EMFAC Modeling Change Technical Memo

**SUBJECT:** REVISING THE CUTPOINTS FOR THE ENHANCED INSPECTION AND MAINTENANCE PROGRAM

**LEAD:** DILIP PATEL

# SUMMARY

EMFAC2001 assumed that hypothetical pass/fail criteria or “cutpoints” for the Enhanced Inspection and Maintenance (I/M) program would be implemented beginning in 2010. These hypothetical cutpoints were based an analysis contained in the 1994 State Implementation Plan (SIP). To date, these cutpoints have not been implemented. Therefore, consistent with our policy of including only regulations that have been implemented, we removed these cutpoints as the default values in EMFAC2002.

This change will increase total on-road motor vehicle emissions of ROG, CO, and NOx in the 2010 calendar year by 0.7, 10.6, and 2.2 tons per day, respectively. To put this in perspective, this change will increase statewide ROG, CO and NOx on-road motor vehicle emissions in 2010 by 0.1%, 0.2%, and 0.2%, respectively. In 2020, the statewide on-road motor vehicle emissions of ROG, CO, and NOx will increase by 1.5, 32.6, and 9.2 tons per day, respectively. This is equivalent to a 0.4%, 1.2%, and 2.0% increase in on-road motor vehicle emissions, respectively.

The emission reductions attributable to recent local air district decisions to opt expanded areas into the Enhanced I/M program are not reflected in EMFAC2002 and must be generated “off-model” to estimate the full benefits of the Enhanced I/M program in California. For assistance in assessing these additional benefits, please call Mr. Doug Thompson, Manager, Motor Vehicle Assessments Section at (916) 322-7062.

# NEED FOR REVISION

EMFAC2001 v2.08 envisioned that an Enhanced I/M program using State Implementation Plan (SIP)-based Acceleration Simulation Mode cutpoints would be in place by 2010.To date, these cutpoints have not been implemented. Therefore, consistent with our policy of including only regulations that have been implemented, we removed these cutpoints as the default values in EMFAC2002.

**AFFECTED SOURCE CODE/VERSION**

I\_AND\_M.for

IM\_Modules.f90

InterimIM.for

## METHODOLOGY FOR REVISION

The current, interim cutpoints will remain in-place indefinitely.

# INVENTORY EFFECTS

Table 1 shows summaries of the statewide summer episodic on-road motor vehicle inventories from three vehicle groups. The first group contains emissions from all the 13 vehicle classes. The second group contains emissions from passenger cars, light-, and medium-duty trucks. The third group contains emissions from the remaining vehicle classes such as light-heavy, medium-heavy, and heavy-heavy-duty trucks, urban buses, and motorcycles. The reason for selecting these three groups is that the first group shows the impact of this change on the entire inventory. The second group verifies that this change only affects emissions from light-duty vehicles. These inventories were calculated using internal working draft Emfac2002 version 2.107.

Similarly, Table 2 shows inventories calculated using internal working draft Emfac2002 version 2.108, which contains the change to the enhanced I/M program.

Table 3 shows the difference (ver. 2.108 – ver. 2.107) in statewide summer inventories. This change will increase total ROG, CO and NOx emissions in 2010 calendar year by 0.7, 10.6, and 2.2 tons per day, respectively. To put this in perspective, this change will increase statewide ROG, CO, and NOx emissions in 2010 by 0.1%, 0.2% and 0.2%, respectively. In 2020, the statewide ROG, CO, and NOx emissions will increase by 1.5, 32.6, and 9.2 tons per day (0.4%, 1.2%, and 2.0%, respectively). The 2010 numbers are lower because not all vehicles would have seen the 2010 benefit in 2010 (i.e., a biennial program).

Table 4 shows the percentage increase in statewide summer episodic inventories from removing the enhanced I/M program based on SIP cutpoints. Table 5 shows the effect on several major urban areas of the state in 2020.

## Table 1

## Statewide Summer Episodic On-Road Motor Vehicle Emissions Inventories-Baseline tons/day

## (Calculated Using Internal Working Draft EMFAC Version 2.107)



## Table 2

## Modified Statewide Summer Episodic On-Road Motor Vehicle Emissions Inventories

## Including the Revised Enhanced I&M Assumptions-tons/day

## (Calculated Using Internal Working EMFAC Model Version 2.108)



## Table 3

## Change In On-Road Motor Vehicle Emissions Using the Revised Enhanced I&M Assumptions

**(tons/day)**



### **Table 4**

### **Percentage Change In Statewide Summer Episodic**

### **On-Road Motor Vehicle Emissions**



#### **Table 5**

#### **Regional Inventory Changes In 2020 Statewide Summer Episodic**

#### **On-Road Motor Vehicle Emissions**

#### **(All On-Road Motor Vehicles-tons/day)**

