

UPDATED INFORMATIVE DIGEST

ADOPTION OF GASEOUS POLLUTANT MEASUREMENT ALLOWANCES FOR CALIFORNIA'S HEAVY-DUTY DIESEL IN-USE COMPLIANCE REGULATION

Sections Affected: Amendments to title 13, California Code of Regulations, section 1956.8, and the following document incorporated by reference therein: "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," as last amended October 17, 2007.

Background: Health and Safety Code section 43104 directs the Air Resources Board (ARB or the Board) to adopt test procedures to ensure compliance with emission standards for new heavy-duty motor vehicles. In 2006, the Board adopted a new in-use compliance regulation and test procedures that allows for a more efficient and cost-effective in-use compliance program for heavy-duty diesel engines (HDDE). This new testing program, called the manufacturer-run heavy-duty diesel in-use testing program (HDIUT), requires the manufacturers to test a set number of their certified engine families each year using portable emission measurement systems (PEMS) installed on selected test vehicles. The HDIUT program evaluates HDDE compliance with the not-to-exceed (NTE) emission test limits that are part of the certification requirements for HDDEs. The NTE test limits are not a prescribed test cycle but a wide range of engine operation that can be expected to occur during normal highway and cruise-mode operation. An engine family that exceeds the NTE in-use limits may be subjected to remedial action.

To certify engines, manufacturers normally test engines on a stationary dynamometer in an environmentally-controlled laboratory to collect data to show that their engines comply with applicable emission standards. Since NTE testing is conducted on-road in the ambient environment, measurement allowances are needed to account for measurement error associated with using PEMS in the field during vehicle operation, instead of testing the engine on a stationary dynamometer in an environmentally controlled laboratory. The HDIUT program, adopted in 2006, incorporated temporary measurement allowances when testing HDDEs for compliance using PEMS. Prior to the adoption of the HDIUT rule, an agreement was made in 2005 between ARB, the United States Environmental Protection Agency (U.S. EPA), and the Engine Manufacturers Association, along with individual engine manufacturers, to fund a research program to establish better measurement allowances for each regulated pollutant. The research program was developed and guided with the help of a Measurement Allowance Steering Committee (MASC), comprised of members from ARB, U.S. EPA, and the engine manufacturers. In the research program, testing engines, statistical modeling with test data, and model validation of three different emission measurement methods were completed by the main contractor, Southwest Research Institute (SwRI), in San Antonio, Texas, with the help of the University of

California's Center for Environmental Research and Technology, in Riverside, California.

The intent of the research program was to develop a single set of measurement allowances based on the most stringent validated method that would replace the temporary allowances in the adopted rule. However, because there were some technical issues that delayed the program, only one measurement allowances method was validated during the initial modeling and analysis. The MASC recommended using the allowances based on this method for in-use testing of engines certified in 2007 through 2009 model years. The MASC also agreed to continue the work to validate all three emission measurement methods in order to obtain more representative measurement allowances for 2010 and later model years. SwRI conducted further analyses and modeling, resulting in the validation of all three measurement methods. The measurement allowances agreed upon by the MASC and proposed by staff to the Board are indicated below:

HDIUT Measurement Allowance Values by Model Year (g/bhp-hr)¹

Pollutant	2007 – 2009 Model Year	2010 and Subsequent Model Year
NOx	0.45	0.15
NMHC	0.02	0.01
CO	0.50	0.25

¹ Grams per brake-horsepower-hour

When adopted, these values would be added to the emissions measured by the PEMS to compensate for testing uncertainties when performing compliance testing in the field.

Description of Regulatory Action: At its December 6, 2007, public hearing, ARB staff proposed and the Board approved regulatory amendments to California's HDDE test procedures that were similar and consistent with the federal requirements for testing 2007 and newer HDDEs with PEMS. At the conclusion of the hearing, the Board adopted Resolution 07-56, approving the adoption of the proposed regulation with the modifications presented by staff at the hearing and directed the Executive Officer to incorporate the modifications into the proposed regulatory text, and to make the modified text available for a supplemental comment period of at least 15 days. U.S. EPA has adopted the same measurement allowances for its essentially identical HDIUT program through a Direct Final Rule on May 12, 2008.

The adopted measurement allowances will be used according to the table above for conducting heavy-duty diesel in-use compliance testing of 2007 and newer HDDEs. The HDIUT program became enforceable for gaseous emissions at the end of 2007.

COMPARABLE FEDERAL REGULATIONS

On March 13, 2008, U.S. EPA also adopted identical gaseous measurement allowances for their similar HDIUT compliance program through a direct final rule making. For U.S. EPA, the regulation became effective on May 12, 2008. ARB's HDIUT regulation amendments are essentially identical to the U.S. EPA's program.

COSTS TO PUBLIC AGENCIES AND TO BUSINESSES AND PERSONS AFFECTED

The determinations of the Board's Executive Officer concerning the costs or savings necessarily incurred by public agencies, private persons and businesses in reasonable compliance with these regulations are presented below.

Pursuant to Government Code sections 11346.5(a)(5) and 11346.5(a)(6), the Executive Officer has determined that this regulatory action will not create costs or savings to any state agency or in federal funding to the state, costs or mandate to any local agency or school district whether or not reimbursable by the state pursuant to part 7 (commencing with section 17500), division 4, title 2 of the Government Code, or other nondiscretionary cost or savings to state or local agencies. These requirements affect manufacturers of HDDEs, not state or local agencies.

In developing this regulatory proposal, the ARB staff evaluated the potential economic impacts on representative private persons or businesses. The ARB is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with this action. These regulatory amendments will make California's HDIUT requirements consistent with similar federal requirements. Inasmuch as the adopted requirements could be said to have economic impacts, these impacts are expected to be slight and absorbable by the manufacturers of HDDEs.

The Executive Officer has made an initial determination that this regulatory action will not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons. Since the proposed measurement allowances are smaller than the temporary allowances previously adopted, it is possible that the engine manufacturers could be subject to additional remedial action. However, the impact on manufacturers is expected to be slight. No impact on private businesses or persons is expected. Also, there is no impact expected on PEMS manufacturers.

In accordance with Government Code section 11346.3, the Executive Officer has determined that this regulatory action will not affect the creation or elimination of jobs within the State of California, the creation of new businesses or elimination of existing businesses within the State of California, or the expansion of businesses currently doing business within the State of California. Any impact on businesses in California is expected to be slight and positive and is already covered by the adoption of the HDIUT regulation.

The Executive Officer has also determined, pursuant to title 1, CCR, section 4, that this regulatory action will not affect small businesses. There will be no incremental costs associated with this program in addition to those already needed to comply with the federal regulation. Any impact on businesses in California is expected to be slight and positive.

In accordance with Government Code sections 11346.3(c) and 11346.5(a)(11), the Executive Officer has found that the reporting requirements of the regulation which apply to businesses are necessary for the health, safety, and welfare of the people of the State of California.

The Board has determined that no reasonable alternative considered by the Board, or that has otherwise been identified and brought to the attention of the Board, would be more effective in carrying out the purpose for which the amendments were intended, or would be as effective as and less burdensome to affected private persons, than the amended regulation. A detailed assessment of the economic impacts of this regulatory action can be found in the Initial Statement of Reasons.