

UPDATED INFORMATIVE DIGEST

REQUIREMENTS TO REDUCE IDLING EMISSIONS FROM NEW AND IN-USE TRUCKS, BEGINNING IN 2008

Sections Affected: Amendment of sections 1956.8, along with the incorporated “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines”, 2404, 2424, 2425, and 2485 of Title 13, California Code of Regulations (CCR).

Background: The California Clean Air Act as codified in Health and Safety Code (HSC) sections 43013 and 43018 directs the Air Resources Board (ARB or Board) to adopt emission standards for new heavy-duty motor vehicles to achieve maximum feasible emission reductions. HSC section 43104 directs the ARB to adopt test procedures to ensure compliance with those emission standards. Further, in August 1998, the Board identified diesel exhaust particulate matter (diesel PM) as a toxic air contaminant and consequently, in October 2000, it adopted the “Diesel Risk Reduction Plan” which, among other measures, included a measure to reduce emissions from idling diesel trucks and buses in order to reduce the public’s exposure to diesel PM.

Accordingly, on December 12, 2002, the Board adopted the School Bus Idling Airborne Toxic Control Measure (ATCM) that limits school bus idling and idling at schools. This ATCM requires operators of school buses, transit buses, and other commercial vehicles to manually shut off their engines upon arriving at a school and limits idling to thirty seconds before departure from a school. Additionally, the ATCM limits idling of school buses to 5 minutes outside of school properties.

Subsequent to the adoption of the School Bus Idling ATCM, the ARB, on July 22, 2004, adopted the Diesel-Fueled Commercial Motor Vehicle Idling ATCM, which includes more general requirements to limit emissions from idling trucks and buses. This ATCM requires operators of commercial trucks and buses to manually shut off their engines before the idling time limit of five minutes is reached. However, this requirement does not apply to idling sleeper berth equipped trucks unless they are located within 100 feet of residential areas or schools. This exemption was provided at the time the rule was adopted because of unresolved issues regarding how emissions from the diesel-fueled auxiliary power system (APS) compared to the emissions from “cleaner” 2007 and subsequent model year trucks. Therefore, the Board deferred consideration of sleeper trucks until 2005 in order to thoroughly evaluate all commercially available options to main engine idling.

On October 20, 2005, the Board conducted a hearing to consider staff’s proposal to remove the existing sleeper truck exemption so that sleeper trucks would have to comply with the five-minute idling restriction at all times and at any location. The proposal also included idling reduction requirements for new heavy-duty diesel engines and emission performance requirements for technologies used as alternatives to main engine idling. At the conclusion of the hearing, the Board adopted Resolution 05-55, in which it approved the originally proposed amendments with several modifications and

directed the Executive Officer to incorporate the modifications into the proposed regulatory text, with such other conforming modifications and technical amendments as may be appropriate, and to make the modified text available for a supplemental comment period of at least 15 days.

Staff's revised regulations and test procedures, with the modified text clearly indicated, were made available to the public for a supplemental 15-day comment period on June 26, 2006. Several written comments were received during the 15-day supplemental comment period. Staff has responded to all comments received during the regulatory process, including those submitted in response to the notice of June 26, 2006, in its Final Statement of Reasons regarding this rulemaking.

Description of Regulatory Action: On October 20, 2005, the Board adopted amendments that establish idling reduction requirements for sleeper berth equipped trucks and new heavy-duty diesel engines and emission performance requirements for technologies used as alternatives to main engine idling.

Specifically, starting in January 2008, the regulation removes the existing sleeper truck exemption so that sleeper trucks would have to comply with the five-minute idling restriction at all times and at any location. This requirement applies to trucks registered in California and out-of-state. The requirement also provides options to accommodate driver comfort during times when the truck is required to shut down. Some of the cab comfort devices, such as internal combustion APSs and fuel-fired heaters, produce emissions. Therefore, emission performance requirements are established for these systems, which differ depending on whether the truck's engine is a 2007 or later model.

