State of California
AIR RESOURCES BOARD

Final Statement of Reasons for Rulemaking,
Including Summary of Comments and Agency Response

PUBLIC HEARING TO CONSIDER AMENDMENTS TO REGULATIONS REGARDING CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 1985 AND SUBSEQUENT MODEL HEAVY-DUTY ENGINES AND VEHICLES, TO SPECIFY MANDATORY STANDARDS FOR 1998 AND SUBSEQUENT HEAVY-DUTY ENGINES AND OPTIONAL STANDARDS FOR 1995 AND SUBSEQUENT HEAVY-DUTY ENGINES.

Public Hearing Date: June 29, 1995
Agenda Item No.: 95-6-1

I. GENERAL

The Staff Report: Initial Statement of Reasons for Rulemaking ("staff report"), entitled PUBLIC HEARING TO CONSIDER AMENDMENTS TO REGULATIONS REGARDING CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 1985 AND SUBSEQUENT MODEL HEAVY-DUTY ENGINES AND VEHICLES, TO SPECIFY MANDATORY STANDARDS FOR 1998 AND SUBSEQUENT HEAVY-DUTY ENGINES AND OPTIONAL STANDARDS FOR 1995 AND SUBSEQUENT HEAVY-DUTY ENGINES released May 12, 1995, is incorporated by reference herein.

Following a public hearing on June 29, 1995, the Air Resources Board (ARB or Board) by Resolution 95-26 approved amendments to the existing regulations for the use and sale of heavy-duty (HD) engines and vehicles in the State of California. The regulations amended are contained in Title 13, California Code of Regulations (CCR), Section 1956.8, "California Exhaust Emissions Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Engines and Vehicles"; Title 13, CCR, Section 1965, "California Motor Vehicle Emission Control Label Specifications"; and Title 13, CCR, Section 2112, "Useful Life Definition for Heavy-Duty Engines and Vehicles for the Procedures for In-Use Vehicle Voluntary and Influenced Recalls".

II. Background

The Clean Air Act Amendments (CAAA) of 1990 required the U.S. EPA to implement new heavy-duty diesel and gasoline engine certification standards for oxides of nitrogen (NOx) emissions at a level not to exceed 4.0 grams per brake horsepower-hour (g/bhp-hr), beginning with the 1998 model year. The U.S. EPA issued a final rule in March of 1993 to implement this requirement. To avoid having a federal standard lower than the California standard, staff proposed aligning the California standard with the federal standard. The 1993 federal action also changed the useful life for heavy-duty vehicle NOx emissions from 8 years to 10 years, beginning in 1998, also as required by the CAAA. Accordingly, staff proposed that the Board align the corresponding California useful life requirements with those of the federal regulations.

Finally, staff proposed that the Board adopt two series of voluntary, optional heavy-duty NOx certification standards for diesel engines and two series for Otto-cycle engines. For diesel vehicles of model years 1995 through 1997, the optional standards range from 3.5 g/bhp-hr down to 0.5 g/bhp-hr, inclusive, in 0.5 g/bhp-hr increments. For 1998 and later

model years, they range from 2.5 g/bhp-hr down to 0.5 g/bhp-hr in 0.5 g/bhp-hr increments. The maximum optional credit level is reduced in 1998 to correspond with the proposed reduction in the mandatory standard in that year. These levels are identical to those previously adopted for urban bus use. These optional standards were proposed for use in reduced-emission heavy-duty vehicle early introduction programs and in mobile source emission reduction credit programs.

For Otto-cycle vehicles of model years 1995 through 1997, the standards range from 2.5 g/bhp-hr down to 0.5 g/bhp-hr, inclusive, in 0.5 g/bhp-hr increments. For 1998 and later model years, they range from 1.5 g/bhp-hr down to 0.5 g/bhp-hr in 0.5 g/bhp-hr increments. As with diesel-cycle engines, the maximum optional credit level is reduced in 1998. These optional standards for Otto-cycle engines would be used in the same way as those for diesel-cycle engines.

To help identify those engines that are certified to the proposed optional emission standards, it was proposed that information be added to the emission control label for each engine. This information would identify the engine by the optional NOx emission standard to which it is certified, and would state that it meets all other applicable California emission standards for that particular engine model year. Supplemental emission control labels may be used as an option.

III. Modifications to the Regulations

As approved on June 29, 1995, there were no substantive modifications to the original proposal. A non-substantive modification to Title 13, CCR, Section 1965, "California Motor Vehicle Emission Control Label Specifications" will be included in the final amended regulation to correct paragraph numbering. This modification does not materially alter any requirement, right, responsibility, condition, prescription or other regulatory element of any California Code of Regulations provision.

