# DRAFT

# Addendum to the

## Technical Support Document

for

the Notice of Final Rulemaking

on

the Clean Air Act Section 182(b)(1)

15 Percent Rate of Progress Requirement

for

the Phoenix Metropolitan Ozone Nonattainment Area

**March 18, 1999**

Air Division
U.S. Environmental Protection Agency - Region 9

# Draft Addendum to the Final TSD for the Phoenix Metro 15 Percent Plan

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# DRAFT ADDENDUM
# to the
# Final Technical Support Document for
# the Notice of Final Rulemaking
# on the 15 Percent Rate of Progress Requirements in the
# Phoenix Metropolitan Ozone Nonattainment Area

## I. Introduction and Background

### *A. Introduction*

This document is a draft addendum to the "Final Technical Support Document for the Notice of Final Rulemaking on the 15 Percent Rate of Progress Requirements in the Phoenix Metropolitan Ozone Nonattainment Area" (May 20, 1998) ("Final TSD"). It supports EPA's proposed finding under Clean Air Act (CAA) section 110(c) that the Phoenix, Arizona moderate ozone nonattainment area has in place sufficient control measures to meet the 15 percent ROP requirement in CAA section 182(b)(2) as soon as practicable. This proposal is a revision to the 15 percent ROP FIP that we issued May 27, 1998 (1998 FIP). See 63 FR 28898.

In this document, we also explain the Clean Air Act provisions and Agency policy on the CAA section 172(c)(9) requirement for contingency measures and the relationship of this requirement to 15 percent ROP demonstrations.

Finally, we document the calculations used to generate a proposed revision to the transportation conformity budget for the Phoenix metropolitan area.

### *B. Background*

1. Clean Air Act and EPA Policy Requirements for 15 Percent Rate of Progress Plans

CAA section 182(b)(1) requires each ozone nonattainment area classified as moderate or above to develop plans to reduce volatile organic compounds (VOC) emissions in the area by November 15, 1996 by 15 percent from 1990 baseline levels. This requirement is referred to as the 15 percent rate of progress or 15 percent ROP requirement.

To demonstrate that the 15 percent ROP requirement has been met in an area, the 1996 projected emissions levels in that area must be at or below the 15 percent ROP target level. There are a number of steps involved in calculating the required target level. See *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990 ("General Preamble")*, April 16, 1992, 57 FR 13498 at 13507-8 and *Guidance on the Adjusted Base Year Emissions*

*Inventory and the 1996 Target for the 15 Percent Rate of Progress Plans*, Office of Air Quality Planning and Standards, U.S. EPA, EPA-452/R-92-005, October 1992, pp. 9-17. For a short summary of these steps, see the Final TSD at pages 5 - 7.

Although the November 15, 1996 deadline is long passed, the requirement to demonstrate that the implementation plan provides for a 15 percent ROP remains. Once a statutory deadline has passed and has not been replaced by a later one, the deadline becomes "as soon as possible." *Delaney v. EPA*, 898 F.2d 687, 691 (9th Cir. 1990). EPA has interpreted this requirement to be the same as "as soon as practicable".[1]

Thus, under applicable statutory and EPA guidance, in order to demonstrate that the Phoenix area has met the CAA section 182(b)(1) requirement, EPA has to show that the applicable implementation plan together with creditable federal measures provides the required 15 percent reduction as soon as practicable and that there are no other practicable measures for the Phoenix area that would meaningfully accelerate the date by which the 15 percent level is achieved. For a complete discussion of requirements for post-1996 15 percent ROP demonstration, please see Final TSD at page 7.

2. History of the Phoenix 15 Percent Rate of Progress Plan

On November 15, 1993, the State of Arizona submitted the 15 percent ROP plan for the Phoenix area in the *MAG 1993 Ozone Plan for the Maricopa County Area* (November 1993) *(MAG 1993 Plan*). On April 13, 1994, EPA found the 15 percent ROP demonstration contained in the submittal incomplete under CAA section 110(k)(1)(B) because it failed to include, in fully adopted and enforceable form, all of the measures relied upon in the 15 percent demonstration.[2] This incompleteness finding started the 18-month "clock" in CAA section 179 for imposition of sanctions and the two-year clock in section 110(c) for EPA to promulgate a federal implementation plan (FIP) covering the 15 percent ROP requirement. Subsequently Arizona supplemented the original submittal and, based on these supplements, we found the 15 percent ROP and the attainment demonstrations complete on May 12, 1995, turning off the sanctions clock.[3] Under section 110(c), however, the FIP clock continued because we had not fully approved the 15 percent plan.

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[1]For further discussion of this interpretation, see Final TSD, page 76.

[2]In the same letter, we also made a finding of incompleteness for the CAA section 172(c)(9) contingency measures because they, like the 15 percent ROP measures, were not in fully adopted and enforceable form. These contingency measures were due at the same time as the 15 percent ROP plan.

[3]In the same letter, we also found the section 172(c)(9) contingency measures complete.

In August 1996, EPA was sued by the American Lung Association of Arizona, *American Lung Association of Arizona (ALAA) Inc., et al v. Browner*, No. CIV 96-1856 PHX ROS (D.Ariz.). This case sought to enforce EPA's obligation under CAA section 110(c) to promulgate a federal plan for the 15 percent ROP requirement. On July 8, 1997 a consent decree was filed with the U.S. District Court for the District of Arizona establishing a schedule for promulgating a 15 percent ROP plan. Under the consent decree, EPA's obligation to promulgate a plan is relieved to the extent that it has approved State measures.

Consistent with the schedule in the consent decree, EPA Administrator Browner signed on January 20, 1998, a proposed a 15 percent plan for the Phoenix area. This proposal was published in the Federal Register on January 26, 1998 (63 FR 3687). The final notice was signed on May 20, 1998 and published on May 27, 1998 (63 FR 28898).

On July 24, 1998, the Arizona Center for Law in the Public Interest (ACLPI), on behalf of two Phoenix residents, filed a timely petition for review in the U.S. Court of Appeals for the Ninth Circuit of EPA's final action on the 15 percent ROP plan. *Aspegren* v. *Browner*, No. 98-70824.

In their opening brief, the petitioners raised two arguments. The first is that the FIP does not show compliance with the 15 percent rate of progress requirement because it relied on overly optimistic assumptions about emission reductions from three pending federal rules and that the rules as promulgated lessened or delayed the emission reductions assumed in the 15 percent plan. The petitioners argued that, as a result, the 15 percent FIP no longer provides for the required rate of progress. (Brief for the petitioner at pp. 11 - 17). The petitioners requested that the court vacate the FIP and remand it to EPA with instructions to re-evaluate the 15 percent demonstration in light of the final national rules and adopt any additional controls that may be necessary to assure timely achievement of the 15 percent goal.

The three federal measures at issue are consumer and commercial product regulations required under CAA section 183(e). At the time we promulgated the 15 percent ROP FIP for Phoenix, all three measures had been proposed and we had developed national guidance on the appropriate emission reduction credit to assume for each measure in 15 percent ROP plans.[4] Moreover, each measure was under a court-ordered promulgation deadline of August 15, 1998. The final rules did vary from the proposed rules in ways that either slightly reduced the anticipated emission reductions from these measures or slightly delayed the emission reductions beyond the

[4]EPA issued this guidance so that states would be able to incorporate appropriate credit for these measures into their 15 percent plans. See, for example, *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Credit for the 15 Percent Rate-of-Progress Plans for Reductions from the Architectural and Industrial Maintenance Coating Rule and the Autobody Refinishing Rule;" November 29, 1994

date we had assumed in the 1998 FIP. Because these rules were not promulgated until after EPA issued the FIP, we were not able to analyze the effect of these changes on the 15 percent demonstration at the time of final action.

The second argument raised by the petitioners is that EPA acted "illegally" in promulgating a 15 percent FIP without the contingency measures required by CAA section 172(c)(9). During the comment period on the FIP, ACLPI, on behalf of the petitioners, raised this issue only in regard to the State's 15 percent ROP SIP. Since we were not acting on the State's SIP, we considered the comment non-germane and did not provide an extended response discussing the CAA and Agency policies on the section 172(c)(9) contingency measures and how they relate to the 15 percent ROP requirement.

In order to supplement the rulemaking record on both of the issues raised by the petitioners, we requested, and the court granted, a voluntary remand for us to revisit the Phoenix 15 percent ROP FIP to evaluate the effect of changes to the federal measures on the ROP demonstration and to respond to petitioners' contention that contingency measures are an integral part of a 15 percent ROP plan.

3. Elements of a 15 Percent Rate of Progress Plan

CAA section 182(b)(1) requires each ozone nonattainment area classified as moderate or above to develop plans to reduce volatile organic compounds (VOC) emissions in the area by 1996 by 15 percent from 1990 baseline levels.

CAA section 182(b)(1)(A)(i) states that

> By no later than [November 15, 1993], the State shall submit a revision to the applicable implementation plan to provide for volatile organic compound emission reductions, [by November 15, 1996], of a least 15 percent from baseline emissions, accounting for any growth in emissions after 1990.

In order to fulfill this CAA requirement, a State (or EPA in its FIP role) must prepare and submit: 1) a calculation of the target level of emission, 2) identification of the control strategy that is relied on in the 15 percent demonstration, 3) any additional rules needed to fully implement that required control strategy, and 4) a demonstration that the control strategy will result in the targeted level of emissions by the appropriate deadline. Each of these elements must be prepared according to CAA requirements and EPA policies interpreting these requirements. Each is necessary for a complete submission that meets CAA section 182(b)(1).

4. Control Measures in Federal Implementation Plans

In their brief, the petitioners suggest that out FIP should not have been called a FIP because it did not include federal control measures. Brief for the petitioners at p. 8 ("Although the agency did not adopt any federal control measures, it described its action as a FIP."). In response, we note that the federal implementation plan mandate in section 110(c) does not require FIPs to include control measures. CAA Section 110(c)(1) reads:

> (1) The Administrator shall promulgate a Federal implementation plan at any time within 2 years after the Administrator--
>
> > (A) finds that a State has failed to make a required submission or finds that the plan or plan revision submitted by the State does not satisfy the minimum criteria under section 110(k)(1)(A) of this title [i.e, completeness], or
> >
> > (B) disapproves a State implementation submission in whole or in part, unless the State corrects the deficiency, and the Administrator approves the plan or plan revision, before the Administrator promulgates such Federal implementation plan.

The Act requires states to make numerous submissions as part of a total plan for a nonattainment area. These submissions are not limited to control measures and prohibitory rules but include ones that provide information about the sources, amounts, and growth of emissions in a region and others that build the regulatory infrastructure necessary to implement and evaluate air pollution controls.[5] EPA's duty to promulgate a FIP extends to any of these required submissions where we have made one of the findings that trigger the FIP obligation. Our FIP authority under section 110(c) is thus not limited to promulgating just control measures as the petitioners suggest.

[5]Examples of control measures and prohibitory rules are the RACT rule in CAA section 182(b)(2) and the vehicle inspection and maintenance program requirements in section 182(b)(4). Examples of required SIP submittals that provide information about the sources, amounts, and/or growth of emissions in a region are the emission inventory requirements in 182(a)(1) and 187(a)(1) and the vehicle mile forecast requirements in 187(a)(2)(A). Finally, examples of SIP submittals required that build the regulatory infrastructure necessary to impose and evaluate controls include provisions for air quality monitoring in section 110(a)(2)(B), source monitoring in section 110(a)(2)(F), public notification in section 127, and permitting requirements in section 172(c)(5).

Under the *ALAA* consent decree, EPA was required to promulgate a FIP for ozone in Phoenix that provided for VOC emission reductions of at least 15 percent in accordance with Section 182(b)(1). As discussed above, in order to do this, we needed to provide each of the elements required for a complete 15 percent plan. We did so:

Element 1: Calculation of the target level of emissions. This is discussed in the 1998 FIP proposal at 63 FR 3689 and fully documented in the Final TSD at pp. 11 - 19.

Element 2: Identification of the control strategy relied on in the 15 percent demonstration. The control measures relied on in the Phoenix 15 percent FIP are listed in Table 5 in the 1998 FIP proposal at 63 FR 3690.

Element 3: Any additional rules needed to fully implement the required control strategy. All measures relied on in the Phoenix 15 percent FIP were already either SIP-approved, federally promulgated, or creditable under EPA policies as shown in Table 5 in the 1998 FIP proposal at 63 FR 3690 and discussed at 63 FR 3690 - 3691. EPA concluded that no additional measures were thus necessary to fully implement the required control strategy.[6]

Element 4: A demonstration that the control strategy will result in the targeted level of emissions by the appropriate deadline. This demonstration is discussed in the 1998 FIP proposal at 63 FR 3689 and fully documented in the Final TSD, pp 20 - 72.

Hence, EPA fully complied with the section 182(b)(1) requirement to promulgate a federal "implementation plan to provide for volatile organic compound emission reductions, [by November 15, 1996], of a least 15 percent from baseline emissions, accounting for any growth in emissions after 1990."[7]

# II. Impact of Final Federal Measures on the Phoenix 15 Percent Rate of Progress Demonstration FIP

## *A. 15 Percent ROP FIP's Reliance on Proposed Federal Measures*

[6]We noted in the response to comments in the Final TSD at page 75 (fn. 10) that it is not surprising that there are sufficient measures already in place, or soon to be, to demonstrate the 15 percent ROP in Phoenix Since 1990 a large number of both national and local measures have been adopted that target the largest sources of VOC emissions in the Phoenix area.

[7]We promulgated a revision to the Code of Federal Regulations when we finalized the 1998 FIP; hence, the Agency did establish a regulation that "sets forth [an] implementation plan." See 40 CFR 52.123(g).

Under CAA section 183(e), EPA is required to conduct a study of volatile organic compounds (VOC) emissions from the use of consumer and commercial products to assess their potential to contribute to levels of ozone that violate the National Ambient Air Quality Standard for ozone and then to establish criteria for regulating VOC emissions from these products. In March 1995, EPA proposed a list of consumer and commercial products that contribute to ozone nonattainment and a schedule for their regulation. See 60 FR 15264 (March 23, 1995).[8] EPA subsequently proposed individual regulations for three product categories: consumer products, architectural coatings, and autobody finishing coatings. In all, EPA concluded that these three product categories contribute 30 percent of all emissions from consumer and commercial products. 63 FR 48793.

We relied on estimates of emission reductions from the three proposed section 183(e) measures to demonstrate that the 15 percent ROP would be met as expeditiously as practicable: 1) National VOC Emission Standards for Architectural Coatings (known as the AIM rule), 2) National VOC Emission Standards for Automobile Refinish Coatings, and 3) National VOC Emission Standards for Consumer Products. At the time it promulgated the 15 percent ROP plan for Phoenix, these three measures had been proposed but not yet finalized. All three, however, were required to be promulgated by August 15, 1998 under a consent decree and have subsequently been issued as final rules. See consent decree in *Sierra Club v. Browner*, CIV No. 97-984 PLF (D.D.C.).

In the 15 percent ROP demonstration, EPA estimated that these national rules would generate 4.5 metric tons per day in the Phoenix area by April 1, 1999. See Table 1. The estimated emission reductions were consistent with national guidance for crediting these measures in 15 percent ROP plans. See *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors, "Credit for the 15 Percent Rate-of-Progress Plans for Reductions from the Architectural and Industrial Maintenance Coating Rule and the Autobody Refinishing Rule," November 29, 1994; *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors, "Credit for the 15 Percent Rate-of-Progress Plans for Reductions from the Architectural and Industrial Maintenance (AIM) Coating Rule," March 22, 1995; and *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors, "Regulatory Schedule for Consumer and Commercial Products under Section 183(e) of the Clean Air Act;" June 22, 1995.

The final rules were published in the Federal Register on September 11, 1998. Based on public comments, EPA made several changes to the proposed rules. Most of these changes had no effect on the emission reductions anticipated from the rules. A number of changes, however, did affect the emission reductions creditable from the rules and/or the timing of those emission reductions. The following sections describe the significant changes to each rule that affect the

[8] This list and schedule were finalized on September 11, 1998 (63 FR 48792).

anticipated emission reductions from that rule and analyze the impact of these changes on the Phoenix 15 percent ROP demonstration. Table 1 shows the emission reductions we assumed from the proposed federal rules in the final 1998 FIP.

**TABLE 1**
EMISSION REDUCTIONS FROM THE SECTION 183(E) MEASURES CREDITED IN THE FINAL 15 PERCENT ROP PLAN FOR PHOENIX

| RULE | YEAR | REDUCTION (MT/D) |
|---|---|---|
| National Rule - Consumer and Commercial Products | 1998 | 2.5 |
| National Rule - Autobody Refinishing | 1998 | 1.4 |
| National Rule - AIM | 1999 | 0.6 |
| Total | | 4.5 |

In its final action promulgating the Phoenix 15 percent ROP FIP, we stated that if these projected reductions turn out to be greater than the amount we determine to be correct after promulgation of the final rules, then we would take the steps to revise the 15 percent demonstration as appropriate. Because each of the federal rules were modified in a way that slightly reduces its short-term emission reductions potential in the Phoenix area, we are proposing to revise the 15 percent demonstration to reflect the federal rules as promulgated.

