

SECTION 2: LOW ENHANCED I/M PERFORMANCE STANDARD

The low enhanced I/M program for the Baton Rouge 8-hour ozone nonattainment area is designed and has been implemented to meet or exceed a minimum 2002 performance standard for volatile organic compounds (VOC) of 1.750 grams per mile (g/mi) and 2.631 g/mi for nitrogen oxide (NO_x). Modeling of the performance standard was accomplished using the EPA's mobile source emission factor model, MOBILE6.¹ Using Baton Rouge area modeling parameters, e.g., local gasoline Reid vapor pressure values, ambient temperature profiles, etc., the performance standards for VOC and NO_x were developed in accordance with the low enhanced performance standard modeling requirements as set forth in 40 CFR 51.351(g). The MOBILE6 input and output files that were used to model the performance standard are contained in Appendix D.

During the 2004 Regular Session of the Louisiana Legislature, legislation was passed to exempt the two newest model year (MY) vehicles from OBD testing. To confirm that the I/M program continues to meet the low enhanced performance standard the following primary components were modeled:

- (1) A vehicle anti-tampering program modeled with:
 - (a) start year: 2000;
 - (b) annual test and repair program;
 - (c) modeled at 75% effectiveness;
 - (d) vehicle MYs: 1980-1995;
 - (e) vehicle types covered: LDGV, LDGT1, LDGT2, LDGT3, LDGT4;
- (2) A vehicle gas cap integrity test modeled with:
 - (a) start year: 2000;
 - (b) annual test and repair program;
 - (c) modeled at 75% effectiveness;
 - (d) vehicle MYs: 1980 and newer;
 - (e) vehicle types covered: LDGV, LDGT1, LDGT2, LDGT3, LDGT4; and

¹ U.S. Environmental Protection Agency, MOBILE6.2.03, Mobile Source Emission Factor Model, (September 24, 2003).

(3) OBD testing of OBD equipped vehicles modeled with:

- (a) start year: 2002;
- (b) annual test and repair program;
- (c) modeled at 75% effectiveness;
- (d) vehicle MYs: 1996 and newer;
- (e) grace period: two newest vehicle MYs;
- (f) vehicle types covered: LDGV, LDGT1, LDGT2, LDGT3, LDGT4.

Attainment year (2007) emission factors resulting from implementation of the above-described I/M program elements are also estimated using MOBILE6 (Appendix E). Based on technical guidance provided by the EPA, a performance standard equivalency demonstration can be made if the 2007 I/M program emission reductions are equal to or greater than the 2002 percentage reductions for both VOC and NOx emissions. Using this recommended modeling methodology, the program equivalency demonstration (summarized in Tables 1 and 2) confirms that the I/M program for the Baton Rouge 8-hour ozone nonattainment area continues to meet the low enhanced performance standards that were originally established in 2002.

Table 1. Baton Rouge Vehicle I/M Program Evaluation for 2007 (VOC).

I/M SCENARIOS	VOC (G/MI)	VOC REDUCTION (G/MI)	PERCENT REDUCTION	COMMENTS
No I/M (Jan 2002)	1.884	N/A	N/A	
Performance Standard (Jan 2002)	1.750	0.134	7.1	
No I/M (Jan 2007)	1.180	N/A	N/A	
Annual I/M, 75% T&R (Jan 2007)	1.097	0.083	7.0	Meets Performance Standard ²

² This meets the low enhanced performance standard with ± 0.02 g/mi rounding factor.

Table 2. Baton Rouge Vehicle I/M Program Evaluation for 2007 (NO_x).

I/M SCENARIOS	NOX (G/MI)	NOX REDUCTION (G/MI)	PERCENT REDUCTION	COMMENTS
No I/M (Jan 2002)	2.650	N/A	N/A	
Performance Standard (Jan 2002)	2.631	0.019	0.7	
No I/M (Jan 2007)	1.781	N/A	N/A	
Annual I/M, 75% T&R (Jan 2007)	1.702	0.079	4.4	Meets Performance Standard

NOTES:

1. All scenarios are modeled with MOBILE6.2.03 (24-Sep-2003).
2. T&R – Test and Repair Effectiveness
3. Dates in parentheses are program evaluation dates.