State of California
AIR RESOURCES BOARD

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

PUBLIC HEARING TO CONSIDER THE PROPOSED AMENDMENTS TO THE CERTIFICATION PROCEDURES FOR ALL ON-ROAD MOTOR VEHICLE RETROFITS AND PROPOSED OPTIONAL RETROFIT EMISSION STANDARDS FOR HEAVY-DUTY ENGINES AND VEHICLES

Public Hearing Date: July 27, 1995
Agenda Item No.: 95-8-1

I. GENERAL

The Staff Report: Initial Statement of Reasons for Rulemaking ("staff report"), entitled "Proposed Amendments to the Certification Procedures for All On-Road Motor Vehicle Retrofits and Proposed Optional Retrofit Emission Standards for Heavy-Duty Engines and Vehicles" released June 9, 1995, is incorporated by reference herein.

Following a public hearing on July 27, 1995, the Air Resources Board (ARB or Board), by Resolution 95-39, approved the adoption of optional emission standards for heavy-duty vehicle retrofits, and approved amendments to the retrofit certification procedures. The optional emission standards for heavy-duty retrofits are contained in new Section 1956.9 of Title 13, California Code of Regulations (CCR). The certification procedures amended are contained in sections 2030 and 2031 of Article 5, Chapter 1, Division 3, Title 13, CCR.

The amended certification/test procedures incorporated by reference in sections 2030 and 2031 are: 1) "The California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for Motor Vehicles Certified for 1994 and Subsequent Model Years"; 2) "The California Exhaust Emission Standards and Test Procedures for Systems Designed to Convert Motor Vehicles Certified for 1993 and Earlier Model Years to Use Liquefied Petroleum Gas or Natural Gas Fuels"; and 3) "The California Exhaust Emission Standards and Test Procedures for Systems Designed to Convert Motor Vehicles Certified for 1993 and Earlier Model Years to Use Alcohol or Alcohol/Gasoline Fuels."

II. BACKGROUND

In-use testing of vehicle retrofit kits in 1989 showed excessive emissions from some vehicle retrofits. Therefore, the ARB staff developed more stringent retrofit certification procedures requiring durability testing and warranties of kit parts and installation. The Board adopted these more stringent retrofit certification procedures in 1992, for phase-in beginning in 1994.

The phase-in of those certification procedures has not gone as smoothly as expected. In fact, retrofit kit manufacturers were unable to complete durability testing to certify any kits under the new procedures by the end of 1994. The ARB staff proposed changes to streamline the certification procedure, while retaining the durability testing, warranty, and recall provisions to protect air quality.

There were three main changes proposed in the staff report to streamline certification: adding an alternate durability test plan, which allows manufacturers to complete system durability testing within two years of certification; extending the phase-in of the 1994 and later certification procedures by one year; and allowing installers limited use of an alternative inspection schedule for high volume (fleet) conversions.

In addition to the changes proposed to streamline certification, the staff proposed optional (credit) standards for heavy-duty vehicle retrofits. Adoption of the proposed optional standards allows heavy-duty vehicle retrofits to generate mobile source emission reduction credits.

III. MODIFICATIONS TO THE REGULATIONS

The original staff proposal was modified to include changes approved by the Board on July 27, 1995. Those changes include allowing alternate durability testing for retrofits of all vehicle classes, explicitly requiring deterioration factors to be validated within two years of certification, and updating the procedures to reflect a provision related to on-board diagnostic monitoring that was previously adopted by the ARB. Those changes were sent out for public comment on August 30, 1995.

A. ALTERNATE DURABILITY TESTING FOR ALL VEHICLE CLASSES

The original staff proposal would have allowed the use of an alternate durability test plan for heavy-duty vehicles and those medium-duty vehicles that were originally certified on an engine dynamometer. At the Board hearing, the Board expanded the use of the alternate durability test plan to include all light, medium, and heavy-duty vehicles.