Currently, all APS engines have to be certified to the off-road emission standards. Beginning in 2008, trucks with 2007 and subsequent model year engines equipped with a PM filter will have the additional requirement to either retrofit the APS separately with a "level 3" PM reducing device, which achieves an 85% reduction in emissions, or route the APS's exhaust through the PM filter of the truck's engine. Trucks equipped with 2006 or older model year engines do not have PM filter and so owners may use an APS without adding a PM control device.

Beginning in calendar year 2008, all 2007 and subsequent model year trucks equipped with fuel-fired heaters will need to comply with the fuel-fired heater emissions requirements, specified in the Low Emission Vehicle Program, to operate in California.

Starting with the 2008 model year, new truck engines are also required to either be equipped with a non-programmable and tamper-resistant engine shutdown system that automatically shuts down the engine after 5 minutes of idling or optionally to meet an oxides of nitrogen (NOX) idling standard of 30 grams per hour. The new engine requirements apply to diesel engines in trucks with a gross vehicle weight rating greater than 14,000 pounds. The new engine requirements do not apply to gasoline engines or engines produced for use in buses (commercial buses as well as school buses), emergency vehicles, military vehicles, and recreational vehicles.

COMPARABLE FEDERAL REGULATIONS

There are no federal or other state requirements that are equivalent to the requirements adopted in this regulation. However, a number of states and local governments have general idling ordinances that require truck operators to turn off their engines after a specific period of idling time. California's different and more stringent idling reduction program will benefit human health, public welfare, and the environment. In addition, the differences from the federal program are authorized by Health and Safety Code sections 43013 and 43018.

BENEFITS OF THE PROPOSAL

The combined statewide benefits from reducing idling of sleeper berth equipped trucks are estimated to be 46 tons per day of oxides of nitrogen emissions, 4.2 tons per day of reactive organic gas emissions, 0.4 tons per day of PM, and 1930 tons per day (0.7 million tons per year) of carbon dioxide emissions, in 2010, based on the assumption that all sleeper trucks use diesel-fueled APS as a substitute to idling the main engine and all sleeper trucks comply fully with the requirements in the regulation.

Staff's proposal is expected to provide a net cost savings to truck owners over the useful life of the cab comfort device through reduced fuel use and reduced engine maintenance. It is difficult to calculate cost savings associated with using cab comfort devices since there are many variable that affect the calculation, such as the cost of the device, whether or not it consumes fuel and how much, the amount of time a truck operates at idle, the cost of fuel, and other variables. Based upon the least efficient cab comfort technology, a diesel-fuel APS with a Level 3 PM filter, and the average time a sleeper truck operates at idle, staff estimated an operational cost savings of \$4,280 per year, from reduced fuel consumption and engine maintenance. Assuming a 5 year useful life for the diesel-fueled APS, staff estimates a net cost saving of \$11,300.

In order to calculate cost effectiveness, staff ignored the cost savings associated with the use of a cab comfort device in lieu of operating the truck engine. The cost effectiveness for 2008 and subsequent model year heavy duty diesel trucks equipped with a non-programmable engine shutdown system and a diesel-fueled APS with a level 3 verified PM filter is estimated to be \$2.00 per pound of NOx plus ROG reduced.

For 2007 model year trucks, the engines would not have the automatic shutdown system but the trucks would have a PM filter. Thus, if a diesel-fueled APS was installed it would require a PM filter. Retrofitting 2007 trucks with a diesel-fueled APS with a level 3 verified PM filter produces a cost-effectiveness estimate of \$1.98 per pound of NOx plus ROG reduced.

For 2006 and older model year California trucks equipped with a diesel-fueled APS, a PM control device would not be required. Thus, the cost-effectiveness is estimated to be \$1.44 per pound of NOx plus ROG reduced.

Because most fleets have a distribution of truck model years, the average cost-effectiveness estimate for fleets is \$1.51 per pound of NOx plus ROG reduced. These worst-case estimates for pre-2007, 2007, and post-2007 model year heavy-duty diesel engines, all compare favorably to the cost-effectiveness estimates of other ARB regulations recently adopted, even if the cost savings are ignored.