### *B. Analysis of the Final Federal Measures*

1. National Architectural and Maintenance Coatings Rule

EPA proposed national VOC emission standards for Architectural Coatings on June 25, 1996 (61 FR 32729) and finalized the standards on September 11, 1998 (63 FR 48848). The rule limits the VOC content of architectural coatings manufactured for sale or distribution in the United States after September 11, 1999.

a. Changes from Proposal Rule to Final Rule

The most significant changes to the rule since proposal are 1) clarification or addition of definitions, 2) clarification of which standards apply to overlapping coating categories, 3) changes

to the VOC content limit for certain coatings, 4) addition of new coating categories, 5) addition of an exceedance fee provision and tonnage exemptions, 6) deletion of the variance provisions, 7) extension of the compliance deadline from 90 days to 1 year for most coatings, and 8) various administrative and formatting changes. For a summary and discussion of the significant changes, see 63 FR 48848, 48856. For a complete discussion of the changes, see "National Volatile Organic Compound Emission Standards for Architectural Coatings–Background for Promulgated Standards," EPA-453/R-98-006b, August, 1998.

b. Effect on Credited Emission Reductions in Phoenix 15 Percent ROP Plan

These changes do not affect the final level of emission reductions expected from the architectural coatings rule. EPA estimated that the proposed rule would result in a 20 percent reduction in emissions and determined that the final rule would result in the same level of reductions. See 61 FR 32729, 32734 and 63 FR 48848, 48855.[9] However, extension of the compliance deadline until one year after publication does change the date on which emission reductions will occur from December 11, 1998 to September 13, 1999.[10]

Maricopa County Environmental Services Division (MCESD) is already implementing a SIP-approved architectural coatings rule, Rule 335--Architectural Coatings. For many product categories, Rule 335 establishes the same or tighter VOC limits than the national rule. As a result, the national rule will have no affect on emission levels in Maricopa County for these product categories. However, for some categories, the national rule is more stringent than MCESD Rule 335. See Table 4-4 in the Final TSD. EPA estimated the national rule would achieve an additional 0.6 metric tons per day in emission reductions by the April 1, 1999 demonstration date for the 15 percent ROP plan. Because of the extension in the compliance date, these emission reductions will not occur until at least mid-September, 1999.

The provision of exceedance fee and tonnage limitation exemptions in the final rule should not effect the expected emission reductions. In calculating the 20 percent reduction from the rule, EPA assumed a 5 percent loss in rule effectiveness due to the uncertainty involved in allowing manufacturers to pay an exceedance fee in lieu of complying with the VOC limits. See *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors, "Credit for

[9]Between the proposal and final action, EPA revised the 1990 emission estimate from architectural coatings from 530,000 tpy to 561,000 tpy. As a result, in absolute terms emission reductions actually increase from the proposal to final; however, relative to the 1990 emission estimate, the emission reduction effectiveness of the rule did not change from proposal to final, remaining at 20 percent.

[10]For architectural coatings that are registered under the Federal Insecticide, Fungicide, and Rodenticide Act, the applicable compliance date is March 10, 2000.

the 15 Percent Rate-of-Progress Plans for Reductions from the Architectural and Industrial Maintenance (AIM) Coating Rule," March 22, 1995.

2. National Automobile Refinishing Coatings Rule

EPA proposed national VOC emission standards for Automobile Refinish Coatings on April 30, 1996 (61 FR 19905) and December 30, 1997 (62 FR 67784) and finalized the standards on September 11, 1998 (63 FR 48806). The rule limits the VOC content of automobile refinish coatings manufactured for sale or distribution in the United States after January 11, 1999. The rule does not cover finish coatings used in the production of new vehicles.

a. Changes from Proposed Rule to Final Rule

The most significant changes to the rule since proposal are 1) the addition of several new definitions, 2) clarification of requirements for coatings with multiple uses, 3) addition of a new coating category and limits, 4) exemption of lacquer topcoats, and 5) reorganization of the rule for clarity. For a summary and discussion of the significant changes, see 63 FR 48806, 48810. For a complete discussion of the changes, see "Volatile Organic Compound Emissions from Automobile Refinishing--Background for Promulgated Standards," EPA-453/R-98-011b, August, 1998.

b. Effect on Credited Emission Reductions in Phoenix 15 Percent ROP Plan

The exemption of lacquer topcoats and other changes to the rule decrease the estimated effectiveness of the rule from 37 percent to 33 percent. Compare *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Credit for the 15 Percent Rate-of-Progress Plans for Reductions from the Architectural and Industrial Maintenance Coating Rule and the Autobody Refinishing Rule;" November 29, 1994 and 63 FR 48806, 48810.

In the final 15 percent ROP plan for Phoenix, we credited the national auto refinishing rule with an emission reduction of 1.4 metric tons per day which represented a 37 percent reduction from the 1996 projected inventory for auto refinishing of 3.67 mtpd. See Final TSD, p. 33 (values converted to metric units). Recalculating the emission reductions assuming the 33 percent effectiveness from the final automobile refinish coating rule gives a revised estimate of 3.67 mtpd x 0.33 = 1.2 mtpd or a loss of 0.2 mtpd in emission reductions (1.4 mtpd - 1.2 mtpd) from the previous estimate.

3. National Consumer Products Rule

EPA proposed national VOC emission standards for Consumer Products on April 2, 1996 (61 FR 14531) and finalized the standards on September 11, 1998 (63 FR 48819). The rule limits the VOC content of 24 categories of consumer products including household cleaning products, personal grooming products, charcoal lighter fluid, and a number of products for automobiles.

The standards were effective for all products, except for those registered under FIFRA, on December 10, 1998. FIFRA-registered products must comply by December 10, 1999.

a. Changes from Proposal Rule to Final Rule

The most significant changes to the rule since proposal are 1) revisions to certain definitions, 2) change to public hearing requirements for variances, 3) changes to the record keeping and reporting requirements, and 4) various administrative changes. For a summary and discussion of the significant changes, see 63 FR 48819, 48824. For a complete discussion of the changes, see "National Volatile Organic Compound Emission Standards for Consumer Products--Background for Promulgated Standards," EPA-453/R-98-008b, August, 1998.

b. Effect on Credited Emission Reductions in Phoenix 15 Percent ROP Plan

None of the changes from proposal to final affected the emission reductions expected from the national consumer products rule. After the final compliance deadline in late 1999, the rule is expected to reduce VOC emissions from consumer products by 20 percent. See 61 FR 14531, 14534 and 63 FR 48819.

In the final 15 percent ROP plan for Phoenix, we credited the national consumer products rule with an emission reduction of 2.5 mtpd by April 1, 1999, based on a 20 percent reduction in emissions from the regulated consumer product categories. This reduction assumed that all the products would be in compliance by April 1, 1999; however, the change in the compliance date for FIFRA-registered products to December 1999 reduces the emission reductions expected by April 1, 1999.

The FIFRA-registered products that are regulated under the consumer products rule are several types of insecticides: crawling bugs, flea and tick, flying bugs, foggers, and lawn and garden. Overall, EPA estimated that limits in the consumer products rule would reduce emissions from the insecticide categories by 23, 466 eng tons per year compared to a overall reductions from the rule of 121,570 eng tons per year. Limits on insecticides, therefore, accounted for 23,446/121,570 = 19 percent of the overall emission reductions from the rule. See Table 2-3 "Study of Volatile Organic Compound Emissions from Consumer and Commercial Products, Report to Congress," OAQPS, U.S.EPA, EPA-453/R-94-066-A (March 1995).

Based on this calculation, the emission reductions from the consumer products rule that are expected to occur in Phoenix by April 1, 1999 in the final 15 percent plan (2.5 mtpd) must be reduced by 19 percent or 0.5 mtpd to 2.0 mtpd.

### *C. The Effect of the Final Federal Rules on the 15 Percent ROP FIP*

Table 2 summarizes the effect of the section 183(e) rules as promulgated on the emission reductions estimates for the rules in the final 15 percent ROP plan for the Phoenix metropolitan area.

TABLE 2
SUMMARY OF CHANGES TO EMISSION REDUCTION CREDITS
FROM THE SECTION 183(E) RULES
APRIL 1, 1999[11]
(METRIC TONS PER DAY)

| RULE | CHANGE | PREVIOUS CREDIT | REVISED CREDIT | EMISSIONS CHANGE |
|---|---|---|---|---|
| Architectural Coatings | Delay in effective date to 9/11/99 | 0.6 | 0.0 | -0.6 |
| Automobile Refinish Coatings | Reduction in effectiveness from 37% to 33% | 1.4 | 1.2 | -0.2 |
| Consumer Products | Delay in effective date for some products until 12/10/99 | 2.5 | 2.0 | -0.5 |
| Total | | 4.5 | 3.2 | -1.3 |

Because the federal measures are slightly less effective than we originally assumed, total emissions in the Phoenix area will be 1.3 mtpd higher than we expected in the 1998 FIP. We originally projected that the Phoenix area would meet the 15 percent ROP target emission level on April 1, 1999 with 0.3 mtpd to spare. See Table 4 in 63 FR 3689. Increasing total emission in the area by 1.3 mtpd will mean that instead of demonstrating the 15 percent ROP on April 1, 1999 with a small cushion of excess emission reductions, the area will be 1.0 mtpd short of its 15 percent ROP target level on that date. See Table 3 below.

[11] In the Final 15 percent plan, EPA assumed that all measures would be fully in place by April 1, 1999 and thereafter.

**TABLE 3**
TOTAL CONTROLLED EMISSION LEVELS
(INTERPOLATED FOR JANUARY 1 AND APRIL 1, 1999)
(METRIC TONS PER DAY)

| CATEGORY | July 1, 1998 | JANUARY 1, 1999 | APRIL 1, 1999 | JULY 1, 1999 |
|---|---|---|---|---|
| Stationary point | 18.2 | 18.2 | 18.2 | 18.2 |
| Stationary area | 93.3 | 93.3 | 93.3 | 93.3 |
| *Loss of Reductions from Federal Measures* | *4.5* | *2.5* | *1.3* | *1.3* |
| Non-road mobile | 44.1 | 43.35 | 42.98 | 42.6 |
| On-road mobile | 79.1 | 77.50 | 76.70 | 75.9 |
| Total | 239.2 | 234.9 | 232.5 | 231.3 |
| Target | 232.5 | 231.80 | 231.45 | 231.1 |
| Over Target | 6.7 | 3.1 | 1.0 | 0.2 |

Source: Based on Table 33, Final TSD, May 20, 1998

## III. Proposed Correction to the 15 Percent ROP Plan

There are two options to correct the 1.0 mtpd shortfall in the current 15 percent demonstration:

Option 1

Without additional measures, the control strategy relied on in the original 15 percent ROP FIP would result in the 15 percent target being met no later than August 1, 1999, four months later than originally projected. See Table 3. The 15 percent ROP plan will "self-correct" given a short time period because total emissions in the Phoenix area are decreasing at a rate faster than the 15 percent ROP target level is decreasing. As can be seen from Table 3, the gap between total emission and the target level closes by approximately 0.3 mtpd per month between April 1 and August 1; hence it would take a little more than 3 months to correct a shortfall of 1.0 mtpd.

Under this option, we would need to show that August 1, 1999 was the most expeditious date practicable by showing that there were no practicable measures that could advance this date.

Option 2

Under this option, we would propose to modify the original control strategy to assure that the 15 percent ROP continues to be demonstrated by April 1, 1999 or as soon as practicable after that date by proposing and promulgating new measures or revising the existing control strategy to reflect other already approved measures.

We have chosen option 2 to assure the earliest date practicable for demonstrating the 15 percent ROP for Phoenix.

### *A. Proposed Revisions to the 15 Percent ROP Control Strategy*

On February 10, 1998, EPA approved into the Arizona state implementation plan (SIP), the State's Cleaner Burning Gasoline (CBG) program for the Phoenix nonattainment area. 63 FR 6653. The CBG program establishes gasoline emission standards and limits on certain gasoline properties that reduce both evaporative and tailpipe emissions of VOC from gasoline-powered engines. The program is being implemented in two stages. From June to September of 1998, gasoline sold in the Phoenix metropolitan area had to meet standards similar to EPA's federal phase I reformulated gasoline (RFG) program or California's Phase II RFG program. Starting May 1, 1999, gasoline sold in the Phoenix metropolitan area has to meet standards similar to EPA's Phase II RFG program or California's Phase II RFG program.

We are proposing to revise our May 27, 1998 15 Percent ROP plan to add the incremental reductions in on-road motor vehicle emissions from the CBG rule. The switch from a fuel similar

to federal phase I RFG to a fuel similar to federal phase II RFG will result in additional emission reductions of 2.0 mtpd.[12, 13] See Appendix A.

We are also proposing to revise the control strategy to remove the National Architectural Coating Rule because reductions from this rule will not happen until well after the 15 percent ROP demonstration date for the Phoenix area.

[12]This estimate assumes that the Phoenix gasoline market shifts from 100 percent federal phase I-like RFG to 100 percent federal phase II-like RFG. This assumption is conservative because there is likely to be a significant market presence of California phase II RFG in Phoenix since the majority of the area's gasoline comes from California refineries. Both phases of the federal RFG program are projected to be less effective at reducing emissions in the Phoenix area than the California phase II-like gasoline. 62 FR 61943 (November 20, 1997). For the purposes of initially crediting the CBG program in ROP programs and attainment demonstrations, we conservatively assume that the gasoline sold in the Phoenix area will be 100 percent of the less-effective gasoline. As the State collects information on the actual market share of each type of gasoline, it may substitute the documented market share percentages for the 100 percent federal RFG assumption.

[13]The State's voluntary early ozone plan (VEOP) estimates an emission reduction of 3.5 mtpd (4 eng. tons per day) from switching from Federal Phase I RFG to Phase II. This difference is the result of using an average summer day on-road inventory in the 15 percent plan (per EPA guidance) and the use of a design day on-road inventory in the VEOP attainment demonstration (as required by EPA guidance). The design day inventory, which reflects conditions on a specific day with bad air quality, is larger; as a result the reduction from switching fuels appears to be greater.

**TABLE 4**
TOTAL CONTROLLED EMISSION LEVELS
(INTERPOLATED FOR JANUARY 1, FEBRUARY 1, APRIL 1, AND MAY 1, 1999)
(METRIC TONS PER DAY)

| CATEGORY | July 1, 1998 | JANUARY 1, 1999 | FEBRUARY 1, 1999 | APRIL 1, 1999 | MAY 1, 1999 | JULY 1, 1999 |
|---|---|---|---|---|---|---|
| Stationary point | 18.2 | 18.2 | 18.2 | 18.2 | 18.2 | 18.2 |
| Stationary area | 93.3 | 93.3 | 93.3 | 93.3 | 93.3 | 93.3 |
| Loss of Reductions from Federal Measures | 4.5 | 2.5 | 1.3 | 1.3 | 1.3 | 1.3 |
| Non-road mobile | 44.1 | 43.35 | 43.2 | 42.98 | 42.8 | 42.6 |
| On-road mobile | 79.1 | 77.50 | 77.2 | 76.70 | 76.4 | 75.9 |
| *Additional reductions from CBG in on-road mobile* | *0.0* | *0.0* | *0.0* | *0.0* | *-2.0* | *-2.0* |
| Total | 239.2 | 234.9 | 233.2 | 232.5 | 230.0 | 228.1 |
| Target | 232.5 | 231.80 | 231.7 | 231.45 | 231.2 | 231.1 |
| Over/under Target | 6.6 | 3.0 | 1.5 | 1.0 | -1.2 | -3.0 |

Source: Based on Table 33, Final TSD.

As shown in Table 4, when reductions from the CBG rule are factored in, the Phoenix area will have in place sufficient control measures to meet the 15 percent ROP requirement by May 1, 1999. Table 5 lists the control measures that we are proposing to include in this demonstration.

**TABLE 5**
PROPOSED REVISED CONTROL STRATEGY FOR
THE 15 PERCENT PLAN ROP FIP
FOR THE PHOENIX METROPOLITAN OZONE NONATTAINMENT AREA

| CATEGORY | APPROVAL STATUS | ADJUSTED 1996 REDUCTION (MT VOC/D) |
|---|---|---|
| Arizona Vehicle Emissions Inspection Program | Approved 60 FR 22518 (May 8, 1995) | 3.3 |
| Arizona Summertime Gasoline Volatility Limitation (7.00 psi RVP) (on-road and nonroad) | Approved 62 FR 31734 (June 11, 1997) | 13.0 |
| Federal RFG - Phase I* (on-road and nonroad) | Approved June 3, 1997 (62 FR 30260) | 6.0 |
| National Phase I Non-Road Engines Standards | Promulgated July 3, 1995 (60 FR 34582) | 9.1 |
| MCESD Rules 331, 336, 337, 342, 346, and 351 | Approval signed 1/20/97 | 11.3 |
| Stage II vapor recovery | Approved 11/1/94 (59 FR 54521) | 9.8 |
| MCESD Rule 335 Architectural coatings | Approved 1/6/92 (57 FR 354) | 2.9 |
| Autobody refinishing (national rule) | Promulgated September 11, 1998 (63 FR 48806) | 1.2 |
| Consumer products (national rule) | Promulgated September 11, 1998 (63 FR 48819) | 2.0 |
| Additional Increment for CBG (on-road only) | Approved 2/10/98 (63 FR 6653) | 2.0 |

*The federal RFG program has been replaced by Arizona's CBG program, however, the first phases of both programs achieve the same emission reduction.

The second stage of the Arizona CBG program does not begin until May 1, 1999. As shown in Table 4, our proposal to revise the Phoenix 15 percent ROP plan to replace the lost reductions from the federal rules with CBG reductions will slip the date by which the Phoenix area demonstrates the 15 percent ROP from April 1, 1999 in the 1998 FIP to the CBG start date of May 1, 1999.

### *B. "As Soon As Practicable" Demonstration*

As discussed in section I.B.1. of this TSD, CAA section 182(b)(1) requires that all moderate and above ozone nonattainment areas prepare plans that provide for a 15 percent VOC emission reduction by November 15, 1996. Because this deadline has passed, in order to demonstrate that the Phoenix area has met the CAA section 182(b)(1) requirement, we must show that the 15 percent reduction will be achieved as soon as practicable. We do this by showing that the applicable implementation plan contains all VOC control measures that are practicable for the Phoenix area and that meaningfully accelerate the date by which the 15 percent level is achieved. Measures that provide only an insignificant additional amount of reductions or could not be implemented soon enough to meaningfully advance the date by which the 15 percent is demonstrated are not required to be implemented to meet this test.[14]

In the 1998 15 percent ROP FIP, we interpreting "to meaningfully accelerate the date by which the 15 percent is demonstrated" to mean to advance the demonstration date by three or more months. See 63 FR 3687, 3691. If we applied that same criterion to this proposal, we would need to implement measures by February 1, 1999 in order to meaningfully advance the May 1, 1999 demonstration date.[15] Table 4 shows to advance this date a meaningful 3 months, we would need to implement additional measures by February 1, 1999 that could reduce emissions in the Phoenix area by 1.5 mtpd. This, of course, is an impossibility since February 1, 1999 has come and gone.

