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GUIDANCE ON PREPARING ENFORCEABLE REGULATIONS AND COMPLIANCE PROGRAMS FOR THE 15 PERCENT RATE-OF-PROGRESS PLANS



**Guidance on Preparing Enforceable
Regulations and Compliance Programs for
the 15 Percent Rate-of-Progress Plans**

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
CAAA	Clean Air Act Amendments of 1990
CC	Compliance Certification
CFR	Code of Federal Regulations
CTG	Control Technique Guideline
EIP	Economic Incentive Program
EKMA	Empirical Kinetic Modeling Approach
EM	Enhanced Monitoring
EPA	U.S. Environmental Protection Agency
FIP	Federal Implementation Plan
FR	<u>Federal Register</u>
gal	gallon
I/M	Inspection and Maintenance
kg	kilogram
NAAQS	National Ambient Air Quality Standard
NO _x	Nitrogen Oxides
psi	pounds per square inch
RACT	Reasonably Available Control Technology
RE	Rule Effectiveness
RVP	Reid Vapor Pressure
SIP	State Implementation Plan
SSCD	Stationary Source Compliance Division of EPA's Office of Air Quality Planning and Standards
TCM	Transportation Control Measure
tpy	tons per year
UAM	Urban Airshed Model
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound(s)

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). The portion of the SIP revision that illustrates the plan for the achievement of this emissions reduction is subsequently defined in this document as the "rate-of-progress plan."

The purpose of this document is to provide States with guidance on how to prepare enforceable stationary and mobile source regulations for their rate-of-progress plans. Developing clear, concise, enforceable rules and establishing strong compliance programs helps to ensure that the emissions reductions projected for specific control strategies are actually achieved. The document identifies the minimum criteria and the information sources that the U.S. Environmental Protection Agency (EPA) will use to evaluate the enforceability of regulations, and to determine compliance with Federal guidelines and regulations. States should follow the guidelines provided in this document as part of their quality assurance process involved in the development of control measures for their rate-of-progress plans.

This document attempts to address compliance and enforcement issues that typically arise during the development and implementation of regulations. The document discusses the key elements needed in stationary and mobile source regulations to make the regulations enforceable. For stationary sources, issues related to the development of reasonably available control technology (RACT) rules are discussed. For mobile sources, issues related to inspection and maintenance (I/M) programs, Stage II vapor recovery programs, transportation control measures (TCM's), gasoline volatility control programs, and reformulated gasoline programs are discussed. The document also discusses issues related to the development and implementation of economic incentive programs (EIP's) for nonattainment areas. The EPA is preparing regulations to implement the enhanced monitoring and compliance certification (EM and CC) requirements of the Act. This document provides a general overview of some of the key EM and CC elements that States will need to consider when preparing their regulations for stationary sources.

Rule effectiveness is a measure of the degree to which all affected sources comply with an applicable regulation over time. This document discusses the use of rule effectiveness measurements to estimate compliance effectiveness, inventory rule effectiveness, rule effectiveness improvements, and SIP

effectiveness. Emphasis is placed on the method for determining compliance effectiveness using the Stationary Source Compliance Division (SSCD) study.

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 (up to November 15, 1996). 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 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 reduction 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,

¹The 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 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 the 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.

1993, their 15 percent 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 will distribute a separate guidance document on the development of the post-1996 rate-of-progress plan in early to mid-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 an area's attainment date, are termed milestone demonstrations. Achievement of the milestones must be demonstrated within 90 days of the milestone date (i.e., 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 demonstrations. The rule is scheduled for promulgation in the summer of 1994.

1.1 Purpose

The purpose of this document is to provide States with guidance on how to prepare enforceable regulations and compliance programs for their rate-of-progress plans. Developing clear, concise, enforceable rules and establishing strong compliance programs helps to ensure that the emissions reductions projected for specific control strategies are actually achieved. This document is intended to provide the minimum criteria for

developing enforceable control measures. In addition, information sources are cited that inform States of the criteria EPA will use in evaluating stationary and mobile source regulations submitted as SIP revisions under their rate-of-progress plans. States should follow these guidelines as part of the quality assurance process involved in the establishment of their control measures. In addition, this document provides guidance to States on EPA's forthcoming EM and CC regulations, as well as EPA's criteria for the measurement and determination of source compliance.

Compliance and enforcement issues (e.g., recordkeeping) related to the implementation of control measures needed to meet the 15 percent VOC emissions reduction requirements are addressed with respect to the following EPA regulations and guidance:

- VOC SIP deficiencies and model Federal RACT rule guidance.
- Mobile source guidance, such as the TCM SIP guidance and information documents.
- Title V operating permit regulations.
- Enhanced monitoring and compliance certification regulations.

Because some of the guidance and regulations are in the development stage, States should track them as they evolve through the regulatory process. For these cases, this document serves as a general discussion of how EPA's enforcement and compliance regulations and directives relate to the 15 percent VOC emissions reduction requirements.

As part of the SIP revisions required under Title I of the Act, States are required to make any necessary corrections to their current RACT rules (RACT fix-ups) and provide for additional RACT rules (RACT catch-ups). Although emissions reductions due to RACT fix-ups are not creditable toward meeting the 15 percent VOC emissions reduction requirement, examination of past RACT rule deficiencies can help a State avoid developing new rules with similar deficiencies. Emissions reductions from new RACT catch-up rules are creditable toward the 15 percent requirement. The EPA has identified compliance issues related to States' current programs, and has issued SIP calls to States where EPA has noted significant RACT deficiencies. This document highlights guidelines that will assist States in developing RACT rules that comply with EPA guidance.

Additionally, new mobile source emissions reduction programs are required in particular ozone nonattainment areas under the CAAA. This document cites the appropriate EPA guidance and

regulations that States should use in developing these programs. The effective use of this information will assist States in developing and implementing mobile source programs that meet the objectives of the Act.

An economic incentive program (EIP) is not a mandatory requirement for any area to meet the 15 percent VOC emissions reduction requirement. However, some areas may chose to establish EIP's in order to allow for increased flexibility and innovation in their control strategies. Therefore, this document briefly discusses some of the general design and implementation issues that the forthcoming EIP rules and guidance will address.

