

State of California
Environmental Protection Agency
AIR RESOURCES BOARD

**Notice of Decision and
Response to Significant Environmental Issues**

**Item: NOTICE OF PUBLIC HEARING TO CONSIDER AMENDMENTS TO THE
CERTIFICATION REQUIREMENTS AND PROCEDURES FOR LOW-EMISSION
PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY VEHICLES**

Approved by: Resolution 95-40

Adopted by: Executive Order G-96-032
Executed: June 24, 1996

Agenda Item No.: 95-9-1

Public Hearing Date: September 28, 1995

Issuing Authority: Air Resources Board

Comment: Several comments were received identifying significant environmental issues pertaining to this item. The issues involved the increased emissions of directly-emitted particulate matter (PM) and carbon monoxide (CO) that will result from the relaxation of the PM and CO emission standards for medium-duty Ultra-Low-Emission Vehicles (ULEVs). These issues were identified and addressed on pages 45-46 of the Staff Report. The comments were also summarized and addressed on pages 13-15 of the Final Statement of Reasons. Both of these documents, along with Resolution 95-40, are incorporated by reference herein. Resolution 95-40 is also attached hereto.

A major element of this rulemaking is the adoption of generally more stringent standards for medium-duty vehicles and engines (collectively referred to as MDVs). The primary objective has been to reduce emissions of oxides of nitrogen (NOx) from MDVs in an amount equal to or exceeding the emission reductions that would result from the MDV element in the State Implementation Plan (SIP) adopted by the ARB in November 1994. The amendments achieve that objective. The staff has identified the total baseline NOx emissions from MDVs prior to implementation of the amendments as about 89 tons per day (tpd) in 2010 in the South Coast Air Basin. The amendments are projected to reduce these NOx emissions by 23.9 tpd--a reduction of about 27%. California has six areas of non-attainment for the federal ambient air quality standard for ozone, and NOx control is a critical element in California's plan to meet the federal and state ozone standards.


NOx controls on diesel engines tend to increase directly emitted PM. NOx controls also tend to increase emissions of CO. In order to give manufacturers a greater chance of success in developing low NOx strategies to meet the new substantially more stringent NOx requirements, the Board relaxed the ULEV PM standard to LEV levels for medium-duty ULEVs certified to the optional heavy-duty engine standards, and relaxed the ULEV CO standards to LEV levels for both engine-certified vehicles and chassis-certified MDVs.

The projected increase in directly-emitted PM resulting from the amendments is 0.8 tpd. The lower NOx emissions will mitigate this increase by reducing the formation of secondary PM in the atmosphere by approximately 12 tpd (one of the constituents of secondary particulate is ammonium nitrate, which is formed from NOx in the atmosphere). The contribution of MDVs to the total CO inventory is relatively minor, and the amendments are projected to increase MDV CO emissions in the South Coast Air Basin to about 322 tpd from about 298 tpd. Since the total CO inventory is 6600 tpd for the South Coast Air Basin, it is not anticipated that this slight increase will significantly affect the CO attainment status of that basin or other areas.

The staff's most recent technology assessment is that there is no alternative to allowing higher ULEV PM and CO standards in order to assure achievement of the needed NOx emission reductions. In Resolution 95-40, the Board found that there are no feasible mitigation measures or alternatives that would reduce the potential environmental impacts from increased CO and PM emissions, while at the same time providing the substantial overall health benefits from the significant NOx (and non-methane organic gas) emissions reductions realized by the regulations.

Response: See above.

Certified:


Artavia M. Edwards
Regulations Coordinator

Date:

12 Jul 96

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RESOURCES AGENCY OF CALIFORNIA

State of California
AIR RESOURCES BOARD

Resolution 95-40

September 28, 1995

Agenda Item No.: 95-9-1

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (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 declared that the emission of air contaminants from motor vehicles is the primary cause of air pollution in many parts of the state;

WHEREAS, Health and Safety Code section 43013 authorizes the Board to adopt and implement motor vehicle emission standards and in-use performance standards for the control of air contaminants which the Board has found to be necessary, cost-effective, and technologically feasible to carry out the purposes of Division 26 of the Health and Safety Code;