The alternate durability test plan was originally proposed for heavy-duty and engine dynamometer certified medium-duty vehicles to encourage the certification of retrofit kits for these vehicles. The certification and conversion process is more expensive for these heavier vehicles, and they typically have lower deterioration rates than light-duty vehicles. The Board determined that the flexibility the alternate durability test plan affords manufacturers should be extended to light-duty vehicles and all medium-duty vehicles. Further, the Board determined that certification procedures and enforcement provisions are sufficient to protect air quality, and that the potential emission reduction benefits from increased numbers of vehicle retrofits outweigh the potential risk of a small temporary increase in emissions.

B. TWO YEARS TO VALIDATE DETERIORATION FACTORS

The original staff proposal required that manufacturers submit a test plan describing the procedures that would be used to validate the derived deterioration factors within two years. The modified language approved by the Board states explicitly that the manufacturer must submit test data to verify the derived deterioration factors within two years of certification of the retrofit.

C. OBD MONITORING PROVISION

On December 8, 1994, the Board approved a provision allowing manufacturers to submit a request that will allow them to disable specific

OBD strategies for which monitoring may not be reliable with respect to the use of alternative fuels. Manufacturers will need to submit test data and/or an engineering evaluation justifying their request. The allowance will be valid for kits up to and including the 1998 model year. This language was adopted on April 26, 1995, and approved by the Office of Administrative Law on June 8, 1995, and therefore must be incorporated. This OBD provision was inadvertently left out of the regulation as published in the staff report. This OBD provision was incorporated in the version of the regulation approved by the Board on July 27, 1995.

The Board has determined that this regulatory action will not create costs or savings, as defined in Government Code section 11346.5(a) (6), to any state agency or in federal funding to the state, costs or mandate to any local agency or school district, whether or not reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code, or other nondiscretionary savings to local agencies.

The Board has also determined that adoption of the proposed regulatory action will not have a significant adverse economic impact on businesses, including the ability of California businesses to compete with businesses in other states.

In accordance with Government Code section 11346.3, the Board has determined that the proposed regulatory action will not affect the creation or elimination of jobs within the State of California, the creation of new business or elimination of existing businesses within California, or the expansion of businesses currently doing business within California. An assessment of the economic impacts of this regulatory action can be found in the Staff Report.

The Board has further determined that there will be no, or an insignificant, potential cost impact, as defined in Government Code section 11346.5(a)(9), on private persons or businesses directly affected by this regulatory action.

Finally, the Board has 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

During the 45-day comment period, the Board received written comments from the California Natural Gas Vehicle Coalition (CNGVC), the Western States Petroleum Association (WSPA), GFI Control Systems, the Manufacturers of Emissions Controls Association (MECA), and the Southern California Gas Company (The Gas Company).

At the public hearing, oral testimony was given by CNGVC, WSPA, The Gas Company, the California Trucking Association (CTA), Vinyard Engine Systems, Incorporated (Vinyard), the South Coast Air Quality Management District (SCAQMD), and Antelope Valley Bus, Incorporated (Antelope).

During the 15-day comment period, written comments were received from CNGVC, Union Oil Company of California (Unocal), and Carburetion Labs

International Incorporated (Carburetion Labs) as forwarded by Golden States Natural Gas Systems.

The Board received written comments and/or oral testimony favorable to the original proposal from the CNGVC, GFI, Vinyard, and The Gas Company. These written and oral comments are neither summarized nor responded to herein.

A. FORTY-FIVE DAY WRITTEN COMMENTS

1. Comment: Kit makers are given an inordinately long time for durability testing. Under the ARB proposal, a kit maker can begin selling kits at the beginning of one model year, say September 1996, and not complete durability testing until August 1998. WSPA recommends that obligations incurred in a given model year be met in that model year. (WSPA)

Agency Response: The 1994 certification procedures required retrofit kit manufacturers to complete durability testing for each year's vehicle models by the end of that calendar year. Last year, 1994, was the first year that durability testing was required for the retrofit kit manufacturers. The process took longer than either the ARB or the kit manufacturers expected. The first manufacturer to complete the durability testing process took 21 months. That 21 months included kit development, preparation and approval of the test plan, durability testing, data compilation, review, and approval.

