

November 8, 1999

MEMORANDUM

SUBJECT: 1-Hour Ozone Attainment Demonstrations and Tier 2/Sulfur Rulemaking

FROM: Lydia N. Wegman, Director  
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TO: Air Director, Regions I-VI

The purpose of this memo is to advise you of the relationship between 1-hour ozone attainment demonstrations and the emissions reductions that will be achieved by the Tier 2/sulfur (Tier 2) rulemaking and to provide emissions data related to that rulemaking. We trust this information will be helpful as you work with your States on issues related to the 1-hour ozone attainment demonstrations and the benefits of the Tier 2 rulemaking for certain serious and severe ozone nonattainment areas.

Tier 2 Benefits in One-Hour Attainment Demonstrations

Many serious and severe one-hour nonattainment areas require emissions reductions beyond those assumed in their current control strategies in order to have approvable attainment demonstrations. We believe that the reductions that will be realized through the Tier 2 rulemaking can help these areas both demonstrate attainment and maintain healthy air quality once the standard is attained. To aid States in accounting for the Tier 2 reductions in their attainment demonstrations, we have estimated the emissions reductions associated with the Tier 2 proposal for these areas. States should use these estimates in their attainment demonstrations to quantify emissions reductions from Tier 2, as appropriate.

Attached are the tonnage benefits for Tier 2 in 2007, on a county-by-county basis, for all counties within ten nonattainment areas where 1-hour attainment demonstrations have been submitted ("Phase II" plans for serious and severe nonattainment areas, as described in EPA's March 2, 1995 guidance). Tonnage benefits in 2005 are also provided for all counties in the Baltimore, Philadelphia, and Washington, DC nonattainment areas. Tables are also included showing the change in volatile organic compounds (VOCs) and nitrogen oxides (NO<sub>x</sub>) emission

factors due to Tier 2 for every calendar year from 2004 to 2030. Details on the methods we used in making these estimates are attached.

Areas that need to rely in whole or in part on the Tier 2 benefits to help demonstrate attainment must account for those benefits in the motor vehicle emissions inventories. The State implementation plans' (SIPs) motor vehicle emissions inventories and the motor vehicle emissions budgets for transportation conformity purposes must be recalculated to include the Tier 2 benefits to the extent they are relied on for attainment. We expect to take action on the Phase II SIPs before these areas have recalculated and resubmitted their motor vehicle inventories and budgets using MOBILE6 (to be released next year). Therefore, those attainment demonstrations that rely in part on the Tier 2 reductions will need to be revised using the numbers in the attachment.

The revised attainment demonstrations, emissions inventories and the motor vehicle emissions budgets must be formally resubmitted as SIP revisions. We encourage States to submit these revisions by December 1999 in order for EPA to include them in the transportation conformity adequacy determinations. Alternatively, these revisions should be submitted by July 2000 for serious nonattainment areas, as we anticipate completing rulemaking on these Phase II SIPs in the fall of 2000. For severe nonattainment areas, these revisions should be submitted with other requirements by December 2000.

Eventually, the Phase II SIP budgets need to be resubmitted using MOBILE6 so that both the SIP budgets and the conformity determinations will reflect Tier 2 benefits that are consistent with the final rule and local inputs. Therefore, we will require the motor vehicle emissions inventories and budgets for conformity purposes to be recalculated and resubmitted to EPA as a formal SIP revision within one year after the release of MOBILE6.

#### What Does This Mean for Conformity?

The attachments to this memorandum include information that allows metropolitan planning organizations and State transportation departments in areas covered by Phase II SIPs to include Tier 2 benefits in their conformity analyses. Conformity analyses can begin including these Tier 2 benefits once the Tier 2 rule is final, provided that the Phase II SIPs and associated budgets include the Tier 2 benefits. We will be releasing an official MOBILE information sheet that formalizes this policy.

Since we had not previously provided estimates of the Tier 2 tonnage reductions for these nonattainment areas, States now need additional time to conduct public hearings and, if appropriate, revise their SIPs. We believe the Phase II SIP motor vehicle emissions inventories and budgets do not need to be revised immediately to include Tier 2 benefits in order for us to find the budgets adequate for conformity purposes. However, if the Phase II SIP relies on some portion of the Tier 2 benefits to demonstrate attainment and has not yet included the Tier 2 benefits in the SIP budgets, our adequacy finding will include a condition that conformity determinations may not take credit for Tier 2 until the SIP budgets are revised to reflect Tier 2 benefits.

If a State does not need Tier 2 reductions in order to demonstrate attainment and chooses not to revise its attainment demonstration SIP and its motor vehicle emissions budgets to account for Tier 2 reductions, these reductions would be used by the transportation community in the conformity process. That is, the Tier 2 reductions would be used to provide for increases in vehicle miles traveled above those already provided for in the SIP. In this case, the Tier 2 reductions would no longer be available for attainment demonstration or stationary source offset purposes. Thus, if a State wants to use Tier 2 emissions decreases for purposes other than transportation conformity, it needs to revise the SIP's motor vehicle emissions budgets. Further, in revising their SIP budgets to account for Tier 2, States may consider not only SIP budgets for the attainment year, but also SIP budgets for later years in order to be consistent with the transportation community's forecast period of 20 years.

We recognize that the Tier 2 benefits in the attachments are interim approximations. They were not created using MOBILE6 and they do not use all the local inputs that would normally be used in a SIP. Our guidance during the interim is intended to ensure that the Phase II SIP and the conformity determination account for the Tier 2 benefits in a similar way, even if the methodology for calculating the benefits has some limitations.