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[14]See *Note*, John Seitz and Margo Oge, "Date by which States Need to Achieve all the Reductions Needed for the 15 Percent Plan from I/M and Guidance for Recalculation," August 13, 1996, and *Memorandum*, John S. Seitz and Richard B. Ossias, Deputy Associate General Counsel to Regional Air Division Directors, "15 Percent VOC SIP Approvals and the 'As Soon As Practicable' Test," February 12, 1997.

[15]We believe that this criterion is still appropriate for today's proposal. Because the proposed May 1 demonstration date is before the June 1 start of the Phoenix ozone season, the ambient air quality benefit that would be gained by advancing the demonstration date by less than three months in advance of May 1 would not justify the implementation of additional federal measures in the Phoenix area for the purposes of demonstrating the 15 percent ROP. Based on this reasoning, we believe that three months is an appropriate benchmark for this "as soon as practicable" test in this case.

In reality, the revised demonstration date is less than 2 months away. This time period is so short that we can not complete this rulemaking prior to May 1, 1999 and still provide an adequate time for the public to comment and then for sources to comply with any new rules. We are, therefore, proposing to conclude that the Phoenix metropolitan area has in place sufficient measures to meet the 15 percent rate of progress requirement as soon as practicable and that there were no other measures available for the Phoenix area that could meaningfully advance the date by which the 15 percent ROP is demonstrated.

## IV. Section 172(c)(9) Contingency Measures

The petitioners in *Aspegren* also raised the argument that contingency measures must be included in a 15 percent ROP plan under the CAA and applicable EPA guidance, and therefore, EPA erred in issuing a 15 percent plan that did not include them. During the comment period on the 15 percent plan proposal, this issue was raised only in the context of the State plan and without any of the specificity subsequently included in the petitioners' brief in *Aspegren.*[16] Therefore we sought and were granted a remand in that case in order to place in the administrative record our response to the petitioners' arguments raised in the litigation, which are presented below.

[16]The entire text of the original comment and our response in the final 1998 FIP is below:

***Comment 9*: ACLPI comments that "The State's plan does not contain contingency measures as mandated by section 172(c)(9) of the Act and EPA guidance [and s]uch measures must be in the SIP and adequate to compensate for any shortfall in the required rate of progress.**

*Response 9*: Since the State's plan is not the subject of this rulemaking, this comment is not relevant. Further, EPA is here promulgating a 15% ROP plan that is required under CAA section 182(b)(1); contingency measures are required under a separate provision of the Act, section 172(c)(9).

See Final TSD at page 82.

**Petitioners' Position:** The petitioners quote section 172(c)(9) of the Act[17] and emphasize that it requires all plans and plan elements for nonattainment areas to include contingency measures that will be triggered if the plan fails to meet rate of progress goals or achieve attainment by the applicable attainment date. Brief for petitioners at pp. 17 and 20.

**EPA Response:** We agree with petitioners that the Act requires an overall nonattainment *plan* to include contingency measures; however, we believe it is clear that it does not require that each individual provision or item of a nonattainment plan contain them. While the Act provides no explicit definition of "nonattainment plan," it lists and describes the provisions and items that the plan must include in order for it to be fully approved under part D of title 1 of the Act. Part D contains the plan requirements for nonattainment areas, including both general nonattainment plan provisions (section 172 "Nonattainment plan provisions in general") and additional provisions that apply to specific pollutants (see , for example, subpart 2 (sections 181-185) "Additional Provisions for Ozone Nonattainment Areas"). Thus the basic elements of a nonattainment plan are first enumerated in section 172(c) and then superseded by or added on to by the pollutant-specific requirements of sections 182, 187, and 189.

The structure of these complex part D provisions demonstrate that a nonattainment plan is a compendium of individual provisions and items that together provide for progress toward, and attainment of, an air quality standard in a nonattainment area.[18] The exact make-up of a

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[17]Section 172 provides in pertinent part:

**(c) Nonattainment plan provisions**

The plan provisions (including any plan items) required to be submitted under this part shall comply with each of the following:

. . . .

(9) Contingency measures

Such plan shall provide for the implementation of specific measures to be undertaken if the area fails to make reasonable further progress, or to attain the national ambient air quality standard by the attainment date applicable under this part [D]. Such measures shall be included in the plan revision as contingency measures to take effect in any such case without further action by the State or the Administrator.

[18]Among the part D provisions for moderate ozone nonattainment plans are emission inventories, emission statement rules, RACT rules, vehicle inspection and maintenance programs, 15 percent rate of progress demonstrations, Stage II vapor recovery rules (vapor recovery nozzles on gasoline pumps), new source permitting rules, contingency measures, and attainment demonstrations. See, in general, sections 172(c) and 182(a) and (b).

nonattainment plan for a given area depends on the nonattainment pollutant and the area's classification. While these provisions and items may (and occasionally need to) refer to and/or depend on each other, each has its own unique statutory mandate and specific criteria for approval. In line with this concept, we have long considered contingency measures to be a separate and distinct item on which we can act independently of our actions on other provisions of a nonattainment plan. We have stated and defended this position numerous times.[19]

Moreover, we believe that the result of the petitioners' reading of section 172(c) would lead to absurd results. They would effectively read that section to mandate that each plan provision or item required by Part D incorporate all of the section 172(c) requirements in order to be complete and approvable. Under this reading, for example, the emissions inventory required to be submitted by section 182(a)(1) would also have to provide for RACM consistent with section 172(c)(1), RFP consistent with section 172(c)(2), contingency measures consistent with section 172(c)(9), etc., in order to be considered complete and approvable. In other words, the petitioners' reading would take each submittal of a plan item required under Part D, no matter how narrow or specific the requirement, and turn it into a complete nonattainment plan--a result that is simply not contemplated by either the Act or, as will be seen below, EPA guidance.

Finally, our position that the section 172(c)(9) contingency measures are a separate and distinct provision of a plan is also supported by the language of section 172(b). Section 172(b) requires us to "establish a schedule according to which the State containing such [nonattainment] area shall submit a plan or plan revision (including the plan items) meeting the applicable requirements of subsection (c)....Such schedule shall at a minimum, include *a date or dates*...." no later than 3 years from designation of an area as nonattainment. Emphasis added. Therefore, by its terms, section 172(b) authorizes EPA to assign different submittal dates to the plan items in section 172(c) as long as they do not exceed the specified 3 year period.[20] Our interpretation that

[19]See, for example, EPA's approval of carbon monoxide contingency measures for the Phoenix area at 61 FR 51599, 51607-8 (October 3, 1996); our promulgation of a PM-10 FIP for the Phoenix area in "Technical Support Document for U.S. EPA's Final Federal Implementation Plan for the Phoenix Nonattainment Area, Response to Comments Document," U.S. EPA-Region 9, July 17, 1998, p. 70; our approval of the California 1994 ozone SIP at 62 FR 1150, 1157 (January 8, 1997); and our approval of the 15 percent ROP plan for the Northern Virginia portion of the metropolitan Washington, D.C. area at 62 FR 33999, 34003 (June 24, 1997). See also Brief for Respondents at pp. 19-24 in *Disimone v. Browner*, 121 F.3d 1262 (9th Cir. 1997).

[20]Pre-1990 nonattainment areas were designated by operation of law as nonattainment on enactment of the 1990 CAA Amendments, November 15, 1990; therefore, November 15, 1993 was the latest date that we could set for the 172(c)(9) contingency measures for ozone. We note that the date for submittal of the section 172(c)(9) contingency measures varied from pollutant to pollutant. For example, certain moderate CO nonattainment areas were required to submit their section 172(c)(9) contingency measures by November 15, 1992. *General Preamble* at 13532.

contingency measures are a requirement separate from the ROP demonstration is completely consistent with that statutory latitude; petitioners' interpretation is not. They would read the words "or dates" out of section 172(b) and require that all the plan items in section 172(c) be submitted at the same time. It is not an appropriate method of statutory interpretation to read any provision of a statute as having no meaning. See *Northwest Forest & Resource v. Glickman*, 82 F.3d 825, 834 (9th Cir. 1996) (citation omitted). See also *Gustafson v. Alloyd Co.*, 115 S. Ct. 1061, 1067 (1995) (no Act of Congress should "be read as a series of unrelated and isolated provisions."); *Department of Revenue of Oregon v. ACF Industries*, 114 S. Ct. 843, 848 (1994) ("a statute should be interpreted so as not to render one part inoperative") (quotation omitted). *Citizens Bank of Maryland v. Strumpf*, 116 S. Ct. 286, 290 (1995) ("It is an elementary rule of construction that 'the act cannot be held to destroy itself.'" (internal quotation omitted)).

**Petitioners' Position:** Petitioners argue that EPA has "long taken the position that the statutory requirement for contingency measures applies with full force to 15% rate-of-progress plans." Petitioners cite two EPA guidance documents to support this claim: the 1992 *General Preamble* at 13510-12 and *Guidance for Growth Factors, Projections, and Control Strategies for the 15 Percent Rate of Progress Plans* (Office of Air Quality Planning and Standards, U.S. EPA. EPA-452/R-93-002, March 1993). Brief for petitioners at pp.18-19.

**EPA Response:** Petitioners incorrectly read EPA's guidance.

First, as the Agency that wrote the guidance in dispute, we are most likely to know what we meant by it. See, e.g., Arkansas v. Oklahoma, 503 U.S. 91, 110, 112 (1992) and Thomas Jefferson Univ. v. Shalala, 512 U.S. 504, 512 (1994). Consistent with the language and structure of the CAA, as discussed above, we consider--and have long considered--the section 172(c)(9) contingency measures as a separate and distinct requirement from the 15 percent plan. We have demonstrated this not only in the numerous guidance documents discussed below, but also by our application of this guidance to rulemakings approving 15 percent plans across the country. In these approvals, we have consistently evaluated the approvability of the 15 percent plans without regard to the presence, absence, or approvability of contingency measures. A list of these rulemakings can be found in Appendix B.

Furthermore, the two guidance documents that the petitioners cite, the *General Preamble* and the *Guidance for Growth Factors*, do not support their position. The 1992 *General Preamble* is EPA's principal document guiding its actions on the SIP revisions necessary to meet the nonattainment requirements of the amended Act. See *General Preamble* at 13498. The *General Preamble* discussion at 13511 cited by the petitioners is in the section discussing ozone contingency measures. In that discussion, we explain our rationale for establishing, under section 172(b), November 15, 1993 as the submittal date for the section 172(c)(9) contingency measures:

> Ozone areas classified as moderate or above must include in their submittals, *which are due by November 15, 1993 as set by EPA under section 172(b),* contingency

> measures to be implemented if RFP is not achieved or if the standard is not attained by the applicable date. (emphasis added)

Immediately following that statement is the sentence: "This contingency submittal date is appropriate since States must demonstrate attainment of the 15 percent milestone at this time." *General Preamble* at 13511. This sentence makes clear that the linkage between the 172(c)(9) contingency measures and the 15 percent plan requirements is one of common timing only. As a result of this common timing, we refer later in this section of the *General Preamble* to the inclusion of "sufficient contingency measures in the November 15, 1993 submittal." This became the first of a number of shorthand references to the groups of submittals due on that date. There was, however, never an intention to declare the contingency measure submittal to be substantively part and parcel of the 15 percent plan submittal as petitioners conclude. Rather, as the cited text makes clear, EPA viewed the contingency measures as a distinct submittal for which EPA was establishing a November 15, 1993 submittal date which coincided with the statutory deadline for the 15 percent ROP plans

In arriving at their conclusion, petitioners ignore large parts of the *General Preamble* in which we devote almost 8 columns of Federal Register text (pages 13507 to 13510) to the 15 percent plan requirement. Not once in any of this extensive text are contingency measures mentioned. It strains credulity that if we had intended to set a policy that a complete and approvable 15 percent plan submittal must include contingency measures, we would have neglected to mention it even once in the lengthy discussion of the requirements for an approvable 15 percent plan.

Petitioners also cite to three passages in a second guidance document, *Guidance for Growth Factors*, which they claim support their position that contingency measures are a required component of 15 percent plans. One of those passages is in the detailed discussion of contingency measures for moderate and above areas:

> Ozone nonattainment areas classified as moderate or above must include in their SIP submittals, due by November 15, 1993, contingency measures to be implemented in the event of an attainment or milestone failure. This contingency submittal date is appropriate because States must submit demonstrations on that date that show the 15 percent VOC emission milestone will be achieved in 1996.

*Guidance for Growth Factors*, page 82.

This statement merely affirms the *General Preamble* language discussed above that provides the rationale for the submittal date for the separate contingency measures submittal. It does not indicate that contingency measures are essential to complete and approvable 15 percent ROP plans.

The other two passages cited by the petitioners are in the *Guidance*, respectively, at the end of the last paragraph of the 3-page long Executive Summary and in a statement in Appendix F:

> This document also discusses the requirements for an attainment demonstration for marginal and moderate ozone nonattainment areas, and presents the models involved in making this demonstration. Furthermore, this document presents the implications of attainment and milestone failures for marginal and moderate ozone nonattainment areas. In addition, this document describes the requirements for contingency measures that must be included in the rate-of-progress plans for moderate and above ozone nonattainment areas, and provides examples of possible contingency measures.

*Guidance for Growth Factors*, page 3.

> States must include contingency measures in their rate-of-progress plans that will achieve emissions reductions equivalent to 3 percent per year....

*Guidance for Growth Factors*, page F-14.

As we discussed above, the statements to the effect that contingency measures must be included in ROP plans became an Agency shorthand that was never intended to convert what are manifestly two distinct statutory requirements into one. That this shorthand developed is particularly understandable in light of what states were required to do on November 15, 1993. Depending on the classifications of their ozone nonattainment areas, a state needed to make at least three--and up to four--SIP submittals on that date:

For all <u>moderate</u> areas:

1. The section 182(b)(1) attainment demonstration (or a commitment to submit the attainment demonstration by November 15, 1994)

For <u>moderate and above</u> areas:

2. The section 172(c)(9) contingency measures

3. The section 182(b)(1) 15 percent rate-of-progress plans

For <u>serious and above</u> areas:

4. The section 182(c)(9) contingency measures.

As shown by this list, the two requirements that all ozone nonattainment areas (except marginal areas) had to submit in November, 1993 were the 15 percent ROP plans and the section 172(c)(9) measures. As a result of this common timing, these two separate statutory requirements became linked in Agency parlance. Because the Agency viewed the ROP plans as the more substantial of the two submittals, that plan submittal and the contingency measure submittal were referred to in shorthand form in our guidance as the rate-of-progress submittal.[21]

While this shorthand unfortunately makes some parts of our guidance read as if contingency measures are necessary elements of a complete and approvable 15 percent rate of progress plan, other EPA guidance documents provide compelling evidence that we did not intend this result. For example, in *Guidance on the Adjusted Base Year Emissions Inventory and the 1996 Target for the 15 Percent Rate of Progress Plans*, Office of Air Quality Planning and Standards, U.S. EPA, EPA-452/R-92-005, October 1992, EPA lists the schedule for "rate-of-progress plan deliverable." See pages 1 - 3. Nowhere in this list of ROP deliverables are contingency measures listed.

In several memoranda, we discuss the contingency measures required to be submitted by November 15, 1993. Not once in any of these memoranda do we state or imply that these contingency measures are anything except a separate and distinct requirement from the 15 percent plans. The only thing that is noted continually is that these two requirements were both due on November 15, 1993.

These memoranda include:

• *Memorandum*, Michael H. Shapiro, Acting Assistant Administrator for Air and Radiation, EPA, to Regional Air Directors, "Guidance on Issues Related to 15 Percent Rate-of-Progress Plans," August 23, 1993, page 2: *"Section 172(c)(9)* of the Act requires moderate and above ozone nonattainment areas to adopt contingency measures by November 15, 1993." (emphasis added) This memo clearly states that the Act provision requiring contingency measures is section 172(c)(9) alone and not an inextricable combination of section 172(c)(9) and the 15 percent ROP requirement in section 182(b)(1).

• *Memorandum*, D. Kent Berry, Acting Director, Air Quality Management Division, OAPQS, EPA, to Regional Air Directors, "Clarification of Issues Regarding the Contingency Measures that are due November 15, 1993 for Moderate and Above Ozone Nonattainment Areas," November 8, 1993. This memo discusses what types of measures can and cannot be contingency measures. Nowhere does the memo state or imply that the 172(c)(9) contingency measures are required for a complete or approvable 15 percent plan.

[21]One only needs to compare the volume of guidance issued on the 15 percent ROP plans compared to rather meager guidance issued on the other November 15, 1993 submittals to come to this conclusion. See the Bibliography in this TSD.

• *Memorandum*, John S. Seitz, Director, OAQPS, EPA, to Regional Air Directors, "Reasonable Further Progress, Attainment Demonstration, and Related Requirements for Ozone Nonattainment Areas Meeting the Ozone NAAQS," May 10, 1995. This memo describes the requirements for ozone nonattainment areas which were exceeding the ozone standard when the Clean Air Act amendments passed in 1990 but subsequently attained the standard prior to submitting the attainment and ROP demonstrations. On page 3, the memo states:

> Other SIP submission requirements are linked with these attainment demonstration and RFP requirements, and similar reasons apply to them. The first of these *additional* requirements are the contingency measure requirements of section 172(c)(9) and Section 182(c)(9). (emphasis added)

We could not have considered the section 172(c)(9) measures "additional requirements" if our policy was that they were de facto parts of 15 percent plans rather than a separate, distinct requirement.

Thus the overwhelming weight of evidence is that it was never EPA's policy to substantively tie the contingency measures to the 15 percent ROP plan such that the ROP plan could not be approved (or promulgated) without adequate contingency measures. We therefore reject the petitioners' contention that our 15 percent ROP FIP is "illegal" because it does not include contingency measures. This interpretation does not constitute a revision of EPA policy, rather it has been EPA's policy from the start.

**Petitioners' Position:** The petitioners state that the cited guidance documents set out the required contents of the contingency plans including specific measures that trigger automatically if the required 15 percent rate of progress is not achieved in fact and that these control measures must provide an additional emission reduction of up to 3 percent of 1990 levels. Brief for the Petitioners, p. 19.