Rule effectiveness (RE) reflects the ability of a regulatory program to achieve all the emissions reductions that could have been achieved by full compliance with the applicable regulations at all sources at all times. Many specific RE applications may be generically referred to as RE. The appropriate method for determining and using RE depends upon the purpose of the determination: control program compliance, SIP inventories, SIP improvement creditability, and SIP progress. This document provides background on these four elements of RE. Emphasis is placed on determining compliance effectiveness using a methodology developed by EPA's Stationary Source Compliance Division (SSCD), known as the SSCD Study. The SSCD Study estimates the degree of compliance with an existing regulation by comparing actual and allowable emissions for sources included in the study.

The EM regulations combined with the CC requirements under Part 70 will mandate which sources must certify compliance, how they must certify compliance, and how often they must certify compliance. The EM regulations will be implemented primarily through the operating permits program under Title V of the Act. Final regulations covering the implementation of the operating permits program have been promulgated. (See reference 1.) Since the EM and CC requirements will only apply to certain stationary sources, enforcement and compliance guidance is also discussed for those sources that will not be subject to the EM and CC requirements.

This guidance is part of EPA's technical memoranda whose objective is to assist States in preparing rate-of-progress plans demonstrating how nonattainment areas are to achieve a 15 percent reduction in VOC emissions over the period 1990 to 1996. This guidance is not intended to supersede other reports or guidance, and guidance documents that address certain subjects more completely are identified herein.

1.2 Statutory Requirements

Sections 182(b)(1)(A) and 182(c)(2)(A) of the Act specify that ozone nonattainment areas classified as moderate or above develop SIP's to provide for attainment of the national ambient air quality standard (NAAQS) for ozone. One element of each SIP must outline the adoption of RACT rules for designated source categories and all major sources [section 182(b)(2)]. New model RACT rules have been developed by EPA and may be used as guidelines for areas subject to the RACT "fix-up" requirements of section 182(a), and the RACT "catch-up" requirements specified in section 182(b)(2). (See reference 2.)

Section 182(a)(2)(B) of the Act requires that moderate ozone nonattainment areas meet the basic I/M program standard. In addition, enhanced I/M programs, which must meet a higher performance standard than the basic I/M program, are to be implemented in any areas classified as serious or above [section 182(c)(3)]. According to section 182(d)(1), severe and extreme nonattainment area SIP's must include a transportation control measure (TCM) program. Section 182(c)(5) presents TCM's as potential control measures for serious nonattainment areas where future vehicle miles traveled (VMT) and congestion parameters exceed those predicted in the SIP. Also, other nonattainment areas may select TCM's as part of their overall control strategy. A listing of some of the possible TCM's, including provisions for reducing VMT and improving traffic flow, is provided in section 108(f) of the Act.

Stage II systems are vapor recovery systems installed at gasoline pumps to reduce vehicle refueling emissions. Section 182(b)(3) of the Act requires that all ozone nonattainment areas classified as moderate or above implement a Stage II vapor recovery program as a control measure. Section 202(a)(6) of the Act provides an exemption from the Stage II requirement for moderate ozone nonattainment areas after EPA promulgates on-board vapor recovery standards. After consulting with the U.S. Department of Transportation, EPA published in the Federal Register its decision against promulgating on-board vapor recovery standards (57 FR 13220, April 15, 1992), removing the possibility of a Stage II exemption for moderate areas. However, on January 22, 1993, the United States Court of Appeals for the District of Columbia Circuit 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.

These provisions of the Act indicate that a State's obligation to adopt Stage II rules for moderate areas continues until on-board rules are actually promulgated. 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). Further guidance on Stage II requirements for moderate nonattainment areas seeking redesignation will be forthcoming.

The EPA is further considering how this court ruling affects a State's obligation under section 184(b)(2) regarding Stage II or measures that get equivalent emissions reductions in the Northeast ozone transport region. The section 184(b)(2) requirement applies to all areas in the region regardless of the ozone designation or classification. Guidance concerning the Northeast ozone transport region will be issued at a later date.

Title II of the Act specifies Federal mobile source regulations and control measures that must be implemented for specified ozone nonattainment areas. For example, section 211(h)(1) mandates that EPA promulgate rules making it unlawful for any person during the high ozone season to sell, offer for sale, dispense, supply, offer for supply, transport, or introduce into commerce gasoline with a Reid vapor pressure (RVP) in excess of 9.0 pounds per square inch (psi). Section 211(h)(2) further provides that EPA may not impose a standard lower than 9.0 psi in an attainment area for ozone, unless the area was formerly a nonattainment area. Section 211(h)(4) provides a 1 psi waiver for certain gasoline blends containing 10 percent ethanol. Under section 211(k) of the Act, the sale of reformulated gasoline will be required in the nine largest cities with nonattainment areas having the highest ozone design value, taking effect January 1, 1995. Other nonattainment areas may opt-in to this Federal reformulated gasoline program.

Section 702(a) of the CAAA amended section 114(a) of the Act by establishing stricter provisions concerning the recording, reporting, and monitoring of emissions from any part of a stationary source which emits or has the potential to emit any regulated pollutant. Section 702(b) of the CAAA amended section 114(a)(3) of the Act by adding EM and CC requirements that apply to owners or operators of major stationary sources. The EPA is currently developing regulations to implement the EM and CC program, and proposed rules are expected in June 1993.

1.3 Organization of Document

This document is organized as follows. Section 2 provides an overview of the characteristics of an enforceable rule, and cites the guidance that EPA will use, at a minimum, to evaluate the acceptability of State regulations for controlling VOC emissions from stationary and mobile sources. Once the rules have been developed and implemented, a State may want to measure the degree to which the affected sources are complying with the regulations (known as rule effectiveness) in order to identify weaknesses in the control strategies and to improve the accuracy

of emissions estimates for the nonattainment area. Section 3 describes the four elements of rule effectiveness, including a discussion of the method for calculating compliance effectiveness. Section 4 of this document discusses how formal determinations of source compliance with EPA regulations will be made, which provides the basis for evaluating rule effectiveness. Appendix A provides definitions for terms used throughout this document. Appendix B provides a checklist that States may use to evaluate the acceptability of their rules.