It is in the manufacturer's best interest to facilitate durability testing and prove their systems. The Board determined that allowing kit manufacturers two years to complete durability testing from the time of certification was reasonable. It should also be noted that original equipment manufacturers typically allow themselves three years to complete durability testing.

2. Comment: WSPA recommends that obligations to provide 55 percent of the model year 1995 and 1996 retrofits under the 1994 and subsequent model year retrofit procedures be met strictly within each model year. Air quality is compromised if the required number of retrofits under the more stringent [1994] procedures are not completed. (WSPA)

Agency Response: The Board determined that it is appropriate to allow retrofit kit manufacturers more time to complete durability testing, as opposed to meeting testing and certification requirements within each model year (see response to comment 1). The ARB acknowledges that air quality could be compromised if the required retrofits under the more stringent 1994+ procedures are not completed. However, the ARB will enforce the required percentage certification under the amended 1994+ retrofit procedures, and this regulatory action does not compromise that enforcement.

3. Comment: WSPA recommends that vehicles converted using a kit that fails its durability test be recalled and that any benefits or emissions reductions credits associated with uncorrected retrofits be disallowed. (WSPA)

Agency Response: Kit manufacturers are still subject to recall requirements under this regulatory action should a kit fail durability

testing. The administration and enforcement of emission reduction credits is the responsibility of the local air pollution control and air quality management districts (Districts), and is outside the scope of this regulation.

4. Comment: WSPA recommends that a bi-fuel vehicle operated on gasoline not count either as a TLEV or an alternative fuel vehicle and that such vehicles not receive full emission reduction credits or financial incentives. (WSPA)

Agency Response: This regulatory action does not affect whether a bi-fuel vehicle is counted as a TLEV or an alternative fuel vehicle, nor does it affect the emission reduction credits or financial incentives that a bi-fuel vehicle would receive.

5. Comment: Under Section 1)e of the 1994+ retrofit procedures, non-credit generating alternative fuel retrofit systems for model years 1994 and earlier vehicles and engines are given the opportunity to certify under the proposed procedures. We believe that including conventional fuel retrofits, including heavy-duty vehicles and engines, under the provision would provide substantial additional control opportunities. (MECA, 7/24/95)

Agency Response: Non-credit generating conventional fuel retrofits can be certified as aftermarket parts (section 2001, Title 13, CCR). Aftermarket parts certification would almost certainly be quicker and simpler than certification under the 1994 and subsequent model year certification procedures.

6. Comment: Including conventional fuel retrofits for vehicles and engines manufactured before 1994 would provide significant additional control opportunities in the State of California. (MECA, 7/24/95)

Agency Response: Conventional fuel retrofits for vehicles and engines manufactured before 1994 are included, and can certify under the 1994+ procedures, if they are credit-generating retrofits. Non-credit generating conventional fuel retrofits can be certified as aftermarket parts (see response to comment 5).

7. Comment: Including both pre-1994 conventional fuel and alternative fuel retrofits for credit generation under the proposed revisions would give operators incentive to use retrofit technology developed for these vehicles and further provide considerable and [sic] quality benefits for the State of California. (MECA, 7/24/95)

Agency Response: Both pre-1994 conventional fuel and alternative fuel retrofits for credit generation are included under the proposed revisions (see section 1(a) of the 1994+ retrofit procedures).

8. Comment: MECA concurs with ARB's proposal to allow carry-over and carry-across emission test data as a part of the certification procedures. (MECA, 7/24/95)

Agency Response: Carry-over and carry-across of emission test data are allowed under the certification procedures. The specifics of the carry-over and carry-across provisions are not part of this rulemaking.