**EPA Response:** We agree that the cited guidance on section 172(c)(9) contingency measures in ozone nonattainment areas requires specific measures that trigger automatically if it is determined that the 15 percent rate of progress is not achieved and that these control measures must provide an additional emission reduction of up to 3 percent of 1990 levels. See *Guidance for Growth Factors*, page 82. We note, however, that the guidance cited by the petitioners is our preliminary interpretation of the requirement in *section 172(c)(9)* for contingency measures and not our guidance interpreting the rate of progress requirement in *section 182(b)(1)*. As we have stated previously, these two statutory requirements are separate and distinct.

**Petitioners' Position:** Petitioners state that in view of EPA's explicit guidance on contingency measures in 15 percent plans, EPA's failure to include contingency measures in the 15 percent ROP FIP is indefensible, citing *Delaney v. EPA* 898 F.2d. 687, 693 (9th Cir. 1990) and *Western*

*State Petroleum Ass'n v. EPA*, 87 F.3d 280, 284 (9th Cir. 1996) (WSPA). Brief for petitioners at p. 19-21.

**EPA Response:** To support their position, petitioners cite *Delaney*'s holding that EPA must adhere to its own guidelines. 87 F.2d at 693. Petitioners also cite *WSPA* for the proposition that an "agency cannot change policy without providing reasoned analysis over and above that required for an interpretation in the first instance."[22] Neither case is apposite because, as discussed above, our explicit, consistent guidance does not require contingency measures as part of 15 percent plans (whether they are SIPs or FIPs).

It should also be noted that paragraphs 3 and 4 of the *ALAA* consent decree sets forth with specificity EPA's FIP obligation:

> 3. No later than January 20, 1998, the Administrator or her delegee shall sign a Notice of Proposed Rulemaking (NPRM) to be published in the Federal Register that sets forth a proposed FIP, pursuant to 42 U.S.C. § 7410(c)(1), for Phoenix that provides for VOC emission reductions of at least 15 percent *in accordance with 42 U.S.C. § 7511a(b)(1) ("15 percent FIP").*
>
> 4. No later than May 20, 1998, the Administrator or her delegee shall sign a Notice of Final Rulemaking (NFRM) to be published in the Federal Register that sets forth EPA's final *15 percent FIP* for Phoenix.

Emphasis added. These provisions make clear that it was the intent of the parties that the 15 percent FIP was to comply with the requirements of section 182(b) and not other requirements of the CAA, such as section 172(c)(9), as the *Aspegren* petitioners would now have it.

**Petitioners' Position:** The petitioners state that the purpose of contingency measures is to assure that shortfalls in meeting progress and attainment schedules will be quickly corrected and that history has shown that plans do not always produce emission reductions as quickly or as substantial as expected. Brief for petitioners at p. 17 - 18.

**EPA Response:** We agree with the petitioners that history has indeed shown that plans do not always produce emission reductions as quickly or as substantially as expected. We discussed one example in our proposal of the 1998 FIP for the Phoenix area: implementation problems with

[22]It is notable that in *WSPA* the court found at least eight EPA decisions that conflicted with the decision at issue there. *WSPA*, 87 F.3d at 284. As we have shown above, we have consistently treated the section 172(c)(9) contingency measures and the ROP plan as separate and distinct requirements of the Act. Although as stated above some of EPA's guidance could have been misinterpreted to support the petitioners' position, the sum total of EPA's guidance clearly establishes our position and EPA has not taken an action in conflict with its position.

Arizona's enhanced vehicle emissions inspection program lead to shortfalls in the State's 15 percent SIP. See 63 FR 3687, 3688. The historical fact that plans do not always produce the expected air quality results is addressed in the Act's numerous provisions for milestone demonstrations and the evaluation of an area's attainment status after the passage of its applicable attainment date. Failure to meet a milestone or to attain not only triggers contingency measures but also requirements to revise the entire nonattainment plan. See, for example, section 182(i). However, these facts do not change our conclusion that contingency measures are separate requirements from 15 percent ROP plans.

**Petitioners' Position:** Petitioners, citing H. Rep. 101-490, 101st Cong., 2d Sess. (1990) at 224 (contingency measures must take effect automatically and compensate for any emission reduction shortfall), state that the purpose of contingency measures is to assure that shortfalls in meeting progress and attainment schedules will be quickly corrected. Brief for petitioners at p. 17.

**EPA Response:** We agree that section 172(c)(9) of the Act requires most nonattainment plans to include contingency measures that will be triggered if the plan fails to meet reasonable further progress goals or achieve attainment by the applicable attainment date. See *General Preamble* at 13511.[23]

We do not agree that the purpose of contingency measures is to compensate, by themselves, any shortfall in an attainment or reasonable further progress (RFP) demonstration. Such a reading would render unnecessary and surplus the basic and extensive structure of the Clean Air Act's nonattainment provisions.

Upon a failure to attain, areas are reclassified upwards and required to revise their nonattainment plans. See, for example, section 181(b)(1). A failure to actually make reasonable further progress (which is interpreted for ozone areas as meeting a ROP milestone) also results in the requirement to revise the nonattainment plan under section 110(k)(5) and, in ozone nonattainment areas, section 182(g). Revising an attainment plan takes some time during which there is a potential for emissions, and therefore ambient concentration levels, to rise. It is the role of the 172(c)(9) contingency measures to prevent these increases, but is not their role to correct the entire emission reduction shortfall preventing attainment or RFP. The Act leaves to the revised plan the requirement to demonstrate attainment and RFP. Thus, read within the overall planning requirements in part D, contingency measures are the bridge between the failure to attain or make RFP and the revisions to the nonattainment plan needed to fully address that failure.

To interpret the contingency measure requirement to mandate that they make up any potential shortfall in attainment or RFP would negate this planning scheme. The Supreme Court has cautioned that, in construing statutes, the goal is to accord the legislative enactment "a

[23]The exceptions are plans for marginal ozone nonattainment areas. See CAA section 182(a).

sensible construction." United States v. Granderson, 114 S. Ct. 1259, 1262 (1994). It is not sensible to read section 172(c)(9) in a manner that undermines other provisions of the statute enacted at the same time.

The legislative history cited by the petitioners states that the section 172(c)(9) contingency measures "are to be adequate to compensate for any emission reduction shortfall." H. R. Rep. No. 490, Pt. 1, 101st Cong., 2d Sess. (May 17, 1990) (accompanied H.R. 3030), reprinted in 2 A Legislative History of the Clean Air Act Amendments of 1990, 103d Cong., 1st Sess at 3025. The legislative language does not in fact say that contingency measures must make up the full shortfall, but rather that they "compensate" for the shortfall. In the context of the new statutory planning scheme, contingency measures that prevent emissions increases during the period an area is revising its SIP could be said to compensate for emission reduction shortfalls during that period.

**Petitioners' Position:** Petitioners argue that since the CAA moderate area ozone attainment deadline of November 15, 1996 is already two years overdue, contingency measures are necessary to ensure that any failure to achieve the 15 percent goal will be corrected immediately. Brief for the petitioners, p. 19.

**EPA Response:** EPA agrees that the 15 percent goal must be demonstrated as soon as practicable now that the statutory deadline has passed and has not been replaced by a later statutory deadline. See 63 FR 3687. We also agree that contingency measures are necessary to ensure that progress continues after a milestone failure while the nonattainment plan is being revised.[24] However, this does not convert the separate requirement for contingency measures into a component of the 15 percent plan. As we have stated before, contingency measures are a separate requirement from the 15 percent ROP plan and the fact that the attainment of 15 percent goal is delayed does not override this fact.

We note, that in EPA policy and applicable court precedent (*Delaney*), the prescribed remedy for a delayed 15 percent demonstration is the up-front implementation of all reasonable measures that can advance the date by which the 15 percent is shown and not the *post hoc* implementation of contingency measures. Our proposed FIP revision shows that all reasonable measures have in fact been implemented that will advance the date by which the 15 percent ROP is demonstrated in the Phoenix area.

**Petitioners' Position:** Petitioners claim that since the 15 percent FIP contains no safety margin, even a small shortfall in emission reductions would mean failure in meeting the 15% goal and that is precisely the risk contingency measure are designed to address. Brief for the petitioners at pp. 19 - 20.

[24]As stated previously, we do not agree that contingency measures are necessary to ensure *any* failure in the 15 percent goal is made up.

**EPA Response:** The statutory requirement for 15 percent ROP demonstrations is met when the plan demonstrates that it achieves "at least a 15 percent" reduction. See section 182(b)(1)(A)(i). Neither the Act nor EPA guidance requires 15 percent ROP demonstrations to include a margin of safety; therefore, reductions greater than the minimum amount needed to demonstrate the 15 percent ROP are not required. As a result, the amount of excess emissions in the 15 percent demonstration is immaterial. In fact, any excess emissions in a 15 percent plan can be used for other uses, such as credit in future rate of progress requirements. See, e.g., section 182(c)(2)(B).

**Petitioners' Position:** Petitioners cite our 1994 letter finding the Arizona's November 15, 1993 SIP submittal incomplete in support of their contention that EPA's policy is that contingency measures are required elements of the 15 percent ROP plan. Brief for the petitioners at p. 19. Petitioners also claim that EPA's position that contingency measures are not required elements of 15 percent plans is "all the more indefensible" because we allegedly found the state's 15 percent plan incomplete because, *inter alia*, it did not contain contingency measures. Brief for the petitioners at p. 21.

**EPA Response:** The actual text of our incompleteness letter is:

> Title 1 of the Clean Air Act (CAA), as amended in 1990, established a requirement for submittal of a "15 Percent Rate-of-Progress" (ROP) Plan for all nonattainment areas classified as moderate and above for ozone by November 15, 1993. For the Phoenix Nonattainment Area, EPA received a plan submittal on November 16, 1993 and an Addendum on April 8, 1994.
>
> ...EPA is making a finding of incompleteness for the Phoenix Nonattainment Area with regard to the requirements of section 182(b)(1)(A). EPA is today also making an incompleteness finding with regard to the requirements under section 172(c)(9) that contingency measures be submitted as part of the ROP plan.

See Letter, David P. Howekamp, EPA, to Edward Fox, ADEQ, April 13, 1994, p. 1. (emphasis in the original).[25]

This text is clear that EPA made two separate incompleteness findings, one for the 15 percent ROP plan requirement in section 182(b)(1)(A) and one for the contingency measure requirement in section 172(c)(9). As noted before, these requirements were due at the same time and the State submitted them together (along with a CO plan for Phoenix). The concluding paragraph of the letter also supports the fact that we made two separate findings:

[25]This letter dealt with only a part of the State's November 16, 1993 "plan submittal" and the April 8, 1994 "Addendum." These submittals also included the MAG 1993 CO Plan for Maricopa County and the Addendum to that plan. Therefore, the terms "plan submittal" and "addendum" as used in this letter are not limited to the 15 percent ROP plan submittal.

> If you would like further information on the ROP, conformity, or contingency measure findings described in this letter[.]

Id., p.3. (emphasis added)

This phrasing clearly implies that EPA considered the ROP finding and contingency measure finding as separate, distinct, and equal.[26]

Our follow-up completeness letter makes this even more clear:

> This letter is to inform you of completeness determinations regarding the attainment and 15 Percent Rate of Progress plan requirements of Section 182(b)(1)(A) of the Clean Air Act, and the contingency requirements of Section 172(c)(9).
>
> As you are aware, the EPA previously issued a finding pertaining to the November 15, 1993 submittal of the Maricopa Association of Government's [sic] 1993 Ozone Plan for the Phoenix nonattainment area. That finding, issued April 13, 1994, found the submittal incomplete with regard to the 15 percent Rate-of-Progress plan and contingency measure requirements for which a submission was required by November 15, 1993.

See Letter, David P. Howekamp, EPA, to Edward Fox, ADEQ, May 12, 1995.

Any interpretation of the April 13, 1994 letter as indicating that contingency measures were essential parts of the ROP plan is clearly unsupported when the incompleteness and completeness letters are read together in their entirety.

**Petitioners' Position** Petitioners claim that there is "no conceivable basis for EPA to claim that the mandate for contingency measures applies to 15% SIPs, but not 15% FIPs." Brief for petitioners at p. 21.

**EPA Response:** We have never made this claim. Our position is that the contingency measure requirement does *not* apply to 15 percent ROP SIPs and therefore does not apply to 15 percent ROP FIPs.

[26]The incompleteness letter also detailed the effect of the incompleteness finding for the ROP requirement (and only the ROP requirement) on CAA section 176(c) conformity requirements for transportation plans and programs.

# V. Proposed Transportation Conformity Budget

## *A. Background*

### 1. Transportation Conformity and Transportation Conformity Budgets

Section 176(c) of the Clean Air Act requires that federally funded or approved transportation actions[27] in nonattainment areas "conform" to, that is support, the area's air quality implementation plans. Conformity ensures that federal transportation actions do not worsen the area's air quality or interfere with its meeting the air quality standards. One of the primary test for conformity is to show transportation plans and improvement programs will not cause motor vehicle emissions higher than the levels needed to make progress toward and to meet the air quality standards. The motor vehicle emissions levels needed to make progress toward and meet the air quality standards are set in the area's air quality implementation plans and are known as the "emissions budget for motor vehicles" or the "transportation conformity budget."

### 2. The Transportation Conformity Budget in the 1998 Phoenix's 15 Percent ROP Plan

When we issued the 1998 15 Percent ROP FIP for the Phoenix metropolitan area, we set a transportation conformity budget of 76.7 metric tons of VOC per average summer day. See 63 FR 28898, 28903.

We calculated total on-road motor vehicle emissions in the 1998 FIP by multiplying motor vehicle emission factors for mid-1999 (in grams per mile) by the vehicle miles traveled (VMT) in the Phoenix area in 1996. This calculation is consistent with our policies for demonstrating the 15 percent ROP after 1996. See the Final TSD at page 7. We obtained the motor vehicle emissions factors from our MOBILE5a motor vehicle emissions model using Phoenix-specific inputs; running the model for 1999; and assuming the State's current inspection and maintenance program, a gasoline volatility level of 7.0 pounds per square inch and the federal phase I reformulated gasoline program. We have documented this modeling in section III.C.3 of the Final TSD. We then used the resulting on-road motor vehicle emissions total as the emissions budget for transportation conformity.

This budget number, however, is the product of *1996* travel levels and *1999* control levels. It is essentially a hypothetical number because that combination of travel levels and control levels could never happen in reality. To be correct, the budget should be a product of travel and control levels for the same year. In this case the year should be 1996 since this is the year by which the CAA initially required the 15 percent ROP be met.

[27]These actions include approval or funding of the regional transportation plan, the transportation improvement program, and individual transportation projects.

3. Proposed Revisions to the Transportation Conformity Budget

We are proposing to revise the transportation conformity budget in the 1998 FIP to correct the calculation error. We are also proposing to further revise the conformity budget to reflect the reductions in motor vehicle emissions resulting from Arizona's CBG program. As discussed earlier in this draft TSD, we are proposing to revise the control strategy in the 1998 FIP to subtract emission reductions from stationary source measures (that is, the three federal consumer and commercial product rules) and replace them with reductions from the CBG program, which is on-road mobile source measure.

As documented below, we have calculate the revised transportation conformity budget budget by multiplying motor vehicle emission factors for 1996 by the VMT in the Phoenix area in 1996 and then correcting the resulting emission level to reflect implementation of the Phase II of the CBG program. We obtained the motor vehicle emissions factors from our MOBILE5a motor vehicle emissions model using Phoenix-specific inputs, running the model for 1996, and assuming the set of motor vehicle controls that are credited in the 15 percent ROP plan: the State's current inspection and maintenance program, a gasoline volatility level of 7.0 pounds per square inch, the federal phase I reformulated gasoline program. Except for the final correction for the CBG program, we followed the same inventory methodology and used the same mobile source emissions model that we used for the 1998 15 percent ROP demonstration.

*B. Methodology for Calculating the Corrected Conformity Emissions Budget*

On-road motor vehicles include both gasoline- and diesel-powered passenger cars; light- and heavy-duty gasoline- and diesel-powered trucks; and motorcycles. Controls on these sources included tailpipe emission standards from the Federal Motor Vehicle Control Program (FMVCP), inspection and maintenance programs, fuel quality standards (including reformulated gasoline and RVP controls), and transportation control measures.

1. 1996 VMT Figures

Projected 1996 VMT numbers were taken from *1996 Baseline Projection Inventory for Volatile Organic Compounds (VOC) Emissions*. Final Submittal. January 1994, Maricopa County Environmental Management and Transportation Agency (found in Exhibit 4 to the *1993 Ozone Plan Addendum*), p. 78.

2. On-Road Motor Vehicle Controls

Three on-road motor vehicle control measures are credited in the 1998 15 percent demonstration: 7.0 psi RVP, enhanced I/M program, and federal phase I reformulated gasoline. In addition to these controls, we are proposing to add the State's CBG program.

*1. State RVP Limit*

The State's 7 psi summertime gasoline volatility limit was fully implemented in 1996. The emission reductions estimated for this measures assume a decrease in RVP limit from the federally-required 7.8 psi to 7 psi.

*2. Enhanced I/M Program*

We approved Arizona's vehicle emission inspection program (VEIP) including the enhanced I/M components as elements of the SIP in 1995. We credits the following enhanced components in the 15 percent ROP plan: the biennial IM240 transient testing for model year 1981 and newer vehicles, 1996 cut points (the tailpipe emissions levels at which cars are failed), pressure testing, increased waiver limits, and improvements to the anti-tampering program. We credit the program as actually implemented in 1996 and assume no further improvements.

Arizona has implemented the VEIP's remote sensing (RSD) component. We, however, have not included any credit for this component in the 15 percent ROP plan. Although we believes this component is achieving measurable emission reductions, we currently do not have sufficient information to calculate an appropriate credit for it. Arizona estimates an emission reduction credit for the enhanced RSD program of 3.7 metric tons per day.

Table 6 gives the MOBILE5a inputs we used to model Arizona's I/M programs. We have included a copy of the actual input files in Appendix C.