2.0 ESTABLISHING AN ENFORCEABLE STATE RULE

When States establish regulations as part of their SIP's to control stationary or mobile sources, the rules must undergo a review by EPA to determine their acceptability. The general criteria that are used to evaluate a rule take into account the overall clarity and completeness of the rule. The rule must clearly indicate what limits or standards apply to what sources, and must outline enforceable compliance procedures (i.e., compliance test methods and inspections). In addition, the rule must specify the time frames within which the provisions must be met. Test methods, monitoring, recordkeeping, and reporting requirements must be specified to establish the procedures for determining a source's compliance status. In addition to clarity, simplicity is an important characteristic of a rule because complex rules are more likely to be misunderstood and violated. Appendix B provides a checklist for States to use as guidance when developing rules to meet EPA requirements.

General characteristics of an enforceable rule include:

- A specific statement defining which sources comprise the regulated universe.
- An established emissions standard or limit that is consistently applied to regulated sources.
- A clear statement of the compliance period.
- A description of the test methods and monitoring procedures used to evaluate compliance with the applicable limit.
- Conversion factors to convert test data into units of the applicable standard (i.e., a calculation conversion procedure to determine compliance).
- Monitoring, recordkeeping, and reporting requirements that are consistent with the compliance time frame.
- Penalties (e.g., fines, sanctions) for sources in violation.
- Exemptions from the rule.

2.1 Stationary Source Regulations

The Act specifies that moderate and above nonattainment area SIP's must include RACT regulations for designated source categories and all "major new or modified sources." The EPA has issued control technique guideline (CTG) documents that contain information on recommended air pollution control techniques and

their costs for many industrial source categories. A summary of the existing CTG documents is provided in the EPA document entitled Guidance for Growth Factors, Projections and Control Strategies for the 15 Percent Rate-of-Progress Plan. (See reference 3.) The CTG's provide guidance to States for developing their RACT rules. The CTG's represent EPA's assessment of the degree of emissions reduction that is reasonable for a specific source category. Upon publication of a CTG document, States must submit a SIP revision that incorporates regulations for the applicable source category. The CTG guidance is not binding; a State may elect to follow the guidance or, alternatively, may choose to adopt regulations which differ from the CTG. The "alternative" RACT rule must be approved by EPA in the initial SIP submittal or in a SIP revision.

It should be noted that the major source size cutoff is lower for higher ozone nonattainment area classifications. For example, in moderate ozone nonattainment areas, major sources are defined as those emitting 100 tons per year (tpy) or more, whereas in serious nonattainment areas, the size cutoff for a major source is 50 tpy. Table A-1 presents the major source size cutoffs for classified and nonclassified nonattainment areas and the ozone transport region nonattainment and attainment areas.

Common RACT Rule Deficiencies

The EPA issues a SIP call to a State pursuant to section 110(a)(2)(H) when it finds significant deficiencies in a State's RACT rule(s). A deficiency involves a rule or portion of a rule that is less stringent than RACT recommendations defined by a CTG document. The publication entitled Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations (see reference 4), lists the most prevalent ozone SIP deficiencies identified by EPA. Most of the revisions to RACT rules required by the 1988 and 1989 SIP calls have been carried out, although some deficiencies still exist. In the event that these deficiencies are not corrected within 2 years after a finding of deficiency is made, the Act authorizes EPA to prepare a Federal implementation plan (FIP) for the negligent area.

Described below are some of the more prevalent RACT deficiencies identified by EPA. States should be aware of these common RACT deficiencies while establishing their RACT rules so they can avoid future problems.

Under the pre-amended Act, RACT was required for sources not regulated by a CTG that have the potential to emit 100 tpy of a regulated pollutant. Some States have mistakenly interpreted this provision as applying to individual emissions units emitting 100 tpy or more, but EPA interprets "non-CTG source" as the aggregate of all the nonregulated sources at the plant.

Many proposed State regulations specified a greater number of RACT exemptions than those recommended in the CTG documents. The exemption cutoffs established in some cases were not clearly defined, which led to loose interpretations of the exemption cutoffs. Many rules specified an inaccurate vapor pressure cutoff, which resulted in some photochemically reactive VOC's escaping regulation.

Coating rules for VOC's specify an emissions limit that is usually expressed as kilograms (kg) of VOC/liter of coating (less water and exempt solvents) [pounds of VOC/gallon (gal) of coating (less water and exempt solvents)]. Many rules have not expressed these limits as equivalent kg VOC/liter or pounds of VOC/gal of solids as applied. The coating limit must be expressed in this form (i.e., as-applied solids basis) in order to make a compliance determination when cross-line averaging, emissions trading, add-on control equipment, and/or credit for improved transfer efficiency are allowed. Additionally, definitions involved in a majority of VOC coating rules have been found to be unacceptable or ambiguous.

Compliance time frames associated with a particular emissions limit must be specified, and records must be kept consistent with this compliance period to determine compliance with the emission limitation. Missing or deficient records render an accurate evaluation of compliance status impossible. Also, the use of the most current EPA-approved test methods is required, unless States submit alternative methods that are formally approved as part of the SIP.

Model VOC RACT Rules

Model Federal VOC RACT rules are available to guide States in developing rules for controlling VOC emissions from source categories covered by CTG documents. A State may obtain a copy of the model RACT rules from its EPA Regional Office. (See reference 5.) These model rules will serve as the basis for FIP's for areas failing to completely address deficiencies in their existing RACT rules. Most of the previously released CTG documents do not contain compliance provisions. However, the model RACT rules include provisions for compliance certification, monitoring, recordkeeping, and reporting, as well as the test methods and procedures that enable a determination of compliance status.

2.2 Mobile Source Regulations

In addition to stationary source controls, ozone nonattainment areas must adopt rules to reduce emissions from mobile sources. As with stationary source rules, effective State mobile source control measures should follow the general criteria outlined in section 2.0 of this document, which are the basis of

any enforceable control program. Specific mobile source provisions must be included in SIP's for particular nonattainment area classifications. The measures that are required differ by nonattainment area classification, and are outlined in the General Preamble. (See reference 6.) It should be noted that the RVP and reformulated gasoline programs are both Federal programs that will go into effect without State action. There is no statutory requirement that States adopt their own version of these programs under State law. The following discussion presents the various State and Federal mobile source programs and refers the reader to the appropriate program development guidance.

