in the rate-of-progress plan must be at or below the 1996 target level of emissions to demonstrate that the 15 percent VOC emissions reduction will be accomplished.

1996 Target Level of Emissions = Rate-of-Progress Base Year Inventory, minus the following:

- **15 percent of the adjusted base year inventory emissions.**
- **Emissions reductions from corrections to any deficient RACT rules.**
- **Emissions reductions from corrections to deficient I/M programs.**
- **Emissions reductions from the pre-1990 FMVCP.**
- **Emissions reductions from RVP rules.**

Offsets Surplus emissions reductions secured from existing source(s) by a prospective major new stationary source, or a source planning major modifications, in order for the new or modified source to obtain a nonattainment area preconstruction permit. Offsets are generally secured from other sources in the vicinity of the new source or modification, but can also be obtained, with limitations, from the source itself in the case of a modification.

Offset Ratios For the purpose of satisfying the emissions offset reduction requirements of section 173(a)(1)(A), the emissions offset ratio is defined as the ratio of total actual emissions reductions of VOC [and NO_x unless exempted under section 182(f)] obtained as offsets from existing sources to total allowable

emissions increases of such pollutant from the new source. (See Table 1 for a list of offset ratios by nonattainment area.)

Point Source Any stationary source that has the potential to emit more than some specified threshold level of a pollutant or is identified as an individual source in a State's emissions inventory. For base year SIP inventory purposes, point sources are defined as sources emitting 10 tpy or more of VOC or 100 tpy or more of NO_x or CO.

Post-1996 Rate-of-Progress Plan The portion of the SIP revision due by November 15, 1994, which describes how serious and above areas plan to achieve the post-1996, 3 percent per year VOC emissions reductions averaged over each consecutive 3-year period from November 15, 1996 until the attainment date. This SIP revision also includes the attainment demonstration for moderate interstate nonattainment areas and serious and above nonattainment areas.

Potential to Emit The maximum capacity of a source to emit a pollutant under its physical or operational design, except as constrained by federally-enforceable conditions which may include the effect of installed air pollution control equipment, restrictions on the hours of operation, and the type or amount of material combusted, stored, or processed. Potential to emit is used for major source determinations under NSR [40 CFR 51.165(b)].

Program Uncertainty Factor A factor applied to adjust the amount of emissions reductions attributed to an EIP and credited in an implementation plan demonstration to account for strategy-specific uncertainties inherent in EIP's that are based on strategies other than emissions limiting strategies.

Rate-of-Progress Plan The portion of the SIP revision due by November 15, 1993, that describes how moderate and above ozone nonattainment areas plan to achieve the 15 percent VOC emissions reduction. All moderate intrastate areas that choose to utilize the EKMA in their attainment demonstration, are also required to include their attainment demonstration in this SIP revision.

Reformulated Gasoline A blend of gasoline that is certified as meeting all the requirements applicable to reformulated gasoline. These requirements have been proposed as 40 CFR Part 80, Subpart D, and include:

- At least 2.0 percent oxygen by weight.
- No more than 1.0 percent benzene by volume.
- No heavy metals, absent a waiver by EPA.
- No increase in NO_x emissions from baseline vehicles.

- Required reductions in emissions of ozone forming VOC's.
- Required reductions in toxics emissions.

Compliance with the emissions requirements is determined by comparing emissions of baseline vehicles (representative model year 1990 motor vehicles) using a baseline gasoline (specified in section 211(k) of the Act) with emissions of baseline vehicles using the reformulated gasoline. The EPA's proposed regulations provide for the use of credits to meet the above requirements under specified circumstances.

Reid Vapor Pressure (RVP) A maximum gasoline volatility level established to reduce summertime gasoline volatility. Depending on the area, gasoline RVP may not exceed 9.0 psi or 7.8 psi between May 1 and September 15, beginning in 1992. Regulations established by EPA are published in 40 CFR Part 80.

Rule Compliance Factor A factor applied to adjust the amount of emissions reductions attributed to an EIP and credited in an implementation plan demonstration to account for less than complete compliance by sources affected by the EIP.

Rule Effectiveness (RE) For stationary sources, a measure of the extent to which a regulatory program achieves emissions reductions. An RE of 100 percent reflects a regulatory program achieving all the emissions reductions that could be achieved by full compliance with the applicable regulations at all sources at all times. However, regulations typically are not 100 percent effective due to limitations of control techniques or shortcomings in the implementation and enforcement process. The EPA allows the use of several different methods for determining RE including an 80 percent default value; results from EPA Questionnaires; or results from a Stationary Source Compliance Division (SSCD) study.

Stage II Gasoline dispensing devices that control VOC vapor releases during the refueling of motor vehicles. This process takes the vapors that would otherwise be emitted directly into the atmosphere during refueling, and redirects them back into the fuel storage tanks.

Total Actual Emissions The total emissions from a source over a year or other averaging period that is based on an emissions unit's actual operating hours, production rates, control equipment, and types of material processed, stored, or combusted. The averaging period used depends on the program. For example, NSR netting baselines are based on 2 years of emissions and operating permit fees are based on 1 year of emissions. For the purposes of the 1990 base year inventory for ozone, actual VOC,

NO_x, and CO emissions are based on a typical weekday of the peak ozone season.

Transportation Control Measure (TCM) Any program that encompasses elements of transportation system management and/or transportation demand management. Transportation system management strategies generally refer to the use of low capital intensive transportation improvements to increase the efficiency of transportation facilities and services. Transportation demand management generally refers to policies, programs, and actions that are directed toward increasing the use of high occupancy vehicles (transit, carpooling, and vanpooling) and the use of bicycling and walking. Section 108(f) of the Act lists the following programs as examples of TCM's:

- Accelerated retirement of vehicles.
- Activity centers.
- Area-wide ridesharing.
- Bicycling alternatives to motor vehicle travel.
- Employer-based transportation management programs.
- Limitations on extended vehicle idling.
- Control of extreme low-temperature cold starts.
- High occupancy vehicle lanes.
- Park and ride and fringe parking.
- Parking management programs.
- Minimization of congestion during special events.
- Traffic flow improvements.
- Transit improvements.
- Trip-reduction ordinances.
- Vehicle use limitations/restrictions.
- Work schedule changes.

Volatile Organic Compound Any compound of carbon, excluding CO, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. This includes any organic compound other than those EPA has determined to have negligible photochemical reactivity.[12]

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[12]See 57 Federal Register 3945, February 3, 1992.

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