

State of California  
AIR RESOURCES BOARD

Resolution 05-55

October 20, 2005

Agenda Item No.: 05-10-3

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (ARB or the Board) to adopt standards, rules and regulations and to do such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, in section 43000 of the Health and Safety Code, the Legislature has found and declared that the emission of air pollutants from motor vehicles is the primary cause of air pollution in many parts of the state, and in sections 39002 and 39003 of the Health and Safety Code, has charged the Board with the responsibility of systematically addressing the serious air pollution problem caused by motor vehicles;

WHEREAS, sections 43013, 43101, and 43104 of the Health and Safety Code authorize the Board to adopt and implement motor vehicle emission standards, in-use performance standards, and test procedures, which it finds to be necessary, cost-effective, and technologically feasible;

WHEREAS, sections 43013 and 43018 of the Health and Safety Code authorize the Board to adopt standards and regulations to control emissions from off-road or non-vehicle engine categories and to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to accomplish the attainment of the state standards for ambient air quality at the earliest practicable date;

WHEREAS, on August 27, 1998, the Board identified diesel exhaust particulate matter as a toxic air contaminant pursuant to article 3 (commencing with section 39650), chapter 3.5, part 2, division 26 of the Health and Safety Code;

WHEREAS, in identifying diesel exhaust particulate matter as a toxic air contaminant, the Board determined that there is not sufficient scientific evidence to support the identification of a threshold level below which no significant adverse health effects are anticipated, as codified in title 17, California Code of Regulations (CCR) section 93000;

WHEREAS, pursuant to article 3 (commencing with section 39650), chapter 3.5, part 2, division 26 of the Health and Safety Code, the Board also identified other toxic air contaminants associated with heavy-duty motor vehicle exhaust including: benzene on January 25, 1985, dioxins and dibenzofurans on August 21, 1986, formaldehyde on March 12, 1992, 1,3-butadiene on July 9, 1992, and acetaldehyde, acrolein, and benzo[a]pyrene on April 8, 1993 (hereinafter referred to as "other toxic air contaminants");

WHEREAS, pursuant to section 39665 of the Health and Safety Code, the Board approved on September 28, 2000, a comprehensive risk reduction plan to significantly reduce diesel exhaust particulate matter emissions from diesel-fueled engines and vehicles (Risk Reduction Plan);

WHEREAS, sections 39658, 39665, 39666 and 39667 of the Health and Safety Code authorize the Board to establish airborne toxic control measures (ATCMs) for substances identified as toxic air contaminants in accordance with specified criteria;

WHEREAS, in fulfilling the requirements of the aforementioned sections, the Board is required to consider the adoption of an airborne toxic control measure for sources, including mobile sources, to achieve the maximum possible reduction in public exposure based on its prior determination not to specify a threshold exposure level for diesel exhaust particulate matter under section 39662 of the Health and Safety Code;

WHEREAS, an airborne toxic control measure for an existing source, including a mobile source, developed pursuant to sections 39666 and 39667 of the Health and Safety Code is required to be based on application or utilization of the best available control technologies or more effective control methods, unless the Board determines, based on an assessment of risk, that an alternative level of emission reduction is adequate or necessary to prevent an endangerment of public health;

WHEREAS, the Risk Reduction Plan identified diesel-fueled heavy-duty motor vehicles as a source of diesel exhaust particulate matter;

WHEREAS, with the exception of electric-powered engines, all heavy-duty diesel-fueled vehicles emit significant oxides of nitrogen emissions and diesel exhaust particulate matter or other toxic air contaminants;

WHEREAS, modeling analyses show that potential cancer risk increases as the number of diesel-fueled, heavy-duty vehicles, and idling time increases;

WHEREAS, to reduce emissions, exposure, and associated potential cancer risk, the Risk Reduction Plan recommended idling restrictions to limit the amount of time heavy-duty vehicles are allowed to operate while not performing useful work such as moving a vehicle or operating essential equipment;

WHEREAS, pursuant to section 39602 of the Health and Safety Code, the Board approved on October 23, 2003, the 2003 State and Federal Strategy for the California State Implementation Plan (2003 SIP);

WHEREAS the 2003 SIP established a new roadmap for attaining the federal ambient air quality standards for ozone in all areas of the state by 2010, as required by federal law;

WHEREAS, the 2003 SIP included a measure ON-ROAD HEAVY-DUTY-3 which defines strategies to reduce emissions from existing and new heavy-duty diesel vehicles;

WHEREAS, measure ON-ROAD HEAVY-DUTY-3 includes the emission control strategy "Reduced Truck and Bus Idling," which directs staff to develop regulations to limit idling emissions from new and existing trucks and buses;