Inspection and Maintenance (I/M) Programs

The EPA is required to establish minimum performance standards for I/M programs. Final regulations were published on November 5, 1992 in the Federal Register. (See reference 7.) Marginal ozone nonattainment areas with current or previously required I/M programs are required to submit SIP revisions necessary to meet EPA's existing basic I/M program standards, which will be specified in 40 CFR Part 51, Subpart S. 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. This enhanced I/M plan must meet higher performance standards than the basic I/M program. These standards will also be described in 40 CFR Part 51. In addition, guidance on the costs and benefits of enhanced I/M programs has been released by EPA in draft form. (See reference 8.)

Stage II Vapor Recovery Control Programs

Owners or operators of gasoline dispensing systems that are subject to Stage II controls are required to install gasoline dispensing pump vapor control devices.² These systems are designed to control VOC releases, including releases of benzene and other toxics, during the refueling process of motor vehicles. The Act mandates that all areas classified as moderate and above for ozone nonattainment implement a Stage II program as a control measure. 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

²Although Stage II technically is a stationary source control measure, it is included with the mobile source regulations in this document because the Office of Mobile Sources is responsible for Stage II enforcement activities. In addition, EPA has recommended that the MOBILE5 model be used to calculate emission factors for estimating refueling emissions.

document entitled Technical Guidance - Stage II Vapor Recovery Systems for Control of Vehicle Refueling Emissions at Gasoline Dispensing Facilities. (See reference 9.) A second document, Enforcement Guidance for Stage II Vehicle Refueling Control Programs (see reference 10), establishes the recommended elements for an acceptable Stage II program. These criteria include:

- Establishment of training and public education programs.
- Identification of facilities which will be subject to Stage II requirements.
- Data collection (recordkeeping) to monitor compliance.
- Periodic inspections to ensure compliance.
- Establishment of appropriate penalties for sources violating the regulations.

Stage II vapor recovery programs are rated based on an in-use effectiveness value which is the control efficiency of the system multiplied by the RE value determined for the system. The RE value accounts for efficiency decreases associated with defects in the installation and/or operation and maintenance of the system. All Stage II systems certified in California have been shown to operate with at least 95 percent control efficiency, a value which must then be multiplied by the appropriate RE value to yield the appropriate in-use effectiveness value. For example, using the 80 percent default RE value for a system that is certified upon installation would yield an in-use effectiveness value of 76 percent (i.e., 0.80×0.95). However, a State can use an 86 percent in-use effectiveness value if no gasoline dispensing facilities are exempt from the Stage II requirements, all below-ground vapor piping systems are 100 percent properly installed, and the vapor piping systems are inspected annually. For details concerning these requirements, the reader should refer to the technical guidance cited previously.

Transportation Control Measures (TCM's)

According to the Act, TCM's will likely be necessary elements 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 plans describe strategies to reduce vehicle trips, induce changes in the type of vehicles used, shift travel time, and/or improve traffic flow.

Two EPA documents comprise the guidance focusing on identifying, evaluating, implementing, monitoring, and enforcing TCM's: Transportation Control Measures: State Implementation

Plan Guidance (see reference 11), and Transportation Control Measure Information Documents. (See reference 12.)
Transportation control measures should provide the following so that EPA can approve the measures in a SIP submittal:

- A complete description of the measure and, if possible, its estimated emissions reduction benefits.
- Evidence that the measure was properly adopted by a jurisdiction(s) with legal authority to execute the measure.
- Evidence that funding will be available to implement the measure.
- Evidence that all necessary approvals have been obtained from all appropriate government offices.
- Evidence that a complete schedule to plan, implement, and enforce the measure has been adopted by the implementing agencies.
- A description of any monitoring program to evaluate the measure's effectiveness and to allow for necessary in-place corrections or alterations.

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 psi during the peak ozone season. In addition, the Act further states that EPA may not establish a standard lower than 9.0 psi in an attainment area for ozone, unless the area had been redesignated attainment from a former nonattainment area.

In the Phase II volatility rulemaking (see reference 13), EPA established Federal RVP standards for 1992 and beyond; the maximum RVP allowed under this rule is 9.0 psi. However, for particular ozone nonattainment areas, EPA stipulates a standard of 7.8 psi. The EPA recently revised this regulation on December 12, 1991, to conform with section 211(h) of the Act. (See reference 14.)

The EPA document entitled Enforcement of Volatility Regulations - Questions and Answers (see reference 15), addresses questions concerning how EPA intends to implement and enforce the gasoline volatility regulations. Topics cover the applicable RVP standard, regulated parties, defenses, test and sampling methods, inspections, and notice of violations. A final section deals with the relationship between State volatility programs and Federal volatility standards. A State may adopt and enforce a more stringent RVP standard only if its SIP so provides. The EPA

may approve such a SIP revision upon a finding that the more stringent State RVP standard is necessary to achieve the applicable NAAQS [section 211(c)(4)]. For a thorough description of these issues and a listing of ozone nonattainment areas and their required RVP standards, refer to the above referenced document.

Reformulated Gasoline Program

Section 211(k) of the Act mandates that EPA promulgate regulations prohibiting the distribution and sale of conventional gasoline in particular ozone nonattainment areas. The CAAA require the sale of gasoline, that has been reformulated to be less polluting, in the nine largest cities having designated nonattainment areas with the highest ozone design values and any nonattainment areas reclassified as severe. This prohibition becomes effective January 1, 1995. Proposed provisions for the reformulated gasoline program were published April 16, 1992 in the Federal Register (FR). (See reference 16.) The Federal reformulated gasoline program will be extended to additional ozone nonattainment areas upon application of the Governor of the State to EPA ("opt-in areas").