#### Potential Uses of Tier 2 Emissions Decreases

States have flexibility in deciding how to distribute the reductions that will result from the Tier 2 rule. A State may decide to rely upon Tier 2 decreases in their entirety in the attainment demonstration or may use a portion of those reductions for other purposes. For example, a State could set aside Tier 2 emission reductions for use as offsets provided the reductions meet the applicable criteria for otherwise creditable offsets. If a State chooses to reserve Tier 2 credits for offsets, it may need to adopt additional emissions reduction measures in order to demonstrate attainment.

It is important to ensure that the Tier 2 decreases are not double-counted. A State would not be allowed to credit the attainment demonstration with all expected Tier 2 reductions and at the same time set aside a portion of those reductions as creditable emissions offsets for use in the permitting of new sources or to provide for increases in vehicle miles traveled in transportation conformity. For example, where a State wishes to use a portion of the Tier 2 reductions for new source emissions offsets and where all other applicable requirements for use as offsets are met, that portion would not be available for use in the attainment demonstration.

If there are any questions or comments regarding this memorandum, please contact Doug Grano (919-541-3292) for general issues, Rick Rykowski (734-214-4959) for Tier 2 emissions decreases, and Kathryn Sargeant (734-214-4441) for conformity.

#### Attachments

cc: David Mobley  
Tom Helms  
Gary Dolce

bcc: Doug Grano  
Roy Huntley  
Phil Lorang  
Sharon Reinders  
Rick Rykowski  
Kathryn Sargeant  
Mike Sklar  
David Solomon

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File Name: I:\SEC\GRANO\DB11-2.WPD November 4, 1999

## Attachment

### Information and Methods for Estimating Tier 2 Benefits in Nonattainment Areas

Recognizing that the proposed Tier 2 emissions decreases are needed to help demonstrate attainment in several areas, we have estimated the tons decrease for specific areas associated with the Tier 2 sulfur proposal. This information should be helpful in developing preliminary estimates of the emission reductions associated with Tier 2 standards for light duty vehicles. This information is summarized in the attached tables. If you would like an electronic version of these tables (in the form of an Excel spreadsheet), please contact Gary Dolce at (734) 214-4414 or at [dolce.gary@epa.gov](mailto:dolce.gary@epa.gov).

### Tier 2 Reductions in 2007 in 10 Nonattainment Areas

Tables 1 through 5 give estimates of Tier 2 emission reductions in 2007 by county in 10 nonattainment areas broken down by vehicle type. States should apply the reductions by vehicle class in Tables 1 through 5 to the base case emissions they have estimated for SIP purposes. Table 6 gives estimates of total emissions from all sources in the same nonattainment areas and Table 7 gives Tier 2 reductions as a percentage of total baseline emissions from all sources. Tables 6 and 7 are provided for reference purposes and are not needed for SIP calculations. All tables were derived from a database of county-by-county emissions developed for the Tier 2 assessment.

Full documentation of the methods used to develop these inventories will be available shortly in the Tier 2 Docket. To briefly summarize here, highway vehicle emissions were first estimated using MOBILE5b with input files that described local conditions (inspection/maintenance [I/M] program, temperatures, fuel parameters, registration distribution). The resulting emission factors were then multiplied by correction factors in order to simulate emission factors that would result from proposed changes in MOBILE to be incorporated in MOBILE6. Correction factors were developed for both a base case and a Tier 2 control case. The corrected emission factors for both cases were then multiplied by projected vehicle miles travelled (VMT) for each vehicle class in order to estimate future emissions in 2007 with and without Tier 2 controls. VMT projections used in this analysis were determined using national VMT projections for 2007 used in the National Emissions Trends Report allocated to county according to population growth factors by metropolitan statistical areas and rest-of-state areas. Because the correction factors used were based on default national MOBILE inputs, the results should be viewed as approximations of what will be estimated when MOBILE6 becomes available.

### Tier 2 Reductions in 2005

Tables 1 through 5 also include estimates of Tier 2 reductions in 2005 in three of the nonattainment areas. They were calculated from the 2007 inventories by applying ratios of 2005 to 2007 emission factors and VMT to the 2007 inventories. The emission factor ratios were derived using a special version of MOBILE called AModified MOBILE5b/Version2," which has been designed to simulate emission factors that would result from proposed changes in MOBILE to be incorporated in MOBILE6. This simplified version of MOBILE cannot deal with many of

the local-specific input options that are incorporated into MOBILE5b and, as a result, runs using Modified MOBILE5b/Version2 used national defaults for many of the inputs. Because of these simplifying assumptions, these estimates should be viewed as rough approximations of what would be calculated when MOBILE6 becomes available.

#### Tier 2 reductions in other years for conformity

Areas cannot use Tier 2 reductions in their conformity analyses until the Tier 2 rule is final. We will release an official MOBILE Information Sheet that formalizes the methods for calculating these Tier 2 reductions. However, we are providing the following data now for informational purposes.

Tables 8 and 9 give differences in base case and control case emission factors for NO<sub>x</sub> and VOC for six different combinations of I/M program and gasoline formulation for all years from 2004 to 2030. These differences were derived from Modified MOBILE5b/Version2. They can be multiplied by local VMT to develop rough estimates of Tier 2 reductions in any area in any year. The accuracy of the resulting estimated emission reductions is limited by the lack of local area specificity in the MOBILE inputs used to develop the emission factors. For example, the emission reductions would be greater in an area that has a newer fleet (i.e., the fleet age distribution has a higher percentage of newer vehicles) than the default distribution used in MOBILE.