WHEREAS, sections 43018(a) and (b) of the Health and Safety Code direct the Board to endeavor to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to accomplish the attainment of the state ambient air quality standards at the earliest practicable date, and direct the Board no later than January 1, 1992 to take whatever actions are necessary, cost-effective, and technologically feasible in order to achieve, by December 31, 2000, specified reductions in the emissions of reactive organic gases (ROG), oxides of nitrogen (NOx), particulates (PM), carbon monoxide (CO), and toxic air contaminants from vehicular sources;

WHEREAS, section 43018(c) of the Health and Safety Code provides that in carrying out section 43018, the Board shall adopt standards and regulations which will result in the most cost-effective combination of control measures on all classes of motor vehicles and motor vehicle fuel, including but not limited to reductions in motor vehicle exhaust and evaporative emissions, and reductions in in-use vehicular emissions through durability and performance improvements;

WHEREAS, section 43101 of the Health and Safety Code directs the Board to adopt and implement emission standards for new motor vehicles which the Board has found to be necessary and technologically feasible to carry out the purposes of Division 26 of the Health and Safety Code;

WHEREAS, section 43104 of the Health and Safety Code directs the Board to adopt test procedures for determining whether new motor vehicles are in compliance with the emission standards established by the Board;

WHEREAS, in a 1990-1991 rulemaking, the Board adopted the California Low-Emission Vehicle regulations, which require the phased introduction of vehicles meeting standards for four progressively more stringent categories of light-duty vehicles: Transitional Low-Emission Vehicles (TLEVs), Low-Emission Vehicles (LEVs), Ultra-Low-Emission Vehicles (ULEVs), and Zero-Emission Vehicles (ZEVs);

WHEREAS, the Low-Emission Vehicle regulations include a protocol under which the Executive Officer is to establish reactivity adjustment factors (RAFTs) for representative vehicle/fuel combinations by applying a reactivity scale based on the maximum incremental reactivity (MIR) of individual hydrocarbon species to hydrocarbon exhaust speciation profiles; these RAFTs are to be applied to the non-methane organic gas exhaust mass emissions from TLEVs, LEVs and ULEVs operating on fuels other than conventional gasoline, to determine compliance with applicable emission standards;

WHEREAS, the Board has to date established through rulemakings RAFTs for light-duty TLEVs operated on methanol (M85), and for light-duty TLEVs and LEVs operated on Phase 2 reformulated gasoline; the Board has also established by rulemaking baseline values of reactivity expressed in grams of ozone per gram non-methane organic gases (NMOG) for light-duty conventional gasoline TLEVs, LEVs and ULEVs of 3.42, 3.13 and 3.13 respectively;

WHEREAS, the State Implementation Plan (SIP) approved by the Board in November 1994 establishes a plan for achieving attainment of the federal ambient ozone air quality standards, including Measure M-3 which calls for the accelerated introduction of medium-duty ULEVs to achieve emission reductions of reactive organic gases (ROG) and oxides of nitrogen (NOx);

WHEREAS, Senate Bill 2050 (Stats. 1994, ch. 1192) provides for a program under which certain motor vehicles are assigned smog index numbers, based on the tailpipe and evaporative emissions levels to which the vehicles were certified;

WHEREAS, Senate Bill 2050 and sections 39600, 39601, and 43200 of the Health and Safety Code authorize the Board to adopt regulations assigning smog index numbers for new California-certified passenger cars and light-duty trucks, and specifying the form of window decal disclosing the smog index number;

WHEREAS, in conjunction with a public hearing notice dated August 11, 1995, the staff has proposed a wide range of regulatory amendments to the Low-Emission Vehicle regulations and to the general certification requirements and procedures for light and medium-duty vehicles, including the following elements:

Increasing the required number of medium-duty ULEVs from 15% to 40% by the 2003 model year; requiring 100% ULEVs for medium-duty vehicles certified to the optional heavy-duty engine standards in Title 13, California Code of Regulations, section 1956.8; amending the optional heavy-duty engine standards applicable to MDVs to align with the proposed U.S. Environmental Protection Agency (U.S. EPA) standards of either 2.4 grams per brake horsepower-hour (g/bhp-hr) non-methane hydrocarbons (NMHC) plus NOx or 2.5 g/bhp-hr NMHC plus NOx with a 0.5 g/bhp-hr cap on NMHC; and establishing a new emission standard for Super Low-Emission Vehicles (SLEVs) equal to one-half of the applicable ULEV emission standard;

