

Updated Informative Digest

ADOPTION OF NEW REGULATION TO REDUCE EMISSIONS OF DIESEL PARTICULATE MATTER, AND OTHER POLLUTANTS FROM IN-USE HEAVY-DUTY DIESEL-FUELED VEHICLES AS PART OF THE PUBLIC HEARING TO CONSIDER PROPOSED REGULATION TO REDUCE EMISSIONS FROM IN-USE ON-ROAD DIESEL VEHICLES, AND AMENDMENTS TO THE REGULATIONS FOR IN-USE OFF-ROAD VEHICLES, DRAYAGE TRUCKS, MUNICIPALITY AND UTILITY VEHICLES, MOBILE CARGO HANDLING EQUIPMENT, PORTABLE ENGINES AND EQUIPMENT, HEAVY-DUTY ENGINES AND VEHICLE EXHAUST EMISSIONS STANDARDS AND TEST PROCEDURES AND COMMERCIAL MOTOR VEHICLE IDLING

Sections Affected: California Code of Regulations (Cal. Code Regs.), title 13, section 2025, "Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants from In-Use Heavy-Duty Diesel-Fueled Vehicles." The regulation is commonly referred to as the Truck and Bus regulation.

As part of this rulemaking, amendments to existing regulations were also made to ensure that the existing regulations and the new Truck and Bus regulation work effectively together. These amendments were adopted by the Air Resources Board (ARB or Board) on October 19, 2009 by Executive Order R-09-010. A summary of actions and issues of the amendments were addressed in the "Final Statement of Reasons for Rulemaking for Amendments to Existing Regulations Made As Part of the Public Hearing to Consider Proposed Regulation to Reduce Emissions from In-Use On-Road Diesel Vehicles, and Amendments to the Regulations for In-Use Off-Road Vehicles, Drayage Trucks, Municipality and Utility Vehicles, Mobile Cargo Handling Equipment, Portable Engines and Equipment, Heavy-Duty Engines and Vehicle Exhaust Emissions Standards and Test Procedures and Commercial Motor Vehicles Idling," and are not addressed here.

Background: In 1998, the Board identified diesel particulate matter (diesel PM) emitted from diesel engines as a toxic air contaminant and in 2001 adopted the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (Diesel Risk Reduction Plan or Diesel RRP). The Diesel RRP identified Airborne Toxic Control Measures and regulations that would set more stringent exhaust emission standards for new diesel-fueled engines and vehicles, establish retrofit requirements for existing engines, vehicles, and equipment, and require the sulfur content of diesel fuel to be reduced to no more than 15 parts per million by weight (ppmw). The new sulfur standard was needed to enable the performance of the emission control technologies. The scope of the Diesel RRP was broad, addressing all categories of engines, both mobile and stationary, and included control measures for private and public fleets of on-road and off-road diesel vehicles. The ultimate goal of the Diesel RRP was to reduce California's diesel PM emissions and associated cancer risks from 2000 baseline levels by 85 percent by 2020.

The federal Clean Air Act (CAA) requires U.S. Environmental Protection Agency (U.S. EPA) to establish National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health, including fine particulate matter (PM_{2.5}) and ozone. Fifteen areas in California are designated non attainment for the federal ozone standard, including the South Coast Air Basin, the San Joaquin Valley, the Sacramento region, San Diego, Ventura, and a number of air districts downwind of urban areas. In addition, the South Coast Air Basin and the San Joaquin Valley are designated nonattainment for the federal PM_{2.5} standard. Federal law mandates the development of State Implementation Plans (SIP) documenting the actions the state will take to attain the federal air quality standards in these areas.

In September 2007, ARB adopted the SIP committing the State to develop measures to achieve emission reductions from sources under State regulatory authority. The reductions are needed to attain the NAAQS for ozone and PM_{2.5}. While multiple areas throughout the State exceed federal air quality standards, the air quality in the South Coast and the San Joaquin Valley poses the greatest challenge and defines the amount of reductions needed. Reductions are needed by 2014 to meet the PM_{2.5} attainment deadline and by 2023 to meet the ozone attainment deadline. An interim target date of 2017 was adopted by ARB for the San Joaquin Valley to meet the ozone NAAQS as part of an effort to accelerate progress toward attainment before 2023. As part of the overall SIP commitment, ARB staff is also obligated to bring measures to the Board for its consideration. The new Truck and Bus regulation is one of these commitments. ARB staff has used the targeted reductions estimated in the SIP as the goal for this rulemaking.