WHEREAS, the school bus idling regulation, set forth at title 13, CCR, section 2480, adopted by the Board on December 12, 2002, limits idling of school buses and heavy-duty vehicles at or near schools;

WHEREAS, the diesel-fueled commercial motor vehicle idling regulation, set forth at title 13, CCR, section 2485, adopted by the Board on July 22, 2004, limits non-essential idling of diesel-fueled non-sleeper trucks and buses to no more than five minutes;

WHEREAS, on October 25, 2001, the Board adopted more stringent, exhaust aftertreatment forcing, emission standards for 2007 and subsequent model heavy-duty diesel engines;

WHEREAS, the Board at its meeting on July 22, 2004, recognized the significance of diesel exhaust particulate matter emissions and directed staff to address emissions from trucks that idle during extended driver rest periods and from operation of diesel-fueled auxiliary power systems, and return to the Board with a proposal that considers idling emission standards for new truck engines and emission performance requirements for technologies used as alternatives to main engine idling;

WHEREAS, operators of sleeper berth equipped trucks idle the main engines for extended periods of time to provide cooling, heating or electrical power during rest periods, and thus are major contributors to idling emissions;

WHEREAS, diesel trucks are an important contributor to California's economy;

WHEREAS, in accordance with Health and Safety Code section 39667, staff evaluated various alternatives to primary engine idling, including automatic vehicle shut-off, auxiliary power systems, on-board and off-board truck stop electrification;

WHEREAS, in accordance with Health and Safety Code 39667, staff concluded that an idle limiting requirement for diesel-fueled sleeper berth equipped trucks would reduce criteria pollutants, diesel exhaust particulate matter and other toxic air contaminant emissions at locations such as rest stops, truck stops and plazas, alternate rest areas, distribution vehicle collection points, and maintenance facilities, and more effectively and safely control emissions, reduce exposure, and protect health than any available control technology;

WHEREAS, compliance with the proposed regulation is expected to result in cost savings through reduced fuel usage and maintenance requirements;

WHEREAS, the costs associated with implementation and enforcement of the proposed regulation are expected to be absorbed into existing ARB and other State and local agency budgets and additional staffing is not expected to be required;

WHEREAS, limiting idling of diesel-fueled sleeper berth equipped trucks will reduce drivers', near-by workers', and residents' exposure to, and associated cancer and other adverse health effects risk from, diesel exhaust particulate matter and other toxic air contaminants;

WHEREAS, the staff has proposed amendments to title 13, CCR, sections 1956.8, 2404, 2424, 2425 and 2485 as set forth in Attachment A hereto, collectively referred to as the proposed regulation;

WHEREAS, the Board routinely adopts test procedures in tandem with the regulations to alert parties of the manner in which ARB will determine compliance with standards and technical requirements;

WHEREAS, the staff proposes that the Board adopt amendments to the California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles, as set forth in Attachment B hereto;

WHEREAS, the federal Clean Air Act grants the State of California the authority to adopt standards for the control of emissions from new motor vehicles and engines if the State determines that the State standards will be, in the aggregate, at least as protective of public health and welfare as the applicable federal standards;

WHEREAS, the Board has considered the effects of the proposed requirements on the economy of the State;

WHEREAS, the California Environmental Quality Act and Board regulations require that no project that may have significant adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available to reduce or eliminate such impacts;

WHEREAS, in furtherance of the notice of requirements for adopting the Risk Reduction Plan under Health and Safety Code section 39665(c), the Initial Statement of Reasons was made available for public review and comment 45 days prior to the public hearing to consider the proposed regulation;

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of Chapter 3.5 (commencing with section 11340), Part 1, Division 3, Title 2 of the Government Code;

WHEREAS, the Board finds that:

Despite advances in reducing emissions from mobile sources, stationary sources, and area sources, California still has the most severe air pollution problems in the United States;

To meet federal and California Clean Air Act emissions reductions requirements, ARB must continue to seek reductions from all sources under its authority, including new and in-use diesel powered trucks;

The proposed regulation will help ensure that emissions generated from the extended idling operations of new and in-use heavy-duty diesel vehicles are significantly reduced;

The proposed amendments to the California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles are necessary and appropriate in that they alert parties of the manner in which ARB will determine compliance with the certification requirements;

Ozone, created from the photochemical reactions between primarily oxides of nitrogen and hydrocarbons, causes harmful respiratory effects, and oxides of nitrogen alone can directly harm human health;

Diesel particulate matter emissions released from diesel trucks are carcinogenic and have been identified as a toxic air contaminant;