**TABLE 6**
MOBILE 5 INPUTS
FOR MARICOPA COUNTY 1996 ACTUAL PROGRAM

| Model Year | Pre-MY1981 | MY1981 & Newer |
|---|---|---|
| Program start date | 1977 | 1977 |
| Stringency level | 28% | 28% |
| Earliest model year of vehicles subject | 1967 | 1981 |
| Latest model year of vehicles subject | 2020 | 2020 |
| Pre-1981 waiver rate (as % of failed vehicles) | 4% | 4% |
| 1981 and later waiver rate (as % of failed vehicles) | 3% | 3% |
| Compliance rate | 97% | 97% |
| Program type: | 1 - test only | 1 - test only |
| Inspection frequency: | 1 - annual | 2 - biennial |
| Vehicle types subject to inspections: | | |
| LDGV | 2-yes | 2-yes |
| LDGT1 | 2-yes | 2-yes |
| LDGT2 | 2-yes | 2-yes |
| HDGV | 2-yes | 1-no |
| Test type | 3 - loaded idle | 4 - I/M 240 |
| Alternative I/M credits supplied? | 22- yes | 11 - no |
| | tech12.d<br>imdata6.d | N/A |
| User supplied cutpoints? | 1 - no | 2 - yes |
| VOC | -- | 2.00 |
| CO | -- | 30.0 |
| NOx | -- | 3.00 |

**TABLE 6** - CONTINUED
MOBILE 5 INPUTS
FOR MARICOPA COUNTY 1996 ACTUAL PROGRAM

| Model year | Pre-MY1981 | MY1981 & Newer |
|---|---|---|
| **ATP program** | | |
| Program start year | 1987 | |
| First model year | 1974 | |
| Last model year | 1980 | |
| Vehicle types subject to ATP inspection | | |
| LDGV | 2 - yes | |
| LDGT1 | 2- yes | |
| LDGT2 | 2 - yes | |
| HDGV | 2 - yes | |
| Program type | 1 - test only | |
| Inspection frequency | 1 - annual | |
| Compliance rate | 97% | |
| Inspections performed: | | |
| - air pump system | 2 - yes | |
| - catalyst | 2 - yes | |
| - fuel inlet restrictor | 2 - yes | |
| - tailpipe lead deposit | 1 - no | |
| - EGR system | 1 - no | |
| - evaporative emission control system | 2 - yes | |
| - PCV system | 2 - yes | |
| - gas cap | 2 - yes | |

| **TABLE 6** - CONTINUED<br>MOBILE 5 INPUTS<br>FOR MARICOPA COUNTY 1996 ACTUAL PROGRAM | | |
|---|---|---|
| Model Year | Pre-MY1981 | MY1981 & Newer |
| Pressure Test | Yes | |
| Start Year | 1995 | |
| First model year | 1981 | |
| Last model year | 2020 | |
| Vehicle types subject to functional pressure test | | |
| LDGV | 2 - yes | |
| LDGT1 | 2 - yes | |
| LDGT2 | 2 - yes | |
| HDGV | 1 - no | |
| Program type | 1 - test only | |
| Inspection frequency | 2 - biennial | |
| Compliance rate | 97% | |
| **Purge Test** | No | |

*3. Phase I Federal Reformulated Gasoline Program*

The federal reformulated gasoline program (RFG) became effective in the Phoenix area at the retail level on August 4, 1997. 62 FR 30260 (June 3, 1997).

*4. Arizona Clean Burning Gasoline Program*

Arizona adopted its own cleaner burning gasoline program to replace the federal RFG program beginning in June, 1998. We approved that program (63 FR 6653 (February 10, 1998)) and Arizona opted out of the Federal RFG program. The CBG program establishes gasoline emission standards and limits on certain gasoline properties that reduce both evaporative and tailpipe emissions of VOC from gasoline-powered engines. The program is being implemented in two stages. From June to September of 1998, gasoline sold in the Phoenix metropolitan area had to meet standards similar to EPA's federal phase I reformulated gasoline (RFG) program or California's Phase II RFG program. Starting May 1, 1999, gasoline sold in the Phoenix

metropolitan area has to meet standards similar to EPA's Phase II RFG program or California's Phase II RFG program.

The State designed its program to achieve more emission reductions than federal RFG phase I regulations provide. There will be no loss of emission reductions as a result of the Phoenix area's transition from the federal to state program. To maintain as much as possible the control strategy in the 1998 FIP, we are proposing to credit only the incremental increase in emission reductions from the transition to CBG from federal phase I RFG, even though all the emission reductions from clearer gasoline are being generated by the CBG program.

*C. Calculation of On-Road Emission Inventory*

We generated the 1996 on-road motor vehicle emission factors using our MOBILE5a model (3/29/93 version). To generate the total on-road emissions inventory for the 1996 revised conformity budget, we followed the same procedures as were used in the 15 percent plan. See pages 43 to 53 in the final TSD.

Step 1 -- Generate Composite On-Road Emission Factors

To generate on-road motor vehicle emission factors, MOBILE5a is run twice, once with I/M and once without I/M, for the on-road mobile source control strategy relied on in the 15 percent plan. Two runs are necessary because 10.4 percent of the vehicle fleet in the Phoenix nonattainment area is not subject to I/M. The I/M and non-I/M runs are weighed together (89.6 percent I/M and 10.4 percent non-I/M) to generate the composite emission factor.

Composite emission factors for each of the eight vehicle classes (light duty gasoline vehicles, light duty gasoline trucks (1 and 2), heavy duty gasoline trucks, light duty diesel vehicles, light duty diesel trucks, heavy duty diesel trucks, and motorcycles) are generated for six different speeds (20, 30, 30.3, 36.7, 55.7, and 59.7 mph). These speeds represent the average speeds on the principal roadway classifications (known as functional classes) found in the nonattainment area.: urban freeway and expressway, principal arterial, minor arterial, collectors and local roads; rural freeway and expressway, principal arterial, minor arterial, collectors and local roads).

MOBILE5a runs were made for July 1, 1996 using 1990 Phoenix area vehicle registration data and diesel sales fractions and assuming ambient temperature of 98.8F and a temperature range of 80F to 104F. These inputs are identical to the ones used in the base year inventory.

The input and output files and composite emission factor calculations can be found in Appendix 1.

Step 2 -- Calculate Total On-Road Emissions

For each road functional class (i.e., speed)/vehicle class combination, the appropriate composite emission factors is multiplied by the fraction of all VMT attributed to that vehicle type and total 1996 projected VMT for the roadway classification. This calculation generates the total projected 1996 emissions from this vehicle class on that classification of roadway in the nonattainment area. Total projected 1996 on-road emissions is the sum of this calculation for each roadway/vehicle class.

The 1996 inventory is also slightly adjusted to reflect the actual fuel quality found in Phoenix during 1996. See Letter, Nancy C. Wrona, Director, Air Quality Division, ADEQ to David Howekamp, Director, Air and Toxics Division, U.S. EPA Re: Submittal of Additional Information in Support of Approval of 15% Rate of Progress Ozone Plan for Maricopa County, September 11, 1997, Appendix B. The reductions from the on-road motor vehicle controls are calculated from this baseline.

This calculation is shown in Table 7. The resulting on-road motor vehicle inventory is 88.1 mtpd.

Step 3 – Adjust Total On-Road Emissions for the CBG Program

Emission reductions from the CBG program cannot be modeling in MOBILE5. In order to include reductions from this program, the total on-road emission estimate calculated in Step 2 must be adjusted by a control factor.

As calculated in Appendix A, the second phase of the CBG program reduces on-road motor vehicle emissions an additional 2.7 percent from the first phase or 2 metric tons per day in 1999. However, of these 2 metric tons per day, only 0.8 metric tons or 40 percent are being used to make up the emission reduction shortfall in the 15 percent plan. See Table 5.[28]

The reduction for Phase II-CBG is: 0.40 x 0.027 = 0.011 or 1.1 percent

Applied to on-road motor vehicle emission calculated in Step 2:

total on-road motor vehicle emission with CBG = 88.1 mtpd x (1 - 0.011)
= 87.1 mtpd

This value constitutes the transportation conformity budget.

[28]Table 5 shows that the 15 percent ROP target will be met with a 1.2 mtpd to spare; therefore, only 2 mtpd - 1.2 mtpd = 0.8 mtpd of the emission reductions from the CBG program area needed to make up the shortfall in the 15 percent plan.

# TABLE 7
## ADJUSTED METROPOLITAN PHOENIX 1996 ON-ROAD VOC EMISSIONS INVENTORY

| Vehicle Class | Roadway Type | Speed (MPH) | Factor (grams/mile) | DVMT (miles/day) | Emissions (kg/day) | Vehicle Class | Roadway Type | Speed (MPH) | Factor (grams/mile) | DVMT (miles/day) | Emissions (kg/day) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LDGV | **Urban** | | | | | LDGT2 | **Urban** | | | | |
| | Fwys & Expwys | 55.7 | 1.09 | 10,707,450 | 7266 | | Fwys & Expwys | 55.7 | 1.70 | 10,707,450 | 1602 |
| VMT fraction: | Principal art. | 30.3 | 1.44 | 13,974,274 | 12517 | VMT fraction: | Principal art. | 30.3 | 2.24 | 13,974,274 | 2760 |
| 0.622 | Minor art. | 30.3 | 1.44 | 3,850,055 | 3448 | 0.088 | Minor art. | 30.3 | 2.24 | 3,850,055 | 760 |
| | Collectors | 25 | 1.63 | 1,781,291 | 1803 | | Collectors | 25 | 2.55 | 1,781,291 | 399 |
| | Local roads | 20 | 1.88 | 5,192,266 | 6085 | | Local roads | 20 | 2.95 | 5,192,266 | 1347 |
| | | | | | | | | | | | |
| | **Rural** | | | | | | **Rural** | | | | |
| | Fwys & Expwys | 59.3 | 1.19 | 3,416,632 | 2523 | | Fwys & Expwys | 59.3 | 1.91 | 3,416,632 | 573 |
| | Principal art. | 36.7 | 1.28 | 7,397,908 | 5882 | | Principal art. | 36.7 | 1.99 | 7,397,908 | 1296 |
| | Minor art. | 36.7 | 1.28 | 2,038,199 | 1620 | | Minor art. | 36.7 | 1.99 | 2,038,199 | 357 |
| | Collectors | 30 | 1.45 | 664,397 | 599 | | Collectors | 30 | 2.26 | 664,397 | 132 |
| | Local roads | 20 | 1.88 | 3,510,146 | 4114 | | Local roads | 20 | 2.95 | 3,510,146 | 911 |
| | | | | | | | | | | | |
| LDGT1 | **Urban** | | | | | HDGV | **Urban** | | | | |
| | Fwys & Expwys | 55.7 | 1.52 | 10,707,450 | 2881 | | Fwys & Expwys | 55.7 | 3.39 | 10,707,450 | 1305 |
| VMT fraction: | Principal art. | 30.3 | 2.00 | 13,974,274 | 4937 | VMT fraction: | Principal art. | 30.3 | 4.46 | 13,974,274 | 2246 |
| 0.177 | Minor art. | 30.3 | 2.00 | 3,850,055 | 1360 | 0.036 | Minor art. | 30.3 | 4.46 | 3,850,055 | 619 |
| | Collectors | 25 | 2.26 | 1,781,291 | 712 | | Collectors | 25 | 5.10 | 1,781,291 | 327 |
| | Local roads | 20 | 2.60 | 5,192,266 | 2393 | | Local roads | 20 | 6.02 | 5,192,266 | 1126 |
| | | | | | | | | | | | |
| | **Rural** | | | | | | **Rural** | | | | |
| | Fwys & Expwys | 59.3 | 1.68 | 3,416,632 | 1019 | | Fwys & Expwys | 59.3 | 3.36 | 3,416,632 | 413 |
| | Principal art. | 36.7 | 1.77 | 7,397,908 | 2315 | | Principal art. | 36.7 | 3.98 | 7,397,908 | 1059 |
| | Minor art. | 36.7 | 1.77 | 2,038,199 | 638 | | Minor art. | 36.7 | 3.98 | 2,038,199 | 292 |
| | Collectors | 30 | 2.01 | 664,397 | 236 | | Collectors | 30 | 4.49 | 664,397 | 107 |
| | Local roads | 20 | 2.60 | 3,510,146 | 1618 | | Local roads | 20 | 6.02 | 3,510,146 | 761 |
| | | | | Total: | 63967 | | | | | Total: | 18393 |

| Vehicle Class | Roadway Type | Speed (MPH) | Factor (grams/mile) | DVMT (miles/day) | Emissions (kg/day) | Vehicle Class | Roadway Type | Speed (MPH) | Factor (grams/mile) | DVMT (miles/day) | Emissions (kg/day) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LDDV | **Urban** | | | | | HDDV | **Urban** | | | | |
| | Fwys & Expwys | 55.7 | 0.44 | 10,707,450 | 14 | | Fwys & Expwys | 55.7 | 1.06 | 10,707,450 | 783 |
| VMT fraction: | Principal art. | 30.3 | 0.69 | 13,974,274 | 29 | VMT fraction: | Principal art. | 30.3 | 1.64 | 13,974,274 | 1581 |
| 0.003 | Minor art. | 30.3 | 0.69 | 3,850,055 | 8 | 0.069 | Minor art. | 30.3 | 1.64 | 3,850,055 | 435 |
| | Collectors | 25 | 0.81 | 1,781,291 | 4 | | Collectors | 25 | 1.93 | 1,781,291 | 237 |
| | Local roads | 20 | 0.96 | 5,192,266 | 15 | | Local roads | 20 | 2.30 | 5,192,266 | 824 |
| | | | | | | | | | | | |
| | **Rural** | | | | | | **Rural** | | | | |
| | Fwys & Expwys | 59.3 | 0.44 | 3,416,632 | 4 | | Fwys & Expwys | 59.3 | 1.04 | 3,416,632 | 246 |
| | Principal art. | 36.7 | 0.48 | 7,397,908 | 11 | | Principal art. | 36.7 | 1.39 | 7,397,908 | 710 |
| | Minor art. | 36.7 | 0.48 | 2,038,199 | 3 | | Minor art. | 36.7 | 1.39 | 2,038,199 | 196 |
| | Collectors | 30 | 0.69 | 664,397 | 1 | | Collectors | 30 | 1.65 | 664,397 | 76 |
| | Local roads | 20 | 0.96 | 3,510,146 | 10 | | Local roads | 20 | 2.30 | 3,510,146 | 557 |
| | | | | | | | | | | | |
| LDDT | **Urban** | | | | | MC | **Urban** | | | | |
| | Fwys & Expwys | 55.7 | 0.37 | 10,707,450 | 4 | | Fwys & Expwys | 55.7 | 7.34 | 10,707,450 | 393 |
| VMT fraction: | Principal art. | 30.3 | 0.58 | 13,974,274 | 8 | VMT fraction: | Principal art. | 30.3 | 7.72 | 13,974,274 | 540 |
| 0.001 | Minor art. | 30.3 | 0.58 | 3,850,055 | 2 | 0.005 | Minor art. | 30.3 | 7.72 | 3,850,055 | 149 |
| | Collectors | 25 | 0.68 | 1,781,291 | 1 | | Collectors | 25 | 8.01 | 1,781,291 | 71 |
| | Local roads | 20 | 0.81 | 5,192,266 | 4 | | Local roads | 20 | 8.36 | 5,192,266 | 217 |
| | | | | | | | | | | | |
| | **Rural** | | | | | | **Rural** | | | | |
| | Fwys & Expwys | 59.3 | 0.37 | 3,416,632 | 1 | | Fwys & Expwys | 59.3 | 7.71 | 3,416,632 | 132 |
| | Principal art. | 36.7 | 0.47 | 7,397,908 | 3 | | Principal art. | 36.7 | 7.47 | 7,397,908 | 276 |
| | Minor art. | 36.7 | 0.47 | 2,038,199 | 1 | | Minor art. | 36.7 | 7.47 | 2,038,199 | 76 |
| | Collectors | 30 | 0.58 | 664,397 | 0 | | Collectors | 30 | 7.74 | 664,397 | 26 |
| | Local roads | 20 | 0.81 | 3,510,146 | 3 | | Local roads | 20 | 8.36 | 3,510,146 | 147 |
| | | | | Total: | 129 | | | | | Total: | 7672 |
| | | | | | | | | | | Grand total: | 90160 |

*D. Proposed Corrected Conformity Emissions Budget*

The corrected conformity emissions budget for 1996 is 87.1 metric tons per day of VOC per average summer day for on-road motor vehicles in the Phoenix ozone nonattainment area. This budget replaces the budget set on May 27, 1998 at 63 FR 28898, 28903.

# *Bibliography*

Documents Related to the 1998 15 Percent ROP FIP

1. 63 FR 3687 (January 26, 1998). *Approval and Promulgation of Implementation Plans; Phoenix, Arizona Ozone Nonattainment Area, 15 Percent Rate of Progress Plan and 1990 Base Year Emission Inventory*; Proposed Rule.

2. 63 FR 28898 (May 27, 1998). *Approval and Promulgation of Implementation Plans; Phoenix, Arizona Ozone Nonattainment Area, 15 Percent Rate of Progress Plan and 1990 Base Year Emission Inventory*; Final Rule.

3. Final Technical Support Document for the Notice of Proposed Rulemaking on the Clean Air Act Section 182(b)(1) 15 Percent Rate of Progress Requirement for the Phoenix Metropolitan Ozone Nonattainment Area; Air Division, U.S. EPA - Region 9, May 18, 1998.

4. Letter, Edward Z. Fox, Director, ADEQ to Felicia Marcus, Regional Administrator, U.S. EPA - Region 9, re: Submittal of *MAG 1993 Carbon Monoxide Plan* and *MAG 1993 Ozone Plan* for the Maricopa County. November 15, 1993.

5. Letter, David P. Howekamp, Director, Air and Toxics Division, U.S. EPA - Region 9 to Edward Z. Fox, Director, ADEQ, April 13, 1994.