The affected sections of Title 13, CCR, incorporate three documents by reference. They are: "California Exhaust Emissions Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles", "California Exhaust Emissions Standards and Test Procedures for 1987 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles" and "California Motor Vehicle Emission Control Label Specifications". These documents are incorporated by reference to avoid publication of highly technical material in the CCR. These documents may be obtained by calling the ARB Public Information Office at (916) 322-2990.

The Board has determined that this regulatory action will not result in a mandate to any local agency or school district, the costs of which are reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code.

The Board's Executive Officer has also determined, pursuant to Government Code section 11346.9 (a)(5), that the regulation will not affect small business. The only businesses directly affected are engine manufacturers, which are not defined as small businesses under Government Code section 11342 (h). Therefore, no alternatives which would lessen the adverse economic impact on small businesses were considered.

The Board has further determined that no alternative considered by the agency would be more effective in carrying out the purpose for which the regulatory action was proposed or would be as effective and less burdensome to affected private persons than the action taken by the Board.

IV. SUMMARY OF COMMENTS AND AGENCY RESPONSE

A. Forty-five Day Written Comments

Comment: Only one comment letter was received during the 45-day comment period. It was sent by the Manufacturers of Emission Controls Association (MECA). In its letter, MECA expressed support for the implementation of the mandatory and optional NOx standards for heavy-duty vehicles. The MECA also requested that the Board direct staff to consider optional standards for pollutants other than NOx. The MECA believes that optional standards for hydrocarbon (HC), carbon monoxide (CO) and particulate matter (PM) would provide additional incentive for its members to increase marketing and development of equipment for controlling the emissions of these other pollutants.

Response: The levels of HC and CO emissions from existing heavy-duty engines, both diesel- and Otto-cycle, vary significantly between engine families, and diesel engines already emit these pollutants at very low levels. For these reasons, setting optional standards that would encourage new emission control development, while ensuring that the reductions would truly be surplus, would require standards too low to be practical. However, the ARB will remain open to reexamining the issue at appropriate points in the future as more experience with optional certification of reduced-emission heavy-duty engines is gained.

B. Hearing Oral Testimony

Comment: At the public hearing, oral testimony was given by only one speaker, a representative of the Engine Manufacturers Association (EMA). The EMA expressed support for the new California mandatory NOx standard of 4.0 g/bhp-hr beginning in 1998. The EMA believes that the harmonization of standards resulting from the alignment of California regulations with the corresponding federal regulations is beneficial to its members by eliminating the costs of separate California and 49-state product lines.

Response: The ARB appreciates the support of the EMA for the mandatory NOx standard.

Comment: The EMA believes that the structure of the optional NOx certification standards is not optimally conducive to the goals of stimulating the development and introduction of reduced-emission heavy-duty engine technology. The EMA maintains that the highest optional standards are too low compared to the applicable mandatory standards and that they should be raised. The EMA also believes that the 0.5 g/bhp-hr increment between optional standard values is too large and that a smaller increment should be used. The EMA reasons that these changes would make more engines eligible for certification to the optional standards and would more fairly represent the emission reductions achieved.

Response: The chosen maximum levels and the increment size are prudent and reasonable as they minimize the possibility that an engine

manufacturer would "shave" the compliance margin in order to certify an engine as having reduced emissions. The compliance margin is the difference between the certification test engine's measured emission level and the certification standard. A compliance margin of sufficient magnitude is necessary to ensure that engine-to-engine variability and test uncertainty do not lead to individual engines in an engine family exceeding the certification standard, even though the certification test engine was below the standard. The EMA has commented on this issue during previous consideration of optional certification standards for other heavy-duty vehicle programs. At those times, as at this hearing, the Board directed the staff to reexamine these optional standard issues once sufficient data and experience with optional standard certification has become available. The ARB remains committed to doing so at such time.

Comment: The EMA believes that the optional standard values should be identical between diesel-cycle and Otto-cycle engines. Lower maximum optional standards for Otto-cycle engines relative to those for diesel-cycle engines are not warranted, especially since the mandatory NOx standards are identical for the two categories.

Response: The measured NOx emission levels for existing Otto-cycle engines (based on certification test data) vary significantly from engine family to engine family (current diesel engines do not show this variability). Some existing Otto-cycle engines have very low levels of NOx emissions and could qualify for reduced-emission certification if the standards were the same as for diesel engines. However, this would not have the effect of encouraging the introduction of new technology but would simply allow manufacturers of commonly-used engines to take advantage of existing emission reductions which are currently reflected in existing inventories. Indeed, to allow emission reduction credits for such engines would result in an adverse impact on air quality. The Board also is concerned about encouraging widespread switching from diesel to gasoline engines, which could have a negative impact on hydrocarbon emissions since diesel engines have inherently lower hydrocarbon emission levels. For these reasons, the appropriate values for the maximum optional standards for Otto-cycle engines are lower than those proposed for diesel engines. Again, the Board directed the staff to reexamine this issue as data and experience become available.