Establishing baseline values of reactivity for medium-duty LEVs and ULEVs operating on conventional gasoline of 3.13 grams of ozone per gram NMOG, interim RAFs for light and medium-duty ULEVs operating on Phase 2 reformulated gasoline certification fuel of 0.94, RAFs for light and medium-duty LEVs and UELVs operating on compressed natural gas of 0.43, RAFs for light and medium-duty LEVs and ULEVs operating on liquefied petroleum gas of 0.50, and RAFs for light and medium-duty LEVs and ULEVs operating on M85 of 0.41; the proposed values are interim values to be effective through the 2000 model year;

Assigning smog index numbers to new 1995 and subsequent model-year passenger cars and light-duty trucks, and specifying that a window decal disclosing the smog index number must be affixed to the vehicle in a readily visible location;

Updating and revising the certification test procedures and requirements for low-emission vehicles by, among other things, revising the laboratory methods for the measurement of NMOG, and adding requirements for utilizing new on-board diagnostic systems during quality audit testing and new vehicle compliance testing; and amending the specifications for commercial M100 (pure methanol) fuel to remove the requirement for a luminosity-enhancing additive or substitute;

WHEREAS, the staff's proposal would be effected by amendments to Title 13, California Code of Regulations, sections 1956.8, 1960.1, 1965, 2101, 2062 and 2292.1 as set forth in Attachment A hereto; amendments to the California Exhaust Emission Standards and Test Procedures for 1987 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles, which is incorporated by reference in section 1956.8, as set forth in Attachment B hereto; amendments to the California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty

Vehicles, which is incorporated by reference in section 1960.1, as set forth in Attachment C hereto; amendments to the California Motor Vehicle Emission Control and Smog Index Label Specifications, which is incorporated by reference in section 1965, as set forth in Attachment D hereto; amendments to the California Assembly-Line Test Procedures for 1998 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles, which is incorporated by reference in section 2062, as set forth in Attachment E hereto; amendments to the California Non-Methane Organic Gas Test Procedures, as set forth in Attachment F hereto; and amendments to the California New Vehicle Compliance Test Procedure, which is incorporated by reference in section 2101, as set forth in Attachment G hereto;

WHEREAS, the California Environmental Quality Act and Board regulations require that an action not be adopted as proposed where it will have significant adverse environmental impacts if feasible alternatives or mitigation measures are available which would substantially reduce or avoid such impacts;

WHEREAS, the Board has considered the impact of the proposed regulatory action on the economy of the state;

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:

The proposed medium-duty vehicle phase-in requirements are necessary and appropriate to achieve the maximum feasible emission reductions from medium-duty vehicles in order to attain the federal and state ambient air quality standards at the earliest practicable date;

The proposed NMOG, CO, NO_x and particulate standards for medium-duty vehicles are technologically feasible and cost-effective, and together with existing and anticipated standards and regulations for all classes of motor vehicles, reflect the most cost-effective combination of control measures to control air pollution caused by motor vehicles;

The proposed interim baseline specific reactivity values and RAFs are necessary and appropriate in order to provide manufacturers with sufficient leadtime to develop and incorporate emission control strategies that take into account both the mass emissions and relative reactivity of new motor vehicles operated on nonconventional fuels; establishment of interim values will accommodate the consideration of any additional data and analytical methods in the subsequent adoption of RAFs for such categories for the 2001 and subsequent model years;

The smog index label specifications approved herein are necessary and appropriate to fulfill the Board's responsibilities under Health and Safety Code section 43200 et seq., and are necessary for the protection and information of consumers;

The remaining regulatory amendments approved herein are necessary and appropriate to clarify requirements, avoid unduly burdensome restrictions, and facilitate implementation of the Low-Emission Vehicle Program;

The economic and cost impacts of this regulatory action have been analyzed as required by California law, and the conclusions and supporting documentation for this analysis are set forth in the Staff Report;

The reporting requirements of this regulatory action which apply to businesses are necessary for the health, safety, and welfare of the people of the State;