6. Letter, Edward Z. Fox, Director, ADEQ to Felicia Marcus, Regional Administrator, U.S. EPA - Region 9, re: Submittal of Addenda to the MAG 1993 Carbon Monoxide Plan and MAG 1993 Ozone Plan for the Maricopa County Area. April 4, 1994.

7. Letter, David P. Howekamp, Director, Air and Toxics Division, U.S. EPA - Region 9 to Edward Z. Fox, Director, ADEQ, May 12, 1995.

8. Consent Decree. *American Lung Association of Arizona et al v. Carol Browner, Administrator, U.S. EPA*, No. CIV 96-1856 PHX ROS, July 8, 1997 (D.Ariz.).

9. Brief for the Petitioners, *Aspegren* v. *Browner*, No. 98-70824, October 13, 1998.

EPA Guidance on CAA Section 182(b)(1) 15 Percent ROP Plans

**Documents referenced in this TSD:**

1. 57 FR 13498 (April 16, 1992). *State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990.*

2. *Guidance on the Adjusted Base Year Emissions Inventory and the 1996 Target for the 15 Percent Rate of Progress Plans*. Office of Air Quality Planning and Standards, U.S. EPA. EPA-452/R-92-005, October 1992.

3. *Guidance for Growth Factors, Projections, and Control Strategies for the 15 Percent Rate of Progress Plans*. Office of Air Quality Planning and Standards, U.S. EPA. EPA-452/R-93-002, March 1993.

4. *Note*, Margo Oge, Director Office of Mobile Sources and John Seitz, Director, OAQPS to Regional Division Directors; "Re: Date by which States Need to Achieve all the Reductions Needed for the 15% Plan from I/M and Guidance for Recalculation", August 13, 1996.

5. *Memorandum*, Michael H. Shapiro, Acting Assistant Administrator for Air and Radiation, EPA, to Regional Air Directors, "Guidance on Issues Related to 15 Percent Rate-of-Progress Plans," August 23, 1993.

12. *Memorandum*, John S. Seitz, Director, OAQPS, and Richard B. Ossias, Deputy Associate General Counsel to Regional Air Division Directors; "15 Percent VOC SIP Approvals and the 'As Soon As Practicable' Test;" February 12, 1997.

13. *Memorandum*, John S. Seitz, Director, OAQPS, EPA, to Regional Air Directors, "Reasonable Further Progress, Attainment Demonstration, and Related Requirements for Ozone Nonattainment Areas Meeting the Ozone NAAQS," May 10, 1995.

**Other Guidance Documents for 15 Percent ROP Plans:**

6. *Guidance on the Relationship Between the 15 Percent Rate-of-Progress Plans and Other Provisions of the CAA*. Office of Air Quality Planning and Standards, U.S. EPA. EPA-452/R-93-007, May, 1993.

7. *Guidance on Preparing Enforceable Regulations and Compliance Programs for the 15 Percent Rate-of-Progress Plans*. Office of Air Quality Planning and Standards, U.S. EPA. EPA-452/R-93-00?, June, 1993.

8. *Memorandum*, G. T. Helms, Chief, Ozone/Carbon Monoxide Branch (OAQPS), EPA, to Air Branch Chiefs, Regions I-X, "15 Percent Rate-of-Progress Plans," March 10, 1993.

9. *Memorandum*, G. T. Helms, Chief, Ozone/Carbon Monoxide Branch and Susan Wyatt, Chief, Chemicals and Petroleum Branch, (OAQPS), EPA, to Air Branch Chiefs, Regions I-X, "Credit Toward the 15 Percent Rate-of-Progress Reductions from Federal Measures," May 6, 1993.

10. *Memorandum*, G. T. Helms, Chief, Ozone/Carbon Monoxide Branch (OAQPS), EPA, to Air Branch Chiefs, Regions I-X, "Questions and Answers from the 15 Percent Rate-of-Progress Plan Workshop," October 29, 1993.

11. *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Fifteen Percent Rate of Progress Plans--Additional Guidance," May 5, 1995.

13. *Memorandum*, Gay MacGregor, Director Regional and State Programs Division, OMS and Sally Shaver, Director, Air Quality Strategies and Standards Division, OAQPS to Regional Air Division Directors; "Modeling 15% VOC Reduction(s) from I/M in 1999--Supplemental Guidance;" December 23, 1996.

EPA Guidance on CAA Section 179(c)(9) Contingency Measures in Ozone Nonattainment Areas

1. 57 FR 13498 (April 16, 1992). *State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990.*

2. *Guidance for Growth Factors, Projections, and Control Strategies for the 15 Percent Rate of Progress Plans*. Office of Air Quality Planning and Standards, U.S. EPA. EPA-452/R-93-002, March 1993.

3. *Memorandum*, D. Kent Berry, Acting Director, Air Quality Management Division, OAPQS, EPA, to Regional Air Directors, "Clarification of Issues Regarding the Contingency Measures that are due November 15, 1993 for Moderate and Above Ozone Nonattainment Areas," November 8, 1993.

Section 183(e) Rules

1. 61 FR 14531 (April 2, 1996) *National Volatile Organic Compound Emission Standards for Consumer Products;* Proposed Rule and Notice of Public Hearing.

2. 61 FR 19005 (April 30, 1996). *National Volatile Organic Compound Emission Standards for Automobile Refinish Coatings;* Proposed Rule and Notice of Public Hearing.

3. 62 FR 67784 (December 30, 1997). *National Volatile Organic Compound Emission Standards for Automobile Refinish Coatings*; Supplemental Proposed Rule.

4. 61 FR 32729 (June 25, 1996). *National Volatile Organic Compound Emission Standards for Architectural Coatings;* Proposed Rule and Notice of Public Hearing.

5. *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Credit Toward the 15 Percent Requirements from Architectural and Industrial Maintenance Coatings;" September 10, 1993.

6. *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Credit for 15 Percent Rate-of-Progress Plans for Reductions from the Architectural and Industrial Maintenance (AIM) Coating;" December 9, 1993.

7. *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Credit for the 15 Percent Rate-of-Progress Plans for Reductions from the Architectural and Industrial Maintenance Coating Rule and the Autobody Refinishing Rule;" November 29, 1994.

8. *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Credit for the 15 Percent Rate-of-Progress Plans for Reductions from the Architectural and Industrial Maintenance Coating Rule and the Autobody Refinishing Rule;" November 29, 1994.

9. *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Regulatory Schedule for Consumer and Commercial Products under Section 182(e) of the Clean Air Act;" June 22, 1995.

10. *Architectural Coatings - Background for Proposed Standards*. Draft. Emission Standards Division, OAQPS, U.S. EPA. EPA-453/R-95-009a. March 1996.

11. Lodged Consent Decree, *Sierra Club v. Browner*, CIV No. 97-984 PLF (D.D.C.)

12. 63 FR 48819 (September 11, 1998) *National Volatile Organic Compound Emission Standards for Consumer Products;* Final rule.

13. 63 FR 48806 (September 11, 1998). *National Volatile Organic Compound Emission Standards for Automobile Refinish Coatings;* Final rule.

14. 63 FR 48848 (September 11, 1998). *National Volatile Organic Compound Emission Standards for Architectural Coatings;* Final rule.

15. 63 FR 48792 (September 11, 1998). *Consumer and Commercial Products: Schedule for Regulation*. Final list of product categories for regulations.

16. *Volatile Organic Compound Emissions from Automobile Refinishing--Background for Promulgated Standards*, OAQPS, EPA, EPA-453/R-98-011b, August, 1998.

17. *National Volatile Organic Compound Emission Standards for Architectural Coatings–Background for Promulgated Standards*, OAQPS, EPA, EPA-453/R-98-006b, August, 1998.

18. *National Volatile Organic Compound Emission Standards for Consumer Products--Background for Promulgated Standards*, OAQPS, EPA, EPA-453/R-98-008b, August, 1998.

19. *Study of Volatile Organic Compound Emissions from Consumer and Commercial Products, Report to Congress*, OAQPS, U.S.EPA, EPA-453/R-94-066-A (March 1995).

CBG Program

1. 62 FR 61942 (November 20, 1997). *Approval and Promulgation of Implementation Plans; Arizona--Maricopa County Ozone and PM10 Nonattainment Areas*; Proposed Rule.

2. 63 FR 6653 (February 10, 1998). *Approval and Promulgation of Implementation Plans; Arizona--Maricopa County Ozone and PM10 Nonattainment Areas*; Final Rule.

3. *Assessment of Fuel Formulation Options for Maricopa County for the State of Arizona*, Department of Environmental Quality, Final Report, MathPro, Inc., November 7, 1996

Miscellaneous Documents

1. 61 FR 51599 (October 3, 1996); *Approval and Promulgation of Implementation Plans; Arizona--Maricopa Nonattainment Area; Carbon Monoxide*. Final rule.

2. "Technical Support Document for U.S. EPA's Final Federal Implementation Plan for the Phoenix Nonattainment Area, Response to Comments Document," U.S. EPA- Region 9, July 17, 1998.

3. 62 FR 1150 (January 8, 1997).

4. Brief for Respondents, *Disimone v. Browner*, 121 F.3d 1262 (9th Cir. 1997).

5. 62 FR 33999 (June 24, 1997). *Approval and Promulgation of Air Quality Implementation Plans; Virginia; 15% Rate of Progress Plan for the Northern Virginia Portion of the Metropolitan Washington D.C. Area.* Final rule.

# Appendix A

# Calculation of the Incremental Emission Reduction from the Cleaner Burning Gasoline Program (Phase 2)

| TABLE A-1<br>TOTAL ON-ROAD EMISSIONS, JULY 1<br>(METRIC TONS PER DAY) | | | | |
|---|---|---|---|---|
| **CONTROL** | **1996** | **1997** | **1998** | **1999** |
| FMVCP/7.8 psi/1990 I/M | 108.4 | 104.0 | 100.2 | 96.7 |
| 7.0 psi RVP | 93.7 | 90.6 | 87.1 | 84.2 |
| Enhanced I/M (w/o RSD) | 90.4 | 88.0 | 84.2 | 80.6 |
| Phase I RFG | -- | 83.7 | 79.1 | 75.9 |
| *Phase II CBG* | -- | -- | -- | *73.9* |

Modified from Table 30 in the Final TSD.

Estimates of emission reductions for different fuel formulations are from:

MathPro, Inc., *Assessment of Fuel Formulation Options for Maricopa County for the State of Arizona*, Department of Environmental Quality, Final Report, November 7, 1996, Exhibit F-7 (Calendar year 1999/Complex Model, Total VOC emissions).

Fed RFG Phase I/7.00 psi Waiver = 6.2 % of baseline emissions
Fed RFG Phase II = 8.9% of baseline emissions

Incremental benefit of going from Fed RFG Phase I to Fed RFG Phase II = 8.9 - 6.2 = 2.7 %

75.9 mtpd x 0.027 = 2.0 mtpd

Phase II CBG effect = 75.9 mtpd - 2.0 mtpd = 73.9 mtpd

# Appendix B

## List of Final or Proposed Actions on 15 Percent Rate of Progress Plans from Outside of Arizona

# Region I

## New Hampshire

62 FR 55544 (October 27, 1997). *Approval and Promulgation of Implementation Plans; New Hampshire.* Proposed rule. (15% Plan and Contingency Plan treated as separate requirements.)

63 FR 67405 (December 7, 1998). *Approval and Promulgation of Air Quality Implementation Plans; New Hampshire; 15 Percent Rate of Progress and Contingency Plans; Vapor Recovery Controls for Gasoline Distribution and Dispensing.* Final Rule. (15% Plan and Contingency Plan treated as separate requirements.)

## Massachusetts

62 FR 37527 (July 14, 1997). *Approval and Promulgation of Implementation Plans; Conditional Interim Approval of Implementation Plans; Massachusetts.* Proposed rule. (15% Plan and Contingency Plan treated as separate requirements.)

## Connecticut

64 FR 12015 (March 10, 1999). *Approval and Promulgation of Implementation Plans; Conditional Approval of Implementation Plans; Connecticut.* Proposed rule. (15% Plan and Contingency Plan treated as separate requirements.)

64 FR 12015 (March 10, 1999). *Approval and Promulgation of Air Quality Implementation Plans; Connecticut; 15 Percent Rate of Progress and Contingency Plans.* Final Rule. (15% Plan and Contingency Plan treated as separate requirements.)

## Rhode Island

61 FR 55943 (October 30, 1996) *Approval and Promulgation of Implementation Plans; Limited Approval and Limited Disapproval of Implementation Plans; Rhode Island.* Proposed Rule. (15% Plan and Contingency Plan treated as separate requirements.)

62 FR 18712 (April 17, 1997) *Limited Approval and Limited Disapproval of Implementation Plans; Rhode Island.* Final Rule. (15% Plan and Contingency Plan treated as separate requirements.)

63 FR 67594 (December 8, 1998) *Approval and Promulgation of Implementation Plans; Interim Final Determination of Correction of Deficiencies in 15 Percent Rate-of-Progress and Contingency Plans; Rhode Island.* Direct Final Rule. (15% Plan and Contingency Plan treated as separate requirements.)

## Region II

**New Jersey**

62 FR 23410 (April 30, 1997). *Approval and Promulgation of Implementation Plans; New Jersey 15 Percent Rate of Progress Plan and Phase I and II Ozone Implementation Plans.* Proposed Rule. (No action on contingency measures.)

62 FR 35100 (June 30, 1997). *Approval and Promulgation of Implementation Plans; New Jersey 15 Percent Rate of Progress Plan and Phase I and II Ozone Implementation Plans.* Interim Final Rule. (No action on contingency measures.)

64 FR 9952 (March 1, 1999). *Approval and Promulgation of Implementation Plans; New Jersey 15 Percent Rate of Progress Plan, Recalculation of 9 Percent Rate of Progress Plans and 1999 Transportation Conformity Budget Revisions.* Proposed Rule. (No action on contingency measures.)

## Region III

**Delaware**

62 FR 5357 (February 5, 1997). *Approval and Promulgation of Air Quality Implementation Plans; Delaware -- 15 Percent Rate of Progress Plan.* Proposed Rule. (No action on contingency measures.)

62 FR 27198 (May 19, 1997). *Approval and Promulgation of Air Quality Implementation Plans; Delaware -- 15 Percent Rate of Progress Plan.* Final Rule. (No action on contingency measures.)

**Pittsburgh, PA**

62 FR 3254 (January 22, 1997). *Approval and Promulgation of Air Quality Implementation Plans; Pennsylvania; Conditional Approval of 15 Percent Reasonable-Further-Progress Plan and 1990 VOC Emission Inventory for the Pittsburgh Ozone Nonattainment Area.* Proposed Rule. (No action on contingency measures.)

63 FR 2147 (January 14, 1998). *Approval and Promulgation of Air Quality Implementation Plans; Pennsylvania; 15 Percent Reasonable-Further-Progress Plan and 1990 VOC Emission Inventory for the Pittsburgh-Beaver Valley Area.* Final rule. (No action on contingency measures.)

**Philadelphia**

62 FR 11131 (March 11, 1997). *Approval and Promulgation of Air Quality Implementation Plans; Pennsylvania; 15 Percent Rate of Progress Plan and 1990 VOC*

*Emission Inventory for the Philadelphia Area.* Proposed Rule. (No action on contingency measures.)

62 FR 31343 (June 9, 1997). *Approval and Promulgation of Air Quality Implementation Plans; Pennsylvania; 15 Percent Rate of Progress Plan and 1990 VOC Emission Inventory for the Philadelphia Area.* Final Rule. (No action on contingency measures.)

62 FR 30818 (June 5, 1997). *Approval and Promulgation of Air Quality Implementation Plans; Maryland; 15 Percent Rate of Progress Plan and Contingency Measures for the Cecil County Nonattainment Area.* Proposed rule.

62 FR 40457 (July 29, 1997). *Approval and Promulgation of Air Quality Implementation Plans; Maryland; 15 % Rate of Progress Plan and Contingency Measures for the Cecil County Nonattainment Area.* Final rule.

**Baltimore**

62 FR 42079 (August 5, 1997). *Approval and Promulgation of Air Quality Implementation Plans; Maryland; 15% Rate of Progress Plan for the Baltimore Ozone Nonattainment Area.* Proposed rule. (No action on contingency measures.)

62 FR 52662 (October 9, 1997). *Approval and Promulgation of Air Quality Implementation Plans; Maryland; 15% Rate of Progress Plan for the Baltimore Ozone Nonattainment Area.* Final rule. (No action on contingency measures.)

**Washington, D.C. area**

Northern Virginia

62 FR 11395 (March 12, 1997). *Approval and Promulgation of Air Quality Implementation Plans; Virginia; 15% Rate of Progress Plan for the Metropolitan Washington D.C. Area.* Proposed rule. (No action on contingency measures.)

62 FR 33999 (June 24, 1997). *Approval and Promulgation of Air Quality Implementation Plans; Virginia; 15% Rate of Progress Plan for the Northern Virginia Portion of the Metropolitan Washington D.C. Area.* Final rule. (No action on contingency measures.)

Maryland

62 FR 30821 (June 5, 1997). *Approval and Promulgation of Air Quality Implementation Plans; Maryland; 15% Plan for Metropolitan Washington, D.C. Area.* Proposed rule. (No action on contingency measures.)

62 FR 49611 (September 24, 1997). *Approval and Promulgation of Air Quality Implementation Plans; Maryland; 15% Rate of Progress Plan for the Maryland Portion*

*of the Metropolitan Washington D.C. Area.* Final rule. (No action on contingency measures.)

District of Columbia

63 FR 36578 (July 7, 1998). *Approval and Promulgation of Air Quality Implementation Plans; District of Columbia; 15 Percent Plan for the Metropolitan Washington D.C. Ozone Nonattainment Area.* Direct final rule. (No action on contingency measures.)

## Region IV

### Atlanta

62 FR 48927 (September 30, 1997). *Approval and Promulgation of Implementation Plans; Georgia; Approval of Revisions to the Georgia State Implementation Plan.* Proposed conditional interim approval. (No action on contingency measures.)