2.3 Economic Incentive Programs (EIP's)

Section 182(g)(4)(B) of the Act requires EPA to promulgate rules for EIP's. The proposed rules were published February 23, 1993 at 58 FR 11110. (See reference 17.) A State with an extreme ozone nonattainment area must submit an EIP when it fails to submit a milestone compliance demonstration or to meet an applicable rate-of-progress milestone. In addition, EIP's are identified as an option for States to select upon such failures in serious and severe ozone nonattainment areas. Discretionary EIP's may be implemented by a State, as explicitly allowed for in sections 110(a)(2)(A) and 172(c)(6) of the Act, for stationary, area, and mobile sources. The purpose of this section is to briefly discuss the forthcoming EIP rules (for mandatory EIP's) and guidance (for discretionary EIP's) as they will address some of the general design and implementation issues related to approvable EIP's.

The EPA's upcoming rules and guidance are 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 reductions. Additionally, the rules are intended to ensure that such programs contain adequate and appropriate compliance requirements to ensure that programs are enforceable and that reductions are permanent within the time frame specified in the program. The rules are not intended to limit the flexibility and innovation of such programs.

The creditability of emissions reductions obtained under EIP's toward the 15 percent VOC emissions reduction requirements is discussed in the EPA document entitled Guidance on the Relationship Between the 15 Percent Rate-of-Progress Plans and Other Provisions of the Clean Air Act. (See reference 18.) States should keep in mind that reductions from EIP's must occur before November 15, 1996, to be creditable toward the 15 percent VOC emissions reduction requirements. Post-1996 VOC reductions from EIP's will be addressed in forthcoming guidance on the post-1996 rate-of-progress plans.

Baseline EIP Issues

Many types of EIP's require an emissions level as a starting point for the program. This baseline level is required to administer the program and measure the program's level of compliance with its stated emissions reduction goal. 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 individual 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 EPA is currently considering allowing the States considerable flexibility in determining any baseline used as a part of an EIP. Under certain circumstances, a State may choose to establish an EIP baseline different than 1990 actual 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 EPA document entitled Guidance on the Adjusted Base Year Emissions Inventory and the 1996 Target for the 15 Percent Rate-of-Progress Plans. (See reference 19.)

Emissions Quantification

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

- The general conceptual approach to quantification.
- The averaging time of the data to be used.

- The means by which shutdowns; operational downtime; and batch, seasonal, and cyclical operations are to be accounted.
- Appropriate sources of data.
- The adequacy of the quality of the data.

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, and throughput or production rates; mass balance calculations which are a function of inventory, usage, or disposal records; or any combination of such approaches. It is expected that the forthcoming rulemaking and guidance will not require the use of any particular quantification approach, but will establish criteria for selecting quantification approaches for different general types of sources. This will help provide reasonable certainty and consistency among programs with regard to emissions quantification.

Long-Term Averaging

The EPA requires that typical summer weekday emissions be used in constructing the rate-of-progress plan and attainment demonstrations. States wishing to incorporate long-term averaging (i.e., longer than 24-hours) to quantify emissions in their EIP will be required to ensure that the EIP:

- Is consistent with the rate-of-progress plan and attainment demonstrations.
- Is accompanied by a demonstration that the *aggregate* effect in terms of daily emissions and ambient pollutant concentrations is equivalent to that which would be obtained with a 24-hour averaging time.
- Contains additional constraints to ensure equivalency with all applicable RACT requirements.

The EPA anticipates the need for additional guidance on criteria for equivalency demonstrations, outlining the type of data that a State would need to demonstrate statistical associations between short- and long-term averaging times.

Criteria for Monitoring, Recordkeeping, and Reporting

Economic incentive programs are inherently more flexible and less prescriptive than traditional technology or performance standards and, therefore, depend more heavily on monitoring, recordkeeping, and reporting to ensure compliance and provide for adequate enforcement. Because a wide range of monitoring methods are available to show compliance for different sources, EPA expects to leave the selection of the most appropriate approach to the State in designing a program. However, EPA expects to provide criteria on the selection of appropriate monitoring methods, as well as recordkeeping and reporting requirements for each affected source category.

The above discussion of EPA's current position regarding EIP's is not official policy, but does reflect EPA's current approach towards developing the EIP rules. The final EIP rules, when promulgated, may differ from the above discussion.

3.0 RULE EFFECTIVENESS

Rule effectiveness (RE) reflects the ability of a regulatory program to achieve all the emissions reductions that could have been achieved by full compliance with the applicable regulations at all sources at all times. The appropriate method for determining and using RE depends upon the purpose of the determination: control program compliance, SIP inventories, SIP improvement creditability, and SIP progress. Many specific RE applications may be generically referred to as RE. The following common uses fall under the generic umbrella RE.

- Identifying and addressing weaknesses in control strategies and regulations related to compliance and enforcement activities is called *compliance effectiveness*. These applications fall under the purview of EPA's Stationary Source Compliance Division (SSCD).
- Improving the accuracy or representativeness of emission estimates across a nonattainment area is called *inventory rule effectiveness*. When used in a base year SIP (the usual application), it is also called base year inventory RE. When used for projections beyond the base year to develop rate-of-progress plans and demonstrate attainment, it is called projection year inventory RE.
- *Rule effectiveness improvements* are measures taken to improve rule compliance and affect emission reductions as part of a rate-of-progress emission reduction program.
- Measuring, defining, and refining the control strategy process to achieve the required emission reductions designated in the CAA is more accurately called *SIP effectiveness*.

This section provides background on all four elements of RE; however, the discussion focuses on the determination of compliance effectiveness. The EPA is developing detailed guidance on the above applications of RE in a forthcoming document entitled, Rule Effectiveness: Integration of Inventory, Compliance, and Assessment Applications. This document will be released in the summer of 1993.

3.1 Compliance Effectiveness

Compliance effectiveness is a determination made to evaluate the compliance (or noncompliance) of a particular source category in a single geographic area using the SSCD Protocol Study approach. The SSCD study methodology is detailed in a December 21, 1992 EPA memorandum. (See reference 20.) The study results help to identify specific implementation problems which need to be addressed by the State and EPA compliance and enforcement

staff in order to achieve greater rule effectiveness in the future.