9. Comment: The proposed amendments do not expressly include procedures for credit generation for upgrading emission control systems on pre-1990 gasoline-powered light duty vehicles. Consequently, we would welcome the opportunity to mutually explore with the Air Resources Board developing procedures to cover this class of retrofits, addressing such issues as the appropriate methods to determine the emission credits that would result from such a program, cost effective certification procedures, and other issues surrounding the concept of emission control upgrade. (MECA, 7/26/95)

Agency Response: Pre-1990 gasoline-powered light duty vehicles retrofitted for credit can and must be certified under the 1994+ procedures (see 1(b) under the 1994+ procedures). The Tier 1 and LEV standards as referenced in section 1(c) of the 1994+ procedures are the applicable credit standards. Addressing other credit generation issues is outside the scope of this regulatory action.

B. BOARD HEARING ORAL TESTIMONY

1. Comment: We've had limited opportunity to review the report and recommendations, however our preliminary review indicates that this proposed regulation will obstruct work under development with the CTA's SIP Task Force. (CTA)

Agency Response: The ARB believes that the amendments in this regulatory action will benefit the SIP development work. Both the adoption of the credit standards for optional heavy-duty vehicle retrofits, and the streamlining of the retrofit certification process should encourage the introduction of new heavy-duty vehicle technology. Nothing in this regulation makes the certification of heavy-duty vehicle retrofits more difficult.

2. Comment: A company can purchase an engine that operates with natural gas but that engine will not come in a truck body or chassis. The chassis and fueling system must be modified by a third party . . . It is unclear to us at this time what effect this regulation would have on the opportunity offered by retrofit technology. (CTA)

Agency Response: This regulatory action does not apply to new alternative fuel engines, nor to the chassis/fuel system upgrades to accommodate a new alternative fuel engine. The amendments approved by the Board should streamline the certification process and encourage heavy-duty vehicle retrofits.

3. Comment: There needs to be some information provided to the marketplace that there is some degree of difference between a certification that has full testing completed and that which has not had full testing performed. (SCAQMD)

Agency Response: Certification under the alternate durability test plan is approved with no condition on the certification. However, the Board directed staff to report back within a year on the need for conditional certification.

4. Comment: If every vehicle that could go to an alternate fuel actually went to an alternate fuel, what would be the percentage of NOx reduction? (Antelope)

Agency Response: This question regarding the potential reduction in the emissions inventory from the use of alternative fuels is outside the scope of this regulatory action.

5. Comment: If we're certifying for end-users to obtain emission credits by retrofitting and using these technologies, who's going to suffer if the credits are sold, and the kit is later recalled because it's not working right? (Antelope)

Agency Response: The kit manufacturer would be responsible for recalling and fixing the vehicle. Recall can be a significant expense, and gives manufacturers every incentive to be confident in their product before putting it out on the street. The mobile source credit trading issues are outside the scope of this regulatory action. Local districts have the authority and the responsibility to oversee emission reduction credit trades, and may require additional testing/enforcement provisions.

6. Comment: Repowering diesel vehicles with cleaner diesel engines is a big issue that still needs to be settled. (Antelope)

Agency Response: Repowering an existing vehicle with a new diesel engine is beyond the scope of this regulatory action.

C. 15-DAY COMMENT LETTERS

1. Comment: The balance of the requirements contained in Resolution 95-39 are at once mis-directed, ill-informed, non-applicable and cost prohibitive. (Carburetion Labs)

Agency Response: This comment is outside the scope of 15-day change.

2. Comment: CARB is now requiring us to test a wide range of engines (engine families) for future certifications. (Carburetion Labs)

Agency Response: This regulatory action does not affect the number of engines or engine families that must be tested, and this comment is outside the scope of the 15-day change.

3. Comment: During the hearing, we testified to problems in purchasing a new alternative fueled vehicle and the need for a chassis/fueling system retrofit. It was determined by ARB staff that a new engine certified with alternative fuel would not fall into this category. With this in mind, CTA supports both the amendments to the certification procedures for all on-road heavy-duty vehicle retrofit and the optional standards. (CTA)

Agency Response: The ARB acknowledges CTA's support of this regulatory action. (See also Board Hearing Oral Testimony comment 2).