Emissions from idling diesel fueled trucks are localized and concentrated, and of grave air quality concern, particularly to communities disproportionately impacted by air pollution from other sources;

Trucks congregate at locations such as truck stops, ports, distribution centers, etc., and idle together for extended periods of time, producing harmful emissions of diesel particulate matter emissions and oxides of nitrogen that affect the health of the drivers and nearby community;

The proposed regulation would significantly reduce emissions of oxides of nitrogen and the public's exposure to diesel particulate matter emissions at locations such as rest areas, truck stops, ports, distribution centers and other locations where significant truck activities occur;

The proposed regulation includes requirements that 2008 and subsequent model year truck engines either comply with a low oxides of nitrogen idling emission standard or be equipped with an engine shutdown system that automatically shuts down the engine after five minutes of idling;

A truck certified to a low oxides of nitrogen idling emission standard would enable the truck operator to idle the main engine during extended rest periods when parked 100 feet or more away from residential and school areas;

Operators of sleeper berth equipped trucks that incorporate a non-programmable engine shutdown system can elect to use any of the many commercially available cab comfort devices, or plug into electrified parking spaces to power on-board electrically driven climate control system, or may choose to park at locations with off-board heating and cooling;

Commercially available cab comfort devices include, but are not limited to, internal combustion auxiliary power systems (APSs), fuel-fired heaters, thermal energy storage systems, battery electric APSs, and inverter chargers with electrically driven air conditioning systems;

Internal combustion powered APSs and fuel-fired heaters produce emissions;

Particulate filters are expected to be widely incorporated into diesel-fueled heavy-duty diesel engines on or after the 2007 model year because new, more stringent emission standards will then be in effect for new, California certified heavy-duty diesel engines;

Diesel-fueled APSs are expected to have higher particulate matter emissions than 2007 and subsequent model year heavy-duty diesel engines equipped with particulate matter filters;

Particulate matter emissions from diesel-fueled APSs can be controlled to the same levels as the particulate matter standards applicable to new 2007 and subsequent model year heavy-duty diesel engines by either routing the APSs' exhaust through the truck's particulate trap or retrofitting the APS with a verified "level 3" strategy for particulate matter control (which achieves a 85% reduction in emissions), or by using alternate compliance strategies that are equivalent or cleaner than a verified "level 3" particulate matter reduction strategy;

Effective enforcement of idling restriction based regulations is challenging because they require considerable amounts of enforcement resources throughout the state;

Idling restrictions can be an effective emission control strategy if engine based technologies, such as automatic engine shutdown systems, are also used as enforcement tools to limit main engine idling;

California is the only state that has authority to establish new mobile source emission standards and/or test procedures that differ from federal standards and test procedures;

The economic and fiscal impacts of the requirements to reduce idling emissions from new and in-use trucks beginning in 2008 have been analyzed as required by California law, and the conclusions and supporting documentation for this analysis are set forth in the Initial Statement of Reasons, as supplemented by staff's presentation at the hearing on this item;

The reduced idling emissions and revised test procedures will not have any significant adverse impact on the environment;

The requirements to reduce idling emissions are anticipated to result in cost savings to truck owners over the useful life of the cab comfort device by reducing the amount of fuel consumed and the truck's maintenance requirements; under these circumstances, the emission reductions are "free";

Overall, the proposed regulation proposed herein represents the most cost-effective path towards achieving the maximum degree of emission reductions possible from new and in-use heavy-duty diesel engines, while recognizing constraints due to cost, lead time, and technical challenges;

On October 25, 2001, the Board adopted amendments to California's heavy-duty diesel regulations applicable to new California 2007 and subsequent model-year heavy-duty diesel vehicles and engines, and to associated test procedures for determining compliance with the applicable standards; these amendments align California and federal standards and test procedures for 2007 and subsequent model-year vehicles and engines, and the adoption of the proposed regulation will not cause California motor vehicle emission standards for heavy-duty diesel engines, in the aggregate, to be less protective of public health and welfare than applicable emission standards; and

Separate California emission reduction requirements and test procedures are necessary since California emission reduction requirements must be, in the aggregate, at least as protective of public health and welfare as applicable federal standards and test procedures.

WHEREAS, the Board further finds that:

Adoption of the regulation to reduce idling emissions from sleeper berth equipped trucks are estimated to reduce emissions by approximately 46 tons per day (tpd) of oxides of nitrogen, 4.2 tpd of reactive organic gases, 0.4 tpd of particulate matter, and 1930 tpd (0.7 millions of tons per year) of carbon dioxide emissions, statewide in 2010 from both California and out-of-state registered sleeper berth equipped trucks;

The adoption of the regulations approved herein will not have a significant adverse environmental impact, and the regulations are projected to positively impact air quality;

The proposed regulations will not affect the creation or elimination of jobs within the State of California, the creation of new businesses or the elimination of existing businesses within California, the expansion of businesses currently doing businesses within California, or the ability California businesses to compete with businesses in other states; and

No alternative considered by the Board would be more effective in carrying out the purpose for which the regulations are proposed or would be as effective and less burdensome to affected private persons.