## Region V

### Chicago

62 FR 15844 (April 3, 1997). *Approval and Promulgation of State Implementation Plans; Indiana.* Direct final rule. (Lake and Porter Counties portion of the Chicago N/A) (15% Plan and Contingency Plan treated as separate requirements.)

62 FR 38457 (July 18, 1997). *Approval and Promulgation of State Implementation Plans; Indiana.* Final rule. (Lake and Porter Counties portion of the Chicago N/A) (15% Plan and Contingency Plan treated as separate requirements.)

62 FR 37494 (July 14, 1997). *Approval and Promulgation of State Implementation Plans; Illinois.* Direct final rule. (Chicago & East St. Louis) (15% Plan and Contingency Plan treated as separate requirements.)

62 FR 66279 (December 18, 1997). Approval and Promulgation of State Implementation Plans; Illinois. Final rule. (Chicago & East St. Louis) (15% Plan and Contingency Plan treated as separate requirements.)

### Cincinnati

64 FR 4188 (January 28, 1999). *Approval and Promulgation of State Implementation Plans; Ohio.* Direct final rule. (No action on contingency measures.)

### Louisville (Kentucky/Indiana)

62 FR 24815 (May 7, 1997). *Approval and Promulgation of State Implementation Plans; IN*. Direct final rule. (Clark & Floyd Counties) (No action on contingency measures.)

## Region VI

**Dallas/Fort Worth**

61 FR 2751 (January 29, 1996). *Clean Air Act Limited Approval and Limited Disapproval of 15 Percent Rate of Progress and Contingency Plans for Texas.* Final rule.(15% Plan and Contingency Plan treated as separate requirements.)

62 FR 37175 (July 11, 1997). *Approval and Promulgation of Air Quality State Implementation Plans; Texas: 1990 Base Year Emissions Inventories, 15 Percent Rate of Progress Plans and Contingency Plans*; Proposed conditional interim. (15% Plan and Contingency Plan treated as separate requirements.)

63 FR 62943 (November 10, 1998). *Approval and Promulgation of Implementation Plans (SIP); Texas: 1990 Base Year Emissions Inventories, 15 Percent Rate of Progress Plans, Contingency Plans, and Motor Vehicle Emission Budgets*. Conditional interim final. (15% Plan and Contingency Plan treated as separate requirements.)

.

**Houston**

61 FR 2751 (January 29, 1996). *Clean Air Act Limited Approval and Limited Disapproval of 15 Percent Rate of Progress and Contingency Plans for Texas.* Final rule.(15% Plan and Contingency Plan treated as separate requirements.)

62 FR 37175 (July 11, 1997). *Approval and Promulgation of Air Quality State Implementation Plans; Texas: 1990 Base Year Emissions Inventories, 15 Percent Rate of Progress Plans and Contingency Plans*; Proposed conditional interim. (15% Plan and Contingency Plan treated as separate requirements.)

63 FR 62943 (November 10, 1998). *Approval and Promulgation of Implementation Plans (SIP); Texas: 1990 Base Year Emissions Inventories, 15 Percent Rate of Progress Plans, Contingency Plans, and Motor Vehicle Emission Budgets*. Conditional interim final. (15% Plan and Contingency Plan treated as separate requirements.)

**El Paso**

61 FR 2751 (January 29, 1996). *Clean Air Act Limited Approval and Limited Disapproval of 15 Percent Rate of Progress and Contingency Plans for Texas.* Final rule.(15% Plan and Contingency Plan treated as separate requirements.)

62 FR 37175 (July 11, 1997). *Approval and Promulgation of Air Quality State Implementation Plans; Texas: 1990 Base Year Emissions Inventories, 15 Percent Rate of Progress Plans and Contingency Plans*; Proposed conditional interim. (15% Plan and Contingency Plan treated as separate requirements.)

63 FR 62943 (November 10, 1998). *Approval and Promulgation of Implementation Plans (SIP); Texas: 1990 Base Year Emissions Inventories, 15 Percent Rate of Progress Plans, Contingency Plans, and Motor Vehicle Emission Budgets*. Conditional interim final. (15% Plan and Contingency Plan treated as separate requirements.)

**Beaumont/Port Arther**

63 FR 6659 (February 10, 1998). *Approval and Promulgation of Air Quality State Implementation Plans; Texas: 15% Rate of Progress Plan, 1990 Emissions Inventory, Motor Vehicle Emission Budget, and Contingency Plan for the Beaumont/Port Arthur Ozone Nonattainment Area*. Direct final rule.

## Region IX

**California**

61 FR 10920 (March 18, 1996). *Approval and Promulgation of Air Quality State Implementation Plans; California (Santa Barbara);* Proposed rule. (No action on contingency measures.)

62 FR 1150 (January 8, 1997). *Approval and Promulgation of Air Quality State Implementation Plans; California;* Final rule. (No action on contingency measures.)

62 FR 1187 (January 8, 1997). *Approval and Promulgation of Air Quality State Implementation Plans; California (Santa Barbara);* Final rule.

# Appendix C

# MOBILE5a (3/29/97) Input

Input 1996 15% ROP Controlled - I/M Program

```
1
96RFG 1996 RFG I/M MOBILE5a O3 7/28/98
1          TAMFLG    tampering effects rates: 1 is nat
1          SPDFLG    speed by veh type: 1 is one for all
1          VMFLAG    VMT by veh type: 1 is nat default
3          MYMFLG    reg dist local but mi accum national
1          NEWFLG    basic emission rates: 1 is national
3          IMFLAG    I/M program: 3 is two programs
1          ALHFLG    corr. factors: 1 is no corrections
5          ATPFLG    anti-tampering program: 5 is ATP, pressure
5          RLFFLG    refueling losses: 5
1          LOCFLG    local area param.: 1
2          TEMFLG    temp flag: 2 is local
6          OUTFMT    format of output: 3 is 112 col
4          PRTFLG    pollutants: 4 is all
1          IDLFLG    idle emissions: 1 is no
3          NMHFLG    hydrocarbons: 3 is VOC
1          HCFLAG    HC by component: composite
.071 .070 .078 .077 .079 .080 .077 .067 .045 .038
.037 .036 .044 .039 .032 .021 .012 .014 .014 .011
.008 .007 .006 .005 .032
.048 .058 .069 .068 .070 .104 .077 .061 .037 .033
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Input 1996 15% ROP Controlled - No I/M Program

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1
96RFGno 1996 RFG no I/M MOBILE5a O3 7/28/98
1          TAMFLG    tampering effects rates: 1 is nat
1          SPDFLG    speed by veh type: 1 is one for all
1          VMFLAG    VMT by veh type: 1 is nat default
3          MYMFLG    reg dist local but mi accum national
1          NEWFLG    basic emission rates: 1 is national
1          IMFLAG    I/M program: 1 is no
1          ALHFLG    corr. factors: 1 is no corrections
1          ATPFLG    anti-tampering program: 1 is no
5          RLFFLG    refueling losses: 5 is no refueling
1          LOCFLG    local area param.: 1scenario
2          TEMFLG    temp flag: 2 is local
6          OUTFMT    format of output: 3 is 112 col
4          PRTFLG    pollutants: 4 is all
1          IDLFLG    idle emissions: 1 is no
3          NMHFLG    hydrocarbons: 3 is VOC
1          HCFLAG    HC by component: 1 is composite only
.071 .070 .078 .077 .079 .080 .077 .067 .045 .038
.037 .036 .044 .039 .032 .021 .012 .014 .014 .011
.008 .007 .006 .005 .032
.048 .058 .069 .068 .070 .104 .077 .061 .037 .033
.031 .028 .039 .037 .032 .023 .013 .019 .021 .019
.013 .013 .012 .009 .066
.082 .077 .092 .081 .067 .078 .070 .055 .032 .026
.026 .023 .042 .042 .038 .026 .017 .021 .022 .017
.011 .010 .010 .006 .029
.028 .045 .073 .062 .048 .072 .077 .058 .030 .030
.031 .040 .070 .047 .035 .025 .030 .030 .031 .028
.015 .019 .015 .009 .052
.071 .070 .078 .077 .079 .080 .077 .067 .045 .038
.037 .036 .044 .039 .032 .021 .012 .014 .014 .011
.008 .007 .006 .005 .032
.048 .058 .069 .068 .070 .104 .077 .061 .037 .033
.031 .028 .039 .037 .032 .023 .013 .019 .021 .019
.013 .013 .012 .009 .066
.047 .083 .076 .083 .082 .099 .087 .074 .031 .036
.040 .041 .054 .036 .024 .013 .013 .018 .017 .012
.008 .006 .005 .002 .013
.030 .036 .047 .049 .069 .097 .088 .063 .073 .105
.076 .267 .000 .000 .000 .000 .000 .000 .000 .000
.000 .000 .000 .000 .000
```

1 96 20.0 98.8 20.6 27.3 20.6  7
Phoenix, AZ      A 80. 104.  7.00 7.00 20 1 2 2
.001.045.001.045.001.045.001.045.001.045.001.045.001.049.000.024.001.032.000.024
.000.023.000.017.002.021.002.033.007.050.010.071.018.108.037.104.028.052.021.028
.014.016.007.006.004.003.009.002.006.004
1 96 25.0 98.8 20.6 27.3 20.6  7
Phoenix, AZ      A 80. 104.  7.00 7.00 20 1 2 2
.001.045.001.045.001.045.001.045.001.045.001.045.001.049.000.024.001.032.000.024
.000.023.000.017.002.021.002.033.007.050.010.071.018.108.037.104.028.052.021.028
.014.016.007.006.004.003.009.002.006.004
1 96 30.0 98.8 20.6 27.3 20.6  7
Phoenix, AZ      A 80. 104.  7.00 7.00 20 1 2 2
.001.045.001.045.001.045.001.045.001.045.001.045.001.049.000.024.001.032.000.024
.000.023.000.017.002.021.002.033.007.050.010.071.018.108.037.104.028.052.021.028
.014.016.007.006.004.003.009.002.006.004
1 96 30.3 98.8 20.6 27.3 20.6  7
Phoenix, AZ      A 80. 104.  7.00 7.00 20 1 2 2
.001.045.001.045.001.045.001.045.001.045.001.045.001.049.000.024.001.032.000.024
.000.023.000.017.002.021.002.033.007.050.010.071.018.108.037.104.028.052.021.028
.014.016.007.006.004.003.009.002.006.004
1 96 36.7 98.8 20.6 27.3 20.6  7
Phoenix, AZ      A 80. 104.  7.00 7.00 20 1 2 2
.001.045.001.045.001.045.001.049.000.024.001.032.000.024.000.023.000.017.002.021
.002.033.007.050.010.071.018.108.037.104.028.052.021.028.014.016.007.006.004.003
.009.002.012.009.005.008.005.006.005.002
1 96 55.7 98.8 20.6 27.3 20.6  7
Phoenix, AZ      A 80. 104.  7.00 7.00 20 1 2 2
.001.045.001.045.001.045.001.045.001.045.001.045.001.049.000.024.001.032.000.024
.000.023.000.017.002.021.002.033.007.050.010.071.018.108.037.104.028.052.021.028
.014.016.007.006.004.003.009.002.006.004
1 96 59.3 98.8 20.6 27.3 20.6  7
Phoenix, AZ      A 80. 104.  7.00 7.00 20 1 2 2
.001.045.001.045.001.045.001.045.001.045.001.045.001.049.000.024.001.032.000.024
.000.023.000.017.002.021.002.033.007.050.010.071.018.108.037.104.028.052.021.028
.014.016.007.006.004.003.009.002.006.004

## Output 1996 15% ROP Controlled - I/M Program

```
96RFG 1996 RFG I/M MOBILE5a O3 7/28/98
MOBILE5a (26-Mar-93)

M109 Warning:
             The user supplied inspection frequencies are not equal.
              ATP inspection frequency:                Annual
              I/M program #1 inspection frequency:     Annual
              I/M program #2 inspection frequency:     Biennial
              Pressure Check inspection frequency:     Biennial
              Purge Check inspection frequency:        NA
I/M program #1 selected:                          I/M program #2 selected:
Start year (Jan 1):  1977                         Start year (Jan 1):  1977
Pre-1981 stringency: 28%                          Pre-1981 stringency: 28%
First MYR covered:   1967                         First MYR covered:   1981
Last MYR covered:    2020                         Last MYR covered:    2020
Waiver (pre-1981):    4.%                         Waiver (pre-1981):    4.%
Waiver (1981+):       3.%                         Waiver (1981+):       3.%
Compliance Rate:     97.%                         Compliance Rate:     97.%
Inspection type:                                  Inspection type:
Test Only                                         Test Only
Inspection frequency: Annual                      Inspection frequency: Biennial
I/M program #1 vehicle types                      I/M program #2 vehicle types
     LDGV - Yes                                        LDGV - Yes
    LDGT1 - Yes                                       LDGT1 - Yes
    LDGT2 - Yes                                       LDGT2 - Yes
     HDGV - Yes                                        HDGV - No
1981 & later MYR test type:                       1981 & later MYR test type:
     Loaded / Idle                                     IM240 test
Cutpoints, HC:   220.000                          Cutpoints, HC:     2.000
Cutpoints, CO:     1.200                          Cutpoints, CO:    30.000
Cutpoints, NOx:  999.000                          Cutpoints, NOx:    3.000
Functional Check Program Description:
Check Start   Model Yrs  Vehicle Classes Covered        Inspection        Comp
      (Jan1)  Covered    LDGV   LDGT1  LDGT2  HDGV    Type      Freq      Rate
Press 1995    1981-2020  Yes    Yes    Yes    No  Test Only     Biennial  97.0%
ATP   1987    1974-1980  Yes    Yes    Yes    Yes Test Only     Annual    97.0%
```

Air pump system disablements: Yes Catalyst removals: Yes
Fuel inlet restrictor disablements: No Tailpipe lead deposit test: No
EGR disablement: No Evaporative system disablements: Yes
PCV system disablements: Yes Missing gas caps: Yes
Replacement Diesel Sales Fractions Input by User:

| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 |
|---|---|---|---|---|---|---|---|---|---|---|
| LDDV: | 0.006 | 0.009 | 0.004 | 0.007 | 0.014 | 0.021 | 0.028 | 0.037 | 0.018 | 0.010 |
| LDDT: | 0.004 | 0.002 | 0.003 | 0.006 | 0.016 | 0.028 | 0.052 | 0.104 | 0.108 | 0.071 |

| | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|---|---|---|---|---|---|---|---|---|---|---|
| LDDV: | 0.007 | 0.002 | 0.002 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.001 |
| LDDT: | 0.050 | 0.033 | 0.021 | 0.017 | 0.023 | 0.024 | 0.032 | 0.024 | 0.049 | 0.045 |

| | 1992 | 1993 | 1994 | 1995 | 1996 |
|---|---|---|---|---|---|
| LDDV: | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| LDDT: | 0.045 | 0.045 | 0.045 | 0.045 | 0.045 |

VOC HC emission factors include evaporative HC emission factors.

---

Emission factors are as of July 1st of the indicated calendar year.
User supplied veh registration distributions.
Cal. Year: 1996 I/M Program: Yes Ambient Temp: 98.8 / 98.8 / 98.8 (F) Region: Low
Anti-tam. Program: Yes Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: Yes ASTM Class: A
Phoenix, AZ Minimum Temp: 80. (F) Maximum Temp: 104. (F)
Period 1 RVP: 7.0 Period 2 RVP: 7.0 Period 2 Start Yr: 2020

| Veh. Type: | LDGV | LDGT1 | LDGT2 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| Veh. Speeds: | 20.0 | 20.0 | 20.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| VMT Mix: | 0.623 | 0.171 | 0.088 | | 0.036 | 0.001 | 0.008 | 0.068 | 0.005 | |
| Composite Emission Factors (Gm/Mile) | | | | | | | | | | |
| VOC HC: | 1.82 | 2.52 | 2.87 | 2.64 | 5.97 | 0.96 | 0.81 | 2.29 | 8.34 | 2.238 |
| Exhaust CO: | 13.06 | 17.86 | 18.75 | 18.16 | 60.51 | 1.95 | 1.69 | 11.37 | 28.20 | 15.921 |
| Exhaust NOX: | 1.38 | 1.67 | 1.80 | 1.71 | 4.75 | 1.59 | 1.39 | 11.72 | 0.72 | 2.292 |

---

Emission factors are as of July 1st of the indicated calendar year.
User supplied veh registration distributions.
Cal. Year: 1996 I/M Program: Yes Ambient Temp: 98.8 / 98.8 / 98.8 (F) Region: Low
Anti-tam. Program: Yes Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.