On December 12, 2008, the Air Resources Board approved the new regulation to reduce emissions of diesel PM, oxides of nitrogen (NO_x), and other criteria pollutants from in-use diesel trucks and buses that operate in California.

Emissions Reductions and Projected Health Benefits

The existing fleets of heavy-duty diesel trucks are among the largest contributors to PM_{2.5} and ozone forming emissions. The vehicles affected by the regulation produce approximately 40 percent of the statewide emissions of NO_x and about 32 percent of the statewide PM emissions generated by diesel mobile sources. By reducing emissions of pollutants that contribute to elevated ambient levels of particulate matter and ozone, the regulation will help achieve attainment of the NAAQS for PM and ozone. Significant additional health benefits would also be obtained with the reductions of ambient levels of diesel PM. The emission reductions from the regulation are expected to prevent approximately 9,400 premature deaths over the course of the regulation (2,800 to 17,000, 95 percent confidence interval), and will result in about 150,000 fewer asthma-related cases and 950,000 fewer lost work days. The economic valuation of these health benefits is estimated to range from \$48 to \$68 billion.

Staff estimates that with the implementation of the Truck and Bus Regulation, diesel PM emissions will be reduced by about 13 tons per day (tpd) in 2014 and 3.5 tpd in 2023 relative to baseline levels. These reductions represent a 68 percent decrease in PM emissions in 2014 and a 33 percent decrease in 2023. Also, the projected PM emission

rate in 2020 (6.9 tpd) will be 79 percent lower than the 2000 baseline level of 33.1 tpd. The projected NOx emissions reductions from the regulation are approximately 124 tpd and 98 tpd, for 2014 and 2023, respectively. NOx emissions will be 25 percent lower in 2014 and 31 percent lower in 2023 than they would be in the absence of the regulation.

The regulation meets the combined NOx and PM2.5 SIP targets in both the South Coast and San Joaquin Valley air basins for all years. In 2014, in the South Coast Air Basin, the SIP target will be met by achieving slightly more PM2.5 reductions and slightly less NOx than expected. The regulation will also help achieve the SIP reduction goals in 2020 for attainment in regions downwind of the South Coast and the San Joaquin Valley air basins.

Description of the Regulatory Action:

Applicability

The Truck and Bus regulation applies to any person, business, or federal government agency that owns or operates vehicles with affected engines in California. Affected vehicles include heavy-duty diesel-fueled vehicles with a gross vehicle weight rating (GVWR) greater than 14,000 pounds, yard trucks with off-road certified engines and diesel-fueled shuttle vehicles of any GVWR that have a capacity of 10 or more passengers and routinely drive an average of 10 trips per day to or from airport terminals, marine terminals, and rail based stations. Drayage trucks and utility owned vehicles are subject to the Truck and Bus regulation beginning January 1, 2021. The regulation is applicable regardless of where the vehicle is registered. The regulation will also establish requirements for any in-state or out-of-state motor carrier, California-based broker, or any California resident who hires or dispatches vehicles subject to the regulation. California sellers of a vehicle subject to the regulation have to disclose the regulation's potential applicability to buyers of the vehicles. The regulation does not apply to military tactical support vehicles, authorized emergency vehicles, and personal use motor homes and personal use vehicles with pick-up beds.

Fleet Requirements

The regulation requires owners to install exhaust retrofits to reduce PM and to modernize their fleets to ensure that vehicles are less polluting. Fleets may meet the annual requirements by replacing vehicles with newer, cleaner ones, repowering vehicles with newer, cleaner engines, or by applying exhaust retrofits, providing the same emission reductions are achieved. Fleets may also retire older vehicles or operate higher emitting vehicles less often (designating them as low-use vehicles).

During the first two years of the regulation, starting January 1, 2011, fleets are required to install PM verified DECS for certain engine model years such that by 2014 nearly all engines will have a PM filter. The regulation then requires owners to reduce NOx emissions from the fleet by accelerating engine or vehicle replacement or by retrofitting engines starting January 1, 2013, so that by January 1, 2023, all engines will be the

cleanest available – that is, having a 2010 or later model year engine or be retrofitted to achieve equivalent emission reductions.