The provisions of this regulatory action which differ from federal requirements are authorized by California law;

WHEREAS, pursuant to the requirements of the California Environmental Quality Act (CEQA) and the Board's regulations, the Board further finds that:

The amendments in this rulemaking action relating to the RAFs will not have any significant adverse impacts on the environment;

Adverse environmental impacts may potentially result from the amendments relating to MDVs, in that the amendments allow a slight relaxation of the ULEV CO and PM standards, which in turn may result in an increase in CO and PM emissions from MDVs;

Allowing a slight relaxation of the CO and PM standards is necessary in order to allow manufacturers to succeed in developing low-NOx strategies to meet the stringent MDV NOx levels specified in the regulations, and the significant decrease in NMOG and NOx emissions that will result from this rulemaking action overrides any adverse environmental impacts that might occur from a slight increase in CO and PM emissions;

Although the regulations will allow more PM to be emitted directly from MDVs, the lower NOx emissions from MDVs will partially mitigate this increase by reducing the formation of secondary PM in the atmosphere;

There are no other feasible mitigation measures that would reduce the potential environmental impacts from increased CO and PM emissions, while at the same time providing the substantial overall health benefits from the significant NMOG and NOx emissions reductions realized by the regulations;

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the amendments to sections 1956.8, 1960.1, 1965, 2062, 2101 and 2292.1, and the documents incorporated therein, as set forth in Attachments A through H hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to incorporate into the approved amendments the modifications described in Attachment H hereto, with such other conforming modifications as may be appropriate, and to adopt the amendments approved herein, after making the modified regulatory language available for public comment for a period of 15 days, provided that the Executive Officer shall consider such written comments regarding the modifications as may be submitted during this period, shall make modifications after comments have been received, and shall present the regulations to the Board for further consideration if he determines that this is warranted.

BE IT FURTHER RESOLVED that the Board hereby determines that the amendments approved herein will not cause the 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 motor vehicle emission standards and test procedures are necessary to meet compelling and extraordinary conditions.

BE IT FURTHER RESOLVED that the Board finds that the California motor vehicle emission standards and test procedures as amended 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 U.S. EPA pursuant to section 209(b) of the Clean Air Act.

BE IT FURTHER RESOLVED that the Executive Officer shall, upon adoption, forward the amendments pertaining to new motor vehicle emission standards and accompanying enforcement procedures to the U.S. EPA with a request for a waiver of federal preemption, or confirmation that the amendments are within the scope of an existing waiver, pursuant to section 209(b) of the Clean Air Act.

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RESOURCES AGENCY OF CALIFORNIA

I hereby certify that the above is a true and correct copy of Resolution 95-40, as adopted by the Air Resources Board.

Pat Hutchens
Pat Hutchens, Board Secretary

State of California
AIR RESOURCES BOARD

Executive Order G-96-032

WHEREAS, on September 28, 1995, the Air Resources Board (the Board or ARB) conducted a hearing to consider amendments to the certification requirements and test procedures for low-emission passenger cars, light-duty trucks and medium-duty vehicles, including the accelerated introduction of ultra-low-emission medium-duty vehicles, adoption of baseline specific reactivities for medium-duty low-emission vehicles (LEVs) and ultra-low-emission vehicles (ULEVs), adoption of interim reactivity adjustment factors (RAFs) for the remaining emission categories for Phase 2 reformulated gasoline, methanol, compressed natural gas and liquefied natural gas certification fuel, requirements for placing a smog index on window decals of 1998 and subsequent model-year passenger cars and light-duty trucks, and various other technical amendments;

WHEREAS, following the public hearing on September 28, 1995, the Board adopted Resolution 95-40, in which the Board approved amendments to sections 1956.8, 1960.1, 1965, 2062, 2101 and 2292.1, Title 13, California Code of Regulations (CCR), and to the incorporated "California Exhaust Emission Standards and Test Procedures for 1987 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles," "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," "California Motor Vehicle Emission Control and Smog Index Label Specifications," "California Assembly-Line Test Procedures for 1998 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," "California Non-Methane Organic Gas Test Procedures," and "New Vehicle Compliance Test Procedure," as set forth in Attachments A through G to Resolution 95-40, with the modifications set forth in Attachment H thereto;