Stationary Source Compliance Division (SSCD) Study

The SSCD Study procedure consists of two phases. The first phase involves field inspection of a representative number of sources, whereby all applicable rules and policies are identified and a determination of compliance status is made. The second phase involves an office evaluation of the specific components of rule implementation. The RE and compliance effectiveness calculations are based on a comparison of actual emissions to the allowable emissions for sources included in the study. Emissions must be documented and the calculations must be based on emissions testing, sampling, and usage data. The SIP effectiveness calculations are based on a comparison of baseline, current and projected emissions as determined in the base year inventory, the current emissions inventory and projections of uncontrolled growth and emissions after control by the regulation.

Starting in 1989, RE studies were performed for single point source categories according to the SSCD study protocol. The most prominent implementation problems revealed in the studies involved:

- Inspection frequency.
- Compliance determinations.
- Inspection thoroughness.
- Regulation exemptions.
- Variances.
- Permit loopholes.
- Reporting and recordkeeping discrepancies.
- Procedures to identify unregistered (or unknown) sources that are subject to regulation.

While the SSCD study provides a good indication of the compliance of a certain source category, it cannot be used to determine compliance status per se. In other words, it cannot be used as an enforcement tool, subjecting sources with an RE value below a certain limit to fines or sanctions. Section 4 of this document discusses EPA's provisions for determining source compliance.

3.2 Inventory Rule Effectiveness

Base year inventory RE is an adjustment to estimated emissions data to account for emission underestimates due to compliance failures and the inability of most inventory techniques to include these failures in an emission estimate. The RE adjustment is a category-specific, emission adjustment applied to both point and area sources operating under emission control rules. By definition, all source categories for which a regulation exists should have an RE value between zero and 100 percent. Inherent in past emissions inventories was the assumption that regulatory programs are 100 percent effective. However, EPA has determined that 100 percent RE is uncommon. Therefore, actual emissions reported in the SIP were underestimated because RE was overestimated. Guidance is available on the estimation and application of RE values to the base year emissions inventory. (See reference 21.)

Rule effectiveness must also be factored into the projected inventories that support the SIP rate-of-progress plans. New control measures cannot be assumed to be 100 percent effective; the emissions estimates based on the emission control strategies must account for the same effects of noncompliance as did the base year inventory.

3.3 Rule Effectiveness Improvements

A rule effectiveness improvement is an improvement in the implementation of a rule for a regulatory program. It refers to a comparison of the implementation of the rules before the improvement to the implementation of the rules after the improvement. Rule effectiveness improvements must reflect actual emissions reductions. An RE improvement can take several forms, ranging from more frequent and in depth training of inspectors to larger fines for sources that do not comply with a given rule. The purpose of an RE improvement is to provide States with additional measures to achieve actual emission reductions for their SIP's.

Achieving creditable emissions reductions through RE improvements is discussed in the EPA document entitled Guidance for Growth Factors, Projections and Control Strategies for the 15 Percent Rate-of-Progress Plan. (See reference 22.) More detailed information will be provided in the forthcoming document entitled, "Rule Effectiveness: Integration of Inventory, Compliance, and Assessment Applications."

3.4 SIP Effectiveness

SIP effectiveness is defined as the ability of the attainment plan to achieve the planned emissions reductions. It is estimated by comparing actual emissions reductions to the

projected emissions reductions. By contrast, RE estimates the degree to which an existing rule is working. High SIP effectiveness may be due to over compliance, unrelated source process changes, or overestimated growth. Low SIP effectiveness may be caused by inadequate rules; poor compliance, emission violations, variances, and enforcement problems; and unrealistic baseline emissions, or underestimated growth. SIP effectiveness evaluations can be used in conjunction with compliance program effectiveness to determine where implementation, emission projections and/or rule development resulted in emission shortfalls. Evaluating SIP effectiveness during implementation of measures contained in the 15 percent rate-of-progress plan (or attainment plan) may provide the State information to enable revision of the SIP as necessary to achieve the emissions reductions originally contemplated.

4.0 DETERMINING COMPLIANCE WITH EPA REGULATIONS

The degree of compliance with established VOC regulations is a significant factor in determining whether the emissions reductions required under the rate-of-progress plan will be achieved. Data collected and reported under monitoring, recordkeeping, and reporting requirements will assist in certifying the emissions reductions. This section discusses existing monitoring, recordkeeping, and reporting provisions and briefly describes the forthcoming enhanced monitoring (EM)³ and compliance certification (CC) regulations.

4.1 Current Regulations Related to Compliance

Certain sources are already required under new source performance standards to conduct monitoring and submit reports detailing compliance and performance test methods. These standards and the specific sources to which they apply are described in 40 CFR Part 60. (See reference 23.) General source surveillance provisions are outlined in 40 CFR Part 51, Subpart K (see reference 24), including the emissions monitoring, reporting, and recordkeeping requirements of SIP's. Continuous emissions monitoring is required for a small number of specific source types under this regulation. In addition, some CTG documents provide recommended monitoring and recordkeeping provisions for the applicable source category. The forthcoming EM and CC regulations described below are being developed to complement and expand upon the above mentioned rules, targeting the most significant sources of air pollution.

4.2 Enhanced Monitoring and Compliance Certification Regulations

Enhanced monitoring refers to monitoring by a source to certify continuous compliance with emissions limitations and standards. "Enhanced" means modified, if necessary, to meet the specifications outlined by the forthcoming EM regulations as required by the CAAA. When promulgated, the EM regulations combined with the CC requirements of Part 70 will mandate which sources must certify compliance, how they must certify compliance, and how often they must certify compliance. In accordance with section 114(a) of the Act, this certification is anticipated to apply to pollutants for which the source has been defined as major, occur no less than annually, and be based on information collected by an enhanced monitoring protocol. The necessary components that must be contained in a compliance certification include:

³Enhanced monitoring in this context refers to specific monitoring requirements for stationary sources and should not be confused with enhanced air quality monitoring.

- Identification of the applicable requirement that is the basis of the certification.
- The method used for determining the compliance status of the source.
- The compliance status.
- Whether compliance is continuous or intermittent.

It is expected that the EM regulations will be implemented primarily through the Title V operating permit program. The objective of the operating permit program is to implement, and to ensure compliance with, the stationary source requirements of the Act. Monitoring, recordkeeping, and reporting are some of the required elements of permits issued for a regulated source. The forthcoming EM regulations will further clarify these requirements as they relate to the Title V operating permit program.