NOW, THEREFORE, BE IT RESOLVED that, the Board hereby approves the amendments to sections 1956.8, 2404, 2424, 2425, and 2485 of title 13, California Code of Regulations, as set forth in Attachment A hereto, and to amend the California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles, as set forth in Attachment B, hereto, with the modifications set forth in Attachment C hereto, with the following additional modifications: (1) technologies utilizing electrical shore power or comparably clean emission technologies will be allowed as options to comply with the in-use idling regulations set forth in section 2485 of title 13, California Code of Regulations, as set forth in Attachment A hereto, (2) military tactical vehicles will be exempted from the proposed amendments to sections 1956.8, 2404, 2424, 2425 of title 13, California Code of Regulations, as set forth in Attachment A hereto, and (3) the current exemption applicable to military tactical vehicles in section 2485 of title 13, California Code of Regulations will be clarified to also exempt such operational modes as training, testing, and deployment.

BE IT FURTHER RESOLVED that, the Board directs the Executive Officer to adopt the above amendments as set forth in Attachment A hereto, the test procedures incorporated by reference in Attachment A and set forth in Attachment B hereto, with the modifications set forth in Attachment C hereto, and with such other conforming modifications and technical amendments as may be appropriate, after making the modified regulatory language and additional supporting documents and information available for public comment for a period of 15 days, as required by Government Code 11346.8, provided that the Executive Officer shall consider such written comments as may be submitted during this period, shall make modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted after reviewing the comments.

BE IT FURTHER RESOLVED that the Board directs the Air Resources Board staff to:

Coordinate the education of affected owners and operators, and the public with the participation of other agencies and interested parties, including, but not limited to, the California Highway Patrol; and

As the primary enforcement agency, coordinate enforcement with other State and local agencies, such as the California Highway Patrol, local peace officers, and air



quality management and air pollution control districts, including monitoring and targeting areas of potentially high non compliance including within environmental justice communities.

BE IT FURTHER RESOLVED that the Board hereby determines that the regulations adopted herein will not cause California motor vehicle emission standards, in the aggregate, to be less protective of public health and welfare than applicable federal standards.

BE IT FURTHER RESOLVED that the Board hereby finds that separate California emission standards and test procedures are necessary to meet compelling and extraordinary conditions.

BE IT FURTHER RESOLVED that the Board finds that the California emission standards and test procedures, as adopted herein, will not cause the California requirements to be inconsistent with section 202(a) of the Clean Air Act and raise no new issues affecting previous waiver determinations of the Administrator of the Environmental Protection Agency pursuant to section 209(b) of the Clean Air Act.

BE IT FURTHER RESOLVED that to the extent it is necessary, the Executive Officer shall, upon adoption, forward the regulations to the United States Environmental Protection Agency with a request for a waiver or confirmation that the regulations are within the scope of an existing waiver of federal preemption pursuant to section 209(b) of the federal Clean Air Act, as appropriate.

BE IT FURTHER RESOLVED that the Board hereby determines, pursuant to section 209(e)(2) of the federal Clean Air Act, that the emission standards and other requirements related to the control of emissions adopted as part of this Airborne Toxic Control Measure are, in the aggregate, at least as protective of public health and welfare as applicable federal standards, that California needs the adopted standards to meet compelling and extraordinary conditions, and that the amended standards and accompanying enforcement procedures are consistent with the provisions of section 209; and

BE IT FURTHER RESOLVED that to the extent it may be necessary, the Board directs the Air Resources Board staff to file a request for authorization from the Administrator of the Environmental Protection Agency pursuant to Clean Air Act section 209(e)(2).

I hereby certify that the above is a true and correct copy of Resolution 05-55, as adopted by the Air Resources Board.

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Lori Andreoni, Clerk of the Board

Resolution 05-55

October 20, 2005

Identification of Attachments to the Resolution

- Attachment A:** Amendments to Title 13, California Code of Regulations, sections 1956.8, 2404, 2424, 2425, and 2485 as included in the Initial Statement of Reasons released September 2, 2005
- Attachment B:** Amendments to California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles as included in the Initial Statement of Reasons released September 2, 2005.
- Attachment C:** Staff's Suggested Modifications to the Original Proposal, presented at the October 20, 2005 hearing.