WHEREAS, Resolution 95-40 directed the Executive Officer to incorporate into the approved amendments the modifications described in Attachment H thereto, with such other conforming modifications as may be appropriate; to make the modified regulatory language available to the public for a supplemental written comment period of 15 days; and thereafter either to adopt the amendments with such additional modifications as may be appropriate in light of supplemental comments received, or to present the amendments to the Board for further consideration if warranted;

WHEREAS, the modified texts of the amendments to sections 1956.8, 1960.1, 1965, 2101, 2062 and 2291, Title 13, California Code of Regulations, and the documents incorporated therein, were made available for a supplemental 15-day comment period ending November 3, 1995, in accordance with the provisions of Title 1, California Code of Regulations (CCR), section 44, with the modifications to the originally proposed text clearly indicated;

WHEREAS, in light of the comments received during the initial 15-day comment period, the Executive Officer determined it was necessary and appropriate to make additional modifications to the regulations and incorporated documents; the texts of the affected regulations and incorporated documents with additional modifications were made available to the public for second 15-day comment period ending February 29, 1996, after which additional modifications were made for a third 15-day comment period ending April 22, 1996;

WHEREAS, The Executive Officer has considered all written comments received during the three supplemental 15-day comment periods;

WHEREAS, The Executive Officer finds that it is necessary and appropriate to make various additional nonsubstantial modifications to the regulatory language made available during the supplemental 15-day comment periods; these modifications are identified in Attachment 1 to the Final Statement of Reasons and include amendments to Title 13, CCR, section 2061 and the incorporated "California Assembly-Line Test Procedures for 1983 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles" to reflect the fact that new section 2062 establishes the assembly-line test procedures for 1998 and subsequent model-year vehicles; and

WHEREAS, Attachment A hereto contains the text of the amendments to sections 1956.8, 1960.1, 1965, 2061, 2062, 2101 and 2292.1, Title 13, CCR, and Attachments B through G hereto contain the text of the amendments to the incorporated documents, all with the final modifications made available for the 15-day comment periods and the additional nonsubstantial modifications referred to above.

NOW, THEREFORE, IT IS ORDERED that the recitals and findings contained in Resolution 95-40 are incorporated herein.

IT IS FURTHER ORDERED, in accordance with Resolution 95-40 and Health and Safety Code sections 39515 and 39516, that the amendments to sections 1956.8, 1960.1, 1965, 2061, 2062, 2101 and 2292.1, Title 13, CCR, are adopted as set forth in Attachment A hereto, and the amendments to the incorporated "California Exhaust Emission Standards and Test Procedures for 1987 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles," "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," California Motor Vehicle Emission Control and Smog Index Label Specifications," California Assembly-Line Test Procedures for 1983 Through 1997 Model-Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," "California Assembly-Line Test Procedures for 1998 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," "California Non-Methane Organic Gas Test

Resolution 95-40

September 28, 1995

Identification of Attachments to the Resolution

Attachment A: Amendments to Title 13, California Code of Regulations, sections 1956.8, 1960.1, 1965, 2062, 2101 and 2292.1, as appended to the Staff Report released August 11, 1995.

Attachment B: Amendments to the California Exhaust Emission Standards and Test Procedures for 1987 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles, as made available by the ARB's Mobile Source Division August 11, 1995.

Attachment C: Amendments to the California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles, as made available by the ARB's Mobile Source Division August 11, 1995.

Attachment D: Amendments to the California Motor Vehicle Emission Control and Smog Index Label Specifications, as made available by the ARB's Mobile Source Division August 11, 1995.

Attachment E: Amendments to the California Assembly-Line Test Procedures for 1998 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles, as made available by the ARB's Mobile Source Division August 11, 1995.

Attachment F: Amendments to the California Non-Methane Organic Gas Test Procedures, as made available by the ARB's Mobile Source Division August 11, 1995.

Attachment G: Amendments to the California New Vehicle Compliance Test Procedure, as made available by the ARB's Mobile Source Division August 11, 1995.

Attachment H: Staff's Suggested Changes to the Original Proposal, distributed at the hearing on September 28, 1995.