Reformulated Gas: Yes ASTM Class: A
Phoenix, AZ Minimum Temp: 80. (F) Maximum Temp: 104. (F)
Period 1 RVP: 7.0 Period 2 RVP: 7.0 Period 2 Start Yr: 2020

| Veh. Type: | LDGV | LDGT1 | LDGT2 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| Veh. Speeds: | 25.0 | 25.0 | 25.0 | | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | |
| VMT Mix: | 0.623 | 0.171 | 0.088 | | 0.036 | 0.001 | 0.008 | 0.068 | 0.005 | |
| Composite Emission Factors (Gm/Mile) | | | | | | | | | | |
| VOC HC: | 1.58 | 2.19 | 2.47 | 2.29 | 5.06 | 0.81 | 0.68 | 1.92 | 7.99 | 1.933 |
| Exhaust CO: | 10.59 | 14.71 | 15.47 | 14.96 | 47.48 | 1.54 | 1.34 | 8.99 | 22.49 | 12.901 |
| Exhaust NOX: | 1.42 | 1.72 | 1.85 | 1.76 | 4.96 | 1.47 | 1.28 | 10.82 | 0.79 | 2.274 |

---

Emission factors are as of July 1st of the indicated calendar year.
User supplied veh registration distributions.
Cal. Year: 1996 I/M Program: Yes Ambient Temp: 98.8 / 98.8 / 98.8 (F) Region: Low
Anti-tam. Program: Yes Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: Yes ASTM Class: A
Phoenix, AZ Minimum Temp: 80. (F) Maximum Temp: 104. (F)
Period 1 RVP: 7.0 Period 2 RVP: 7.0 Period 2 Start Yr: 2020

| Veh. Type: | LDGV | LDGT1 | LDGT2 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| Veh. Speeds: | 30.0 | 30.0 | 30.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| VMT Mix: | 0.623 | 0.171 | 0.088 | | 0.036 | 0.001 | 0.008 | 0.068 | 0.005 | |
| Composite Emission Factors (Gm/Mile) | | | | | | | | | | |
| VOC HC: | 1.40 | 1.95 | 2.20 | 2.03 | 4.46 | 0.69 | 0.58 | 1.65 | 7.72 | 1.718 |
| Exhaust CO: | 8.92 | 12.47 | 13.23 | 12.73 | 39.36 | 1.28 | 1.11 | 7.43 | 18.35 | 10.860 |
| Exhaust NOX: | 1.45 | 1.75 | 1.89 | 1.80 | 5.17 | 1.40 | 1.23 | 10.34 | 0.86 | 2.276 |

---

Emission factors are as of July 1st of the indicated calendar year.
User supplied veh registration distributions.
Cal. Year: 1996 I/M Program: Yes Ambient Temp: 98.8 / 98.8 / 98.8 (F) Region: Low
Anti-tam. Program: Yes Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: Yes ASTM Class: A
Phoenix, AZ Minimum Temp: 80. (F) Maximum Temp: 104. (F)
Period 1 RVP: 7.0 Period 2 RVP: 7.0 Period 2 Start Yr: 2020

| Veh. Type: | LDGV | LDGT1 | LDGT2 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| Veh. Speeds: | 30.3 | 30.3 | 30.3 | | 30.3 | 30.3 | 30.3 | 30.3 | 30.3 | |
| VMT Mix: | 0.623 | 0.171 | 0.088 | | 0.036 | 0.001 | 0.008 | 0.068 | 0.005 | |

Composite Emission Factors (Gm/Mile)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| VOC | HC: | 1.40 | 1.94 | 2.18 | 2.02 | 4.43 | 0.69 | 0.58 | 1.64 | 7.71 | 1.707 |
| Exhaust | CO: | 8.84 | 12.35 | 13.12 | 12.61 | 38.99 | 1.26 | 1.10 | 7.36 | 18.14 | 10.760 |
| Exhaust | NOX: | 1.45 | 1.76 | 1.89 | 1.80 | 5.19 | 1.40 | 1.23 | 10.33 | 0.86 | 2.277 |

---

Emission factors are as of July 1st of the indicated calendar year.
User supplied veh registration distributions.
Cal. Year: 1996 I/M Program: Yes Ambient Temp: 98.8 / 98.8 / 98.8 (F) Region: Low
Anti-tam. Program: Yes Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: Yes ASTM Class: A
Phoenix, AZ Minimum Temp: 80. (F) Maximum Temp: 104. (F)
Period 1 RVP: 7.0 Period 2 RVP: 7.0 Period 2 Start Yr: 2020

| Veh. Type: | LDGV | LDGT1 | LDGT2 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| Veh. Speeds: | 36.7 | 36.7 | 36.7 | | 36.7 | 36.7 | 36.7 | 36.7 | 36.7 | |
| VMT Mix: | 0.622 | 0.171 | 0.088 | | 0.036 | 0.002 | 0.008 | 0.068 | 0.005 | |

Composite Emission Factors (Gm/Mile)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| VOC | HC: | 1.24 | 1.72 | 1.94 | 1.79 | 3.95 | 0.48 | 0.47 | 1.39 | 7.46 | 1.514 |
| Exhaust | CO: | 7.37 | 10.40 | 11.19 | 10.67 | 33.38 | 0.96 | 0.89 | 6.19 | 14.47 | 9.047 |
| Exhaust | NOX: | 1.47 | 1.79 | 1.92 | 1.83 | 5.45 | 1.40 | 1.22 | 10.30 | 0.92 | 2.307 |

---

Emission factors are as of July 1st of the indicated calendar year.
User supplied veh registration distributions.
Cal. Year: 1996 I/M Program: Yes Ambient Temp: 98.8 / 98.8 / 98.8 (F) Region: Low
Anti-tam. Program: Yes Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: Yes ASTM Class: A
Phoenix, AZ Minimum Temp: 80. (F) Maximum Temp: 104. (F)
Period 1 RVP: 7.0 Period 2 RVP: 7.0 Period 2 Start Yr: 2020

| Veh. Type: | LDGV | LDGT1 | LDGT2 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| Veh. Speeds: | 55.7 | 55.7 | 55.7 | | 55.7 | 55.7 | 55.7 | 55.7 | 55.7 | |
| VMT Mix: | 0.623 | 0.171 | 0.088 | | 0.036 | 0.001 | 0.008 | 0.068 | 0.005 | |

Composite Emission Factors (Gm/Mile)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| VOC | HC: | 1.06 | 1.48 | 1.65 | 1.54 | 3.37 | 0.44 | 0.37 | 1.06 | 7.33 | 1.291 |
| Exhaust | CO: | 6.48 | 9.63 | 10.36 | 9.88 | 35.77 | 0.99 | 0.86 | 5.75 | 13.17 | 8.330 |
| Exhaust | NOX: | 1.93 | 2.38 | 2.59 | 2.45 | 6.25 | 1.95 | 1.71 | 14.39 | 1.24 | 3.067 |

---

Emission factors are as of July 1st of the indicated calendar year.
User supplied veh registration distributions.

Cal. Year: 1996 I/M Program: Yes Ambient Temp: 98.8 / 98.8 / 98.8 (F) Region: Low
Anti-tam. Program: Yes Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: Yes ASTM Class: A
Phoenix, AZ Minimum Temp: 80. (F) Maximum Temp: 104. (F)
Period 1 RVP: 7.0 Period 2 RVP: 7.0 Period 2 Start Yr: 2020

| Veh. Type: | LDGV | LDGT1 | LDGT2 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| Veh. Speeds: | 59.3 | 59.3 | 59.3 | | 59.3 | 59.3 | 59.3 | 59.3 | 59.3 | |
| VMT Mix: | 0.623 | 0.171 | 0.088 | | 0.036 | 0.001 | 0.008 | 0.068 | 0.005 | |
| Composite Emission Factors (Gm/Mile) | | | | | | | | | | |
| VOC HC: | 1.15 | 1.63 | 1.85 | 1.71 | 3.34 | 0.44 | 0.37 | 1.04 | 7.69 | 1.392 |
| Exhaust CO: | 9.66 | 15.05 | 16.39 | 15.50 | 39.63 | 1.05 | 0.91 | 6.10 | 22.94 | 11.977 |
| Exhaust NOX: | 2.13 | 2.64 | 2.88 | 2.72 | 6.40 | 2.21 | 1.93 | 16.24 | 1.36 | 3.394 |

## Output 1996 15% ROP Controlled - No I/M Program

```
96RFGno 1996 RFG no I/M MOBILE5a O3 7/28/98
MOBILE5a (26-Mar-93)
Replacement Diesel Sales Fractions Input by User:
         1972   1973   1974   1975   1976   1977   1978   1979   1980   1981
        _____  _____  _____  _____  _____  _____  _____  _____  _____  _____
LDDV:    0.006  0.009  0.004  0.007  0.014  0.021  0.028  0.037  0.018  0.010
LDDT:    0.004  0.002  0.003  0.006  0.016  0.028  0.052  0.104  0.108  0.071
         1982   1983   1984   1985   1986   1987   1988   1989   1990   1991
         _____  _____  _____  _____  _____  _____  _____  _____  _____  _____
LDDV:    0.007  0.002  0.002  0.000  0.000  0.000  0.001  0.000  0.001  0.001
LDDT:    0.050  0.033  0.021  0.017  0.023  0.024  0.032  0.024  0.049  0.045
        1992   1993   1994   1995   1996
         _____  _____  _____  _____  _____
LDDV:    0.001  0.001  0.001  0.001  0.001
LDDT:    0.045  0.045  0.045  0.045  0.045
VOC HC emission factors include evaporative HC emission factors.
```

---

```
Emission factors are as of July 1st of the indicated calendar year.
User supplied veh registration distributions.
Cal. Year: 1996        I/M Program: No        Ambient Temp: 98.8 / 98.8 / 98.8 (F) Region: Low
                Anti-tam. Program: No      Operating Mode: 20.6 / 27.3 / 20.6   Altitude:  500. Ft.
                 Reformulated Gas: Yes         ASTM Class: A
Phoenix, AZ                                  Minimum Temp:  80. (F)         Maximum Temp: 104. (F)
                    Period 1 RVP:  7.0      Period 2 RVP:  7.0        Period 2 Start Yr: 2020
  Veh. Type:      LDGV     LDGT1     LDGT2      LDGT      HDGV      LDDV      LDDT      HDDV      MC      All Veh
                 ______   ______    ______    ______    ______    ______    ______    ______    ______   ______
Veh. Speeds:      20.0      20.0      20.0                20.0      20.0      20.0      20.0      20.0
    VMT Mix:      0.623     0.171     0.088               0.036     0.001     0.008     0.068     0.005
Composite Emission Factors (Gm/Mile)
VOC      HC:      2.37      3.25      3.60      3.37      6.37      0.96      0.81      2.29      8.34     2.778
Exhaust  CO:     19.53     27.24     28.84     27.78     70.53      1.95      1.69     11.37     28.20    22.792
xhaust NOX:       1.59      1.88      2.02      1.93      4.81      1.59      1.39     11.72      0.72     2.480
```

---

```
Emission factors are as of July 1st of the indicated calendar year.
ser supplied veh registration distributions.
Cal. Year: 1996        I/M Program: No        Ambient Temp: 98.8 / 98.8 / 98.8 (F) Region: Low
```

Anti-tam. Program: No  Operating Mode: 20.6 / 27.3 / 20.6  Altitude: 500. Ft.
Reformulated Gas: Yes  ASTM Class: A
Phoenix, AZ  Minimum Temp: 80. (F)  Maximum Temp: 104. (F)
Period 1 RVP: 7.0  Period 2 RVP: 7.0  Period 2 Start Yr: 2020

| Veh. Type: | LDGV | LDGT1 | LDGT2 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| Veh. Speeds: | 25.0 | 25.0 | 25.0 | | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | |
| VMT Mix: | 0.623 | 0.171 | 0.088 | | 0.036 | 0.001 | 0.008 | 0.068 | 0.005 | |
| Composite Emission Factors (Gm/Mile) | | | | | | | | | | |
| VOC HC: | 2.03 | 2.80 | 3.09 | 2.90 | 5.36 | 0.81 | 0.68 | 1.92 | 7.99 | 2.385 |
| Exhaust CO: | 15.92 | 22.52 | 23.85 | 22.97 | 55.34 | 1.54 | 1.34 | 8.99 | 22.49 | 18.567 |
| Exhaust NOX: | 1.64 | 1.94 | 2.08 | 1.99 | 5.02 | 1.47 | 1.28 | 10.82 | 0.79 | 2.468 |

---

Emission factors are as of July 1st of the indicated calendar year.
User supplied veh registration distributions.
Cal. Year: 1996  I/M Program: No  Ambient Temp: 98.8 / 98.8 / 98.8 (F) Region: Low
Anti-tam. Program: No  Operating Mode: 20.6 / 27.3 / 20.6  Altitude: 500. Ft.
Reformulated Gas: Yes  ASTM Class: A
Phoenix, AZ  Minimum Temp: 80. (F)  Maximum Temp: 104. (F)
Period 1 RVP: 7.0  Period 2 RVP: 7.0  Period 2 Start Yr: 2020

| Veh. Type: | LDGV | LDGT1 | LDGT2 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| Veh. Speeds: | 30.0 | 30.0 | 30.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| VMT Mix: | 0.623 | 0.171 | 0.088 | | 0.036 | 0.001 | 0.008 | 0.068 | 0.005 | |
| Composite Emission Factors (Gm/Mile) | | | | | | | | | | |
| VOC HC: | 1.80 | 2.48 | 2.74 | 2.57 | 4.70 | 0.69 | 0.58 | 1.65 | 7.72 | 2.109 |
| Exhaust CO: | 13.45 | 19.11 | 20.42 | 19.55 | 45.88 | 1.28 | 1.11 | 7.43 | 18.35 | 15.678 |
| Exhaust NOX: | 1.67 | 1.99 | 2.12 | 2.03 | 5.23 | 1.40 | 1.23 | 10.34 | 0.86 | 2.475 |

---

Emission factors are as of July 1st of the indicated calendar year.
User supplied veh registration distributions.
Cal. Year: 1996  I/M Program: No  Ambient Temp: 98.8 / 98.8 / 98.8 (F) Region: Low
Anti-tam. Program: No  Operating Mode: 20.6 / 27.3 / 20.6  Altitude: 500. Ft.
Reformulated Gas: Yes  ASTM Class: A
Phoenix, AZ  Minimum Temp: 80. (F)  Maximum Temp: 104. (F)
Period 1 RVP: 7.0  Period 2 RVP: 7.0  Period 2 Start Yr: 2020

| Veh. Type: | LDGV | LDGT1 | LDGT2 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| Veh. Speeds: | 30.3 | 30.3 | 30.3 | | 30.3 | 30.3 | 30.3 | 30.3 | 30.3 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| VMT Mix: | 0.623 | 0.171 | 0.088 | | 0.036 | 0.001 | 0.008 | 0.068 | 0.005 | |
| Composite Emission Factors (Gm/Mile) | | | | | | | | | | |
| VOC HC: | 1.79 | 2.46 | 2.72 | 2.55 | 4.66 | 0.69 | 0.58 | 1.64 | 7.71 | 2.095 |
| Exhaust CO: | 13.33 | 18.93 | 20.25 | 19.38 | 45.45 | 1.26 | 1.10 | 7.36 | 18.14 | 15.535 |
| Exhaust NOX: | 1.67 | 1.99 | 2.12 | 2.03 | 5.25 | 1.40 | 1.23 | 10.33 | 0.86 | 2.476 |

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Emission factors are as of July 1st of the indicated calendar year.
User supplied veh registration distributions.
Cal. Year: 1996 I/M Program: No Ambient Temp: 98.8 / 98.8 / 98.8 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: Yes ASTM Class: A
Phoenix, AZ Minimum Temp: 80. (F) Maximum Temp: 104. (F)
Period 1 RVP: 7.0 Period 2 RVP: 7.0 Period 2 Start Yr: 2020

| Veh. Type: | LDGV | LDGT1 | LDGT2 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| Veh. Speeds: | 36.7 | 36.7 | 36.7 | | 36.7 | 36.7 | 36.7 | 36.7 | 36.7 | |
| VMT Mix: | 0.622 | 0.171 | 0.088 | | 0.036 | 0.002 | 0.008 | 0.068 | 0.005 | |
| Composite Emission Factors (Gm/Mile) | | | | | | | | | | |
| VOC HC: | 1.58 | 2.18 | 2.41 | 2.26 | 4.13 | 0.48 | 0.47 | 1.39 | 7.46 | 1.851 |
| Exhaust CO: | 11.18 | 16.00 | 17.37 | 16.46 | 38.90 | 0.96 | 0.89 | 6.19 | 14.47 | 13.110 |
| Exhaust NOX: | 1.70 | 2.02 | 2.15 | 2.06 | 5.52 | 1.40 | 1.22 | 10.30 | 0.92 | 2.508 |

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Emission factors are as of July 1st of the indicated calendar year.
User supplied veh registration distributions.
Cal. Year: 1996 I/M Program: No Ambient Temp: 98.8 / 98.8 / 98.8 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: Yes ASTM Class: A
Phoenix, AZ Minimum Temp: 80. (F) Maximum Temp: 104. (F)
Period 1 RVP: 7.0 Period 2 RVP: 7.0 Period 2 Start Yr: 2020

| Veh. Type: | LDGV | LDGT1 | LDGT2 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| Veh. Speeds: | 55.7 | 55.7 | 55.7 | | 55.7 | 55.7 | 55.7 | 55.7 | 55.7 | |
| VMT Mix: | 0.623 | 0.171 | 0.088 | | 0.036 | 0.001 | 0.008 | 0.068 | 0.005 | |
| Composite Emission Factors (Gm/Mile) | | | | | | | | | | |
| VOC HC: | 1.34 | 1.87 | 2.06 | 1.94 | 3.49 | 0.44 | 0.37 | 1.06 | 7.33 | 1.575 |
| Exhaust CO: | 9.99 | 15.09 | 16.23 | 15.47 | 41.69 | 0.99 | 0.86 | 5.75 | 13.17 | 12.174 |
| Exhaust NOX: | 2.23 | 2.71 | 2.92 | 2.78 | 6.32 | 1.95 | 1.71 | 14.39 | 1.24 | 3.339 |

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Emission factors are as of July 1st of the indicated calendar year.

User supplied veh registration distributions.
Cal. Year: 1996 I/M Program: No Ambient Temp: 98.8 / 98.8 / 98.8 (F) Region: Low
Anti-tam. Program: No Operating Mode: 20.6 / 27.3 / 20.6 Altitude: 500. Ft.
Reformulated Gas: Yes ASTM Class: A
Phoenix, AZ Minimum Temp: 80. (F) Maximum Temp: 104. (F)
Period 1 RVP: 7.0 Period 2 RVP: 7.0 Period 2 Start Yr: 2020

| Veh. Type: | LDGV | LDGT1 | LDGT2 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| Veh. Speeds: | 59.3 | 59.3 | 59.3 | | 59.3 | 59.3 | 59.3 | 59.3 | 59.3 | |
| VMT Mix: | 0.623 | 0.171 | 0.088 | | 0.036 | 0.001 | 0.008 | 0.068 | 0.005 | |
| Composite Emission Factors (Gm/Mile) | | | | | | | | | | |
| VOC HC: | 1.47 | 2.10 | 2.33 | 2.18 | 3.47 | 0.44 | 0.37 | 1.04 | 7.69 | 1.719 |
| Exhaust CO: | 15.16 | 24.16 | 26.25 | 24.87 | 46.19 | 1.05 | 0.91 | 6.10 | 22.94 | 18.059 |
| Exhaust NOX: | 2.46 | 3.00 | 3.25 | 3.08 | 6.48 | 2.21 | 1.93 | 16.24 | 1.36 | 3.696 |