4. Comment: Staff's proposed amendments would allow retrofit kit manufacturers to certify kits and sell them prior to completing the required durability testing. By loosening the durability requirements, CARB is jeopardizing air quality. (Unocal)

Agency Response: Alternative fuel vehicle retrofits have the potential to reduce emissions, and the changes approved by the Board should encourage vehicle retrofits. There are a number of safeguards to protect retrofit kit durability under this regulatory action. Durability testing is still required, and it must be completed within two years of kit certification. The kit manufacturer must submit a significant amount of information before certification to demonstrate kit performance and component durability. The recall provisions and potential decertification of the retrofit kit (which would stop sales) should deter kit manufacturers from providing faulty kits. Overall, given the safeguards, the potential air quality benefits from increased numbers of vehicle retrofits outweigh the potential risk.

5. Comment: The 1994+ retrofit certification procedures were adopted because the previous lack of durability testing resulted in excess emissions over the useful life of the retrofitted vehicle. The 1994+ retrofit certification procedures were intended to ensure that all retrofit systems sold in California are durable and maintain compliance with the applicable emissions standards. In addition, retrofit kits have changed considerably since the models which were tested in 1989. The adopted amendments reverse the benefits made by the original 1994+ retrofit certification procedures by again allowing vehicles with un-demonstrated durability to be operated and used to generate emission reduction credits. (Unocal)

Agency Response: The 1994+ retrofit certification procedures with the approved amendments are much more stringent than the 1993 and earlier requirements. The amended 1994+ retrofit certification procedures require durability testing, parts and installation warranties, and installation inspection to ensure the protection of air quality. The air quality benefits of the approved amendments outweigh the potential risk (see also response to comment 4).

6. Comment: Expanding the alternate test plan to Category I (light duty) vehicles will allow light duty retrofitted vehicles to operate and generate emission reduction credits, without demonstrating lifetime durability, even though this class of vehicle has been shown to be less durable than the larger size classes. By adopting this modification, CARB is increasing the likelihood that vehicles will be operated within California that exceed the applicable standards. (Unocal)

Agency Response: Chassis dynamometer certified light- and medium-duty vehicles will be allowed to use the alternate durability test plan under the amended certification procedures. It is true that these vehicles are typically less durable than heavier vehicles, primarily due to catalyst degradation. However, emissions from these light and medium-duty vehicles are generally better controlled than heavy-duty vehicle emissions. Both conventional and alternative fuel light- and medium-duty vehicles (except diesels), are subject to smog check requirements to ensure that their hydrocarbon and carbon monoxide emissions are maintained within acceptable limits. Overall, the potential emission reduction benefits from light- and

medium-duty vehicle retrofits certified under the alternate durability test plan are expected to outweigh any potential increase in emissions (see also the response to comment 4).

7. Comment: In response to concerns about the potential negative air quality impact potential of retrofit kits with unproven durability, staff has explained that recall and stop-sale enforcement actions will be taken for problem kits. This response will not mitigate the excess emissions generated between the onset (operation of retrofitted vehicle with a kit which fails its durability demonstration) and correction (recall of the kit) of the emissions problem. During this period, the vehicle will likely exceed applicable standards, and thereby degrade air quality. (Unocal)

Agency Response: The recall provisions and potential decertification of the retrofit kit (which would stop sales) should deter kit manufacturers from providing faulty kits (see also the response to comment 4). In addition, the light- and medium-duty vehicles affected by this 15-day change, with the exception of diesels, will be subject to a smog check during the installation inspection. It is unlikely that the amendments approved by the Board will noticeably increase the number of vehicle retrofits that exceed applicable standards.

8. Comment: Worse yet, a stationary source that uses the unproven kits to earn emission reduction credits will likely increase emissions from both the retrofitted vehicles (compared to the applicable standards) and the source in which the credits are applied. (Unocal)

Agency Response: See the response to comments 4 and 7 regarding the low probability that these amendments will increase emissions. See response to the Board Hearing Oral Testimony comment 5 regarding mobile source emission trading contracts.