An enhanced monitoring protocol may include all sampling, measurement, analysis, recording, recordkeeping, and reporting devices or procedures; and all testing, calibration, operation and maintenance, data reduction, calculation, quality assurance, and corrective action procedures. An enhanced monitoring protocol provides a reasonable level of assurance that any period of noncompliance will be detected.

Under the EM rules, the source owner or operator will propose an enhanced monitoring protocol based on the selection criteria outlined in the rules. If an adequate monitoring system is not in place for an existing source, the permit application must describe plans to establish an approvable protocol. Permitting authorities will determine whether or not the proposed enhanced monitoring protocol meets the enhanced monitoring criteria. New sources will be required to adopt EM requirements in preconstruction permits.

The EPA will not specify a particular type of monitoring protocol for each source category. However, certain criteria will be included in the EM regulations to ensure that a monitoring protocol is sufficiently reliable. It is important to note that certain sources are already required under other established regulations to employ an approvable enhanced monitoring protocol. (See reference 24.)

In certain cases, recordkeeping may serve as part of the enhanced monitoring protocol to determine compliance (e.g., where compliant coatings are used to meet a VOC standard at an uncontrolled source). Alternatively, sources may select process or control system parameter monitoring protocols provided they can be correlated to the emissions limit. Permits for sources

using process or control monitoring protocols must specify an operating parameter standard that will be maintained. For example, the permit might stipulate a minimum operating temperature for an incinerator. Another option for sources, when choosing a monitoring protocol, is a continuous emissions monitoring system that employs a direct emissions monitoring technique. Continuous emissions monitoring systems designed to monitor VOC emissions are available and may be used to certify compliance.

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3. 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, OAQPS, Research Triangle Park, NC. March 1993.
4. Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC. May 1988.
5. Reference 2.
6. 57 FR 13498. "General Preamble, Implementation of Title I, Clean Air Act Amendments of 1990." April 16, 1992.
7. 57 FR 52950. "Inspection and Maintenance Program Requirements." November 5, 1992.
8. I/M Costs, Benefits, Impacts and Analysis. Draft. U.S. Environmental Protection Agency, Office of Mobile Sources, Ann Arbor, MI. February 1992.
9. Technical Guidance - Stage II Vapor Recovery Systems for Control of Vehicle Refueling Emissions at Gasoline Dispensing Facilities. EPA-450/3-91-022a. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC. November 1991.
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11. 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.
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14. 56 FR 64704. "Regulation of Fuels and Fuel Additives: Standards for Gasoline Volatility." December 12, 1991.
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16. 57 FR 13416. "Regulation of Fuels and Fuel Additives; Standards for Reformulated and Conventional Gasoline." April 16, 1992.
17. 58 FR 11110. "Economic Incentive Program Rules." February 23, 1993.
18. Guidance on the Relationship Between the 15 Percent Rate-of-Progress Plans and Other Provisions of the Clean Air Act, EPA-452/R-93-007, U.S. Environmental Protection Agency, OAQPS, Research Triangle Park, NC. May 1993.
19. 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, OAQPS, Research Triangle Park, NC. October 1992.
20. "Revised Rule Effectiveness National Protocol," Memorandum from John B. Rasnic, U.S. Environmental Protection Agency, Stationary Source Control Division, Washington, DC, to EPA Regional Office Division Directors. December 21, 1992.
21. Guidelines for Estimating and Applying Rule Effectiveness for Ozone/CO State Implementation Plan Base Year Inventories. EPA-452/R-92-010. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Ozone and Carbon Monoxide Programs Branch, Research Triangle Park, NC. November 1992.
22. Reference 3.
23. 40 CFR Part 60. Standards of Performance for New Stationary Sources.
24. 40 CFR Part 51. Requirements for Preparation, Adoption, and Submittal of Implementation Plans.

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.

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,⁴ which is currently under revision. Two models are suggested: the UAM or the Empirical Kinetic Modeling Approach (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. The use of EKMA is described in Guideline for Use of City-Specific EKMA in Preparing Ozone SIP's,⁵ 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.⁶

⁴Guidance on Air Quality Models (Revised), EPA-450/2-78-027R, July 1986 (currently under revision).

⁵Guideline for Use of City-Specific EKMA in Preparing Ozone SIP's, EPA-450/4-80-027, U.S. Environmental Protection Agency, 1980.

⁶Guideline 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.

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).

Compliance Certification A demonstration of compliance through the use of an enhanced monitoring protocol, adhering to the provisions outlined in section 114(a) of the Act.

Compliance Certification Report A report submitted by a stationary source to the permitting authority at least annually, demonstrating compliance with the applicable requirements of the CAAA.

Continuous Emissions Monitoring System The equipment used to sample, analyze, and provide a permanent record of emissions on a continuous basis.

Control Technique Guideline (CTG) Documents prepared by EPA to meet the requirements of section 108 of the Act which recommend RACT for particular categories of stationary sources. These include 29 CTG's published prior to 1990 and 13 new CTG's mandated by section 183 of the Act. These documents provide information relating to the cost of installation and operation, the emissions reduction benefits, energy requirements, and the environmental effects of reasonably available emissions reduction techniques applicable to a particular category of existing sources. Each CTG category document recommends RACT controls based on the "presumptive norm" for a particular source category.

Enhanced Inspection and Maintenance 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).

Enhanced Monitoring The monitoring of emissions limitations and standards by a source to certify compliance. "Enhanced" refers to modified, if necessary, to meet the requirements described below for an enhanced monitoring protocol.

Enhanced Monitoring Protocol An enhanced monitoring protocol may include all sampling, measurement, analysis, recording, recordkeeping and reporting devices or procedures; and all testing, calibration, operation and maintenance, data reduction, calculation, quality assurance, and corrective action procedures.

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 A-1 for both VOC and NO_x sources.

Reasonably Available Control Technology (RACT) The lowest emissions limit that a particular source is capable of achieving by the application of control technology that is reasonably available, considering technological and economic feasibility.

