

# Regulatory Announcement

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## Final Rule on In-Use Testing Program for Heavy-Duty Diesel Engines and Vehicles

*The U.S. Environmental Protection Agency (EPA) is establishing a manufacturer-run, in-use emissions testing program for heavy-duty diesel trucks. Under this program, manufacturers will measure gaseous and particulate exhaust emissions from diesel engines using portable onboard emission measurement systems. This cooperative effort represents a significant advance in helping to ensure that the benefits of more stringent emission standards are realized under real-world driving conditions.*

### Background

EPA has issued five rules regarding diesel engines since 1999. These include the 2004 and 2007 Heavy-Duty Diesel Motor Vehicle Engines Rules, Recreational Marine Diesel Engines Rule, Commercial Marine Diesel Engines Rule, and the Clean Air Nonroad Diesel Rule for compression-ignition engines. The Engine Manufacturers Association (EMA) and some manufacturers challenged parts of the highway and marine rules regarding legal authority and technical feasibility of certain emission standards called the Not-To-Exceed Standards (NTE). EPA, the California Air Resources Board (ARB), and EMA, along with its member companies, worked cooperatively to reach a settlement agreement that included provisions for a manufacturer run, in-use emissions testing program. This final rule implements the key elements of that agreement.

The new testing program will assess in-use gaseous emissions (hydrocarbons, carbon monoxide, and nitrogen oxides) and particulate matter from the exhaust of heavy-duty diesel trucks. For the first time, this will be accomplished using portable emission measurement systems. Previously, engine emissions testing involved removing the engine from the truck and testing the engine in a laboratory on an engine dynamometer. Starting in the mid-1990s EPA facilitated research into portable systems by developing and using prototype systems in its compliance programs. Portable systems were placed inside of the vehicles to measure emissions performance during real-world operating conditions. It became clear that these systems offered advantages over conventional approaches to assess in-use exhaust emissions from engines for design improvement, research, modeling, and compliance purposes.

In a largely unprecedented example of proactive government and industry cooperation, prior to any formal rulemaking initiative, manufacturers have agreed to implement this new type of in-use emission testing program. The resulting collaborative program, which advances EPA's clean diesel program, is a significant step forward for both parties in helping ensure that heavy-duty diesel engines comply with applicable emission standards throughout their useful lives while reducing overall compliance burdens.

## **Program Overview**

Under the program, manufacturers will test fleet or customer-owned, in-use trucks. Manufacturers will tap into existing customer relationships and create new lines of communication with customers, all of which is expected to fortify the engine development process. This will enhance the manufacturer's ability to catch any problem engines early on, and encourage future engine designs that are cleaner and more durable.

Manufacturers will monitor compliance by testing in-use diesel engines during normal vehicle operation. If noncomplying engines are identified, the manufacturer will test more engines for the purpose of determining if any further action is necessary. EPA will likewise use the in-use data to make independent evaluations about the possible need to pursue further actions. The in-use test data, which have never been collected on this large a scale, will be used by EPA to assure that emission standards are being met, and by manufacturers to improve their engine designs. The data will also be available to the public.

## **Key Elements**

- Fully enforceable program beginning in the 2007 model year for gaseous emissions, when new NTE and tailpipe emission standards for nitrogen oxides (NO<sub>x</sub>) and particulate matter (PM) take effect.
- Pilot program for gaseous emissions for 2005 and 2006 model years EPA and the manufacturers to gain the necessary experience with in-use testing protocols and generation of in-use test data using portable emission measurement systems.
- Enforceable and pilot programs for PM begin one year after the gaseous programs begin.
- Monitors in-use emissions of diesel vehicles with portable emission measurement systems. Pollutants to be measured: Hydrocarbons (HC), Carbon Monoxide (CO), NO<sub>x</sub> and PM.
- Testing will be conducted on in-use vehicles, under real-world driving conditions, within the engine's useful life to monitor for NTE compliance and to help ensure overall compliance with the emission standards.
- Measurement "accuracy" margins established to account for the emissions measurement variability associated with these units in the field.
  - During the pilot program years, manufacturers will use interim margins based on current experience with portable and laboratory measurement systems.
  - Accuracy margins for the fully enforceable program are being developed through a joint EPA-industry research program.
- Testing conducted and paid for by manufacturers with EPA oversight.
- Addresses a serious, long-standing need for "real-world" in-use testing data.
- The California Air Resources Board intends to adopt a parallel in-use testing program.
- A nonroad diesel engine in-use testing program patterned after the heavy-duty truck program is expected in the 2010 time frame.

## **Economic, Health and Environmental Impacts**

EPA expects that 13 heavy-duty diesel engine manufacturers will be involved in the program. Total annual costs are estimated at about \$1.7 million.

This in-use emissions testing program is expected to help ensure that the intended health and environmental benefits from recently-adopted emission regulations are realized throughout the entire useful lives of heavy-duty diesel engines.

## **For More Information**

You can access documents on this final rule on EPA's Office of Transportation and Air Quality Web site at:

[www.epa.gov/otaq/hd-hwy.htm](http://www.epa.gov/otaq/hd-hwy.htm)

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