

UPDATED INFORMATIVE DIGEST

ADOPTION OF AN ON-ROAD HEAVY-DUTY DIESEL IN-USE COMPLIANCE REGULATION

Sections Affected: Amendments to title 13, California Code of Regulations, sections 1956.1 and 1956.8, and the following documents 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 September 1, 2006, and “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles,” as last amended December 12, 2002.

Background: Health and Safety Code section 43104 directs the Air Resources Board (ARB or Board) to adopt test procedures to ensure compliance with emission standards for new heavy-duty motor vehicles. Test procedures for in-use compliance of emission standards are contained in title 13, California Code of Regulations, sections 2111-2140. According to these procedures, for heavy-duty diesel engines (HDDEs), a minimum of ten engines must be emission-tested on a stationary engine dynamometer, and the emission results are then compared to the applicable emission standards to determine compliance. Conducting in-use testing with a stationary engine dynamometer is both time-consuming and expensive because it requires that engines be removed from the vehicles to be tested and then reinstalled once testing has been completed. As a result, ARB has not utilized these test procedures to conduct compliance testing for HDDEs.

In the 1990s, seven of the largest engine manufacturers were alleged to have violated state and federal emissions laws by disabling emission control devices on HDDEs during in-use, on-highway driving. These cases were resolved through enforcement actions which were concluded when settlement agreements were reached with the manufacturers in question. To ensure that exhaust emissions were controlled under virtually all driving conditions, most of the settling manufacturers were required to produce engines that comply with supplemental certification test procedures known as the Not-To-Exceed (NTE) test and the EURO III European Stationary Cycle test. However, these supplemental test procedure requirements imposed by the settlement agreements expired on January 1, 2005. To ensure that HDDEs continued to be certified to the supplemental procedures, in December 2000, ARB required the addition of the NTE and European Stationary Cycle tests as part of the HDDE certification applicable to all 2005 and subsequent model year HDDEs.

The NTE test procedure allows testing on an engine dynamometer, a chassis dynamometer in laboratory conditions, or with on-board portable emission measurement systems (PEMS) during on-road operation. This means that engines certified to the NTE requirements can be tested in-use and in the vehicle using PEMS, avoiding the high costs associated with engine removal and dynamometer testing.

Beginning in 2001, ARB staff worked collaboratively with the United States Environmental Protection Agency (U.S. EPA) and engine manufacturers to develop an in-use testing and compliance program based on NTE testing utilizing PEMS during over-the-road operation. In May 2003, the general structure of such a program was developed and agreed-upon by all parties. Based upon this collaborative work, in June 2005, the U.S. EPA adopted a manufacturer-run in-use testing program.

Description of Regulatory Action: At a public hearing on September 28, 2006, ARB staff proposed to the Board amendments that were similar and consistent with the federal requirements to adopt a manufacturer-run in-use compliance program for on-road HDDEs. At the conclusion of the hearing, the Board adopted Resolution 06-27, approving the adoption of the proposed regulations 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.

In this program, ARB and U.S. EPA will jointly designate each year up to 25 percent of a manufacturer's total number of HDDE families for testing. The engine families selected for testing could include any 2007 and later model year medium-duty diesel engine and HDDE used in a vehicle with a gross vehicle weight rating above 8,500 pounds. Manufacturers will screen, procure and test vehicles that use the designated engines. The vehicles will be tested under real-world driving conditions, within the engines' useful lives. ARB personnel may be present during PEMS installation and on-road testing. Pollutants that will be measured to determine compliance are: oxides of nitrogen, particulate matter, non-methane hydrocarbon, and carbon monoxide.

In this program, PEMS will be utilized to measure the emissions of engines when operated on their typical work route. Emission results from PEMS will be used to determine compliance with the NTE emission limits. In order to be familiarized with in-use testing of HDDEs with PEMS in NTE data collection, engine manufacturers initiated a pilot HDDE testing program which began with 2005 model year engines and will continue until the start of the enforceable compliance program.

There are two phases in the test program. Phase 1 is intended to screen a designated engine family for conformity with the applicable NTE emission limits. Under Phase 1, the manufacturer tests a minimum of 5 and a maximum of 10 vehicles per engine family during normal over-the-road vehicle operation. If the engine family does not pass the Phase I requirements, then Phase 2 testing may be required. In Phase 2, ten additional vehicles are tested under more narrowly-defined test conditions to specifically target non-complying operating conditions. Failure of the Phase 1 or Phase 2 requirements may result in ARB requiring some form of remedial action. In determining whether to pursue remedial action following Phase 1 or Phase 2 testing, ARB will consider other test data obtained separately by staff or submitted by the manufacturer.

To certify engines, manufacturers 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 instead of on a stationary dynamometer in an environmentally-controlled laboratory, an “accuracy margin” will be incorporated in the NTE testing to account for potential differences in emission measurements between the laboratory equipment and the PEMS. In 2005, a Memorandum of Agreement was signed between ARB, U.S. EPA and the engine manufacturers to establish a test program for determining measurement accuracy margins to be used in the in-use compliance program. The test program is currently on-going. In the meantime, the adopted in-use compliance program contains interim accuracy margins that have been agreed upon by the same parties. Once the final accuracy margins are determined, they will be presented to the Board for adoption in a subsequent rulemaking.

The compliance program will be enforceable starting at the end of 2007 for gaseous emissions and at the end of 2008 for particulate matter emissions. However, these dates may be delayed if the pilot test program and the determination of final measurement accuracy margins are not completed on schedule.

COMPARABLE FEDERAL REGULATIONS

On June 14, 2005, U.S. EPA adopted a manufacturer-run in-use testing and compliance program. The details of the federal program were based on the collaborative efforts between ARB, U.S. EPA, and the engine manufacturers. These 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. This program will make California requirements for in-use testing of HDDEs consistent with 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. Any impacts on the manufacturers of PEMs are expected to be positive.

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. Any cost impacts are expected to be slight and absorbable by the businesses affected. This program would apply to all manufacturers of HDDEs and make California requirements consistent with federal law. None of the manufacturers of HDDEs is located in California. There may be a slight positive economic impact on manufacturers of PEMS that are located in California.

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.

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.