RACT "Catch-ups" The application of RACT for all applicable sources as listed in section 182(b)(2), regardless of what was previously required. Each moderate and above ozone nonattainment area (as well as attainment areas within the ozone transport region) are subject to the RACT "catch-up" requirement of section 182(b)(2). The new law requires any of the above areas that had not previously been required to adopt RACT consistent with all of the CTG's to "catch-up" and apply RACT to all sources covered by a pre-enactment or post-enactment CTG document. Many of these areas were not previously required to apply RACT to sources covered by Group III CTG's (CTG's published after September 1982). In addition, areas previously considered rural

TABLE A-1. MAJOR SOURCE THRESHOLDS FOR OZONE
NONATTAINMENT AREA CLASSIFICATIONS

Ozone Nonattainment Area	VOC (tpy) ⁶	NO _x (tpy) ⁶
Extreme	10	10
Severe	25	25
Serious	50	50
Moderate	100	100
Moderate, in an Ozone Transport Region	50	100
Marginal	100	100
Marginal, in an Ozone Transport Region	50	100
All Other Nonattainment Areas, outside of an Ozone Transport Region ⁷	100	100
All Other Nonattainment Areas, in an Ozone Transport Region ⁷	100	100
Attainment, in an Ozone Transport Region	50	100

⁶tpy = tons per year

⁷The other nonattainment areas are submarginal, transitional, and incomplete/no data.

nonattainment, which had to apply RACT only to certain major sources in certain CTG categories under prior policy, will have to revise their SIP's to apply RACT to all sources, including nonmajor sources, that are covered by any CTG. The RACT "catch-up" provision also requires these nonattainment areas to adopt RACT rules for all major sources not covered by a CTG. Additional information on the RACT "catch-up" program will be provided in forthcoming guidance regarding the interaction of RACT rules with emissions inventories.

RACT "Fix-ups" Corrections States are required to make under section 182(a)(2)(1) to their current RACT rules to make up for deficiencies (e.g., improper exemptions) in pre-amendment plans. Under RACT "fix-ups," States are required to have RACT rules that comply with section 172(b) of the pre-1990 Act, as interpreted by EPA's pre-amendment guidance. Since the RACT "fix-up" provisions refer to RACT as required by pre-amended section 172(b), only areas subject to pre-amended section 172(b) need to meet the RACT "fix-up" requirement. Therefore, for nonattainment areas that will be expanded to contain regions that were designated attainment prior to enactment, the RACT corrections are only for the original nonattainment area. The RACT "fix-up" provision essentially codifies EPA's SIP calls, issued in May 1988 and November 1989 [as announced in the Federal Register on September 7, 1988 (53 FR 34500) and July 30, 1990 (55 FR 30973)]. The RACT fix-ups were due on May 15, 1991. Between May 24 and June 24, 1991, EPA's Regional offices mailed letters to several Governors and air agency officials concerning the progress of the States in meeting RACT "fix-up" requirements and listing the outstanding deficiencies that still had not been corrected. Additional information on the RACT "fix-up" program will be provided in forthcoming guidance regarding the interaction of RACT rules with emissions inventories.

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 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, and results from an 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.

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 towards 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 (VOC) Any compound of carbon, excluding carbon monoxide, 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.⁸

⁸57 Federal Register 3945, February 3, 1992.

**APPENDIX B:
CHECKLIST FOR DETERMINING THE ACCEPTABILITY OF STATE RULES**

1. Does the rule clearly cite the State's correct authority for rulemaking?

YES NO

2. Does the rule include any uncorrected deficiencies as specified in a SIP-call?

YES NO

3. Does the rule clearly define which sources are subject to the rule?

YES NO

4. Does the rule document the State's authority to install, maintain, and use emissions monitoring and control devices?

YES NO

5. Are all applicable requirements identified in the permit:

Emissions limits?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Averaging times?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Compliance schedule?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Monitoring?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Recordkeeping?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Reporting?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Operation and maintenance?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Test requirements? ⁹	<input type="checkbox"/> YES	<input type="checkbox"/> NO

6. Is the required test method explicitly stated in the rule?

YES NO

⁹For examples of approved test methods, see "Test Methods or Procedures for Group I, II, and III CTG's" in: Issues Relating to VOC Regulations, Cutpoints, Deficiencies, and Deviations, EPA, Ozone/Carbon Monoxide Program Branch, Air Quality Management Division, Office of Air Quality Management, May 25, 1988.

7. Is the averaging time in the compliance test method explicitly stated in the rule?
____ YES ____ NO
8. Is the averaging time used in the rule consistent with protecting the ambient standard (i.e., equal to or shorter than the time associated with the standard)?
____ YES ____ NO
9. If bubbling or averaging is allowed, is there an explicit description in the rule of how averaging, bubbling or equivalency is to be determined?
____ YES ____ NO
10. Do requests for extended averaging times for VOC sources include the criteria outlined in John O'Connor's January 20, 1984 memo titled "Averaging Times for Compliance with VOC Emission Limits - SIP Revision Policy?"
____ YES ____ NO
11. Is the compliance date no later than the approved date of attainment?
____ YES ____ NO
12. Does the State require the source to keep records sufficient to enable a determination of compliance status?
____ YES ____ NO
13. Are the units of compliance (e.g., pounds of VOC/gal of coating minus water and exempt solvents) clearly stated in the rule?
____ YES ____ NO
14. If a compliance calculation is required to determine compliance, is the formula stated in the rule?
____ YES ____ NO

15. Does the rule affirmatively require records to be kept and reports made? Categories of records are:

Monitoring provisions for add-on control	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Quantity of each coating used	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Solids and solvents content of each coating used	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Allowable and actual emissions	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Transfer efficiencies	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Hours of operation of each line	<input type="checkbox"/> YES	<input type="checkbox"/> NO

16. Is it clear in what units and on what time basis the records/reports must be kept/reported?

YES NO

17. Does the frequency of recordkeeping coincide with emissions/production averaging time?

YES NO

18. Are the allowable exemptions clearly defined and distinguished from what constitutes a violation?

YES NO

19. Is the calculation procedure for exemption clearly specified in the rule?

YES NO

20. Does the rule include malfunction provisions specifying what exceedance may be excused?

YES NO