The regulation provides three options for complying with the performance requirements. First, a fleet may opt to comply with a prescribed best available control technology (BACT) schedule that determines the number of verified diesel emission control strategy (DECS) that must be installed and the required vehicle replacements based on the vehicle’s engine model year. Second, a fleet could meet a BACT percent limit option that sets the minimum number of verified DECS to be installed and the minimum number of engines required to meet the 2010 engine requirements each year. Third, a fleet could meet a fleet average option. The fleet operator would use PM and NOx emission factors established by the regulation to calculate the average emissions of the fleet. By the applicable compliance date each year, the fleet operator must demonstrate that the fleet meets the PM and NOx fleet average emission rate targets set by the regulation. The targets decline over time, requiring fleets to reduce their emissions from one year to the next.

Special Provisions and Exemptions

The regulation includes a number of provisions that delay some or all of the requirements. The Table A below shows the special provisions available and the exemption dates of the provisions. Reporting is mandatory if complying using the special provisions.

**Table A
Provisions in Regulation to Delay Requirements**

Summary of Provision	End of Exemption Period	
	PM Requirement	NOx Requirement
Low use exemption for vehicles operated fewer than 1,000 miles per year	No End Date	No End Date
Agricultural vehicles that operate fewer than 10,000 miles per year	January 1, 2023	January 1, 2023
Agricultural vehicles that operate fewer than (15,000/20,000/25,000 miles per year)	January 1, 2017	January 1, 2017
Small fleets (3 or fewer vehicles)	January 1, 2014	January 1, 2014
Early PM installation prior to 2010	NA	January 1, 2014
Lower-use vehicles that operate fewer than 7,500 miles per year	NA	January 1, 2021
NOx exempt areas	NA	January 1, 2021
School buses	NA	No End Date
Motorcoaches	NA	January 1, 2017
Cab-over-engine tractor provision	NA	January 1, 2018
Unique vehicle provision	NA	January 1, 2021

The regulation has additional provisions to address manufacturer delays, vehicle retirement credits, hybrid vehicle credits, specialty agricultural trucks, and a PM retrofit safety exemptions.

Record Keeping and Reporting Requirements

Fleet owners who utilize the BACT compliance schedule and do not use any of the exemption provisions or credits are not required to report on their fleets. All other fleets are required to report their affected vehicles and associated engine data annually to ARB starting in 2010. Also, these fleets are required to keep records of all data reported, as well as any changes made to their respective fleets since the last report filed through December 31, 2022, or as long as the owner owns the vehicles.

Penalties

With the Truck and Bus regulation, fleets that fail to comply with the regulation's requirements may be subject to penalties consistent with the penalty provisions set forth in the Health and Safety Code.

Board Direction at Hearing

The Board unanimously adopted the regulation approving the original staff proposal with the modifications distributed by staff at the hearing and the following additional modifications. The changes from the initial staff proposal are summarized as follows.

- Postponement of the initial compliance deadline for small fleets (3 or fewer trucks) from January 1, 2013 to January 1, 2014;
- Revision of the starting date of the retirement credit to July 1, 2008 – six months earlier than the date proposed in the modifications distributed by staff;
- Provide additional hours of use, until 2014, for two-engine sweepers that are used for back-up service, and;
- Delay the replacement requirements for motor coaches until January 1, 2017.

Comparable Federal Regulations:

Section 209(a) of the federal Clean Air Act (CAA) preempts states from adopting emission standards for new motor vehicles and engines. However, section CAA 209(b) provides that the Administrator of the U.S. Environmental Protection Agency (U.S. EPA) shall grant California a waiver of preemption, unless she can make certain specified findings. The adopted regulation does not establish emission standards for new motor vehicles and engines, and thus no issue of federal preemption exists. Additionally, U.S. EPA does not have authority to adopt in-use regulations for motor vehicles, and thus there are no federal regulations comparable to the California in-use on-road regulations that have been adopted.

CAA section 209(e)(2) allows California, upon obtaining authorization from U.S. EPA, to adopt and enforce emission standards and other requirements related to the control of emissions for new and in-use off-road engines not expressly preempted (i.e., as set forth in CAA section 209(e)(1), new off-road engines under 175 hp used in farm and construction equipment and vehicles and new locomotives and locomotive engines). The regulation has requirements for off-road engines used in yard-goats and two engine

street sweepers, and to the extent that the Truck and Bus regulation and amendments to existing ARB off-road regulations require authorization, ARB will request that U.S. EPA grant such authorization. U.S. EPA does not have authority to adopt in-use regulations for off-road engines, and thus there are no federal regulations comparable to the California adopted regulatory provisions affecting off-road engines used in sweepers and yard goats.